

AN INVESTIGATION OF READING READINESS TESTS,
AND OF SELECTED AUDITORY PERCEPTION, VISUAL
PERCEPTION, AND LANGUAGE SKILLS INVOLVED
IN READING READINESS

by

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ABSTRACT

The major purpose of this study was to develop indices to measure some aspects of visual and auditory perception and basic language concepts at the reading readiness level not found in the more commonly used readiness tests, in order that some new knowledge might be added to help construct tests which are more accurate predictors of reading readiness. The investigator's Experimental Reading Readiness Test and the Canadian Readiness Test by Evanechko, Ollila, Downing and Braun, were administered in September to 115 first grade children, 62 boys and 53 girls in the Sooke School District. The Bond-Balow-Hoyt: The New Developmental Reading Tests were administered in February. Scores from the three tests were correlated to determine the correlations between subtests. Correlations were significant for all subtests, however, in degree of significance, the Experimental Reading Readiness subtests did not correlate as highly assuming, they are to a large degree measuring different facets of reading readiness.

Results from the Experimental Reading Readiness Test were included in multiple regression equations designed to

answer the question as to which of the reading readiness subtests are the best predictors of reading achievement on the Bond-Balow-Hoyt: The New Developmental Reading Tests. Results show that Learning Rate on the Canadian Readiness Test and Spatial Relations Concepts on the Experimental Reading Readiness Test were highly significant predictors of reading achievement.

The factor of sex in reading readiness and reading achievement was also investigated. The Experimental Reading Readiness Test indicated no significant difference between boys and girls. On the Canadian Readiness Test, however, girls were significantly superior on two subtests, Word Matching and Semantics. In reading achievement on the Bond-Balow-Hoyt: The New Developmental Reading Test, there was no significant difference between boys and girls.

The Kuder-Richardson reliability coefficient to determine the internal consistency of the investigator's Experimental Reading Readiness Test was computed to provide an index of reliability. Auditory Reception ($r = .814$) and Spatial Relations Concepts ($r = .706$) appeared to have sufficiently high reliability. According to Bruning and Kintz (1968) a coefficient of .70 or higher is a sufficient reliability.

The total test reliability coefficient ($r = .876$) shows a sufficient reliability when the test is used as a whole battery.

Results of this study do not agree with that of Evanechko, Ollila, Downing and Braun (1973). Results of that study showed letter recognition to be the best predictor of reading achievement on all three subtests of the Bond-Balow-Hoyt: The New Developmental Reading Test, whereas in this study, Learning Rate was the best predictor in all three reading subtests. The reasons for the differences in results could be as follows: (1) the Evanechko *et al.* study used a smaller sample of 97 compared to 115, (2) reading instruction in the classrooms of the two studies varied slightly, (3) in the Evanechko *et al.* study the Bond-Balow-Hoyt: The New Developmental Reading Test was administered in May, whereas in this study the reading achievement test was administered in February. Researchers generally agree that commercial reading readiness tests are poor predictors of reading achievement. Further investigation into more reading readiness predictors appears warranted.

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TABLE OF CONTENTS

CHAPTER		Page
1	INTRODUCTION TO THE PROBLEM.	1
	I. The Problem	1
	II. The Purpose of the Study.	1
	III. Definition of Terms	2
	IV. Significance of the Study	6
	V. Scope of the Study.	11
	VI. Null Hypotheses	12
	VII. Limitations of the Study.	19
	VIII. Plan of the Investigation	21
2	REVIEW OF THE LITERATURE	22
	I. Reading Readiness: A Historical Review	23
	Summary.	33
	II. Research on Visual Perception of Kindergarten and First Grade Children.	34
	Visual Discrimination of Letters and Words: Cues to Word Recognition.	34
	Summary.	40
	Spatial Relations.	40
	Summary.	44

CHAPTER	Page
III. Research on Auditory Perception of Kindergarten and First Grade Children.	45
Auditory Perception and Reading.	45
Auditory Sensitivity Impairment	49
Summary.	51
Auditory Comprehension	52
Summary.	54
Auditory-Visual Integration.	55
Summary.	60
Illinois Test of Psycholinguistic Abilities	61
Summary.	68
IV. Language Related to Reading: Research on Kindergarten and First Grade	68
Language and Reading	72
Language as Related to Reading.	74
Summary.	84
V. Sex and Culture and Its Relation to Reading Achievement.	85
Summary.	100
3 THE EXPERIMENTAL DESIGN AND PROCEDURE.	101
I. Overview of the Procedure	101
II. Organization of the Chapter	102
III. Measuring Instruments Used.	103

CHAPTER	Page
	The Measuring Instruments. 103
	The Investigator's Experimental Reading Readiness Test 103
	Canadian Readiness Test. 114
	Bond-Balow-Hoyt: The New Developmental Reading Tests. 115
IV.	The Population and Sample 117
V.	Administration of the Tests 119
VI.	Statistical Treatment 119
VII.	Null Hypotheses 120
	Summary. 120
4	THE ANALYSES AND RESULTS 122
	Questions to be Answered by the Analyses. 123
	Null Hypotheses to be Answered by the Analyses 124
I.	Overview of the Analyses. 130
II.	Results of the Descriptive Analysis. 131
III.	Results Related to the Analysis of Each of the Hypotheses Using the Analysis of Variance. 133
	General Procedure. 134
	Findings of the Analysis of Variance. 134
	Further Analysis of Significant Differences in the Hypotheses Related to Sex. . . . 136
	Summary. 138

CHAPTER

Page

IV.	Analysis of the Experimental Test Reliability.	139
	General Procedure.	139
	Further Analysis of the Experimental Test Reliability.	140
	Summary.	140
V.	Results Related to the Correlation Analysis.	142
	General Procedure.	142
	Findings of the Correlation Analysis	143
	Further Analysis of Significant Correlations Between Subtests.	148
	Summary.	151
VI.	Results Related to the Analysis of Each of the Hypotheses Using the Multiple Regression Analysis.	153
	General Procedure.	153
	Findings of the Multiple Regression Analysis.	154
	Further Analysis of the Multiple Regression Analysis: Predictors of Reading Achievement.	159
	Summary.	169
	Summary of Questions to be Answered by the Analysis	170
5	SUMMARY AND CONCLUSIONS.	172
	I. Purpose of the Investigation.	172
	II. Summary of the Procedure.	173

CHAPTER	Page
Sample	173
Measuring Instruments.	173
III. Summary of the Design of the Investigation	173
IV. Summary of the Limitations.	174
V. Summary of the Findings	174
The Experimental Reading Readiness Test and Sex, The Canadian Readiness Test and Sex, and the Bond-Balow-Hoyt: The New Developmental Reading Test and Sex	174
Analysis of the Experimental Test Reliability	175
Correlation Analysis of All Subtests	175
Multiple Regression Analysis	176
VI. Conclusions	176
VII. Suggestions for Further Research.	178
VIII. Educational Implications.	179
BIBLIOGRAPHY	182
APPENDIX A. TABLES REVIEWING READING READINESS TESTS	204
APPENDIX B. EXPERIMENTAL READING READINESS:	208
(a) Teacher's Directions	209
(b) Pupil's Response Booklet	270
APPENDIX C. CANADIAN READINESS TEST:	287
(a) Validity and Reliability	288
(b) Sample Test Items.	291

	Page
(c) Pupil's Response Booklet	297
APPENDIX D. BOND-BALOW-HOYT: THE NEW DEVELOPMENTAL READING TESTS:	319
(a) Validity and Reliability	320
(b) Sample Test Items.	323
(c) Pupil's Response Booklet	326
APPENDIX E. CLYMER-BARRETT PREREADING BATTERY - FORM A:	342
(a) Test Content	343
(b) Validity and Reliability	347
APPENDIX F. GATES-MacGINITIE READING TESTS - READING SKILLS.	349
(a) Test Content	350
(b) Validity and Reliability	354
APPENDIX G. HARRISON STROUD READING READINESS PROFILES.	357
(a) Test Content	358
(b) Validity and Reliability	361
APPENDIX H. METROPOLITAN READINESS TEST	363
(a) Test Content	365
(b) Validity and Reliability	369
APPENDIX I. SCOTT, FORESMAN INITIAL READING SURVEY TEST	372
(a) Test Content	373
(b) Validity and Reliability	376
APPENDIX J. FIRST LETTER TO TEACHERS.	378
APPENDIX K. SECOND LETTER TO TEACHERS	380

APPENDIX L. SIGNIFICANT HYPOTHESES. 382

APPENDIX M. NON-SIGNIFICANT HYPOTHESES. 391

APPENDIX N. FREQUENCY DISTRIBUTION CHARTS FOR
THE INVESTIGATOR'S EXPERIMENTAL
READING READINESS TEST -
HISTOGRAMS #1-4 398

LIST OF TABLES

TABLE	Page
3:01 A Summary of School Sample Given All Three Tests: Experimental Reading Readiness Test, Canadian Readiness Test, and Bond-Balow-Hoyt: The New Developmental Reading Tests	117
3:02 A Summary of Tests Administered and the Time of Administration	118
4:01 Means, Variances and Standard Deviations for the Experimental Reading Readiness Test, Canadian Readiness Test, and the Bond-Balow-Hoyt: The New Developmental Reading Tests.	132
4:02 Means, Standard Deviations and P Significance on the Experimental Reading Readiness Test, Canadian Readiness Test, and the Bond-Balow-Hoyt: The New Developmental Reading Tests of Boys and Girls in First Grade	137
4:03 Means, Standard Deviations, Ranges and Kuder-Richardson Reliability Coefficient for the Total Sample on the Experimental Reading Readiness Subtests.	141
4:04 Means, Standard Deviation, Range and Kuder-Richardson Reliability Coefficient on the Total Experimental Reading Readiness Test	142
4:05 Intercorrelations Between Subtests on the Experimental Reading Readiness Test	149
4:06 Intercorrelations Between Subtests on the Experimental Reading Readiness Test, Canadian Readiness Test and the Bond-Balow-Hoyt: The New Developmental Reading Tests.	150
4:07 Multiple Regression - Experimental Reading Readiness and Bond-Balow-Hoyt: The New Developmental Reading Tests, #1. Word Recognition	160

TABLE

Page

4:08	Multiple Regression - Experimental Reading Readiness and Bond-Balow-Hoyt: The New Developmental Reading Tests, #2. Comprehending Significant Ideas	161
4:09	Multiple Regression - Experimental Reading Readiness and Bond-Balow-Hoyt: The New Developmental Reading Tests, #3. Comprehending Specific Instructions	162
4:10	Multiple Regression - Canadian Readiness and Bond-Balow-Hoyt: The New Developmental Reading Tests, #1. Word Recognition.	163
4:11	Multiple Regression - Canadian Readiness and Bond-Balow-Hoyt: The New Developmental Reading Tests, #2. Comprehending Significant Ideas	164
4:12	Multiple Regression - Canadian Readiness and Bond-Balow-Hoyt: The New Developmental Reading Tests, #3. Comprehending Specific Instructions.	165
4:13	Multiple Regression - Experimental Reading Readiness, Canadian Readiness, and Bond-Balow-Hoyt: The New Developmental Reading Tests, #1. Word Recognition.	166
4:14	Multiple Regression - Experimental Reading Readiness, Canadian Readiness, and Bond-Balow-Hoyt: The New Developmental Reading Tests, #2. Comprehending Significant Ideas	167
4:15	Multiple Regression - Experimental Reading Readiness, Canadian Readiness, and Bond-Balow-Hoyt: The New Developmental Reading Tests, #3. Comprehending Specific Instructions.	168

LIST OF SAMPLE TEST ITEMS

SAMPLE ITEM	Page
14 Experimental Reading Readiness Test - Basic Language Concepts.	110
26 Experimental Reading Readiness Test - Predicting Outcomes.	111
6 Experimental Reading Readiness Test - Spatial Relations.	112
26 Experimental Reading Readiness Test - Auditory Reception	113
2 Canadian Readiness Test - Technical Language of Literacy, Appendix C	292
3 Canadian Readiness Test - Letter Recognition, Appendix C.	292
4 Canadian Readiness Test - Word Matching, Appendix C	293
6 Canadian Readiness Test - Beginning Sounds, Appendix C	294
1 Canadian Readiness Test - Semantics, Appendix C	295
7 Canadian Readiness Test - Learning Rate, Appendix C	296
1 Bond-Balow-Hoyt: The New Developmental Reading Tests - Word Recognition, Appendix D	323
3 Bond-Balow-Hoyt: The New Developmental Reading Tests - Comprehending Significant Ideas, Appendix D.	324
2 Bond-Balow-Hoyt: The New Developmental Reading Tests - Comprehending Specific Instructions, Appendix D	325

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CHAPTER 1

INTRODUCTION TO THE PROBLEM

I. The Problem

Reading is a complex skill, and a child's reading readiness depends on a large number of factors. The classroom teacher needs to be able to predict the child's reading readiness as accurately as possible. It would be helpful if we could improve the reading readiness tests so that a more accurate prediction could be made of each child's readiness for reading.

II. The Purpose of the Study

The primary purpose of this study was to review the literature on reading readiness and its evaluation, and to develop a battery of indices in the auditory, visual, and language areas to measure the level of reading readiness of beginning first graders.

The purpose of the author's test was to investigate reading readiness predictors that are not found extensively in the more commonly used reading readiness tests. It was not the author's purpose to duplicate the reading readiness subtests already found to be good predictors and commonly used in the commercial tests. The purpose instead was to

develop tests in other areas of reading readiness.

The specific aims were:

- 1) to provide knowledge of reading readiness factors in areas of visual perception, auditory perception, and language as it is related to reading;
- 2) to review commercial reading readiness tests; and
- 3) to identify and develop indices of reading readiness in the following areas:
 - (a) Predicting Outcomes
 - (b) Basic Language Concepts
 - (c) Spatial Relations Concepts
 - (d) Auditory Reception

III. Definition of Terms

The following terms and their respective definitions are used throughout the study:

Auditory Discrimination: the ability to discern likenesses and differences between phonemes of the English language.

Auditory Perception: the ability to receive and understand sounds and their meaning.

Auditory Reception: the ability to derive meaning from verbally presented statements (Illinois Test of Psycholinguistic Abilities).

Basic Sight Words: the child's stock of sight words which he recognizes without having to analyse them.

Blend: the combining of two letters into a sound in which each retains its distinctive sound.

Chronological Age: the number of years a person has lived.

Conceptual Background: the generalizations the pupil has before he begins a particular level of reading.

Configuration: the general shape of the word.

Control Group: the group in an experiment to which the variable is not applied.

Diagnostic Test: a test designed to identify strengths and weaknesses.

Dyslexia: partial disability to read (not always associated with brain damage).

Face Validity: a thing appears to do what it is supposed to do.

Factor Analysis: a statistical method for interpreting scores and correlations of scores from a number of tests. It consists of a search for factors which describe areas within which consistency of response can be found.

Gestalt: a term used to express any unified whole whose properties cannot be derived by adding the parts.

Hand-Eye Coordination: the ability of the hand and eye to perform together.

Language Competence: an unconscious knowledge of language which is related to deep structure and is dependent on restrictions of memory, attention or situational factors (Chomsky and Halle, 1968).

Linguistics: the scientific study of languages.

Memory Span: the number of related or unrelated items that can be recalled immediately after presentation.

Mental Age: the level of mental ability development.

Morphology: the child's ability to understand morphological changes in verb tense (Canadian Readiness Test).

Perception: the interpretation of sensory information - the mechanism by which the child recognizes and makes sense of sensory stimulation, the accurate mental association of present stimuli with memories of past experiences.

Phonemes: speech sounds.

Phonetics: the science of sounds of language.

Phonics: the application of phonetics to reading.

Phonological Unit: an utterance occurring between silence pauses.

Psycholinguistics: the study of the relationship between the language and the child.

Reading Acquisition: the process of acquiring the ability to derive meaning from printed texts.

Reading Readiness: the developmental readiness or level needed for reading.

Semantics: the science of meaning of words.

Sound-Symbol Relationship: the child's understanding that a given phoneme has a graphemic counterpart.

Standardized Test: a test which has been given to a large representative sampling of a population to which the test is applied; it is characterized by the norms which enable comparisons.

Survey Test: a test designed to give comprehensive coverage of an area.

Visual Discrimination: the ability to visually discern similarities and differences.

Visual Memory: the ability to remember visual stimuli presented.

Visual Perception: the ability to receive and understand visual stimuli.

IV. Significance of the Study

Authorities do not agree as to which factors constitute reading readiness. Those that influence reading are often so involved and interwoven that it is very difficult to determine which single factor or group of factors are the most significant to the readiness for reading. The author is of the opinion that considerable research is required into what constitutes reading readiness, and is in agreement with MacGinitie (1960) who stated that the concept of reading readiness is not clearly understood. Durkin (1970) concluded that the variety of abilities in both kind and amount, which add up to readiness, suggest that a more accurately descriptive term would be 'readinesses'.

With the growing concern for the success of the beginning reader, a variety of instructional materials are appearing on the market, many which purport to provide perceptual training, to improve visual and auditory skills or to promote eye-hand coordination and body coordination. School systems are beginning to include pre-school groups and transitional kindergarten and first grade classes. As this trend progresses, the need for a careful evaluation of the child's abilities becomes more and more important, so that training will be keyed to the child's needs to better prepare him for beginning reading.

Some factors which educators feel contribute to

reading readiness are auditory comprehension, auditory discrimination, richness of verbal concepts, general mental ability, knowledge of numerical and qualitative relationships, the sensory-motor abilities required in handwriting, the ability to attend, and the ability to follow directions (Johnson, 1969).

Dykstra (1966), Gates (1939) and Nicholson (1958), found that auditory discrimination was an important predictor of reading readiness. Dykstra (1966) also analyzed and compared seven auditory discrimination tests. He concluded that different measures of auditory discrimination did not appear to measure the same skill. Dykstra reported intercorrelations of less than 0.35 between different measures of auditory discrimination.

Standish (1959) concluded from his review of literature on the use of reading readiness tests that the most effective type of reading readiness test is, in fact a test of reading achievement (p. 29). He stated that neither mental age nor reading readiness test scores was a reliable guide to identifying reading.

MacGinitie in his summary of past research stated:

. . . the best predictors tend to be those tasks that are the most similar to the criterion, in this case tasks that are similar to reading itself. For example, later reading comprehension seems to be predicted better by visual discrimination of letters and words than by visual discrimina-

tion of geometric forms. (Barrett, 1965, p. 401).

MacGinitie (1969) gave the following reasons for the predictive validity of tasks that closely resemble reading. Firstly, if the predictor task is similar to reading, abilities required for success in reading are measured by the predictor, even if it is not clear just what those abilities are (p. 401). Secondly, they measure both environmental and motivational factors which are likely to encourage the child to become a better reader. Parental interest and encouragement will foster continued progress in the development of reading skills. The young child who is curious enough to inquire about printed words will most likely continue to do so. There is much controversy; there needs to be considerable re-examination of measures of reading readiness as predictors of reading achievement. Attempts should be made to define and measure the child's developmental factors and to isolate and describe the functions in the reading process.

This investigator is of the same opinion as Barrett (1965), Spache (1965) and Weintraub (1967) who concluded that test instruments must be found that are better predictors of reading achievement than those now in existence. The first-grade teacher must know which children are ready for the instructional methods and materials which she will be using in her classroom. For the

children who are not ready, she must know their individual needs so that special readiness programs and materials can be prepared. Since it is not economically feasible to test all first-graders individually, we must find group tests that are better predictors of reading readiness and useful as diagnostic tools for instruction. Hillerich (1966) and Dykstra (1967) state that success at prediction has not been particularly good. Research on reading readiness frequently fails to deal adequately with methods and materials that the children were required to be ready for (MacGinitie, 1969). Goodacre (1970) stated that in the past readiness tests have been crude measures only, and therefore identify only the extremes, in other words, those reading and those not reading (p. 10). She also said that what happens to those children who have not started to read will depend on the instruction they receive from their teacher and her ability to diagnose the children's instructional needs.

Adelman and Feshback (1971) suggested that success in the first grade depends not only on the youngsters having the necessary skills and behavior for what is being taught but also on the characteristics of the classroom situation to which the child is assigned. The greater the discrepancy between the child's skills and behaviors and those required in the classroom, the greater the likelihood of failure.

Many studies have shown that letter names and letter

sounds are the best predictors of reading achievement. In order to name a letter correctly, a child must be able to discriminate visually one letter shape from another. Gates, Bond and Barrett (1965) and de Hirsch and Jansky (1965) found that visual discrimination of words and letters were one of the best predictors of reading success.

There has also been controversy. Samuels (1969) argued against the importance of letter naming and claimed that letter sound was the more relevant variable. Ohnmacht (1969) demonstrated that children trained in letter sound performed significantly better than those trained in letter name. Results from Ohnmacht and Samuels' studies suggest that letter name knowledge training has no positive effect on learning to read. Many educators have jumped to the conclusion that because letter name knowledge is one of the best predictors of reading success that this should be taught before teaching the child to read. Barrett (1965) suggested that the ability to recognize the letters of the alphabet may be a reflection of past experiences with a variety of written materials which enable children to recognize letters but may also help these children become better readers later. Barrett warned that one should not infer from his study that teaching children to recognize letters by name will necessarily ensure success in beginning reading.

There needs to be considerable re-examination of

measures of reading readiness as predictors of reading achievement. Attempts need to be made to define and measure children's developmental factors and to isolate and describe the functions in the reading process. Reading is a process in which the child's developmental characteristics assume importance at different stages.

V. Scope of the Study

This study was designed to explore new reading readiness predictors that are not used extensively in the more commonly used commercial group tests and to compare them to the Canadian Reading Readiness Test. It was also designed to review the research done in the areas of visual perception, auditory perception, and basic language concepts.

In view of the primary purpose of this research study, the following general questions were explored:

1. Will there be any significant differences in reading readiness skills on the Experimental Reading Readiness Test between boys and girls?
2. Will there be any significant differences in reading readiness skills on the Canadian Reading Readiness Test between boys and girls?
3. Will there be any significant differences in reading scores on the Bond-Balow-Hoyt: The New Developmental Reading Tests administered in February between boys and girls?

4. Will there be any significant relationship between the Canadian Reading Readiness subtests and the Experimental Reading Readiness subtests?
5. Will there be any significant relationship between the Experimental Reading Readiness subtest-Basic Language Concepts and reading achievement?
6. Will there be any significant relationship between the Experimental Reading Readiness subtest-Predicting Outcomes and reading achievement?
7. Will there be any significant relationship between the Experimental Reading Readiness subtest-Spatial Relations Concepts and reading achievement?
8. Will there be any significant relationship between the author's subtest-Auditory Reception and reading?
9. Which of the readiness subtests developed will be predictors of reading?

VI. Null Hypotheses

To investigate the remaining purposes of this study, the following null hypotheses were formulated:

- 1.0 On the investigator's Experimental Reading Readiness subtests, there will be no significant difference between reading readiness performance and sex:
 - 1.1 Basic Language Concepts
 - 1.2 Predicting Outcomes
 - 1.3 Spatial Relations Concepts

- 1.4 Auditory Reception
- 2.0 On the Canadian Readiness Test, there will be no significant difference between reading readiness performance and sex:
 - 2.1 Technical Language of Literacy
 - 2.2 Letter Recognition
 - 2.3 Word Matching
 - 2.4 Beginning Sounds
 - 2.5 Semantics
 - 2.6 Learning Rate
- 3.0 On the Bond-Balow-Hoyt: The New Developmental Reading Tests, there will be no significant difference between the following reading abilities and sex:
 - 3.1 Word Recognition
 - 3.2 Comprehension of Significant Ideas
 - 3.3 Comprehension of Specific Instruction
- 4.0 On the investigator's Experimental Reading Readiness subtest-Basic Language Concepts, there will be no significant correlation between it and the following subtests on the Canadian Readiness Test:
 - 4.1 Technical Language of Literacy
 - 4.2 Letter Recognition
 - 4.3 Word Matching
 - 4.4 Beginning Sounds

- 4.5 Semantics
 - 4.6 Learning Rate
- 5.0 On the investigator's Experimental Reading Readiness subtest-Predicting Outcomes, there will be no significant correlation between it and the following subtests on the Canadian Readiness Test:
- 5.1 Technical Language of Literacy
 - 5.2 Letter Recognition
 - 5.3 Word Matching
 - 5.4 Beginning Sounds
 - 5.5 Semantics
 - 5.6 Learning Rate
- 6.0 On the investigator's Experimental Reading Readiness subtest-Spatial Relations Concepts, there will be no significant correlation between it and the following subtests on the Canadian Readiness Test:
- 6.1 Technical Language of Literacy
 - 6.2 Letter Recognition
 - 6.3 Word Matching
 - 6.4 Beginning Sounds
 - 6.5 Semantics
 - 6.6 Learning Rate
- 7.0 On the investigator's Experimental Reading Readiness subtest-Auditory Reception, there will be no significant correlation between it and the following

subtests on the Canadian Readiness Test:

7.1 Technical Language of Literacy

7.2 Letter Recognition

7.3 Word Matching

7.4 Beginning Sounds

7.5 Semantics

7.6 Learning Rate

8.0 On the investigator's Experimental Reading Readiness subtest-Basic Language Concepts, there will be no significant correlation between it and the following subtests on the Bond-Balow-Hoyt: The New Developmental Reading Tests:

8.1 Word Recognition

8.2 Comprehension of Significant Ideas

8.3 Comprehension of Specific Instructions

9.0 On the investigator's Experimental Reading Readiness subtest-Predicting Outcomes, there will be no significant correlation between it and the following subtests on the Bond-Balow-Hoyt: The New Developmental Reading Tests:

9.1 Word Recognition

9.2 Comprehension of Significant Ideas

9.3 Comprehension of Specific Instructions

10.0 On the investigator's Experimental Reading Readiness subtest-Spatial Relations Concepts, there will be no significant correlation between it and the following subtests on the Bond-Balow-Hoyt: The New Developmental Reading Tests:

10.1 Word Recognition

10.2 Comprehension of Significant Ideas

10.3 Comprehension of Specific Instructions

11.0 On the investigator's Experimental Reading Readiness subtest-Auditory Reception, there will be no significant correlation between it and the following subtests on the Bond-Balow-Hoyt: The New Developmental Reading Tests:

11.1 Word Recognition

11.2 Comprehension of Significant Ideas

11.3 Comprehension of Specific Instructions

12.0 On the Bond-Balow-Hoyt: The New Developmental Reading subtest-Word Recognition, there will be no significant predictors of word recognition on the following Experimental Reading Readiness subtests:

12.1 Basic Language Concepts

12.2 Predicting Outcomes

12.3 Spatial Relations Concepts

12.4 Auditory Reception

- 13.0 On the Bond-Balow-Hoyt: The New Developmental Reading subtest-Word Recognition, there will be no significant predictors of word recognition on the following Canadian Readiness subtests:
- 13.1 Technical Language of Literacy
 - 13.2 Letter Recognition
 - 13.3 Word Matching
 - 13.4 Beginning Sounds
 - 13.5 Semantics
 - 13.6 Learning Rate
- 14.0 On the Bond-Balow-Hoyt: The New Developmental Reading subtest-Comprehension of Significant Ideas, there will be no significant predictors of reading on the following Experimental Reading Readiness subtests:
- 14.1 Basic Language Concepts
 - 14.2 Predicting Outcomes
 - 14.3 Spatial Relations Concepts
 - 14.4 Auditory Reception
- 15.0 On the Bond-Balow-Hoyt: The New Developmental Reading subtest-Comprehension of Significant Ideas, there will be no significant predictors of reading on the following subtests on the Canadian Readiness Test:
- 15.1 Technical Language of Literacy
 - 15.2 Letter Recognition
 - 15.3 Word Matching

- 15.4 Beginning Sounds
 - 15.5 Semantics
 - 15.6 Learning Rate
- 16.0 On the Bond-Balow-Hoyt: The New Developmental Reading subtest-Comprehension of Specific Instructions, there will be no significant predictors of reading on the following Canadian Readiness subtests:
- 16.1 Technical Language of Literacy
 - 16.2 Letter Recognition
 - 16.3 Word Matching
 - 16.4 Beginning Sounds
 - 16.5 Semantics
 - 16.6 Learning Rate
- 17.0 On the Bond-Balow-Hoyt: The New Developmental Reading subtest-Comprehension of Specific Instructions there will be no significant predictors of reading on the following Experimental Reading Readiness subtests:
- 17.1 Basic Language Concepts
 - 17.2 Predicting Outcomes
 - 17.3 Spatial Relations Concepts
 - 17.4 Auditory Reception

VII. Limitations of the Study

Certain limitations are inherent in most investigations. The most important limitations that must be considered when making generalizations to this study are listed below:

1. The population consisted of first graders from lower and middle class urban and rural areas of the Sooke School District located west of Victoria, B.C. on the lower end of Vancouver Island. Generalizations to other populations cannot be made.
2. The Bond-Balow-Hoyt: The New Developmental Reading Tests were administered in February rather than waiting until June.
3. The study is limited to the extent that the instruments administered measure what they purport to measure.
4. The validity of the study rests upon the reliability and validity of the measuring instruments used. The instruments may not be adequate.
5. The developed subtests could not be administered on a trial basis first and therefore any errors found could not be eliminated at this time.
6. For some children, test fatigue may have affected their performance.
7. Socio-economic status was not controlled.
3. Intelligence has not been considered.

9. Prior experiences of the children with letters, words and reading were beyond the control of this study.
10. The investigator recognizes the difficulty in constructing a paper and pencil group test instrument to assess a specified ability without contaminating the test by making demands on other processes, for example, auditory reception, where the child must also make a visual-motor response.
11. Of the original sample of 150 subjects, nineteen children were lost in administering the two readiness tests. Some who had completed the Canadian Readiness were absent and did not complete the Experimental Reading Readiness Test and vice versa.
12. Sixteen children in the sample who had completed both readiness tests were absent when the Bond-Balow-Hoyt: The New Developmental Reading Test was administered in February. Illnesses and transfers to other schools accounted for the attrition.
13. Two items on the Experimental Reading Readiness Test were eliminated from the computer statistical analysis:
 - 1) Basic Concepts: #18 because there were two possible answers,
 - 2) Spatial Relations Concepts: #20 because of a typing error leaving out the word "largest" in the teachers' instructions making all items a possible choice for a correct answer.

VIII. Plan of the Investigation

The following format was used in reporting the investigation:

Chapter 2 contains a review of the related literature that provided the background for the present study and the basis for the author's reading readiness test.

Chapter 3 reports the construction and administration of the author's reading readiness test and describes the design of the study, the nature of the tests administered, the statistical procedures, and the characteristics of the sample.

Chapter 4 reports the performance of the test samples on the author's reading readiness test and presents the findings. It also examines the statistical analysis of the data and presents the findings of the study concerning the relationship between predicting outcomes, basic language concepts, spatial relations concepts and auditory reception with the Canadian Readiness Test and with reading achievement on the Bond-Balow-Hoyt: The New Developmental Reading Test.

Chapter 5 summarizes the study and presents the conclusions, implications, and suggestions for further research.

CHAPTER 2

REVIEW OF THE LITERATURE

The purpose of this chapter is to examine the literature in order to identify the nature and measurements of reading readiness skills. The review is limited to studies conducted at the kindergarten and first grade level, and is divided into several sections within this chapter listed as follows:

- I. Reading Readiness: A Historical Review,
- II. Research on Visual Perception Studies of Kindergarten and First Grade Children,
 - Visual Discrimination of Letters and Words: Cues to Word Recognition,
Summary,
 - Spatial Relations,
Summary,
- III. Research on Auditory Perception of Kindergarten and First Grade Children,
 - Auditory Perception and Reading,
Summary,
 - Auditory Comprehension,
Summary,

- Auditory-Visual Integration,
Summary,
 - Illinois Test of Psycholinguistic Abilities,
Summary,
- IV. Language Related to Reading: Research on Kindergarten
and First Grade Children,
Summary,
- V. Sex and Culture and Its Relation to Reading
Achievement,
Summary.

I. Reading Readiness: A Historical Review

Reading readiness is a state of being which enables a child to learn to read without needless frustration or anxiety.
(Clymer-Barrett, 1967, p. 5)

For the past two centuries, the concept of reading readiness has been a controversial issue. In the past, teachers were led to believe that readiness for reading was solely related to the process of maturation. There was little that the teacher could do but wait. This belief was based on psychological theories which assumed that intelligence is largely inherited and therefore not easily influenced by environmental conditions. Rousseau's (1774) viewpoint as to when a child is ready to read was reflected in his statement:

Regard all delays in teaching
reading as so much time gained;

it is a great gain to have reached this stage without loss: let children ripen as children. On the other hand, are certain lessons unavoidable? If so, be careful not to administer them today if they can safely be put off until tomorrow. (Emile, 1774, p. 355)

Underlying Rousseau's statement was the concept of maturation in readiness for reading. He criticized educators of his time for not waiting for the necessary modalities to mature and develop before trying to teach the child to read (Beller, 1970). In his book, *Emile*, Rousseau even went so far as to say that a child should not begin reading until the age of twelve. His greatest contribution to reading readiness was to advise educators to make the maximum use of the sensory-motor functions developing in the child. He recommended a series of activities to help prepare the child for more complex intellectual activities needed in reading. 'Develop the body and keep the mind fallow', is a recurring phrase in Rousseau's writings.

In the early 1920's, Watson was of the opinion that he could teach any healthy child to become any type of specialist that Watson chose for him. He made the following statement:

Give me one dozen healthy infants, well-formed, and my own specified world to bring them up in and I'll guarantee to take any one of them at random and train him to become any type of specialist I might select - doctor, lawyer, artist, merchant-chief and yes, even

beggar-man thief, regardless of his talents, penchants, tendencies, abilities, vocations, and race of his ancestors. (Behaviorism, 1924, p. 82)

During the 1920's, 30's and 40's, Gesell's theories dominated the educational field (Durkin, 1970). Gesell, a physician, was more interested in the biological development of the child rather than how the environment and stimulation might influence him. His theory was that the young child grows and develops as a result of maturation and not through learning. If a child has not yet reached a stage of development that allows him to do the task, he is not ready and therefore, the solution is to let time pass until he is ready. Ilg and Ames (1964) of the Gesell Institute write:

. . . the greatest single contribution which can be made towards guaranteeing that each individual child will get the most possible out of his school experience is to make certain that he starts school experience at what is for him the "right time". This should be the time when he is truly ready. . . (1964, p. 14).

Morphett and Washburne (1931) came up with an alternative criterion to chronological age which was a mental age of six and one-half years. The authors conducted two studies. In the first study (1928-29), the sample consisted of one hundred and forty first-graders. In the second study, one hundred first-graders were used. The samples were small and only eight teachers were involved.

The populations were chosen from a high socio-economic area and the children were above average in intelligence. The authors concluded that the chances of failure were minimal if the teachers waited until the children reached the mental age of six and one-half years before beginning reading. The details of the study were soon forgotten and the authors' conclusions became popular among the professional educators teaching reading courses. The end result was that the mental age of six and one-half was the magic age when the child was ready to read. Before long this idea spread internationally. That such a poor study should become so influential that school systems throughout the world should adopt such a policy of making their children wait until they reached the mental age of six and one-half years before they were ready to read seems quite incomprehensible. If we look closely at the educators' theories of that time, such as, Watson and Gesell, who believed in maturation or the postponing and delaying of instruction until the child is ready, then we can understand how the Morphett and Washburne study could have had so much influence.

Gates (1937), however, concluded from his study that the beginning age for reading was not fixed by mental age but depended on the circumstances under which the child was learning. Gates used four groups of children, all working under different conditions. For group one where the program was adjusted to individual differences, he found that a

mental age of five years appeared to be sufficient for learning to read. Gates found that children with mental ages of six and a half in a large class with inferior reading instruction did poorly and some with a mental age of seven or above had difficulty. This study of Gates had very little impact on education. This was partly due to the fact that the theorists of the time felt that maturation alone accounted for the success in reading. Gates (1937) wrote:

. . . statements concerning the necessary mental age at which a pupil can be instructed to learn to read are essentially meaningless. The age for learning to read under one program or with different methods employed by one teacher may be entirely different from that required under other circumstances. (p. 506).

Betts (1946), Downing (1963), Durkin (1966), Gray (1956) and Thackeray (1964) agreed that the different methods and materials used in the teaching of reading and the differing skills of teachers made it impossible to state definitely that a certain minimum mental age was required for success in reading. Gates (1956) stated that a mental age of six and one-half years was accompanied by rapid progress in learning to read if pupils had developed normally in other readiness factors. Also many pupils who had not reached the mental age of six could learn to read provided that the reading materials were very simple and based on interesting familiar experiences and that methods

were adopted to the specific needs of the learner. Downing (1966) criticized the assumption that a particular stage of cognitive development was necessary before beginning reading and that instead the age of reading readiness depended on the learning conditions within the classroom. Children differed widely in the age at which they became ready to read.

Earlier educators advocated a delay of instruction until the child was ready and very little was done to look at the advantages of early stimulation (McKee, 1966). The educationists of the 1960's and 1970's began to emphasize that early stimulation was important to learning. The experts in the field of reading do not agree that mental age is an adequate criterion for assessing reading readiness. Experience and training are, however, important.

Bruner (1960) stated that one teaches readiness or provides opportunities for its nurture; one does not simply wait for it. He also mentions that readiness consists of many simple tasks that permit the child to reach higher levels of skills. The danger then appears to be in the waiting for maturation. Early deprivation of learning experiences may make learning more difficult at a later stage.

Brzeinski (1964) carried out a study of 4,000 Denver pre-school children. By the use of a book of pre-reading activities linked with sixteen televised programs, the

parents were able to help prepare their children to learn to read at an earlier age.

Durkin (1962, 1966) in studies of early and non-early readers, found significantly higher achievement among early readers. She found that even after six years of instruction in reading, the early readers as a group were better readers than their classmates with the same mental age who did not begin reading until first grade (Durkin 1966). These early readers were curious, conscientious, persistent, self-reliant and interested. Their concentration and attention span were good. They had parents or siblings who read to them and encouraged reading.

Following is a summary of Durkin's (1970) three important reminders to educators:

1. The variety of abilities both in kind and amount, which add up to readiness suggests that a more accurately descriptive term would be 'readinesses'.
2. What makes one child ready for reading might be different from what makes another ready; both are ready because of the interplay of nature and nurture. This is a recognition that children are ready not only because of heredity and motivational factors, but also because of the learning opportunities in their particular environment.
3. Because readiness depends not only upon the child's abilities but also upon the kind of learning

opportunities made available to him, it is possible for the child to be ready when one type of reading program is offered but unready when the other kinds are available. (Durkin, 1970, p. 531).

MacGinitie (1969) stated that the concept of reading readiness is not clearly understood. Instead of asking, 'Is the child ready? we need to ask, 'Ready for what?' Reading is not something that can be learned instantaneously. Reading is a process that not only takes time but also takes many skills to learn. Asking if the child is ready to learn only makes sense if we have specified exactly how reading will be taught. We need to know what method and materials will be used, and whether individual differences will be considered. A child, for example, may find it difficult to learn to read by a phonetic approach if he has not developed the auditory modalities. He may, however, learn to read if the visual method is stressed and his weak modalities gradually built up. Another child may need a combined approach of visual, auditory, and kinesthetic method to begin reading. Perceptual abilities in children develop at different stages and different rates. Auditory discrimination, for example, is an important factor in reading readiness. When children enter school there will be some sounds which they have not mastered. Newbury (1964) stated that the ear is not equally sensitive to all frequencies and that sounds at the higher and lower end of

the frequencies are the voiceless consonants, p, t, k, s, f, and the blends sh, ch, and the voiceless th. Cole (1938) stated that the average six year old is unable to distinguish consistently between g and k, m and n, and p and b (p. 182). Teachers should be aware of this developmental characteristic so that they can provide proper training. Wepman (1960) was of the same opinion. Goodacre (1970) concluded that because of known sex differences in auditory development, this type of awareness and training would be of particular help to boys.

MacGinitie (1969) went on to say that maturational factors are important to reading readiness, but experiences are also important. The child's future will depend greatly on the teachers. We should be asking, what is the child ready to learn and how is the child ready to learn. MacGinitie (1969) predicts that we should eventually be able to describe the child's readiness in very specific terms and should also be able to make predictions about appropriateness of specific learning tasks.

It should eventually be possible to describe the child's readiness in very specific terms and make predictions about the appropriateness of specific learning tasks. It should be possible to say such things as: This particular six year old has an immediate memory span of at least five letters except b, d, p, and q: he can segment the sounds in words that are up to four phonemes long, so long as the words do not contain

a nasal or a semi-vowel; he can already read the common prepositions by sight; he has at least the following specific words in his speaking vocabulary. . . . Therefore, it can be predicted that he will make good progress in learning to discriminate visually between certain syllables, and that he will be able to read this particular easy story, and that he can learn task X easily if he first learns task Y. (MacGinitie (1969), p. 399-400).

If research on reading readiness, then, were based on what the child is ready to learn and how he best learns, then we could make assessments on those abilities directly relevant to the specific tasks of beginning reading instruction. More longitudinal research in reading readiness is needed to clarify the abilities necessary to begin reading in order to improve measuring instruments for these abilities and to experiment with the teaching methods and materials needed for children with specific abilities.

* There are other factors involved in reading readiness. Past environmental stimulation and motivational factors involved will likely continue to influence the child's reading process. * MacGinitie (1969) said that the kindergarten child who has the curiosity to inquire about the meaning of the printed words on the cereal boxes is the one most likely to be enthusiastic about reading throughout the primary grades. If the child has parents who have taught him letter names and letter sounds, when the child

enters grade one, these same parents will probably continue to encourage and help in reading skills from year to year.

Home environment has other implications. When a child enters first grade with some knowledge of the basic reading skills, he finds the early lessons in reading easy to master and both he and his teacher feel confident about his abilities to begin reading. The teacher will then reinforce confidence in his ability to do well in school and this in turn builds the child's self-confidence in his ability to master school activities.

What a child knows he cannot fail to learn. If he already knows his beginning reading skills, he won't fail to learn them because of poor teaching. Background experience and environment needs to be considered when making predictions (MacGinitie, 1969). Dr. Manning, in his speech at the 1973 Transmountain International Reading Conference in Victoria, stated that children should learn to read on their parents' knee before they enter school.

Summary

For the past two centuries the concept of reading readiness has been a controversial issue. In the twenties, Watson claimed that he could teach any child to become any specialist Watson chose. During the 1920's and through to the 40's, Gesell and his followers were of the opinion that reading readiness was solely a biological development and

suggested letting the child wait until he is ready to read. Morphett and Washburne (1931) stressed that a child needed a mental age of six and one-half before teaching him to read. This began an era of intelligence and reading readiness tests. Gates (1937) was of the opinion the beginning reading age depended upon the type of instruction that was offered in the classroom and its suitability for that particular child. It was not until the 1960's and 70's that Gates' ideas came into the forefront. MacGinitie (1969) and Downing (1966) suggested that methods and materials differ from classroom to classroom. We should be asking, 'What is the child ready to learn and how is the child ready to learn?' The child may be ready for one program but not for another. The educationists of today are emphasizing that early stimulation is important in learning to read. Durkin (1970) stresses the importance of nature and nurture or maturation and stimulation.

II. Research on Visual Perception on Kindergarten and First Grade Children

Visual Discrimination of Letters and Words: Cues to Word Recognition

Researchers have attempted to determine which visual clues children use to identify a word. Indications are that cues children use to identify words vary considerably. Paradigms have been used to isolate cues available to children in order to find which cue plays the most significant role

in assisting children to discriminate between words and word forms.

Muehl (1960) used three different types of visual discrimination pre-training techniques with 37 kindergarten children who were then asked to learn a list of four words. One group was given practice in matching the same words that appeared on a subsequent reading task. The second group was trained in matching words that did not appear in the vocabulary list. The third group used as a control were given training in discriminating geometric forms. Each child in the three groups was shown four words and then asked to say them. The group receiving the pre-training with the same words did significantly better than the group training with different words or the group trained with geometric forms. Muehl concluded that this specific learning transfers only when the words on the reading task and those on the discrimination training are highly similar. Muehl also suggests that the recognition of distinctive letters was responsible for the success of the same word group. The design of the study does not appear to support this.

In 1961, Muehl pursued his previous investigation of visual discrimination pre-training. This time nonsense syllables were also used to determine more specifically the stimuli relevant to visual discrimination among word forms. Sixty kindergarten children were divided into three groups and given varying types of pre-training exercises:

1) received visual discrimination training with nonsense words having the same shape and letters as the words on the criterion list, 2) received training with nonsense words of a different shape but with the same first letter as those on the criterion list, 3) received training with individual letters. Since Muehl found no significant difference between the two groups which received pretraining visual discrimination with words, he concluded that children discriminate among similar lengths of words of different shape on the basis of specific letters. Muehl found no difference between word and letter discrimination on the criterion task. He did, however, find some pretraining performance favouring the letter discrimination group. Muehl, therefore, suggested that letter discrimination training prior to using letters, as parts of words, would help word recognition.

This led to a third study by Muehl in 1962, to determine whether knowledge of letter names had any effect on learning a list of nonsense words with kindergarten children. The relevant group was taught the names of three letters which later appeared as a medial letter in one of the three nonsense words to be learned. These nonsense words were paired with a picture that was meaningful to the children. The irrelevant group was taught names for letters that did not appear in the nonsense words to be learned. Results show that knowledge of letter names interferes with

subsequent performance in learning to associate picture names with nonsense words containing these same letters as a critical stimuli. This difference between the two groups, however, was not significant. The implications made by this study are open to question. Firstly, it is a very unnatural process for a child to learn a nonsense word to replace a meaningful word that he has in his language to go with the picture. Secondly, the relevant letters were placed in the medial position. Thirdly, the relevant letter names had no relationship to sounds in the picture name words. The syllable 'yble', for example, showed no phonics or sound symbol relationship for the child to use in his pairing.

Marchbanks and Levin (1965) conducted a study to determine how children recognized words, if there were sex differences in choice of cues and if cues differed for long or short words. Subjects in the study consisted of fifty kindergarten children and fifty first-grade children. The subjects were presented with a task of delayed matching-to-sample nonsense words of three to five letters. In the trigram series, the cue to recognition varied—shape, initial letter, medial letter, or terminal letter. In the quingram series, the first letter was used significantly more often except for the kindergarten boys. Results showed that the first letter was used most often as the primary cue, with the last letter as the secondary cue. Configuration appeared to be the least used cue. Marchbank and Levin

suggested that the often recommended use of configuration cues may have little value for beginning reading.

A further study to determine whether shape (configuration) or individual letters was the cue young children used in word recognition and to determine if there might be interactional effects with letter cues and shape combined was conducted by Timko (1970). Forty first-graders were used to compare initial letters, terminal letters, and geometric shape as cues to word recognition. A nonsense trigram was centered on a card and exposed to a subject for a total of five seconds, a total of 40 trigrams in all. The card was then turned over and the subject was asked to choose one of the vertically positioned responses which most resembled the one that they had seen previously. The first letter and terminal letters were used significantly more often as a cue for word recognition. The authors also found that identical initial letters were used more often than identical terminal letters. These results were consistent across sexes. From the study, as in that of Marchbanks and Levin (1966), configuration was considered a weak cue in word recognition.

Nodine and Hardt (1970) conducted a study using 64 kindergarten children to investigate the role of letter position cues in learning to read words. The children were individually presented with four-letter nonsense words and were to judge whether the words were matched or unmatched

according to their letter sequence. Forty-four pairs of words were presented containing 11 pairs each of matched high confusion letters, unmatched high confusion letters and unmatched low confusion letters. The accuracy of judgment was not affected when the letter sequence involved a high confusion pair. The authors concluded that children depended on the peculiarities of individual letters when making visual discriminations in this study.

An artificial alphabet was created by Samuels and Jeffrey (1966) to measure the relationship between visual discriminability of words and the rate of learning these words. The subjects were 36 kindergarten children. The visual discrimination was controlled by the number of letters in the word, either four, six or eight in that the low discriminability list was made of four different letters and the high discriminability list was made of eight different letters. The group learning the four words made from eight different letters made the highest number of correct responses. Results also showed that the higher the discriminability the faster the learning rate. The authors found that the children were using single letter cues with the high discriminability list.

Favouring configuration was a study by Foote and Havens (1965) to determine the effect of the configuration cue in word recognition. Descending letters, ascending letters and flat letters were the three main patterns used.

The authors concluded that the overall shape of the word, if formed by the composite letters within the word, affects word recognition, making word configuration the most important cue.

Summary

Research indicates that cues children use to identify words vary considerably. The studies reviewed indicate that beginning readers most frequently use initial letters as cues to word identification. Other cues used include terminal letters, ascending and descending letters and word shapes. Configuration or word shape appeared to be the least often used cue by children in word recognition. One study, however, found the opposite results with configuration being the most frequently used cue.

Spatial Relations

Perception of Spatial relationships is the ability of an observer to perceive the position of two or more objects in relation to each other. . . .

This ability to perceive spatial relationships develops later than, and grows out of, the simpler one of perceiving the position of an object in relation to one's body. (Frostig and Horne, 1964, p. 74).

Frostig and Horne (1964) went on to state that the perception of spatial relations requires the child to see a number of different parts in relation to each other and all of them receive approximately equal attention. These parts,

however, are not perceived simultaneously but in sequence, part by part, and then into a complete picture. This sequential integrating process is sometimes referred to as pattern vision. Frostig and Horne (1964) stated that disabilities in perception of space make it impossible for the child to perceive the sequence of letters of words. The child may, for example, read the word *string* as *stirring* or spell it *sitnig* (p. 75). The child may also find it difficult to remember the sequences of processes involved in arithmetic.

Kost (1969) explains how the normal child learns to perceive his space world of position, sizes, distances, and relationships, so that he has instant understanding of these elements in his environment. Kost (1969) states that everything in our environment derives its position on this earth from ourselves and our relation to the forces of gravity. Our concept of down is given by the force of gravity, and it's our one constant force. Then as we learn to crawl and balance ourselves in an upright position in relation to this gravity pull, we begin to form our concept of space and directions. Down is near our feet because of the pull down by gravity and that which is towards our heads and away from this pull is up. Objects then begin to have a right and left side because they are on the left or right side of our bodies. Words start on the left of the paper because of the relationship to the left side of our

bodies and because our culture dictates a left to right sequence (Kost, 1969, p. 122).

Kost (1969) stated that the first prerequisite of a child for a stable space world was his balance in relation to the earth. As a child learns to lift his head in a balanced position in space, he derives his first concept of up and down. As he learns to crawl, he must make the same adjustment to keep his head and body balanced as he moves across the floor. Later as he pulls himself upright to toddle, he again learns to adjust his body to balance in space.

Braley, Konicki and Leedy (1968) made the following statements:

After developing the awareness of body image a child must be able to identify his body position with that of his surroundings (space). He must also realize the course of movement which he must follow in order to change from his present position to his destination (direction).

The child's awareness of space and direction helps him to read from left to right and to place written thoughts on paper in an organized manner (p. 17).

Frostig and Horne (1964) gave many ideas for training in spatial relations working with three-dimensional objects. Examples of exercises are: "I want everybody to put the green block behind the red block." (p. 76). On the peg board the children were asked where the teacher had put

the peg. (On the top left corner).

The worksheets for the Development of Visual Perception has 85 exercises on worksheets for classroom use. (Two dimensional). Exercise 1: "Let's look at these pictures carefully. In each of the pictures at the left of the line there is a square box and a lamp. Sometimes the lamp is in the front of the box, sometimes beside the box, sometimes behind the box. Show me the picture where the lamp is beside the box." (Frostig & Horne, 1964, p. 151).

As a child learns his up and down space, he also learns his horizontal or side and front space. With balance, he learns how to operate the two sides of his body, the arms and legs at the same time. He soon learns a thousand ways in which he can use his hands and legs together for efficient movement. As the child explores his world he may eventually find one side of his body to be more efficient than the other and in this way establishes laterality.

As a child learns to manipulate objects and move through space, he is also achieving the fine visual skill with his eyes so that he can soon learn to judge distance, size, relationship and positions of objects and shapes. As the child has learned balance, laterality, body image, and accurate visual perception of space, he can now make a perceptual motor-match and be able to know that the sentence begins at the left side of his page, and ends on the right

side. This is position in space or directionality (Kost 1969). The child finally learns how to project these relationships out into space and see how objects relate to each other. He now learns that his name starts at the left and ends at the right. To have gained these understandings, the child must have made thousands of manipulations and comparisons.

Summary

The relationship of objects in space or spatial relations is then presumed in learning to read and write. The author, then, has attempted to test the first grade children with a pencil and paper test in a group situation. It is difficult to test all children entering first-grade individually with a Frostig Developmental Test of Visual Perception. The author has attempted to design a group test of spatial relations and to include it with other tests administered to see how well it predicts reading readiness.

The investigator is aware that in the school environment, the child's spatial relationship in two- and three-dimensions visually is not enough. The child must be able to see these relationships, but he must also know the language or the spatial relations concepts and what they mean. The classroom teachers extensively use relational terms in their verbal instructions to children. Workbook exercises in the early grades require that the children

understand spatial relational terms as well as see them in two-dimensional.

In studies of language, the importance of relational terms has been recognized. Donaldson and Wales (1970) and Clarke, E. V. (1973) considered relational terms an important part of language acquisition in young children. In Donaldson and Wales' study of dimensional adjectives, they tested the children's knowledge of adjectives which name the property and also which name the relations between objects and space. Learning the meaning of these terms involves learning which words talk about one-, two-, and three-dimensional spaces, respectively and also which words deal with position and directionality: up-down, in front-behind, left-right. Clarke, E. V. (1973) stated that the acquisition of semantic knowledge needs to be better studied in relation to the development of the child's perceptual and cognitive knowledge.

III. Research on Auditory Perception of Kindergarten and First Grade Children

Auditory Perception and Reading

The auditory processes play an important role in the complex task of learning to read. Word attack skills are directly dependent upon auditory processes. Auditory disorders, therefore, may play a large part in the problems underlying reading difficulties which could be developmental

or resulting from an impairment of the auditory system.

Reading authorities generally agree that children should develop auditory discrimination prior to or concurrent with the initial acquisition of a sight vocabulary (Durrell, 1956; Dechant, 1964; Strang, 1964; Tinker & McCullough, 1968).

The following statement was made by Heilman (1967):

The ability to discriminate between sounds heard in words, and the ability to blend speech sounds represented by different graphemes in words is an absolute prerequisite for independent reading. The readiness and beginning reading program should provide sufficient experience and drill to assure that every child develops a good foundation in auditory discrimination. (Heilman, 1967, p. 53)

Durrell and Murphy (1953) in their review of the studies of various aspects of auditory discrimination conducted in Boston made the following conclusion:

Although there are many factors which combine to determine the child's success in learning to read, it is apparent that his ability to notice the separate sounds spoken in words is a highly important one. Observations in our reading clinic bear out the above findings in intensified form. Almost every child who comes to the reading clinic with a reading achievement below first grade has a marked inability to discriminate sounds in words. . . . (Durrell & Murphy, 1953, p. 557).

Kindergarten and first grade teachers are not in

agreement as to which auditory skills to teach, nor to the sequence and degree that the skills should be taught. Whether to teach phonics or not and when, has been controversial throughout history. An examination of reading readiness tests examined by the author reveals a number of auditory skills used under the broad heading of auditory discrimination. The tests examined were as follows: Harrison and Stroud, 1956; Gates and MacGinitie, 1966; Clymer and Barrett, 1967; Monroe, Manning and Wepman, 1970; and Evanechko, Ollila, Downing and Braun, 1970.

Dykstra (1966) made an extensive review of literature concerning auditory discrimination and concluded that there is a need for more experimental studies and a need to determine the nature and the number of auditory discrimination subskills.

First grade children were tested by Chall, Roswell, and Bloomenthal (1963) using their blending test. These children were tested again in the fourth grade. The authors concluded that there was a substantial relationship between auditory blending and reading achievement.

De Hirsch (1957), in testing six year olds, concluded that most of the children do better on the phonetic approach rather than a whole word approach. She points out, however, that there are exceptions.

Opposite results to de Hirsch (1957) were found by Georgades, Romano, and Baronowski (1965) who found, when

testing kindergarten children, that many of these children had definite weaknesses in auditory discrimination. The authors reported that a four week training period showed encouraging results but no evidence was given to support this.

Wepman (1960) explored the relationship of auditory perception as related to reading. In testing 80 first grade readers and 72 second graders in auditory discrimination, he found a positive relationship between auditory discrimination and reading comprehension. Wepman concluded that children differ in maturation of auditory abilities. He suggests:

The fact that children during their first three years of school life (ages 6 to 9) have a differential development of their auditory ability and the fact that different facets of hearing come to maturity at different rates and thereby limit the ability to learn aurally during these most important years has been given little attention (Wepman, 1960, p. 247).

The Wepman Auditory Discrimination Test is a very widely used instrument to test auditory discrimination. The child sits with his back to the examiner who then says two words, for example, cad, cab, where upon the child is asked to say whether the words are the same or different. Flower (1965) cautions that his experience with this test is that many children in first grade who have been working on rhyming words may respond "the same" to (thief-sheaf) even

though they could hear the difference. The investigator, when testing children in a reading clinic, also has found that some kindergarten and first grade children do not know the meaning of same or different.

Strauss and Lehtinen (1947) cited auditory discrimination as one important, yet poorly explored, field related to reading. Vernon (1960) in his analysis of research in auditory discrimination dating back to 1932, concluded that although specific defects in discrimination are related to poor reading, an analysis of speech sounds might be of major importance in reading disability; it was difficult to analyze the exact nature of these defects.

In 1963, Russell and Fea were of the opinion that the contradicting results in research in the field of auditory perception and reading might be caused by different investigators exploring different elements of auditory discrimination.

Auditory Sensitivity Impairment

A child with a hearing loss, particularly when that loss goes unrecognized, will have significant difficulties in his academic work as he will miss important instructions given by the teacher.

A hearing loss which is seldom considered or diagnosed is that of fluctuation. Losses associated with the infections which invade the middle ear cavity

constitute the most common type of childhood impairment (Flower 1965). A significant hearing loss may be present for a period of time and then subside as the infection decreases only to occur at a later date when this virus in the body becomes active again. For a child whose hearing is tested only every few years, it is assumed that the hearing levels remain constant. At school it may be concluded that a child's inattentive behavior is not caused by a hearing loss since the child had been tested and the hearing was normal.

Another impaired hearing sensitivity which is not always recognized is that a child may have normal hearing or sensitivity for low-frequency sounds, but may have a reduction in hearing high frequency sounds. This problem causes greatest interference when this hearing loss occurs in the frequency range between 500 and 3000 cycles per second (Flower, 1965, p. 85). This is the speech range in which the major sounds of our language occur. The high frequency losses produce significant difficulties in hearing speech sounds. The vowel sounds can be identified on the basis of their acoustic elements in the lower segments of the speech range. Many consonant sounds have crucial identifying characteristics in the 1000 to 3000 cycles per second range (Flower, 1965). A child with this type of hearing loss may hear the vowel sounds quite accurately but hear distorted fragments of many of the

consonant sounds. The boxed in sounds, for example, would not be heard: [S]ee [th]e li[tt]le [c]a[t] [th]a[t] [c]ame [t]o [sch]ool wi[th] [S]ally. The result would be: ee e li le a a ame o ool wi ally [Flower, 1965, p. 86). The remains of this sentence shows the extreme difficulties that would result for the high frequency impaired child. Significant speech problems result for children who have this loss during their speech acquiring years. Distortion in their own speech often results in their hearing the speech of others incorrectly. These children are missed by a family physician who uses only a 256 cps tuning fork for testing (Flower, 1965). This kind of hearing loss has a direct effect on learning to read. Flower (1965) gives the following observations to be made by the teacher:

. . . significant difficulty with phonics work or with spelling, close visual attentiveness to the face of the speaker, marked difference in response when a child is close to a teacher from his response when he is some distance away, or undue distractibility, when there is a general background noise. (Flower, 1965, p. 88)

Summary

The auditory processes play an important role in learning to read. Research in this area is limited. Reading authorities generally agree that children should develop auditory discrimination prior to or concurrent

with learning sight vocabulary, although when to begin teaching phonics has been a controversial issue.

Auditory problems are common among children who show difficulties in learning to read and spell. Some of these problems may be developmental, and can be improved with training.

Other children may have auditory impairment and have significant hearing losses. These children become confused when learning to read in a regular classroom environment.

Auditory Comprehension

Duker (1964) stated that listening or auditory comprehension and reading have much in common. Both require comprehension of words and sentence structure, critical thinking, and interpretation of meaning. Strang (1975) suggested that listening comprehension is one indication of reading potential, and therefore, a listening- or auditory comprehension test is often included in the diagnosis of reading difficulty. She said that a relatively high auditory comprehension score is generally considered a favourable sign to good reading ability. Hollingsworth (1964), from his review of literature, concluded that listening does help reading because they have a basic similarity. Reading demands sight and comprehension, and listening calls for hearing and comprehension. The child logically expects certain words to occur next because they

follow the events and therefore, in anticipating the sentence pattern, he is helped in reading an unfamiliar word because he senses that the word should follow (Spache and Spache, 1971).

Listening and reading both call for the reception of ideas from others and both are basic means of communication; reading demands sight and comprehension; listening calls for hearing and comprehension (Smith & Dechant, 1961, p. 142). They reported correlation ranges from .30 to .80 between the ability to listen and the ability to read. Listening, then, requires numerous auditory abilities which are important to reading.

Spache and Spache (1971) stated that early skill in auditory comprehension was a good predictor of the child's later success in reading, therefore, auditory comprehension training is one of the essential facets of both prereading and beginning reading stages in the child's development. The aim of auditory comprehension training is not only to provide experiences with words and to broaden the child's auditory vocabulary but to provide stimuli to language development and certainly to promote the child's verbal reasoning, memory, critical thinking, those processes which he must employ in dealing with ideas later encountered when reading. Auditory comprehension, then, is the child's ability to understand, retain, and reason about materials that he hears.

Auditory discrimination and auditory comprehension go hand in hand in forming the auditory basis for reading success. Although reading involves learning to recognize words, success in word recognition is strongly dependent on the child's sentence sense or his feeling for, or expectation of, appropriate words for each idea or thought. Contextual analysis demands a sentence sense or a familiarity with the language patterns through which ideas are expressed (Spache & Spache, 1971). The child who truly reads does not just name each word he reads, but reads the first few words and then anticipates the rest of the thought.

Spache and Spache (1971) also stated that a measure of auditory comprehension is superior to a general group or individual intelligence test in indicating a child's readiness for reading or, in other words, predicting his degree of success in early reading (p. 49). They mention that Ivor Moe's dissertation study (1957) found that a first grader's ability to answer questions based on standardized reading selections read to him, or his auditory comprehension, was more efficient in predicting early reading achievement than several common readiness or intelligence tests.

Summary

Researchers agree that auditory comprehension and reading have much in common. Auditory comprehension is a

good indicator of reading potential and is often included in diagnosing reading difficulty. It is also considered a good predictor of reading readiness. Some researchers have found it superior to group readiness tests or intelligence tests.

Auditory-Visual Integration

Strang (1968b) made the following statement:

For the large majority of children, proficiency in visual and auditory perception and the integration of these two modalities are essential to reading (p. 139).

Printed symbols are representations of the auditory form of the message. When someone conveys a message in printed form, the encoder mentally pronounces the words as he writes the message. The decoder appears to transform the printed symbols back into the same mental pronunciations of speech which the encoder employed.

Birch and Belmont (1965) prepared an auditory-temporal to visual-spatial pattern test consisting of three examples and 10 test items. The examiner tapped the temporal patterns on the table top with a pencil while the subject chose the corresponding visual pattern from among three spatial slot patterns printed on a sheet of paper. In order to study the development of auditory-visual transfer in relation to reading achievement and I.Q., 220 children in grades kindergarten to grade six were given the Birch & Belmont Test, Otis Quick Scoring Tests of Mental Ability and

Stanford Achievement Tests. The authors found that there was a continual improvement of the auditory-visual transfer skill until the fifth grade, with the greatest improvement occurring between kindergarten and second grade. The auditory-visual transfer performance was significantly related to I.Q., except in kindergarten and grade six. Correlations between the auditory-visual pattern test and the Stanford Achievement Test, however, were significant only at the first and second grade levels, indicating a decline of the initial importance of auditory-visual transfer after the early grades. These findings may not be applicable to the general population because the example indicated a mean I.Q. of 120. Secondly, Birch and Belmont had changed the task from what it originally set out to do. Thirdly, the test of auditory-visual integration did not have a high enough ceiling to differentiate between subjects at the higher levels.

Bateman (1960) attempted to explore the effectiveness of visual and auditory approaches in beginning reading instruction. A sample of 182 children in eight kindergarten classes was used. The Detroit Group Intelligence Scale and the Metropolitan Reading Readiness Test were administered to all subjects. The Illinois Test of Psycholinguistic Abilities (ITPA) was administered to four of the classes in order to divide them in auditory and visual preference groups.

During the first grade, one half of the auditory subjects were taught by the auditory method and the other half by the visual method. The same procedure was used for the two auditory classes and the two visual classes which were *not* administered the ITPA. The Scott, Foresman New Basic Readers were used for the visual method of teaching and the Lippincott Basic Reading Series were used for the auditory method. The results showed that the auditory method produced superior reading and spelling achievement when compared with the visual method. Auditory learners made significantly greater gains than did the visual learners. The interaction between the modality preference and the instructional method was not found to be significant. There were, however, two major weaknesses in this study. Firstly, many of the children actually scored higher on the auditory memory subtest of the ITPA than on the visual memory subtest. The researcher assumed that 50 percent of the incoming first graders preferred the visual mode and 50 percent of the incoming first graders preferred the auditory mode when assigning subjects to the auditory and visual learning group. The probability that this is so is very unlikely. Secondly, the Scott, Foresman and Lippincott materials are neither auditory nor visual in nature but a combination of the two.

Robinson (1968) classified 448 first graders as either high visual-high auditory, high visual-low auditory,

low visual-low auditory, or low visual-high auditory abilities on the basis of their preference on three visual discrimination tests and Wepman's Auditory Discrimination Test. Two school systems used phonic approaches with Hay-Wingo Lippincott readers. For the sight approach one used Ginn basal readers and one used Scott Foresman readers. No significant differences were found between pupils in the high visual-high auditory, high visual-low auditory or low visual-low auditory groups in the reading section of the Metropolitan Achievement Test and the Gray Oral Reading Test. Subjects in the low visual-high auditory group, however, taught by the phonic method demonstrated greater gains in silent reading at the end of the first grade. Again the classification of the Ginn and Scott Foresman basal readers being strictly sight and the Hay-Wingo readers being strictly auditory weakens this study.

Ringler, Smith, and Cullman (1971) used the New York University Modality Test to classify the learning preferences (auditory, visual, kinesthetic, or no preference) of 128 first grade children. The subjects within each modality group were randomly assigned to one of four experimental treatment groups or to a control group. Thirty-three of the children showed a visual preference; 30 an auditory preference; 28 a kinesthetic preference; and 37 no preference. The learning task of the experimental groups consisted of 50 words from the children's speaking

vocabulary which had not been taught in the classroom. These groups then received seven and one-half hours of small group instruction to learn the words and use them in oral reading of sentence and paragraph. The control group received no such instruction. All subjects continued reading instruction on the Bank Street Readers. The pre-test and post-test used to measure the children's vocabulary development consisted of the 50 words plus 150 words used as distractors.

The authors found that the experimental groups made significantly greater gains than the control group although they did not differ significantly from each other. No significant difference was found between modality groups when the treatment groups were not considered. Subjects who were taught by their preferred modality did not make significantly greater gains than those who received instructions through some mode other than their preferred one. The weakness in this study is that methods of instruction were a combination of visual and auditory. Whether any kinesthetic methods were included in the word instructions is not mentioned.

King and Muehl (1965) divided 210 kindergarten children into 10 groups in order to compare different combinations of sensory cues. Five of the groups were assigned a list of similar words and five were assigned a list of dissimilar words. Five different modal combinations

were used but all included printed words as cues. Other sensory cues were: 1) pictures; 2) spoken words; 3) pictures plus spoken words; 4) spoken plus echoic responses; and 5) pictures plus words plus echoic responses. One group was assigned to each sensory combination. Dissimilar words were significantly easier to learn than similar words. The printed word and picture combination was found to be the most efficient way to present similar words and the least efficient for dissimilar words. The degree of word similarity appears to be an important factor in teaching of modal combinations.

Summary

→ Some children have good auditory discrimination ability and good visual discrimination ability but have difficulty integrating the two; this leads to difficulty in learning to read. / They are unable to put sound and symbol together.

Further research in auditory and visual integration and individual modality preference is needed. It is difficult to get accurate research results as to which method is best for beginning readers with modality preferences in either auditory or visual, as most basic readers combine the two to some degree. Classroom teachers differ in their use of phonics or sight words no matter which basic reader they use.

Longitudinal studies of modal preference in individual and intersensory transfer are also needed to study the relationship to reading.

Illinois Test of Psycho-
linguistic Abilities
(Kirk, McCarthy and Kirk,
Revised Edition 1968)

Kirk, McCarthy and Kirk (1961), after many years of experimenting and working with retarded children, published the experimental edition of the Illinois Test of Psycho-linguistic Abilities (ITPA). This test was built upon the communications model of C. F. Osgood (1957) and was to have a diagnostic purpose. There are twelve subtests composed of 1) channels of communication; 2) psycholinguistic processes; and 3) levels of organization (Hallahan & Kauffman, 1976). The channels referred to are the various sensory modalities through which information can pass. The processes are the receptive which is the input of information, the expressive which is the output of information, and the organization which is the internal manipulation of concepts and linguistic skills.

The twelve subtests are designed to be given individually to children from two to ten years of age. A review of the research on the ITPA was done by Hallahan and Kauffman (1976); they concluded that all the subtests were not completely independent, particularly at the younger level. They also felt that some of them may not necessarily

correspond with the subtest names or may include other problems, such as, distractibility on tests such as the visual closure subtest.

The Representational Level:

A. The Receptive Process or Decoding:

The two tests at this level are: Auditory Reception and Visual Reception.

1. Auditory Reception or Auditory Decoding:

This test is designed to test the child's ability to derive meaning from verbally presented material. The test contains 50 short, direct questions given orally by the examiner. Examples are: Do dogs eat? The child gives a simple *yes* or *no* answer.

The investigator has designed a somewhat similar test but here the child must listen for the statement given by the examiner and then circle the word Yes and/or the Happy Face in his test booklet if he thinks the sentence given is correct. If the sentence is not correct, he must circle the word No and/or the Sad Face. The investigator realizes there are other factors which become involved when he must make a visual and motor response to the question rather than an oral response.

2. Visual Reception or
Visual Decoding:

This test is designed to test the child's ability to gain meaning from visual symbols. There are 40 picture items, each consisting of a stimulus picture and four response pictures. The child is shown the response picture for three seconds, "See this?" The response pictures are then shown, "Find one here?" The child points to the correct answer.

B. Organizing Process or Association:

At the representative level the child must be able to relate, organize and manipulate visual and auditory symbols in a meaningful way.

1. Auditory-Vocal Association:

This test is designed to test the child's ability to manipulate linguistic symbols. There are 42 analogies, presented orally, which are of a controlled association type, using a sentence completion. Example: "A dog has hair; a fish has _____."

2. Visual-Motor Association:

This test is designed to test the child's ability to relate to concepts presented visually. The child is presented with a stimulus picture which is surrounded by four optional pictures. The child

must find the one which is associated with the stimulus picture. "What goes with this?" The examiner points to the stimulus picture. "Which one of these?"; the examiner points to the four pictures from which the child chooses the most closely related picture to the stimulus one, such as, a sock belonging with a shoe. There are 20 simple test items. The test is expanded to provide visual analogies comparable to the auditory analogies. The examiner says: "If this goes with this; then what goes with this?"

C. Expressive Process or Encoding:

At the representational level the child must be able to use either verbal or manual symbols.

1. Verbal Expression or
Vocal Encoding:

This test is designed to assess the child's ability to express his own concepts. The child is given four familiar objects, one at a time (a ball, a block, an envelope, and a button). The child is asked, "Tell me about this."

2. Manual Expression or
Motor Encoding:

This test is designed to test the child's ability to express ideas through gestures. Pictures

are shown to the child, one at a time, and he is asked, "Show me what we do with a _____." The child is to pantomime the appropriate action, such as, dialing a telephone or playing a guitar.

The Automatic Level:

A. Closure:

These tests are designed to assess the child's ability to fill in the missing parts in an incomplete picture or verbal expression.

1. Grammatical Closure:

This test is designed to assess the child's ability to make use of the redundancies of oral language in acquiring automatic habits of handling syntax and grammatical inflections. It tests the child's ability to respond automatically to often repeated expressions of what the authors consider standard American speech.

Very few tests have been designed to test a child's syntactical ability. The Grammatical Closure subtest of the ITPA is one such test. Since it is an individually administered test it is of little help to the classroom teacher. Therefore, the investigator has attempted to devise a pencil and paper group test that will hopefully be of some help in detecting children with this type of

language problem. (See the investigator's subtest copy - Basic Language concepts in Appendix B). The Grammatical Closure subtest on the ITPA is designed to test the child's ability to use morphological rules. The child is required to use different parts of speech as he is shown related pictures. He may, for example, be shown two dogs, and then be required to finish the sentence, "Here is a dog; here are two. . . ." On the investigator's subtest, the child is given the grammatical sentence incompleted and then the child must find the picture and circle the one which best completes the sentence correctly. Here the child does not answer orally and only the child's understanding of syntax can be tested.

2. Auditory Closure -
Supplementary Test:

This test is designed to test the child's ability to fill in the missing parts which were deleted by the examiner in the auditory presentation and the child must say the completed word. There are 30 items and the child must fill in the missing part: bole? (the response should be bottle).

3. Sound Blending -
Supplementary Test:

This test is designed to assess the child's organizing ability at the automatic level in the

auditory-vocal channel. The sounds of the word are spoken singly at half-second intervals, and then the child must tell what the word is. At the upper end of the scale the test includes nonsense words.

4. Visual Closure:

This test is designed to assess the child's ability to identify a common object from an incomplete visual representation. Four separate scenes are shown each giving 14 to 15 incomplete pictures of objects which the child must find within 30 seconds, for each scene.

B. Sequential Memory:

These two tests are designed to assess the child's short term sequential memory of visual or auditory stimuli.

1. Auditory Sequential Memory:

This test is designed to assess the child's ability to reproduce from memory sequences of digits from two to eight digits in length. The digits are presented at the rate of two per second.

2. Visual Sequential Memory:

This test is designed to assess the child's ability to reproduce sequences of abstract symbols from memory. The child is shown the correct

sequence of symbols for five seconds, and is then asked to put the corresponding chips of abstract figures in the same order.

Summary

The authors of this test (ITPA) state that the 12 tests are designed to isolate deficiencies in the three processes of communication, two levels of language organization, and/or two channels of language input and output. They feel that this test should pinpoint specific psycholinguistic abilities and disabilities.

The investigator has attempted to follow the theories of the authors in two of the Experimental Reading Readiness subtests - Basic Language Concepts and Auditory Reception (see pages 110 and 113, and Appendix B for author's subtests).

IV. Language Related to Reading: Research on Kindergarten and First Grade Children

Sylvia Ashton-Warner (1963), Marshall (1963), Downing (1973), and Forester (1975) emphasize that abstract, artificial, mechanistic methods of teaching reading and writing must be abandoned for they are meaningless to children. Downing (1973) claimed that what may be relevant to the teacher may seem meaningless to a child of six. Teachers often teach children "about" language, and this is not very useful to beginning readers.

In Scotland, Reid (1966) interviewed twelve five-year old first year students at an Edinburgh infant school to explore their general level of concept formation with regard to reading. She found these children lacked any specific expectancies of what reading was going to be like, of its purpose and the use of it.

Downing (1970) replicated Reid's study using English five-year olds and came to the same conclusion as Reid. He found that these children were confused with the abstract technical terms used by adults in regard to reading, such as, word, number, letter, name, writing and drawing. Downing conducted two experiments to discover how five-year olds use the categories 'word' and 'sound' in thinking about language. The more mature children said that 'a word' could be anything from an actual single word to a phrase or even a sentence. The concept of sound was less understood. Downing confirmed the conclusions reached by Reid (1966). He found that young beginners have serious difficulty understanding the purpose of written language, and they were confused by the use of abstract linguistic terminology. Downing stated that helping children to understand the purpose of literacy should be the teachers' initial and continuing concern and motivation, for learning the skills of reading and writing depends on making these activities relevant to the child for a lifetime.

Ashton-Warner in teaching Maori children in New

Zealand stressed that the actual language used in learning to read must be relevant to young beginners. Downing (1970), Forester (1975) and Reid (1966) conclude that children do not perceive language in abstract segments like 'word' or 'sound'. Their view of language is much more likely to be in larger chunks of language, such as, phrases and sentences.

Downing (1972) replicated Reid's (1966) original interview method and added concrete examples of literacy behaviour which would permit non-verbal as well as additional responses by the subjects. The samples Downing presented to the children were: (a) a set of eight coloured photographs taken in the school where the research was conducted; four examples of an adult or child reading printed English and four examples of non-reading behavior; (b) a book with text, but with no pictures; (c) two pictures, each showing a car, one having an L on the rear plate and the other not; (d) three toy buses each displaying different route numbers and destination place names on cards at the front, back and left side. Twenty-five tape-recorded stimuli by a seven year old child from the same school were used - a bell ringing, a short vowel phoneme, a single word, a phrase, a sentence. Downing's subjects were pupils from England age four years and 11 months to five years and three months. The procedure was to have the child sort out eight photographs into reading and not-reading situations. The text in the book was used to stimulate open-ended

conversation. The subject was asked to select the car with the learner driver, or how he would know which bus to get on. Probing questions, such as, 'How do you know? Tell me about it!' and 'Show me!' were asked.

Downing found in his studies that the children had developed in varying degrees of success in solving the problems posed by the tasks involved in learning to read. Like Reid (1966), Downing in his studies found that children were confused by such terms as 'word' and 'sound'.^{*} Downing stated that much more research was needed to find how children think about language in its spoken and written forms. Downing posed two questions: How can we help children understand the purpose of written language, and how can children's attainment of the technical concepts of language be facilitated? Vygotsky (1962) concluded from his research:

Direct teaching of concepts is impossible and fruitless. A teacher who tries to do this usually accomplishes nothing but empty verbalism, a parrot-like repetition of words by the child, simulating a knowledge of the corresponding concepts but actually covering up a vacuum. (Downing, 1970, p. 112).

Downing (1974) stated that most skills in early childhood begin by imitation, but it is impossible to imitate the actions of a reader. The child cannot see what the reader is doing nor does he know why he is doing it. Because the child does not understand the action and purpose

of reading, the young child enters the first phase of learning to read in a state of cognitive confusion (Downing, 1973). Downing (1973b) stated that the basis for learning to read seems to be the movement from this state of cognitive confusion to one of increasing clarity. The learning-to-read process is a problem solving process in which the child gradually learns the purpose and mechanism of the reading act and also gradually learns the necessary linguistic concepts needed. It was with this thought in mind that Downing included items of technical language of literacy, understanding literacy behavior and orientation to literacy in the reading readiness test used in this research study. (Canadian Readiness Test by Evanechko, Ollila, Downing & Braun, 1972).

Language and Reading

Receiving increasing attention in reading research is the position that language ability is an important determinant in reading success (Goodman, 1969; Loban, 1969; Mickelson, 1973 & Smith, 1971). In an analysis of oral reading miscues, Goodman (1969) argued that reading and language were closely related. Smith and Dechant (1961) and Loban (1969) were also of the opinion that reading is dependent on the language performance of the child. Osgood (1968) and Goodman (1971) agree that the use of language is a meaning-seeking process. Reading goes beyond the simple

process of word recognition to comprehension which is the meaning derived from the printed graphic symbols.

Reading is an aspect of language. Many of the skills employed by the child in learning the regularities of spoken language may also be employed in learning to read (Smith, 1971). Words spoken or written is the surface of language which is the physical manifestation of language as it impinges on the eye and ear. It is the deeper level or comprehension which is the meaning or semantic interpretation (Smith, 1971).

You need to know a language in order to hear it properly. This becomes apparent if you listen closely to a foreign language. You cannot distinguish what the distinctive sounds of language are, nor can you tell how many words there are. Smith (1971) states that foreign speakers and children have exactly the same problem. Reading is not going from words to meaning, but from meaning to words. In order to read effectively, you need to know in advance or have some idea of what you are reading. It is assumed by the writer that the reader knows the syntax or rules by which the sentence is ordered.

Spoken language is self taught. Most children learn to speak without formal instruction. The child learns the language that is spoken around him. By the age of one, many children are speaking single words rather than babbling. The child at this stage is inventing words to suit his own

particular requirements and these represent meanings which he needs to express.

The child at eighteen months is speaking in phrases. He needs to learn how to produce and how to understand all the rules or syntax in sentences. This is not taught formally, but instead we speak to him in adult language. The child needs continual feedback, or information about a sentence as he forms it. We need to think of a child's utterances as being an expression of a need and also to test a rule of language. If the child says "want milk", the mother should expand the sentence, "You want some milk" (Smith, 1971, p. 56).

Language as Related to Reading

Views on language as related to reading vary. Behaviorists view reading as an additive process of developing new stimulus-response bonds. In teaching reading, they would begin with letters and progressively move on to words, phrases and sentences. Reading, however, is much more involved. The reading process goes beyond simple recognition to comprehension at which point meaning is derived from the graphic symbols. Meaning involves the recognition of symbols but beyond that, it also involves the application of a wealth of experiences in order for the reader to relate and interpret the meaning of words as the writer intended. Reading involves more than just learning the skills. It also demands a combination of both

experiential and conceptual background and of thinking. Readers simultaneously take information from the symbols and bring their own background of experiences to the symbols.

A cognitivist would agree that necessary background for reading is the language experience needed by the child to bring meaning to what he reads. A background of language competence is essential for the development of cognitive ability upon which reading impinges. Cognitivists consider reading as thinking and as being dependent on the reader's cognitive ability to organize and perceive meanings. Reading is, therefore, the tool for the child to acquire and to communicate information.

The establishment of grapheme-phoneme relationship is only the beginning phase of reading. Ausubel (1969) speaks of learning to read as:

. . . a matter of learning to perceive the potential meaning in written messages and then relating the perceived potential meaning to the cognitive structure so as to comprehend it (Ausubel, p. 79).

The linguists are of the opinion that reading is an extension of spoken language and therefore, should be taught in its relationship to the spoken language rather than in isolation. They see reading as an extension of oral language with specific structures and patterns. Psycholinguists extend the linguists' point of view in describing reading as a communication skill involving

decoding and encoding. Ruddell (1963) stated that psycholinguists accept a more realistic concept of what reading is.

Goodman, from a psycholinguist's point of view, provided a new perspective to the reading process; that meaning was the most important part of reading. He maintained that learning to read and write was an extension of the child's natural language learning process (K. S. Goodman, 1973, p. 12).

Goodman defined psycholinguistics in the following terms:

Understanding the process must depend on understanding how language works and understanding how language is used, that is how language and thought are inter-related. Psycholinguistics is the study of these relationships. (K. S. Goodman, 1969, p. 4).

Goodman (1968) viewed reading as the receptive phase of communication which requires the reconstruction of the message between the reader and the written form of language. As the reader strives for meaning, he "must actively bring to bear his knowledge of language, his past experiences, his conceptual attainments on the process of language information encoded in the form of graphic symbols in order to decode the written language" (Goodman, 1968, p. 1).

Goodman stated that true reading is accomplished

only through an active involvement of the reader with the word patterns, intonations, inflections, and pattern markers which he already knows in his speech. He must develop a set of cues for recognizing words in print.

Goodman suggested that reading can be considered as having several levels of proficiency. The beginning level is involved with the visual discrimination of letters, letter patterns, and word shapes, followed by recoding into phonemes, phonemic patterns, and word names which is again recoded as oral language before encoding or meaning takes place. The second recoding to oral language may result in approximations to sounds which are based on the child's past experiences with language patterns and content meaning as decoded. As the reader gains competence, he can eliminate the mediatory aural reading step process, and the process of reading will then be decoded immediately from the larger structure. Goodman viewed reading as a psycholinguistic guessing game in which thought and language interact.

Since children come to school with varying degrees of competency in oral language, presenting a program to accommodate the transferral of these competencies to understanding the written symbolic language is difficult, but necessary. Reading, then, represents a coding of oral language to symbolic language which must be recoded by the child to oral language again before the message can be

deciphered.

Goodman stressed that the proficient reader picks and chooses from all the available information and scans the reading materials for just enough cues to provide meaning. He skips those parts that are redundant or not essential in order to get the meaning of the passage. Goodman stated that reading is not a precision process, and he called it a "psycholinguistic guessing game".

Efficient reading does not result from precise perception and identification of all elements, but from skill in selecting the fewest, most productive cues necessary to produce guesses which are right the first time. (K. S. Goodman, 1970, p. 260).

Reading effectively involves the ability to participate and predict what lies ahead. Smith (1971) was of the same opinion.

Smith (1971) in agreement with Goodman, described the reading process as the interaction between thought and language and using the redundancies of language to predict what lies ahead, and the integrating of the information from all the cues available to the reader, and the interaction of language and its underlying meaning.

Smith spoke of the proficient reader as going directly to meaning and getting immediate comprehension, whereas, the learner is having to process words or letters before deriving meaning and getting much less comprehension

from the material. Smith made the following statement about reading:

If we regard reading like any other process of acquiring information, namely the reduction of uncertainty, then we have discovered the first way in which the conventionally disparate areas of letter identification, word identification and "reading for comprehension" can be considered in the same light. . . information is acquired visually to reduce a number of alternative possibilities. The exact number of alternatives can be specified for letters, an approximate figure can perhaps be put to the number of words, but the number of alternatives for comprehension, if it can be estimated at all, must obviously be closely related both to the passage being read and the particular individual who is doing the reading . . . (Smith, 1971, p. 19).

The perceptual process of reading involves prediction and interpretation as well as seeing, hearing or feeling. The more skilled the reader is, the less visual information he needs from the printed page and the more he is able to predict what the unread material will be. The prediction, the identification, and the interpretation is all part of the final process of reading. There is redundancy whenever the same alternatives can be eliminated. In reading, the larger the context, the greater the redundancy. The more redundancy there is, the less visual information is needed.

In passages of continuous text, provided that the context is not

too difficult, every other letter can be eliminated from most words or about one word in five omitted altogether, without making the passage too difficult for the reader to comprehend - provided that he has learned the rules related to letter and word occurrence and co-occurrence (Smith, 1971, p. 23).

A reader decides whether he will read for exact information, or whether he is willing to risk making a mistake and read for minimal information. If a skilled reader sets his criterion too high for exact word recognition or meaning and demands too much visual information, he will often be unable to get it fast enough to overcome memory limitations and read for sense. Smith (1971) pointed out that readers establish relatively low criteria for deciding in favour of words that are common in their experience, but require more information if the word is one that appears infrequently.

From the linguists' and psycholinguists' point of view the teaching of reading has not always accommodated itself to the natural progression of children's language acquisition (Shuy, 1969). Students are taught in reverse order to which they learn best. Teachers and authors of textbooks prepare lessons from their own stage in the learning process, rather than the child's.

Goodman made the following statement:

We have been teaching reading as a set of skills to be mastered. We have been teaching children who are

competent users of oral language as if they were beginners in language learning (Goodman, 1972, p. 506).

Forester (1975) agreed with Shuy (1969), Smith (1971), and Goodman (1972) in believing that we prepare lessons and texts from the adult's level of learning rather than from the child's.

Forester (1975) studied twenty-two first graders from September until February for the purpose of producing a careful record of what children do as they learn to read, and what thought process or strategies they use to process the lessons and text presented to them, and also to note how their oral and written language differs from the language of the teacher and text. Recording raw data included video taping, audio-taping, written words and xeroxing copies of pages from the texts. Four of the twenty-two children were observed closely.

Forester found that children do not make fine discriminations between individual letters and words when they read. By mid-October children were not yet using initial consonants with any consistency to aid their word recognition. Forester gave the following examples of children's responses to the word. The printed stimulus is given first and then the child's response(s):

Good-down; mouse-mop; bug-hug;
down-up; dump-up. If see occurred
several times on the page, but look
fit the language pattern of the

child more closely, the latter was used - in some cases after having read the word see correctly just seconds earlier (p. 61).

Forester concluded that the children scan the printed text for more meaningful units of language rather than looking at the fine details in print.

Once children recognized that reading is meant to make sense, they began to draw upon the context more readily. Children were observed to hesitate on an unfamiliar word, then move their finger ahead to scan the next few words, only to return to the word at which they first stopped and then reading it without difficulty. Regression to the beginning of a sentence was frequently recorded, and in many instances, occurred when children recognized that the word or words just read did not fit the context (p. 67).

Once the children recognized that reading makes sense, they used the context more readily and the flow of language served as a guide to predictions and reading. Children also continued to use pictures, auditory memory and the structure of their own language to aid their reading.

Self correction occurred on the basis of whole language and meaning rather than the recognition of individual letters or words (Forester, 1975, p. 67).

Forester (1975) stated that children appeared to approach reading on the basis of two rules:

- 1) In order to read you have to look for meaning.
- 2) To abstract meaning from the printed text, you work with the patterns of language.
(p. 68)

Throughout the observations, Forester found that meaning and structure of patterns of language were the components children referred to most often.

Forester stated that children confirmed Vygotsky's (1962) view on language that a language learner will not regress to an earlier level of linguistic development when faced with a new language-learning task. The children appeared to induce rules in accordance with their level of linguistic development. To a child, language consists of meaning and patterns. Language is a natural process and abstract rules make it difficult for the children to learn to read.

Reading instruction reverses the levels of competence demanded of children. Linguistically, lessons are structured as though the child had no knowledge of language, as though he was operating on a low level of a foreigner being introduced to the morphology and sounds of an unknown language; at the cognitive level lessons derive from highly abstract adult logic, which assumes that the child operates at the same level as an adult (Forester, 1975, p. 81).

Forester concluded that the learning strategies of the beginning reader were found to have close parallels to language acquisition.

Summary

Researchers generally agree that language is an important determinant to reading success. Linguists and psycholinguists are of the opinion that reading is not going from words to meaning, but from meaning to words. They suggest that teachers do not teach reading to accommodate the natural developmental progression of the children's language. Teachers tend to teach reading from an adult's level of development and not from a child's, and as a result, students are taught in reverse order to which they learn best. Abstract rules about language are difficult for children to understand.

Goodman and Smith stress that a proficient reader picks and chooses from all the available information and scans the reading material for just enough cues to provide meaning. He skips those parts that are not essential in order to get meaning from the passage. He predicts what will happen next. It was with Goodman, Smith and Forester's work in mind that the investigator prepared the subtest, Predicting Outcomes, on the Experimental Reading Readiness Test to see how well children at the beginning reading stage can predict what will happen next, to see whether this ability in the child helps to predict his success in reading.

V. Sex and Culture and Its Relation to Reading Achievement

Dykstra and Tinney (1969) stated that most surveys in reading achievement between sexes found that girls made significantly greater progress in the beginning stages of learning to read. They refer to Maccoby's (1966) findings from eighteen studies of sex differences in reading. Ten of the studies found significant sex differences favouring girls, seven reported no significant differences, and only one favoured boys. It was found that girls, in general, were superior to boys in reading ability in the primary grades, but boys tended to close the gap by the intermediate grades.

Dykstra and Tinney (1969) designed a study to add additional information concerning sex differences in first and second grade achievement and also to determine whether or not sex differences in reading readiness and achievement were generalized to pupils in a variety of school systems in different geographic areas. The sample consisted of all boys and girls from eight participation projects of the Cooperative Research Program enrolled in grades one and two. Samples included 1,659 boys and 1,624 girls from school systems in the states of Pennsylvania, Michigan, New York, and New Jersey.

Highly significant differences in reading readiness were found among pupils in the eight projects.

Significant sex differences favouring the girls were found on six of the seven readiness measures. Girls were found to be significantly superior in the following areas: intelligence, auditory discrimination, general knowledge, and ability to follow directions orally.

At the first grade level girls were significantly superior on the following Stanford Achievement Primary Battery 1 subtests: word recognition, paragraph comprehension, spelling and word study skills.

In the Stanford Achievement Test Primary Battery 2 administered to second graders, the girls were significantly superior in achievement on the following subtests: word reading, paragraph comprehension, spelling, word study skills, language and arithmetic computation. Boys were significantly better in understanding science and social sciences in tasks where no reading was involved. No sex differences were found in performance on the arithmetic concepts test, on which only a portion involved reading. Dykstra and Tinney summarized their findings as follows:

The study also supports recent surveys which indicate boys in the primary grades possess an equal if not greater understanding vocabulary when this knowledge is tested orally. . . . Whatever the reason may be for the superiority of girls on prereading measures of letter knowledge, auditory discrimination, and visual discrimination on first grade measures of reading and spelling, and on second grade measures of

reading, spelling, conventions of language, and arithmetic computation, this superiority is evident in a variety of school situations. Moreover, whatever the reason may be for the lack of female superiority in performance on orally-administered tests of general vocabulary, this finding is consistent across a number of school systems. (Dykstra & Tinney, 1969, p. 627).

Research on the proportion of boys compared to girls with reading problems and in special reading classes varies greatly. Naiden (1976) stated that in Learning Disability classes in the Seattle Public Schools, boys outnumber girls approximately four to one. She mentioned Bannatyne's (1971) referral to Schiffman's review of literature of nine authors and found the proportion of boys to girls as 4:1 in less severe classes and 10:1 for the very severe. Critchley (1966) also found the ratio of 4:1 for boys to girls in special reading classes. In a Naiden study in 1974, 4,884 fourth graders, 5,039 sixth graders, and 4,778 eighth graders were administered the Metropolitan Achievement Test. Of the low achievers, the boys outnumbered the girls approximately three to two. Results showed approximately the same ratio for the sixth and eighth grade. Although this number was less than many of the other studies, Naiden questioned why so many more boys than girls were referred to the Learning Disabilities Clinic. One assumption was that low achieving boys showed

their frustrations in a more severe undesirable classroom behavior than the low achieving girls. She mentioned that Stanchfield (1965) reported that teachers felt that girls were easier to teach than boys because girls were more eager to please. Naiden was of the opinion that teachers readily found a reason to seek help for a disruptive student. The low achieving student who was not a discipline problem was not singled out by teachers as quickly as the disruptive low achiever. Naiden found that boys with severe reading deficits were about three times more often referred and placed in the Learning Centre than girls with similar reading deficits.

Sister Mary Nila (1952) tested 300 first graders during the first weeks of September. From the testing results, she concluded that boys as a group and girls as a group were equally ready to read. When the children were tested at the end of the school year for reading achievement, however, the girls significantly exceeded the boys. Stanchfield (1970) stated that school systems reported that boys made up to 75 to 80 percent of all reading disabilities, and in reading clinics, boys comprised over 85 percent of the pupils in the classes.

Dykstra and Tinney (1969) stated that the reasons for sex differences in reading found in their study and others were subject for debate. Opinions differed but generally fell into two main categories as to the cause of

girls' superiority over boys in reading, (1) physiological-biological-maturational factors, and (2) societal-cultural-educational factors (Johnson, 1976).

Lincoln (1927) reported that girls were anatomically twelve to eighteen months more advanced between the ages of seven and twelve years than boys. He stated:

It is true that girls are, generally, physically more mature than boys of corresponding age in every respect, it follows that girls should be doing more advanced work than boys or attaining higher in equal work. (Lincoln, 1927, p. 33)

Gallagher (1948) suggested that differences between boys and girls in reading may be caused by a substantial deviation in language mechanism. Gaddes and Crockett (1975) in their study found that this was not so.

Gaddes and Crockett (1975) administered The Spreen-Benton Aphasia Tests to a sample of 174 boys and 179 girls, ages 6 to 13, from the Greater Victoria School District. Children with learning and/or behavioral disorders were not involved in the study. The test consisted of 20 subtests of various language performances designed to assess understanding and production of language, retention of verbal material, reading and writing.

The authors revealed that girls in this range were *not* superior to boys in most language skills as measured on the Spreen-Benton Aphasia Test. No sex differences were found in 11 of the 20 subtests: visual naming of objects,

description of use of objects, stereognosis with the right and left hand, sentence repetition, repeating digits forward and backwards, constructing sentences with a number of supported words, identification of objects by name, identification of objects by descriptive sentences, and reading names of objects and pointing to them.

In the nine tests where girls did show superiority it was only an isolated advantage in seven of them. Girls copied writing better than boys at age 6, and only at age 7 did they show superiority in oral reading, reading descriptive sentences and pointing to objects, visual-graphic meaning, writing to dictation and articulation. There were no significant sex differences in all the other seven age levels. At age 7 and 8, girls were better in the oral reading of sentences, but by age 9, boys had reached equal competence.

Gaddes and Crockett concluded that the majority of behavioral skills which are essential to the understanding and expression of oral language, except for articulation, show a linear developmental pattern and no sex differences (p. 278). Feminine superiority was evident in the areas of reading, writing, and articulation.

Gaddes and Crockett suggested that the girls' better performance in reading and writing may be the result of better attention in school rather than native superiority, since the majority of the supportive reading skills were

similar for both sexes.

Numerous research reports state that girls are superior to boys in the early development of reading skills. Downing (1973), in his "Comparative Reading" study, however, found that this was not the case in all countries.

Downing (1973) presented a cross-national account of the linguistic mismatch as he calls it, in fourteen countries as examples of important cultural and linguistic differences in literacy learning. India and Germany were compared to provide differences in both economic and cultural background. The Union of Soviet Socialist Republics, Great Britain, and Israel were compared because of their differences in alphabets in the printed word. The U.S.A. and Finland were compared because of their contrasts between irregular grapheme-phoneme relations in the languages. France and Denmark provided contrasts in educational patterns. Japan and Hong Kong provided examples of syllabic and logographic writing systems with the alphabetic systems. Argentina, Norway, and Sweden were compared because of other differences in culture and language. A reading specialist for each of these countries was chosen to write a descriptive account of learning behaviour in his country.

Downing's final task was to analyse the data from the fourteen countries. He concluded from these studies that culture was a very important factor in the child's

experiences in learning to read.

Preston (1962) compared reading achievement of German and American children in the fourth and sixth grades. In reading comprehension and speed with the American children the girls were superior to boys in both grades, but with the German children, the boys were superior in all tests at both grades except for the speed score in the fourth grades.

The apparent superiority of German boys to German girls may be due to those not so easily identified results in the early ascription of reading and learning to the normal activity of the males. (Preston, 1962, p. 353).

Downing (1973) found similar results to Preston in that boys were superior to girls in reading in Germany.

Orlow (1976) disagreed with Preston and Downing, and has found some rather confusing results. She stated that in the German elementary schools the proportion of remedial boys to girls is three to four times as many boys as girls, as dictated in "Legasthenie" by Kowarik (1973). Orlow also found that in her class of eleven children with reading and writing problems only two were girls. In Hamburg, she spoke to administrators who felt that the actual number of boys and girls who had not learned to read were equal but many more boys than girls were put into remedial classes because of personality factors.

Downing (1973) stated that in India, studies showed

that 35 percent of the boys achieved literacy compared to 13 percent of the girls. Downing concluded that social causes were an important contributing factor in India and Nigeria. In India, girls dropped out of schools because of betrothal and the parents' unwillingness to send girls to mixed schools. In Nigeria, school attendance was poorer for girls because they were kept home to do chores while the boys were allowed to go to school (Downing and Thackeray, 1971). The poorer attendance of girls in school in both India and Nigeria appears due to cultural factors.

Johnson (1976) investigated sex differences in reading ability among four countries, Canada, England, Nigeria and the United States. Subjects were completing third, fifth, and seventh years of school. In Canada, England and the U.S.A., the ages of the majority of subjects were eight, ten and twelve. In Nigeria, the children start school a year later so the majority of the subjects were one year older.

In England and Nigeria, the boys scored better than the girls on the majority of the tests (eleven out of eighteen in England and fifteen out of eighteen in Nigeria).

The reverse was true in Canada and the United States. The girls scored better than the boys on the majority of the measures (sixteen out of eighteen in the United States and fourteen out of eighteen in Canada) (p. 749).

Limitations of the study were as follows: only one small geographical area was sampled in each of the four countries, only three grade levels were considered, samples were small, a smaller number of girls were used in Nigeria as fewer girls were enrolled, school officials were asked to select a representative cross-section of the population.

Johnson's (1976) study tends to support Preston (1962) and Downing (1973) in that sex differences in reading are influenced by cultural factors. Linton was quoted in Maccoby (1966), p. 214 and Johnson (1976), p. 750:

All societies prescribe different attitudes and activities to men and to women. Most of them try to rationalize the prescription in terms of physiological differences between sexes or their different roles in reproduction. While such factors may have served as a starting point for the division, the actual ascriptions are almost entirely determined by culture.

Downing (1973) concluded that cultures differed in the value that they place on literacy. In Germany, for example, reading is not considered a serious problem. In Norway and in Finland, there was not a great level of anxiety shown in regards to reading. In the United States, however, the opposite is true as compared with the other three more relaxed countries. The concern for reading improvement is a national concern in the United States. Downing (1973) suggested that the differences in the value which a country places on literacy must have a corresponding

difference in the degree of pressure placed on the child in the home and in the school.

Downing (1973) stated that the French language was as complex and irregular as the English language but that there was no great anxiety expressed about the reading problem although reading disabilities do exist in their schools. Japan also places a high value on literacy but Downing stated that there does not appear to be a serious incidence of failure. Downing (1973), then, concluded that a national emphasis on reading may not necessarily arise from the difficulties found in the complexity and irregularity of the English written language.

Gentile (1975, p. 727) mentioned that Silvaroli (1963) suggested that home background plays a major role in children's ability to read. He stated:

. . . the evidence seems to indicate that when children of different cultural backgrounds are compared, the child with the home background which is more oriented to the values reflected in the school has an advantage both in readiness for reading and for later achievement in reading.

Clay (1976) in her comparison of cultures of the Maoris, Samoan, and Pakeha people in New Zealand, concluded that language barriers do not appear to be the most significant factors affecting the success of the students in language arts. The Maori children who had not had the experience with books, had not seen people reading books,

and had not had parents read to them, were poorer in reading than the Samoan children, who spoke their own language and English, but scored lower on language tests.

Society's social and cultural expectations of boys and girls do influence sex differences in reading ability, (Clay, 1976; Downing, 1973; Johnson, 1976; Maccoby, 1966 & Wilson, 1971). Smith and Dechant quoted Harris:

. . . boys are supposed to be athletic and aggressive; girls are expected to be physically inactive and docile. And the non-reading boy's aggressiveness leads him to create trouble in school whereas the non-reading girl's tractability causes her to suffer in silence. Thus it may be that boys tend to be referred to clinics in greater numbers because their aggressive symptoms bring them so sharply to parent and teacher notice. (Smith & Dechant, 1961, p. 93).

Harris (1956) stated that girl's activities, such as sewing and doll playing activities, may help to develop fine motor skills and improve near point vision while boys were more active and involved in physical sports.

Maccoby (1966) stated that girls are encouraged to excel in the early school years, but not to the same extent from adolescence on. Boys, on the other hand, are encouraged in the early years to spend more time on non-academic or physical skills, but from adolescence on are expected to conform in preparation for college and other work. Downing (1973) also suggests that there may be a

cultural and social basis for girls superiority over boys in the United States. Boys, for example, are encouraged to spend more time on large muscle activities. Parents tend to look at their daughters with approval when they are reading books, whereas they may be inclined to suggest their sons should be out playing. Wilson's (1971) opinion was that we make school more compatible to the kinds of things that girls are supposed to do and that the materials used are oriented towards girls.

It has been suggested that the prevalence of female teachers in the elementary schools may be a determining factor in girls' superiority over boys in reading, (Downing, 1973; Preston, 1962; St. John, 1932 & Stanchfield, 1966). Evidence that boys do better in male classes is contradictory. Lahaderne (1976) extensively reviewed studies dealing with the role of male and female teachers in relation to reading ability of boys and girls in the elementary school. The studies reviewed fell into three groups, (1) teachers' perception of pupils; (2) teachers' classroom behaviors; (3) pupil outcomes. Lahaderne concluded that male and female teachers on the whole did not differ significantly in their perception and treatment of boys and girls nor did it account for differences in pupils' reading ability. Sex of elementary teachers, then, did not contribute to reading problems. Lahaderne was of the opinion that, instead, social forces impinging upon the

schools should be looked at more closely. Grouping of children by age into classroom units, teaching prescribed subject matter within a given period of time, and the traditional purpose of schools to concentrate on law and order rather than intellect and the child are examples given. Schools, he feels, set up rules, regulations, and schedules that both male and female teachers must impart to their pupils.

Stanchfield (1975) investigated the possibility that boys may do better if placed in groups composed almost entirely of boys. Subjects were 550 first grade children divided into eight matched classes, arranged so that eight classes had three-fourth boys and one-fourth girls, and the other eight classes had three-fourth girls and one-fourth boys.

The children were administered the Harsch and Soburg Survey Test of Primary Reading Development-Form A, in September and an alternate form at the end of June. The Detroit Beginning Primary Test was used as a measure of the children's intelligence quotient. The statistical analysis of reading achievement showed a significant difference of a mean of 6.7 in favor of the girls. The boys taught in classes composed of mostly boys did not gain significantly in reading achievement over the boys taught in heterogeneous groupings.

The teachers, however, found basic differences in

the learning patterns of boys and girls. Below are some of the differences found:

1. **Personality:** Boys were more aggressive and less conforming in school than girls; boys appeared to show a lower level of frustration and shorter attention span and were inclined to become behavior problems; boys wanted to read to find out things while girls were more inclined to read to please others; boys were not able to adapt to new situations as quickly as girls.
2. **Activity Levels:** The boys were much more active and found it difficult to sit still and concentrate on reading and were inclined to push and shove while the girls were much quieter.
3. **Verbal:** Boys had more difficulty speaking clearly and in complete sentences than girls.
4. **Auditory Discrimination:** Boys had much more difficulty in hearing common phonetic sounds and would take eight or ten lessons to learn and recognize sound while the girls could learn them in three.
5. **Listening skills:** Boys were not as good listeners as girls.
6. **Attention Span:** Boys' attention span was generally shorter than girls. If, however, the task was very active, the boys could attend much longer.
7. **Goals and Motivation:** The boys were found to be less anxious to please and less motivated to develop good

work habits.

These are observations made by the sixteen first grade teachers. It appears that we need to research methods and materials to interest and motivate boys in the classroom environment (Stanchfield, 1975, pp. 205-208).

Summary

In North America, most research in reading achievement between the sexes finds that girls make significantly greater progress in early reading than boys. Opinions vary as to the causes of this superiority. These fall into two main categories: (1) psychological-biological-maturational, and (2) societal-cultural-educational (Johnston, 1976).

Girls' superiority, however, does not hold true in all countries. In Nigeria, for example, other cultural factors interfere and boys show superiority in reading over girls.

CHAPTER 3

THE EXPERIMENTAL DESIGN AND PROCEDURE

The major purpose of this investigation was to develop indices to measure certain aspects of visual and auditory perception and basic language concepts in reading readiness. In this study the subtests were then correlated with another reading readiness test in September using beginning first graders. These results were then correlated with the reading achievement of these children as shown on a reading test administered in February. The factor of sex was considered an important variable and was examined for significant differences.

I. Overview of the Procedure

In order to ensure a better understanding of the nature of this study, the investigator has provided a brief outline of the organization of the procedure. A population of beginning first graders was tested in September using one reading readiness test: Canadian Readiness Test (CRT) by Evanechko, Ollila, Downing and Braun. The investigator's Experimental Reading Readiness subtests were then administered to the same sample and the results correlated with those of the Canadian Readiness Test. The results of

the investigator's ERR subtests and the CRT were then correlated with the Bond-Balow-Hoyt: The New Developmental Reading Tests (BBH) administered in February to the first graders to find out how well these subtests predict reading readiness. The Kuder-Richardson formula 20 was calculated to determine the reliability of the investigator's ERR subtests.

II. Organization of the Chapter

The information concerning the design and the procedures used in the study are presented in this chapter. Included in the discussion are the following headings:

1. The Measuring Instruments
 - a. The Investigator's Experimental Reading Readiness Test (ERR)
 - b. The Canadian Readiness Test (CRT)
 - c. The Bond-Balow-Hoyt: The New Developmental Reading Tests (BBH).
2. The Population and Sample
 - a. The Sample
 - b. Summary of the School Population Used
3. The Administration of the Test
 - a. Testing Procedure and Time Administered
4. Statistical Treatment
5. Null Hypothesis
6. Summary

III. Measuring Instruments Used

The following measuring instruments were used in the investigation: (a) The Investigator's Experimental Reading Readiness Test, (b) Canadian Readiness Test, and (c) Bond-Balow-Hoyt: The New Developmental Reading Test.

The Measuring Instruments

One reading readiness test and the author's experimental readiness subtests were used in this study. One reading achievement test was also used. This section presents a description of the selected tests and the contents for each. A brief description of administration, scoring procedures and sample items are given for the investigator's Experimental Reading Readiness Test. The reliability and validity of the Canadian Readiness Test and the Bond-Balow-Hoyt: The New Developmental Reading Tests can be found in Appendix C and D.

The Investigator's Experimental Reading Readiness Test

Nature and Purpose of the Test:

This Reading Readiness Test is designed to be given at the end of kindergarten or at the beginning of the first grade.

The purpose of this test is to explore reading readiness predictors that are not found extensively in the more commonly used Reading Readiness Tests. It is not the

purpose, however, to duplicate the reading readiness subtests already found to be good predictors and commonly used in the commercial tests, for example, beginning sounds, letter and word discrimination. The author's purpose is, instead, to develop tests in other areas of reading readiness. Due to the short period of time available before the test had to be administered to beginning first graders in September, and the amount of teachers' time needed to administer these tests, the whole battery was kept to the following four tests:

- (1) Basic Concepts
- (2) Predicting Outcomes
- (3) Spatial Relations
- (4) Auditory Reception

Contents of the Test:

Test One: Basic Concepts - is a 30 item test designed to test the child's basic language concepts or understanding of words which he has acquired through experience.

Test Two: Predicting Outcomes - is a 30 item test designed to test the child's auditory comprehension and his ability to predict what will happen next when the context is given orally by the examiner.

Test Three: Spatial Relations - is a 30 item test designed to test the child's concepts of space and his

experiences and understanding of words, such as over, under, beside, biggest, etc.

Test Four: Auditory Reception - is a 30 item test designed to measure the child's ability to derive meaning from verbally presented materials and the ability to respond with a simple nonverbal *yes* or *no* response by circling the word *yes* and the *happy face* if the statement is correct or circling the word *no* and the *sad face* if the statement is not correct.

Materials Needed:

The teacher will need a manual of directions, a pupil's booklet for demonstration, a stopwatch or a watch with a second hand and a chalkboard. Spare pencils should be available to avoid delay and confusion.

Each child will need a copy of the test booklet with his or her name printed on it. A marker, eight and one-half inches by two inches, will be needed for each child plus a sharpened pencil.

Specific Testing Instructions:

1. The teacher should see that all the children have a sharpened pencil and a marker on their desk.
2. The teacher will pass out the children's booklets with their names printed on them. Information such as age, birthdate, name of school, and name of teacher can be entered either before or after the testing. Comments

about the children should be left until after the testing is completed.

3. The tests should be referred to as games in order to create a relaxed atmosphere and motivate the children to do their best work.
4. The teacher will ask all the children to open their test booklets to page one and fold the cover back. She will illustrate and then help the children who need assistance.
5. The directions to the teacher are in upper case letters and underlined. The directions that the teacher gives the children will be within quotation marks.
6. At the beginning of each test are two practice items, Sample A and Sample B. The teacher should take as much time as necessary to explain these sample items so that the children understand them. No questions should be answered, however, once the testing begins.

Administering the Tests:

Scheduling and Timing

1. The tests should be given in two sessions as follows:

Session One:

Part 1 - Basic Concepts

Part 2 - Predicting Outcomes

Session Two:

Part 3 - Spatial Relations

Part 4 - Auditory Reception

2. The two sessions should be held on separate days. The testing should be done first thing in the morning when the children are fresh and are more apt to do their best work.
3. A group of 10 - 12 children in each testing session is preferred. The teacher can, however, test the entire class at one time, but should feel free to have children who cannot work satisfactorily in a group tested individually at a later date.
4. It is best that the classroom teacher serve as the examiner, since she is the person who has established a rapport with the pupils and would, therefore, elicit their best efforts.
5. The teacher should feel free to make use of a teacher-aide or parent if he or she has previously worked with the children in this classroom and the children have become accustomed to his or her presence.
6. The children should be seated so that copying will be reduced to a minimum. The teacher should explain to the children that when the new games have started there should be no talking.

Every possible effort should be made to eliminate as many distractions as possible. *Do Not Disturb* signs should be placed on the doors. A check should be made to see that all children have sharpened pencils before the testing begins. Extra ones should be

made available in case of breakage. It is advisable to have the children visit the washrooms before the testing is underway.

7. The teacher should become thoroughly familiar with the tests and directions before administering so that she is at ease with the instructions and can anticipate any difficulties the children may encounter.
8. When administering the test, precise wording found in the instructions should be used. Any deviations will invalidate the results as all the children in this study must be given the tests with the same precise instructions.
9. A twelve second pause is allowed on all the tests so that pupils will have no difficulty finishing each item. If all the children finish sooner you may go on.
10. Attention span is controlled as much as possible. The teacher should check to see that all the children have their markers in the correct place before she gives the directions rather than leave the children entirely on their own to find their place. Unless this is controlled it is difficult to know whether the children do not understand the test item or have just simply lost their place or have difficulty keeping at work without constant supervision of the teacher.

In this study, the author is more concerned whether the children know the answers to the test

items. Uncontrolled attention span can be included in another study.

11. The teacher may stop testing and allow the children to stand up and move around when she feels they are getting tired.

Scoring:

Test One: Basic Concepts - Give one point for each item correct = 30 points.

Test Two: Predicting Outcomes - Give one point for each item correct = 30 points.

Test Three: Spatial Relations - Give one point for each item correct = 30 points. Reversals are scored as errors.

Test Four: Auditory Reception - Give one point for each item correct = 30 points.

If the child only marks the word *yes* or only the *happy face*, give one point for either, providing the answer is correct. See the scoring key for the correct answers to each item.

The total score possible is 120 points.

(See Appendix B for Teachers' Directions and Pupil's Response Booklet)

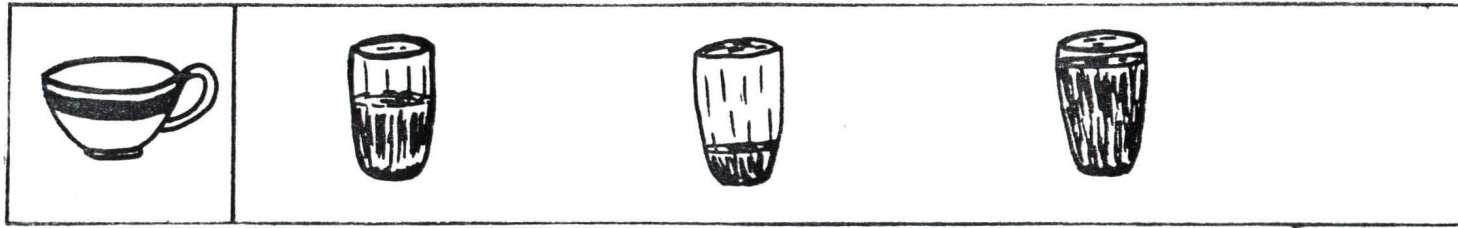


Figure 14. Sample Item, Investigator's Experimental Reading Readiness Test.
Basic Language Concepts.

"Move your marker down and put it under the picture of the *cup!*"

*CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE
CUP-QUESTION #14.*

"Listen carefully, and look in the long box!

Find the glass that is the fullest!

"Now circle the picture!"

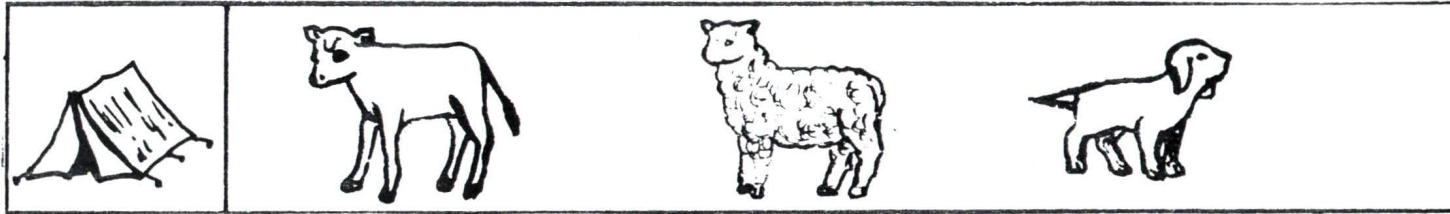


Figure 26. Sample Item, Investigator's Experimental Reading Readiness Test.
Predicting Outcomes.

"Move your marker down and put it under the picture of the *tent*!"

*CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE
TENT-QUESTION #26.*

"Listen carefully!"

It was turning cold. The farmer needed some warm mittens.

"Will you knit some mittens for me?" said the farmer to his wife.

"I cannot knit your mittens because I have nothing to make them out
of," said his wife.

"I will go out and ask my animals to help me," said the farmer.

The animal that he asked to help him was the.

"Circle the picture that finishes the story!"

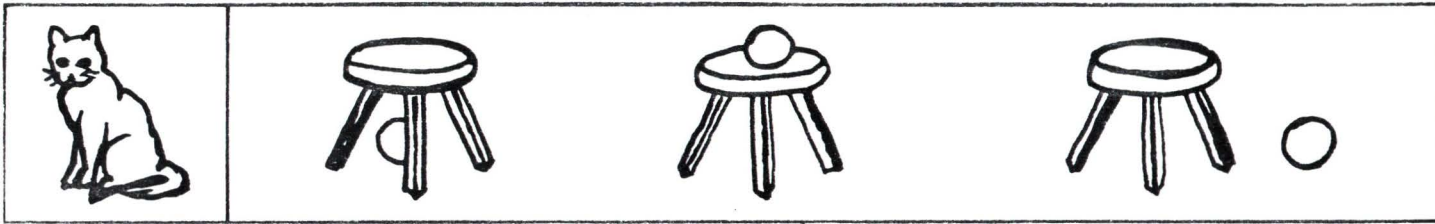


Figure 6. Sample Item, Investigator's Experimental Reading Readiness Test.

Spatial Relations.

"Move your marker down and put it under the picture of the *kitten!*"

*CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE
KITTEN - QUESTION #6.*

"Look at the stools and the balls in the long box!

Circle the one that has the ball under the stool!

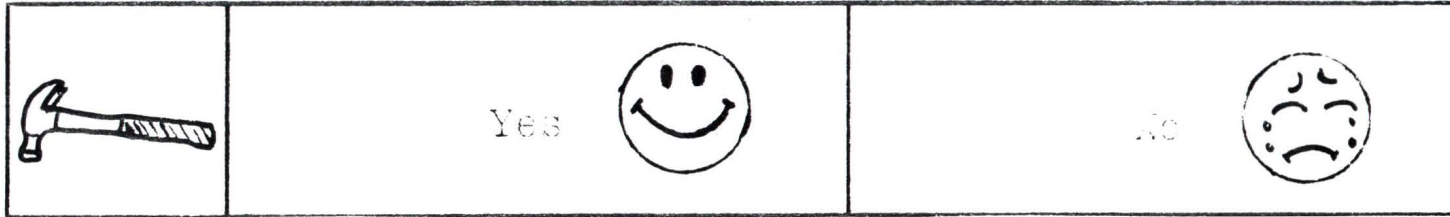


Figure 26. Sample Item, Investigator's Experimental Reading Readiness Test.
Auditory Reception.

"Move your marker down and put it under the picture of the *hammer!*"
*CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE
HAMMER - QUESTION #26.*

"Listen carefully and do not mark your booklets until I tell you to!"
Listen - Encyclopedias have information in them.

"If you think what I said is right, circle the word *Yes* and the
Happy Face, like this!"
CIRCLE THE YES AND THE HAPPY FACE ON THE CHALKBOARD.

"If you think what I said is not right, circle the word *No* and the
Sad Face, like this!"
CIRCLE THE WORD NO ON THE BOARD.

"Now circle your answer!"

Canadian Readiness Test

The Canadian Readiness Test (Evanechko, Peter, Ollila, Lloyd, Downing, John and Braun, Carl, 1972) is a group test intended for use at the end of kindergarten or at the beginning of first grade. The test is to be given in two sessions as follows: Session 1: Parts 1 & 2. Session 2: Parts 4, 5, 6. The whole battery consists of six subtests: Technical Language of Literacy, Letter Recognition, Word Matching, Beginning Sounds, Semantics, and Learning Rate.

Test 1: Technical Language of Literacy. This 16-item test is designed to measure the child's knowledge of technical terms used in describing language, such as, letter, word, etc. The child is required to draw a circle around each picture of the noun that the teacher names, for example, animal (The child must draw a circle around each animal that he sees in the square).

Test 2: Letter Recognition. This is a visual discrimination test of 21 items. It is designed to measure the child's ability to recognize both upper and lower case letters. The child is required to choose the letter that the teacher names from four alternatives.

Test 3: Word Matching. This is a 21-item visual discrimination test. The child is required to circle the word in the big box that matches the one in the little box.

Test 4: Beginning Sounds. This 19-item test is designed to measure the child's ability to discriminate between sounds at the beginning of words. The child is required to mark the picture of the object whose name starts with the same sound as the one at the beginning of the row.

Test 5: Semantics. This classification subtest requires the child to classify stimuli by circling the three pictures that belong together in a group of five. The 12 items are designed to measure the child's ability to categorize ideas and experiences.

Test 6: Learning Rate. This subtest is designed to measure the child's ability to learn sight words. After the teacher teaches ten sight words, the child is required to select from a row of three words one of the specific words named by the teacher.

(See Appendix C for Sample Items, Validity and Reliability of CRT).

Bond-Balow-Hoyt: The New
Developmental Reading Tests

The New Developmental Reading Tests are composed of two batteries of tests: (Lower Primary and Upper Primary), (two equivalent forms) which is designed to measure and diagnose the child's reading ability. The Lower Primary Forms L-I are used in this study. Each form requires a total testing time of forty minutes. There are three parts to each test and the last one should be administered at a

different sitting.

Part I: Word Recognition. This 36-item four-choice test is designed to assess the pupil's word-recognition ability. The pupil is required to read the four words and then put a 'C' on the correct picture. Ten minutes are allowed for this test.

Part II: Comprehending Significant Ideas. This 40-item test is designed to measure the child's ability to comprehend ideas expressed in a short paragraph. Each paragraph is followed by two items which do not use the same words as the paragraph. The following aspects of comprehension are included in the test items: recognizing the main idea, general significance, drawing a conclusion, drawing an inference, forming an opinion, and judging the relevancy and the reasonableness of the response choices given.

Part III: Comprehending Specific Instructions. This test is designed to measure the child's ability to comprehend specific instructions which become more difficult as the child progresses through the test.

(See Appendix D for Sample Items, Validity and Reliability of BBH).

IV. The Population and Sample

Subjects in this study were one hundred and fifteen children from seven first grade classrooms randomly selected from schools in the Sooke School District #62, in the Greater Victoria area, on Lower Vancouver Island. The selection of the four rural and urban schools was made by the Elementary Language Arts Supervisor of that district. The authorized readers used in these first grade classrooms were as follows: (a) five classes used the Copp Clark Series and two of these supplemented this program with the old Ginn Series, (b) two classes used the Holt & Rinehart-Language Patterns.

Table 3:01

Summary of School Sample Given All Three Tests:
Experimental Reading Readiness Test, Canadian
Readiness Test, and Bond-Balow-Hoyt: The New
Developmental Reading Tests

Total Number of Students	115
Total Number of Boys	62
Total Number of Girls	53
Total Number of Classes	7
Total Number of Schools	4

Table 3:02
Summary of the Tests Administered and the
Time of Administration

Tests	Grade One First Month (Sept.)	Grade One Sixth Month (Feb.)
<u>Experimental Reading Readiness:</u>		
1. Basic Language Concepts	*	
2. Predicting Outcomes	*	
3. Spatial Concepts	*	
4. Auditory Reception	*	
<u>Canadian Readiness:</u>		
1. Technical Language of Literacy	*	
2. Letter Recognition	*	
3. Word Matching	*	
4. Beginning Sounds	*	
5. Semantics	*	
6. Learning Rate	*	
<u>Bond-Balow-Hoyt:</u>		
1. Word Recognition		*
2. Comprehension of Ideas		*
3. Comprehension of Instruction		*

V. Administration of the Tests

The author's Experimental Reading Readiness Tests were administered by the classroom teachers during the second and third week of September, 1975. No more than two subjects were administered during any one session. The Canadian Readiness Test was also administered during these same two weeks of September by the classroom teachers. The Bond-Balow-Hoyt: The New Developmental Reading Test was administered during the month of February 1976, by the classroom teachers. The tests were scored by the classroom teacher and then rechecked by the investigator.

VI. Statistical Treatment

The purpose of the investigation was to develop indices to measure certain aspects of visual and auditory perception and basic language concepts in reading readiness. The author's Experimental Reading Readiness subtests and the Canadian Readiness Test were administered in September and the results of the two were correlated. In February the author's Experimental Reading Readiness subtests were correlated with the Bond-Balow-Hoyt: The New Developmental Reading Tests.

In order to examine the hypotheses set forth in Chapter One, the following statistical procedures were undertaken. Computing programs prepared by the University of Victoria were used. The means, standard deviations and

ranges were computed for the Experimental Reading Readiness measures to provide an overall picture of the test performance. The statistics for performance according to sex were also considered.

The reliability of the investigator's Experimental measures and calculations of the correlation coefficients, were also carried out. The multiple regression analysis was also calculated to find which of the tests were the best predictors of reading achievement on the three subtests of the Bond-Balow-Hoyt: The New Developmental Reading Tests.

VII. Null Hypotheses

This investigation was concerned with the development of new reading readiness indices in visual and auditory perception and basic language concepts in hopes that some knowledge might be added in the construction of tests which are more accurate predictors of reading readiness. The factor of sex was also considered to be an important variable and was examined for significant differences. To be more specific, see the null hypotheses on page 15.

Summary

In this chapter the investigator has presented the design and procedures utilized in the study. The format, the contents and administration of the two testing instruments have been reviewed. The purpose, contents, and

scoring procedures of the author's subtests have been described. Information has been given on the sample. The statistical procedures and reference to the null hypotheses have been stated within this chapter. The investigator will present the results of the study in the following chapter.

CHAPTER 4

THE ANALYSES AND RESULTS

The statistical analyses of the data gathered and the results of these analyses are presented in this chapter.

The major purpose of this study was to develop indices to measure some aspects of visual and auditory perception and basic language concepts at the readiness level not found in the more commonly used reading readiness tests, in order that some new knowledge might be added to help construct tests which are more accurate predictors of reading readiness. The investigator's Experimental Reading Readiness Test and the Canadian Readiness Test by Evanechko, Ollila, Downing and Braun were administered in September to 115 first graders. The scores of these two readiness tests were then correlated to find significant correlations. The Bond-Balow-Hoyt: The New Developmental Reading Tests were administered in February. The Experimental Reading Readiness Test and the Canadian Readiness Test were included in multiple regression equations to predict reading achievement on each of the three subtests of the Bond-Balow-Hoyt: The New Developmental Reading Tests. The

factor of sex in reading readiness and reading achievement was also investigated. The reliability of the investigator's Experimental Reading Readiness Test was calculated using the Kuder-Richardson formula 20.

Questions to be Answered
by the Analyses

The questions to be answered by the analyses are as follows:

1. Will there be any significant differences in reading readiness skills on the Experimental Reading Readiness Test between boys and girls?
2. Will there be any significant differences in reading readiness skills on the Canadian Readiness Test between boys and girls?
3. Will there be any significant differences in reading achievement on the Bond-Balow-Hoyt: The New Developmental Tests administered in February between boys and girls?
4. Will there be any significant relationship between the Canadian Readiness Test subtests and the Experimental Reading Readiness subtests?
5. Will there be any significant relationship between the Experimental Reading Readiness subtest-Basic Language Concepts and reading achievement?
6. Will there be any significant relationship between the Experimental Reading Readiness subtest-Predicting

Outcomes and reading achievement?

7. Will there be any significant relationship between the Experimental Reading Readiness subtest-Spatial Relations Concepts and reading achievement?
8. Will there be any significant relationship between the Experimental Reading Readiness subtest-Auditory Reception and reading achievement?
9. Which of the readiness subtests developed will be significant predictors of reading achievement?

Null Hypotheses to be Answered by the Analyses

This investigation was concerned with the development of new reading readiness indices in visual and auditory perception and basic language concepts in hopes that some knowledge might be added in the construction of tests which are more accurate predictors of reading readiness. The factor of sex was also considered as an important variable and was examined for significant differences. To be more specific, the null hypotheses can be categorized and stated as follows:

- 1.0 On the investigator's Experimental Reading Readiness subtests, there will be no significant difference between reading readiness performance and sex:
 - 1.1 Basic Language Concepts
 - 1.2 Predicting Outcomes

- 1.3 Spatial Relations Concepts
- 1.4 Auditory Reception
- 2.0 On the Canadian Readiness Test, there will be no significant difference between reading readiness performance and sex:
 - 2.1 Technical Language of Literacy
 - 2.2 Letter Recognition
 - 2.3 Word Matching
 - 2.4 Beginning Sounds
 - 2.5 Semantics
 - 2.6 Learning Rate
- 3.0 On the Bond-Balow-Hoyt: The New Developmental Reading Tests, there will be no significant difference between the following reading abilities and sex:
 - 3.1 Word Recognition
 - 3.2 Comprehension of Significant Ideas
 - 3.3 Comprehension of Specific Instruction
- 4.0 On the investigator's Experimental Reading Readiness subtest-Basic Language Concepts, there will be no significant correlation between it and the following subtests on the Canadian Readiness Test:
 - 4.1 Technical Language of Literacy
 - 4.2 Letter Recognition
 - 4.3 Word Matching

4.4 Beginning Sounds

4.5 Semantics

4.6 Learning Rate

5.0 On the investigator's Experimental Reading Readiness subtest-Predicting Outcomes, there will be no significant correlation between it and the following subtests on the Canadian Readiness Test:

5.1 Technical Language of Literacy

5.2 Letter Recognition

5.3 Word Matching

5.4 Beginning Sounds

5.5 Semantics

5.6 Learning Rate

6.0 On the investigator's Experimental Reading Readiness subtest-Spatial Relations Concepts, there will be no significant correlation between it and the following subtests on the Canadian Readiness Test:

6.1 Technical Language of Literacy

6.2 Letter Recognition

6.3 Word Matching

6.4 Beginning Sounds

6.5 Semantics

6.6 Learning Rate

7.0 On the investigator's Experimental Reading Readiness

subtest-Auditory Reception, there will be no significant correlation between it and the following subtests on the Canadian Readiness Test:

7.1 Technical Language of Literacy

7.2 Letter Recognition

7.3 Word Matching

7.4 Beginning Sounds

7.5 Semantics

7.6 Learning Rate

8.0 On the investigator's Experimental Reading Readiness subtest-Basic Language Concepts, there will be no significant correlation between it and the following subtests on the Bond-Balow-Hoyt: The New Developmental Reading Tests:

8.1 Word Recognition

8.2 Comprehension of Significant Ideas

8.3 Comprehension of Specific Instructions

9.0 On the investigator's Experimental Reading Readiness subtest-Predicting Outcomes, there will be no significant correlation between it and the following subtests on the Bond-Balow-Hoyt: The New Developmental Reading Tests:

9.1 Word Recognition

9.2 Comprehension of Significant Ideas

9.3 Comprehension of Specific Instructions

- 10.0 On the investigator's Experimental Reading Readiness subtest-Spatial Relations Concepts, there will be no significant correlation between it and the following subtests on the Bond-Balow-Hoyt: The New Developmental Reading Tests:
- 10.1 Word Recognition
 - 10.2 Comprehension of Significant Ideas
 - 10.3 Comprehension of Specific Instructions
- 11.0 On the investigator's Experimental Reading Readiness subtest-Auditory Reception, there will be no significant correlation between it and the following subtests on the Bond-Balow-Hoyt: The New Developmental Reading Tests:
- 11.1 Word Recognition
 - 11.2 Comprehension of Significant Ideas
 - 11.3 Comprehension of Specific Instructions
- 12.0 On the Bond-Balow-Hoyt: The New Developmental Reading subtest-Word Recognition, there will be no significant predictors of word recognition on the Experimental Reading Readiness subtests:
- 12.1 Basic Relations Concepts
 - 12.2 Predicting Outcomes
 - 12.3 Spatial Relations Concepts
 - 12.4 Auditory Reception

- 13.0 On the Bond-Balow-Hoyt: The New Developmental Reading subtest-Word Recognition, there will be no significant predictors of word recognition on the following Canadian Readiness subtests:
- 13.1 Technical Language of Literacy
 - 13.2 Letter Recognition
 - 13.3 Word Matching
 - 13.4 Beginning Sounds
 - 13.5 Semantics
 - 13.6 Learning Rate
- 14.0 On the Bond-Balow-Hoyt: The New Developmental Reading subtest-Comprehension of Significant Ideas, there will be no significant predictors of reading on the following Experimental Reading Readiness subtests:
- 14.1 Basic Language Concepts
 - 14.2 Predicting Outcomes
 - 14.3 Spatial Relations Concepts
 - 14.4 Auditory Reception
- 15.0 On the Bond-Balow-Hoyt: The New Developmental Reading subtest-Comprehension of Significant Ideas, there will be no significant predictors of reading on the following subtests on the Canadian Readiness Test:
- 15.1 Technical Language of Literacy
 - 15.2 Letter Recognition
 - 15.3 Word Matching

15.4 Beginning Sounds

15.5 Semantics

15.6 Learning Rate

16.0 On the Bond-Balow-Hoyt: The New Developmental Reading subtest-Comprehension of Specific Instructions, there will be no significant predictors of reading on the following Canadian Readiness subtests:

16.1 Technical Language of Literacy

16.2 Letter Recognition

16.3 Word Matching

16.4 Beginning Sounds

16.5 Semantics

16.6 Learning Rate

17.0 On the Bond-Balow-Hoyt: The New Developmental Reading subtests-Comprehension of Specific Instructions, there will be no significant predictors of reading on the following Experimental Reading Readiness subtest:

17.1 Basic Language Concepts

17.2 Predicting Outcomes

17.3 Spatial Relations Concepts

17.4 Auditory Reception

I. Overview of the Analysis

In order to answer the questions stated above, the investigator tested all the hypotheses using the following

statistical procedures. The means variances, and standard deviations were computed for the experimental reading readiness measures (X1 to X4), to provide an overall picture of the test performance (See Table 4:01). The statistics for the performance according to sex were computed for all three tests: (1) Experimental Reading Readiness Test, (2) Canadian Readiness Test, and (3) Bond-Balow-Hoyt: The New Developmental Reading Tests (See Table 4:02).

The remainder of this chapter will present the following: (1) the analysis of the data involved determining the reliability of the experimental measures, (2) calculating correlation coefficients, and also conducting a multiple regression analysis. Computing programs prepared by the University of Victoria were used.

II. Results of the Descriptive Analysis

The data collected for the analysis consisted of the raw scores on the four subtests of the investigator's Experimental Reading Readiness Test and the six subtests on the Canadian Readiness Test, administered to first graders during the first and second weeks of September. Table 4:01 gives the means, variances and standard deviations of the scores obtained by the 115 first graders. On the Experimental Reading Readiness Test, means ranged from 25.26 out of 29 items on the subtest-Basic Language Concepts to a

Table 4:01

Means, Variances and Standard Deviations for
 the Experimental Reading Readiness Test,
 Canadian Readiness Test and the Bond-Balow-
 Hoyt: The New Developmental Reading Tests

Step No.	Variable	Mean	Variance	Standard Deviation
<u>Experimental Reading Readiness Test:</u>				
X1	Basic Language Concepts	25.26	5.84	2.42
X2	Predicting Outcomes	22.49	12.55	3.54
X3	Spatial Relations	23.18	12.51	3.54
X4	Auditory Reception	22.35	21.55	4.64
<u>Canadian Readiness Test:</u>				
Y1	Technical Language of Literacy	13.18	13.68	3.70
Y2	Letter Recognition	18.03	15.90	3.99
Y3	Word Matching	16.10	18.56	4.31
Y4	Beginning Sounds	16.33	11.09	3.33
Y5	Semantics	29.00	52.33	7.23
Y6	Learning Rate	16.81	20.62	4.54
<u>Bond-Balow-Hoyt: The New Developmental Reading Tests:</u>				
Z1	Word Recognition	19.97	59.17	8.31
Z2	Comprehending Significant Ideas	16.39	111.21	10.55
Z3	Comprehending Specific Instructions	13.29	37.57	6.13

N = 115

low of 22.35 out of 30 items on the subtest-Auditory Reception. Standard deviations ranged from 2.42 to 4.64. Results show that on the average the children scored high on the investigator's subtest (see Appendix N for frequency distributions).

Table 4:01 also gives the means, variances and standard deviations of the 115 first graders who completed the Bond-Balow-Hoyt: The New Developmental Reading Tests in February. Comprehending Significant Ideas showed a high standard deviation of 10.55 compared to the other subtests. Word recognition on the Bond-Balow-Hoyt and Semantics on the Canadian Readiness Test also showed a higher standard deviation or scatter of scores.

III. Results Related to the Analysis of Each of the Hypotheses Using the Analysis of Variance

This part of the analysis was designed to answer the question of whether or not there were any significant differences between the reading readiness scores on the investigator's Experimental Reading Readiness Test and sex, and the Canadian Readiness Test and sex. The analysis was also designed to see if there was any significant differences between reading achievement on the Bond-Balow-Hoyt: The New Developmental Reading Tests and sex. Finally the Newman-Keuls test was applied to the hypotheses that had significant differences between boys' and girls' scores on

the tests administered.

General Procedure

Reading Readiness scores were obtained by administering the investigator's Experimental Reading Readiness Test and the Canadian Readiness Test to beginning first grade children during the second and third week of September. Reading achievement scores were obtained by administering the Bond-Balow-Hoyt: The New Developmental Tests during the second and third weeks of February. All the hypotheses (1.1 to 3.3) in the investigation were tested.

Findings of the Analysis of Variance

On Table 4:02 are recorded the data relative to the hypotheses 1.1 to 3.3. Following are the summaries of the results:

1.0 On the Experimental Reading Readiness subtests and sex:

1.1 There is no significant difference in the reading readiness scores on the investigator's Experimental Reading Readiness subtest-Basic Language Concepts between boys and girls.

1.2 There is no significant difference in the reading readiness scores on the investigator's Experimental Reading Readiness subtest-Predicting Outcomes between boys and girls.

- 1.3 There is no significant difference in the reading readiness scores on the investigator's Experimental Reading Readiness subtest-Spatial Relations Concepts between boys and girls.
- 1.4 There is no significant difference in the reading readiness scores on the investigator's Experimental Reading Readiness subtest-Auditory Reception between boys and girls.
- 2.0 On the Canadian Readiness subtests and sex:
 - 2.1 There is no significant difference in the reading readiness score on the Canadian Readiness subtest-Technical Language of Literacy between boys and girls.
 - 2.2 There is no significant difference in the scores on the Canadian Readiness subtest-Letter Recognition between boys and girls.
 - 2.3 There is a significant difference in the reading readiness scores on the Canadian Readiness subtest-Word Matching between boys and girls.
 - 2.4 There is no significant difference in the reading readiness scores on the Canadian Readiness subtest-Beginning Sounds between boys and girls.
 - 2.5 There is a significant difference in the reading readiness scores on the Canadian Readiness subtest-Semantics between boys and girls.

2.6 There is no significant difference in the reading readiness scores on the Canadian Readiness subtest-Learning Rate between boys and girls.

3.0 On the Bond-Balow-Hoyt: The New Developmental Reading Tests and sex:

3.1 There is no significant difference in the reading achievement scores on the Bond-Balow-Hoyt subtest-Word Recognition between boys and girls.

3.2 There is no significant difference in the reading achievement scores on the Bond-Balow-Hoyt subtest-Comprehending Significant Ideas between boys and girls.

3.3 There is no significant difference in the reading achievement scores on the Bond-Balow-Hoyt subtest-Comprehending Specific Instructions between boys and girls.

Further Analysis of Significant Differences in the Hypotheses Related To Sex

Table 4:02 gives the means, standard deviation and the p significance at the 0.05 level according to sex. Only the 115 first graders who completed all of the three tests, Experimental Reading Readiness, Canadian Readiness and the Bond-Balow-Hoyt: The New Developmental Reading Tests were included in the analysis. Sixty-two boys and fifty-three girls made up the sample. The girls scored slightly higher

Table 4:02

Means, Standard Deviations and P Significance
 on the Experimental Reading Readiness,
Canadian Readiness and the Bond-Balow-Hoyt:
The New Developmental Reading Tests of Boys
 and Girls in First Grade

Variable	Mean		SD		F	Mean P Sig.
	Boys N = 62	Girls N = 53	Boys	Girls		
<u>Experimental Reading Readiness Test:</u>						
1. Basic Language Concepts	24.98	25.58	2.44	2.40	1.76	0.187
2. Predicting Outcomes	22.68	22.26	3.66	3.46	0.38	0.537
3. Spatial Relations	22.98	23.42	3.53	3.60	0.42	0.519
4. Auditory Reception	22.45	22.23	5.18	4.02	0.07	0.798
<u>Canadian Readiness:</u>						
5. Technical Language of Literacy	13.21	13.15	3.37	4.12	0.01	0.933
6. Letter Recognition	17.87	18.21	3.95	4.10	0.20	0.655
7. Word Matching	15.26	17.09	4.63	3.75	5.34	0.022*
8. Beginning Sounds	16.50	16.13	3.34	3.37	0.34	0.559
9. Semantics	27.76	30.45	7.50	6.77	4.03	0.047*
10. Learning Rate	16.65	17.00	4.59	4.56	0.17	0.679
<u>Bond-Balow-Hoyt:</u>						
11. Word Recognition	19.85	20.11	8.45	8.32	0.03	0.870
12. Comprehending Significant Ideas	15.53	17.40	10.84	10.30	0.88	0.349
13. Comprehending Specific Instructions	12.52	14.17	6.10	6.16	2.08	0.152

*p ≤ .05

on the ERR two subtests, Basic Language Concepts and Spatial Relations Concepts. The gain was so little that it was not significant.

On the Canadian Readiness subtests, the girls scored higher on four of the subtests, Letter Recognition, Word Matching, Semantics and Learning Rate. Only on Semantics and Word Matching, however, were the girls' gains significant. (Mean difference of 1.83 and Standard Deviation difference of .88 on Word Matching and a Mean difference of 2.69 and Standard Deviation difference of .73 on Semantics.) On the other three subtests, boys and girls were almost equal with the boys only a few decimal points ahead (See Table 4:02).

In reading achievement on the Bond-Balow-Hoyt: The New Development Reading Tests, the girls scored higher than the boys on all three subtests but not significantly so (See Table 4:02).

Summary

The results related to the hypotheses using the analysis of variance may be summarized in terms of acceptance or rejection of the hypotheses as follows:

(1) Hypotheses 2.3 and 2.5 were rejected at the .05 level of significance, (2) hypotheses 1.1, 1.2, 1.3, 1.4, 2.1, 2.2, 2.4, 2.6, 3.1, 3.2 and 3.3 were not rejected at the .05 level of significance. The following statements may then be

reported in regard to this part of the analysis:

1. There was no significant difference in reading readiness between boys and girls on the Experimental Reading Readiness subtests.
2. There were two subtests on the Canadian Readiness Test which showed significant differences in reading readiness between boys and girls. These were Word Matching and Semantics.
3. There was no significant difference in reading achievement between boys and girls on the Bond-Balow-Hoyt: The New Developmental Reading Tests.

IV. Analysis of the Experimental Test Reliability

The Kuder-Richardson reliability coefficient to determine the internal consistency of the investigator's Experimental Reading Readiness Test was computed to provide an index of reliability.

General Procedure

To determine reliability, the Experimental Reading Readiness Test was administered to all six classrooms of first graders during the first week of September. The Kuder-Richardson reliability coefficient, which determines the internal consistency of the test, was computed for each of the four subtests.

Further Analysis of the Experimental Test Reliability

Table 4:03 presents the KR-20 values of the four subtests on the Experimental battery. The reliability coefficient was computed by the Kuder-Richardson Formula 20 technique which is an analysis of variance procedure based upon the consistency of error patterns. Coefficients of the four subtests ranged from 0.505 to 0.814: Auditory Reception showed the highest reliability coefficient of 0.814; then Spatial Relations Concepts of 0.706; then Predicting Outcomes of 0.679 and then Basic Language Concepts of 0.505. The subtests Auditory Reception and Spatial Relations appeared to have a sufficiently high reliability. (See Table 4:03). According to Bruning and Kintz (1968) who stated that a coefficient of 0.70 or higher is a sufficient reliability, the two subtests on the Experimental Reading Readiness Test, then, are sufficiently reliable reading readiness measures.

The Kuder-Richardson reliability coefficient for the total test was 0.876, which shows sufficient reliability when the test is used as a whole (See Table 4:04).

Summary

Two of the subtests on the Experimental Reading Readiness Test, Auditory Reception and Spatial Relations Concepts show a reliability of over 0.70 as computed by the Kuder-Richardson (KR-20 formula). According to Bruning and

and Kintz (1968), this is a sufficiently high reliability. The other two subtests - Predicting Outcomes (0.679) and Basic Language Concepts (0.505) were below the required 0.70 KR and therefore not sufficiently reliable when considered as separate subtests.

The KR-20 reliability coefficient of 0.876 for the total test shows a high reliability when the ERR battery is given as a whole.

Listed in Table 4:03 are the Kuder-Richardson reliability coefficients for the Experimental Reading Readiness Test.

Table 4:03

Means, Standard Deviations, Ranges, and the Kuder-Richardson Reliability Coefficient for the Total Sample on the Experimental Reading Readiness Subtests

Variable	Mean	SD	Range	KR-20
X1 Basic Language Concepts	24.69	2.51	17-29	0.505
X2 Predicting Outcomes	21.78	3.94	7-29	0.679
X3 Spatial Relations	23.03	3.58	13-29	0.706
X4 Auditory Reception	22.16	5.10	0-30	0.814

N = 115

Below in Table 4:04 is the Kuder-Richardson reliability coefficient for the total test of the Experimental Reading Readiness Test.

Table 4:04

Mean, Standard Deviation, Range and Kuder-Richardson Reliability Coefficient on the Total Experimental Reading Readiness Test

Variable	Mean	SD	Range	KR-20
Total Test	91.65	11.40	50-112	0.876

V. Results Related to the Correlation Analysis

This analysis was conducted to determine the extent of the relationships among reading readiness measures and also reading achievement measures. The correlation matrix of the entire sample was computed. The investigator's Experimental Reading Readiness Test and the Canadian Readiness Test were administered to six classrooms of first graders during the second and third weeks of September. The Bond-Balow-Hoyt: The New Developmental Reading Tests were administered in February to test for reading achievement. The scores from all three tests were included in the correlation analysis.

General Procedure

The scores obtained on the investigator's Experimental Reading Readiness Test and the Canadian Readiness Test administered to 115 first graders during the second and third weeks of September were correlated using the Pearson Product-Moment Correlation to determine the

significance of the relationship between all these subtests. The scores in reading achievement on the Bond-Balow-Hoyt: The New Developmental Reading Tests administered during the second and third weeks of February were also included in the correlation matrix. Hypotheses 4.1 to 11.3 were tested.

Findings of the Correlations Analysis

Tables 4:05 and 4:06 indicate the correlations between the investigator's Experimental Reading Readiness (ERR) and the Canadian Readiness Test (CRT). Also computed are the correlations between the Experimental Reading Readiness Test and the Bond-Balow-Hoyt: The New Developmental Reading Tests (BBH) and the correlations between the Canadian Readiness Test and the Bond-Balow-Hoyt: The New Developmental Reading Test.

4.0 On the Experimental Reading Readiness (ERR) subtest-Basic Language Concepts and the Canadian Readiness Test (CRT):

4.1 There is significant correlation between the ERR subtest-Basic Language Concepts and the CRT subtest-Technical Language of Literacy.

4.2 There is significant correlation between the ERR subtest-Basic Language Concepts and the CRT subtest-Letter Recognition.

4.3 There is significant correlation between the ERR

subtest-Basic Language Concepts and the CRT
subtest-Word Matching.

4.4 There is significant correlation between the ERR
subtest-Basic Language Concepts and the CRT
subtest-Beginning Sounds.

4.5 There is significant correlation between the ERR
subtest-Basic Language Concepts and the CRT
subtest-Semantics.

4.6 There is significant correlation between the ERR
subtest-Basic Language Concepts and the CRT
subtest-Learning Rate.

5.0 On the Experimental Reading Readiness (ERR) subtest-
Predicting Outcomes and the Canadian Readiness (CRT):

5.1 There is significant correlation between the ERR
subtest-Predicting Outcomes and the CRT subtest-
Technical Language of Literacy.

5.2 There is significant correlation between the ERR
subtest-Predicting Outcomes and the CRT subtest-
Letter Recognition.

5.3 There is significant correlation between the ERR
subtest-Predicting Outcomes and the CRT subtest-
Word Matching.

5.4 There is significant correlation between the ERR
subtest-Predicting Outcomes and the CRT subtest-
Beginning Sounds.

5.5 There is significant correlation between the ERR subtest-Predicting Outcomes and the CRT subtest-Semantics.

5.6 There is significant correlation between the ERR subtest-Predicting Outcomes and the CRT subtest-Learning Rate.

6.0 On the Experimental Reading Readiness Test (ERR) subtest-Spatial Relations Concepts and the Canadian Readiness Test (CRT):

6.1 There is significant correlation between the ERR subtest-Spatial Relations and the CRT subtest-Technical Language of Literacy.

6.2 There is significant correlation between the ERR subtest-Spatial Relations and the CRT subtest-Letter Recognition.

6.3 There is significant correlation between the ERR subtest-Spatial Relations and the CRT subtest-Word Matching.

6.4 There is significant correlation between the ERR subtest-Spatial Relations and the CRT subtest-Beginning Sounds.

6.5 There is significant correlation between the ERR subtest-Spatial Relations and the CRT subtest-Semantics.

6.6 There is significant correlation between the ERR

subtest-Spatial Relations and the CRT subtest-Learning Rate.

7.0 On the Experimental Reading Readiness Test (ERR) subtest-Auditory Reception and the Canadian Readiness Test (CRT):

7.1 There is significant correlation between the ERR subtest-Auditory Reception and the CRT subtest-Technical Language of Literacy.

7.2 There is significant correlation between the ERR subtest-Auditory Reception and the CRT subtest-Letter Recognition.

7.3 There is significant correlation between the ERR subtest-Auditory Reception and the CRT subtest-Word Matching.

7.4 There is significant correlation between the ERR subtest-Auditory Reception and the CRT subtest-Beginning Sounds.

7.5 There is significant correlation between the ERR subtest-Auditory Reception and the CRT subtest-Semantics.

7.6 There is significant correlation between the ERR subtest-Auditory Reception and the CRT subtest-Learning Rate.

8.0 On the Experimental Reading Readiness Test (ERR) subtest-Basic Language Concepts and the Bond-Balow-

Hoyt: The New Developmental Reading Tests (BBH):

8.1 There is significant correlation between the ERR subtest-Basic Language Concepts and the BBH subtest-Word Recognition.

8.2 There is significant correlation between the ERR subtest-Basic Language Concepts and the BBH subtest-Comprehending Significant Ideas.

8.3 There is significant correlation between the ERR subtest-Basic Language Concepts and the BBH subtest-Comprehending Specific Instructions.

9.0 On the Experimental Reading Readiness Test (ERR)

subtest-Predicting Outcomes and the Bond-Balow-Hoyt:

The New Developmental Reading Tests (BBH):

9.1 There is significant correlation between the ERR subtest-Predicting Outcomes and the BBH subtest-Word Recognition.

9.2 There is significant correlation between the ERR subtest-Predicting Outcomes and the BBH subtest-Comprehending Significant Ideas.

9.3 There is significant correlation between the ERR subtest-Predicting Outcomes and the BBH subtest-Comprehending Specific Instructions.

10.0 On the Experimental Reading Readiness Test (ERR)

subtest-Spatial Relations Concepts and the Bond-Balow-

Hoyt: The New Developmental Reading Tests (BBH):

- 10.1 There is significant correlation between the ERR subtest-Spatial Relations Concepts and the BBH subtest-Word Recognition.
 - 10.2 There is significant correlation between the ERR subtest-Spatial Relations Concepts and the BBH subtest-Comprehending Significant Ideas.
 - 10.3 There is significant correlation between the ERR subtest-Spatial Relations Concepts and the BBH subtest-Comprehending Specific Instructions.
- 11.0 On the Experimental Reading Readiness Test (ERR) subtest-Auditory Reception and the Bond-Balow-Hoyt: The New Developmental Reading Test (BBH).
- 11.1 There is significant correlation between the ERR subtest-Auditory Reception and the BBH subtest-Word Recognition.
 - 11.2 There is significant correlation between the ERR subtest-Auditory Reception and the BBH subtest-Comprehending Significant Ideas.
 - 11.3 There is significant correlation between the ERR subtest-Auditory Reception and the BBH subtest-Comprehending Specific Instructions.

Further Analysis of Significant Correlations Between Subtests

This analysis was conducted to determine the extent of the relationships among the reading readiness measures

Table 4:05
 Intercorrelations Between Subtests on the
 Experimental Reading Readiness Test

Variable	1	2	3	4
1	1.000			
2	0.372***	1.000		
3	0.415***	0.466***	1.000	
4	0.338***	0.349***	0.436***	1.000

1. Basic Language Concepts
2. Predicting Outcomes
3. Spatial Relations Concepts
4. Auditory Reception

*** $p \leq .001$

Table 4:06 Intercorrelations Between Subtests on Experimental Reading Readiness,
Canadian Readiness and Bond-Balow-Hoyt: The New Developmental Reading Tests

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13
1.	1.000												
2.	0.372***	1.000											
3.	0.415***	0.466***	1.000										
4.	0.338***	0.349***	0.436***	1.000									
5.	0.281**	0.475***	0.358***	0.185*	1.000								
6.	0.331***	0.307***	0.341***	0.245**	0.536***	1.000							
7.	0.331***	0.432***	0.365***	0.259**	0.372***	0.453***	1.000						
8.	0.432***	0.418***	0.439***	0.362***	0.507***	0.621***	0.402***	1.000					
9.	0.449***	0.397***	0.398***	0.237*	0.415***	0.342***	0.407***	0.330***	1.000				
10.	0.357***	0.363***	0.362***	0.233*	0.462***	0.663***	0.590***	0.660***	0.310***	1.000			
11.	0.322***	0.338***	0.427***	0.264**	0.285**	0.405***	0.384***	0.454***	0.248**	0.574***	1.000		
12.	0.294***	0.220*	0.365***	0.240**	0.229**	0.316***	0.391***	0.358***	0.241**	0.465***	0.799***	1.000	
13.	0.348***	0.285**	0.426***	0.289**	0.262**	0.389***	0.434***	0.444***	0.303***	0.546***	0.834***	0.850***	1.000

Readiness and Reading Tests

*p ≤ .05 **p ≤ .01 ***p ≤ .001

Readiness: Numbers 1 to 10; Reading: Numbers 11 to 13.

- | | | | |
|-------------------------------|-----------------------------------|-------------------------------------|--|
| 1. Basic Language Concepts | 5. Technical Language of Literacy | 9. Semantics | 13. Comprehending Specific Instruction |
| 2. Predicting Outcomes | 6. Letter Recognition | 10. Learning Rate | |
| 3. Spatial Relations Concepts | 7. Word Matching | 11. Word Recognition | |
| 4. Auditory Reception | 8. Beginning Sounds | 12. Comprehending Significant Ideas | |

and the reading achievement measures. The correlation matrix of the entire sample was computed. A two-tailed test was used to find the p significance (See Table 4:06). All correlations proved to be significant; however, they varied as to the degree of correlation. On the Experimental Reading Readiness Test, Spatial Relations Concepts had the highest correlation with the experimental battery of subtests ranging from $r = .415$ to $r = .466$, and with the Canadian Readiness subtest, $r = .341$ to $r = .439$, and the Bond-Balow-Hoyt: The New Developmental Reading Tests, $r = .365$ to $r = .427$. The Bond-Balow-Hoyt showed very high correlations between subtests ($r = .799$ to $r = .850$). The Canadian Readiness subtests show lower correlations ($r = .310$ to $r = .663$). The correlations between the Experimental subtests were much lower ($r = .349$ to $r = .466$).

Summary

The results related to the correlation analysis of the hypotheses may be summarized as follows: The hypotheses 4.1, 4.2, 4.3, 4.4, 4.5, 4.6, 5.1, 5.2, 5.3, 5.4, 5.5, 5.6, 6.1, 6.2, 6.3, 6.4, 6.5, 6.6, 7.1, 7.2, 7.3, 7.4, 7.5, 7.6, 8.1, 8.2, 8.3, 9.1, 9.2, 9.3, 10.1, 10.2, 10.3 were all rejected. None of the correlation hypotheses was accepted. The following statements may be reported in regard to the correlation analysis:

1. All the correlations between subtests were significant. All subtests were related at either $p \leq 0.05$, $p \leq 0.01$ or $p \leq 0.001$ level of significance.
2. The groups of tests were related to each other to different degrees. The Bond-Balow-Hoyt: The New Developmental Reading Tests were highly related: Word Recognition and Comprehending Significant Ideas, $r = .799$, $t = 14.145$, $p \leq .001$; Word Recognition and Comprehending Specific Instructions, $r = .834$, $t = 16.049$, $p \leq .001$; Comprehending Significant Ideas and Comprehending Specific Instructions, $r = .850$, $t = 17.154$, $p \leq .001$. The commonality between the subtests is high enough to assume that the three subtests are to a large degree measuring the same facet of reading achievement.
3. The Canadian Readiness subtests were next highly related to each other as a group.
4. The Experimental Reading Readiness subtests showed the lowest degree of interrelatedness. As shown in Tables 4:05 and 4:06, the commonality between the four subtests as a group is low enough to assume that each subtest is, to a large degree, measuring a different facet of reading readiness ability since the coefficient r is relatively low. The investigator's purpose was to develop tests that had not been used on the commercial reading readiness tests and to look at

new facets of reading readiness. It appears that to some degree the author has been successful.

VI. Results Related to the Analysis of Each of the Hypotheses Using Multiple Regression

Several multiple linear regression models were tested. They were designed to answer the question as to which of the ERR subtests are the best predictors of reading achievement.

General Procedure

All four subtests of the investigator's Experimental Reading Readiness Test were included in the multiple regression equation to predict reading achievement on each of the subtests of the Bond-Balow-Hoyt: The New Developmental Reading Tests. (See Tables 4:07 through 4:09).

The six subtests on the Canadian Readiness Test were included in another multiple regression equation to predict reading achievement on the three subtests of the BBH. (See Tables 4:10 through 4:12).

The total subtests on the Experimental Reading Readiness Test and the Canadian Readiness Test were included in another multiple regression equation to find the best predictors of reading achievement on the BBH with the two readiness tests competing (See Tables 4:13 through 4:15).

The stepwise regression analysis was employed and the predictor variables entered the regression equation in

order of their greatest contribution to the increase in R^2 . Tested for significance was each entering variable. Summaries of the results of the regression analysis for each of the criterion variables are shown in the Tables 4:10 through 4:15. The F values were evaluated with 1 and 96 degrees of freedom. The .05 level of significance was used. Hypotheses 12.1 to 17.3 were tested.

Findings of the Multiple Regression Analysis

On Tables 4:07 through 4:15 are recorded the multiple regression analyses to determine which reading readiness subtests are significant predictors of reading achievement on the Bond-Balow-Hoyt: The New Developmental Reading Test (BBH) relative to the hypotheses 12:1 to 17:4. The results can be summarized as follows:

12.0 On the Experimental Reading Readiness Test (ERR):

- 12.1 On the ERR subtest-Basic Language Concepts there is no significant prediction shown for success in Word Recognition on the BBH.
- 12.2 On the ERR subtest-Predicting Outcomes there is no significant prediction shown for success in Word Recognition on the BBH.
- 12.3 On the ERR subtest-Spatial Relations there is significant prediction shown for success in Word Recognition on the BBH.

12.4 On the ERR subtest-Auditory Reception there is no significant prediction shown for success in Word Recognition on the BBH.

13.0 On the Canadian Readiness Test (CRT):

13.1 On the CRT subtest-Technical Language of Literacy, there is no significant prediction shown for success in Word Recognition on the BBH.

13.2 On the CRT subtest-Letter Recognition, there is no significant prediction shown for success in Word Recognition on the BBH.

13.3 On the CRT subtest-Word Matching, there is no significant prediction shown for success in Word Recognition on the BBH.

13.4 On the CRT subtest-Beginning Sounds, there is no significant prediction shown for success in Word Recognition on the BBH.

13.5 On the CRT subtest-Semantics, there is no significant prediction shown for success in Word Recognition on the BBH.

13.6 On the CRT subtest-Learning Rate, there is significant prediction shown for success in Word Recognition on the BBH.

14.0 On the Experimental Reading Readiness Test (ERR):

14.1 On the ERR subtest-Basic Language Concepts,

there is no significant prediction shown in reading achievement on the BBH subtest-Comprehending Significant Ideas.

14.2 On the ERR subtest-Predicting Outcomes, there is no significant prediction shown in reading achievement on the BBH subtest-Comprehending Significant Ideas.

14.3 On the ERR subtest-Spatial Relations Concepts, there is significant prediction shown in reading achievement on the BBH subtest-Comprehending Significant Ideas.

14.4 On the ERR subtest-Auditory Reception, there is no significant prediction shown in reading achievement on the BBH subtest-Comprehending Significant Ideas.

15.0 On the Canadian Readiness Test (CRT):

15.1 On the CRT subtest-Technical Language of Literacy, there is no significant prediction of reading achievement shown on the BBH subtest-Comprehending Significant Ideas.

15.2 On the CRT subtest-Letter Recognition, there is no significant prediction of reading achievement shown on the BBH subtest-Comprehending Significant Ideas.

15.3 On the CRT subtest-Word Matching, there is no

significant prediction of reading achievement shown on the BBH subtest-Comprehending Significant Ideas.

15.4 On the CRT subtest-Beginning Sounds, there is no significant prediction of reading achievement shown on the BBH subtest-Comprehending Significant Ideas.

15.5 On the CRT subtest-Semantics, there is no significant prediction of reading achievement shown on the BBH subtest-Comprehending Significant Ideas.

15.6 On the CRT subtest-Learning Rate, there is significant prediction of reading achievement shown on the BBH subtest-Comprehending Significant Ideas.

16.0 On the Canadian Readiness Test (CRT):

16.1 On the CRT subtest-Technical Language of Literacy, there is no significant prediction of reading achievement shown on the BBH subtest-Comprehending Specific Instructions.

16.2 On the CRT subtest-Letter Recognition, there is no significant prediction of reading achievement shown on the BBH subtest-Comprehending Specific Instructions.

16.3 On the CRT subtest-Word Matching, there is no

significant prediction of reading achievement shown on the BBH subtest-Comprehending Specific Instructions.

16.4 On the CRT subtest-Beginning Sounds, there is no significant prediction of reading achievement shown on the BBH subtest-Comprehending Specific Instructions.

16.5 On the CRT subtest-Semantics, there is no significant prediction shown on the BBH subtest-Comprehending Specific Instructions.

16.6 On the CRT subtest-Learning Rate, there is significant prediction in reading achievement on the BBH subtest-Comprehending Specific Instructions.

17.0 On the Experimental Reading Readiness Test (ERR):

17.1 On the ERR subtest-Basic Language Concepts, there is significant prediction in reading achievement shown on the BBH subtest-Comprehending Specific Instructions.

17.2 On the ERR subtest-Predicting Outcomes, there is no significant prediction in reading achievement shown on the BBH subtest-Comprehending Specific Instructions.

17.3 On the ERR subtest-Spatial Relations Concepts, there is significant prediction in reading

achievement shown on the BBH subtest-
Comprehending Specific Instructions.

- 17.4 On the ERR subtest-Auditory Reception,
there is no significant prediction in
reading achievement shown on the BBH
subtest-Comprehending Specific
Instructions.

Further Analysis of the
Multiple Regression Analysis:
Predictors of Reading
Achievement

Results show that the Learning Rate subtest on the Canadian Readiness Test is the best predictor of reading achievement on all three subtests of the Bond-Balow-Hoyt: The New Developmental Reading Test, significant with a probability level of 0.000 on all three tests. (See Tables 4:13 to 4:15). The Spatial Relations Concepts subtest on the investigator's readiness test was also a significant predictor of reading proving to be the best predictor on the Experimental Reading Readiness Test. It was significant at the probability level of 0.000 on Word Recognition; 0.000 on Comprehending Significant Ideas; and 0.000 on Comprehending Specific Instructions (See Tables 4:07 to 4:09). Basic Language Concepts was significant with a probability level of 0.025 on Comprehension of Significant Ideas. (See Table 4:09 for the probability level of the other subtests). This significance was shown only when it

Table 4:07

Multiple Regression-Experimental Reading
Readiness and Bond-Balow-Hoyt: The New
Developmental Reading Tests

Subtest #1				
Step No.	Variable	<u>Word Recognition</u> % of Variance R^2	Probability Level	Standard Error
1.	Spatial Relations	18.56	0.000*	7.572
2.	Basic Language Concepts	21.10	0.060	7.486
3.	Predicting Outcomes	22.64	0.140	7.446
4.	Auditory Reception	22.79	0.651	7.472

N = 115

*Significant predictor of reading achievement.

Table 4:08

Multiple Regression-Experimental Reading
Readiness and Bond-Balow-Hoyt: The New
Developmental Reading Tests

Subtest #2				
Step No.	Variable	<u>Comprehending Significant Ideas</u> % of Variance R^2	Probability Level	Standard Error
1.	Spatial Relations	13.58	0.000*	9.890
2.	Basic Language Concepts	16.02	0.074	0.793
3.	Auditory Reception	16.38	0.490	9.816
4.	Predicting Outcomes	16.40	0.887	9.859

N = 115

*Significant predictor of reading achievement.

Table 4:09

Multiple Regression-Experimental Reading
Readiness and Bond-Balow-Hoyt: The New
Developmental Reading Tests

Subtest #3				
Step No.	Variable	<u>Comprehending Specific Instructions</u> % of Variance R^2	Probability Level	Standard Error
1.	Spatial Relations	18.48	0.000*	5.583
2.	Basic Language Concepts	22.04	0.025*	5.484
3.	Auditory Reception	22.68	0.343	5.486
4.	Predicting Outcomes	22.88	0.591	5.504

N = 115

*Significant predictor of reading achievement.

Table 4:10
 Multiple Regression-Canadian Readiness Test
 and Bond-Balow-Hoyt: The New Developmental
Reading Tests

Subtest #1				
Step No.	Variable	<u>Word Recognition</u> % of Variance R^2	Probability Level	Standard Error
1.	Learning Rate	33.56	0.000*	6.839
2.	Beginning Sounds	34.50	0.208	6.821
3.	Semantics	34.82	0.463	6.835
4.	Word Matching	34.96	0.629	6.858
5.	Technical Language of Literacy	35.05	0.701	6.885
6.	Letter Recognition	35.05	0.924	6.917

N = 115

*Significant predictor of reading achievement.

Table 4:11
 Multiple Regression-Canadian Readiness Test
 and Bond-Balow-Hoyt: The New Developmental
Reading Tests

Subtest #2				
Step No.	Variable	<u>Comprehending Significant Ideas</u> % of Variance R^2	Probability Level	Standard Error
1.	Learning Rate	21.99	0.000*	9.396
2.	Word Matching	24.06	0.083	9.312
3.	Beginning Sounds	24.46	0.444	9.330
4.	Semantics	24.72	0.537	9.356
5.	Technical Language of Literacy	24.89	0.621	9.388
6.	Letter Recognition	24.96	0.745	9.427

N = 115

*Significant predictor of reading achievement.

Table 4:12

Multiple Regression-Canadian Readiness Test
and Bond-Balow-Hoyt: The New Developmental
Reading Tests

Subtest #3				
Step No.	Variable	<u>Comprehending</u> <u>Specific</u> <u>Instructions</u> % of Variance R ²	Probability Level	Standard Error
1.	Learning Rate	30.33	0.000*	5.162
2.	Semantics	32.29	0.075	5.111
3.	Word Matching	33.29	0.200	5.096
4.	Beginning Sounds	34.10	0.246	5.088
5.	Technical Language of Literacy	34.61	0.361	5.091
6.	Letter Recognition	34.62	0.885	5.114

N = 115

*Significant predictor of reading achievement.

Table 4:13

Multiple Regression-Experimental Reading
Readiness, Canadian Readiness, and Bond-
Balow-Hoyt: The New Developmental Reading Tests

Subtest #1				
Step No.	Variable	<u>Word Recognition</u> % of Variance R^2	Probability Level	Standard Error
1.	Learning Rate	33.56	0.000*	6.839
2.	Spatial Relations	39.12	0.002*	6.576
3.	Predicting Outcomes	39.37	0.494	6.591
4.	Technical Language of Literacy	39.67	0.463	6.605
5.	Basic Language Concepts	39.85	0.570	6.625
6.	Auditory Reception	39.93	0.707	6.652
7.	Beginning Sounds	39.98	0.759	6.680
8.	Semantics	40.01	0.829	6.710
9.	Word Matching	40.01	0.973	6.742
10.	Letter Recognition	40.01	0.993	6.774

N = 115

*Significant predictor of reading achievement.

Table 4:14

Multiple Regression-Experimental Reading
Readiness, Canadian Readiness, and Bond-
Balow-Hoyt: The New Developmental Reading Tests

Subtest #2				
Step No.	Variable	<u>Comprehending</u> <u>Significant Ideas</u> % of Variance R ²	Probability Level	Standard Error
1.	Learning Rate	21.99	0.000*	9.396
2.	Spatial Relations	26.48	0.010*	9.162
3.	Word Matching	27.55	0.204	9.137
4.	Basic Language Concepts	27.91	0.458	9.155
5.	Predicting Outcomes	28.36	0.412	9.169
6.	Auditory Reception	28.59	0.554	9.196
7.	Letter Recognition	28.74	0.634	9.229
8.	Technical Language of Literacy	28.77	0.844	9.270
9.	Beginning Sounds	28.78	0.868	9.314
10.	Semantics	28.79	0.904	9.358

N = 115

*Significant predictor of reading achievement.

Table 4:15

Multiple Regression-Experimental Reading
Readiness, Canadian Readiness, and Bond-
Balow-Hoyt: The New Developmental Reading Tests

Subtest #3				
Step No.	Variable	<u>Comprehending</u> <u>Specific</u> <u>Instructions</u> % of Variance R ²	Probability Level	Standard Error
1.	Learning Rate	30.33	0.000*	5.162
2.	Spatial Relations	36.38	0.001*	4.954
3.	Word Matching	37.17	0.240	4.945
4.	Basic Language Concepts	37.80	0.295	4.943
5.	Technical Language of Literacy	38.21	0.398	4.949
6.	Auditory Reception	38.52	0.461	4.960
7.	Semantics	38.66	0.620	4.977
8.	Beginning Sounds	38.80	0.624	4.995
9.	Predicting Outcomes	38.91	0.668	5.014
10.	Letter Recognition	38.93	0.848	5.037

N = 115

*Significant predictor of reading achievement.

was not competing with the Canadian Readiness Test (See Table 4:09).

Summary

The results related to the analysis of the hypotheses using the multiple regression analysis may be summarized in terms of acceptance or rejection of the hypotheses as follows: (1) hypotheses 12.3, 13.6, 14.3, 15.6, 16.6, 17.1, and 17.3 were rejected; (2) hypotheses 12.1, 12.2, 12.4, 13.1, 13.2, 13.3, 13.4, 13.5, 14.1, 14.2, 14.4, 15.1, 15.2, 15.3, 15.4, 15.5, 16.1, 16.2, 16.3, 16.4, 16.5, 17.2, and 17.4, were not rejected at the .05 level of significance. The following statements may be reported in regards to the multiple regression analysis:

1. The Canadian Readiness subtest-Learning Rate proved to be the best predictor of reading achievement on the BBH.
2. The investigator's Experimental Reading Readiness subtest-Spatial Relations Concepts, proved to be the second best predictor of reading achievement on the BBH. It was significant at the 0.01 level of significance.
3. The investigator's ERR subtest-Basic Language Concepts proved to be a significant predictor of reading achievement on the BBH subtest-Comprehending Significant Instructions. It did not prove to be a significant predictor on the other two subtests, Word

Recognition and Comprehending Significant Ideas. It was only significant at .025 level when it was not competing with the Canadian Readiness subtests.

(For significant and non-significant hypotheses, see Appendix G and E).

Summary of Questions to be Answered by the Analysis

Answers to the questions 1 to 9 on page 161 are as follows:

1. There were no significant differences in reading readiness skills between boys and girls on the investigator's Experimental Reading Readiness Test.
2. There were significant differences in reading readiness skills between boys and girls on two subtests of the Canadian Readiness, (1) Word Matching and (2) Semantics. No significant differences were shown on the subtests: Technical Language of Literacy; Beginning Sounds; Letter Recognition and Learning Rate.
3. There were no significant differences between boys and girls in reading achievement on the Bond-Balow-Hoyt: The New Developmental Reading Tests.
4. There was significant correlation between all the subtests on the Experimental Reading Readiness Test, and the Canadian Readiness Test.
5. The investigator's Experimental Reading Readiness (ERR) subtest-Basic Language Concepts, proved to be a

significant predictor of reading achievement on the BBH subtest-Comprehending Specific Instructions only. It was not a significant predictor of reading achievement on the other two subtests.

6. The investigator's ERR subtest-Predicting Outcomes did not prove to be a significant predictor of reading achievement on the three subtests of the Bond-Balow-Hoyt: The New Developmental Reading Tests (BBH).
7. The investigator's ERR subtest-Spatial Relations Concepts proved to be a significant predictor of reading achievement on all three subtests of the BBH.
8. The investigator's ERR subtest-Auditory Reception did not prove to be a significant predictor of reading achievement on the three subtests of the BBH.
9. Spatial Relations Concepts proved to be the best predictor of reading achievement on the investigator's ERR. Basic Language Concepts was significant on the BBH subtest-Comprehending Specific Instructions, but not on the other two subtests.

CHAPTER 5

SUMMARY AND CONCLUSIONS

I. Purpose of the Investigation

The purpose of this study was to develop indices to measure some aspects of visual and auditory perception and basic language concepts not found in the more commonly used reading readiness tests, in order that some new knowledge might be added to help construct tests which are more accurate predictors of reading readiness. These subtests and the Canadian Readiness Test by Evanechko, Ollila, Downing and Braun were administered to 115 first graders in September. The scores of these two readiness tests were then correlated to find significant correlations between the two.

All four subtests of the Experimental Reading Readiness Test were included in the multiple regression equation to predict reading achievement on each of the subtests of the Bond-Balow-Hoyt: The New Developmental Reading Tests. The factor of sex in reading readiness and reading achievement was also investigated.

The reliability of the investigators Experimental Reading Readiness Test was calculated using the Kuder-

Richardson's KR-20 formula.

II. Summary of the Procedure

Sample

The sample of this investigation consisted of 115 first grade children from six classrooms in the Sooke School District, from rural and urban schools. Sixty-two boys and fifty-three girls from rural and urban areas were involved in the investigation.

Measuring Instruments

An experimental reading readiness battery of four subtests was developed by the investigator. This battery and the Canadian Readiness Test were administered to the total sample during the second and third weeks of September. The Bond-Balow-Hoyt: The New Developmental Reading Tests were administered to the total sample during the second and third weeks of February.

III. Summary of the Design of the Investigation

The investigator used the computing programs prepared by the University of Victoria. The means, variances, standard deviations and ranges were computed for the Experimental Reading Readiness measures to provide an overall picture of the test performance. The statistics according to sex were also considered. The Kuder-Richardson formula 20 was used to test the reliability of

the investigator's Experimental Reading Readiness Tests. Correlation coefficients were calculated using the Pearson Product-Moment correlation analysis to test relationships between subtests. The multiple regression analysis was also calculated to find which of the reading readiness subtests were the best predictors of reading achievement on the three subtests of the Bond-Balow-Hoyt: The New Developmental Reading Tests.

IV. Summary of the Limitations

This study is limited to (1) the population from which it was drawn, (2) the validity and the reliability of the measuring instruments, (3) the administration of the reading achievement test in February rather than in June. (See page 17 for further limitations).

V. Summary of the Findings

The findings or results of the investigations are stated as follows:

The Experimental Reading Readiness Test and Sex, The Canadian Readiness and Sex and the Bond-Balow-Hoyt: The New Developmental Reading Tests and Sex

1. There was no significant difference in reading readiness scores on the four subtests of the investigator's Experimental Reading Readiness Tests between boys and girls.

2. There was a significant difference in reading readiness scores on two of the subtests on the Canadian Readiness Test, Word Matching and Semantics between boys and girls.
3. There was no significant difference in reading achievement on the three subtests of the Bond-Balow-Hoyt: The New Developmental Reading Tests between boys and girls.

Analysis of the Experimental Test Reliability

4. Auditory Reception and Spatial Relations Concepts on the investigator's Experimental Reading Readiness Test showed a sufficiently high reliability coefficient. The Kuder-Richardson reliability coefficient of 0.876 on the total experimental test shows a sufficient reliability when given as a total test.

Correlation Analysis of All Subtests

5. Overall, the Experimental Reading Readiness Test showed the lowest correlation between subtests and with the Canadian Readiness subtests. The commonality between the four subtests of the investigator's test is low enough to assume that each test is, to a large degree, measuring a different facet of reading readiness ability since the coefficient r is relatively low.

Multiple Regression Analysis

6. The subtest-Learning Rate on the Canadian Readiness Test showed a significant prediction of reading achievement at the 0.000 level of significance on all three subtests of the Bond-Balow-Hoyt.
7. The subtest-Spatial Relations Concepts on the Experimental Reading Readiness Test showed a significant prediction of reading achievement at the 0.000 level of significance on all three subtests of the Bond-Balow-Hoyt.
8. The subtest-Basic Language Concepts on the Experimental Reading Readiness Test showed significant prediction of reading achievement at the 0.025 level of significance on the one subtest-Comprehending Significant Instructions on the Bond-Balow-Hoyt. This significance was shown only when it was not competing with the subtests on the Canadian Readiness Test.

VI. Conclusions

The subtest Spatial Relations Concepts proved to be the best predictor of reading achievement on the investigator's Experimental Reading Readiness Test. Basic Language Concepts was a significant predictor on the one subtest of the Bond-Balow-Hoyt: The New Developmental Reading Tests-Comprehending Specific Instruction.

On the Canadian Readiness Test, Learning Rate proved

to be the best predictor of reading achievement on all three subtests on the Bond-Balow-Hoyt: The New Developmental Reading Tests. These results are markedly different from those found by Evanechko, Ollila, Downing and Braun (1973). In their study they found Letter Recognition to be the best predictor of reading achievement on all three tests of the Bond-Balow-Hoyt, whereas in this study, Learning Rate proved to be the best predictor of reading on all three subtests of Bond-Balow-Hoyt. Letter Recognition was the poorest predictor on Word Recognition and Comprehending Specific Instruction. On Comprehending Significant Ideas, it also scored low at seventh place. The reasons for the differences in results could be as follows: (1) Evanechko, Ollila, Downing and Braun used a smaller sample with an N of 97 compared to 115, (2) reading instruction in the classroom of the two studies varied slightly, (3) populations could have varied slightly, although they were both conducted in the School District of Sooke, one study in 1973 and the other in 1976. The area is increasing in population at a rapid rate and becoming more urbanized each year, (4) the investigators of the previous study administered the Bond-Balow-Hoyt: The New Developmental Reading Tests in May, whereas this study used the results from the February administration.

Very few significant differences were found between boys and girls. There were no significant differences found in reading readiness on the investigator's Experimental

Reading Readiness Test. On the Canadian Readiness Test, however, there were significant differences in the two subtests, (1) Word Matching and (2) Semantics or the classification of words. In reading achievement, there were no significant differences found between boys and girls on the three subtests of the Bond-Balow-Hoyt: The New Developmental Reading Tests.

The investigator's Experimental Reading Readiness Test had a very high coefficient of reliability as a total test, indicating that it could be useful in testing for reading readiness. Auditory Reception and Spatial Relations Concepts had the highest reliability coefficients as individual subtests on the ERR.

VII. Suggestions for Further Research

Related to the findings and limitations of this investigation, several additional research topics are suggested for further study:

1. Replicate the study with children of the same age and grade level using reading scores at the end of June rather than in February.
2. Replicate this study using a sample of children of the same age and grade level, but under different methods of reading instruction.
3. Replicate this study in other populations for further cross-validation.

4. A longitudinal study should be conducted through first to third grade to investigate if the children scoring low on the investigator's Reading Readiness Test score low in reading ability throughout all three grades.
5. Take one of the areas from the investigator's Experimental Reading Readiness Test, either, (1) Basic Language Concepts, (2) Predicting Outcomes, (3) Spatial Relations Concepts, or (4) Auditory Reception for an in-depth study as predictors of reading readiness.
6. Other readiness factors should be studied so that they may be included in readiness tests should they prove to be good predictors of reading achievement.
7. The investigator's ERR subtests could be increased in level of difficulty as the first-grade children found the test items relatively easy as shown by the high means.

VIII. Educational Implications

Educational implications presented in this study must be considered subject to the limitations discussed in the first chapter. The results of this investigation have led the investigator to present the following points:

1. An important implication arising from this study is that more should be known about reading readiness so that training in this area can be improved.
2. Further research needs to be carried out to improve

reading readiness tests in order that they be better predictors of reading achievement.

3. From the findings of this study, Spatial Relations Concepts appear to be an important contributor to reading readiness. There would appear to be merit in including instruction of spatial relations and the language concepts in school reading readiness programs.
4. In this study Basic Language Concepts were also found to be a contributor to reading readiness. There would appear to be merit in including instructions in Basic Language Concepts in school reading readiness programs.
5. From the findings of this study and the findings of Evanechko, Ollila, Downing and Braun (1973), readiness subtests need to be studied under different populations and different classroom reading instruction before they are considered to be the best predictors of reading achievement.
6. Reading readiness predictors should not be discarded until they have been tested with different populations and also under different classroom instruction in reading. The best predictors on the Canadian Readiness Test in this study do not agree with the ones in the Evanechko, Ollila, Downing and Braun (1973) study. If the difficulty level of the ERR subtests were increased, the significance of reading prediction may change.
7. Girls did not prove to be superior to boys in reading

achievement in this study, as has been found in other studies. This may not, however, have remained true if the Bond-Balow-Hoyt: The New Developmental Reading Tests had been administered in June instead of February. Further investigation in reading readiness and reading achievement between boys and girls is needed. Reading instructional needs of boys should also be investigated.

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APPENDICES

APPENDIX A

Tables Reviewing Reading Readiness Tests

DESCRIPTION OF READINESS TESTS REVIEWED

Name of Test	Subtests	Publication Revised Date	Authors	Publisher	Time
Gates-MacGinitie Reading Tests - Readiness Skills	Listening comprehension; auditory discrimination; visual discrimination; following directions; letter recognition; visual-motor coordination; auditory blending (word recognition).	1968	Gates & MacGinitie	Teachers Coll.	120 m.
Harrison-Stroud Readiness Profile	Using symbols; making visual discriminations; using the context; auditory discrimination; using context and auditory clues; giving names of letters.	1949, 1965	Harrison & Stroud	Houghton- Mifflin	80 m.
Metropolitan Readiness Test	Word meaning; listening; matching; alphabet; numbers; copying; draw-a-man.	1933, 1965	Hildreth & Griffiths	Harcourt, Brace & World	60 m.
Clymer-Barrett Pre-Reading Battery	Letter recognition; matching words; auditory discrimination of beginning sounds; auditory discrimination of ending sounds; shape completion; copy-a-sentence.	1967	Clymer & Barrett	Personnel Press, Ginn & Co.	
The Scott, Foresman Initial Reading Survey Test	Language meanings; auditory ability; visual ability; letter recognition; sound-letter relationship.	1970	Monroe, Manning & Wepman	Scott, Foresman	
Canadian Readiness Test	Technical language of literacy; letter recognition; word matching; beginning sounds; semantics.	1972	Evanechko, Ollila, Downing & Braun	Unpublished	

Note: Subtests named are as the authors have named them and not necessarily what they actually test.

Tests	Visual Disc.				Visual Motor				Memory			Auditory Disc.					Listen			Lang. Arith.							
	Letter Matching	Word Matching	Abstract Matching	Letter Recognition	Word Recognition	Copying Letters & Shapes	Copying Sentences	Draw-A-Man	Letter Completion	Shape Completion	Visual Memory	Learning Power	Picture-word	Sound Symbol	Auditory Memory	Auditory Disc. Beg.	Auditory Disc. End.	Auditory Disc. Vowel	Auditory Blending	Listening Context	L-Context & Aud. Clues	Following Directions	Language-Word Meaning	Technical Lang. of Lit.	Semantics (Classification)	Numbers & Arith.	
Canadian Read. Readiness Test	X			X							X				X									X	X		
Metropolitan Readiness Test		X	X	X		X		X												X			X				X
Gates-MacGinitie Reading Tests - R		X*		X	X				X						X	X	X	X	X			X					X
Clymer-Barrett Pre-Reading Bat.		X		X		X									X	X											
Harrison-Stroud Reading Readiness		X		X							X				X	X				X	X						
Scott, Foresman Initial Reading Sur.	X	X		X						X				X	X	X	X			X			X				X

*One subtest finding the word that is different.

APPENDIX B

The Experimental Reading Readiness Test:

- (a) Teacher's Directions
- (b) Pupil's Response Booklet

(a) Teacher's Directions

Basic Concepts

CHECK TO SEE THAT ALL THE CHILDREN HAVE PAGE ONE OF THEIR BOOKLET FACING UP.

"We are going to play a new game. First put your marker under the picture of the sun in the small box at the top of your page!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE SUN - SAMPLE A.

"Look at the pictures in the long box! Do not mark your booklet until I tell you to! Listen carefully while I tell you what to do!"

Sample A

"Circle the dog!" (PAUSE 12 SECONDS)

"Did you circle the picture of the dog? If you circled the picture of the dog, you are right."

SHOW YOUR SAMPLE BOOKLET AND POINT TO THE PICTURE OF THE DOG.

Sample B

"Move your marker down and put it under the picture of the candle!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE CANDLE - SAMPLE B.

"Listen carefully to what I am going to say!"

"I cannot find my pair of boots," said Mary. "I can only find this one."

"Now circle what Mary found!" (PAUSE 12 SECONDS)
SHOW YOUR SAMPLE BOOKLET AND POINT TO ONE BOOT.

"Did you circle the one boot? If you did you are right. Mary could only find one boot."

Question #1

"Move your marker down and put it under the picture of the apple that you see in the small box!"
CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE APPLE - QUESTION #1.

"Listen carefully, and look in the long box!"

The man went hunting with his two -----.

"Now I want you to circle the one that makes the sentence sound right to you!" (PAUSE 12 SECONDS)

Question #2

"Move your marker down and put it under the picture of the milk-bottle!"
CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE MILK-BOTTLE - QUESTION #2.

"Listen carefully, and look in the long box!"

Find the one that is not square!

"Now circle the right answer!" (PAUSE 12 SECONDS)

Question #3

"Move your marker down and put it under the picture of the baseball!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE BASEBALL - QUESTION #3.

"Listen carefully, and look at the pictures in the long box!"

Find the one that does not talk and does not bark!"

"Now circle the right one!" (PAUSE 12 SECONDS)

Question #4

"Move your marker down and put it under the picture of the flower!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE FLOWER - QUESTION #4.

"Listen carefully, and look in the long box!"

Find the one that is filled with stories!

"Now circle the right one!" (PAUSE 12 SECONDS)

Question #5

"Move your marker down and put it under the picture of the hat!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE HAT - QUESTION #5.

"Listen carefully, and look in the long box!"

Find the one that you can catch!

"Now circle the right one!" (PAUSE 12 SECONDS)

Question #6

"Move your marker down and put it under the picture of the mitten!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE MITTEN - QUESTION #6.

"Listen carefully, and look in the long box!"

Find the one that does not have fur!

"Now circle the right one!" (PAUSE 12 SECONDS)

"Turn to the next page in your booklet!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE PAGE TWO OF THEIR BOOKLET FACE UP.

Question #7

"Move your marker down and put it under the picture of the bell!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE BELL - QUESTION #7.

"Listen carefully, and look in the long box!"

The monkey is getting the matches.

"Now circle the right picture!" (PAUSE 12 SECONDS)

Question #8

"Move your marker down and put it under the picture of the mouse!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE MOUSE - QUESTION #8.

"Listen carefully, and look in the long box!"

She will catch her hat.

"Now circle the right picture!"

Question #9

"Move your marker down and put it under the picture of the glass!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE GLASS - QUESTION #9.

"Listen carefully, and look in the long box!"

Find the big dog! It must be black and white.

"Now circle the right picture!" (PAUSE 12 SECONDS)

Question #10

"Move your marker down and put it under the picture of the star!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE STAR - QUESTION #10.

"Listen carefully, and look in the long box!"

Find the pair of shoes!

"Now circle the right picture!" (PAUSE 12 SECONDS)

Question #11

"Move your marker down and put it under the picture of the valentine!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE VALENTINE - QUESTION #11.

"Listen carefully, and look in the long box!"

Circle the group that has the most marbles! (PAUSE
12 SECONDS)

Question #12

"Move your marker down and put it under the picture
of the key!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER
THE PICTURE OF THE KEY - QUESTION #12.

"Listen carefully, and look in the long box!"

Circle the open box! (PAUSE 12 SECONDS)

Question #13

"Move your marker down and put it under the picture
of the hen!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER
THE PICTURE OF THE HEN - QUESTION #13.

"Listen carefully, and look in the long box!"

Circle the ice-cream-cone that is empty! (PAUSE
12 SECONDS)

Question #14

"Move your marker down and put it under the picture
of the cup!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER
THE PICTURE OF THE CUP - QUESTION #14.

"Listen carefully, and look in the long box!"

Find the glass that is the fullest!

"Now circle the picture!" (PAUSE 12 SECONDS)

"Turn to the next page in your booklet!"

CHECK TO SEE THAT ALL THE CHILDREN ARE ON PAGE THREE OF THEIR BOOKLET.

Question #15

"Move your marker down and put it under the picture of the pear!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE PEAR - QUESTION #15.

"Listen carefully, and look in the long box!"

Find the one that has been planted!

"Now circle the right picture!" (PAUSE 12 SECONDS)

Question #16

"Move your marker down and put it under the picture of the ice-cream cone!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE ICE-CREAM CONE - QUESTION #16.

"Listen carefully, and look in the long box!"

Circle the one that is the lightest! (PAUSE 12 SECONDS)

Question #17

"Move your marker down and put it under the picture of the glass!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER
THE PICTURE OF THE GLASS - QUESTION #17.

"Listen carefully, and look in the long box!"

Mother has written a letter.

"Now circle the picture!" (PAUSE 12 SECONDS)

Question #18

"Move your marker down and put it under the picture
of the cup!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER
THE PICTURE OF THE CUP - QUESTION #18.

"Listen carefully, and look in the long box!"

Find the soap!

"Now circle the right picture!" (PAUSE 12 SECONDS)

Question #19

"Move your marker down and put it under the picture
of the spider's web.

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER
THE PICTURE OF THE SPIDER'S WEB - QUESTION #19.

"Listen carefully, and look in the long box!"

Circle the feet! (PAUSE 12 SECONDS)

Question #20

"Move your marker down and put it under the picture
of the cob of corn!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER
THE PICTURE OF THE COB OF CORN - QUESTION #20.

"Listen carefully, and look in the long box!"

Circle the one that you would like on the coldest
day! (PAUSE 12 SECONDS)

Question #21

"Move your marker down and put it under the picture
of the glove!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER
THE PICTURE OF THE GLOVE - QUESTION #21.

"Listen carefully, and look in the long box!"

Circle the one that cannot fly! (PAUSE 12 SECONDS)

Question #22

"Move your marker down and put it under the picture
of the duck!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER
THE PICTURE OF THE DUCK - QUESTION #22.

"Listen carefully, and look in the long box!"

Find the one that can talk!

"Now circle the right picture!" (PAUSE 12 SECONDS)

"Turn to the next page in your booklet!"

CHECK TO SEE THAT ALL THE CHILDREN ARE ON PAGE FOUR OF THEIR
BOOKLET.

Question #23

"Move your marker down and put it under the picture of the bell!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE BELL - QUESTION #23.

"Listen carefully, and look in the long box!"

Find the one that cannot see!

"Now circle that picture!" (PAUSE 12 SECONDS)

Question #24

"Move your marker down and put it under the picture of the tent!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE TENT - QUESTION #24.

"Listen carefully, and look in the long box!"

Circle the ball! (PAUSE 12 SECONDS)

Question #25

"Move your marker down and put it under the picture of the leaf!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE LEAF - QUESTION #25.

"Listen carefully, and look in the long box!"

Find the one that can jump!

"Now circle the picture!" (PAUSE 12 SECONDS)

Question #26

"Move your marker down and put it under the picture of the ball!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE BALL - QUESTION #26.

"Listen carefully, and look in the long box!"

Find the one that has two legs!

"Now circle the picture!" (PAUSE 12 SECONDS)

Question #27

"Move your marker down and put it under the picture of the socks!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE SOCKS - QUESTION #27.

"Listen carefully, and look in the long box!"

Circle the chair that has an X beside it! (PAUSE

12 SECONDS)

Question #28

"Move your marker down and put it under the picture of the mitt!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE MITT - QUESTION #28.

"Listen carefully, and look in the long box!"

Circle the one that is not big and is white! (PAUSE

12 SECONDS)

Question #29

"Move your marker down and put it under the picture of the bird!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE BIRD - QUESTION #29.

"Listen carefully, and look in the long box!

Mary will blow out the candles!

"Now circle the right picture!" (PAUSE 12 SECONDS)

Question #30

"Move your marker down and put it under the picture of the flower!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE FLOWER - QUESTION #30.

"Listen carefully, and look in the long box"

Print the letter E on the box that is big and white!

(PAUSE 12 SECONDS)

Predicting Outcomes

Sample A

"This time we are going to play a new game. First put your marker under the picture of the cup in the small box!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE CUP - SAMPLE A.

"Now I am going to tell you a story and I want you to listen carefully so that you can find the correct picture to finish the story."

"Listen!"

One day Jimmy heard a scratching at the door. He wondered what was there. Just as he went to open the door he heard, "Mew, Mew!" There on the front steps he saw
-----.

"Circle the picture that finishes the story. Look at the pictures - kitten, rabbit, dog. Circle the right picture." (PAUSE 12 SECONDS).

"Did you circle the picture of the kitten? If you did you are right. Jimmy heard a kitten on the doorstep."

Sample B

"Move your marker down and put it under the picture of the jack-o-lantern."

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE JACK-O-LANTERN - SAMPLE B.

"Listen carefully to the story!"

One day Johnny was walking to school. He saw something in the tall grass. It hopped so quickly that he could not catch it. It was a -----.

"Circle the picture that finishes the story."

(PAUSE 12 SECONDS).

Question #1

"Move your marker down and put it under the picture of the pear!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE PEAR - QUESTION #1.

"Listen carefully!"

The farmer's wife wanted some meat for tomorrow's dinner. She sent the farmer out to the barnyard to get it. He decided to catch the ----- for tomorrow's dinner.

"Circle the picture of the one that finishes the story!" (PAUSE 12 SECONDS).

Question #2

"Move your marker down and put it under the picture of the rabbit!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE RABBIT - QUESTION #2.

"Listen carefully!"

Mary was fishing in a dinghy near the pier. She saw

something big in the water that frightened her. It was a
-----.

"Circle the picture that finishes the story!"

(PAUSE 12 SECONDS).

Question #3

"Move your marker down and put it under the picture
of the leaf!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER
THE PICTURE OF THE LEAF - QUESTION #3.

"Listen carefully to the story!"

Mother wanted to bake a cake for dessert. She did
not have all the things that she needed for her cake. She
sent Jill to the store for some -----.

"Circle the picture of what mother sent Jill to the
store to buy!" (PAUSE 12 SECONDS).

Question #4

"Move your marker down and put it under the picture
of the teapot!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER
THE PICTURE OF THE TEAPOT - QUESTION #4.

"Listen carefully to the story!"

The children in Miss White's room had worked hard
all morning. Now it was time to clean up. Miss White asked
Gordon to clean the chalkboard. He looked and looked. He

could not clean the chalkboard because he could not find the
-----.

"Circle what he was looking for!" (PAUSE 12
SECONDS).

Question #5

"Move your marker down and put it under the picture
of the foot!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER
THE PICTURE OF THE FOOT - QUESTION #5.

"Listen carefully!"

One day David was helping with the dishes. He
accidentally dropped one on the floor. Mother said, "Now I
have only the cup left!"

"Circle the picture of what you think David broke!"
(PAUSE 12 SECONDS).

Question #6

"Move your marker down and put it under the picture
of the hat!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER
THE PICTURE OF THE HAT - QUESTION #6.

"Listen carefully!"

Mother looked out the window. The sky was getting
darker. She could not see any shadows in the garden.
Mother said, "Jill, when you leave for school you should
take your -----."

"Circle the picture that best finishes the story!"

(PAUSE 12 SECONDS).

"TURN TO THE NEXT PAGE OF YOUR BOOKLET!"

Question #7

"Move your marker down and put it under the picture of the flower!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE FLOWER - QUESTION #7.

"Listen carefully!"

The Jones family went away for a few days holidays. It did not rain while they were away. When they came home, Bobby was disappointed. He found -----.

"Circle what he found!" (PAUSE 12 SECONDS)

Question #8

"Move your marker down and put it under the picture of the chick!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE CHICK - QUESTION #8.

"Listen carefully!"

Janet was invited to her friend's birthday party. She rode over on her bicycle, then left it in the driveway. She hurried so that she would not be late. Janet had a wonderful time at the party. When she was ready to go home, she looked out and was so surprised to find -----.

"Circle what she found!" (PAUSE 12 SECONDS)

Question #9

"Move your marker down and put it under the picture of the ice-cream cone!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE ICE-CREAM CONE - QUESTION #9.

"Listen carefully!"

Bonnie went to the post-office. When she came home, she gave her mother the -----.

"Circle the one that finishes the story!" (PAUSE 12 SECONDS).

Question #10

"Move your marker down and put it under the picture of the box!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE BOX - QUESTION #10.

"Listen carefully!"

The snow had melted and the robins had arrived. Now they wanted to build a nest. The robins flew around looking for some -----.

"Circle the picture that finishes the story!"
(PAUSE 12 SECONDS).

Question #11

"Move your marker down and put it under the picture of the beet that grows in your garden!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE BEET - QUESTION #11.

"Listen carefully!"

One day Barry went fishing with his friend. Soon he had a bite. He pulled and pulled. Suddenly there was a jerk on his line. Quickly he reeled his line in, but his hook was gone. He went home feeling very -----.

"Circle the picture that shows how you think Barry felt!" (PAUSE 12 SECONDS).

Question #12

"Move your marker down and put it under the picture of the mitten!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE MITTEN - QUESTION #12.

"Listen carefully!"

One day Bonnie's mother was ill.

"I will make the breakfast for you this morning," said Bonnie. She got out the frying pan, put it on the stove, and then turned on the burner. Then she went to the fridge for some bacon. When she came back she touched the stove.

"Ouch! Ouch!" she called.

"Look at the parts of the body in the big box.
Circle the one that she used just before she called out!"
(PAUSE 12 SECONDS).

Question #13

"Move your marker down and put it under the picture
of the socks!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER
THE PICTURE OF THE SOCKS - QUESTION #13.

"Listen carefully!"

A few minutes later, Bonnie's little brother called
from his room.

"Mm, what are you cooking, Bonnie? Can I have
some?"

"Circle the part of the body that Billy used just
before he called,

"Mm, what are you cooking?" (PAUSE 12 SECONDS).

Question #14

"Move your marker down and put it under the picture
of the moon!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER
THE PICTURE OF THE MOON - QUESTION #14.

"Listen carefully!"

"Murray hurried off to school. It was very cold
out. By the time he arrived at the school, his ears were so
cold. He had forgotten his -----."

"Circle the picture that finishes the story!"

(PAUSE 12 SECONDS).

"TURN TO THE NEXT PAGE OF YOUR BOOKLET!"

CHECK TO SEE THAT ALL THE CHILDREN ARE ON THE CORRECT PAGE
OF THEIR BOOKLET.

Question #15

"Move your marker down and put it under the picture
of the socks!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER
THE PICTURE OF THE SOCKS - QUESTION #15.

"Listen carefully!"

It had turned very cold during the night. The
children hurried home from school so that they could go
skating on the lake. Bobby was the first one to put on his
skates and go out on the ice. He headed right for the
centre of the small lake. Soon he heard a cracking noise
and then -----.

"Circle the picture of what you think happened!"

(PAUSE 12 SECONDS).

Question #16

"Move your marker down and put it under the picture
of the sun!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER
THE PICTURE OF THE SUN - QUESTION #16.

"Listen carefully!"

Joey and Jean worked until suppertime to finish their snowman. They put a carrot for his nose and branches for his arms, and a funny hat. He looked great, thought Joey.

"Maybe we can show him to our classmates after school tomorrow," said Jean. The next day the sun shone brightly while they were in school. As soon as the buzzer rang, they hurried home with their friends to show them their snowman. They looked in their yard and found -----.

"Circle the picture that you think finishes the story!" (PAUSE 12 SECONDS).

Question #17

"Move your marker down and put it under the picture of the ball!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE BALL - QUESTION #17.

"Listen carefully!"

Barbara went to visit her grandparents on the farm. Later than evening Grandpa went to feed the goat, but he could not find him.

"Grandmother, I can not find the goat," he said.

"I am afraid that I -----," said Barbara.

"Circle the picture that shows what you think had happened!" (PAUSE 12 SECONDS).

Question #18

"Move your marker down and put it under the picture of the mitten!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE MITTEN - QUESTION #18.

"Listen carefully!"

Mary put her ball into one of these boxes. It is not in the black box. It is not in the smallest box. Then it must be in the -----.

"Circle the one that finishes the story!"

Question #19

"Move your marker down and put it under the picture of the apple!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE APPLE - QUESTION #19.

"Listen carefully!"

Jane liked candy. Everytime she went shopping, she bought candy. Often she forgot to brush her teeth after eating sweets. One night Jane began to cry. Mother went in to see what was the matter.

"Oh, Mother," cried Jane. "I have a bad -----ache."

"Circle the part of Jane that hurt!" (PAUSE 12 SECONDS).

Question #20

"Move your marker down and put it under the picture of the ring!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE RING - QUESTION #20.

"Listen carefully!"

Brian was hunting for his baseball. Instead he found a broken bird's egg by the bushes.

"This is not a good place for a nest," he said.

"I must build a -----."

"Circle the picture that finishes the story!"

(PAUSE 12 SECONDS).

Question #21

"Move your marker down and put it under the picture of the hand!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE HAND - QUESTION #21.

"Listen carefully!"

Betty looked in the big box in the kitchen. Inside was a beautiful puppy. She took him out of the box to play with before she left for school. When she came home from school, she took off her shoes and went to find her slippers. She found -----.

"Circle the picture that you think finishes the story!" (PAUSE 12 SECONDS).

Question #22

"Move your marker down and put it under the picture of the bell!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE BELL - QUESTION #22.

"Listen carefully!"

The wind blew very hard. Soon all the leaves were lying on the ground. Mother said,

"Soon it will be -----."

"Circle the picture that finishes the story!" (PAUSE 12 SECONDS).

"TURN TO THE NEXT PAGE IN YOUR BOOKLET!"

CHECK TO SEE THAT ALL THE CHILDREN ARE ON THE CORRECT PAGE OF THEIR BOOKLET.

Question #23

"Move your marker down and put it under the picture of the baseball!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE BASEBALL - QUESTION #23.

"Listen carefully!"

The farmer wanted to take his cattle to market. He said,

"If I am going to take my cattle to the market, I must drive my -----."

"Circle the one that you think finishes the story!"
(PAUSE 12 SECONDS).

Question #24

"Move your marker down and put it under the picture of the hand!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE HAND - QUESTION #24.

"Listen carefully!"

Mother packed the sleeping bags, towels, cups, pots, and pans.

"Darryl, we are going camping," she said. "Why don't you bring your small -----!"

"Circle the picture that finishes the story!"

(PAUSE 12 SECONDS).

Question #25

"Move your marker down and put it under the picture of the candle!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE CANDLE - QUESTION #25.

"Listen carefully!"

Darrin had played hard all summer and now his clothes had worn out and also were too small for him. Father said,

"Let's begin our shopping for your school clothes."
Darrin tried on several pairs at the store.

"These are too big," said Darrin, "but this pair just fits." They bought -----.

"Circle the picture that best finishes the story!"
(PAUSE 12 SECONDS).

Question #26

"Move your marker down and put it under the picture of the tent!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE TENT - QUESTION #26.

"Listen carefully!"

It was turning cold. The farmer needed some warm mittens.

"Will you knit some mittens for me?" said the farmer to his wife.

"I cannot make your mittens because I have nothing to make them out of," said his wife.

"I will go out and ask my animals to help me," said the farmer. The animal that he asked to help him was the

-----.

"Circle the picture that finishes the story!"
(PAUSE 12 SECONDS).

Question #27

"Move your marker down and put it under the picture of the valentine!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER
THE PICTURE OF THE VALENTINE - QUESTION #27.

"Listen carefully!"

Bobby wanted to play baseball with his friends.

"I cannot play because the ball hurts my hands,"
said Bobby. "I must hurry home and get my -----."

"Circle the picture that finishes the story!"

(PAUSE 12 SECONDS).

Question #28

"Move your marker down and put it under the picture
of the star!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER
THE PICTURE OF THE STAR - QUESTION #28.

"Listen carefully!"

The Brown family went for a picnic in the woods.
They lit a fire so that they could have a wiener roast.
Later they hurried to the movies in the next town. The
next day the Brown family came back for another picnic.
Things looked so different that they thought they had the
wrong picnic spot. They were surprised to see -----.

"Circle the picture that finishes the story!"

(PAUSE 12 SECONDS).

Question #29

"Move your marker down and put it under the picture
of the cup!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER
THE PICTURE OF THE CUP - QUESTION #29.

"Listen carefully!"

It had been a very hot day. The sky clouded and it turned quite dark. Johnny heard a loud pitter-patter on the roof. He looked out and saw the rain come down heavier and heavier. After awhile the sky cleared and the sun began to shine. Johnny looked across the sky and saw a beautiful
-----.

"Circle the picture that finishes the story!"

(PAUSE 12 SECONDS).

Question #30

"Move your marker down and put it under the picture of the pear!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER
THE PICTURE OF THE PEAR - QUESTION #30.

"Listen carefully!"

Gary read the story about the little boy who was lost in the African Jungle. He was frightened by the animals. As he stumbled along the path into the clearing, he saw the -----.

"Circle the picture that finishes the story!"

(PAUSE 12 SECONDS).

Spatial Relations

"TURN TO THE NEXT PAGE IN YOUR BOOKLET!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE PAGE NINE OF THEIR BOOKLET FACE UP.

"This time we are going to play a new game. You are going to be detectives. I am going to give you the clues and you are going to find the picture in the long box."

Sample A

"Put your marker under the picture of the cap."

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE CAP - SAMPLE A.

"Look at the boxes and balls in the long box!"

Circle the one that has a ball under the box!

(PAUSE 12 SECONDS).

SHOW THE CHILDREN THE PICTURE OF THE BOX WITH THE BALL UNDER IT IN YOUR TEST BOOKLET.

"Did you circle this one? If you did you are right!"

Sample B

"Move your marker down and put it under the picture of the apple!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE APPLE - SAMPLE B.

"Look at the rectangles in the long box! Circle the largest rectangle!" (PAUSE 12 SECONDS).

SHOW THE CHILDREN THE LARGEST RECTANGLE ON YOUR BOOKLET.

"Did you circle this one? If you did you are right."

Question #1

"Move your marker down and put it under the picture of the ball!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE BALL - QUESTION #1.

"Look at the rectangles and the balls in the long box! Circle the one that has the ball beside the rectangle!"
(PAUSE 12 SECONDS).

Question #2

"Move your marker down and put it under the picture of the mitten!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE MITTEN - QUESTION #2.

"Look at the long box! Circle the one that is square!" (PAUSE 12 SECONDS).

Question #3

"Move your marker down and put it under the picture of the rabbit!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE RABBIT - QUESTION #3.

"Look at the rectangles in the long box! Circle the the smallest rectangle!" (PAUSE 12 SECONDS)

Question #4

"Move your marker down and put it under the picture of the ring!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE RING - QUESTION #4.

"Look at all the figures in the long box! Circle the one that is upside down!" (PAUSE 12 SECONDS).

Question #5

"Move your marker down and put it under the picture of the foot!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE FOOT - QUESTION #5.

"Look at the figures in the long box! Print the number 5 in the triangle!" (PAUSE 12 SECONDS).

Question #6

"Move your marker down and put it under the picture of the kitten!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE KITTEN - QUESTION #6.

"Look at the stools and the balls in the long box! Circle the one that has the ball under the stool!" (PAUSE 12 SECONDS).

"TURN TO THE NEXT PAGE IN YOUR BOOKLET!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE PAGE TEN OF THEIR BOOKLET FACE UP.

Question #7

"Move your marker down and put it under the picture of the star!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE STAR - QUESTION #7.

"Look at the hens in the long box! Circle the one that has the egg in front of the hen!" (PAUSE 12 SECONDS).

Question #8

"Move your marker down and put it under the picture of the kite!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE KITE - QUESTION #8.

"Look at the books and candles in the long box! Circle the one that has the candle behind the book!" (PAUSE 12 SECONDS).

Question #9

"Move your marker down and put it under the picture of the rabbit!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE RABBIT - QUESTION #9.

"Look at all the balls in the long box! Circle the

ball that is the farthest to your right!" (PAUSE 12 SECONDS).

Question #10

"Move your marker down and put it under the picture of the key!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE KEY - QUESTION #10.

"Look at all the figures in the long box! Circle the one that is not a ball!" (PAUSE 12 SECONDS).

Question #11

"Move your marker down and put it under the picture of the cup!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE CUP - QUESTION #11.

"Look at the fish in the long box! Circle the fish that is facing to the left!" (PAUSE 12 SECONDS).

Question #12

"Move your marker down and put it under the picture of the pear!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE PEAR - QUESTION #12.

"Look in the long box! Circle the one that has the flower in the pot!" (PAUSE 12 SECONDS).

Question #13

"Move your marker down and put it under the picture of the ice-cream cone!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE ICE-CREAM CONE - QUESTION #13.

"Look at the rectangles and balls in the long box! Circle the rectangle that has the ball on the right side!"

(PAUSE 12 SECONDS).

Question #14

"Move your marker down and put it under the picture of the glass!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE GLASS - QUESTION #14.

"Look at the desks in the long box! Circle the one that has the X above the desk!" (PAUSE 12 SECONDS).

"TURN TO THE NEXT PAGE IN YOUR BOOKLET!"

CHECK TO SEE THAT ALL THE CHILDREN ARE ON PAGE ELEVEN OF THEIR BOOKLET.

Question #15

"Move your marker down and put it under the picture of the bell!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE BELL - QUESTION #15.

"Look at the animals in the long box! Circle the one that is facing to the left!" (PAUSE 12 SECONDS).

Question #16

"Move your marker down and put it under the picture of the mouse!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE MOUSE - QUESTION #16.

"Look at the triangles in the long box! Print the letter S in the triangle on your right!" (PAUSE 12 SECONDS).

Question #17

"Move your marker down and put it under the picture of the rabbit!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE RABBIT - QUESTION #17.

"Look at the rectangles in the big box! Circle the rectangle that is farthest on your right!" (PAUSE 12 SECONDS).

Question #18

"Move your marker down and put it under the picture of the seal!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE SEAL - QUESTION #18.

"Look at the triangles and the squares! Circle the one that has a triangle inside the square!" (PAUSE 12 SECONDS).

Question #19

"Move your marker down and put it under the picture of the book!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE BOOK - QUESTION #19.

"Look at the rectangles in the long box! Write the number 7 in the box above the line!" (PAUSE 12 SECONDS).

Question #20

"Move your marker down and put it under the picture of the apple!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE APPLE - QUESTION #20.

"Look at the rectangles in the big box! Print a letter that is in your name in the largest rectangle!"

Question #21

"Move your marker down and put it under the picture of the kitten!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE KITTEN - QUESTION #21.

"Look at the figures in the long box! Circle the one that is a rectangle!" (PAUSE 12 SECONDS).

Question #22

"Move your marker down and put it under the picture of the chick!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE CHICK - QUESTION #22.

"Look at the figures in the long box! Circle the one that is round!" (PAUSE 12 SECONDS).

"TURN TO THE NEXT PAGE IN YOUR BOOKLET!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE PAGE TWELVE OF THEIR BOOKLET FACE UP.

Question #23

"Move your marker down and put it under the picture of the boot!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE BOOT - QUESTION #23.

"Look at the pictures in the long box! Circle the one that is closest to the right side of your paper!"
(PAUSE 12 SECONDS).

Question #24

"Move your marker down and put it under the picture of the glass!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE GLASS - QUESTION #24.

"Look at the triangles in the long box! Print the letter C under the one that is different!" (PAUSE 12 SECONDS).

Question #25

"Move your marker down under the picture of the frog!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE FROG - QUESTION #25.

"Look at the picture in the little box! Find one just like it in the long box!" (PAUSE 12 SECONDS).

Question #26

"Move your marker down and put it under the picture of the fish!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE FISH - QUESTION #26.

"Look at the rectangles in the long box! Print the letter M under the smallest box!" (PAUSE 12 SECONDS).

Question #27

"Move your marker down and put it under the picture of the valentine!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE VALENTINE - QUESTION #27.

"Look at the figures in the long box! Print the letter A inside the circle!" (PAUSE 12 SECONDS).

Question #28

"Move your marker down and put it under the picture of the horn!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE HORN - QUESTION #28.

"Look at the figures in the long box! Draw an X inside the square!" (PAUSE 12 SECONDS).

Question #29

"Move your marker down and put it under the picture of the star!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE STAR - QUESTION #29.

"Look at the fish in the long box! Print the number 5 under the one that is different!" (PAUSE 12 SECONDS).

Question #30

"Move your marker down and put it under the picture of the lemon!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE LEMON - QUESTION #30.

"Look at the pictures of the stools in the long box! Circle the one that has an X on top of the stool!" (PAUSE 12 SECONDS).

THIS SECTION IS NOW FINISHED. GIVE YOUR CHILDREN A BREAK.

Auditory Reception

"We are going to play a new game, but first, I am going to show you two new words. The first word is Yes."

PRINT THE WORD YES ON THE CHALKBOARD.

"This word says Yes. Now I am going to draw a Happy Face beside the word Yes."

DRAW A HAPPY FACE BESIDE THE WORD YES ON THE CHALKBOARD.

"Now I am going to show you another word; it says No. Now I am going to draw a Sad Face beside the word No."

DRAW A SAD FACE BESIDE THE WORD NO ON THE CHALKBOARD.

Sample A

"Look at your paper and find the picture of a bird in the little box at the top of your page. Now put your marker under the picture of the bird."

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE BIRD - SAMPLE A.

"Listen carefully! Circle the word Yes and the Happy Face beside it if what I say is right; like this!"

CIRCLE THE WORD YES AND THE HAPPY FACE ON THE CHALKBOARD.

"Circle the word No and the Sad Face if what I say is not right; like this!"

CIRCLE THE WORD NO AND THE SAD FACE.

"Do not mark your paper until I tell you to!"

Listen!"

A giraffe has a long neck.

"Now circle the one that you think is right! Yes, a giraffe has a long neck. Did you circle the word Yes and the Happy Face?"

Sample B

"Move your marker down and put it under the picture of the pig!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE PIG - SAMPLE B.

"Listen carefully and do not mark your book until I tell you to!"

Listen - Dogs can meow.

"If the answer is Yes, circle the Yes and the Happy Face; like this!"

CIRCLE THE WORD YES AND THE HAPPY FACE ON THE CHALKBOARD.

"If you think what I say is not right; then circle the word No and the Sad Face; like this!"

CIRCLE THE WORD NO AND THE SAD FACE ON THE CHALKBOARD.

"Now mark your booklet!" No, dogs do not meow. If you circled the word No and the Sad Face, you are right."

Question #1

"Move your marker down and put it under the picture of the cup!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE CUP - QUESTION #1.

"Listen carefully and do not mark your booklet until I tell you to!"

Listen - Books can run and jump.

"If you think the answer is Yes, circle the Yes and the Happy Face; like this!"

CIRCLE THE WORD YES AND THE HAPPY FACE ON THE CHALKBOARD.

"If you think what I said is not right, then circle the word No and the Sad Face; like this!"

CIRCLE THE WORD NO AND THE SAD FACE ON THE CHALKBOARD.

"Now circle your answer!"

Question #2

"Move your marker down and put it under the picture of the sun!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE SUN - QUESTION #2.

"Listen carefully and do not mark your booklet until I tell you to!"

Listen - We stop at a red light.

"If the answer is Yes, circle the word Yes and the Happy Face; like this!"

CIRCLE THE WORD YES AND THE HAPPY FACE ON THE CHALKBOARD.

"If the answer is not right, circle the word No and the Sad Face; like this!"

CIRCLE THE WORD NO AND THE SAD FACE ON THE CHALKBOARD.

"Now mark your booklet!"

Question #3

"Move your marker down and put it under the picture of the mitten!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE MITTEN - QUESTION #3.

"Listen carefully and do not mark your booklet until I tell you to!"

Listen - Words have sounds in them.

"If the answer is Yes, circle the word Yes and the Happy Face; like this!"

CIRCLE THE WORD YES AND THE HAPPY FACE ON THE CHALKBOARD.

"If you think what I said is not right, circle the word No and the Sad Face; like this!"

CIRCLE THE WORD NO AND THE SAD FACE ON THE CHALKBOARD.

"Now mark your booklets!"

Question #4

"Move your marker down and put it under the picture of the scissors!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE SCISSORS - QUESTION #4.

"Listen carefully and do not mark your booklet until I tell you to!"

Listen - Five comes after nine.

"If the answer is right, circle the word Yes and the Happy Face; like this!"

CIRCLE THE WORD YES AND THE HAPPY FACE ON THE CHALKBOARD.

"If you think what I said is not right, circle the word No and the Sad Face; like this!"

CIRCLE THE WORD NO AND THE SAD FACE ON THE CHALKBOARD.

"Now mark your booklet!"

Question #5

"Move your marker down and put it under the picture of the pear!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE PEAR - QUESTION #5.

"Listen carefully and do not mark your booklet until I tell you to!"

Listen - We see lambs in the country.

"If the answer is right, circle the word Yes and the Happy Face; like this!"

CIRCLE THE WORD YES AND THE HAPPY FACE ON THE CHALKBOARD.

"If the answer is No, circle the word No and the Sad Face; like this!"

CIRCLE THE WORD NO AND THE SAD FACE ON THE CHALKBOARD.

"Now mark your booklet!"

Question #6

"Move your marker down and put it under the picture of the feather!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE FEATHER - QUESTION #6.

"Listen carefully and do not mark your booklet until I tell you to!"

Listen - A cow can fly.

"If you think what I said is right, circle the word Yes and the Happy Face; like this!"

CIRCLE THE WORD YES AND THE HAPPY FACE ON THE CHALKBOARD.

"If you think what I said is not right, circle the word No and the Sad Face; like this!"

CIRCLE THE WORD NO AND THE SAD FACE ON THE CHALKBOARD.

"Now mark your booklet!"

Question #7

"Move your marker down and put it under the picture of the ring!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE RING - QUESTION #7.

"Listen carefully and do not mark your booklet until I tell you to!"

Listen - Grass is green in the spring.

"If you think what I said is right, circle the word Yes and the Happy Face; like this!"

CIRCLE THE WORD YES AND THE HAPPY FACE ON THE CHALKBOARD.

"If you think what I said is not right, circle the word No and the Sad Face; like this!"

CIRCLE THE WORD NO AND THE SAD FACE ON THE CHALKBOARD.

"Now mark your booklet!"

Question #8

"Move your marker down and put it under the picture of the teapot!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE TEAPOT - QUESTION #8.

"Listen carefully and do not mark your booklets until I tell you to!"

Listen - We use letters when printing words.

"If you think what I said is right, circle the word Yes and the Happy Face!"

CIRCLE THE WORD YES AND THE HAPPY FACE ON THE CHALKBOARD.

"If you think what I said is not right, circle the word No and the Sad Face; like this!"

CIRCLE THE WORD NO AND THE SAD FACE ON THE CHALKBOARD.

"Now mark your booklet!"

Question #9

"Move your marker down and put it under the picture of the bell!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE BELL - QUESTION #9.

"Listen carefully and do not mark your booklets until I tell you to!"

Listen - Ducks like to play in the water.

"If you think what I said is right, circle the word Yes and the Happy Face; like this!"

CIRCLE THE WORD YES AND THE HAPPY FACE ON THE CHALKBOARD.

"If you think what I said is not right, circle the word No and the Sad Face; like this!"

CIRCLE THE WORD NO AND THE SAD FACE ON THE CHALKBOARD.

"Now mark your booklets!"

Question #10

"Move your marker down and put it under the picture of the tent!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE TENT - QUESTION #10.

"Listen carefully and do not mark your booklet until I tell you to!"

Listen - Sentences have words!

"If you think what I said is right, circle the word Yes and the Happy Face; like this!"

CIRCLE THE WORD YES AND THE HAPPY FACE ON THE CHALKBOARD.

"If you think what I said is not right, circle the word No and the Sad Face!"

CIRCLE THE WORD NO AND THE SAD FACE ON THE CHALKBOARD.

"Now mark your booklet!"

Question #11

"Move your marker and put it under the picture of the star!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE STAR - QUESTION #11.

"Listen carefully and do not mark your booklet until I tell you to!"

Listen - A horse can gallop.

"If you think what I said is right, circle the word Yes and the Happy Face; like this!"

CIRCLE THE WORD YES AND THE HAPPY FACE ON THE CHALKBOARD.

"If you think what I said is not right, circle the word No and the Sad Face; like this!"

CIRCLE THE WORD NO AND THE SAD FACE ON THE CHALKBOARD.

"Now mark your booklet!"

Question #12

"Move your marker down and put it under the picture of the dish!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE DISH - QUESTION #12.

"Listen carefully and do not mark your booklet until I tell you to!"

Listen - Cars have chimneys!"

"If you think what I said is right, circle the word Yes and the Happy Face; like this!"

CIRCLE THE WORD YES AND THE HAPPY FACE ON THE CHALKBOARD.

"If you think what I said is not right, circle the word No and the Sad Face; like this!"

CIRCLE THE WORD NO AND THE SAD FACE ON THE CHALKBOARD.

"Now mark your booklet!"

Question #13

"Move your marker down and put it under the picture of the jack-o-lantern!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE JACK-O-LANTERN - QUESTION #13.

"Listen carefully and do not mark your booklet until I tell you to!"

Listen - Cities have streets.

"If you think what I said is right, circle the word Yes and the Happy Face; like this!"

CIRCLE THE WORD YES AND THE HAPPY FACE ON THE CHALKBOARD.

"If you think what I said is not right, circle the word No and the Sad Face!"

CIRCLE THE WORD NO AND THE SAD FACE ON THE CHALKBOARD.

"Now mark your booklet!"

Question #14

"Move your marker down and put it under the picture of the sock!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE SOCK - QUESTION #14.

"Listen carefully and do not mark your booklet until I tell you to!"

Listen - A rooster can crow.

"If you think what I said is right, circle the word Yes and the Happy Face; like this!"

CIRCLE THE WORD YES AND THE HAPPY FACE ON THE CHALKBOARD.

"If you think what I said is not right, circle the word No and the Sad Face; like this!"

CIRCLE THE WORD NO AND THE SAD FACE ON THE CHALKBOARD.

"Now circle your answer!"

Question #15

"Move your marker down and put it under the picture of the glass!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE GLASS - QUESTION #15.

"Listen carefully and do not mark your booklet until I tell you to!"

Listen - We eat lunch in the morning.

"If you think what I said is right, circle the word Yes and the Happy Face; like this!"

CIRCLE THE WORD YES AND THE HAPPY FACE ON THE CHALKBOARD.

"If you think what I said is not right, circle the word No and the Sad Face; like this!"

CIRCLE THE WORD NO AND THE SAD FACE ON THE CHALKBOARD.

"Now circle your answer!"

Question #16

"Move your marker down and put it under the picture of the triangle!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE TRIANGLE - QUESTION #16.

"Listen carefully and do not mark your booklet until I tell you to!"

Listen - Some birds fly south in winter.

"If you think what I said is right, circle the word Yes and the Happy Face; like this!"

CIRCLE THE WORD YES AND THE HAPPY FACE ON THE CHALKBOARD.

"If you think what I said is not right, circle the word No and the Sad Face!"

CIRCLE THE WORD NO AND THE SAD FACE ON THE CHALKBOARD.

"Now circle your answer!"

Question #17

"Move your marker down and put it under the picture of the hat!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE HAT - QUESTION #17.

"Listen carefully and do not mark your booklet until I tell you to!"

Listen - Puppets like to eat cake.

"If you think what I said is right, circle the word Yes and the Happy Face; like this!"

CIRCLE THE WORD YES AND THE HAPPY FACE ON THE CHALKBOARD.

"If you think what I said is not right, circle the word No and the Sad Face; like this!"

CIRCLE THE WORD NO AND THE SAD FACE ON THE CHALKBOARD.

"Now circle your answer!"

Question #18

"Move your marker down and put it under the picture of the water tap!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE WATER TAP - QUESTION #18.

"Listen carefully and do not mark your booklet until I tell you to!"

Listen - Books have stories in them.

"If you think what I said is right, circle the word Yes and the Happy Face; like this!"

CIRCLE THE WORD YES AND THE HAPPY FACE ON THE CHALKBOARD.

"If you think what I said is not right, circle the word No and the Sad Face; like this!"

CIRCLE THE WORD NO AND THE SAD FACE ON THE CHALKBOARD.

"Now circle your answer!"

Question #19

"Move your marker down and put it under the picture of the letter!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE LETTER - QUESTION #19.

"Listen carefully and do not mark your booklet until I tell you to!"

Listen - Ships have portholes.

"If you think what I have said is right, circle the word Yes and the Happy Face; like this!"

CIRCLE THE WORD YES AND THE HAPPY FACE ON THE CHALKBOARD.

"If you think what I said is not right, circle the word No and the Sad Face; like this!"

CIRCLE THE WORD NO AND THE SAD FACE ON THE CHALKBOARD.

"Now circle your answer!"

Question #20

"Move your marker down and put it under the picture of the balloon!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE BALLOON - QUESTION #20.

"Listen carefully and do not mark your booklet until I tell you to!"

Listen - Words have numbers in them.

"If you think what I said is right, circle the word Yes and the Happy Face; like this!"

CIRCLE THE WORD YES AND THE HAPPY FACE ON THE CHALKBOARD.

"If you think what I said is not right, circle the word No and the Sad Face; like this!"

CIRCLE THE WORD NO AND THE SAD FACE ON THE CHALKBOARD.

"Now circle your answer!"

Question #21

"Move your marker down and put it under the picture of the bird's nest!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE BIRD'S NEST - QUESTION #21.

"Listen carefully and do not mark your booklet until I tell you to!"

Listen - Books have printing in them.

"If you think what I said is right, circle the word Yes and the Happy Face; like this!"

CIRCLE THE WORD YES AND THE HAPPY FACE ON THE CHALKBOARD.

"If you think what I said is not right, circle the word No and the Sad Face; like this!"

CIRCLE THE WORD NO AND THE SAD FACE ON THE CHALKBOARD.

"Now circle your answer!"

Question #22

"Move your marker down and put it under the picture of the lamp!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE LAMP - QUESTION #22.

"Listen carefully and do not mark your booklet until I tell you to!"

Listen - Judges can sentence.

"If you think what I said is right, circle the word Yes and the Happy Face; like this!"

CIRCLE THE WORD YES AND THE HAPPY FACE ON THE CHALKBOARD.

"If you think what I said is not right, circle the word No and the Sad Face; like this!"

CIRCLE THE WORD NO AND THE SAD FACE ON THE BLACKBOARD.

"Now circle your answer!"

"TURN TO THE NEXT PAGE IN YOUR BOOKLET!"

Question #23

"Move your marker down and put it under the picture of the man's vest!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE MAN'S VEST - QUESTION #23.

"Listen carefully and do not mark your booklet until I tell you to!"

Listen - Foxes can read.

"If you think what I said is right, circle the word Yes and the Happy Face; like this!"

CIRCLE THE WORD YES AND THE HAPPY FACE ON THE CHALKBOARD.

"If you think what I said is not right, circle the word No and the Sad Face; like this!"

CIRCLE THE WORD NO AND THE SAD FACE ON THE CHALKBOARD.

"Now circle your answer!"

Question #24

"Move your marker down and put it under the picture of the banana!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE BANANA - QUESTION #24.

"Listen carefully and do not mark your booklet until I tell you to!"

Listen - Bears hibernate.

"If you think what I said is right, circle the word Yes and the Happy Face; like this!"

CIRCLE THE WORD YES AND THE HAPPY FACE ON THE CHALKBOARD.

"If you think what I said is not right, circle the word No and the Sad Face; like this!"

CIRCLE THE WORD NO AND THE SAD FACE ON THE CHALKBOARD.

"Now circle your answer!"

Question #25

"Move your marker down and put it under the picture of the pail!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE PAIL - QUESTION #25.

"Listen carefully and do not mark your booklet until I tell you to!"

Listen - Spiders can spin.

"If you think what I said is right, circle the word Yes and the Happy Face; like this!"

CIRCLE THE WORD YES AND THE HAPPY FACE ON THE CHALKBOARD.

"If you think what I said is not right, circle the word No and the Sad Face; like this!"

CIRCLE THE WORD NO AND THE SAD FACE ON THE CHALKBOARD.

"Now circle your answer!"

Question #26

"Move your marker down and put it under the picture of the hammer!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE HAMMER - QUESTION #26.

"Listen carefully and do not mark your booklet until I tell you to!"

Listen - Encyclopedias have information in them.

"If you think what I said is right, circle the word Yes and the Happy Face; like this!"

CIRCLE THE WORD YES AND THE HAPPY FACE ON THE CHALKBOARD.

"If you think what I said is not right, circle the word No and the Sad Face; like this!"

CIRCLE THE WORD NO AND THE SAD FACE ON THE CHALKBOARD.

"Now circle your answer!"

Question #27

"Move your marker down and put it under the picture of the bell!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE BELL - QUESTION #27.

"Listen carefully and do not mark your booklet until I tell you to!"

Listen - Birds can soar.

"If you think what I said is right, circle the word Yes and the Happy Face; like this!"

CIRCLE THE WORD YES AND THE HAPPY FACE ON THE CHALKBOARD.

"If you think what I said is not right, circle the word No and the Sad Face; like this!"

CIRCLE THE WORD NO AND THE SAD FACE ON THE CHALKBOARD.

"Now circle your answer!"

Question #28

"Move your marker down and put it under the picture of the dog!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE DOG - QUESTION #28.

"Listen carefully and do not mark your booklet until I tell you to!"

Listen - Grown-up people can read.

"If you think that what I said is right, circle the word Yes and the Happy Face; like this!"

CIRCLE THE WORD YES AND THE HAPPY FACE ON THE CHALKBOARD.

"If you think what I said is not right, circle the word No and the Sad Face; like this!"

CIRCLE THE WORD NO AND THE SAD FACE ON THE CHALKBOARD.

"Now circle your answer!"

Question #29

"Move your marker down and put it under the picture of the kite!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE KITE - QUESTION #29.

"Listen carefully and do not mark your booklet until I tell you to!"

Listen - Milk goes sour.

"If you think what I said is right, circle the word Yes and the Happy Face; like this!"

CIRCLE THE WORD YES AND THE HAPPY FACE ON THE CHALKBOARD.

"If you think what I said is not right, circle the word No and the Sad Face; like this!"

CIRCLE THE WORD NO AND THE SAD FACE ON THE CHALKBOARD.

"Now circle your answer!"

Question #30

"Move your marker down and put it under the picture of the drum!"

CHECK TO SEE THAT ALL THE CHILDREN HAVE THEIR MARKERS UNDER THE PICTURE OF THE DRUM - QUESTION #30.

"Listen carefully and do not mark your booklet until I tell you to!"

Listen - Snakes are cold-blooded.

"If you think what I said is right, circle the word Yes and the Happy Face; like this!"

CIRCLE THE WORD YES AND THE HAPPY FACE ON THE CHALKBOARD.

"If you think what I said is not right, circle the word No and the Sad Face; like this!"

CIRCLE THE WORD NO AND THE SAD FACE ON THE CHALKBOARD.

"Now circle your answer!"

(b) Pupil's Response Booklet

By Barbara Adams

Name	_____	_____
	Last	First
Date of Birth	_____	Age _____
	Year Month Day	
Grade	_____	Boy _____ Girl _____
Teacher	_____	School _____
Date Tested	_____	
	Year Month Day	

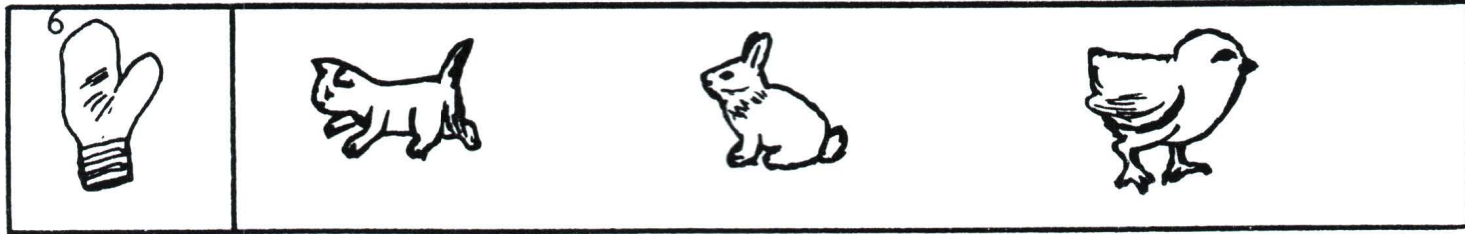
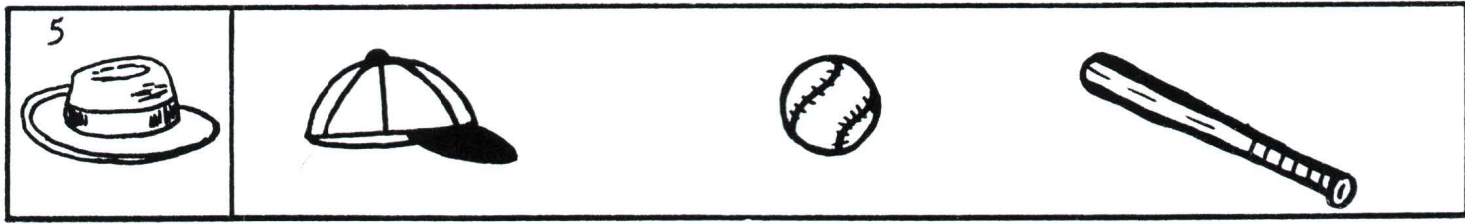
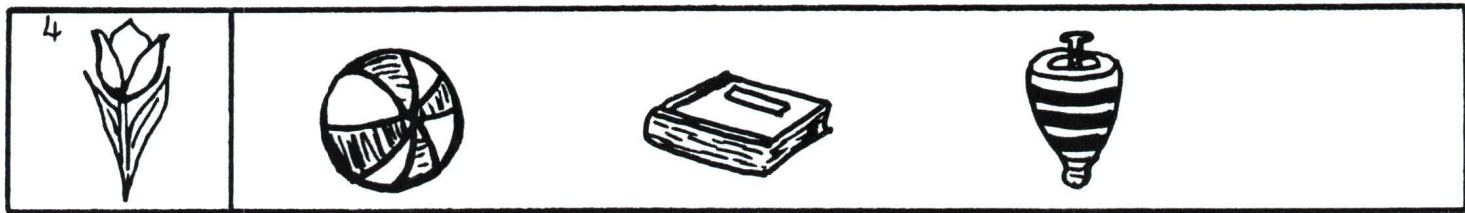
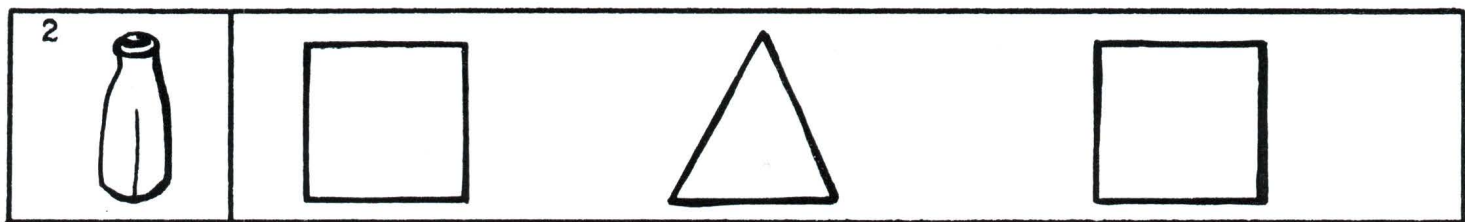
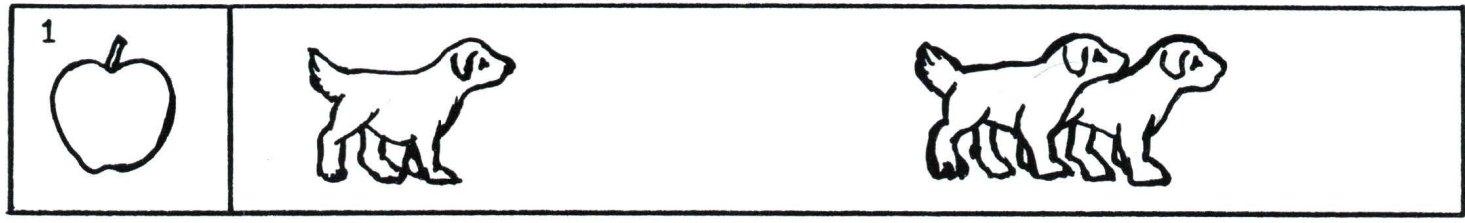
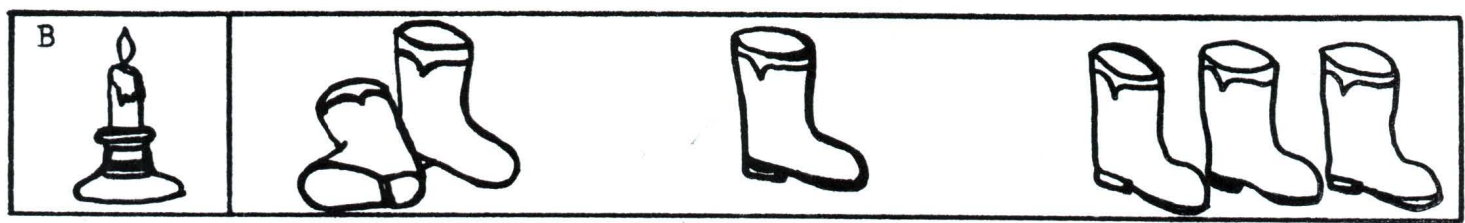
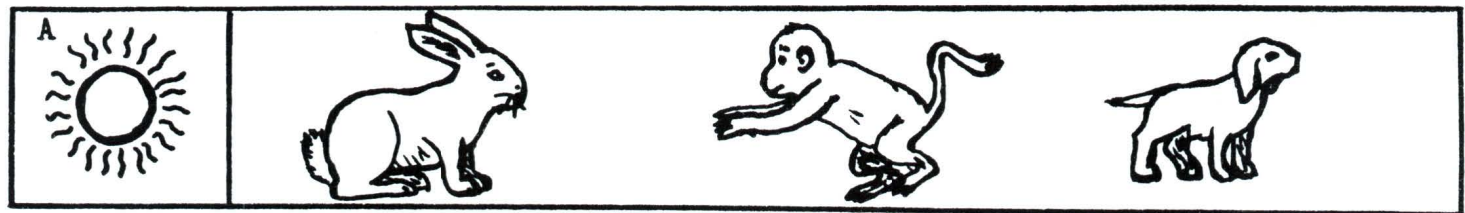
TEST

RAW SCORE (TOTAL CORRECT)

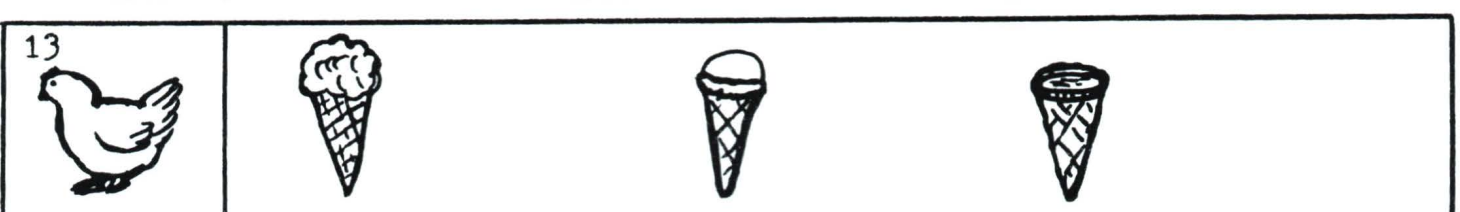
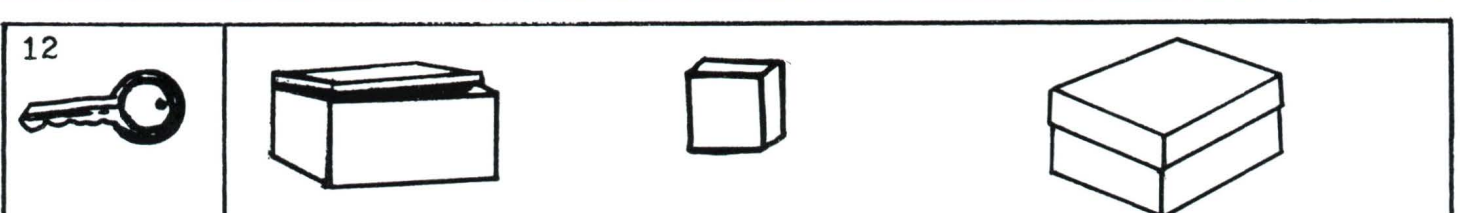
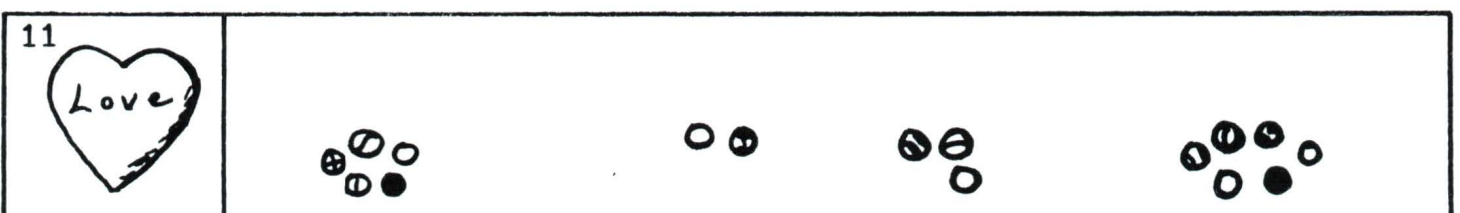
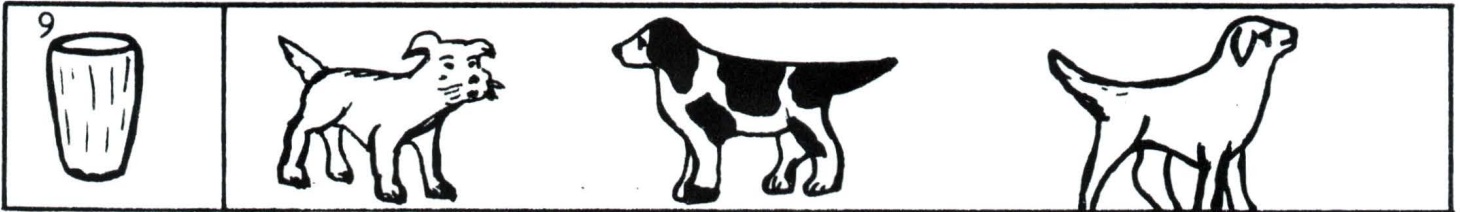
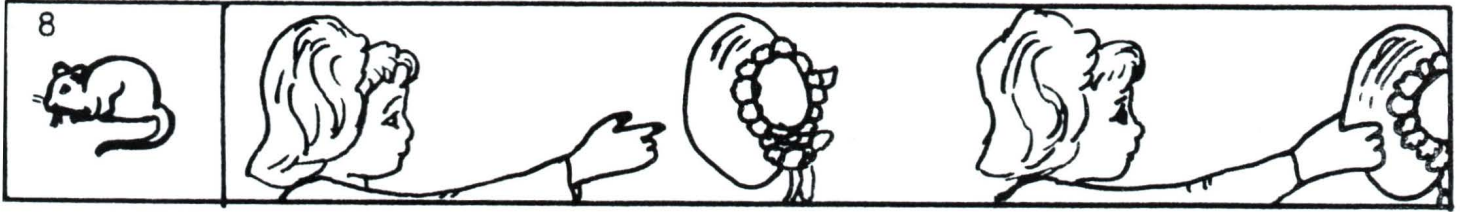
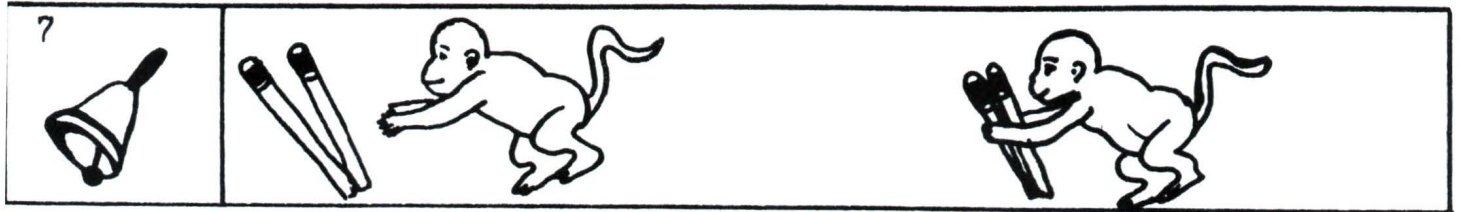
- | | |
|------------------------|----------|
| 1. Basic Concepts | 1. _____ |
| 2. Predicting Outcomes | 2. _____ |
| 3. Spatial Relations | 3. _____ |
| 4. Auditory Reception | 4. _____ |

Teacher's Comments:

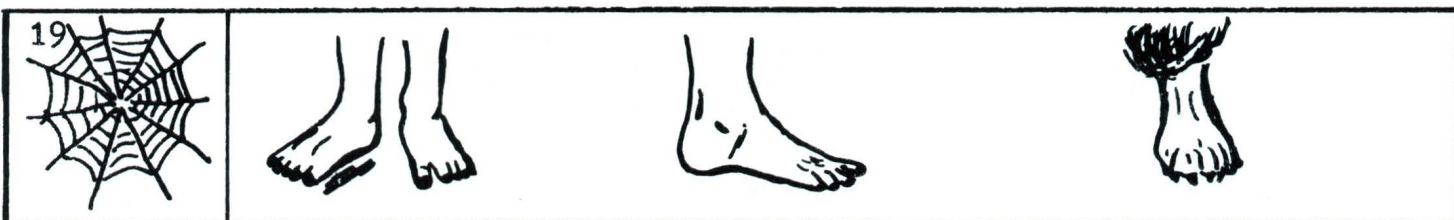
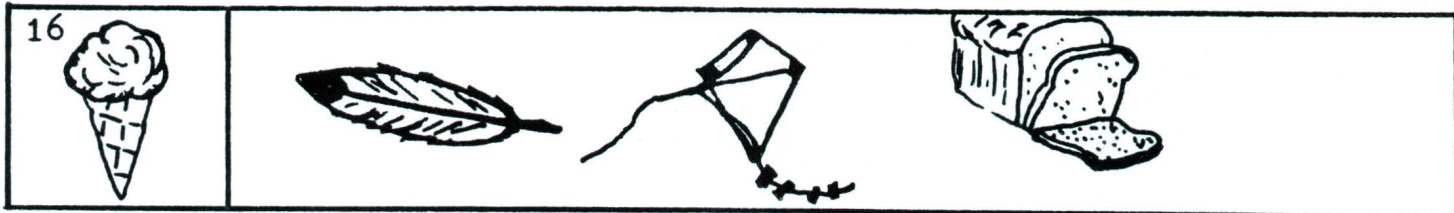
Basic Concepts



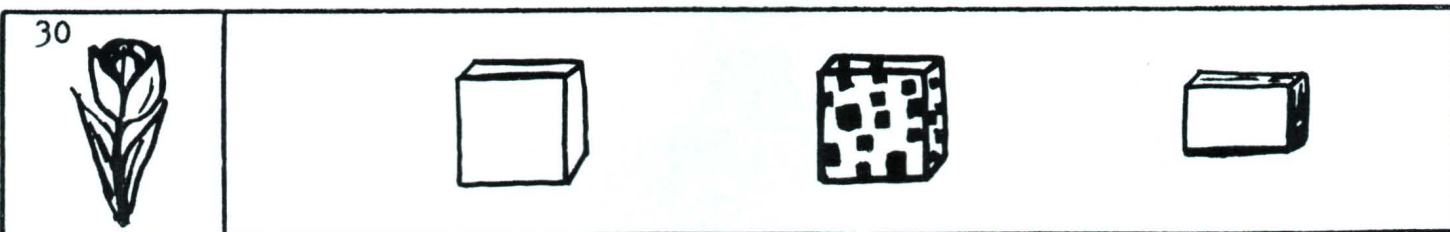
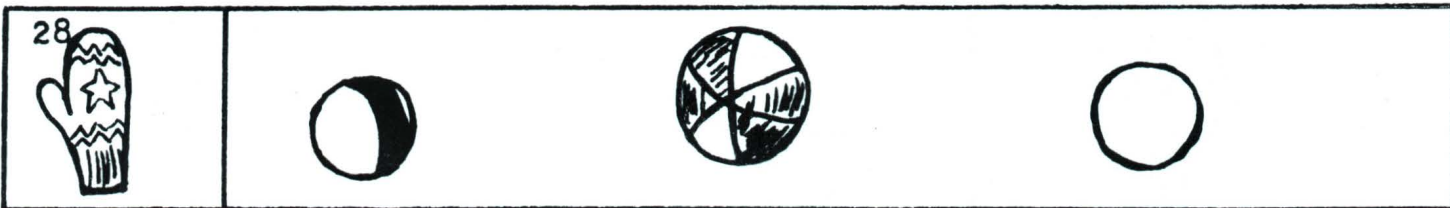
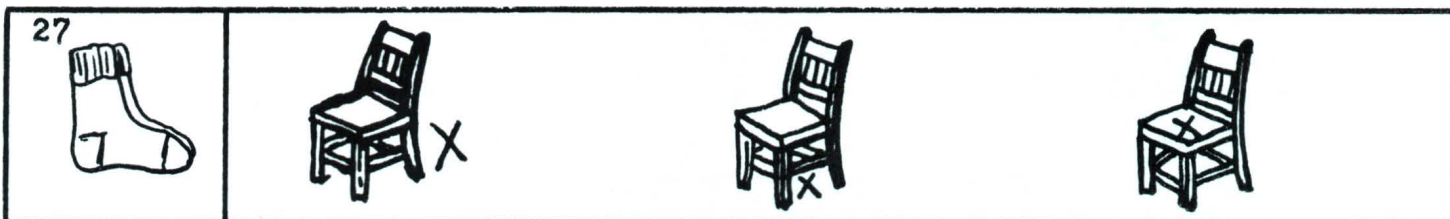
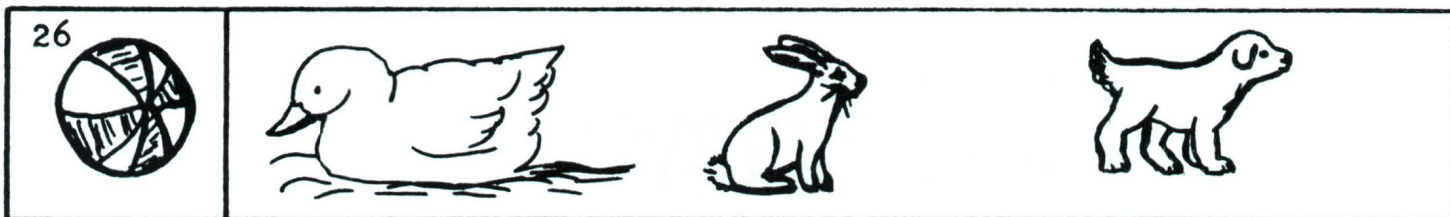
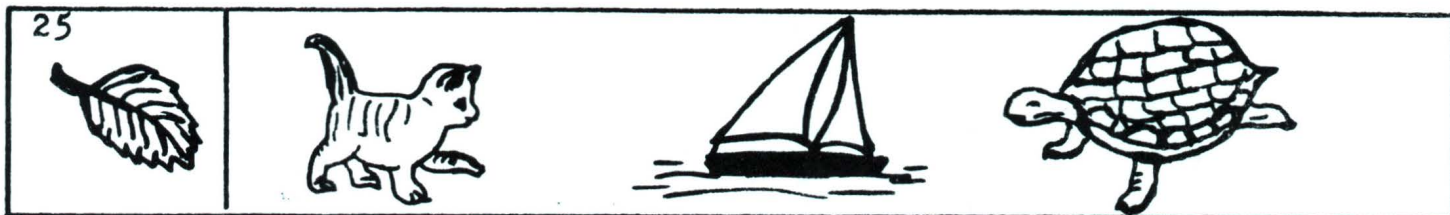
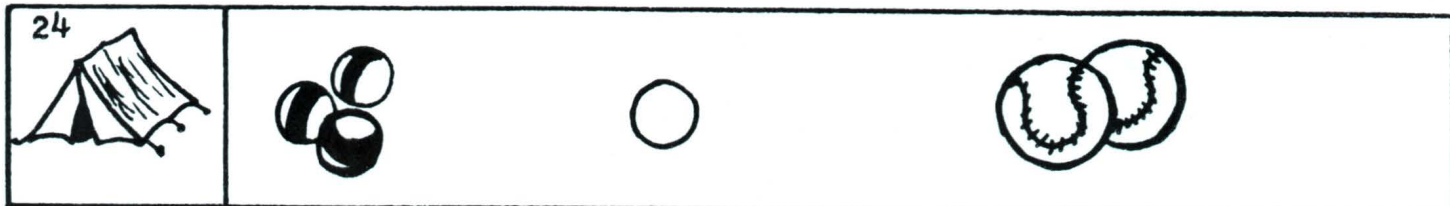
Basic Concepts



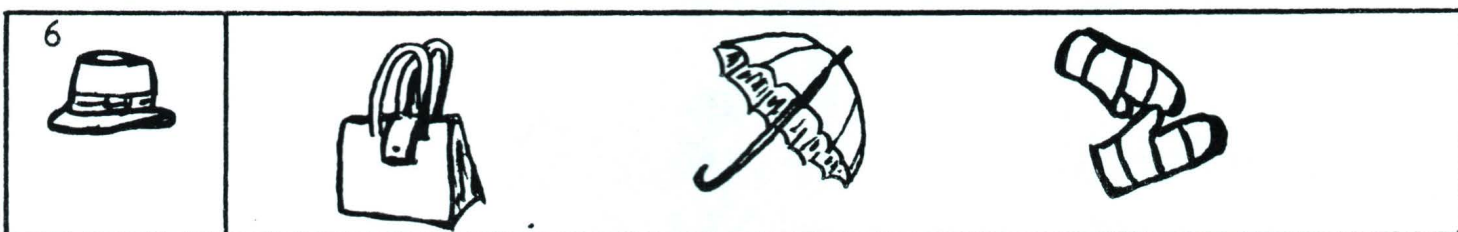
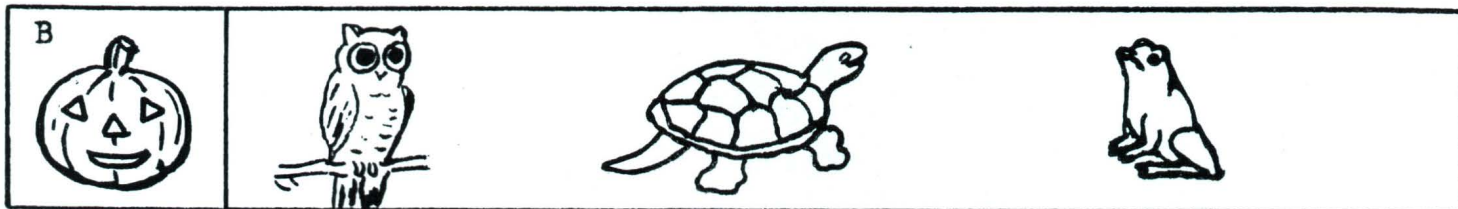
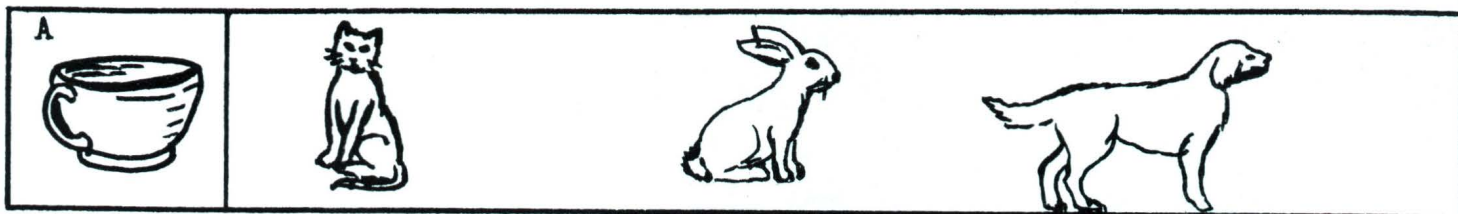
Basic Concepts



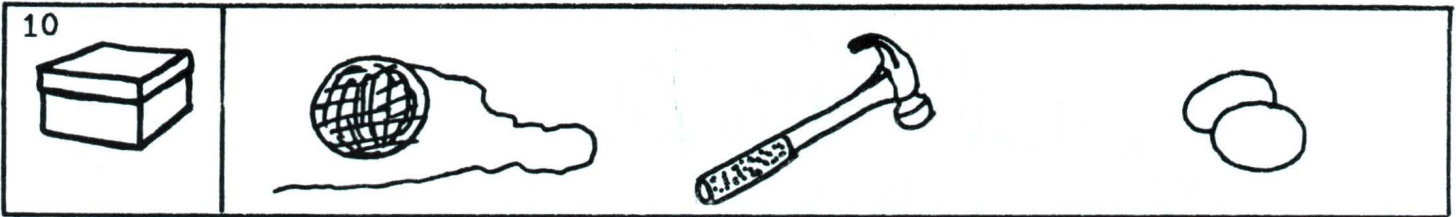
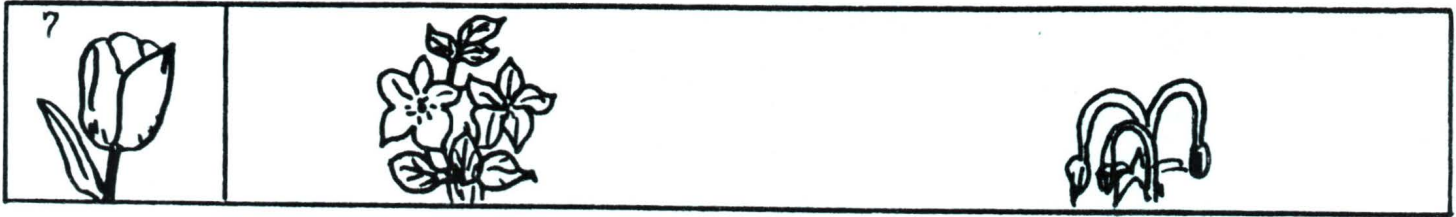
Basic Concepts



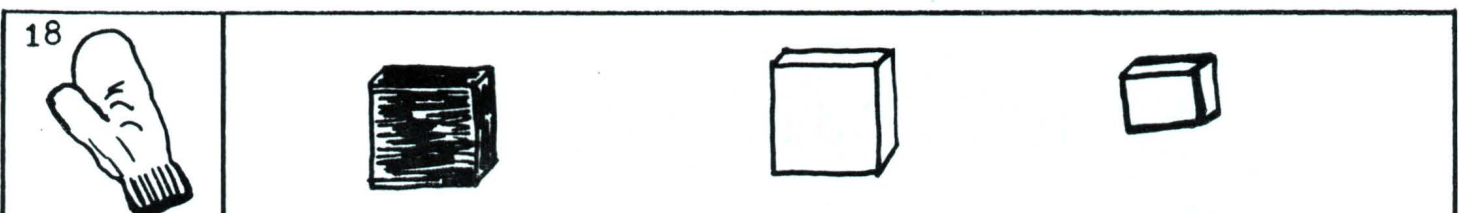
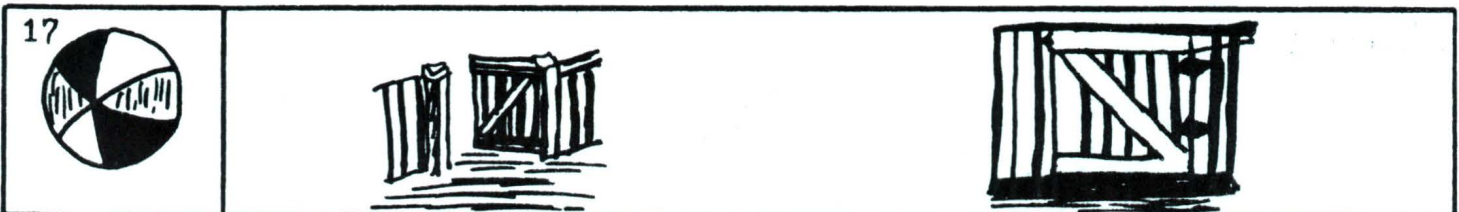
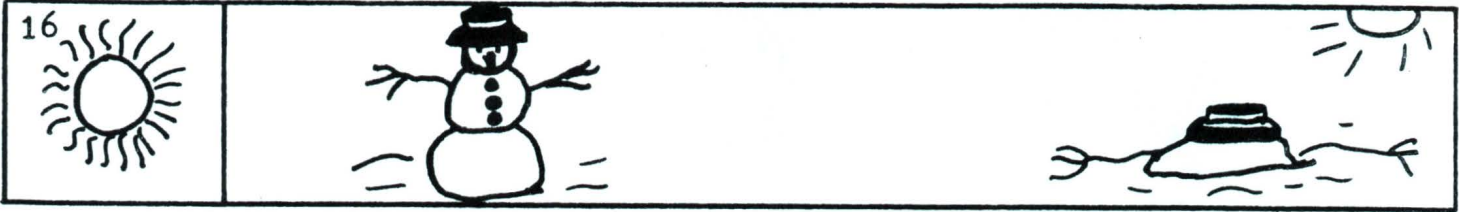
Predicting Outcomes



Predicting Outcomes

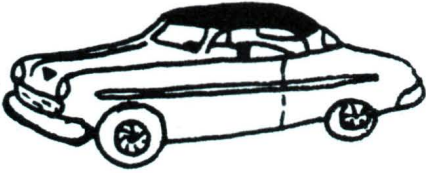


Predicting Outcomes

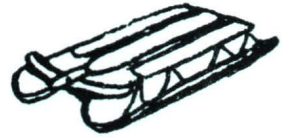
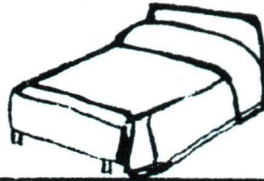


Predicting Outcomes

23



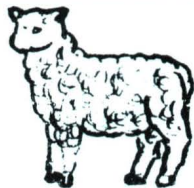
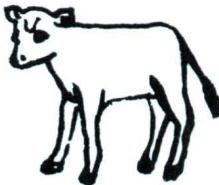
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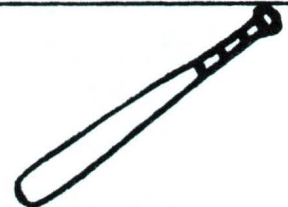
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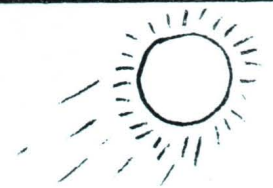
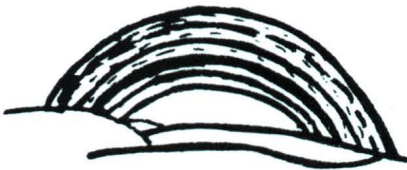
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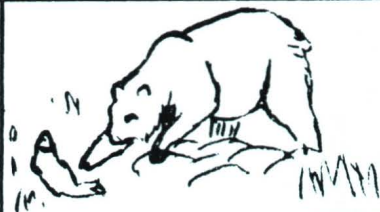
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29

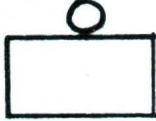
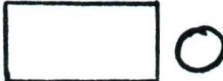




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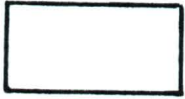



Spatial Relations

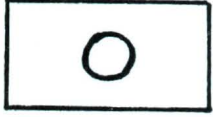
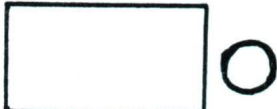
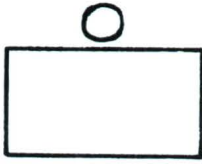

A







B




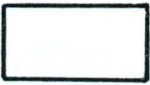


1









2



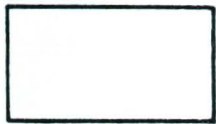


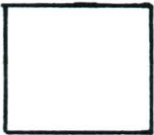

3



4



5



6



Spatial Relations

7

8

9

10

11


12

13

14


Spatial Relations

15




A row of four illustrations: a bell, a small chick, a kitten, and a dog.

16




A row starting with a mouse, followed by three identical triangles.

17



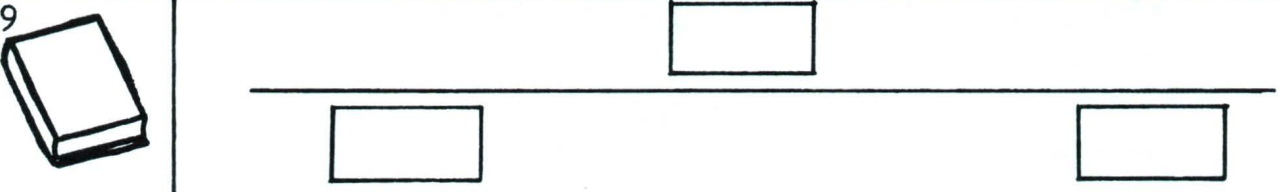
A row starting with a rabbit, followed by three identical rectangles.

18




A row starting with a seal, followed by three geometric shapes: a square containing a triangle, a square with a triangle to its right, and a square with an inverted triangle to its left.

19




A row starting with a book, followed by a horizontal line with three rectangles positioned above and below it.

20




A row starting with an apple, followed by three identical rectangles.

21



A row starting with a kitten, followed by three polygons: a square, a pentagon, and a rectangle.

22



A row starting with a chick, followed by three shapes: a circle, a triangle, and an oval.

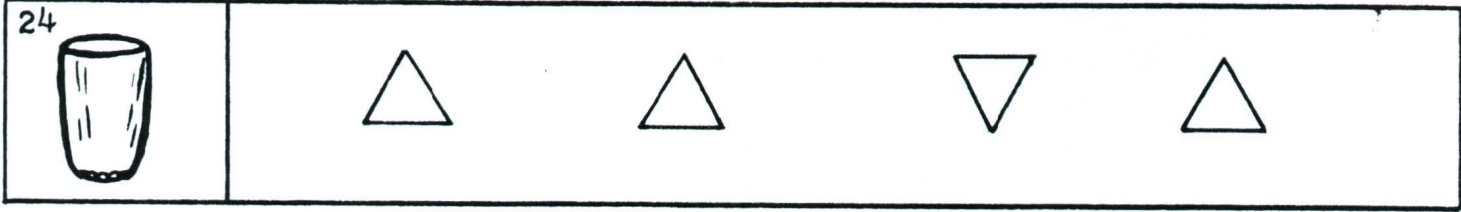
Spatial Relations

23



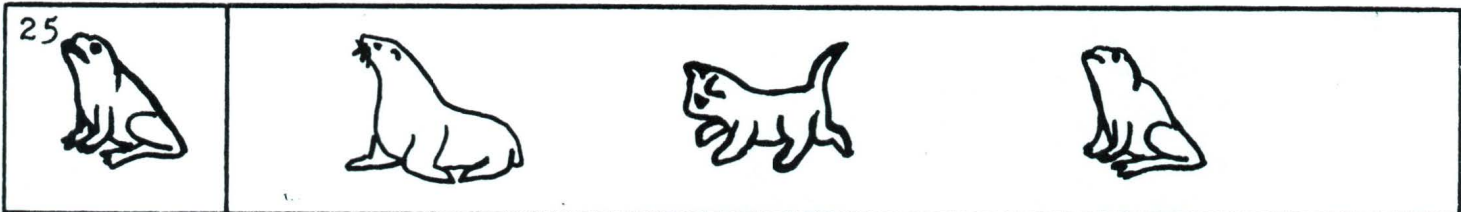
A horizontal row containing four distinct objects: a boot, a lit candle on a base, a single leaf, and a can with a label.

24



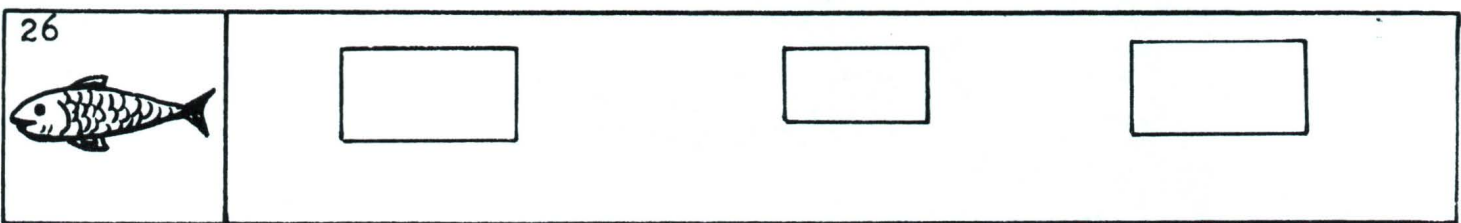
A horizontal row starting with a glass on the left, followed by four triangles: two pointing up, one pointing down, and one pointing up.

25



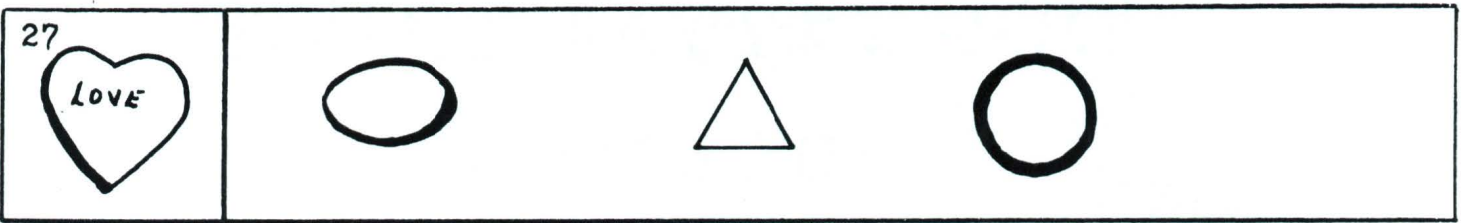
A horizontal row containing four animals: a frog, a seal, a cat, and a dog.

26



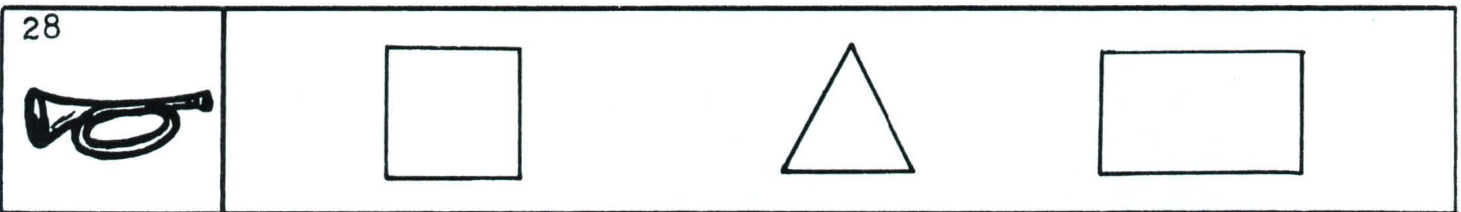
A horizontal row starting with a fish on the left, followed by three rectangles.

27



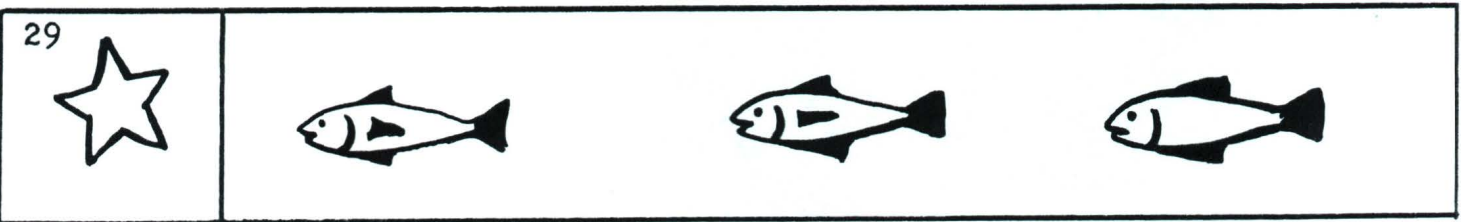
A horizontal row starting with a heart containing the word "LOVE" on the left, followed by a circle, a triangle, and another circle.

28



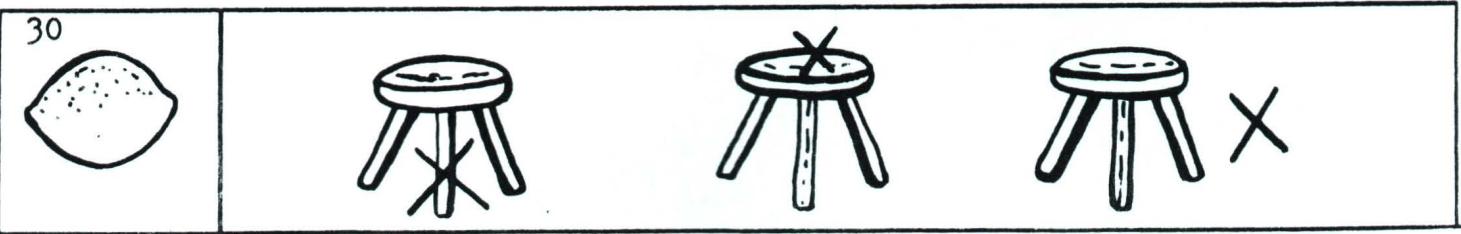
A horizontal row starting with a trumpet on the left, followed by a square, a triangle, and another square.

29



























A horizontal row starting with a star on the left, followed by three fish.

30









A horizontal row starting with a bowl of popcorn on the left, followed by three stools. The first stool has an 'X' mark on its legs, the second has an 'X' mark on its top, and the third has an 'X' mark to its right.

Auditory Reception

A 	Yes 	No 
B 	Yes 	No 
1 	Yes 	No 
2 	Yes 	No 
3 	Yes 	No 
4 	Yes 	No 
5 	Yes 	No 
6 	Yes 	No 

Auditory Reception




7 	Yes 	No 
---	---	--



8 	Yes 	No 
---	---	--


9 	Yes 	No 
---	---	--

10 	Yes 	No 
---	--	---




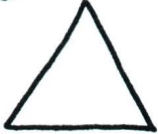











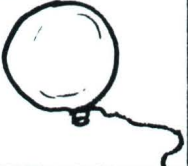








11 	Yes 	No 
--	---	--

12 	Yes 	No 
--	---	--

13 	Yes 	No 
--	---	--

	Yes 	No 
--	---	--




Auditory Reception

15 	Yes 	No 
16 	Yes 	No 
17 	Yes 	No 
18 	Yes 	No 
19 	Yes 	No 
20 	Yes 	No 
21 	Yes 	No 
22 	Yes 	No 

Auditory Reception




23  Yes  No 




24  Yes  No 

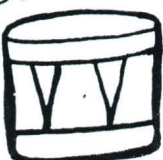

25  Yes  No 

26  Yes  No 

27  Yes  No 

28  Yes  No 

29  Yes  No 

30  Yes  No 

APPENDIX C

CANADIAN READINESS TEST

- (a) Validity and Reliability
- (b) Sample Test Items
- (c) Pupil's Response Booklet

Validity and Reliability

The Experimental battery of the Canadian Readiness Test was administered to 97 first grade children in September, 1972 as was the Clymer-Barrett Readiness Test. The Bond-Balow-Hoyt: The New Developmental Reading Test was administered in May. A total of thirteen of the subtests were administered.

Reliability of the independent variables was found by the use of the Kuder-Richardson Reliability Coefficient which determines the internal consistency of a test to provide an index of the reliability of the experimental subtests. The results of the reliability revealed that several of the experimental measures possessed low coefficients of reliability while others had very high reliability indices.

The single most highly reliable measure was Letter Recognition which showed a reliability coefficient of .946. Other measures of high reliability were: Learning Rate, Technical Knowledge of Literacy, Semantics, Beginning Sounds and Word Matching.

The following subtests were of low reliability and therefore were excluded by the authors in the revised test: Understanding Literacy Behavior, Ending Sounds, Morphology, Visual Memory, and Listening. The revised form used the first six highest reliability tests: Technical Literacy, Letter Recognition, Word Matching, Beginning Sounds,

Semantics, and Learning Rate.

To determine the best combination of readiness measures for predicting reading achievement, the authors used several regression equations. The child's perceptual ability as measured by the Letter Recognition showed to be the best predictor of reading achievement, on the Bond-Balow-Hoyt: The New Developmental Reading Test. Children's cognitive functioning in Learning Rate and Listening subtests were powerful predictors of word recognition but not significant contributors to other measures of reading achievement. In the child's concept of the reading task, the subtest, Orientation to Literacy was a significant predictor of the child's ability to comprehend instructions.

Correlation analysis, which investigated the relationship between the experimental readiness test and the Clymer-Barrett Readiness Test, showed a limited amount of relationship between the two tests.

Table 1
Descriptive Statistics for the Total Sample
on All Test Variables

Variable*	X	S	Range	KR-20
X ₁ OTL	5.46	.86	2-6	.712
X ₂ ULB	5.36	.90	1-6	.592
X ₃ TLOL	8.60	2.61	0-12	.834
X ₄ Letter Recognition	13.59	4.91	2-20	.946
X ₅ Word Match	17.12	3.04	5-20	.779
X ₆ Beginning Sounds	9.52	3.42	2-14	.775
X ₇ Ending Sounds	7.41	2.64	1-12	.676
X ₈ Semantics	43.62	9.40	0-60	.840
X ₉ Syntax	6.76	2.05	2-10	.504
X ₁₀ Morphology	10.88	1.89	6-14	.522
X ₁₁ Visual Memory	7.26	1.68	2-9	.679
X ₁₂ Learning Rate	13.48	3.75	3-18	.858
X ₁₃ Listening	6.91	1.96	0-12	.518
Y ₁ Word Recognition	24.351	7.150		
Y ₂ Comprehension of Ideas	20.361	11.261		
Y ₃ Comprehension of Instructions	15.598	5.340		
Y ₄ Total	58.134	22.151		

*n = 97

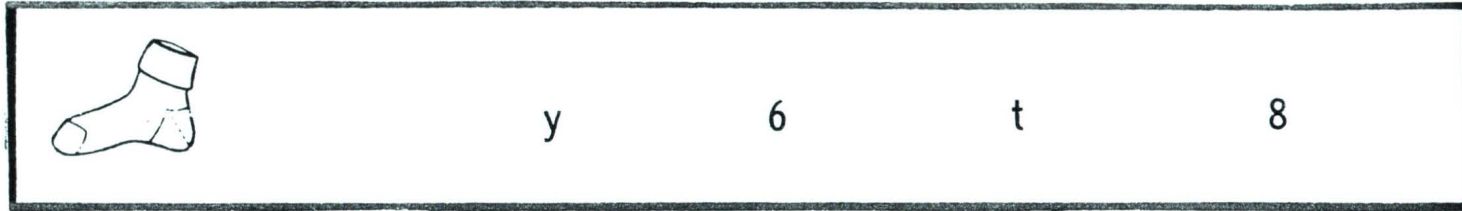


Figure 2. Sample Item, Evanechko, Ollila, Downing and Braun: Canadian Readiness Test. Technical Language of Literacy.

"Put your finger on the sock in the next box. Look at the things in the same box where your finger is. (CHECK THAT EACH CHILD HAS THE RIGHT PLACE). Listen carefully, you must find each thing which is a number. Draw a circle round each thing which is a number." (PAUSE 10 SECONDS).



Figure 3. Sample Item, Evanechko, Ollila, Downing and Braun: Canadian Readiness Test. Letter Recognition.

"Move down to the box with the rabbit. Put your finger on the rabbit. Find the letter m in the box and circle it." (10 seconds and stop).

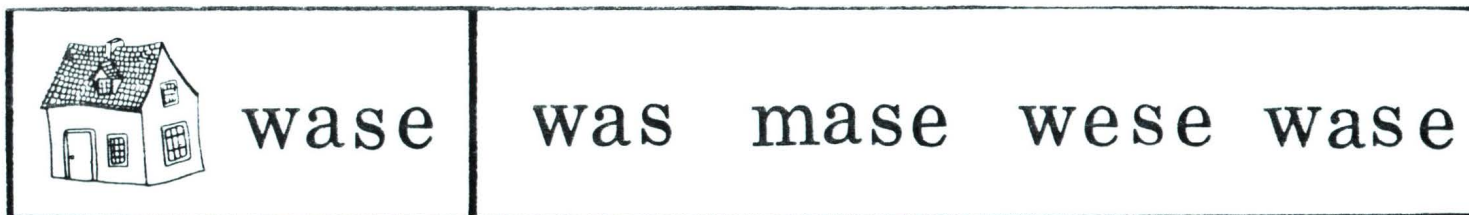


Figure 4. Sample Item, Evanechko, Ollila, Downing and Braun: Canadian Readiness Test. Word Matching.

"Put your finger on the house. Look at the word in the little box with the house. Circle the word. Now look at the words in the big box and find a word that looks like the word we just circled. When you have found the word circle it with your pencil." (ALLOW 10 SECONDS).
STOP.

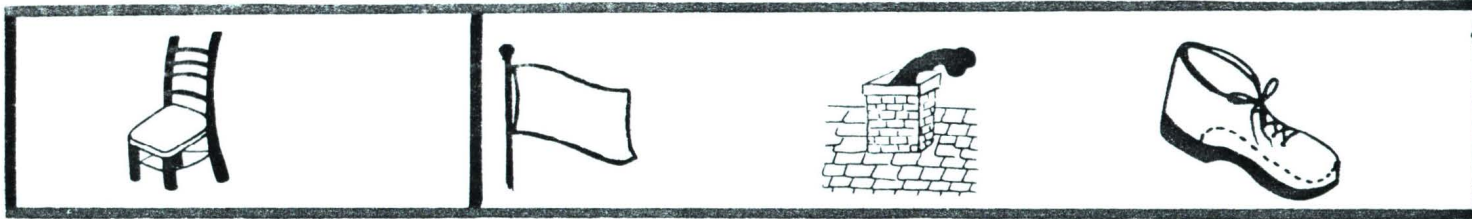


Figure 6. Sample Item, Evanechko, Ollila, Downing and Braun: Canadian Readiness Test. Beginning Sounds.

"Put your finger on the chair in the little box. In the big box next to the chair there is a flag, a chimney, and a shoe. I want you to find the picture whose name begins with the same sound as chair. Then circle it.

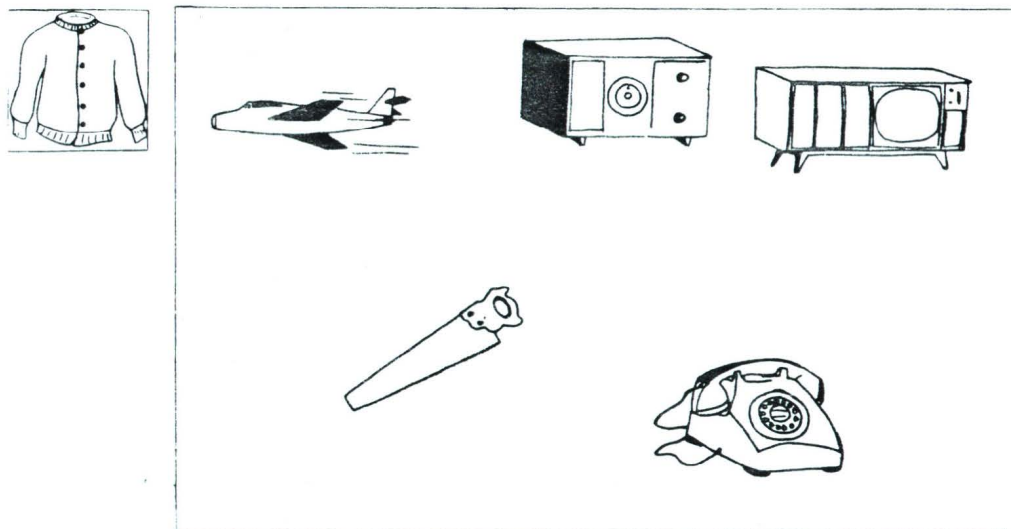


Figure 1. Sample Item, Evanechko, Ollila, Downing and Braun: Canadian Readiness Test. Language Competence - Semantics.

"Look at the next group of pictures here. Put your finger on the little box with the sweater in it. (BE SURE THAT EACH PUPIL HAS THE RIGHT BOX.) Now look at the pictures in the big box. Mark the three pictures that belong together. (PAUSE 20 SECONDS).

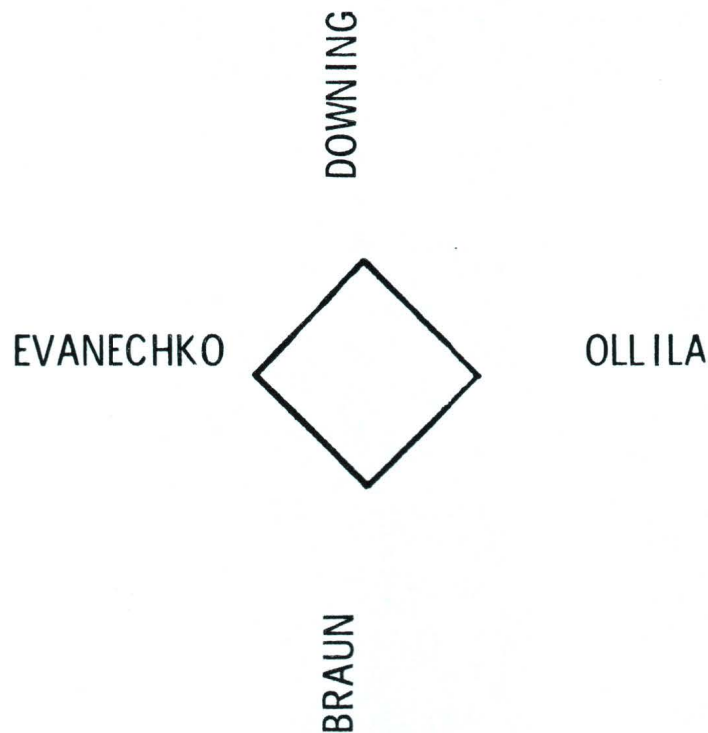


Figure 7. Sample Item, Evanechko, Ollila, Downing and Braun: Canadian Readiness Test. Learning Power.

"Move your finger down to the row with a chair. Draw a circle around the word "football".

NAME _____

CANADIAN READINESS TEST

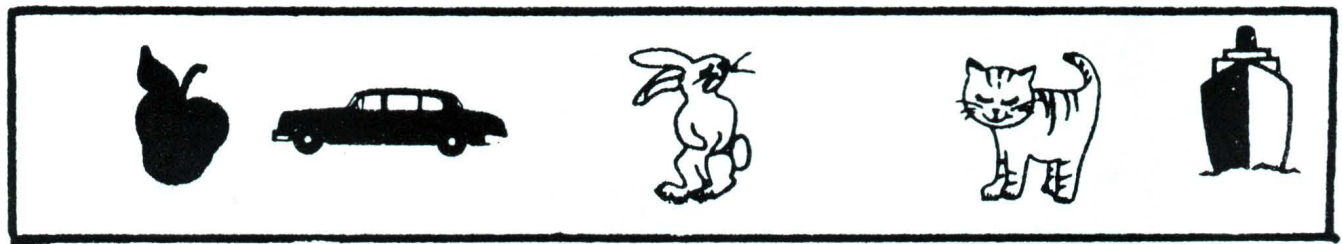


ILLUSTRATORS: Shostak, Peter & Ollila, Kathy

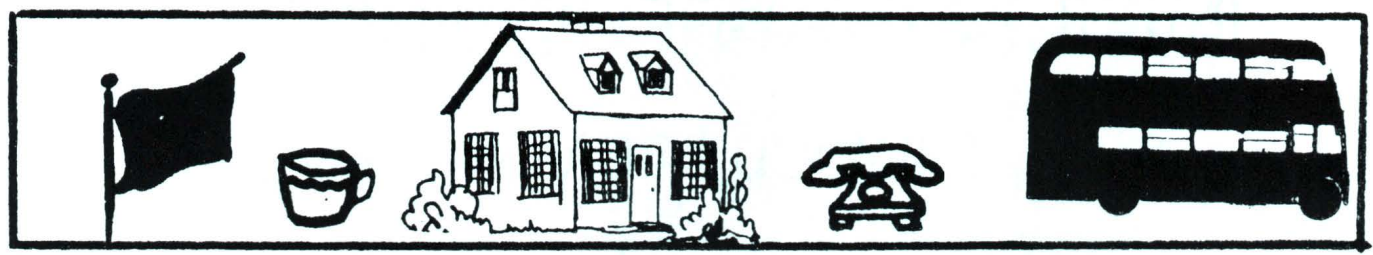
Copyright 1970

PART I

Sample # 1 :



Sample # 2:



1



k

5

2

m

2



y

6

t

8

3



9

c

7

f

4



f

elephant

man

z

5



cat

strawberry

g

h

6



cheese

t

go

e

7



k

dog

f

see

8



t

7

2

y

9



8

c

9

m

10



H

7

A

4

11



3

W

H

8

12



C

6

3

T

13



the boy ran down the hill

14



look at the red airplane

15



the children loved an elephant

16



half a pound of butterscotch drops

TOTAL RAW SCORE CORRECT _____

I



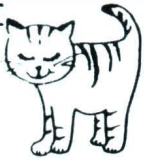
o x h q l

II



O F X V Y

III



C Q D G O

1



p d g b o

2



p d q b a

3



n w b z m

4



q c b e p

5



c e f g a

6



m u r n p

7



e f k l q

8



d o s e p

9



c u b v o

10



l i f t n

11



k g l n h

12



p q d o a

13



s z b c r

14



l i k t z

15



M K V W N

16



U V O Y C

17



F E T W Z

18



Z K X R Y

19



T E L C E

20





N M B E W


21





E L J L T


<p>I</p>  <p>leaf</p>	<p>haat moon liit leaf</p>
---	----------------------------


<p>II</p>  <p>hot</p>	<p>tot hot hit qoh</p>
--	------------------------


<p>1</p>  <p>race</p>	<p>rece raca nace race</p>
--	----------------------------

<p>2</p>  <p>goat</p>	<p>got goal goat qoat</p>
--	---------------------------

<p>3</p>  <p>east</p>	<p>easl east aest tsae</p>
---	----------------------------

<p>4</p>  <p>wase</p>	<p>was mase wese wase</p>
---	---------------------------

<p>5</p>  <p>kltt</p>	<p>kltl kltt kitt ttlk</p>
---	----------------------------

<p>6</p>  <p>manf</p>	<p>mamf maf marf manf</p>
---	---------------------------



look

kool hook took look



their

there their them those



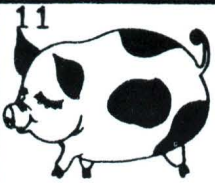
read

raid road read reud



took

rook took look cook



dear

dean deer dear bear



when

wher which nehwh when



boil

boil bcil boill biol



girl

gril ginl girl girt



mase

esam nase mase wase



fire

fire fine firc tire



pipe

piqe qipe pipc pipe



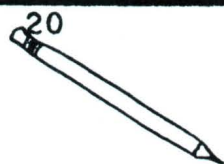
feet

teef feet feel fect



dot

pot bot dot dol



spot

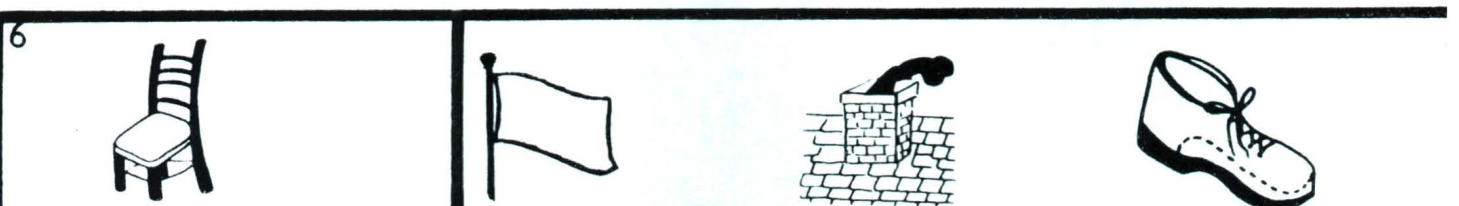
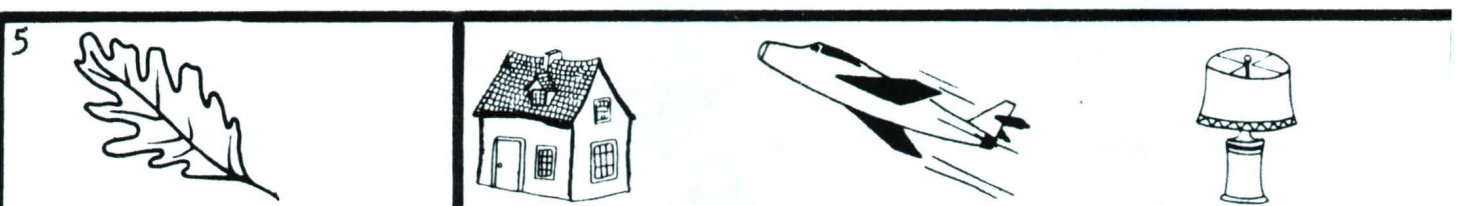
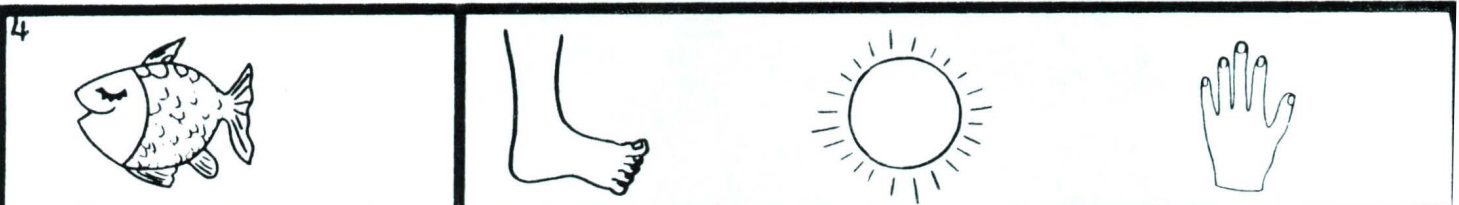
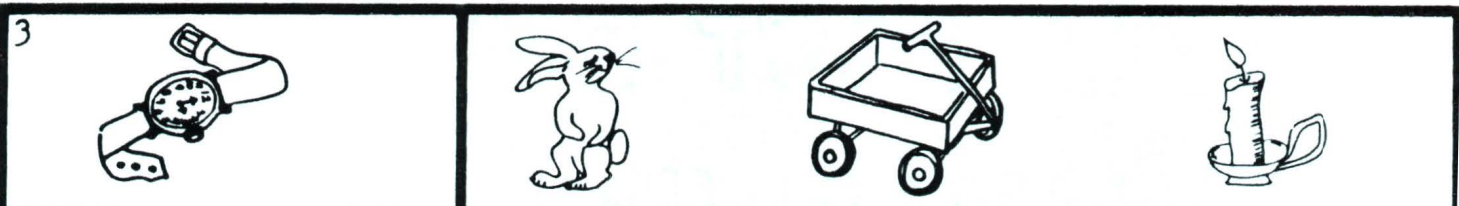
spof sqot sopt spot



cake

cakc cafe cake eake

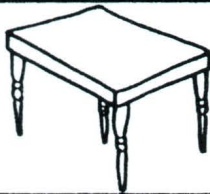
Total raw score correct _____



7



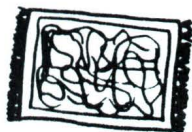
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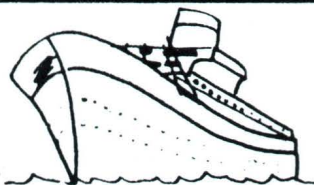
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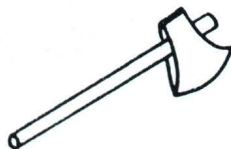
10



11



12

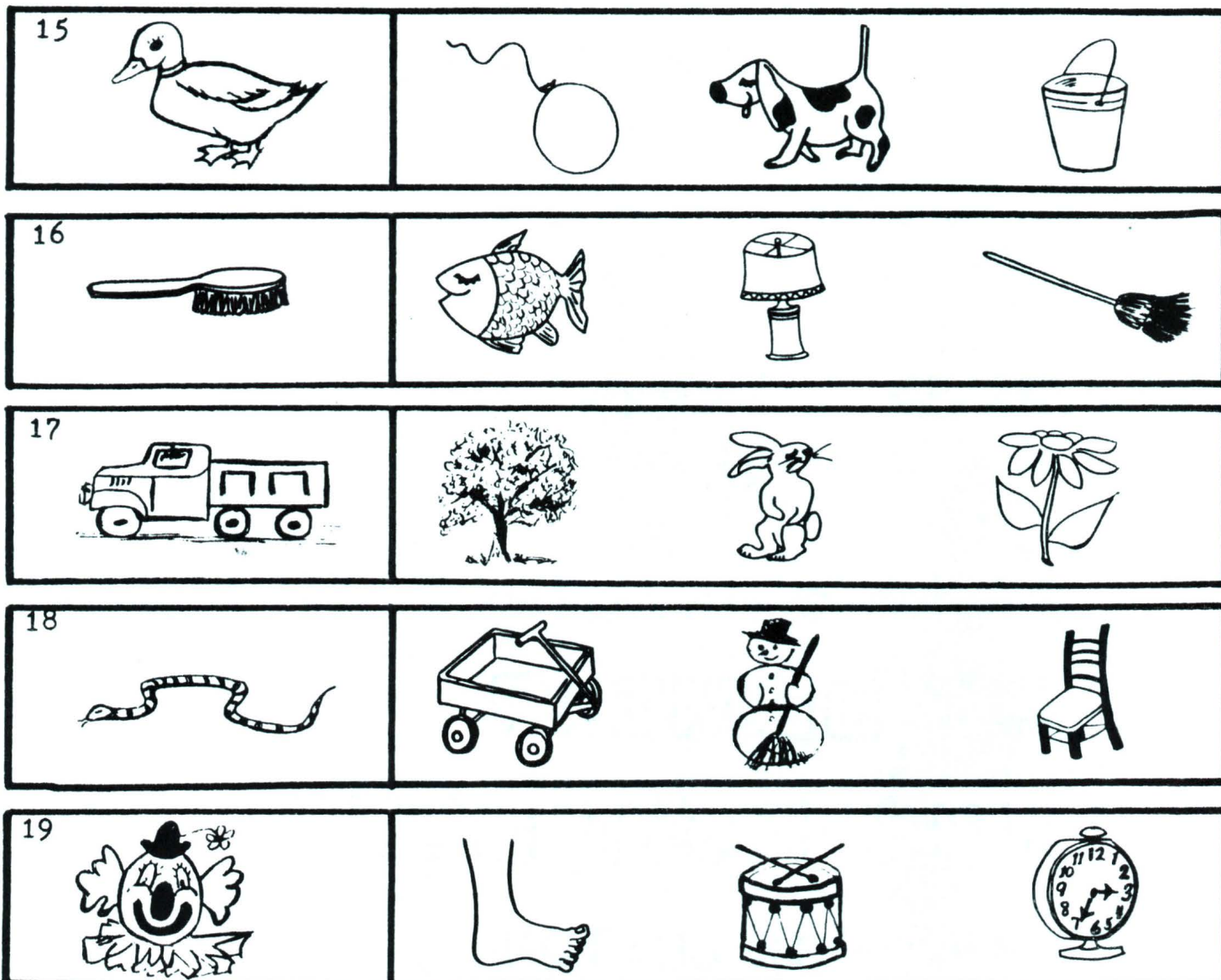


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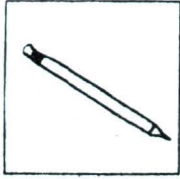


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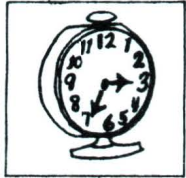
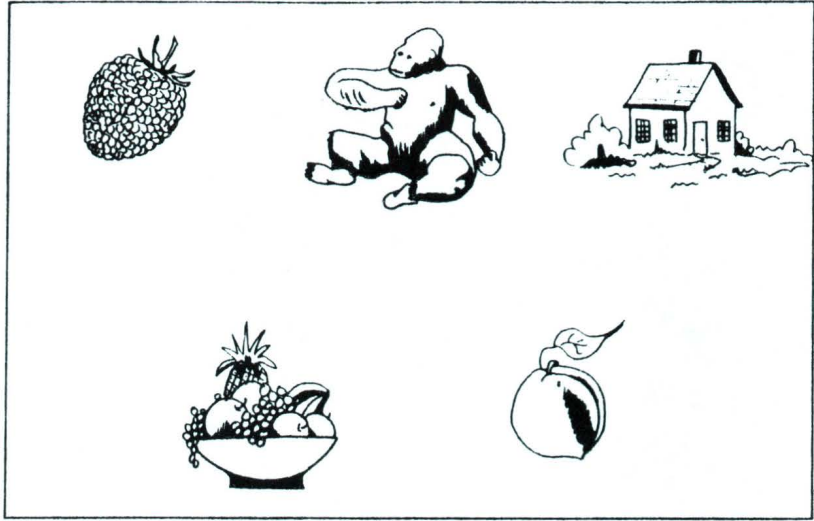




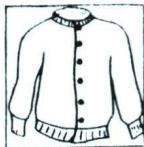
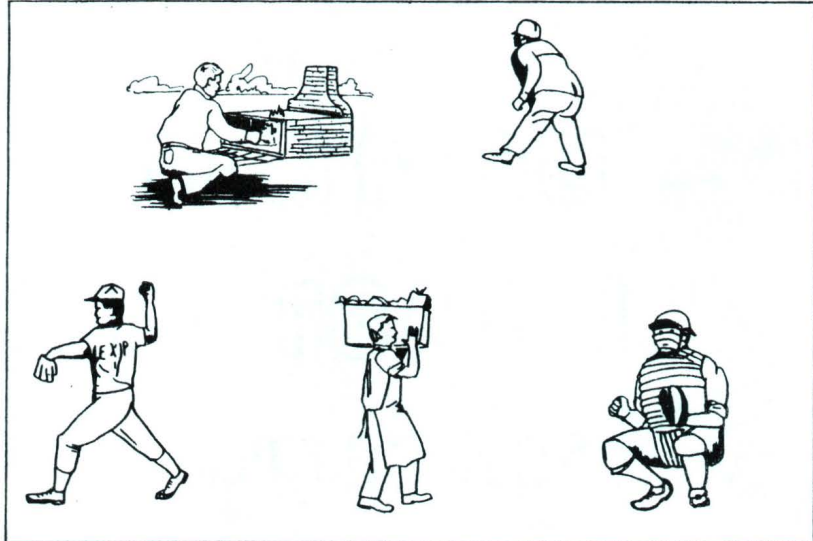
Total raw score correct _____



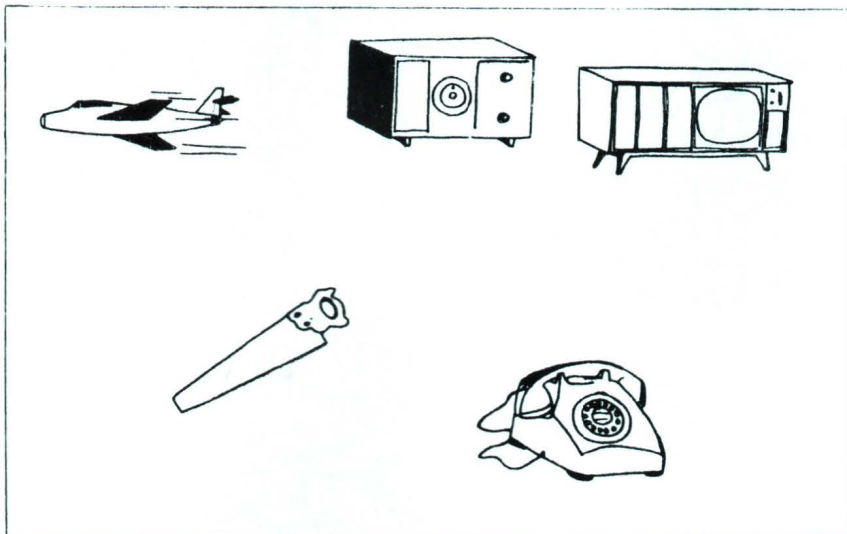
a



b

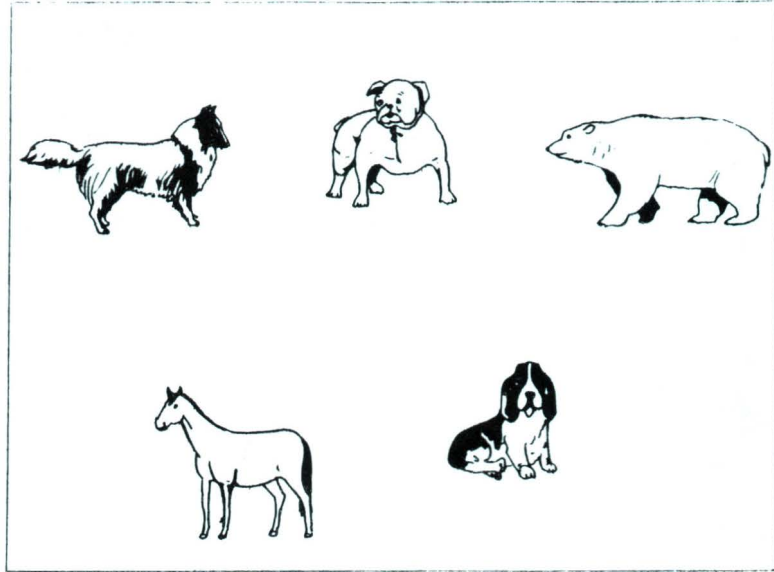


1

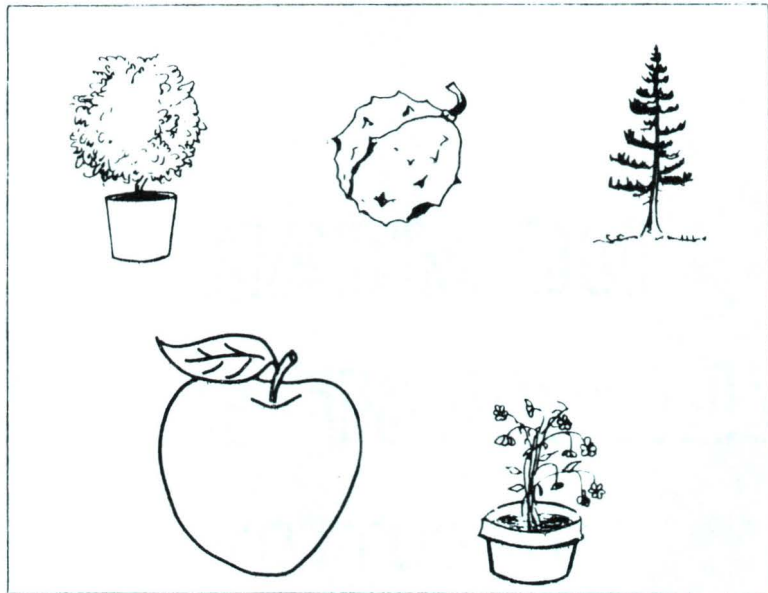




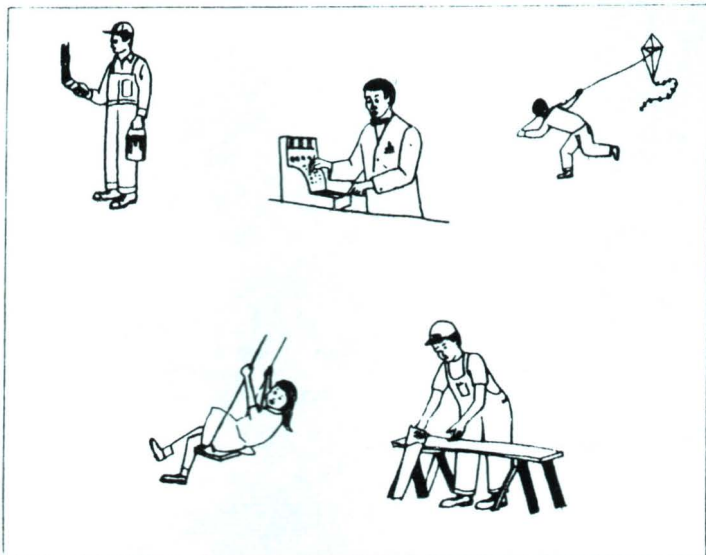
2



3

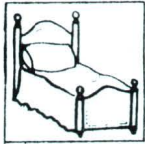
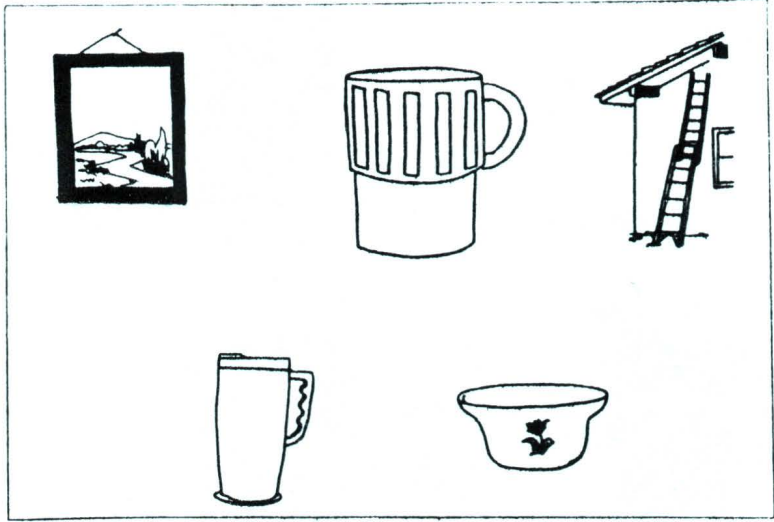


4

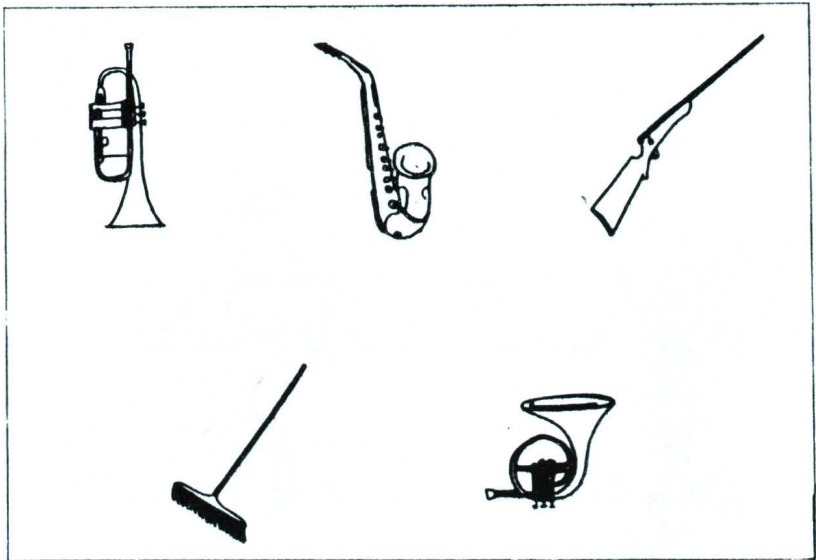




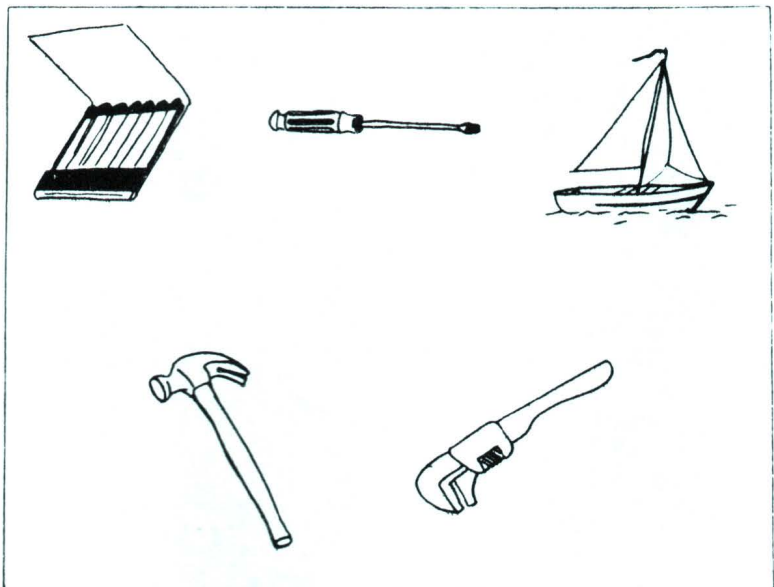
5



6

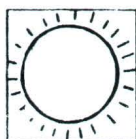
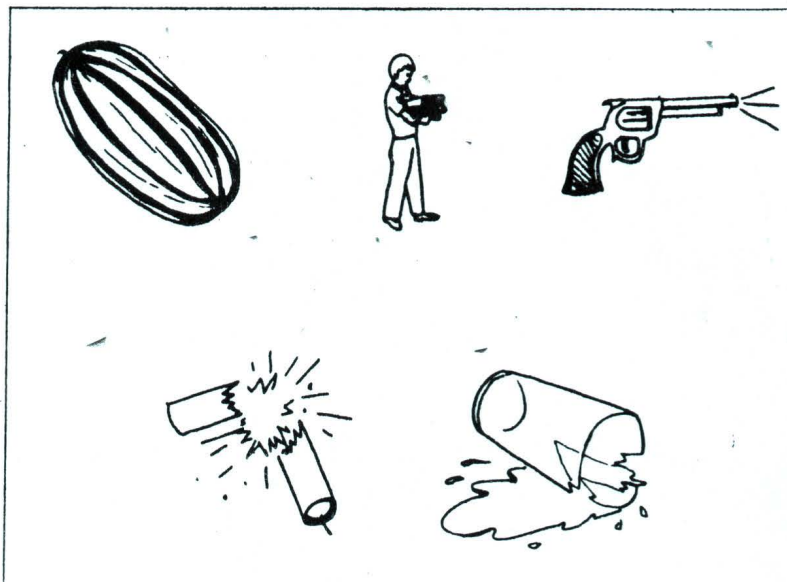


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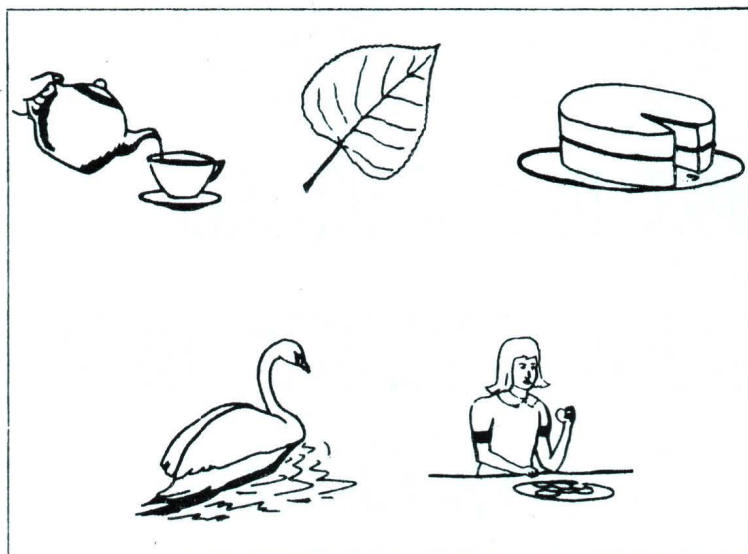




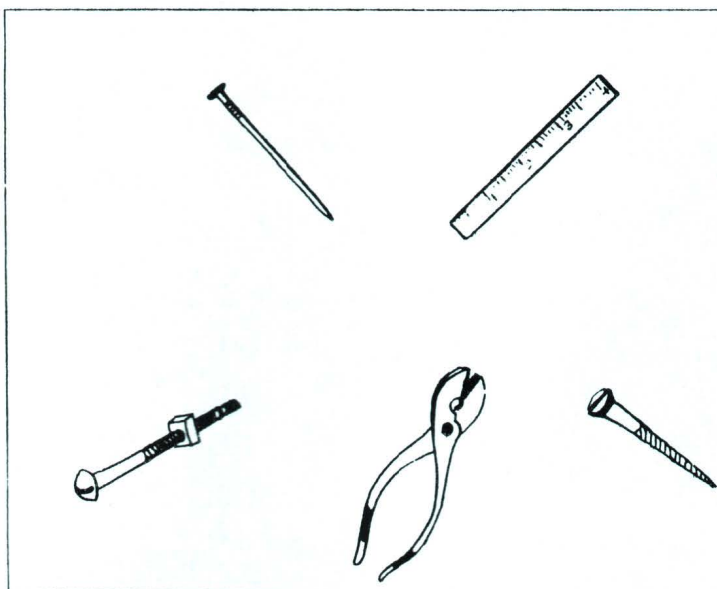
8



9

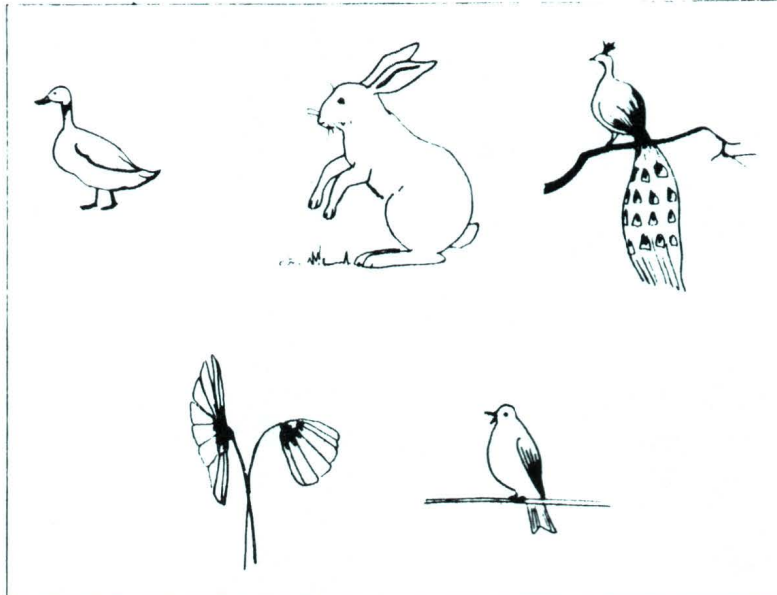


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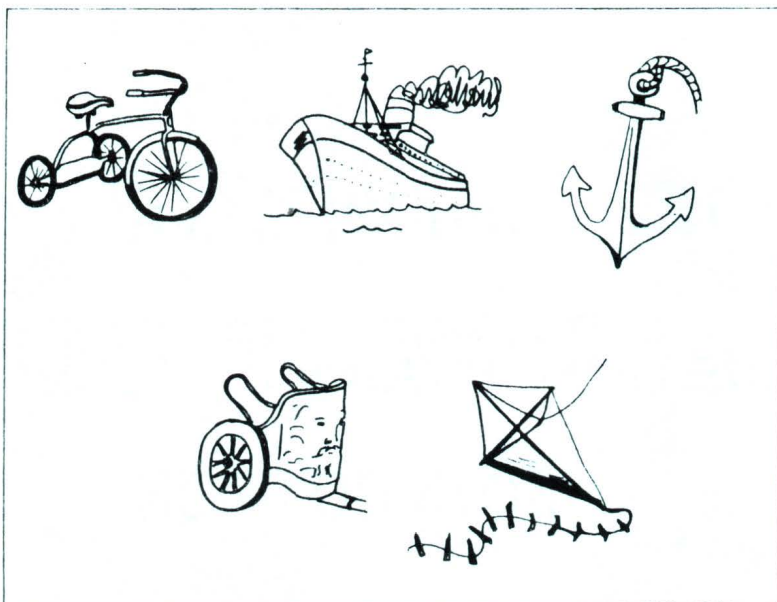




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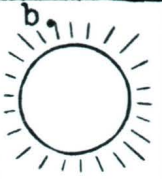




train

torn

house



fort

boat

bold



barn

car

can



cane

seen

dress



wait

shirt

store



coat

boast

corn



batter

blown

balloon



swing

bring

ring



football follow float



tree car kite



skirt from shirt



see car rat



balloon broom farm



friend round swing



barn football swing



thing coat wore

15.



dress

man

drill

16.



try

close

boat

17.



kite

king

bite

18.



train

swim

round

19.



cart

ear

car

20.



fort

foot

boat

21.



string

thing

swing

22.



train

tree

tease

DATE TESTED _____
Year Month Day

GRADE _____

NAME _____
Last First Middle Initial

BOY _____ GIRL _____

DATE OF BIRTH _____
Year Month Day

TEACHER _____

SCHOOL _____

CITY _____

DID THE CHILD ATTEND KINDERGARTEN? Yes _____ No _____

TEST SUMMARY

RAW SCORE
(Total number correct)

- | | |
|-----------------------------------|---------|
| 1. TECHNICAL LANGUAGE OF LITERACY | 1 _____ |
| 2. LETTER RECOGNITION | 2 _____ |
| 3. WORD MATCHING | 3 _____ |
| 4. BEGINNING SOUNDS | 4 _____ |
| 5. SEMANTICS | 5 _____ |
| 6. LEARNING RATE | 6 _____ |

TOTAL SCORE

ADDITIONAL COMMENTS ABOUT THE STUDENT BY THE TEACHER

APPENDIX D

THE BOND-BALOW-HOYT:
THE NEW DEVELOPMENTAL READING TESTS

- (a) Validity and Reliability
- (b) Sample Test Items
- (c) Pupil's Response Booklet

Overview

The printing of the test booklets are clear and the illustrations are good. The directions for administering the test and scoring are clear and appropriate. Nearly all the test items have only one answer. There are, however, exceptions to this (Traxler, 1972). For example, in item 9 Form L-I shows a kitten with one paw on a ball of string. Pet and catch are included in the item but only the former is keyed as correct.

Validity and Reliability

Davis (1972) states that 17 of the 36 vocabulary items in Form L-I have the word-picture combination repeated in Form L-2. He is of the opinion that this makes the equivalent forms' reliability very high and reduces the use of the test for estimating pupil growth which is one of the purposes of the tests mentioned in the manual.

The test manual describes how to put the recording of scores on a graphic profile. The rationale of what is called Lines of Importance for this is not given. These are drawn vertically to represent one Allowable Variation above the child's grade placement and one below grade placement. The use of the profile chart is not clear (Davis, 1972). There appears to be no information on the validity of the tests.

Reliability:

Approximately 150 pupils from five first grade classrooms were randomly selected from over thirty classes for the Lower Primary Test and the same number for the Upper Primary Test. The sample was chosen from a Midwestern city. Each child was given both forms within a week. A random sample using half of the children took Form I prior to Form II, while the others did so in reverse. The reliability of Tests, the correlation coefficients between forms is given in Table I. The standard deviations and errors of measurement in Table II are given in terms of raw scores and not grade scores (see Table II).

Table I

Reliability of Tests:

Correlation Coefficients Between Forms

	Part I Word Recognition	Part II Comprehending Significant Ideas	Part III Comprehending Specific Instructions
Lower Primary First Grade (N = 150)	.91	.95	.89
Upper Primary Second Grade (N = 150)	.90	.89	.90

Table II
Standard Deviations and
Standard Errors of Measurement

	Part I	Part II	Part III
	Lower Primary		
Standard deviation	3.5	3.2	2.8
Standard error of measurement	1.1	.7	.9
	Upper Primary		
Standard deviation	3.2	3.2	3.0
Standard error of measurement	1.0	1.1	.9

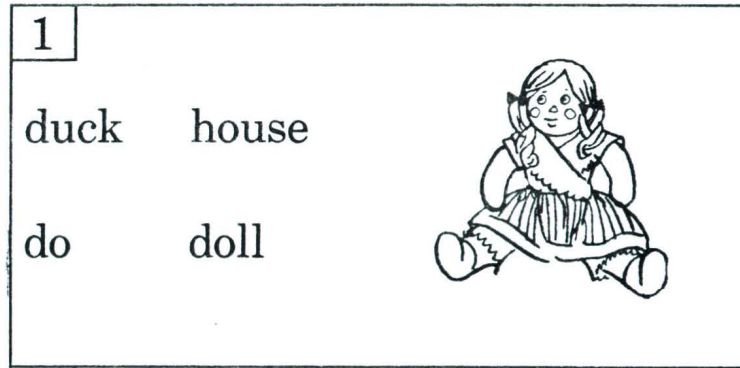


Figure 1. Sample Item, Bond-Balow-Hoyt: The New Developmental Reading Tests.
Word Recognition.

"Open your booklet to page 1 and find the picture of the doll."

"Which word in box 1 tells about the picture?"

Point to each word in turn and ask:

"Does this word tell about the picture?"

"Put C on the word doll."

3. Billy had a _____.

here

ball

boat

said

Figure 3. Sample Item, Bond-Balow-Hoyt: The New Developmental Reading Tests.
Comprehending Significant Ideas.

"This story has two parts to answer. Read the story and remember to answer the two parts." (Pause) "Which word finishes No. 3?"
(Point to No. 3. Call on some child to answer.)

"Yes, it is boat because Billy had a boat. The words are: here; ball; boat; said. Make a C on boat because it finishes the story and is the right answer for No. 3."

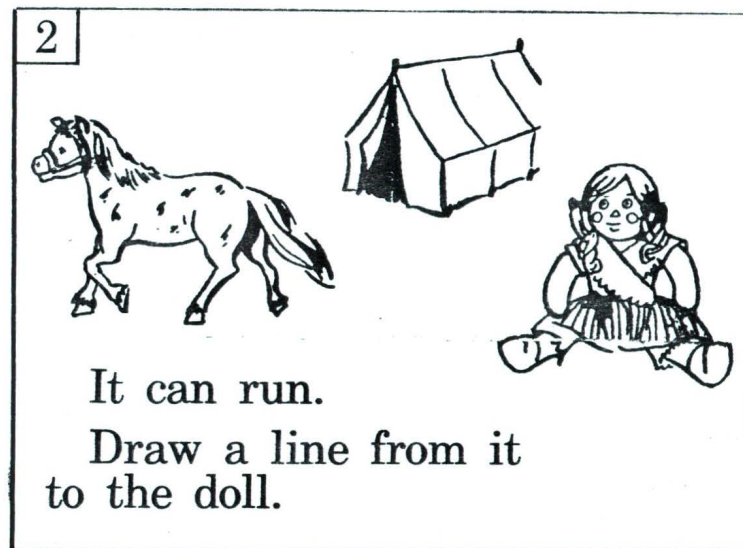


Figure 2. Sample Item, Bond-Balow-Hoyt: The New Developmental Reading Test. Comprehending Specific Instructions.

"Read each story and be sure to do just what it tells you to do. Do this one first." (Point to item at the top left.)

"Then go on to the one underneath it, then to the one underneath that, and so on down the page." (Point and run finger down left column.)

"I cannot tell you any of the words, but do the best you can by yourself. Do not spend too much time on any one story. Be sure to erase if you wish to change an answer. Are there any questions? Remember to do just what the story tells you."

NEW DEVELOPMENTAL READING TESTS—BOND-BALOW-HOYT

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Lower Primary Reading
 (for Grade 1 and First Half of Grade 2)

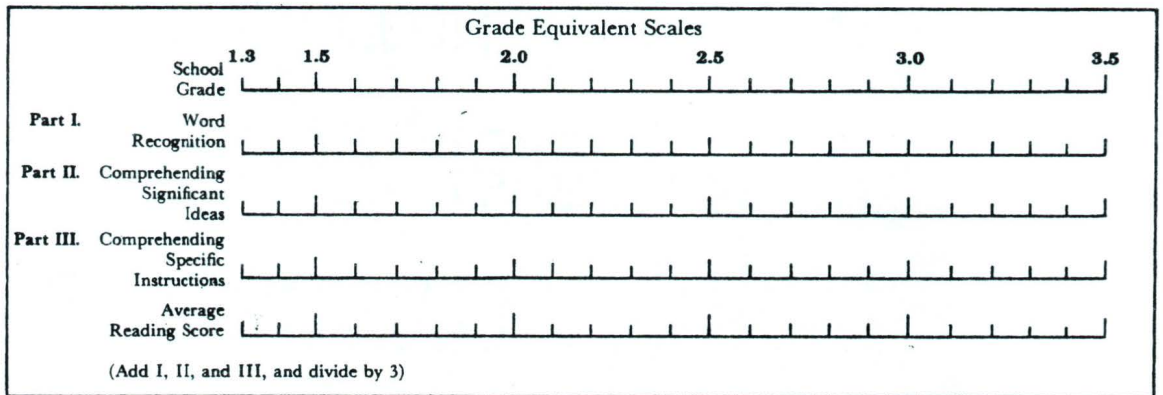
FORM L-II

The three parts of this test should be given within a day or two of each other.

Name _____ Date _____

Grade _____ School _____ Teacher _____

GRAPHIC PROFILE



Part I. Number Correct _____ Number Incorrect _____ Number Omitted _____

Raw Score (Correct minus $\frac{1}{3}$ Incorrect) _____ Grade Score _____

Part II. Number Correct _____ Number Incorrect _____ Number Omitted _____

Raw Score (Number Correct) _____ Grade Score _____

Part III. Number Correct _____ Number Incorrect _____ Number Omitted _____

Raw Score (Number Correct) _____ Grade Score _____

Scoring the Test and Completing the Graphic Profile

Each of the five Grade Equivalent Scales shown above represents grade placements from the third month of grade one to the middle of grade three. Each tenth represents one month. For example, the middle of grade three (the 5th month) is at point 3.5 (the 5th month of grade 3) on each scale.

Part I—Word Recognition. Score Part I by using the Scoring Key. Find the number of responses marked correctly for Part I and enter on the front page of the test. Do the same for the number of incorrect responses

and for the number of omissions. To obtain the Raw Score, subtract one-third ($\frac{1}{3}$) of the number of incorrect responses from the number of correct responses. (Calculate one-third of the number of incorrect responses by using the nearest whole number; for example, if 4 items are marked incorrectly, subtract 1; if 5 items are marked incorrectly, subtract 2.)

Now look up the grade equivalent for this Raw Score (number correct minus $\frac{1}{3}$ number incorrect) on the table of Norms for Part I given on the back cover of

(continued on next page)

this booklet. Enter the appropriate grade equivalent on the **Graphic Profile** on the front cover by placing a dot on the scale for Part I.

Part II—Comprehending Significant Ideas. Score Part II by using the Scoring Keys for pages 6, 7, and 8. Find the number of correct responses. Enter this number on the cover page for Part II. This number is also the Raw Score. In addition, the teacher may wish to note the number incorrectly marked and the number omitted. Then, look up the Grade Score equivalent for the Raw Score (number correct) on the table of Norms for Part II on the back cover of this booklet. Enter the appropriate grade equivalent on the **Graphic Profile** on the front cover by placing a dot on the scale for Part II under the correct grade level.

Part III—Comprehending Specific Instructions. Score Part III by using the Scoring Key. This test should be scored exactly as indicated on the Scoring Keys. The Raw Score on this test is the total number correctly marked. Look up the Grade Score equivalent for the Raw Score (number correct) for Part III on the table of Norms (back cover) and enter the appropriate grade level on the **Graphic Profile**.

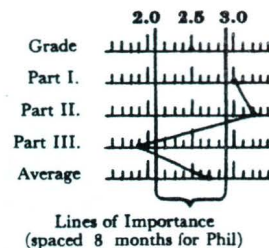
The Average Reading Score is obtained by adding the grade scores made on Part I, Part II, and Part III and dividing by 3. This Average Reading Score should be indicated on the **Graphic Profile** on the front cover by placing a dot on the line under the appropriate grade level.

The **Graphic Profile** can then be completed by connecting the dots with straight lines as shown in the example for Phil Rand at the right. To more

clearly reveal any need for remedial work with Phil, the teacher drew vertical **Lines of Importance**, thus converting the graph into a **Graphic Profile**. First, she placed a dot on the School Grade line at 2.5 on the scale (Phil was in the 5th

month of grade 2). Since a 4-month variation in abilities is allowable at Phil's grade level (see **ALLOWABLE VARIATION** below), she drew vertical lines down through all the scales, one line 4 months (4 tenths) to the left of the grade placement dot, and the other line 4 months (4 tenths) to the right of the dot. Scores recorded between these lines could then be considered satisfactory.

It is apparent that Phil's work was good in Word Recognition, unusually good in Comprehending Significant Ideas, but very poor in Comprehending Specific Instructions.





ALLOWABLE VARIATION



If pupil's placement in grade is between 1.3 and 2.4, variation may be 3 months either way.

If pupil's placement in grade is between 2.5 and 3.4, variation may be 4 months either way.

If pupil's placement in grade is between 3.5 and 5.4, variation may be 6 months either way.

Part I. Word Recognition

1	<p>duck house</p> <p>do doll</p>	
2	<p>help jumps</p> <p>stop came</p>	

3	<p>now water</p> <p>not wagon</p>	
4	<p>got boat</p> <p>dog day</p>	

DIRECTIONS FOR THE TEST

1. See that every pupil has a pencil and eraser before you begin testing.
2. Say: "Keep your booklet closed until I tell you to open it." (Pass out the test booklets.)
3. Say: "Print your name on the first blank following the word *Name*." (Tell the pupils to complete other information blanks as needed.)
4. Say: "Open your booklet to page 1 and find the picture of the doll." (Hold up the booklet and point to the picture of the doll.)
5. Ask: "Which word in box 1 tells about the picture?"
6. Point to each word in turn and ask: "Does this word tell about the picture?"
7. Say: "Put C on the word *doll*."
8. Say: "Now look at the words in box 2." (Hold up booklet and point to the picture of the girl jumping.)
9. Ask: "Which word tells about the picture?" (Point to the words.)
10. Say: "*Jumps* tells about the picture, so we put C on the word *jumps*."
11. Say: "Now go to the words in box 3." (Point to the correct place.)
12. Say: "Choose the word that tells about the picture and put C on the correct word." (Check to see that every pupil understands the directions.)

13. Say: "Now answer the last one by putting C on the word that tells about the picture."
14. Check to be sure that every pupil understands.
15. Say: "Do not turn your page. Watch me as I show you how to go ahead in this booklet."



"On the next page there are more pictures and words. For each picture, put C on the one word that tells about the picture. Do this side first." (Point to item at top left of page 2.)



"Then go down the other side." (Run finger down right column.)

"Do the same on all the pages." (Demonstrate for pages 3 and 4.)

"I cannot tell you any of the words, but do the best you can by yourself. Do not spend too much time on any one picture. Be sure to erase if you wish to change an answer. Are there any questions?"
16. Say: "Turn to page 2 and begin."
17. While the children are working, go about the room to see that the children are following the directions correctly. Encourage the children. If they question an item, tell them to read it carefully and to do the best they can. Do not tell them any words or interpret the pictures.
18. Allow ten minutes and then say, "Stop. Everyone stop. Close your booklet."

Part I. Word Recognition

1	<p>duck house</p> <p>do doll</p> 
2	<p>help jumps</p> <p>stop came</p> 

3	<p>now water</p> <p>not wagon</p> 
4	<p>got boat</p> <p>dog day</p> 

DIRECTIONS FOR THE TEST

1. See that every pupil has a pencil and eraser before you begin testing.
2. Say: "Keep your booklet closed until I tell you to open it." (Pass out the test booklets.)
3. Say: "Print your name on the first blank following the word *Name*." (Tell the pupils to complete other information blanks as needed.)
4. Say: "Open your booklet to page 1 and find the picture of the doll." (Hold up the booklet and point to the picture of the doll.)
5. Ask: "Which word in box 1 tells about the picture?"
6. Point to each word in turn and ask: "Does this word tell about the picture?"
7. Say: "Put C on the word *doll*."
8. Say: "Now look at the words in box 2." (Hold up booklet and point to the picture of the girl jumping.)
9. Ask: "Which word tells about the picture?" (Point to the words.)
10. Say: "*Jumps* tells about the picture, so we put C on the word *jumps*."
11. Say: "Now go to the words in box 3." (Point to the correct place.)
12. Say: "Choose the word that tells about the picture and put C on the correct word." (Check to see that every pupil understands the directions.)

13. Say: "Now answer the last one by putting C on the word that tells about the picture."

14. Check to be sure that every pupil understands.

15. Say: "Do not turn your page. Watch me as I show you how to go ahead in this booklet."

"On the next page there are more pictures and words. For each picture, put C on the one word that tells about the picture. Do this side first." (Point to item at top left of page 2.)

"Then go down the other side." (Run finger down right column.)

"Do the same on all the pages." (Demonstrate for pages 3 and 4.)

"I cannot tell you any of the words, but do the best you can by yourself. Do not spend too much time on any one picture. Be sure to erase if you wish to change an answer. Are there any questions?"

16. Say: "Turn to page 2 and begin."


17. While the children are working, go about the room to see that the children are following the directions correctly. Encourage the children. If they question an item, tell them to read it carefully and to do the best they can. Do not tell them any words or interpret the pictures.

18. Allow ten minutes and then say, "Stop. Everyone stop. Close your booklet."

1

duck frog


dog boy



2

walk other


mouth mother



3

find fish

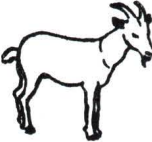
dish bush



4

boat bear


got goat



5

today came


cake ball



6

bow wow goat


cow cat



7

ball bushy


Daddy baby



8

quack made

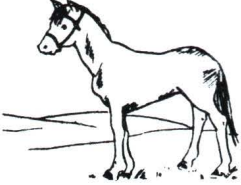
crack deck



9

horse house


walk honey



10

give know


heard train



11

he she


his shed



12

chickens your

children caw



13

ready red
take rides



19

show always
shook throw



14

ear each
eat bet



20

got give
every good-by



15

sun man
run so



21

music marched
peanuts place



16

sleep street
seven keep



22

fall smell
small stand



17

work pull
put coats



23

day in
us wing



18

winter tail
watch pail



24

monkey kick
kitty cake



25

tell trailer
different table



26

before hold
barn ground



27

hurrah greedy
carry hurry



28

stands donkey
down road



29

picked game
again about



30

sleep machine
sheep wonder



31

brought happened
brother flower



32

remember parade
licking market



33

market march
story shouting



34

clothes closed
clover shout



35

monkey chatter
honey money



36

early begged
basket mountain



Part II. Comprehending Significant Ideas

It is round.

We can play with it.

1. It is a _____.

ball

house

jumps

runs

2. We can play a _____.

pony

game

cake

came

Billy had something.

Ann said, "What do you have?"

"It is a boat," said Billy.

3. Billy had a _____.

here

ball

boat

said

4. "What do you have?" said _____.

what

Billy

Jane

Ann

DIRECTIONS FOR THE TEST

1. See that every child has a pencil and eraser before you begin testing.

2. Say: "Do not open your booklet until I tell you to do so." (Pass out the test booklets.)

3. Say: "Open your booklet to page 5. This page has some stories on it. Look at the first story." (Point to the first story.) "Each story has two parts to answer. I will read the first part out loud while you read it to yourself. It says, 'It is round. We can play with it. It is a _____.' Now read the words in the boxes."

4. Run your finger under the line of boxes and pause until all the children have read the choices.

5. Say: "Is it the word *house*? Is it *jumps*? Is it *runs*? Is it *ball*?"

"Yes, it is *ball*, because we can play with it and it is round. Make a C on the word *ball* because that is the best word to finish the story."

6. Say: "Now look at the next part of the first story." (Point.) "Read this part of the story to yourself." (Pause.) "Which word finishes this part?"

"Yes, it is *game*, because we can play a game with the ball. The words are: *pony*; *game*; *cake*; *came*. Only the word *game* finishes this part of the story. What should we do to the word in the box that finishes the story?" (Call on some child to answer.)

"Yes, we write a C on *game* to show that it is the right answer. Write a C on *game* now to show that you know the right answer."

7. "Now let's look at the next story." (Point.) "This story has two parts to answer. Read the story and remember to answer the two parts." (Pause.) "Which word finishes No. 3?" (Point to No. 3. Call on some child to answer.)

"Yes, it is *boat* because Billy had a boat. The words are: *here*; *ball*; *boat*; *said*. Make a C on *boat* because

it finishes the story and is the right answer for No. 3.

"Now look at No. 4." (Point to No. 4.) "Which word finishes No. 4?" (Call on someone.)

"Yes, it is *Ann* because Ann said, 'What do you have?' Make C on the word *Ann* because it finishes No. 4." (Check to be sure each child has marked the examples correctly.)

8. Say: "Watch while I show you what to do next. On the next page there are some more stories. Read each story. Look at the words in the boxes. Put a C on the word that finishes the story. Do this one first." (Point to item at top left.)

"Then go to the one underneath it, then to the one underneath that, and so on down the page." (Point and run finger down left column.)

"Then go down the other side." (Run finger down the right column.)

"Do the same on all the pages." (Demonstrate for pages 7 and 8.)

9. Say: "I cannot tell you any of the words, but do the best you can by yourself. Do not spend too much time on any one story. Be sure to erase if you wish to change an answer. Are there any questions? Remember to read each story. Look at the words in the boxes and make a C on the word that finishes the story. Remember that in every story there are two parts to answer. Turn to page 6 and begin."

10. While the children are working, go about the room to see that the children are following the directions correctly. Especially, see that they are doing both parts of the two-part items. Encourage the children. Give them any help they need in following the proper procedure, but do not tell them any words or indicate whether an item is right or wrong.

11. Allow fifteen minutes and then say, "Stop. Everyone stop. Close your booklet."

This can go on the water.

1. It is a _____.

train wagon cake boat

2. It can go _____.

not want fast like

Daddy was going away.

3. He said, "_____."

yes good-by jump guess

4. He will take the _____.

train down yard leaves

Children like to eat it.

5. It is _____.

steps tricks candy blue

6. It is a good _____.

ride doll surprise toy

It has feet.

You can ride on it.

7. It is a _____.

ball pony wagon house

8. It will go when you are _____.

quack ready pretty wants

It is fun.

Jane rides in it.

9. It is a _____.

horse draw ball wagon

10. It is a good _____.

toy boy slide name

A tree has them.

11. They are _____.

windows leaves cakes pets

12. They are _____.

boats pretty cakes black

Billy has a good train.

The train runs.

Billy likes his train.

13. The toy can _____.

ride walk sing run

14. Billy likes the _____.

train duck wagon doll

Billy's uncle had a crow.

His name was Blackie.

The crow said, "Caw."

15. The name of the crow was _____.

Blackie caw uncle Billy

16. This pet said, "_____."

bow wow quack caw mew

Daddy went to the farm.

He went to get a pet.

The pet said, "Quack."

17. Daddy got the pet on a _____.

street tree wagon farm

18. This pet is a _____.

dog duck crow horse

A clown came to school.

He was a funny clown.

He made the children laugh.

19. The clown came to _____.

slide school jump fast

20. He made the children _____.

run march laugh funny

Billy put his pet in a basket.

He put the basket in a wagon.

Then his pet flew away.

21. The pet was a _____.

doll duck pony goat

22. Billy put it in the _____.

basket water park yard

Jane heard a noise.

It was a kitty.

The kitty wanted her mother.

The kitty was not happy.

23. The kitty said, "_____."

mew noise good kitty

24. The kitty wanted her _____.

skip happy mother Jane

Turtles are good pets.

They like water.

They can not run fast.

A turtle has a tail.

25. Turtles are _____.

fast tall blue slow

26. They have _____.

tails pets wings houses

Children like to play.

They play in the park.

They have fun on the slide.

They like the seesaw, too.

27. The children play in the _____.

street steps yard park

28. The children like the _____.

street slide kitty flag

A donkey was in the street. Billy said, "Look at the donkey. He jumps to the music. This donkey can do tricks."

29. "Look at the donkey," said _____.

tricks Billy donkey Jane

30. Music makes the donkey _____.

jump red run fast

Daddy made a playhouse. He cut the wood for it. He got a pail of paint. The children painted the wood. Now the children had a playhouse.

31. Daddy cut the _____.

wood wagon slide cake

32. The children painted the _____.

ball box boat playhouse

One day a girl went to the garden. She got some flowers for her mother. They were yellow and white.

33. The girl picked some _____.

apples leaves flowers grass

34. They were two _____.

animals colors dogs ears

The children had some toys. They liked to play with them. One of the toys could fly. Another one went on a track.

35. The toy was an _____.

animal airplane game frog

36. The other toy was a _____.

boat doll game train

Once there was a bear. He liked to sleep all winter. He went into a cave. Then the bear closed his eyes.

37. He was ready for the _____.

winter spring honey help

38. Soon the bear was _____.

afraid heard asleep cross

In the summer Barbara went to a farm. Every morning a noise woke her up. Something was crowing in the barnyard.

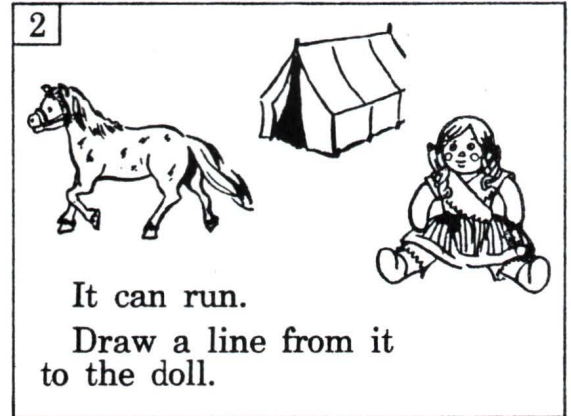
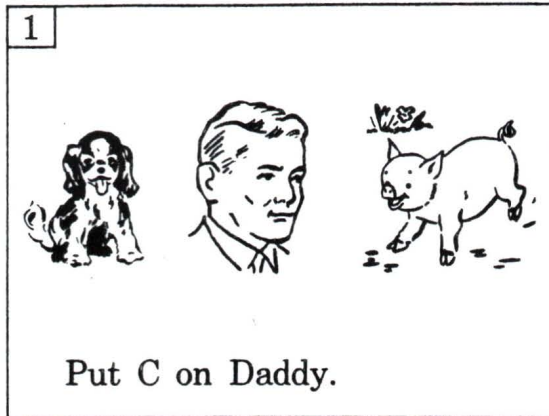
39. Barbara heard a _____.

turtle cow rooster horse

40. She woke up in the _____.

tree morning spring train

Part III. Comprehending Specific Instructions



DIRECTIONS FOR THE TEST

1. See that every child has a pencil and eraser before you begin testing.

2. Say: "Do not open your booklet until I tell you to do so." (Pass out the test booklets.)

3. Say: "Open your booklet to page 9. This page has some pictures and stories on it. Look at the first story." (Hold up a copy of the test and point to the proper location.) "There are some pictures. Under the pictures it tells you to do something. Read it to yourself and find out what it tells you to do." (Pause until all children have read it.)

"What does it tell you to do?" (Call on some child to answer.)

"That's right. It says, 'Put C on Daddy.' Take your pencil and put a big C right on Daddy, just as the story tells you to do." (Check to see that all children have marked clearly the correct picture.)

4. Say: "Now look at the next story." (Point.) "What does this story say?" (Pause, then call on some child.)

"That's right. It says, 'It can run.' Draw a line from it to the doll. When you look at the pictures, you see a horse, a tent, and a doll. Which one can run?" (Let some child answer.)

"Yes, only the horse can run, so draw a line from the horse to the doll, as the story tells you to do." (Check to see that all children have drawn the line

correctly between the horse and the doll shown in the box.)

5. Say: "Watch while I show you what to do next. On the next page there are more pictures and stories. Read each story and be sure to do just what it tells you to do. Do this one first." (Point to item at top left.)

"Then go on to the one underneath it, then to the one underneath that, and so on down the page." (Point and run finger down left column.)

"Then go down the other side." (Run finger down the right column.)


"Do the same on all the pages." (Demonstrate the procedure for pages 11, 12, and 13.)

6. Say: "I cannot tell you any of the words, but do the best you can by yourself. Do not spend too much time on any one story. Be sure to erase if you wish to change an answer. Are there any questions? Remember to do just what the story tells you. Turn the page and begin."

7. While the children are working, go about the room to see that the children are following the directions correctly. Encourage the children. If they question an item, tell them to read it carefully and do just what the story tells them to do. Do not tell them any words or interpret pictures.

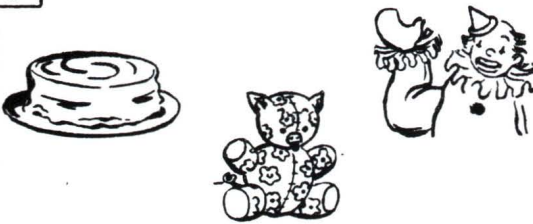
8. Allow fifteen minutes and then say, "Stop. Everyone stop. Close your booklet."

1



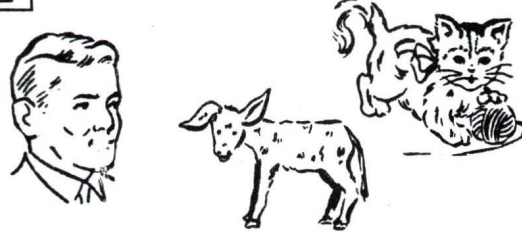
Put C on the dog.

5




Make C on the funny clown.

2



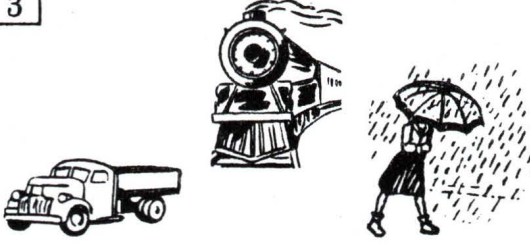
Make C on Father.

6




Make C on the little flag.

3




Draw a line under the train.

7



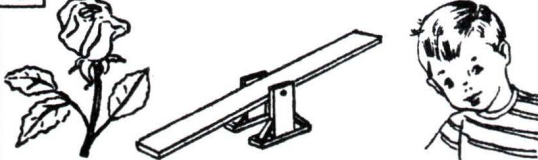
Draw a line around the baby birds.

4



Make C on the playhouse.

8



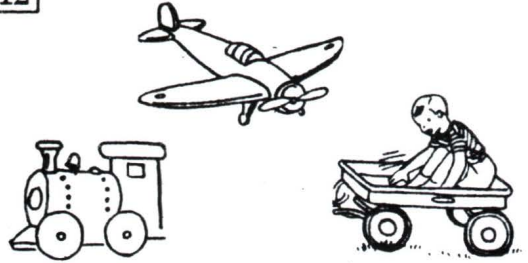
A seesaw is made of wood.
What thing is made of wood?
Put C on it.

9



Ann has a doll and a pony.
 Billy has a train and a turtle.
 What can Ann ride?
 Put C on it.

12



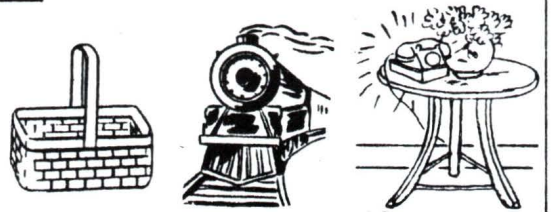
Jane has a red train.
 Ann has a blue airplane.
 Billy has a blue wagon.
 Put C on the thing that is red.

10



The children went on a picnic.
 What did they eat?
 Draw a line from it to the children.

13



Some things make noise.
 Some things do not make noise.
 Draw a line around the things that make noise.

11



Billy had a birthday.
 He got an airplane.
 Draw a line from Billy to what he got.

14



Ducks and turtles like water.
 Goats do not like water.
 Draw a line under each animal that likes water.

15



This crow will not eat candy.
 He likes to eat cake.
 Draw a line from the crow to what he likes.

16



Chickens live on farms.
 Elephants are in the circus.
 Draw a line under the one you would not see on a farm.

17



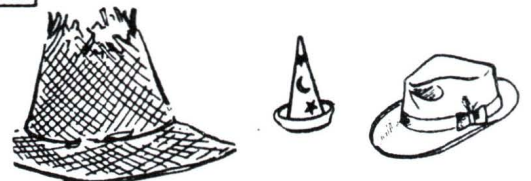
Mother made some bread.
 Tom liked it for dinner.
 But he liked cake better.
 Draw lines from Tom to what he liked.

18



Ann opened the door.
 She was looking for her pet.
 Her pet was not playing.
 Draw a line from Ann to her pet.

19



The clown has a funny hat.
 His hat makes the children laugh.
 His hat is too little.
 Put C on what makes the children laugh.

20



The four dogs were cold.
 They wanted to go inside the house.
 The two black dogs got into the house.
 Draw a line under the dogs that are not cold now.

21



Bees make honey.
Bears like to eat it.
Sheep do not like honey.

Draw a line from the one that makes honey to the one that eats it.

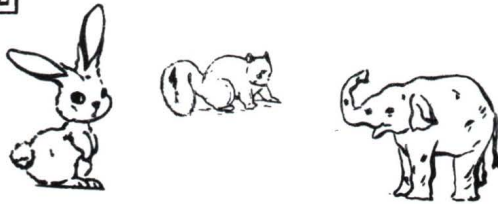
24



Squirrels make their nests in trees. Birds make nests there, too.

Draw a line from the animal that can not fly to where it makes its nest.

22



Squirrels and elephants like peanuts. Rabbits would rather have carrots.

Draw a line around the two animals that like the same thing.

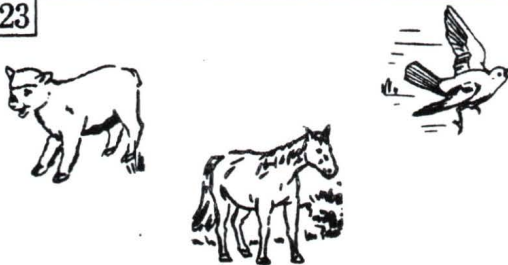
25



A man is behind a bush. He is looking for something he needs for a game.

Draw a line from the man to what he is hunting.

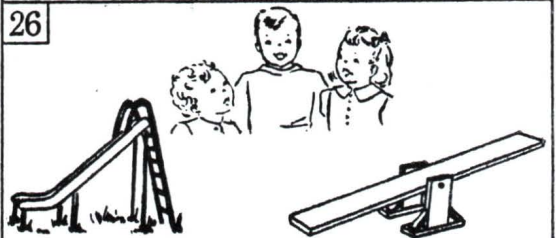
23



Birds can fly. Horses and sheep can not.

Draw a line from the sheep to the animal that can fly. Make the line go under the horse.

26



Some children went to the park. The boy played on the slide. The girls played on the seesaw.

Draw lines from the slide and the seesaw to the ones that played on each.

Norms and Scoring Directions for
THE DEVELOPMENTAL READING TESTS

By Bond-Balow-Hoyt

LOWER PRIMARY READING
 FORM L-II

PART I—WORD RECOGNITION				PART II—COMPREHENDING SIGNIFICANT IDEAS				PART III—COMPREHENDING SPECIFIC INSTRUCTIONS			
The Raw Score is the number of items marked correctly minus $\frac{1}{2}$ the number of items marked incorrectly. Total possible score is 36.				The Raw Score is the number of items marked correctly. Total possible score is 40.				The Raw Score is the number of items marked correctly. Total possible score is 26.			
Raw Score	Grade Score	Raw Score	Grade Score	Raw Score	Grade Score	Raw Score	Grade Score	Raw Score	Grade Score	Raw Score	Grade Score
36	above 3.5	14	2.2	40	above 3.5	18	2.4	26	above 3.5	4	1.5
35	above 3.5	13	2.1	39	above 3.5	17	2.3	25	above 3.5	3	1.4
34	3.5	12	2.1	38	3.5	16	2.3	24	above 3.5	2	1.3
33	3.5	11	2.0	37	3.4	15	2.2	23	3.5	1	below 1.3
32	3.4	10	1.9	36	3.3	14	2.2	22	3.3	0	below 1.3
31	3.4	9	1.9	35	3.3	13	2.1	21	3.2		
30	3.3	8	1.8	34	3.2	12	2.1	20	3.1		
29	3.2	7	1.7	33	3.2	11	2.0	19	3.0		
28	3.2	6	1.6	32	3.1	10	2.0	18	2.9		
27	3.1	5	1.5	31	3.1	9	1.9	17	2.8		
26	3.0	4	1.5	30	3.0	8	1.8	16	2.7		
25	3.0	3	1.4	29	3.0	7	1.7	15	2.6		
24	2.9	2	1.3	28	2.9	6	1.5	14	2.6		
23	2.8	1	below 1.3	27	2.9	5	1.4	13	2.5		
22	2.8	0	below 1.3	26	2.8	4	1.3	12	2.4		
21	2.7			25	2.8	3	1.3	11	2.3		
20	2.6			24	2.7	2	below 1.3	10	2.2		
19	2.5			23	2.6	1	below 1.3	9	2.1		
18	2.5			22	2.6	0	below 1.3	8	2.0		
17	2.4			21	2.5			7	1.9		
16	2.3			20	2.5			6	1.8		
15	2.3			19	2.4			5	1.7		

APPENDIX E

CLYMER-BARRETT PREREADING BATTERY - FORM A

- (a) Test Contents
- (b) Validity and Reliability

The Clymer-Barrett Prereading Battery Form A (Clymer and Barrett, 1968) is a group test which can be administered to either kindergarten or beginning first graders. The test consists of six subtests and is divided into three categories - Visual Discrimination, Auditory Discrimination, and Visual-Motor Coordination.

The Clymer-Barrett Prereading Battery Manual authors state that it takes 90 minutes to administer the full test battery. It should be administered in three testing periods. The content of the subtests are described briefly below.

Test 1: Recognition of Letters. This subtest is designed to measure the child's visual discrimination ability and knowledge of upper and lower case letters of the alphabet. On the 35 items, the children are required to locate and mark one of the five letters named by the teacher.

Test 2: Matching Words. This 20-item test is designed to measure the child's ability to see likenesses and differences in words (visual discrimination). From the four words listed, the child must mark the word that matches the one in the little box.

Test 3: Discrimination of Beginning Sounds in Words. This is an auditory discrimination test of 20 items designed to measure the child's ability to hear likenesses and

differences in the initial sounds of words. The child is expected to locate and mark, from three choices, the picture of the noun that begins with the same sound as the stimulus picture in the box when the teacher pronounces the name of the picture in the box.

Test 4: Discrimination of Ending Sounds in Words.

This 20-item test is designed to measure the child's ability to hear likenesses and differences in words. The child is expected to mark the picture that has the same ending or rhyming sound as the name of the stimulus picture in the small box.

Test 5: Shape Completion. This is a 20-item visual-motor coordination test designed to measure the child's ability to complete an incomplete geometric shape when a complete shape is in view. The child is required to complete the shape by drawing in the missing lines.

Test 6: Copy-A-Sentence. This visual-motor coordination test is designed to measure the child's ability to perceive and reproduce whole words in a given sequence. The child is required to perceive the order of the letters in words, the groupings of words in a sentence and to demonstrate his perceptual accuracy by copying the seven word sentence in the space provided.

Overview:

The test items on the pupils' response booklet are very clearly printed and illustrated, in black and white. Each question has an identifying stimulus picture at the beginning in brown so that the pupils can easily find the place or question that the teacher is talking about. A gray line divides the question items and the identifying picture. All this makes the format of the test well laid out and easy for the children to follow. The purpose of the test is clearly written; the directions for the teachers and pupils are very clear.

The purpose of the test is to aid teachers in evaluating pupils' pre-reading skills and abilities which are related to success in beginning reading. The test is also intended to provide diagnostic information in areas of visual discrimination, auditory discrimination and visual-motor coordination.

Each child's response booklet also provides a pre-reading rating scale which requires the teacher to make a subjective evaluation of the pupil's behavior in the following areas: facility in oral language, concept and vocabulary development, skills in critical and creative thinking, social skills, emotional development, attitude and interest in reading, and work habits.

Scoring and Norms:

Directions for scoring are quite clear. Total score is translated into percentile rank and stanine equivalents from the tables given. (Children are ranked from highest to lowest). The stanines are then divided into excellent, good or adequate, minimal or inadequate, with interpretations given for each group. The percentile rank scores are also divided into categories: excellent, good to excellent, poor to satisfactory, and very poor. Interpretations are given for each category.

Norms were based on 5,565 public school pupils, all tested in approximately the third week of first grade entrance. Subjects were drawn from 50 community public schools drawn from regions of the U.S.A., distributed in proportion to each region's population. Communities were picked at random from within the regions. Six communities were lost in the process. As a result 44 communities from 32 states were used. School systems and teachers were listed. The population was taken from rural and suburban areas. Data collected included school system size, socio-economic level, pre-first grade school experience, ages of children and psychometric scores. This information is not given but the norms were adjusted on the basis of this information in an effort to try to establish a representation of a typical American first grade child.

Validity:

The rationale to support the content validity of the test is given. The authors point out that content is valid because it is drawn directly from the kinds of skills it measures and that it is highly related to the pupil's early reading experiences.

Construct validity is confirmed by the authors' report that the test has been correlated with other reading readiness tests with correlations running between .55 to .80. Tables for these are not shown.

The test was also correlated with mental ability tests using reports from three classes in the norming population. The intelligence tests used were the Stanford Binet Form L, Pintner-Cunningham and the CTMM. Tables are given and correlations ranged from .24 and .65, which is not particularly high.

For predictive validity the readiness test was correlated in the spring with the scores on the Stanford Achievement Primary I on word meaning, paragraph meaning and vocabulary; the Gates Primary Reading Test Form A on the comprehension and vocabulary; and on the Gates-MacGinitie Reading Tests on the comprehension and vocabulary. Correlations ranged from .29 to .71.

The Clymer-Barrett Readiness Test was also correlated with end-of-first-year reading achievement on the Metropolitan Achievement Test on the subtests, word

knowledge, word discrimination, and reading. Correlations ranged higher - .41 to .69.

Reliability:

The reliability coefficients of the Clymer-Barrett Readiness Battery are odd-even, the corrections of the Spearman Brown formula. Subjects were 188 pupils selected by random table from each of the 188 classes in the norming group. The reliability coefficient ranged from .82 to .95 giving a high degree of confidence. Tables are given in the manual.

Summary:

The Clymer-Barrett Prereading Battery - Form A, consists of six subtests under the following headings: Visual Discrimination, Auditory Discrimination, and Visual-Motor Coordination. Test items are clearly illustrated in black and white. Each question has an identifying picture so that pupils can easily find their place. Directions for administration are clearly written.

Rationale to support content validity, construct validity and predictive validity are given. Reliability coefficients range from $r = .82$ to $r = .95$, showing a high degree of confidence.

APPENDIX F

GATTS-MacGINITLS TESTS - READINESS SKILLS

(a) Test Contents

(b) Validity and Reliability

The Gates-MacGinitie Reading Tests - Readiness

Skills (Gates, Arthur, I. and MacGinitie, Walter H., 1968) is a group test intended for use at the end of kindergarten and at the end of first grade. The test consists of eight subtests: Listening Comprehension, Auditory Discrimination, Visual Discrimination, Following Directions, Letter Recognition, Visual-Motor Coordination, Auditory Blending, and Word Recognition.

The Gates-MacGinitie Reading Tests - Readiness

Skills Manual authors state that the test should be administered in four parts and each part takes approximately one-half hour, a total of two hours. Not more than ten or fifteen children should be in the group at one time and children should be seated so that they cannot copy. The type of children being tested and their experience in following directions must be taken into account when deciding how many children should be in a group to be tested as the teacher must be able to supervise thoroughly.

Test 1: Listening Comprehension. This 20-story subtest measures the child's ability to understand the total thought of a simple story. The teacher reads the stories aloud to the children. Each story is followed by a question, and the child is requested to mark the one of the three pictures that best answers the question.

Test 2: Auditory Discrimination. This 21-item subtest is designed to measure the child's ability to distinguish between two words of similar sound. The teacher first names both pictures in a set and then pronounces the name of one of the pictures again and the child is to mark the picture that the teacher pronounces.

Test 3: Visual Discrimination. This subtest is designed to measure the child's ability to distinguish between the printed form of two words. Each of the 24 items consists of four words, three alike and one different. The child is required to mark the one that is different.

Test 4: Following Directions. This subtest has 14 items and is designed to measure the child's ability to follow increasingly more difficult and complex directions. The teacher reads the directions aloud and then the child is required to carry out the directions by marking the correct picture or pictures from a set of four.

Test 5: Letter Recognition. This 18-item subtest is designed to measure the child's recognition of the upper and lower case letters of the alphabet. The teacher names one of the four letters in each item which the child must recognize and mark.

Test 6: Visual-Motor Coordination. This subtest is designed to measure the child's ability to complete a

partially printed letter. Seven letters are printed as models and beside each letter is a partially completed one which the child must complete.

Test 7: Auditory Blending. This subtest is designed to measure the child's ability to blend the parts of a word presented orally, into a whole word. The 14 items consist of three pictures each. The examiner pronounces the name of one of the pictures in each item, saying it in two or three parts, and the child marks the corresponding picture.

Test 8: Word Recognition. Each of the 24 sets of three words are designed to measure the child's ability to recognize whole words when presented in isolation. The teacher reads one word in each set and the child is required to mark that word. The purpose of this test is to help the teacher find the children who have already acquired some reading skill.

The Gates-MacGinitie Readiness Skills Test is a revision of the Gates Readiness Test. This new test (1968), is intended for use with the pupils at the end of kindergarten or the end of first grade. Eight subtests are included, but only the first seven are combined for the total score. The eighth, which is word recognition, is not included in the total score. The authors state that the purpose of this subtest is to provide the teacher with a

simple means of locating those children who have already acquired some reading ability. Administration time is 120 minutes.

The student responses are recorded in the test booklet. The pictures are carefully detailed and very clear. The words are large and easy to read. Unfortunately, there is no small picture or aid to help the pupil find his place so some aid will need to be incorporated by the administrator. The directions for the examiner and the oral directions for the pupils are clearly written and appropriate for kindergarten or first grade children.

Scoring and Norms:

A separate scoring key is provided and tables provide stanine scores for the subtests and total score as well as percentile ranks, for both kindergarten and first grade. Norm tables between the kindergarten and first grade indicate very little difference between the two groups suggesting that very little growth takes place between the end of kindergarten and when testing is done in first grade. The total raw score is determined by multiplying each of the subtest scores by a weighting factor from one to three. The authors feel that certain subtests are more predictive of later reading than others, such as, letter recognition compared to listening comprehension. The eighth subtest, word recognition, as mentioned earlier, is not included in

the total score. Data from the standardization were analyzed by multiple regression techniques to determine the weight that should be given to each subtest. No information about this study is given, and the reading achievement test which was used is not given. Therefore, it is difficult to determine whether the weighting procedure is of value or accurate, or if the total raw score might be a better predictor of later reading achievement. No information is given about the subjects or their number used to obtain norms which makes it difficult for teachers to know the type of children with whom she is comparing her pupils.

The performance on the seven subtests correlates approximately at 0.60 which is consistent with other readiness batteries (Berg, 1972, Mental Measurement - 7th). This is not a particularly high correlation. Both standard scores and percentile scores (based on the total weighted scores) are given. The authors do not clearly state the purpose of the test, whether it is to be used as a general readiness test or a reading readiness test.

Validity:

The test appears to have content validity for measuring many of the skills which are necessary for beginning reading instruction. Multiple regression techniques were used to weight the eight subtests in such a way as to provide the best prediction of later reading

achievement. The mention of reading achievement comes from the technical supplement, not from the teacher's manual, which fails to clarify whether the test is designed to test reading readiness or something else. The authors report that weighting the subtests gives better prediction than would be attained by assigning equal weights to each subtest. The authors encourage teacher observations and informal tests for measuring other aspects of the pupil's development. This improves the content validity of the test but there appears to be very little validity in evidence.

Reliability:

The authors discuss factors pertinent to reliability: there is a higher reliability when relatively longer tests are used, when the test scores are combined rather than used separately, and when scores in the middle range are compared with the scores at the other extremes.

Summary

The authors state the shortcomings of readiness tests. The lack of complete validity, reliability and norming data makes the test information of limited use to the teacher. A more complete test manual would make the test more valuable. The test items are clearly illustrated in black and white. The greatest difficulty is that there are no clues given to the pupil to identify which line the teacher is describing. The Canadian Readiness Test and the

Metropolitan Readiness Test have an easily identified object at the beginning of each set of stimuli pictures or words as a reference for the pupil to find his place. The 120 minute administration time is excessive compared to many other readiness tests. The relative merit of the longer testing time of this test is unknown.

APPENDIX G

HARRISON-STROUD READING READINESS PROFILES

- (a) Test Contents
- (b) Validity and Reliability

The Harrison-Stroud Reading Readiness Profiles

(Harrison, Lucile M. and Stroud, James B., 1956) is made up of group tests of specific abilities and skills that children use in beginning to read. It is designed to be used at the end of the kindergarten year or the beginning of first grade. Groups should not be larger than twelve to fifteen. All the tests are untimed. There are five group tests: Using Symbols, Making Visual Discrimination (a) controlled attention span (b) uncontrolled attention span, Using the Context, Making Auditory Discriminations, Using Context and Auditory Clues, and one individual test titled Giving the Names of the Letters.

Test 1: Using Symbols. This is a 22-item test which is designed to measure the child's ability to understand the meaningful use of symbols to represent familiar ideas indicated by pictures. The teacher says the noun under the picture in the small box. The child is then required to find the word in the big box and draw a line from it to the corresponding picture in the big box.

Test 2a: Making Visual Discriminations - Attention Span Controlled. This test is designed to measure the child's ability to make accurate visual discrimination between words. Part A is administered in such a way that the attention span of the child is controlled in each item of the test. There are 14 items on this part of the test.

The child is required to draw a line under the word in the little box and then draw a line under the same word in the big box. The teacher gives the directions and makes certain that each child is on the correct test item.

Test 2b: Making Visual Discrimination - Attention Span Uncontrolled. This subtest is similar to the one above but the teacher does not draw the child's attention to each item. She tells the child how to do the first one and then leaves the child to work on his own for the rest of the items on that subtest. There are 16 items on this half of the test.

Test 3: Using the Context. This 18-item subtest is designed to measure the child's ability to identify a strange word through the use of the context. The child is required to choose from three pictures and then mark the one which best supplies an element which is missing in the oral context given by the teacher.

Test 4: Making Auditory Discriminations. This is an auditory discrimination test which is designed to measure the child's ability to discriminate between spoken words which do or do not begin with identical initial consonant sounds. On this 16-item test the child is required to draw a line from the picture of the object that the teacher names to the object that begins like it. The teacher names all of

the picture objects in the set first.

Test 5: Using Context and Auditory Clues. This 18-item subtest is designed to measure the child's ability to use auditory clues with context clues in the identification of strange words. The child is required to listen to oral context which suggests two possible responses illustrated in a group of three pictures.

Test 6: Giving the Names of the Letters. This subtest is designed to measure the child's ability to recognize the names of both upper and lower case letters. There are 42 letters printed on the Letter card which the child must name as the teacher points to the letter. Each child is tested individually.

Overview:

The specific directions are precise and clear. The pictures on the test items are very clear in detailed black outline. Coloured boxes are used which not only makes it attractive to children, but also makes it easy for the children to find their place. The children's response pages are laid out spaciouly and clearly. The tests used in this battery have been carefully designed as measures of abilities of basic factors in reading readiness (Gray, 4th Mental Measurement Yearbook).

This test was revised in 1956, and is made up of

separate sheets. The authors state that the test is designed to measure skills which are necessary for beginning reading.

Scoring and Norms:

Raw scores are converted into percentile ranks. Unfortunately no total readiness score is provided. The authors suggest using the subtests for diagnostic purposes. Since no evidence is given as to the distinctiveness of each subtest and the reliability of each subtest there is doubt whether this is wise. The authors defend this by stating that the tested skills do not develop evenly in children, and therefore the subtests should be used diagnostically.

The norms were based on testing 1,400 children in thirty-two communities in twenty-eight different states in 1955. The average range of ability, chronological age, sex, or socioeconomic level of this population is not given. These norms are rather outdated for today's children.

Validity:

The content validity of the test is based on the assumption that the test measures reading readiness skills. Although the test authors believe that the most important use of the Harrison-Stroud Reading Readiness Test is to diagnose pupils' strengths and weaknesses needed for beginning reading, they present no evidence of the diagnostic or subtest validities of the test. The authors

present no evidence of predictive validity.

Reliability:

The authors' suggestion that the subtests be used for diagnostic purposes is unfortunate since most of the subtests are very short in length and no evidence of their reliability is given. (Dunn, 1959, Mental Measurements - 5th.).

Summary

The children's response sheets are very attractively and clearly constructed. Since the norms were established in 1955, over twenty years ago, they may not be valid for today's children; also the subjects used for the norm were not well described. Lack of validity and reliability limits the value of the test. Only one form of the test has been prepared. No predictive evidence of later reading achievement is given.

APPENDIX H

METROPOLITAN READINESS TEST

- (a) Test Contents
- (b) Validity and Reliability

The Metropolitan Reading Readiness Test (Hildreth and Griffiths, 1965) is a group test administered to either kindergarten or first graders. The test manual states that among the chief factors that contribute to readiness for beginning school work are linguistic attainments and aptitudes, visual and auditory perception, muscular coordination and motor skills, number knowledge, and the ability to follow directions and to pay attention in a group (1969, page 2). The authors go on to state that how far advanced the school beginner will be in these skills will depend upon many factors, such as intelligence, home background, health and physical condition, degree of emotional maturity, social adjustment and general background of experience.

The authors state in the Metropolitan Reading Readiness Test that:

Metropolitan Readiness Tests were devised to measure the extent to which school beginners have developed in several skills and abilities that contribute to readiness for first-grade instruction (1969, page 2).

The Metropolitan Readiness Test Manual includes a number of directions for administering and scoring the test battery. Suggestions for using the test results are also given. The predictive validity, and construct validity are also given (see chapter 3). The test can easily be administered by the classroom teachers without previous

training. The test should be administered to groups no larger than 15 and requires approximately 60 minutes, and should be administered in three separate testing sessions. A maximum of 15 seconds pause must be adhered to for the word meaning, listening, and numbers subtests, and likewise a 10 second pause between the alphabet items. (See pages 4 to 10 for specific directions). Five and one-half minutes are allowed for the Matching subtest and 7 minutes for the Copying subtest. A total readiness score is obtained from the six subtests, using the raw score, which measure both reading and number readiness.

The content of these subtests is described below:

Test 1: Word Meaning. This subtest of 16 items is supposed to test the 'child's store of verbal concepts' or the child's understanding and comprehension of the environment. The child is required to choose the picture that best illustrates the word that the examiner names.

Test 2: Listening. This subtest measures the child's ability to comprehend phrases and sentences, in a 16-item picture vocabulary test.

Test 3: Matching. This is a 14-item subtest supposed to test visual perception involving the recognition of similarities. The child marks a picture in the row that is identical to a stimulus picture at the

beginning of the row.

Test 4: Alphabet. Each of the 16 items are designed to measure a child's ability to recognize lower-case letters of the alphabet. The child marks the letter named by the examiner.

Test 5: Numbers. This is a 26-item subtest designed to measure a child's knowledge of arithmetic concepts, such as, knowledge of numbers, counting, recognition of written numbers, etc.

Test 6: Copying. This 14-item subtest measures the child's ability to integrate visual perception and fine motor control, by requiring him to copy letters, numbers and shapes of increasing complexity.

Test 7 (Supplementary): Draw-a-Man. This subtest, adapted from the Goodenough-Harris Drawing Test, is designed to provide an index of a child's general intellectual maturity. The manual also states that it is a test which manifests a combination of visual perception and motor control similar to that required in learning handwriting.

Overview:

The Metropolitan Readiness Test was revised in 1964. The directions for administering the test are clear. Oral directions to the pupils are at an appropriate level of

language for the children of this age. The format is adequate; green lines separate each row of test items. Another green line separates the stimuli pictures from the picture that marks the children's place, except for the first two subtests, word meaning and listening. In these two it is hoped that the children will be able to follow the teachers' directions closely enough to not lose their place. This part of the test could be improved. The administration time is 60 minutes.

Scoring and Norms:

Tables for converting raw scores into percentile ranks, stanines, and readiness statements—superior, high normal, average, low normal, and low are easy to use. A separate scoring key is included to facilitate hand scoring. Emphasis is placed on the performance of the total battery, and the authors caution against too much weight being attributed to subtest scores because of the low reliabilities associated with shorter tests. Total test performance is divided into five letter ratings set up in terms of standard deviations. Specific instructions are given concerning the instructional importance of these various levels of performance. A child rating an "E" on the test should be given more readiness or given individual help. A total of 12,231 pupils from 65 schools in the New England, Middle Atlantic, Central, and South Western States in the U.S.A.

were used for the norming population. Caution is suggested in the manual in using these norms because of the slightly higher income median of the sample. Establishment of local norms are encouraged. This test was designed to measure readiness for first grade; therefore number, reading and visual-motor factors are included. Like Gates and MacGinitie, the authors suggest that teacher ratings, observations, informal tests, and their readiness inventory be used as supplementary aids to their test.

Validity:

The manual thoroughly discusses the content validity, construct validity and the predictive validity of the test. Predictive validity studies are reported for three experimental forms and additional data are supplied in mimeographed form from recent validation studies. The Alphabet subtest was the best predictor for reading and the Numbers seemed to be the best predictor for reading and arithmetic. The manual does not contain multiple regression equations which would give the relative weight of the Alphabet and Numbers test in predicting achievement.

Concurrent validity is presented by means of correlations of the Metropolitan subtests and the total score and the Murphy-Durrell Reading Readiness Analysis and the Pintner-Cunningham Primary Mental Ability Test. A correlation of .80 was found between the total score of the

Metropolitan and the Murphy-Durrell. There was a correlation of .85 between the Letter Naming subtest of the Murphy-Durrell, and the Alphabet subtest of the Metropolitan. Correlations between the other subtests were small. Between the total score on the Metropolitan and the total score on the Pintner-Cunningham the correlation was .76. The authors discuss the content validity, and compare the relationship of theirs with other school readiness tests and relate the result on their test with success in later reading achievement.

Reliability:

Reliability data, reported for kindergarten and first grade, were determined with odd-even coefficients corrected by the Spearman-Brown formula. The reliability of the total score was above .90 in all three sample groups. The reliability of the test appears adequate (Dykstra, Mental Measurement 7th). The alternate form reliability of the total score 1-6 was .91. The alternate-form reliability on the subtests ranged from .51 on the Listening to .86 on the Alphabet. The authors rightfully state that relatively little significance should be placed on the subtest score of individual pupils.

Summary:

For the first few questions on the Metropolitan Readiness Tests, the teacher gives the child clear

instructions and helps the child to find his place. For the remainder of the questions on the subtest, the child is left to finish the test without further guidance. The first two subtests do not give a stimulus picture at the beginning of each row to help the child find his place.

Raw score conversion tables are easy to use. Content validity, construct validity and predictive validity are supported. A reliability coefficient of over .90 is reported.

APPENDIX I

SCOTT, FORESMAN INITIAL READING SURVEY TEST

(a) Test Contents

(b) Validity and Reliability

The Scott, Foresman Initial Reading Survey Test (1970) is a group test which can be administered to beginning first graders. The test consists of five subtests: Language Meanings, Auditory Ability, Visual Ability, Letter Recognition, and Sound-Letter Relationships.

The Scott, Foresman Initial Reading Survey authors state that the first four subtests should be given to all the children, but any child who becomes upset with the first four subtests should not be encouraged to attempt the fifth one. This test can be given to the entire class at once, however, if the teacher wishes, the class can be divided into groups. The contents of the tests can be divided as follows:

Test 1: Language Meanings. This 20-item subtest is designed to measure the child's understanding of the spoken word. The items range in difficulty from recognizing simple noun meanings to comprehending cause-effect relationships in sentences to drawing inferences from spoken language.

Test 2: Auditory Ability. This subtest is designed to measure the child's ability to hear likenesses and differences among the discrete sounds in spoken words. The 25 items range in difficulty from identification of words with sound differences in the initial or final position, to identifying rhyming sounds and identification of initial consonant sounds to tests of auditory memory.

Test 3: Visual Ability. This 21-item subtest is designed to test the child's ability to distinguish among letter and word forms and progresses to test the visual memory skill by removing the word form visual cue.

Test 4: Letter Recognition. This 21-item subtest is designed to test the child's knowledge of the alphabet. The teacher gives the name of the letter and the child finds the visual form.

Test 5: Sound-Letter Relationship. This subtest is designed to measure the child's ability to recognize the relationship between the sounds and the letters. The child identifies the letter that usually stands for the initial consonant sound of the given word. There are 10 items on this test.

Overview:

The child's response booklet is done in color with pink lines to separate the test items. The pictures do not show up as clearly as the black and white ones on the Gates-MacGinitie Reading Readiness Test. The last subtest Visual Ability and Letter Recognition and Sound-Symbol Relationships are done in blue and pink. These test items are small and crowded, thus making it difficult for the pupils. The subtests do not have any identification picture or markings to help the child find the place for which the teacher is

giving instructions. There are 120 items on the six subtests. Administration time is not given. The teacher's instructions are clear and well defined.

Scoring and Norms:

A scoring and item analysis sheet is supplied on the back of each pupil's response booklet for the teacher's use. Scoring is quite simple to follow. Only the incorrect items are marked. The booklets are to be put in rank order, the highest score on top and the lowest score on the bottom. Tables of Standard Score and Percentiles are given. The authors suggest analyzing the pupil's response to test items as well as observing the child's behavior during the test and during other classroom activities. Dr. Manning includes specific instructions for interpreting subtest scores. Dr. Manning suggests caution when interpreting total test scores. Confusion may result if one tries to equate test scores with pupil intellectual capacity or potential capacity, claims Manning. Parents may have taught the alphabet at home before the child entered first grade. These pupils will score high on Letter Recognition. He warns against letting low scores become self-fulfilling prophecies. Instead the teacher should expect and teach toward reading success for every child. Manning advises teachers to examine the low scores of each subtest to find specific weaknesses and teach these skills to the children

needing them in order to prepare them to read.

Manning claims total scores will assist teachers to rank pupils in terms of present skills and to group them accordingly for effective beginning instruction.

The longer 136-item test was administered in September, 1969, to 6,286 beginning first graders. Some of these children had attended kindergarten and some had not. Norms were based on the score of 374 children randomly selected by computer. The school systems were selected on the basis of geographic area.

Validity:

Standardization of the A Form of the test was based on 120 items selected from the test of 136. The longer test was administered in September 1969 to 6,286 children who had just entered first grade. No information was given as to predictive validity.

Reliability:

The reliability coefficient of .97 was determined by computing split halves of the test and applying the Spearman-Brown formula.

Summary:

The Scott, Foresman Initial Reading Survey Test provides a child's response booklet with pictures that are produced in pastel colours which are not as clear as the

black and white illustrations used on the other tests. The illustrations are small and crowded together. There are no identification pictures to help the child find his place.

Scoring is simple and tables of the standard scores and percentiles are given. The authors caution teachers to group pupils for present skills and not for potential skills. A reliability coefficient of .97 is reported which is an adequate reliability.

APPENDIX J

FIRST LETTER TO TEACHERS

Learning Assistance Centre,
Uplands Elementary School,
3461 Henderson Road,
Victoria, B.C.
September 8th, 1975.

Dear Teachers,

Thank you for your help in administering this test. It is experimental and has not been given before. If you see areas which need improvement or correction please return your comments with the test papers to permit amendment of the final test.

There is no need to score the test unless you wish to do so. Pupils' scores will be returned to you.

If you have any questions please telephone me at 592-2022 (days) or 477-2458 (evenings).

Again, many thanks.

Sincerely,



B. Barbara Adams

APPENDIX K

SECOND LETTER TO TEACHERS

LEARNING ASSISTANCE CENTRE
Uplands Elementary School
3461 Henderson Road
VICTORIA, B.C.

November 12, 1975

Dear Grade One Teachers:

Thank you for your help in administering the Reading Readiness Tests. The subtests can now be revised and shortened. Your pupils' test results and the computer item analysis sheets will be forwarded to you.

Again, many thanks for your time and effort spent administering this experimental test.

Sincerely,



B. Barbara Adams
L.A. Clinician

BBA/ps

APPENDIX L

SIGNIFICANT HYPOTHESES

Significant Differences

Significant differences were found for 45 of the hypotheses. Following is a summary of these differences:

2.0 On the Canadian Readiness (CRT) subtests and sex:

2.3 There is a significant difference in the reading readiness scores on the CRT subtest-Word Matching between boys and girls.

2.5 There is a significant difference in the reading readiness scores on the CRT subtest-Semantics between boys and girls.

4.0 On the Experimental Reading Readiness (ERR) subtest-Basic Language Concepts and the Canadian Readiness Test (CRT):

4.1 There is significant correlation between the ERR subtest-Basic Language Concepts and the CRT subtest-Technical Language of Literacy.

4.2 There is significant correlation between the ERR subtest-Basic Language Concepts and the CRT subtest-Technical Language of Literacy.

4.3 There is significant correlation between the ERR subtest-Basic Language Concepts and the CRT subtest-Word Matching.

- 4.4 There is significant correlation between the ERR subtest-Basic Language Concepts and the CRT subtest-Beginning Sounds.
- 4.5 There is significant correlation between the ERR subtest-Basic Language Concepts and the CRT subtest-Semantics.
- 4.6 There is significant correlation between the ERR subtest-Basic Language Concepts and the CRT subtest-Learning Rate.
- 5.0 On the Experimental Reading Readiness (ERR) subtest-Predicting Outcomes and the Canadian Readiness Test (CRT):
- 5.1 There is significant correlation between the ERR subtest-Predicting Outcomes and the CRT subtest-Technical Language of Literacy.
- 5.2 There is significant correlation between the ERR subtest-Predicting Outcomes and the CRT subtest-Letter Recognition.
- 5.3 There is significant correlation between the ERR subtest-Predicting Outcomes and the CRT subtest-Word Matching.

- 5.4 There is significant correlation between the ERR subtest-Predicting Outcomes and the CRT subtest-Beginning Sounds.
- 5.5 There is significant correlation between the ERR subtest-Predicting Outcomes and the CRT subtest-Semantics.
- 5.6 There is significant correlation between the ERR subtest-Predicting Outcomes and the CRT subtest-Learning Rate.
- 6.0 On the Experimental Reading Readiness Test (ERR) subtest-Spatial Relations Concepts and the Canadian Readiness Test (CRT):
- 6.1 There is significant correlation between the ERR subtest-Spatial Relations Concepts and the CRT subtest-Technical Language of Literacy.
- 6.2 There is significant correlation between the ERR subtest-Spatial Relations Concepts and the CRT subtest-Letter Recognition.
- 6.3 There is significant correlation between the ERR subtest-Spatial Relations Concepts and the CRT subtest-Word Matching.
- 6.4 There is significant correlation between the ERR subtest-Spatial Relations Concepts and the CRT

subtest-Beginning Sounds.

6.5 There is significant correlation between the ERR subtest-Spatial Relations Concepts and the CRT subtest-Semantics.

6.6 There is significant correlation between the ERR subtest-Spatial Relations Concepts and the CRT subtest-Learning Rate.

7.0 On the Experimental Reading Readiness Test (ERR) subtest-Auditory Reception and the Canadian Readiness Test (CRT):

7.1 There is significant correlation between the ERR subtest-Auditory Reception and the CRT subtest-Technical Language of Literacy.

7.2 There is significant correlation between the ERR subtest-Auditory Reception and the CRT subtest-Letter Recognition.

7.3 There is significant correlation between the ERR subtest-Auditory Reception and the CRT subtest-Word Matching.

7.4 There is significant correlation between the ERR subtest-Auditory Reception and the CRT subtest-Beginning Sounds.

- 7.5 There is significant correlation between the ERR subtest-Auditory Reception and the CRT subtest-Semantics
- 7.6 There is significant correlation between the ERR subtest-Auditory Reception and the CRT subtest-Learning Rate.
- 8.0 On the Experimental Reading Readiness (ERR) subtest-Basic Language Concepts and the Bond-Balow-Hoyt: The New Developmental Reading Tests (BBH):
- 8.1 There is significant correlation between the ERR subtest-Basic Language Concepts and the BBH subtest-Word Recognition.
- 8.2 There is significant correlation between the ERR subtest-Basic Language Concepts and the BBH subtest-Comprehending Significant Ideas.
- 8.3 There is significant correlation between the ERR subtest-Basic Language Concepts and the BBH subtest-Comprehending Specific Instructions.
- 9.0 On the Experimental Reading Readiness Test (ERR) subtest-Predicting Outcomes and the Bond-Balow-Hoyt: The New Developmental Reading Tests (BBH):
- 9.1 There is significant correlation between the ERR subtest-Predicting Outcomes and the BBH subtest-

Word Recognition.

9.2 There is significant correlation between the ERR subtest-Predicting Outcomes and the BBH subtest-Comprehending Significant Ideas.

9.3 There is significant correlation between the ERR subtest-Predicting Outcomes and the BBH subtest-Comprehending Specific Instructions.

10.0 On the Experimental Reading Readiness Test (ERR) subtest-Spatial Relations Concepts and the Bond-Balow-Hoyt: The New Developmental Reading Tests (BBH):

10.1 There is significant correlation between the ERR subtest-Spatial Relations Concepts and the BBH subtest-Word Recognition.

10.2 There is significant correlation between the ERR subtest-Spatial Relations Concepts and the BBH subtest-Comprehending Significant Ideas.

10.3 There is significant correlation between the ERR subtest-Spatial Relations Concepts and the BBH subtest-Comprehending Specific Instructions.

11.0 On the Experimental Reading Readiness Test (ERR) subtest-Auditory Reception and the Bond-Balow-Hoyt: The New Developmental Reading Test (BBH):

- 11.1 There is significant correlation between the ERR subtest-Auditory Reception and the BBH subtest-Word Recognition.
 - 11.2 There is significant correlation between the ERR subtest-Auditory Reception and the BBH subtest-Comprehending Significant Ideas.
 - 11.3 There is significant correlation between the ERR subtest-Auditory Reception and the BBH subtest-Comprehending Specific Instructions.
- 12.0 On the Experimental Reading Readiness Test (ERR):
- 12.3 On the ERR subtest-Spatial Relations Concept, there is significant prediction shown for success in Word Recognition on the BBH.
- 13.0 On the Canadian Readiness Test (CRT):
- 13.6 On the CRT subtest-Learning Rate, there is significant prediction shown for success in Word Recognition on the BBH.
- 14.0 On the Experimental Reading Readiness Test (ERR):
- 14.3 On the subtest-Spatial Relations Concepts, there is significant prediction shown in reading achievement on the BBH subtest-Comprehension of Significant Ideas.

15.0 On the Canadian Readiness Test (CRT):

15.6 On the CRT subtest-Learning Rate, there is significant prediction of reading achievement shown on the BBH subtest-Comprehension of Significant Ideas.

16.0 On the Canadian Readiness Test (CRT):

16.6 On the CRT subtest-Learning Rate, there is significant prediction in reading achievement shown on the BBH subtest-Comprehension of Specific Instructions.

17.0 On the Experimental Reading Readiness Test (ERR):

17.1 On the ERR subtest-Basic Language Concepts, there is significant prediction in reading achievement shown on the BBH subtest-Comprehending Specific Instructions.

17.3 On the ERR subtest-Spatial Relations Concepts, there is significant prediction in reading achievement shown on the BBH subtest-Comprehending Specific Instructions.

APPENDIX M

NON-SIGNIFICANT HYPOTHESES

Non-Significant Differences

Non-significant differences were found on 33 of the hypotheses stated as follows:

1.0 On the Experimental Reading Readiness (ERR):

- 1.1 There is no significant difference in reading readiness scores on the ERR subtest-Basic Language Concepts between boys and girls.
- 1.2 There is no significant difference in reading readiness scores on the ERR subtest-Predicting Outcomes between boys and girls.
- 1.3 There is no significant difference in reading readiness scores on the ERR subtest-Spatial Relations Concepts between boys and girls.
- 1.4 There is no significant difference in reading readiness scores on the ERR subtest-Auditory Reception between boys and girls.

2.0 On the Canadian Readiness Test (CRT):

- 2.1 There is no significant difference in reading readiness scores on the CRT subtest-Technical Language of Literacy between boys and girls.
- 2.2 There is no significant difference in reading readiness scores on the CRT subtest-Letter

Recognition between boys and girls.

2.4 There is no significant difference in reading readiness scores on the CRT subtest-Beginning Sounds between boys and girls.

2.6 There is no significant difference in reading readiness scores on the CRT subtest-Learning Rate between boys and girls.

3.0 On the Bond-Balow-Hoyt: The New Developmental Reading Tests (BBH):

3.1 There is no significant difference in reading achievement scores on the BBH subtest-Word Recognition between boys and girls.

3.2 There is no significant difference in reading achievement scores on the BBH subtest-Comprehending Significant Ideas between boys and girls.

3.3 There is no significant difference in reading achievement scores on the BBH subtest-Comprehending Specific Instructions between boys and girls.

12.0 On the Experimental Reading Readiness Test (ERR):

12.1 On the ERR subtest-Basic Language Concepts, there is no significant prediction shown for success in

Word Recognition on the BBH.

12.2 On the ERR subtest-Predicting Outcomes, there is no significant prediction shown for success in Word Recognition on the BBH.

12.4 On the ERR subtest-Auditory Reception, there is no significant prediction shown for success in Word Recognition on the BBH.

13.0 On the Canadian Readiness Test (CRT):

13.1 On the CRT subtest-Technical Language of Literacy, there is no significant prediction shown for success in Word Recognition on the BBH.

13.2 On the CRT subtest-Letter Recognition, there is no significant prediction shown for success in Word Recognition on the BBH.

13.3 On the CRT subtest-Word Matching, there is no significant prediction shown for success in Word Recognition on the BBH.

13.4 On the CRT subtest-Beginning Sounds, there is no significant prediction shown for success in Word Recognition on the BBH.

13.5 On the CRT subtest-Semantics, there is no significant prediction shown for success in Word

Recognition on the BBH.

14.0 On the Experimental Reading Readiness Test (ERR):

14.1 On the ERR subtest-Basic Language Concepts, there is no significant prediction shown in reading achievement on the BBH subtest-Comprehending Significant Ideas.

14.2 On the ERR subtest-Predicting Outcomes, there is no significant prediction shown in reading achievement on the BBH subtest-Comprehending Significant Ideas.

14.4 On the ERR subtest-Auditory Reception, there is no significant prediction shown in reading achievement on the BBH subtest-Comprehending Significant Ideas.

15.0 On the Canadian Readiness Test (CRT):

15.1 On the CRT subtest-Technical Language of Literacy, there is no significant prediction of reading achievement shown on the BBH subtest-Comprehending Significant Ideas.

15.2 On the CRT subtest-Letter Recognition, there is no significant prediction of reading achievement shown on the BBH subtest-Comprehending

Significant Ideas.

15.3 On the CRT subtest-Word Matching, there is no significant prediction of reading achievement shown on the BBH subtest-Comprehending Significant Ideas.

15.4 On the subtest-Beginning Sounds, there is no significant prediction of reading achievement shown on the BBH subtest-Comprehending Significant Ideas.

15.5 On the subtest-Semantics, there is no significant prediction of reading achievement shown on the BBH subtest-Comprehending Significant Ideas.

16.0 On the Canadian Readiness Test (CRT):

16.1 On the CRT subtest-Technical Language of Literacy, there is no significant prediction of reading achievement shown on the BBH subtest-Comprehending Specific Instructions.

16.2 On the CRT subtest-Letter Recognition, there is no significant prediction of reading achievement shown on the BBH subtest-Comprehending Specific Instructions.

16.3 On the CRT subtest-Word Matching, there is no

significant prediction shown on the BBH subtest-Comprehending Specific Instructions.

16.4 On the subtest-Beginning Sounds, there is no significant prediction of reading achievement shown on the BBH subtest-Comprehending Specific Instructions.

16.5 On the subtest-Semantics, there is no significant prediction shown on the BBH subtest-Comprehending Specific Instructions.

17.0 On the Experimental Reading Readiness Test (ERR):

17.2 On the ERR subtest-Predicting Outcomes, there is no significant prediction in reading achievement shown on the BBH subtest-Comprehending Specific Instructions.

17.4 On the subtest-Auditory Reception, there is no significant prediction in reading achievement shown on the BBH subtest-Comprehending Specific Instructions.

APPENDIX N

FREQUENCY DISTRIBUTION CHARTS:
FOR THE INVESTIGATOR'S EXPERIMENTAL READING
READINESS TEST - HISTOGRAMS #1-4

FREQUENCY DISTRIBUTIONS FOR
 BASIC LANGUAGE CONCEPTS - ITEMS #1-30
 HISTOGRAM #1

FREQUENCY	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30
38															
37													*		
36													*		
35													*		
34													*		
33													*		
32													*		
31													*		
30													*		
29													*	*	
28													*	*	
27												*	*	*	
26												*	*	*	
25												*	*	*	
24												*	*	*	
23												*	*	*	
22												*	*	*	
21												*	*	*	
20												*	*	*	
19												*	*	*	
18												*	*	*	
17												*	*	*	
16												*	*	*	
15												*	*	*	
14												*	*	*	
13											*	*	*	*	
12											*	*	*	*	
11											*	*	*	*	
10											*	*	*	*	
9											*	*	*	*	
8											*	*	*	*	
7											*	*	*	*	
6											*	*	*	*	
5										*	*	*	*	*	
4										*	*	*	*	*	
3									*	*	*	*	*	*	
2									*	*	*	*	*	*	
1									*	*	*	*	*	*	*
CLASS INTERVAL	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30

FREQUENCY DISTRIBUTIONS FOR
PREDICTING OUTCOMES - ITEMS #31-60

HISTOGRAM #2

FREQUENCY	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30
38															
37															
36															
35															
34															
33															
32															
31															
30															
29															
28															
27											*				
26											*				
25											*				
24											*				
23											*	*			
22											*	*	*		
21											*	*	*	*	
20											*	*	*	*	
19											*	*	*	*	
18											*	*	*	*	
17											*	*	*	*	
16											*	*	*	*	
15									*		*	*	*	*	
14									*		*	*	*	*	
13									*		*	*	*	*	
12									*	*	*	*	*	*	
11									*	*	*	*	*	*	
10									*	*	*	*	*	*	
9									*	*	*	*	*	*	
8									*	*	*	*	*	*	
7									*	*	*	*	*	*	
6									*	*	*	*	*	*	*
5									*	*	*	*	*	*	*
4									*	*	*	*	*	*	*
3								*	*	*	*	*	*	*	*
2							*	*	*	*	*	*	*	*	*
1				*	*	*	*	*	*	*	*	*	*	*	*
CLASS INTERVAL	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30

FREQUENCY DISTRIBUTIONS FOR
SPATIAL RELATIONS CONCEPTS - ITEMS #61-90

HISTOGRAM #3

FREQUENCY	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30
38															
37															
36															
35															
34															
33															
32															
31															
30															
29															
28												*			
27												*			
26												*			
25												*			
24												*			
23												*			
22												*	*		
21												*	*		
20												*	*		
19												*	*		
18										*		*	*		
17										*		*	*		
16										*		*	*		
15										*		*	*	*	
14										*		*	*	*	*
13										*		*	*	*	*
12										*	*	*	*	*	*
11										*	*	*	*	*	*
10										*	*	*	*	*	*
9								*	*	*	*	*	*	*	*
8								*	*	*	*	*	*	*	*
7								*	*	*	*	*	*	*	*
6								*	*	*	*	*	*	*	*
5								*	*	*	*	*	*	*	*
4								*	*	*	*	*	*	*	*
3							*	*	*	*	*	*	*	*	*
2							*	*	*	*	*	*	*	*	*
1							*	*	*	*	*	*	*	*	*
CLASS INTERVAL	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30

FREQUENCY DISTRIBUTIONS FOR
AUDITORY RECEPTION - ITEMS #91-120
HISTOGRAM #4

FREQUENCY	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30
38															
37															
36															
35															
34															
33															
32															
31															
30															
29															
28															
27															
26															
25															
24												*			
23												*			
22												*			
21												*	*		
20												*	*		
19												*	*		
18												*	*		
17											*	*	*		
16										*	*	*	*		
15										*	*	*	*	*	
14										*	*	*	*	*	*
13										*	*	*	*	*	*
12										*	*	*	*	*	*
11										*	*	*	*	*	*
10										*	*	*	*	*	*
9										*	*	*	*	*	*
8										*	*	*	*	*	*
7										*	*	*	*	*	*
6										*	*	*	*	*	*
5								*		*	*	*	*	*	*
4							*	*	*	*	*	*	*	*	*
3					*		*	*	*	*	*	*	*	*	*
2	*				*		*	*	*	*	*	*	*	*	*
1	*				*		*	*	*	*	*	*	*	*	*
CLASS INTERVAL	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30

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AN INVESTIGATION OF READING READINESS TESTS,

AND OF SELECTED AUDITORY PERCEPTION, VISUAL

PERCEPTION, AND LANGUAGE SKILLS INVOLVED

IN READING READINESS

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December 3, 1976.

Date