

Archaeology for Education



Archaeology is a fascinating area for educators to use to help students develop a richer understanding of the past as well as the critical and creative thinking skills needed to build a sustainable future. In 2022-2023, funded by a SSHRC Connections grant (“African Archaeology in Support of School Learning”), archaeologists and educators came together to contribute to a special issue of the journal *African Archaeological Review - Archaeology for Education*.

Contributors were encouraged to focus on *story* as a way to engage readers in why and how archaeology matters for K-12 students’ learning. In this special issue, you will find a wide variety of stories that highlight the human histories, technologies, science, and problem-solving that form the long, complex history of Africa written with educators in mind.

Before using the following learning resource, we encourage you to read the corresponding article for your own background knowledge and to inspire you to create, teach, and share your own activities and lessons about Africa and archaeology.



A Day on the Nile: Living in a Town in Nubia.

1. Case Study: Sai City - Introduction

- Introduction to Sai city and archaeological evidence

2. Calculating Scale

- Using maps to understand scale

3. Comparing Pyramids

- Practice using ratios to compare the size of objects

4. Scale Drawings

- Practice making scale drawings of artifacts found at Sai City.

5. Calculating Distances

- Use your understanding of scale to plan a trade route between Sai City and the Nile Delta.

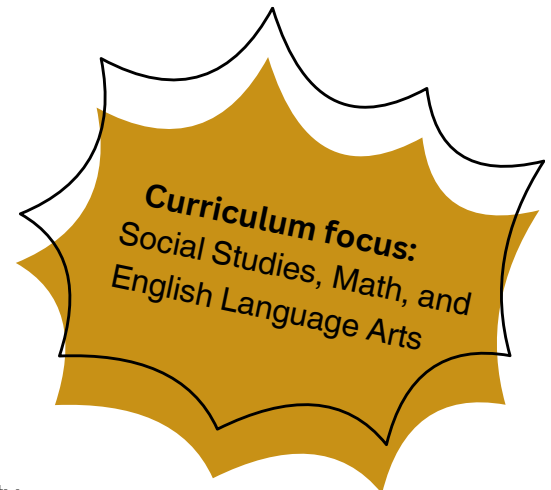
6. Text: A Day In Sai

7. Reading: Drawing Inferences

- Graphic organizer to help guide students to draw inferences from text

8. Writing: Historical Fiction

- Graphic organizer to help students plan their own historical fiction scene



This educational resource was developed from an article in the special edition:

Budka, J., Ward, C. & Elkins, C.G. (2023). A Day on the Nile: Living in a Town in Nubia. *African Archaeological Review*, 40, pp. 555–566 . <https://doi.org/10.1007/s10437-023-09547-4>

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Case study: Sai City

Artifacts



Name: _____



Archaeological evidence:

artifacts, buildings, texts, landscape modifications and other traces of past life

Making scale drawings

Archaeologists draw images of artifacts they find on archaeological digs. They also map locations of their finds. As scientists, archaeologists must make the drawings and maps as accurate as possible. Artifacts can vary greatly in size, from the huge, like a shipwreck, to the very small, like the flake of stone tool. Archaeologists need to use scale drawings to make images of artifacts more practical.



The city of Sai is located on the Nile in present-day Sudan. It is an Egyptian city built in 1450 BC. At that time, the Egyptians were colonizing Nubia. Prior to this, Sai was an important city in the kingdom of Kerma. Sai had a population of around 200 people and covered an area of 2.76 hectares. This is about the same size as 7 football fields.



Fig. 1 Archaeological site - Sai City

Cities generally accumulate more **archaeological evidence** than other types of settlements, as they were often longer and more densely inhabited than rural areas. City dwellers may build new houses on the ruins of old ones. The objects they have discarded accumulate in what we call "**middens**" (rubbish dumps).



To reconstruct life at Sai, it is necessary to look at all the **archaeological elements**, from architecture to pottery, small objects (jewelry, combs, needles, weapons, etc.) and tools. When studied together, archaeologists can learn a great deal about daily life.

Calculating scale

Using maps

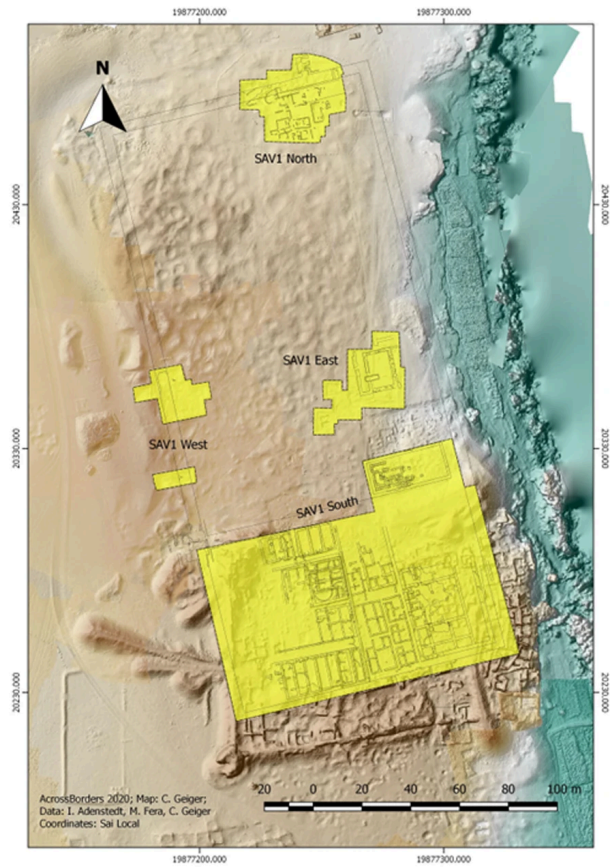


Fig. 2 Location of Sai Island in Sudan and city map with excavation areas marked in yellow (as of 2018).
Illustration: AcrossBorders

The scale of the two maps is different. To show the location of the city in North Africa, the scale is approximately 1 cm to 200 km. On the map of the archaeological zone, the scale is 1 cm to 40 m.

We write a scale using the same unit of measurement for both parts:

Map # 1 : 1 cm à 200 km

1km = 1000 m = 100 000cm

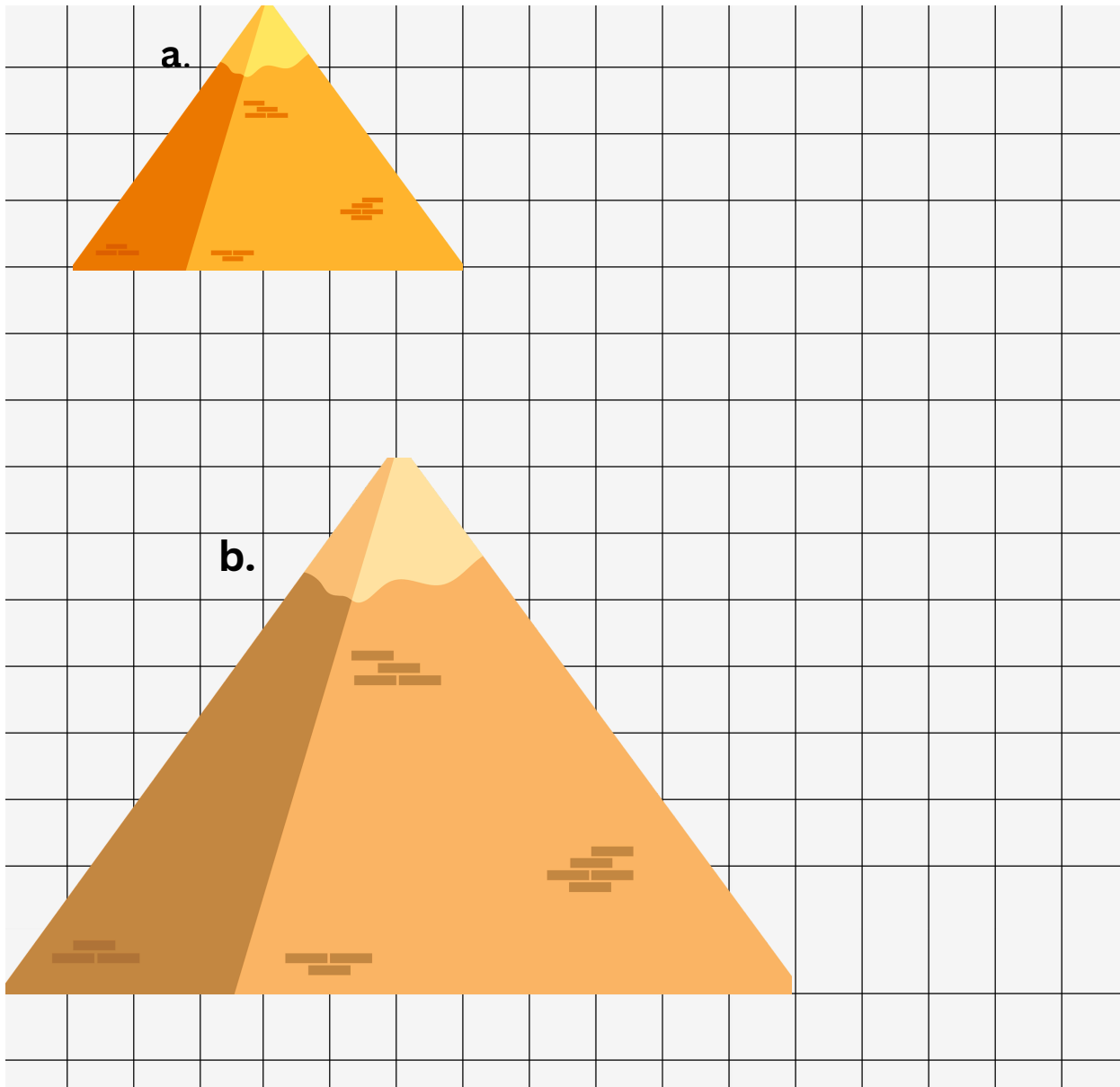
200km x 100 000 = 20 000 000

The scale of the map in centimeters is 1:20 000 000

Calculate the scale of Map #2 in cm:

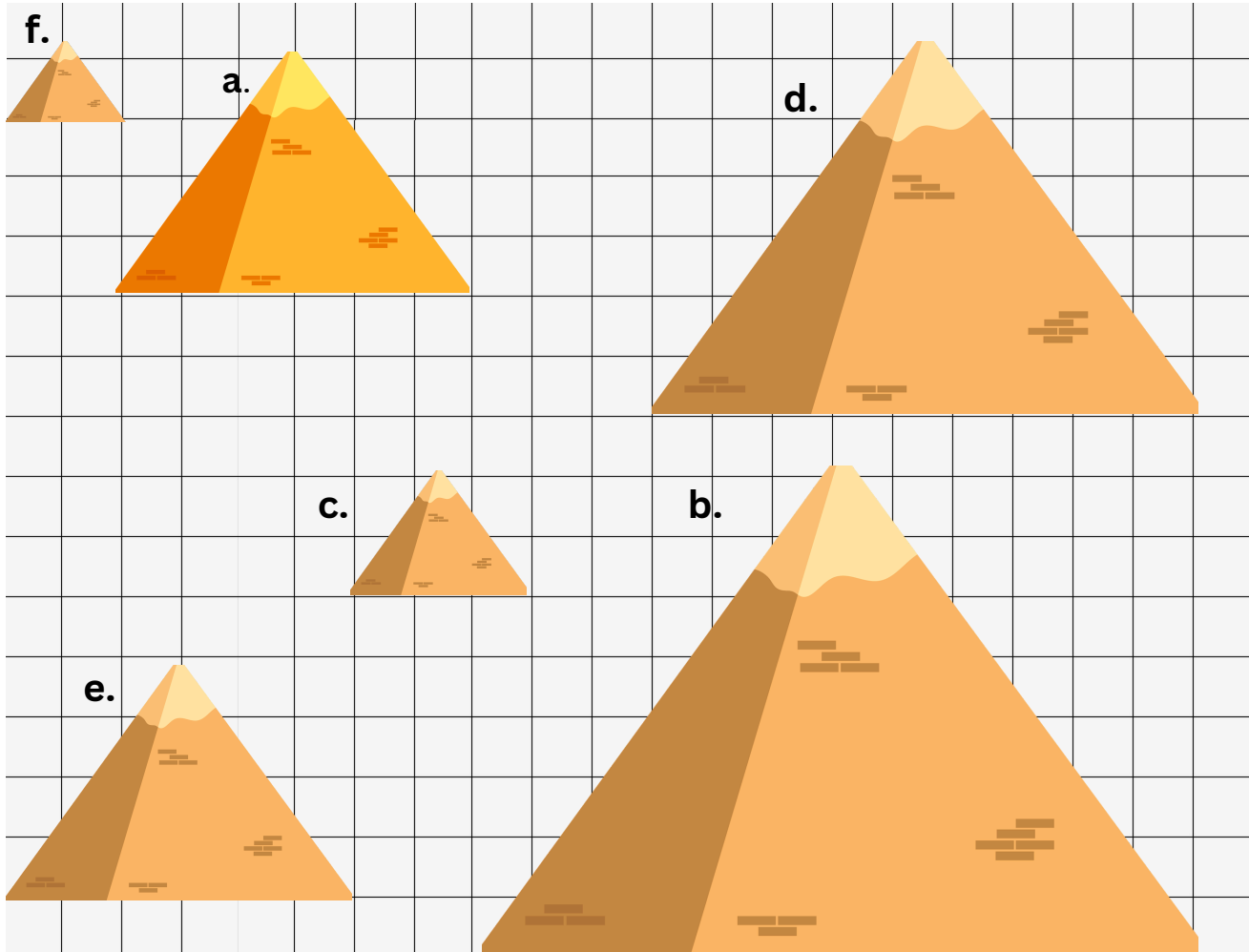
Comparing Pyramids

using ratios



What mathematical statements can you make about these two pyramids?

Example: Pyramid a is $\frac{1}{2}$ the height of pyramid b.



What are the ratios between the different figures?

	Width	height
triangle a		
triangle b		
triangle c		

1. Triangles a & b

2. Triangles b & c

3. Triangles a & c



	Width	height
triangle a		
triangle d		
triangle e		
triangle f		

4. Triangles a & d

5. Triangles a & e

6. Triangles a & f

7. Triangles f & b

8. Triangles c & d

Scale drawings

Artifacts



Object biography - A dog in the house

This clay dog figurine (Fig. 3) was discovered in Sai. The figurine has a black-painted collar and black spots on its body. This figurine is highly unusual and a unique find in Sai. Was it used by someone who really loved dogs? Or someone who left their dog in Egypt and wanted to keep a souvenir of it? The collar indicates that the dog was considered a pet, belonging to a household, family or person.

Dogs were present in Sai, and perhaps this is what inspired the production of this object. Objects like this allow us to reflect on the effects that animals have had on people.

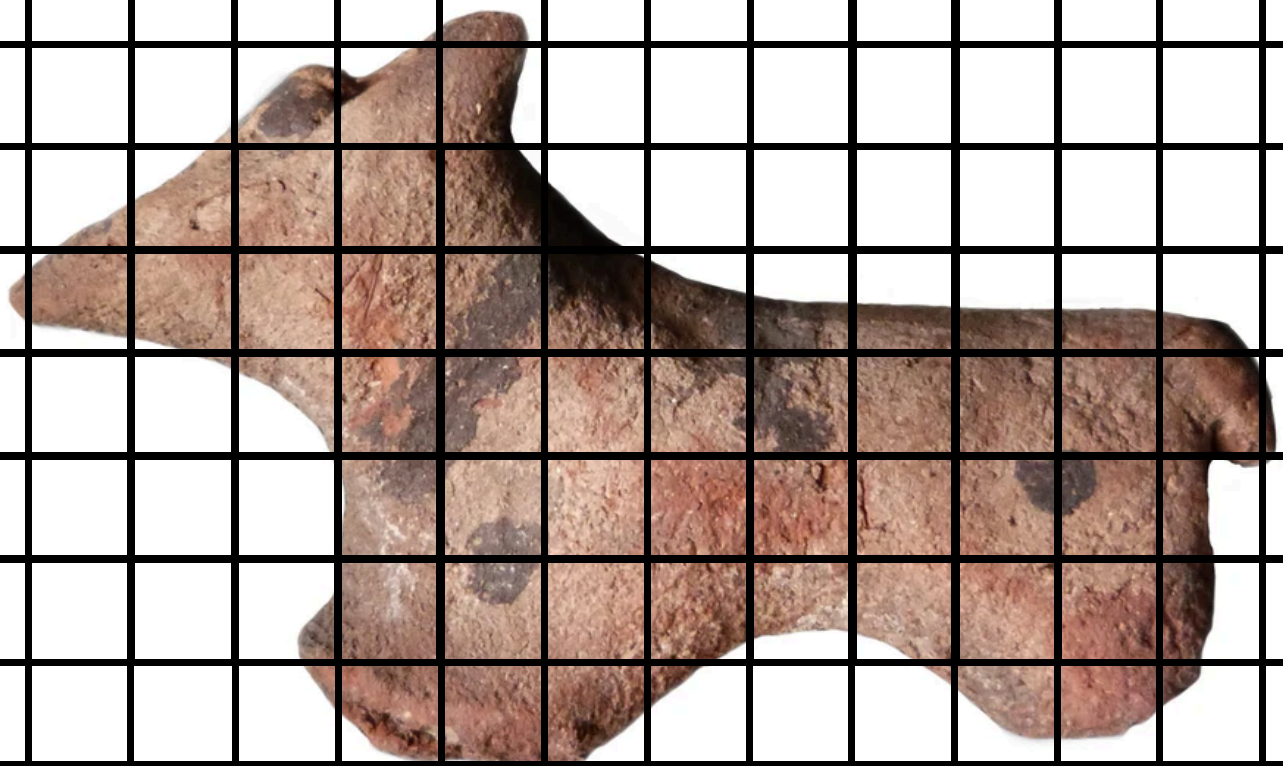


Fig. 3 Clay dog figurine, found in the town of Sai. Courtesy of AcrossBorders.

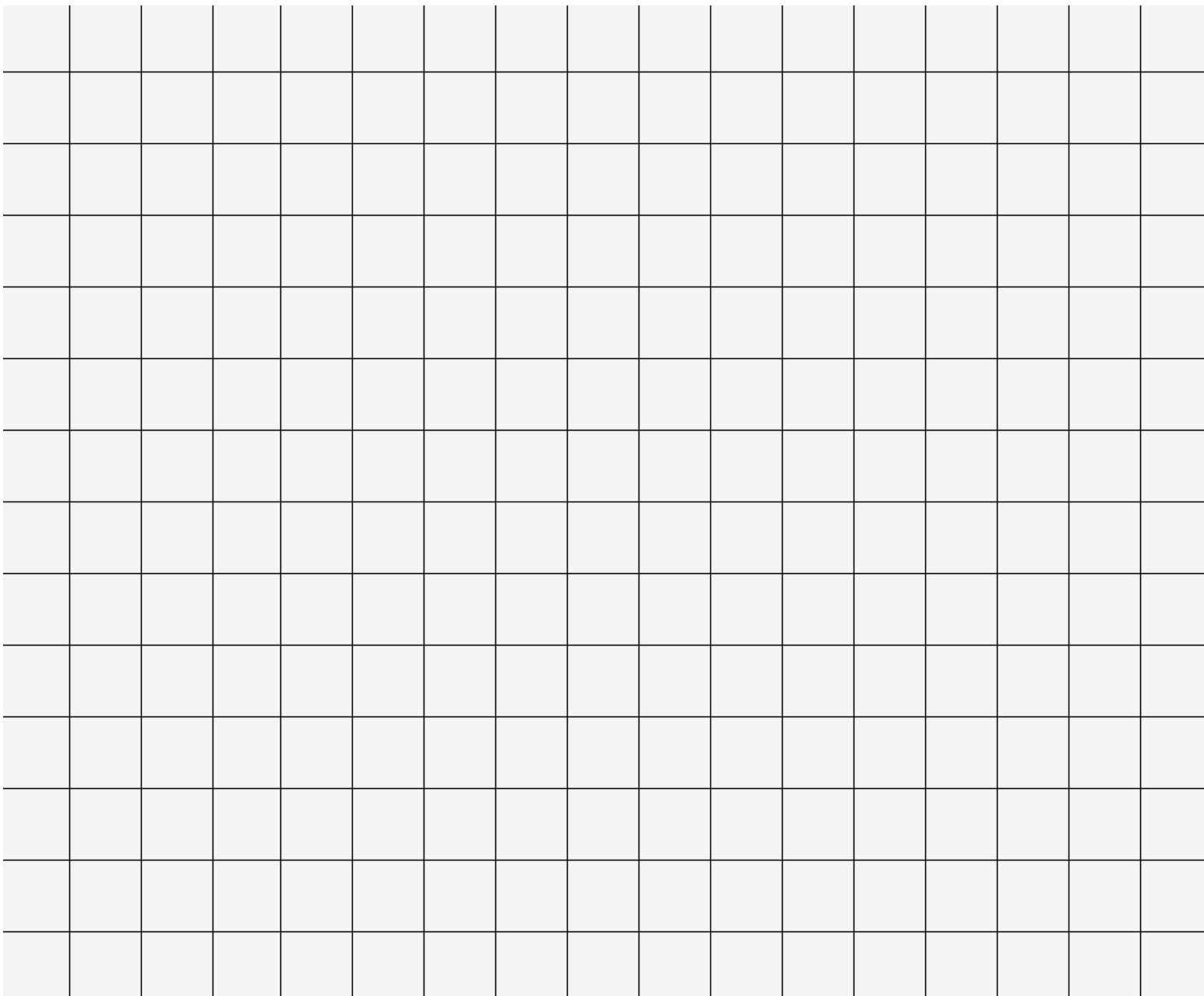
Scale drawings - your turn

Artifacts

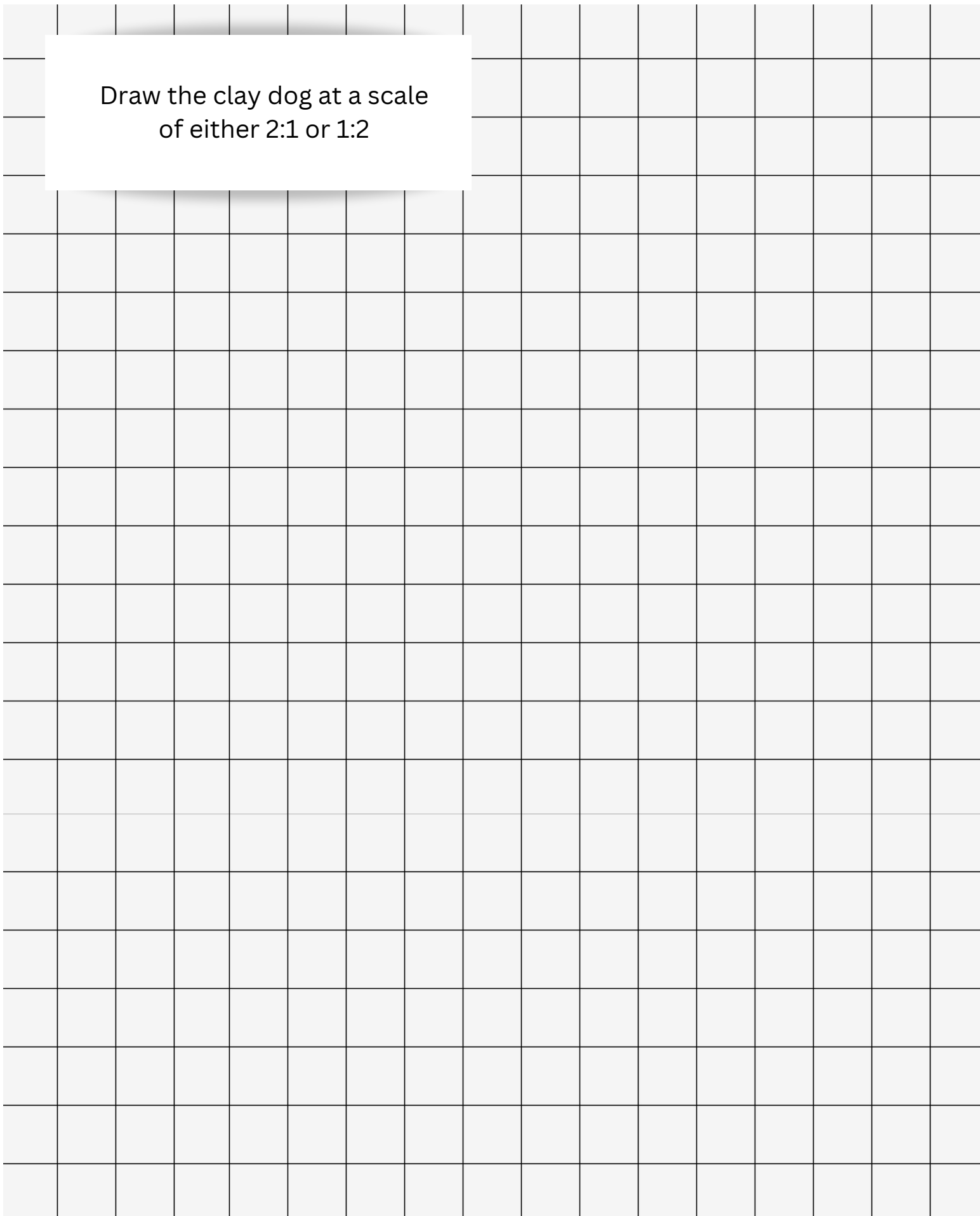


The image of the clay dog found at Sai is covered with squares, each equal to 2.5 cm or 25 mm.

1. On the original drawing, choose a square as a starting point. It's helpful to choose a square with part of the artifact's outline.
2. Find the corresponding starting point on the sheet below.
3. Recreate the same shape. Use the lines to help you shrink the drawing.

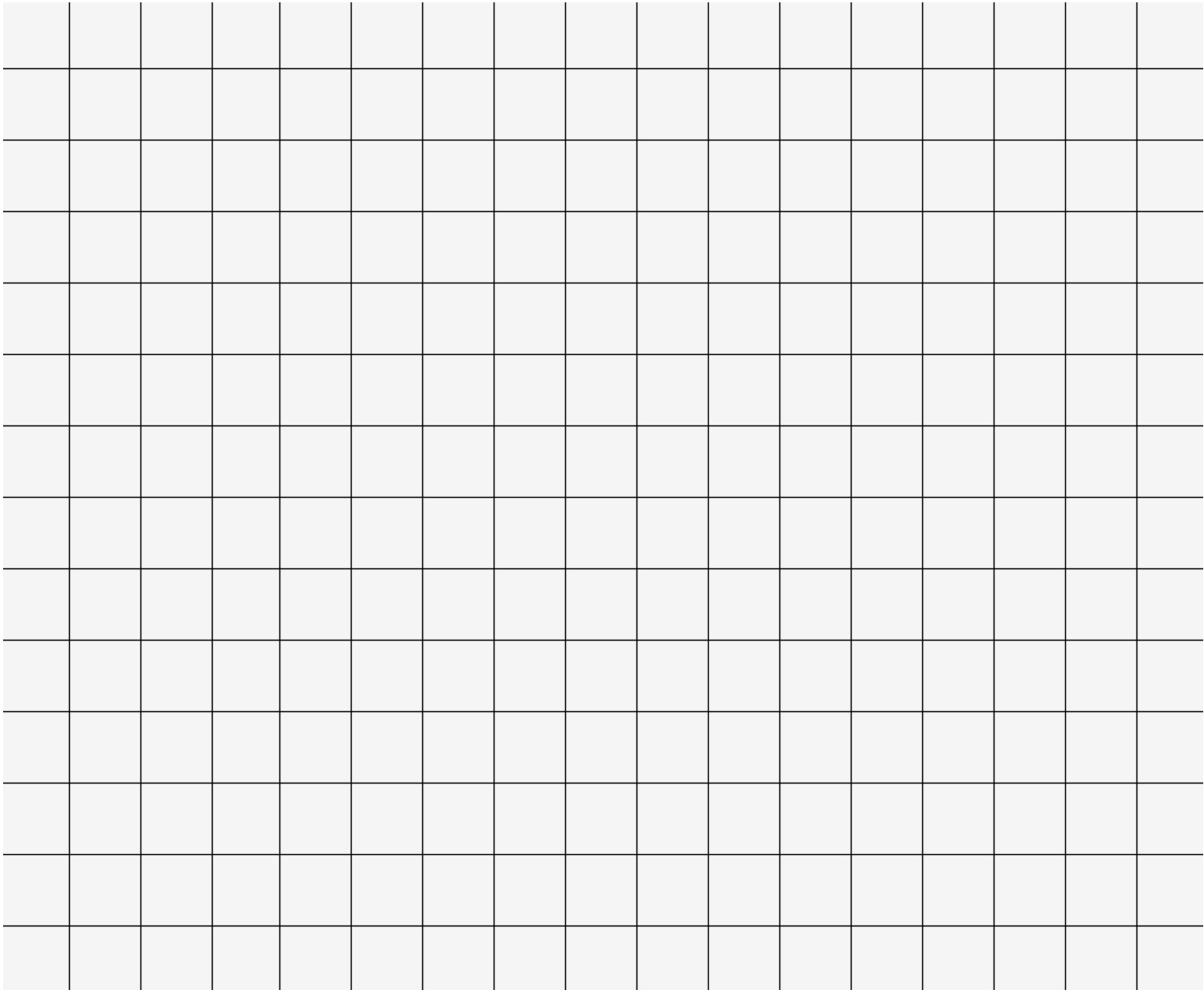


Draw the clay dog at a scale
of either 2:1 or 1:2





This gold ring was found in a goldsmith's tomb in Sai. Draw the ring to a scale of 1:1 (actual size) and 1:3 (3 times the actual size).



Calculating distances



The Nile is the longest river in the world. It flows through northeast Africa for some 6,650 kilometers. The great civilization of ancient Egypt developed on its banks.



Ancient cities, like Sai, had multiple functions: they controlled and exploited resources and played an important role in river trade routes. The ancient Egyptians had many types of sailing and rowing boats.

The Nile cataracts (#1-6) created rapids in the river which were difficult to navigate and held a strategic value. Five cataracts were found outside Egypt's borders. The cataracts are important for ancient borderscapes throughout the ages and were used by different groups and cultures.



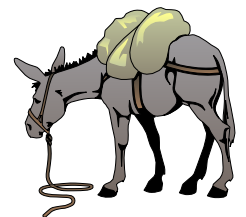
1. Calculate the length of the Nile between the Mediterranean Sea and the capital of Thebes (the star). (Please note! The map is enlarged, so the scale is different from page 2!)

2. Calculate the length of the Nile between the capital Thebes (the star) and Sai City.

3. If you wanted to make the exchange with the town of Sai, the cataracts would have caused you difficulties! Imagine you've arrived at the Nile delta with 2 x 10kg bags of goods.

Using the map, plan the best route between the Mediterranean Sea and Sai City. You can make part of the journey by donkey or by boat.

1. How far is each leg of the journey?
2. How long would it take? Why or why not?
3. Explain your choices and show all your mathematical calculations.





Donkey - 7 km/h,
max: 5 to 8
hours/day
Row boat - 2 to 4
km/h
Sailing ship- 15
km/h



Reading: Drawing Inferences



Archaeologists can use **archaeological elements** to reconstruct daily life in the past. Read the story about Sai City. What details in the story tell us about life in Sai at the time? What inferences can you make from the text?

Detail (Quote or summarize)	Inference
<i>“the sound of the town was obscured by its massive fortification walls towering above her and reaching nearly 9m in height.”</i>	<i>Maybe there was war or conflict because they needed thick, tall walls around the city.</i>

Would you have liked to live in Sai? Why? Or Why not? Use details from the text to justify your answer.

A Day in Sai

A girl in the town of Sai woke up. The room was dark. Its windows were small to keep the heat, sand, and wind out. Still, the sand got everywhere, and the room needed to be swept daily! As she woke up, the girl realized something was different. Hmm, what was it? Something was missing ...ah yes! She was normally woken up every day by her dog and his wagging tail. But not today. She wondered where he was.

The girl dressed and searched for the dog. But she quickly realized that the house was empty. Ah! That must be it, she thought. Her mother must have taken the dog with her. That would make sense. After all, he was a working dog, helping to herd the goats, as well as a pet. So she thought she would go out and investigate. She left the house, entering the small lane leading towards the south, which was still in shadow despite the morning sun.



Virtual reconstruction of a house in Sai City from the southern enclosure wall, Image: Carl G. Elkins.

Almost immediately, she had to squeeze past her neighbor walking the other way in the very narrow opening between the house and the serpentine wall just outside it. Soon she would be too big to get through so easily, like adults who could only pass one at a time! She turned left and quickly reached a square pillar in the middle of the street near the southern gate and headed out of the town.

Now outside, beyond the southern gate, the landscape opened up, and the sound of the town was obscured by its massive fortification walls towering above her and reaching nearly 9m in height. From here, the girl could see the River Nile, which surrounded the island. Her mother was easy to spot in the distance, tending to the goats. The girl walked towards her, attempting to wave away the nimiti (tiny black flies) as she walked.

“Have you seen my dog?” she asked her mother, but she already knew the answer—if he had been around, he would have come bounding towards her!

Her mother said she hadn’t seen him and seemed surprised he would have left the town alone. She told her daughter to head back into town to find him, but not before delivering some goat dung to the potters on her way back. They needed it to mix into the clay they used to make pots. Dung is a common tempering material for pottery (even nowadays) and necessary to increase plasticity in Nile clay.

Now closer to the western gate, the girl followed her mother's advice and returned to the city. This was the main entrance to the town, and the path was busier, leading straight to the temple where many officials and administrators worked.

She kept quiet as she passed the mayor's large house. She hoped her dog hadn't snuck in there. Important officials from Egypt were visiting to discuss the local gold production!



Virtual reconstruction of a house in Sai City from the southern enclosure wall, with the mayor's imposing house on the left and the rear of a block of houses on the right. Image: Carl G. Elkins

The girl turned towards the north of the city with its three-roomed houses. One was currently under construction, and she had to swerve to avoid the piles of wooden beams and mudbricks.

The young girl wandered back to the western part of the city with its many workshops. This was a busy part of town where a dog could easily go missing!

"Hello there," said a man. It was her uncle, and he was grinding quartz. He was one of the goldsmiths and had just returned from an expedition. She hadn't realized he was back!

Although she was happy to see her uncle, the dog was her only concern. Still, no one had seen him, so she continued her search. But as she left, she heard her uncle coughing. He seemed tired and thinner than he was when she last saw him. She hoped he was just exhausted from his trip and was not ill.

The girl was getting very worried now! She still hadn't found her dog. It was getting dark, and the goats and sheep that had been grazing outside the city walls were being herded back into town. Their hooves stirred the dust, and their scent filled her nose as she anxiously waited for them to pass. She continued to search, looking into the houses and courtyards, constantly calling for her dog above all the noise.

As she entered one of the courtyards, the girl was hit by the smell and sound of pigs. She almost tripped over the broken piece of stone used to keep them in. Looking up, she noticed that one of the animals in the pen didn't look much like a pig. As she got closer, she realized it wasn't a pig! It was her dog curled up and sleeping in the pen. Clearly, he had made some new friends. But as she got closer, he woke up and quickly ran towards her. He jumped up and covered her in muddy paw prints, making her laugh. She was still his best friend!



Virtual reconstruction, showing the possible pig pens next to a villa in the southern part of Sai City during the late afternoon. Image : Carl G. Elkins

And so the delighted girl and her best friend wandered back home together, although to be safe, she led him gently by the collar, especially as they passed hunting cat. As she got closer to home, she heard her mother shouting for her to hurry up. Dinner was ready, and she shouldn't be late! After their long day, the girl and the dog returned home near the southern gate for a delicious meal of freshly caught fish.

Walking Through History

Writing Activity



Historical fiction uses research about past events, people, and places as inspiration for new stories. Write a short scene similar to *A Day in Sai* about someone walking through a historical site with a purpose. In the story, *A Day in Sai*, the girl is looking for her dog and is successful in the end. What is your character doing? Will they be successful?

1. Research and find inspiration in history for a short scene like *A Day in Sai*
2. Write a description of someone walking through the setting for a purpose based on your research. (*A Day in Sai* is approximately 1000 words long. The purpose: The girl is searching for her dog.)
3. Keep all your notes and all your versions to hand in at the end of the assignment! Use this page for planning.

Character: Who is walking through your scene? Age, gender identity, class, occupation etc? Include the details that matter to the scene!

Purpose: Why are they walking through the city/site/setting? In the story, *A Day in Sai*, the girl is looking for her dog. What is your character doing?

Emotions: How does your character feel about their 'mission'? How does that change how they move, what they notice, what they experience?

Setting: Where is your character and when? Ex. Sai was an Egyptian city in Nubia in 1450 BCE.

Research: What does the site look like? Think about the types of details we found in the story about Sai City:

- Building styles
- Street /city layout
- Special buildings (temples, mayor's house, pig pen...)
- Food
- Industries/technology(goldsmithing, fishing, pottery...)
- Climate
- Daily life
- Other

Resolution: Is your character successful?

Images and text about Sai City adapted from:

Budka, J., Ward, C. & Elkins, C.G. (2023) A Day on the Nile: Living in a Town in Nubia. *African Archaeological Review* 40, 555–566. <https://doi.org/10.1007/s10437-023-09547-4>

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