

ENRICHMENT

Primary school grades 4 to 6

WORKBOOK FROM THE SERIES

Famous Buildings and Structures

Anne and Tim's Pyramid Adventure





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Dear Pupil

Welcome to the workbook “Anne and Tim’s Pyramid Adventure,” in which you will, together with Anne and Tim, explore the ancient Egyptian world of around 5,000 years ago. Today we can still see some of the massive pyramids that these ancient Egyptians built in the desert. However, although we know a lot about the ancient Egyptians, there remain many unanswered questions about why and exactly how the pyramids were constructed. In this workbook you will find a text about ancient Egypt and its pyramids, followed by exciting tasks. In these tasks, using the methods of the ancient Egyptians, you will find out how you can measure the base area of a pyramid and how you can direct the orientation of a pyramid to the north. There are also exercises in which you will learn both how to write in hieroglyphs and how to do calculations with Egyptian symbols. You can perform many of the tasks on your own, but there are also tasks that you can enjoy carrying out with one of your classmates.

The following materials may be used to solve the tasks:

- Historical books from your home or library about Egypt and the pyramids
- Storybooks, for example from the series "The Magic Tree House"
- Your tablet or computer
- A long piece of string or cord that you can knot
- A (piece of) wooden board that can be used as a slope

If something is not available, then please use your imagination. I am sure you will be able to find a good alternative!

In this workbook some difficult words that you might not fully understand are printed in bold **like this**. More information about these words can be found in a section at the end of this workbook called “Index” (page 45). Of course, you may always ask your teacher if you are not sure how to proceed. When you have finished your workbook, your teacher will check all your answers (with the help of an answer book) and give you feedback about your work.

So, now please go ahead and have fun!



Contents

1	Anne and Tim collect information about the pyramids	page 5
2	The development of the pyramids	page 11
3	Anne and Tim measure out a square area as the base for a pyramid	page 14
4	How do you form a right-angled triangle with a rope?	page 16
5	Do Egyptian calculations with Anne and Tim	page 20
6	How do you determine north with the help of the sun?	page 23
7	How do you determine north with the help of the stars?	page 25
8	How did the Egyptians know whether the ground was level?	page 27
9	Anne and Tim move the first heavy stone	page 28
10	Discover with Anne and Tim what friction is	page 31
11	Anne and Tim build the first and second level of stones	page 37
12	Now it's becoming a real pyramid!	page 39
13	Anne and Tim did it!	page 43
	Feedback from your teacher	page 44
	Index	page 45

Anne and Tim collect information about the pyramids



Anne and Tim are siblings who live in an old house in a little village surrounded by meadows with apple trees. Today they are not really in the mood to enjoy the surroundings. "We must hurry up. We're late for school," calls Tim early in the morning. "Oh no!" says Anne, "I

really don't want to go to school today, because we have history. I find it so difficult to understand what the teacher tells us." She heaves her schoolbag onto her shoulders and reluctantly follows Tim. "I wish I could travel back in time," says Tim, "so I could see what the world really looked like back in the past." "That would be great," agrees Anne. During class, Anne keeps thinking about what Tim said. After school time, on their way back home, she turns to Tim and says, "You know, we could build a pyramid in our garden just like the ancient Egyptian people did." "That's a great idea!" exclaims Tim, "Let's start right now." "But just a small pyramid," Anne adds, "since we don't have enough space for a big one." "We first have to get a good picture of how the ancient Egyptians lived at that time," replies Tim. So as soon as they arrive home, they run to their rooms and start searching for books about the pyramids.

Exercise 1.1

Join Anne and Tim reading about ancient Egypt.

We have already collected some information for you.

Egypt during the time of the pharaohs

More than 5,000 years ago, the people living in Egypt developed into an important civilization that existed right up until Roman times. These ancient Egyptians honoured their powerful rulers (called **pharaohs**) so much that they built them very special, huge stone tombs. At Giza in Egypt we can still see many of these large structures and, because of their shape, we now call these tombs "pyramids". Even for us, with all our modern knowledge, it is very difficult to imagine how they managed to build large stone structures in those ancient times. So far, unfortunately, no construction plans have ever been found. So, how

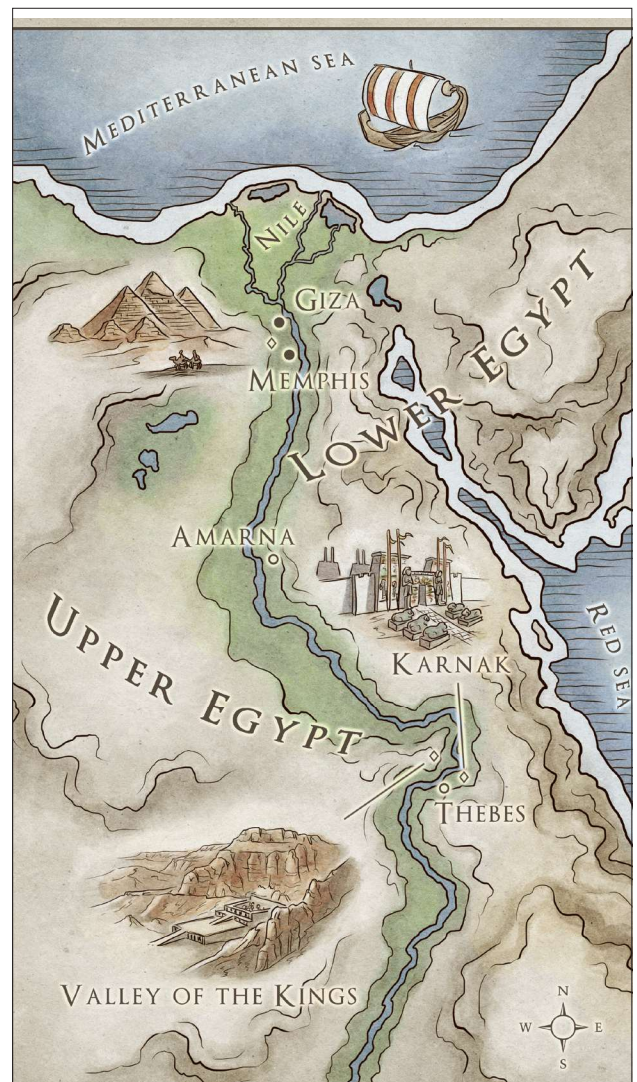
build enormous pyramids? In those days there were no cranes or any other complicated construction equipment like we have today. Yet, without machinery and using only simple tools, they managed to **quarry** out blocks of stone weighing many tons. They then transported these heavy blocks, sometimes over long distances, to the building site. There they raised these blocks, one on top of the other, to form the massive structures. Because it is so impressive, the largest of the pyramids at Giza, called the Pyramid of Cheops, is one of the **Seven Wonders of the Ancient World**. Today many tourists travel to Egypt to visit the pyramids and the many other marvellous ancient Egyptian monuments that still exist.

Where in Egypt are the pyramids?

Egypt is located in the north-eastern part of Africa in the hot and dry Sahara Desert. The very long river Nile flows through Egypt and this desert. At its mouth, the Nile streams into the Mediterranean Sea. In ancient times, the fields along the Nile were very fertile, because each year the Nile flooded over its banks. The ancient Egyptians could grow plenty of food in these riverside fields for themselves and their animals. For that reason, Egypt was a very rich country in the time of the pharaohs. To the right you see a picture showing the best-known pyramids. They are located quite near Cairo, the present capital city of Egypt, on the outskirts of the city of Giza. All the pyramids were built on the west side of the Nile, but to this day we still do not know why they were built only on that side of the river.

How many pyramids existed in the ancient Egyptian period?

Archaeologists currently believe that more than 100 pyramids were built, but that many of them no longer exist or have become ruins. You have to bear in mind that 5,000 years is a very long time, during which buildings can deteriorate, be destroyed, and even disappear into the desert sands. Nevertheless, close to the city of Giza an important group of seven large pyramids still exists. Pharaoh Cheops ruled from 2,620 to 2,580



BCE. During this period, he ordered the building of a massive pyramid with a **square base** measuring 230 by 230 metres and with a height of 146.6 metres (the size of a skyscraper!). The Pyramid of Cheops consists of 2.6 million **limestone** blocks! He wanted to build a pyramid that was even larger and more beautiful than that of his predecessor, his father Sneferu. And that he did! The building of his pyramid took approximately 20 years.

Exercise 1.2

Search the internet for a YouTube film about Egypt and the pyramids and watch this film. Describe which film you have chosen and mention three things that you learned from it.

I chose the film: _____

I learned the following three things from this film:

- 1 _____
- 2 _____
- 3 _____

The step pyramid

The next stage in pyramid design was the step pyramid, which has a square base. The first pyramid of this type was built around 2,650 BCE and was made of limestone blocks. An example is the Djoser Pyramid (built for Pharaoh Djoser) that has a height of 62.5 metres. In a way, it can be seen as a follow-up to a mastaba pyramid with several extra levels (each smaller than the one before) added on top.



The bent pyramid

After the step pyramid, the development of pyramid building continued, eventually evolving under Pharaoh Sneferu into the bent pyramid. In this type of pyramid, there are sloping sides that become much less steep at a point near the top. It really looks as though the sides of the pyramid have been bent. The pyramid is made of limestone, with rough blocks on the inside and polished pieces attached to the outside to provide a smooth, shiny surface. We still do not know why the top part of the pyramid is bent. It could be that a problem arose during the construction period, and that this forced the builders to reduce the slope of the pyramid's sides. Another reason could be that pharaoh Sneferu died sooner than expected, causing the builders to change the slope in order to finish the pyramid as fast as possible.

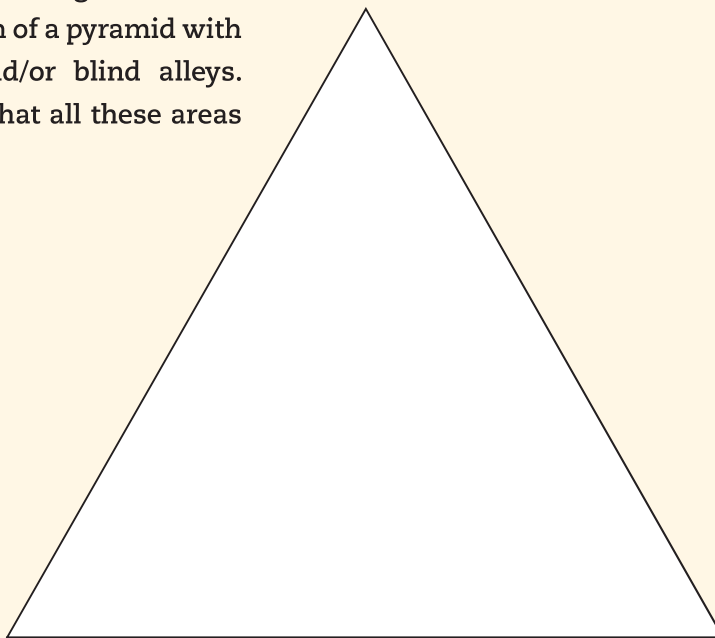
The final pyramid form as we know it

Finally, the ancient Egyptians developed techniques allowing them to build pyramids with the perfect shape we all recognize today. The sides were covered with white limestone from the Tura stone *quarry* (see Chapter 9), so that they were smooth and shining white. Due to this white outside covering of the pyramid, you could have seen the pyramid even from far away, shining in its splendour. Unfortunately, later on in time, many of these limestone plates were removed by robbers, and even the topmost piece of the Pyramid of Cheops was stolen.



Exercise 2.2

Draw a cross-section showing the inside structure of the final form of a pyramid with chambers, corridors, and/or blind alleys. Indicate in the picture what all these areas were used for.



Exercise 2.3

Search the internet for a YouTube film about a mini robot moving inside the **Pyramid of Cheops** and watch this film. In the last few years, by using a small robot with a camera, it has been possible to enter much farther than before into the interior of this pyramid. As a result, new discoveries have been made! What were they? Please write them down.
