



## Investigation 8 Pyramids and pharaohs

A museum curator has asked you to create a diorama for the museum's new Egyptian display. Your 3D scale model needs to accurately represent the Egyptian pyramids at Giza. Guarded by the famous Great Sphinx, these pyramids were built for the pharaohs Khufu, Khafre and Menkaure.

The museum's display also requires a timeline of Ancient Egyptian history to show when the pyramids were constructed.



### Topics

Before you start the Investigation you need to know...

- NA19** Multiplication of decimals.....p68
- MG1** Metric system of measurement.....p80
- MG4** Investigating squares and rectangles.....p86
- MG8** Timelines.....p94

- MG10** Nets of prisms and pyramids.....p98
- MG11** Skeletal models .....p100
- MG13** Measure angles  $0^\circ$ – $360^\circ$  .....p104
- MG15** Using scale.....p108

## Understanding the Investigation

### I Read and plan.

Make sure you understand the meanings of: *diorama*, *curator*, *base*, *tabs*, *kingdoms*, *dimensions*, *dynasties*, *authentic*, *Giza*, *Great Sphinx* and *pharaohs*.

Read and discuss the rubric.

Download your Investigation plan. This will help you with the organisation and understanding of the Investigation.

### Teacher note

- Comprehensive lesson notes, suggestions and resources are available in *iMaths 6 Teacher Book*.
- The Investigation plan and Data page for this Investigation can be downloaded from [www.imathsteachers.com.au](http://www.imathsteachers.com.au).



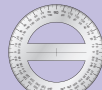
Internet access



Data page 1



Calculator



Protractor



Library



A3 card



Craft materials

## 2 Research the pyramids at Giza.

Research the pyramids at Giza to find information that can be used on your timeline. Ask your teacher to enlarge **Data page 1**, *The pyramids at Giza site map*, on page 163. When enlarged to A3 size, the pyramid site will give a scale of 1 cm = 43 m (1:4300). This is your diorama base.

**imathskids.com.au**



Go to **imathskids.com.au** – the Investigation 8 area contains the Investigation plan, websites and Data page that you need to complete this Investigation.

## Using maths

### 3 Construct three scale models.

To construct each pyramid, first measure the square base of each pyramid on your A3 site map. Draw these bases on pieces of card. The table on the right gives you the angles you will need to use to draw the triangular faces of the pyramids. Refer to the diagram on the right and draw the three nets. Draw tabs on the nets to allow them to be glued after folding. Construct the three pyramids.

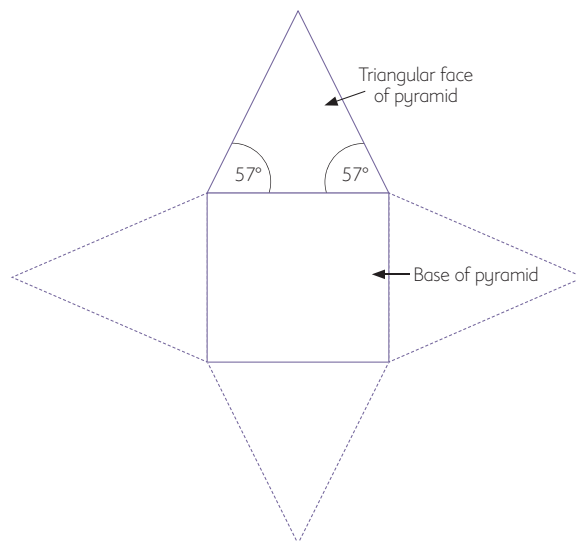
Angles of triangular faces of pyramids

Pyramid	Angle of face
Khufu	57°
Khafre	58°
Menkaure	58°

### 4 Calculate the dimensions of the pyramids.

Use your models and scale (1:4300) to calculate the actual height and base length of the pyramids at Giza. For example, if the height of your model pyramid is 3.5 cm, the actual pyramid will be 150.5 m ( $3.5 \times 4300 \div 100$ ).

Using the same scale, you may also like to make The Great Sphinx and the Queens' Pyramids from plasticine or clay. Place the models on your diorama.



### 5 Create a timeline.

Create and label a timeline using appropriate time intervals to show when the pyramids at Giza were constructed. Your timeline should extend from 3000 BC to 500 BC and include the major dynasties and kingdoms.

## Reasoning and reporting

### 6 Present your diorama and timeline.

Present the Pyramids at Giza diorama and timeline. Compare the dimensions of the pyramids you calculated from your models, with the dimensions given on the websites listed at **imathskids.com.au**. Give reasons for any differences. Explain how you could improve the accuracy of your model pyramids.

### Inquiry

Based on the actual dimensions of the pyramids, could any have been built in your school grounds? Provide proof.