

Khufu's Pyramid

Summary

Students will apply their knowledge of 3-D shapes to study and construction of square pyramids.

Main Core Tie

Mathematics Grade 6

[Strand: GEOMETRY \(6.G\) Standard 6.G.4](#)

Time Frame

2 class periods of 45 minutes each

Group Size

Pairs

Life Skills

Communication

Materials

Task Sheet
Unlined paper
Graph paper
Rulers
Multiplication charts
Calculators
Geometric solids

Background for Teachers

Teachers will need a working knowledge of the history and construction of pyramids.

- [Curriculum Guide for Grade 6 for Geometry Standard 4](#)

Student Prior Knowledge

Students need a working knowledge of the use and formation of geometric nets, surface area, and 3-D shapes.

Intended Learning Outcomes

Represent three-dimensional figures using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures. Apply these techniques in the context of solving real world and mathematical problems.

Design a 3-D model(net) and use it to represent the surface area of a square pyramid.

Strategies for Diverse Learners

Teachers can use the following guiding questions to support struggling students:

What shapes do you see?

What do you need to figure out to restore this pyramid?

Is there anything you already know that can help you solve this problem?

Explain your partner's strategy to me.

What other kinds of work may require you to use this type of calculations?

How does the base of the square relate to the base of the triangle

Access for all students:

Low: Access to multiplication charts or calculators, geometric solids, prior experience calculating area of triangles and squares

High: Calculate surface areas of additional pyramids of different sizes

Extensions

King Khafres pyramid is located next to King Khufus' pyramid in Giza. Although this pyramid is similar, the measurements are different.

If a similar restoration project was undertaken on this pyramid. What would be the surface area to cover? <http://www.repertorium.net/rostau/measures.html>

Because of carbon dioxide damage, the chambers within Kin Khafre's pyramid are being coated with glass or some other protective surface to reduce oxidation. (Using a computer) Choose a chamber from King Khafre's pyramid using the website:

<http://www.repertorium.net/rostau/measures.html> Find out how much area will need to be covered.

Bibliography

Adapted from: Smith, Margaret Schwan, Victoria Bill, and Elizabeth K. Hughes. "Thinking Through a Lesson Protocol: Successfully Implementing High-Level Tasks." *Mathematics Teaching in the Middle School* 14 (October 2008): 132-138.

Authors

[Heather Jensen](#)

[ROCHELLE PINNOCK](#)

[DAVID SMITH](#)

[Patricia Stephens-French](#)