

# Scale Model of the Great Pyramid

You can build a model of the Great Pyramid, but first you need to scale it down. To do this, you will need to make the pyramid 3,000 times smaller than it really is! To achieve that, every 30 meters of the pyramid is represented as 1 centimeter.

Object	Actual Height	Scale Height (1 cm = 30 m)	Object to represent scaled-down height
Great Pyramid	146.5 m	4.9 cm	paper pyramid
Statue of Liberty	92 m	3 cm	small paper clip
Sears Building	443 m	14.8 cm	ball-point pen
Average person	1.7 m	.05 cm (.5 mm)	grain of salt
Eiffel Tower	300 m	?	?
Leaning Tower of Pisa	55 m	?	?

Try finding the scale heights for other objects, such as the tallest building in your neighborhood, your home, or your height. To do this, divide the object's height in meters by 30 to get its scale height in centimeters. Then find an object to represent it next to your paper pyramid.

## Now it's your turn to scale a pyramid!

We've scaled down the Great Pyramid for you. Now it's up to you to see if you can create scale models of the other two pyramids on the Giza Plateau, Khafre and Menkaure. Here are their actual dimensions:

### Khafre

- Base: 214.5 m on each side
- Height: 143.5 m tall
- Angle of Incline: 53 degrees 7' 48"

### Menkaure

- Base: 110 m on each side
- Height: 68.8 m tall
- Angle of Incline: 51.3 degrees

## Instructions for Pyramid

Scale: 1 cm = \_\_\_\_\_ m

Step 1: Divide the base measurement in meters by 20, 15, 10, or 5 (this will scale the base down to centimeters)  
-since the base is a perfect square all four sides will be the same length

Step 2: Divide the Height measurement in meters by 20, 15, 10, or 5 (this will scale the height down to centimeters) The number you choose should be the same as the base.

Step 3: After you determine how many centimeters one side of the base is you will need to draw that square base in the **middle** of the tag board.

Step 4: After you determine the Height (step 2) in centimeters you will need to find the center point of each side of the base (mark it with a dot). You will then draw your height line straight out to the length you determined in Step 2.

Step 5: Look at the diagram below to see how they joined all the points together.

Cut the pyramid out and glue together (helpful hint: include tabs on the sides so that you have something to put glue on).

The diagram below is an example of a pyramid that used a scale: 1 cm=20 m

