

Deep Space Math

Activity 2 - Toilet Paper Solar System

Earth is approximately 150 million kilometres away from the Sun. Pluto is 4.4 billion kilometres away from the Sun. These distances are so vast that they are sometimes difficult to imagine. In order to give you a better understanding of the distances between planets, you're going to build your own model of the Solar System using a roll of toilet paper!

To complete this activity you will need: a tape measure, a roll of toilet paper and a variety of coloured markers.

Astronomers measure distances by astronomical units (AU). One AU is equal to 150 million km. For this activity 1 AU will equal 90 centimetres.

Given the average distance from the Sun in km, what must you do in order to accurately reduce the distances between the planets so that they fit onto your toilet paper roll? On the following page is a chart to help you get started. The first two are done for you.



Can you believe THIS is math?

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Activity 2 - Toilet Paper Solar System - *continued*

Planet	Average Distance from the Sun (km)	Average Distance from the Sun (AU)	Distance from the Sun in Toilet Paper (cm)	Distance From Next Planets (cm)
Sun	-	-	-	35
Mercury	58,000,000	0.39	35	30
Venus	108,000,000	0.72	65	25
Earth	150,000,000			
Mars	228,000,000			
Jupiter	778,000,000			
Saturn	1,426,000,000			
Uranus	2,877,000,000			
Neptune	4,508,000,000			

Activity Questions:

1. If 150,000,000 km is equal to 1 AU, how will you figure out each planet's average distance from the Sun in AU? If, for this activity, 1 AU is equal to 90 centimetres, how will you determine the number of centimetres between each planet?
2. Once you have made all of your calculations, use your tape measure to measure each planet's distance from the Sun. Draw and label each planet in its proper location on the toilet paper. You're going to need lots of space! Good luck!!

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