

Lesson 3.02

Deep Dive: Scaling the Solar System

Geometry GT

Task #1

Today we will make scale drawings of the planets in the solar system and their distances from Earth. To begin, a circle with a diameter of 2 cm represents Earth.

You will be assigned three planets. Complete the corresponding rows in the table below.

Planet	Average Diameter (km)	Average Orbit Radius (km)	Scaled Diameter (cm)	Scaled Orbit Radius (cm)	Scaled Distance from Earth (cm)
Mercury	4,879	57,900,00			
Venus	12,104	108,200,000			
Earth	12,756	149,600,000	2.000		
Mars	6,792	227,900,000			
Jupiter	142,984	778,600,000			
Saturn	120,536	1,433,500,000			
Uranus	51,118	2,872,500,000			
Neptune	49,528	4,495,100,000			

Do you believe it is possible to complete a scaled drawing in class? Explain your reasoning.

Task #2

Let's try this again, but imagine that the Earth is about the size of the period at the end of this sentence, which is about 0.3 mm in diameter.

You will be assigned three planets. Complete the corresponding rows in the table below.

Planet	Average Diameter (km)	Average Orbit Radius (km)	Scaled Diameter (mm)	Scaled Orbit Radius (mm)	Scaled Distance from Earth (mm)
Mercury	4,879	57,900,00			
Venus	12,104	108,200,000			
Earth	12,756	149,600,000	0.3000		
Mars	6,792	227,900,000			
Jupiter	142,984	778,600,000			
Saturn	120,536	1,433,500,000			
Uranus	51,118	2,872,500,000			
Neptune	49,528	4,495,100,000			

Can the new scale model fit inside the classroom?