

A Walk through the Solar System

Background Information for the Teacher:

[Note: the distances and diameters of each planet can be found through *Windows to the Universe* –

http://www.windows.ucar.edu/tour/link=/our_solar_system/planets.html]

The Scale

	Real	Model
Earth's diameter	7,953 miles ≈ 8,000 miles in diameter	8/100 inch in diameter
Sun's diameter	864,900 miles (we'll round down for an easier scale) ≈ 800,000 miles in diameter	8 inches in diameter
Scale is:	100,000 miles	1 inch
Miles to inches	3,600,000 miles	36 inches
Sun-Earth distance	93,000,000 miles	930 inches == 26 yards

The Distances

$$\frac{100,000 \text{ miles}}{1 \text{ inch}} = \frac{\text{Dist(miles)}}{x \text{ Inches}}$$

Distance from...	Real (approx. miles)	Scaled to model (inches)
Sun to Mercury	36,000,000	360 inches == 10 yards
Mercury to Venus	31,000,000	310 inches == 9 yards
Venus to Earth	26,000,000	260 inches == 7 yards
Earth to Mars	49,000,000	490 inches == 14 yards
Mars to Jupiter	342,000,000	3420 inches == 95 yards
Jupiter to Saturn	403,000,000	4,030 inches == 112 yards
Saturn to Uranus	897,000,000	8,970 inches == 249 yards
Uranus to Neptune	1,011,000,000	10,100 inches == 281 yards

The Diameters

$$\frac{100,000 \text{ miles}}{\text{inch}} = \frac{\text{Diameter(miles)}}{x \text{ Scaled Diameter(inches)}}$$

Object	Real Diameter (miles)	Diameter Scaled to model (inches rounded to the nearest hundredth)
Sun	800,000	8.0
Mercury	3,031 \approx 3,000	0.03
Venus	7,521 \approx 8,000	0.08
Earth	7,926 \approx 8,000	0.08
Mars	4,222 \approx 4,000	0.04
Jupiter	88,729 \approx 89,000	0.89
Saturn	74,600 \approx 75,000	0.75
Uranus	32,600 \approx 33,000	0.33
Neptune	30,200 \approx 30,000	0.30

Create the Sun and planets:

Sun – 8 inches in diameter

Mercury – 0.03 inches in diameter

Venus – 0.08 inches in diameter

Earth – 0.08 inches in diameter

Mars – 0.04 inches in diameter

Jupiter – 0.89 inches in diameter

Saturn – 0.75 inches in diameter

Uranus – 0.33 inches in diameter

Neptune – 0.30 inches in diameter