

Chapter 8: Lab *(continued)*

Procedure

Make the Planets:

Be careful with the measurement of each planet. You are making a scaled model, so it is important to get the dimensions correct. The diameter and color for each object is in the table below. A different (smaller) scale is used for “Distance from Sun” in order to fit the model within a room. A distance scale that better matches the size scale is given in brackets for those who want to attempt displaying their model over a distance of 3+ miles (4,855 meters from the sun to the Kuiper belt).

Part of the Model	Size of Part	Distance from Sun	Notes
Sun	122 cm (48 in)		yellow, orange, red
Mercury	0.4 cm	4 cm [or 47.9 m]	gray or slightly brownish
Venus	1 cm	7 cm [or 89.4 m]	pale yellow, retrograde rotation
Earth	1.1 cm	10 cm [or 123.6 m]	blue with white clouds, tilted axis
Mars	0.6 cm	15 cm [or 188.3 m]	reddish brown with white ice caps
Asteroid belt	all much smaller in diameter than 0.4 cm	22 to 32 cm [or 342 m]	gray and brown (dirt)
Jupiter	12.7 cm	52 cm [or 47.9 m]	orange with white bands
Saturn	10.6 cm	95 cm (0.95 m) [or 1,184 m]	<ul style="list-style-type: none"> pale gold w/ white ammonia haze and reddish clouds except at the poles which are pale blue tilted like Earth ring
Uranus	4.6 cm	192 cm (1.92 m) [or 2,378 m]	<ul style="list-style-type: none"> pale blue axis on its side retrograde rotation
Neptune	4.4 cm	301 cm (3.01 m) [or 3,721 m]	pale blue
Kuiper belt	128.6-cm wide	edge starts at 400 cm (4 m) [or 4,855 m]	short-range comets and Pluto, crushed ice pieces

1. Form the four inner planets (Mercury, Venus, Earth, and Mars) out of inexpensive clay. Take the paper or plastic off the two wire twist ties. Stick a wire twist tie through the center of each of these four planets and cut off the twist tie so that there is about a half of a centimeter sticking out on either side of the planet. The small wired twist ties model the planets' axis of rotation.
2. Make Jupiter: Cut or break a skewer in half. Measure and then mark 2 cm from one end. Measure and mark 14.6 cm from this mark. Poke a hole on either side of a tennis ball. Stick the skewer through the center of the tennis ball. Position the skewer so that it is centered between the two marked sides. The skewers model the planets' axis of rotation. Build Jupiter close to the diameter listed on the chart by pressing clay around the tennis ball. Make it as round as possible. Let the clay dry overnight. Paint it or cover it with Playdough the next day to match the planet's color.
3. Make Saturn: Cut or break a skewer in half. Measure and then mark 2 cm from one end. Measure and mark 12.4 cm from this mark. Poke a hole on either side of a tennis ball. Stick the skewer through the center of the tennis ball. Position the skewer so that it is centered between the two marked sides. Build Saturn approximately the diameter listed on the chart using the clay. The skewer is marked at