

## **Play-doh Scale Models**

### **Materials**

- 3lbs of Play-doh (minimum quantity of Play-doh required for this activity)
- Paper
- Pens
- Rulers

### **1) Procedure: Earth - Moon**

1. Have students predict and make models of the size and distance of the MOON in relation to the EARTH.
2. Divide the Play-doh into 50 equal sized balls (as equal as possible). Choose an average sized ball and set it aside. Squash the other 49 back together. You now have the EARTH and MOON.
3. Now comes the relative distance. The distance between the EARTH and the MOON should be equal to 30 EARTH diameters.
4. Have students compare their original model with the scale model they just created. Get them to think about why they thought that before. (NOTE: the misconception of the relative size and distance between the EARTH and the MOON is due to perspective which comes from the photographs we have all seen of both. In order to get both the EARTH and the MOON in the same photo, one has to take a photo of them one in front of the other and slightly off to one side.

### **2) Procedure: Earth – Moon – Mars**

1. Divide your dough in half. One half is the EARTH.
2. Make seven balls out of the other half. One ball is MARS.
3. Take another one of the seven balls and divide it into seven. One of those is the MOON.
4. You can also do scales with this model...but MARS is far! If you used 3lbs of Play-doh for this model, the distance between EARTH and MARS would be 7 city blocks!

### **3) Procedure: Solar System**

1. Write the name of each of the nine planets on separate pieces of paper. Spread the labeled papers out on a table. This is where you will be placing the Play-doh to make each of the planets.

2. Make 10 equal balls. Squash 6 of them together...this will be JUPITER. Place the ball on the paper labeled JUPITER. Take another 3 and squash them together...this is only part of SATURN (you will add to SATURN two more times before the activity is over). Place the ball on the paper labeled SATURN.
3. Divide the ball of Play-doh that is left into 10. Squash 5 of them together and add them to SATURN. Take 2 and squash them together...this is NEPTUNE. Place the ball on the paper labeled NEPTUNE. Take another 2 and squash them together...this is URANUS. Place the ball on the paper labeled URANUS.
4. With the ball that is left, make 10 equal sized balls. Squash 9 of them together...add them to SATURN. SATURN is now complete!
5. Divide the remaining ball into 2. 1 is EARTH. Place the ball on the paper labeled EARTH.
6. Now is when things get tricky! Divide the ball that is left into 10. 9 of them make up VENUS. Place the ball on the paper labeled VENUS.
7. Make 10 balls out of the 1 that is left. Use 9 to make create MARS. Place the ball on the paper labeled MARS.
8. Divide the ball of Play-doh that is left into 10. 9 of them make up MERCURY (Place them on the paper labeled MERCURY) and the one left is PLUTO! Place the ball on the paper labeled PLUTO.

NOTE: Why isn't the Sun included in this activity? The Sun is so much larger than all of the planets that if you use a 3lb tub of Play-doh to make the 9 planets, it would take 980 tubs to make the Sun!