

**What is a model?**

**What's the biggest planet in our solar system?**

Draw all of the planets to scale on one sheet of paper. Draw Jupiter near the upper right and Saturn near the lower left. Then draw the other planets (and Pluto) in order (My Very Excellent Mother Just Served Us Nine Pizzas)

If we were to make all of the planets from this hunk of play-doh, what fraction (or percentage) of it would be used to make the largest planet?

This activity will help us to better understand the sizes of the planets compared to one another. The dwarf planet Pluto is included for comparison.

**1. Divide the entire ball of Play-doh into 10 equal parts**

You may find it easiest to start by rolling the ball into one big hot dog shape.

- Combine 6 parts together, roll them into a ball, and put the ball on Jupiter.
- Combine 3 parts and put them on Saturn.

**2. Cut the remaining part into 10 equal parts**

- Take 5 parts and combine them with Saturn.
- Combine 2 parts to make Neptune.
- Put 2 parts on Uranus.

**3. Cut the remaining part into 4 equal parts**

- Take 3 parts and combine them with Saturn.

**4. Cut the remaining part into 10 equal parts**

- Put 2 parts on Earth.
- Put 2 parts on Venus.
- Take 4 parts and combine them with Uranus.

**5. Combine the remaining 2 parts and cut into 10 equal parts**

- Put 1 part on Mars.
- Take 4 parts and combine them with Neptune.
- Take 4 parts and combine them Uranus.

**6. Cut the remaining part into 10 equal parts**

- Put 7 parts on Mercury.
- Take 2 parts and combine them with Uranus.

**7. Cut the remaining part into 10 equal parts**

- Take 9 parts and combine them with Uranus.

Modeling fosters understanding of the size of the planets.



- Put 1 part on Pluto.

How close are the sizes of the planets to your estimations?

What are some of the discoveries you made regarding the sizes of the planets?

The smaller planets (except Pluto) are the inner rocky planets, while the larger planets are the outer gas giant planets.

More than 96 percent of the combined volume of the planets is in Jupiter and Saturn (~60 percent in Jupiter and 36 percent in Saturn). Those giant planets really **ARE** giants.