

Astrology: Build a 3D Solar System Model Activity

Objective:

Students will create a 3D model of the solar system to understand the relative positions and sizes of the planets.

Hook:

Show a 3D model of the solar system. Ask the students, “How do you think the planets are arranged around the Sun?”

Key Facts:

1. The solar system consists of the Sun and eight planets.
2. Planets orbit the Sun at different distances.
3. The inner planets (Mercury, Venus, Earth, Mars) are closer to the Sun and are rocky.
4. The outer planets (Jupiter, Saturn, Uranus, Neptune) are farther from the Sun and include gas giants and ice giants.
5. The distance between planets is vast and often not to scale in models.
6. Moons orbit some of the planets.
7. The Sun is the largest object in the solar system.
8. Planets have different sizes, with gas giants being much larger than terrestrial planets.
9. The solar system also includes dwarf planets and asteroids.
10. Building a model helps visualize the relative positions and sizes of the planets.

Word Bank:

1. **Orbit:** The path a planet follows around the Sun.
2. **Scale:** A proportion that represents the relative sizes or distances.
3. **Dwarf Planet:** A small celestial body that orbits the Sun but does not meet all the criteria to be considered a full planet.
4. **Gas Giant:** Large planets with thick atmospheres, like Jupiter and Saturn.
5. **Ice Giant:** Planets with icy compositions, like Uranus and Neptune.
6. **Celestial:** Related to the sky or outer space.

Activity Instructions:

1. **Introduction (10 mins):** Explain the layout and characteristics of the solar system.

2. **Demonstration (10 mins):** Show how to build a simple 3D model of the solar system using materials like foam balls and sticks.
3. **Creation (30 mins):** Students will create their own 3D solar system models, making sure to represent the relative sizes and distances of the planets.
4. **Presentation (20 mins):** Students will present their models and explain the placement and size of each planet.
5. **Discussion (10 mins):** Discuss the challenges of representing the vast distances and sizes of planets in a model.

Materials Needed:

- Foam balls (various sizes)
- Paint or markers
- Sticks or wire (for orbits)
- Glue or tape
- Scissors

Riddle: I'm a model that shows where planets are in line, with the Sun in the middle, and sizes to define. What am I? (Answer: A 3D solar system model)

Comprehension Questions:

1. How does a 3D model help us understand the solar system?
2. What challenges did you face when creating your model?
3. How do the sizes and distances of the planets compare to each other?

Exit Ticket: Draw a labeled diagram of your solar system model and describe one feature that was challenging to represent.
