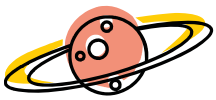
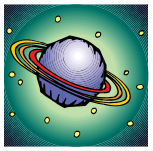
Where are They? Traveling to the Gas Giants

In this activity, you and your child will learn about the order and size of the four gas giants by using scale models of the planets.



What You Need:

- Poster Board
- Glue
- Scissors
- Crayons
- Images of Sun, Earth, Jupiter, Saturn, Uranus, and Neptune on cardstock
- Images of the Sun, Earth, Jupiter, Saturn, Uranus, and Neptune **to scale** on cardstock, or using poster board:
  - Sun: yellow poster board or butcher paper 110 inches across
  - Earth: 1 inch across
  - Jupiter: 11 inches across
  - Saturn: 9.5 inches across
  - Neptune and Uranus: each 4 inches across
- Dime
- Small peppercorn
- 180 foot long area (the scale of the planets and the distances in this activity can be adjusted; refer to: http://www.exploratorium.edu/ronh/solar_system/)
- The Solar System "I'm" Rhyme for Gas Giants

What to Do:

- Provide your child with the un-scaled images of the Sun, Earth, and Gas Giants.

  Ask your child if he or she can name the objects.

- Invite them to place the planets in order from closest to farthest from the Sun.

  Ask your child what is different about the pictures and the real planets. (Answers will vary, but may include that the real planets are balls, not flat pictures, the real planets are much bigger, the real planets are much farther away).

  What's missing in this model of the solar system? (Besides Earth, this model is missing the other rocky planets - Mercury, Venus, Mars – and the asteroid belt and Pluto).

- Invite your child to examine the planet images that are to scale and explain that, while the real planets are MUCH larger, these images show the planets at the right proportions. The Sun is 10 times wider than Jupiter, and Jupiter is 11 times wider than Earth.

- Show your child the dime.

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What to Do (Cont'd):

Ask your child to pretend that the Sun is as wide as a dime - how big does he or she think Jupiter should be? (Remember that the Sun is 10 times bigger than Jupiter; at this scale, Jupiter would be the size of a very small peppercorn.)

How big would Earth be? (A very tiny grain of sand!)

- Invite your child to show you how far the Sun, Earth, and different Gas Giants are from each other, using the scaled cardstock models. You can be the Sun.

  If the Sun was 110 inches across, how far away would Earth be? Have them show you where Earth would be. Close? Far? Really far? (Earth would be almost 1000 feet away!)

- Share a smaller model using the dime.

  Ask your child how far they think the Sun, Earth, and different Gas Giants would be from each other if the Sun were the size of the dime, and Jupiter were the very small peppercorn, and Earth is a very tiny grain of sand.

  Invite your child to show you. You can be the Sun. Have him/her carry the peppercorn to the distance they think Jupiter should be away from you (Sun). Help him/her adjust the estimated space for Jupiter (31 feet away from you!).

- Walk through the distances to the other planets with your child. If more than one child is participating, have them stand at the appropriate distances.

  At this scale:

Sun (0.6 inches, a dime)	0 feet from the Sun!
Earth (0.0061 inches, tiny sand grain)	6 feet from the Sun
Jupiter (0.067 inches, peppercorn)	31 feet from the Sun
Saturn (0.056 inches, peppercorn)	57 feet from the Sun
Uranus (0.023 inches, peppercorn)	115 feet from the Sun
Neptune (0.022 inches, peppercorn)	180 feet from the Sun

Pluto is 237 feet away in this model!

- Invite your child to think about the sizes of the planets (tiny!) compared to the distances between them (huuuuuuuuuuuuuuuuuuuuuge!).

  Can the "Earth" see Jupiter? (Jupiter can be seen in our sky sometimes, but it is a very small "dot" the size of the stars in the night sky.)

  Does anything about the model surprise the children?

- Take turns between you and your child reading the *Solar System I'm Rhyme*. If more children are involved, have them stay in their "planetary" place and sing the song out loud, one at a time, each for their planet.

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The Solar System "I'm" Rhyme

With a concentration on the Gas Giants

I'm the one star in this special place.
You'll find me in the center.
Just guess my name to start this game,
then you may surely enter……

I'm glad I'm home to boys and girls,
Even though I do seem "blue",
I'm Planet_____.
and a little larger than Venus (that's your clue!)

I'm full of gas, with colorful stripes,
And a really enormous girth.
I am mighty _____ and
I'm over ten times the size of Earth!

I'm yellow and my ammonia haze
covers each and every thing.
I'm _____and my beauty's
found within my icy rings!

I'm blue and stinky (it's methane gas!).
I have more than twenty moons!
I'm_____, the third gas giant;
A bit larger than neighbor Neptune.

It takes me over sixty thousand days
to go one whole year through!
I'm the last gas giant. I'm old _____,
and just a little darker blue.

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