MODELING PLANET SIZES

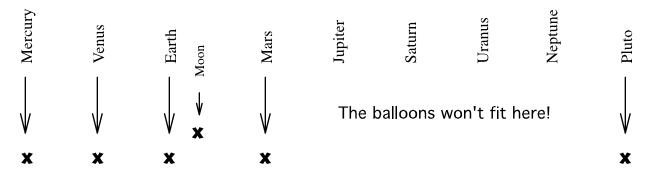
Your map of the Solar System is not to scale. It can't be! In today's lesson we will see why.

WHAT YOU NEED: four balloons (blue, green, orange and yellow), and the piece of clay that came in your kit.

WHAT TO DO: 'Build' the planets from the instructions below. As you finish each step, put an X in the circle and put the planet at the bottom of this sheet.

- Take the clay that came with your kit and break it in half. Shape one piece into a ball. That's the **EARTH**.
- Break the remaining chunk into 5 pieces that are close to the same size. Squash 1 of these together and form it into a ball. This is **VENUS**.
- Split the last little piece in two. Take one of the halves and form it into a ball. That's MARS.
- 5plit the leftover piece into 3 pieces, all different sizes. Form them into balls. The smallest is PLUTO, the biggest is MERCURY.

 The leftover clay ball can be our moon.
- Blow up the green balloon and the blue balloon until they are 3 or 1 inches across and tie them. The green one is **URANUS**. The blue one is **NEPTUNE**.
- Blow up the yellow balloon all the way (IO or II inches). This is **JUPITER**, which is so large that it has a storm big enough to swallow Earth, Mars and Venus!!
- Blow up the orange balloon all the way, then let some of the air out so it's noticeably smaller than Jupiter. This is **SATURN**. Stretch your arms out around it to see the size of its rings.



Were you surprised at the size of Jupiter, Saturn, Uranus and Neptune compared to the other planets?

These four planets are called the gas giants. A balloon filled with air is a good way to represent them, since air is a gas. If you won a trip to visit the gas giants, what could you look forward to?

Huge Ruge Even from Earth we can see the Great Red Spot, a storm on Jupiter that has been raging for over 300 years.

A Floating

If you could visit a gas giant there wouldn't be a surface you could step on. You'd have to float around in the atmosphere in a blimp or a hot air balloon. (Watch out for the storms, though!)



All the gas giants have rings, but none are more spectacular than Saturn's. Saturn's rings look solid, but they're really a thin sheet of orbiting snowballs and ice chunks. Uranus' ring is tipped sideways like a rolling hoop.



Gas giants all have a lot of moons, each one a unique world of its own, and many as big as small planets. To mention just a couple . . .

EUROPA, a moon of Jupiter, is covered with a sheet of cracked ice. Scientists think that under the ice there might be huge oceans, and maybe life!

Io, another of Jupiter's moons, features volcanoes that blast out a trillion tons of sulfur and sodium every year.



PLUTO - The Farthest Planet?

Pluto's strange orbit takes it out to the coldest reaches of space, where even air would freeze and turn to liquid. It then returns and, for a short time, is actually closer than Neptune. Then it's off to deep space again. Pluto may be cold and distant, but it's never really alone. It has a large moon called Charon. Together, Charon and Pluto travel around the sun once every 248 years. Pluto is a dwarf planet. Another is Eris, discovered in 2005, about the same size as Pluto and much farther from the sun.