

Make a Sun-Earth Model

You need:

- 1 cardboard tube about 5cm long and with a diameter of 5cm
- 1 styrofoam sphere with a diameter of 10cm
- 10m of string
- 1 bead with a hole (e.g. a wooden bead), diameter 1 - 3cm
- 1 pin
- drill, scissors, markers, meter

Let's start:

Paint the bead and the pin to make them look like two Planets Earth - a small one and a tiny one.

Drill a hole into the cardboard tube.

Pull the string through the hole.

Fasten the bead at the end of the string inside the tube.

Wrap the string around the tube.

Wrap the string several times around the pin and bind it fast.

Pin the pin into the wrapped up string.

Paint the styrofoam sphere to make a Sun.

Pay attention to the details: sunspots, active regions, magnetic loops.

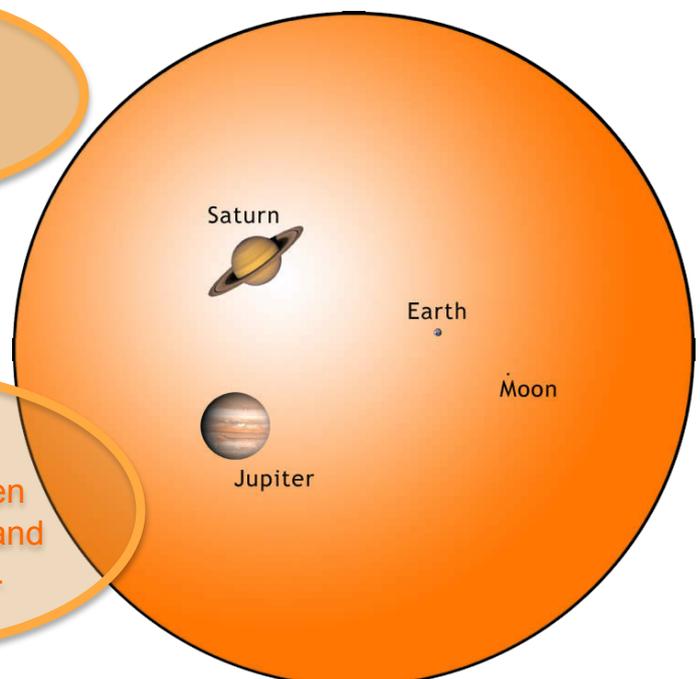
Use the cardboard tube as a supporting stand.

Done!

Ask your family and friends!

Guess the correct size of the model earth relative to the model sun - is it the bead or the pin?

Estimate the distance between the model earth and the model sun.



Diameter of the Sun: 1.4 million km = 100 Planets Earth next to each other
Distance Sun - Earth: 150 million km (light: 8 minutes, airplane 22 years)

Notes for the activity guide: materials

For this activity, I lay out the table with pictures of sunspots, including historical drawings, so kids can observe what sunspots look like in detail. You can download images at www.fingertip.ch or find some in the internet.

If the activity takes place in an open situation such as at a science fair I pre-colour the spheres so kids only have to paint the sunspots.

There is an extended version with magnetic sunspots. Ruth Paglierani from the Center of Science Education at UC Berkeley showed it to me (thank you Ruth).

For this version you need to prepare the styrofoam spheres:

- Glue some neodymium magnets into the sphere. If you use a glue gun, the holes for the magnets emerge automatically.
- After gluing, close the holes with some putty.
- (Paint the sphere in orange)

You can make the magnetic fields visible using staples. Try to make a magnetic loop between two magnetic spots not too far apart.

This version is more costly and time consuming thus only suitable for small groups.

