

Make a Model Saturn

Supplies

unwanted CDs (Many people get these free in the mail)

2 inch styrofoam balls

wooden toothpicks

glitter - several different colors

small paper clips

scissors

markers

white glue

paint brushes

black yarn

heavy thread or light string

small wire cutters

Object: To find out about Saturn's rings. Use the the "Why does Saturn have rings?" sheet to stimulate discussion.

1. Each girls will need a styrofoam ball and a CD. Cut the styrofoam ball in half ahead of time.

2. The CD will be Saturn's rings. usually one side of the CD has printing on it. This is the side you will decorate with glitter.

*Try not to get glitter in the center part of the CD, where you will be gluing the styrofoam ball.

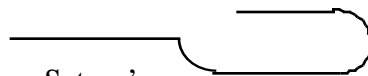
*Rinse the paintbrush out between uses so it will stay soft and easy to use.

*Use the paintbrush to carefully spread glue on the CD in a ring. Sprinkle glitter on the ring. Add a ring of glue right next to the glitter and glue on yarn in a ring to show the gaps in the rings. Continue adding glitter and yarn to the outer edge.

3. Stick a toothpick into the center of the flat side of each half of the Styrofoam ball to give yourself a handle. Decorate each half of the styrofoam ball with glitter and markers.

4. Take the toothpick out of one of the styrofoam halves. On the other half, make sure the toothpick is stuck exactly into the center and push it in until it starts to poke out the top. Spread glue on the decorated side of the CD in the center. Pick up the CD and place the styrofoam half with the toothpick exactly in the center of the CD, toothpick sticking through the hole. Now put some glue on the center of the other side of the CD. Push the other styrofoam half onto the toothpick sticking out the hole. When both halves are flat against the CD, a small part of the toothpick may be sticking out of one of Saturn's "poles." Break it off with the wire cutters.

5. Open a paper clip so you have a hook at one end.



Decide which half of Saturn you want to be the top. Since Saturn's axis is tilted 28 degrees, stick the paperclip into the top about 3/4 inch away from the center. Angle the paperclip so it passes through the hole in the CD and helps hold the two styrofoam halves together. Tie a length of thread to the paperclip for hanging.

**When you hang your Saturn up, and it turns in the breeze, you will see the “rings” from different angles - just as we see the real Saturn at different angles from the Earth.*

Helpful hints:

**Have old aluminum pie pans to put under the models while shaking the glitter. Dumping the glitter back into the container can be done with a paper cone.*

**Have some containers of water for cleaning paintbrushes.*

**A pan of water and old towel can come in handy for cleaning up sticky fingers.*

Why does Saturn have rings?

Scientists have ideas about why Saturn has rings, but no one knows for sure.

What are Saturn’s rings made of? Are they solid like the CD you used to make your model? Or are they made of many particles dancing in formation around the planet?

Three robotic spacecraft from Earth have already visited Saturn - Pioneer 11, Voyager 1, and Voyager 2. They revealed many surprising things about Saturn’s rings.

The rings are about 40,000 kilometers (24,000 miles) wide. That’s about three Earth’s across. But the rings are only 100 meters (330 feet) thick. That’s only a little thicker than a football field is long.

They range from particles too tiny to see to “particles” the size of a bus. Scientists think they are icy snowballs or ice covered rocks.

There are actually many rings - maybe 500 to 1000. There are also gaps in the rings. (That’s why we put some black rings on our model Saturns.)

A new spacecraft is now on its way to study Saturn much more thoroughly than earlier spacecraft could. After a seven year journey, the Cassini (ka-SEE-nee) spacecraft will arrive at Saturn on July 1, 2004. It will go into orbit around Saturn and study its rings, its many moons, and the planet itself.

Cassini also carries a probe, called Huygens (HOY-guns), that will parachute into the atmosphere of Saturn’s giant moon Titan. Huygens will send back information on this strange world whose surface we have never seen. What exciting new discoveries Cassini and Huygens will make!