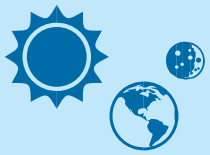
ACTIVITY 6

DIY EARTH-MOON-SUN



Level:	Preparation:	Number of students:	Length:	Place:	Type of activity:
preschool, Grades 1-2	**easy**	**individual**	**30 min.**	**classroom**	**do-it-yourself**

BRIEF DESCRIPTION

Students build a simple model of the Earth, Moon, and Sun to demonstrate the Moon's orbit around the Earth, and the Earth's orbit around the Sun.

MATERIALS

- models printed on cardboard, 1 per student
- scissors
- paper fasteners (craft brads) 2 per student
- single hole punch
- rulers
- colouring pencils

OPTIONAL

- images of the Earth, the Moon, and the Sun

PREAMBLE

The Earth, Moon, and Sun are the celestial bodies are most familiar to students. However, it's not always easy to understand the connection between these three objects. This easy-to-make craft is an excellent way to familiarize yourself with the movements of the Moon and Earth.

PREPARATION

Print the models on 8 ½" x 11" sheets of white cardboard. For younger students, you can prepare the pieces in advance (cut out and punch holes).

Images of the Earth, Sun, and Moon can be printed or projected on a screen to start the discussion.

STEPS

Give each student their printed models and read out the instructions with them. They must **cut out all the individual pieces** needed for the model.

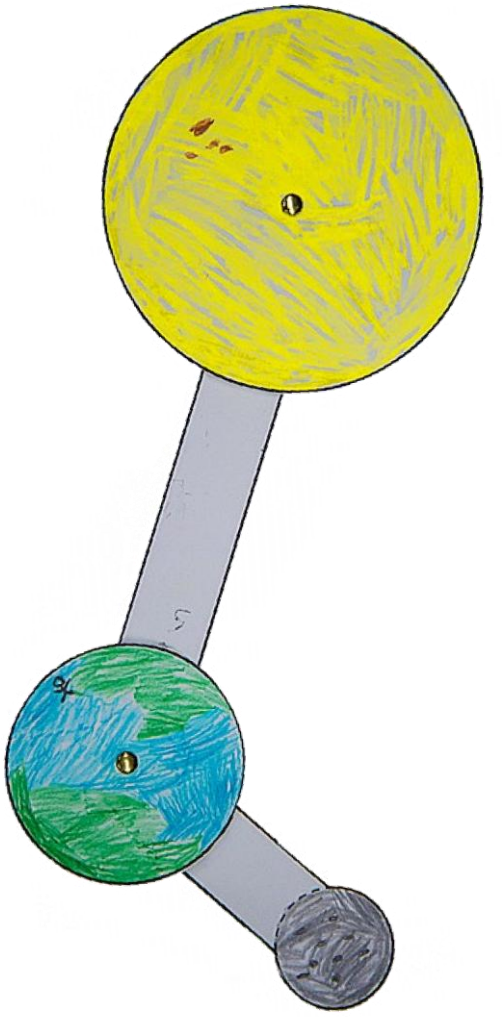
The students can then **punch the holes** with a hole-punch, or possibly push the fasteners through the paper (be cautious, you know your students best). A hole-punch may not be long enough to make the holes on the Earth and Sun. An adult's help may therefore be needed to make the holes using a scissor tip or other sharp object.

Ask the students to **assemble the four pieces**, making sure that the tabs connecting the Earth, Moon, and Sun are underneath the three celestial objects so as not to cover them. When the Moon goes around the Earth in the model, it's best if the Moon can pass over the tab connecting the Earth and the Sun.

The students can **colour in the Earth, Moon, and Sun** before or after assembling them. Colouring can also be done during assembly if some students work faster than others.

Ask the children to make each piece move separately, discuss what they notice. Make sure the Sun remains fixed: it's the centre of our Solar System. The Earth must therefore revolve around the Sun, not the other way around!

It's also possible to discuss how these objects' movements represent different time scales here on Earth: days, months, years. See the *Information* section for more.



DIY Earth-Moon-Sun assembled.
Photo Credit: Bertrand Nadeau.

Questions for the students:

- What object does the Moon revolve around?
- Which object does the Earth revolve around?
- Does the Earth rotate around itself?
- Which side of the Earth is bright/illuminated?
- Why is it dark?
- How long does it take for the Earth to rotate around itself?
- How long does it take the Earth to revolve around the Sun?
- How long does it take for the Moon to revolve around the Earth?

INFORMATION

ROTATION OF THE EARTH

The Earth rotates on its axis over a period of 24 hours —this is the definition of a day. For the half of the Earth that is facing the Sun, it's daytime, while for the other side, it's night.

ORBIT OF THE MOON AROUND THE EARTH

The Moon orbits the Earth and completes one revolution in 27.3 days. This is approximately one month. In fact, the word *month* comes from the word *moon*. (Note: a revolution is when one object has completed its orbit around another object.)

THE REVOLUTION OF THE EARTH AROUND THE SUN

The Earth completes a revolution (orbits) around the Sun in 365.25 days: this is the definition of a year. That means that the Earth rotates on its axis 365 times in the time it takes to orbit the Sun once!

Note that the model created here is not to scale. (If we kept the Earth the same size as on the model, the Moon would be 2 cm wide and 2.5 meters away, while the Sun would be a 10-meter-diameter ball 1 km away! It's impossible to make a scale model like this with paper!)

SOURCE

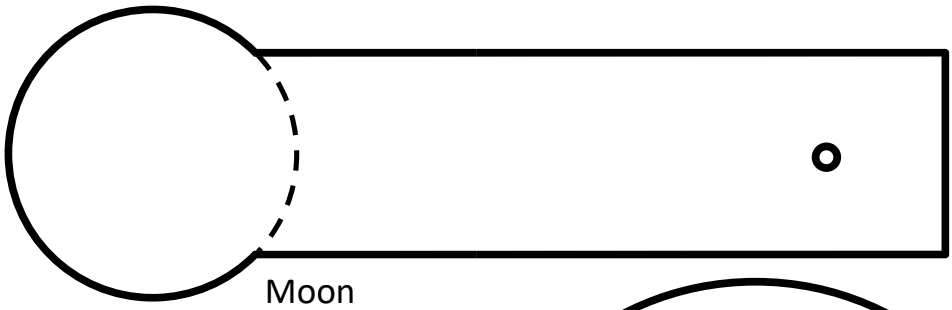
This activity is inspired by a do-it-yourself project developed by *NASA*.

TO LEARN MORE

- *The Earth Moon System*, *Let's Talk Science* page.

DID YOU KNOW ?

Did you know that we always see the same side of the Moon? In fact, the Moon always shows the same face to the Earth. Only the astronauts who circumnavigated the Moon during the Apollo missions were able to see its hidden side.

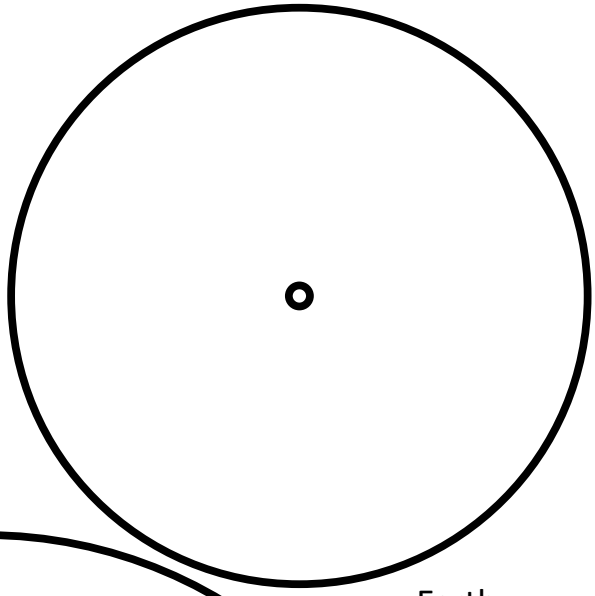


Moon

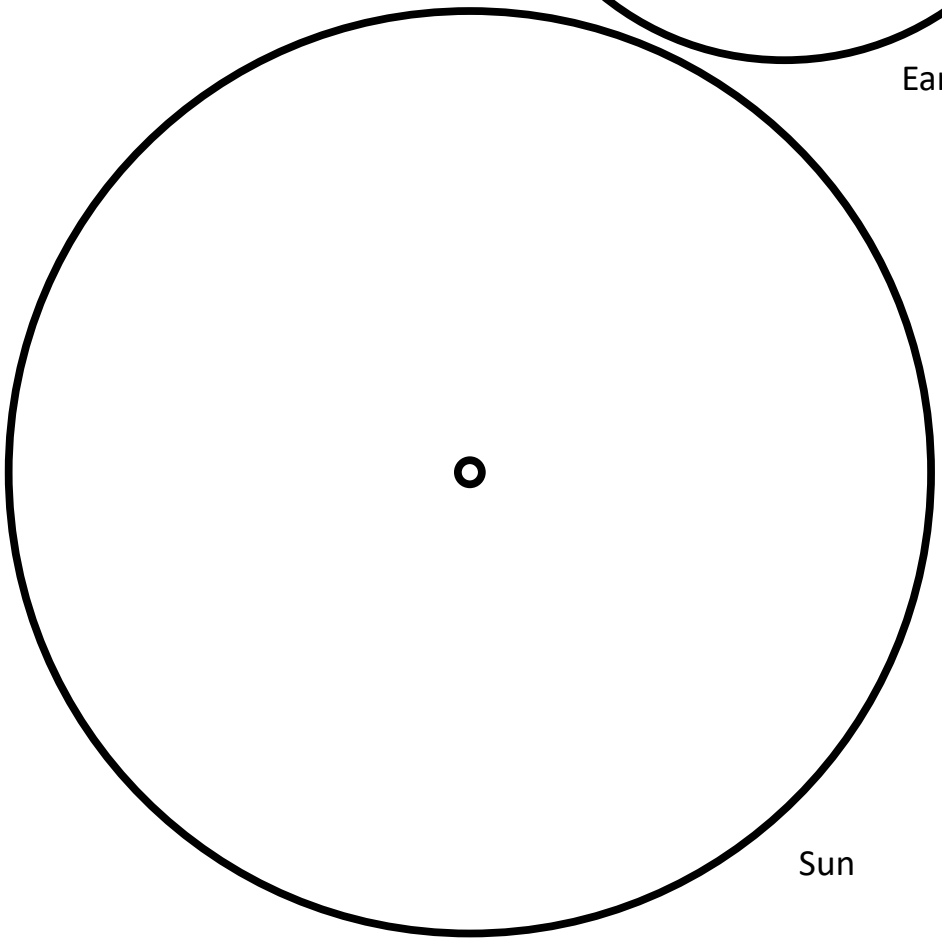
Cut out the shapes on the black lines.

Do not cut the dashed line.

Make holes on the small circles.



Earth



Sun

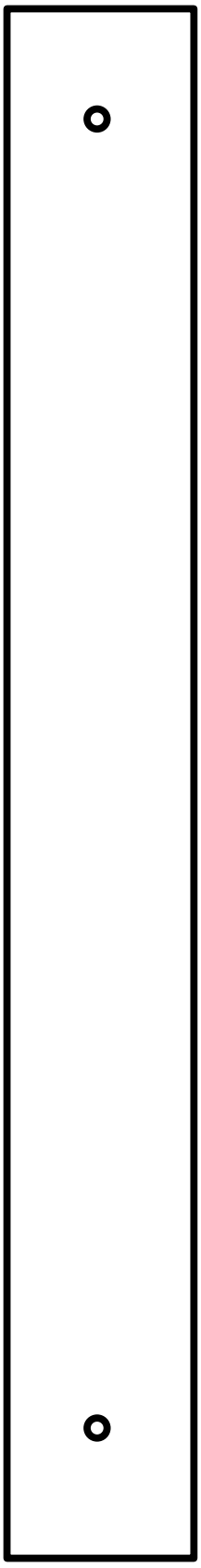


Photo Credit: NASA.

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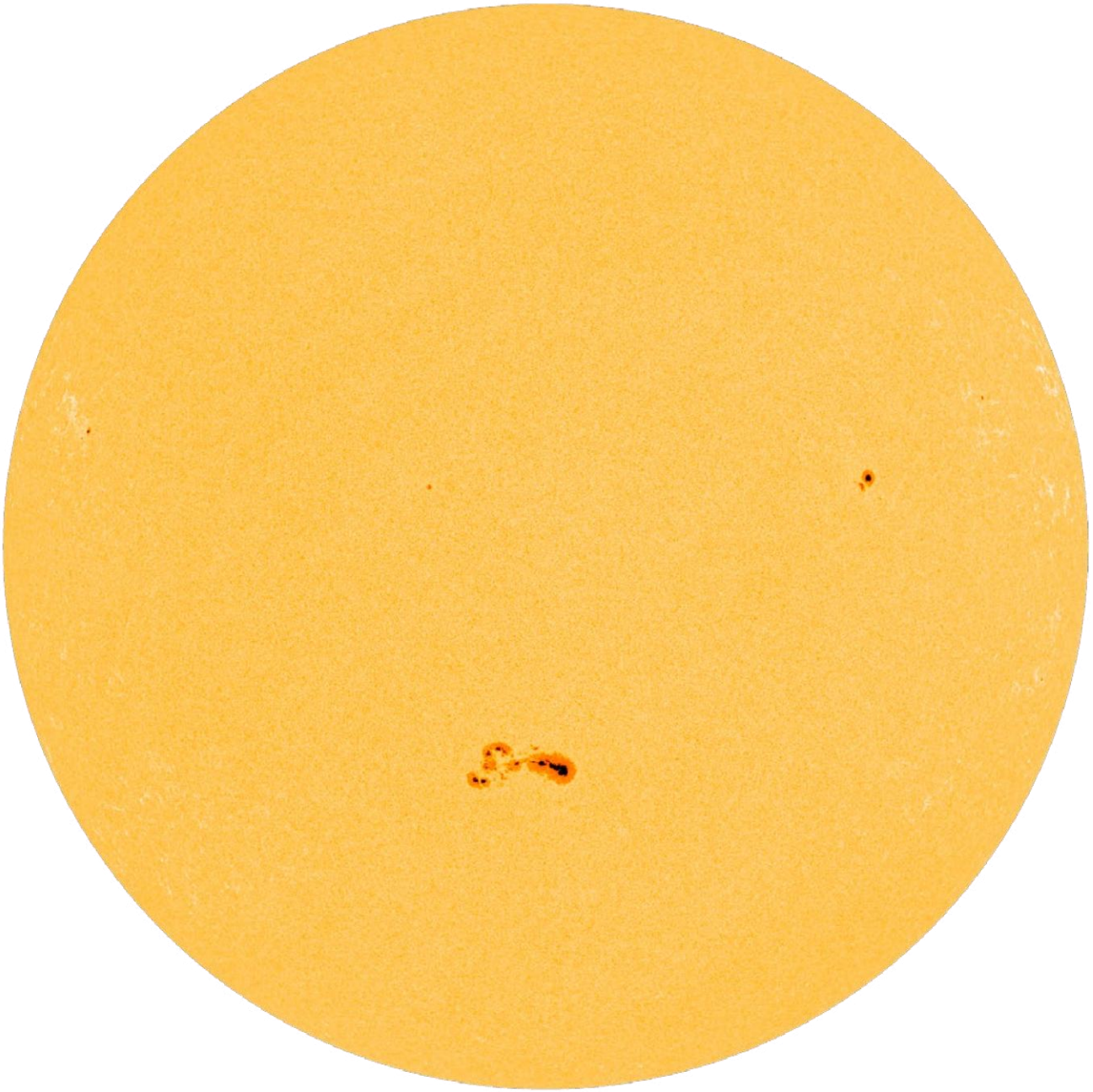

Photo Credit: NASA / SDO.