



Solar eclipse

Looking at the stars

time

50 minutes

learning outcomes

To:

- know that during a solar eclipse the Moon comes between the Sun and the Earth
- know that a solar eclipse does not take place every month

end product

- a model showing a solar eclipse

materials needed

- 12 rulers
- 12 oranges
- 12 torches
- 12 toilet paper rolls
- 12 table tennis balls
- 12 pieces of wire 55 cm long
- 12 pieces of polystyrene measuring 30 x 20 cm
- sticky tape
- optional computer with internet



The Sun 10 min.

Sit in a circle with the children. Discuss the Sun. Do they know that the Sun is a star? Ask where the Sun goes when it sets. Explain to the children that it looks as if the Sun is moving, but this is because the Earth is turning on its axis. Explain that we can no longer see the Sun when it sets at night, but, in addition, very occasionally we cannot see the Sun in the middle of the day. We call this a solar eclipse. Show the photograph of the solar eclipse on the discussion sheet.



The children investigate what causes a solar eclipse.



Solar eclipse 35 min.

Encourage the children to complete Task 1 on the worksheet. Help the children where necessary as they make their model. They can use the internet to look up the answer to question c.

Discuss the answers. During a solar eclipse the Moon is positioned exactly between the Sun and the Earth.



Ask the children the question: When is it not possible to see the Sun? The answer is: at night, and during a solar eclipse. A solar eclipse occurs because the Earth revolves around the Sun and the Moon around the Earth, and sometimes these three celestial bodies are all lined up in a straight line. However, the Moon does not pass exactly between the Earth and the Sun during every revolution, so we don't have a solar eclipse every month.



Other planets or moons 5 min.

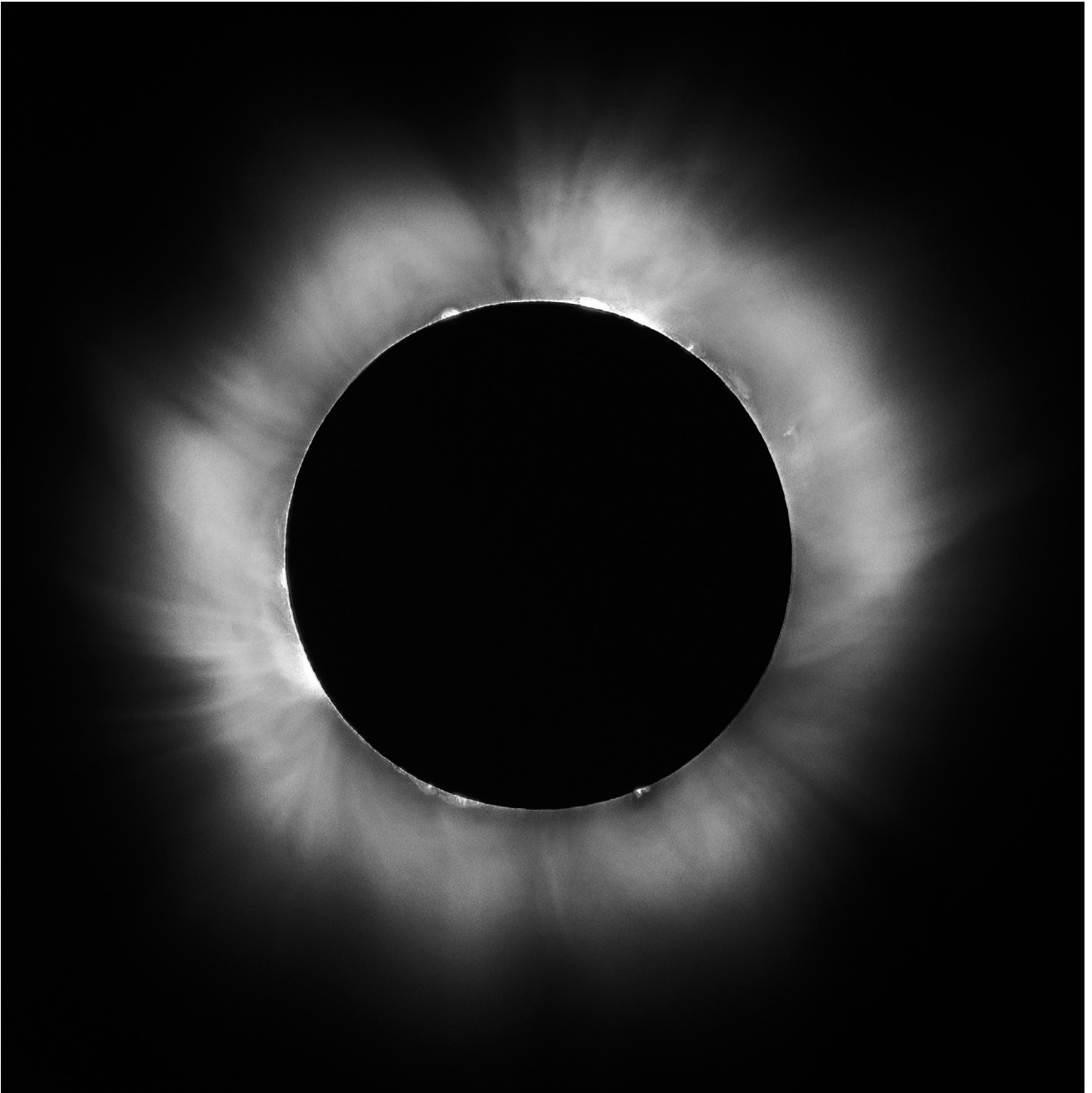
Ask the children whether they think solar eclipses occur on other planets as well. Could there be a solar eclipse on Venus?

Explain that it would be very rare for there to be a solar eclipse on another planet. This is because for a solar eclipse to occur, there has to be a celestial body between the Sun and the planet. And this body must be able to completely cover the view of the Sun. On Earth it just so happens that the Moon can be on a straight line between the Earth and the Sun and it is the right size to completely cover our view of the Sun.

A solar eclipse has also been recorded on the Moon, where the Earth blocked the view of the Sun (on Earth this appeared as a lunar eclipse). One of the moons of Saturn is able to cover the view of the Sun on that planet. This is seen as a solar eclipse on Saturn. A planet can also be eclipsed. When seen from Earth, the planet Venus can be eclipsed by our Moon.



53 discussion sheet





Solar eclipse



You are going to investigate what causes a solar eclipse.

1

Solar eclipse



What do you need?

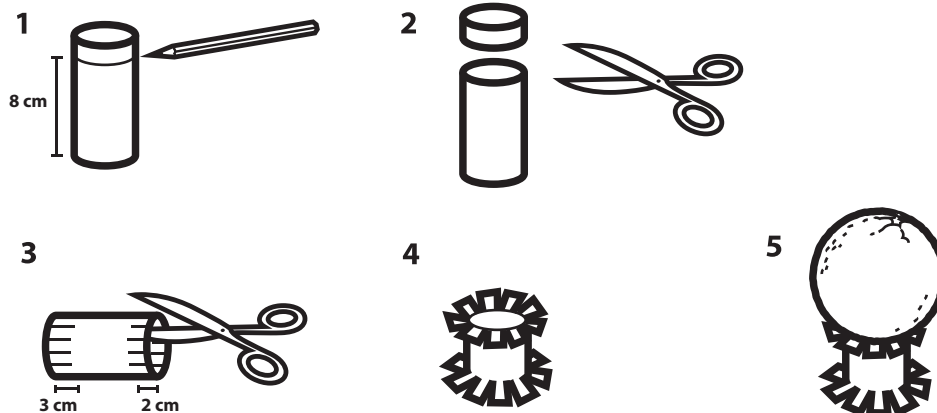
- | | |
|---------------------|------------------------|
| • toilet paper roll | • table tennis ball |
| • ruler | • piece of wire, |
| • sticky tape | 55 cm long |
| • orange | • piece of polystyrene |
| • torch | measuring 30 x 20 cm |

What do you need to do?

The orange represents the Earth. The table tennis ball represents the Moon.

Look closely at the drawing on the next page.

- 1 Take the toilet paper roll. Draw a line 8 cm from one end.
- 2 Cut the toilet paper roll in two at this line.
- 3 Take the largest piece of the toilet paper roll. On one end of the roll make 10 small cuts all the way round, each 2 cm deep.
- 4 Make 10 small cuts on the other end, but this time 3 cm deep.
- 5 Fold the strips of card on each end of the roll outwards.
Stand the toilet paper roll upright, with the longer strips at the bottom.
- 6 Put the orange on the toilet paper roll, so it is supported on the short strips. You can use sticky tape to fix them in place.

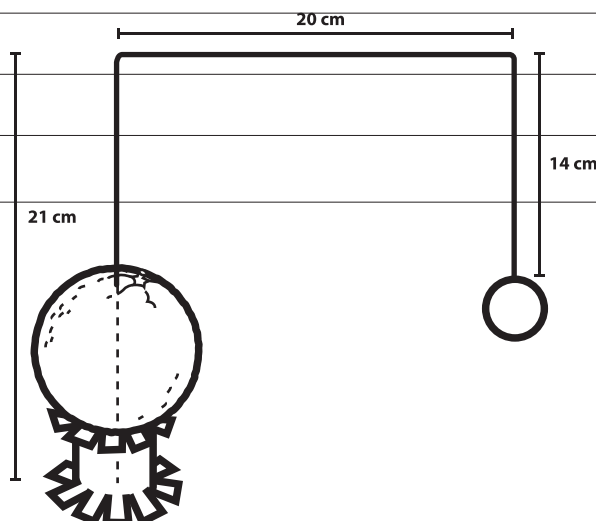


You are going to investigate what causes a solar eclipse.

1 Solar eclipse

What do you need?

- toilet paper roll
- ruler
- sticky tape
- orange
- torch



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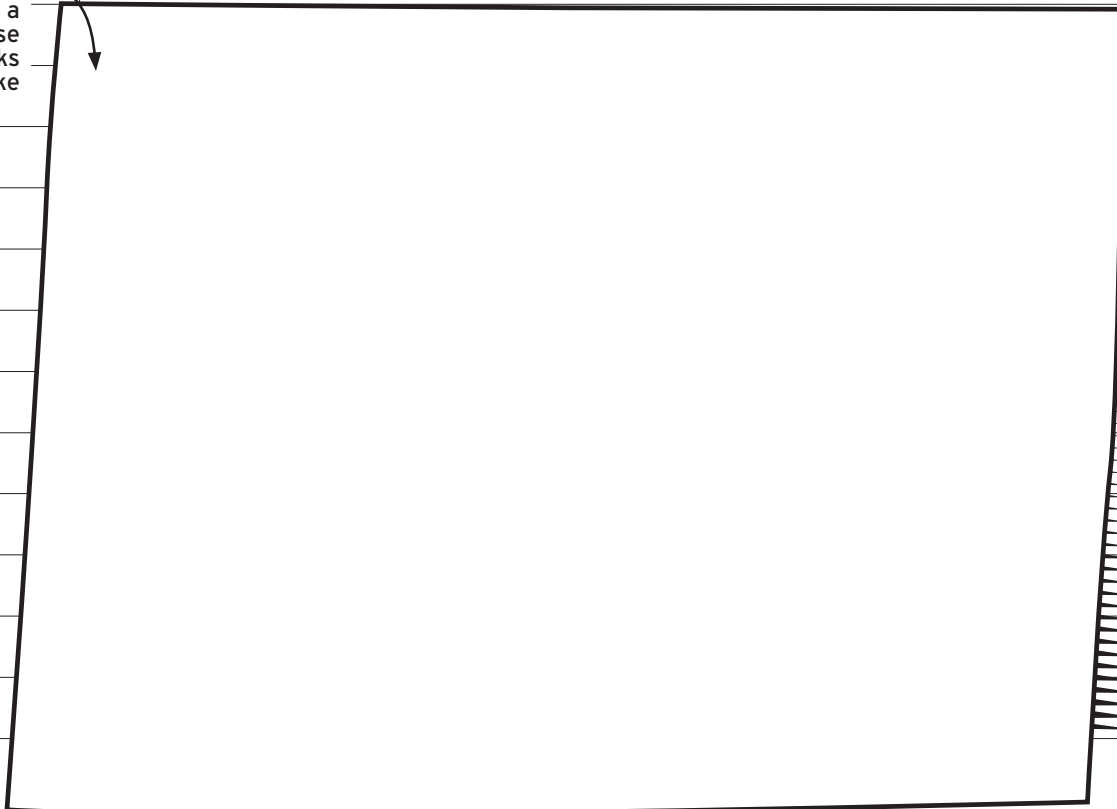
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Stand the toilet paper roll upright, with the longer strips at the bottom.

6 Put the orange on the toilet paper roll, so it is supported on the short strips. You can use sticky tape to fix them in place.

7 Measure 21 cm from one end of the wire. Bend a 90 degree angle in the

draw
HERE what a
solar eclipse
looks
like



9 Place the piece of polystyrene under the toilet roll tube with the orange.

Push the wire into the polystyrene. You can also tape the toilet roll tube to the polystyrene.

10 Tape the table tennis ball to the end of the short arm of the wire.

a Shine the Sun (torch) on the Earth (orange). Rotate the Moon (table tennis ball) around the Earth. Draw the position of the Earth, Sun, and Moon during a solar eclipse.

