



# 04

## Does Saturn float? Journey to other celestial objects

### time

55 minutes

### learning outcomes

To:

- know that the planets in our solar system are all different
- know that Saturn has rings
- identify whether an object floats or sinks

### materials needed

- photographs of the planets (Appendix)
- 2 balloons (red and blue)
- a football
- a marble
- sand
- a waterproof marker
- a large transparent container with water
- a Lego block
- a clothes peg
- a wooden bead
- a table tennis ball
- a pencil sharpener
- a hair elastic with a metal (iron) joining clip
- an ordinary elastic band
- a hair pin
- a sandwich bag with a twist tie
- a cork
- an A3 size copy of the worksheet (laminated)
- scissors
- glue

## Preparation

For the activity **Are all the planets the same?** you will need the photographs of the eight planets from the Appendix. For the activity **What else floats?** make an A3 copy of the worksheet and laminate it.



### Are all planets the same? 15 min.

The children sit in a circle. Ask if they all look the same. Reach the conclusion that this is not so. Do they think all the planets are the same? Show the photographs of the eight planets to the children and ask if all the planets look the same. What differences can they see? For example differences in colour, and whether or not they have rings.

Ask the question: 'What planet do we live on?' Show the photograph of the Earth. Does the Earth look different from the other planets? Now show the photograph of the planet Saturn and let the children compare these two planets in more detail. What differences can they see? Explain that Saturn is nearly the largest planet in our solar system. Show the football and the marble. Explain that if Saturn were the size of the football, then the Earth would be the size of the marble.



Let the children explore the differences between the planets Earth and Saturn.



## Does Saturn float? 20 min.

Take the two balloons. Blow the red balloon up as big as it will go. Fill the blue balloon with sand. Explain that the red balloon represents Saturn and the blue balloon represents the Earth.

Which of the two balloons will float? Let the children guess.

Next, place the balloons on the surface of the water in the container.

What happens?

The balloon filled with sand (the Earth) sinks. The balloon filled with air (Saturn) floats, even though it is much bigger.

It is highly unlikely that the real planets Saturn and the Earth would ever really end up in water. This experiment is only intended to show the children that Saturn and the Earth are made from different materials.

### Good to know

An object remains afloat if the density of that object is less than the density of water. The density of Saturn is only 70% of the density of water. So even though Saturn is very big, it would still float on water.

## What else floats? 20 min.

The children find out other things that float. Look at the cut-out sheet together and get the children to name the objects. Ask the children to take a pencil and draw circles round the things they think will sink.

Lay the laminated A3 worksheet by the water table. Then split the children up into groups of four. At the water table the children put the objects into the water to find out whether they float or sink.



Each object is then put in the right place on the laminated worksheet. They put the objects that sank in the container of water and the objects that floated on top of the water.

When the children have finished doing this, they cut out the pictures on the cut-out sheet.

They paste the objects that remained afloat on top of the water on their own worksheet and they paste the objects that sank in the water container on their worksheet.

In this way each child creates their own logbook of which objects float and which objects sink.

You can also get the children to try other objects.

What floats and what sinks? The children can draw these objects in or above the water container on their worksheet.



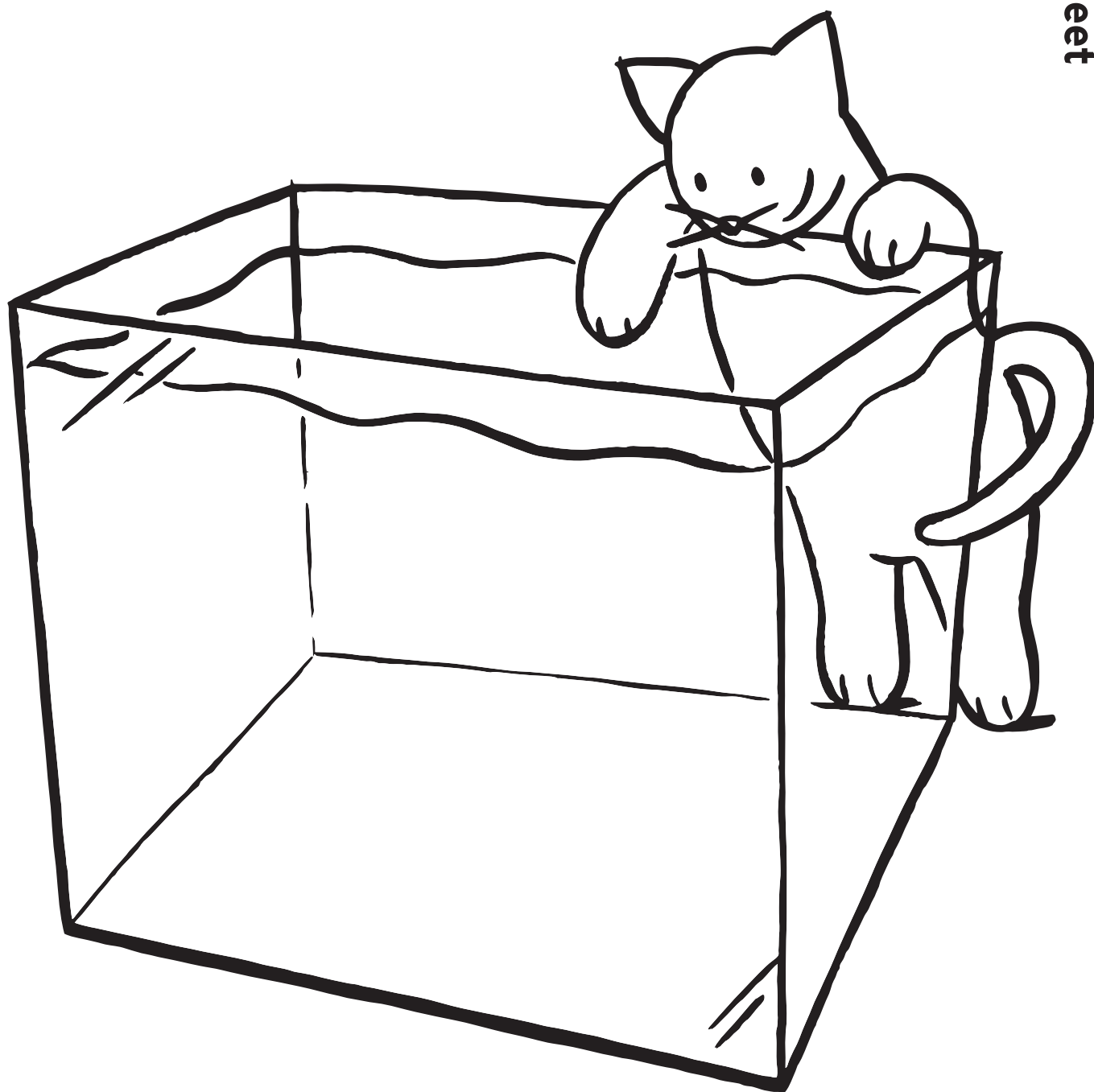
Discuss with the children what differences they now know between the Earth and Saturn. Then look together at the results of their investigations. Include the predictions of the children in your discussion. Did the objects that they thought would sink actually sink in the experiment? It is important that the children discover that whether an object sinks or floats depends on the material it is made from and not its shape; it is not dependent on the size of the object.

**Tip** The children can use craft materials to make their own Saturn and Earth.



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worksheet







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cut-out sheet

