What does gravity do?
Gravity

08

time
60 minutes.

learning outcomes
To:
- learn what an attractive force is
- discover that on Earth we can only float with help
- know what gravity is

materials needed
- 24 cut-out sheets for lesson 4
- 12 containers
- 12 Lego bricks
- 12 clothes pegs
- 12 wooden beads
- 12 table tennis balls
- 12 pencil sharpeners
- 12 hair elastics
- 12 ordinary elastic bands
- 12 hair pins with a metal (iron) joining clip
- 12 sandwich bags with a twist tie
- 12 corks
- 12 magnets
- scissors
- a paperclip
- sticky tape

Tip. This lesson uses the same materials as in Lesson 4. You can combine these lessons if you like.

Preparation
For the activity **All kinds of forces** you will need a magnet and paperclip.

For the activity **How does it fall?** you will need to prepare 12 containers. Into each container place the following items: one Lego brick, clothes peg, wooden bead, table tennis ball, pencil sharpener, hair elastic, ordinary elastic band, hair pin, sandwich bag twist tie, and piece of cork.
Make 24 copies of the cut-out sheet for Lesson 4.

All kinds of forces 10 min.
Explain to the children that there are different kinds of forces. Show them how the magnet attracts the paperclip. This is called *attractive (magnetic) force*. Encourage all the children to stand next to their chair and pull on the chair. The chair moves. Explain that this is because the children are exerting force on the chair. This force comes from their muscles, so it is called *muscular force*. Now ask all the children to jump in the air. They all land back on the ground. Explain that this is because the Earth is pulling them with an invisible force. We call this force *gravity*. Gravity holds all the people and animals in the world on the ground, so that we don't float around in the air.

The children investigate what gravity does.

Good to know.
Birds may appear to float in the sky but they have to work very hard to stay up there. If they don't then the force of gravity soon brings them back down to the ground.

How does it fall? 25 min.

Organise the children into pairs. Give each pair a cut-out sheet for Lesson 4. The children work together to cut out the pictures on the sheet. Explain that they are going to use these pictures to investigate what happens when you drop something. For this they will need the container with 12 objects. Can they see that the objects in the container match the pictures that they have just cut out?

Ask one child from each pair to stand on a chair and drop the objects in turn. The other child sits on the ground and watches each object carefully as it falls. Keep showing what the other child is dropping. Ask the class the following questions: In what direction do the objects fall? What happens if you throw them up in the air first?

At the end they stick all the pictures from the cut-out sheet in the position where the objects landed. In this way the children learn that all objects fall, but how and where they fall is different.

Did it fall? 10 min.

Sit in a circle with the children. Ask the children what happened during the experiment. Ask the following questions:

- Did any of the objects go up in the air?
- Did any of the objects stay up in the air? Or did they all fall to the ground?
- Why do the children think all the objects fall to the ground?

Explain that on Earth, everything you throw up in the air will come back down again. This is because of the Earth's gravity.

What do magnets do? 15 min.

Explain that you are going to investigate what magnets do. Give each pair of children a magnet, a container of objects, and one of the remaining Lesson 4 worksheets.
After testing each object the children will sort them into two groups: those which are attracted by the magnet and those which are not.
The children then cut out the pictures and place them in the category to which they belong. Discuss the results together.