



Feel gravity

Gravity

time

45 minutes.

learning outcomes

To:

- know that gravity is a force
- learn that gravity pulls everything towards the centre of the Earth.
- learn that you can feel the force of gravity yourself

materials needed

- plastic cup
- embroidery needle
- water
- bucket

Preparation

For the activity **Falling water** you will need a plastic cup, an embroidery needle and a bucket.



Falling water 10 min.

Sit in a semicircle with the children. Take the plastic cup.

Let it fall. Ask the children what happened. Why did the cup fall? Explain that this is caused by gravity. Gravity is an invisible force that pulls people, animals, plants and objects towards the centre of the Earth.

Use the embroidery needle to make a hole in the bottom of the plastic cup. Make sure the children can see what you are doing. Ask what will happen if you fill the cup with water. Hold the cup over the bucket and fill it with water. What happens? The water runs out through the hole.

Cover the hole with your finger. Now the water stays in the cup. Ask the children if the water will still run out if you drop the cup. Allow some time for discussion.

Then drop the cup. The children will see that the water stays in the cup. Why does the water stay in the cup? Explain that this is because the water is falling at the same speed as the cup.

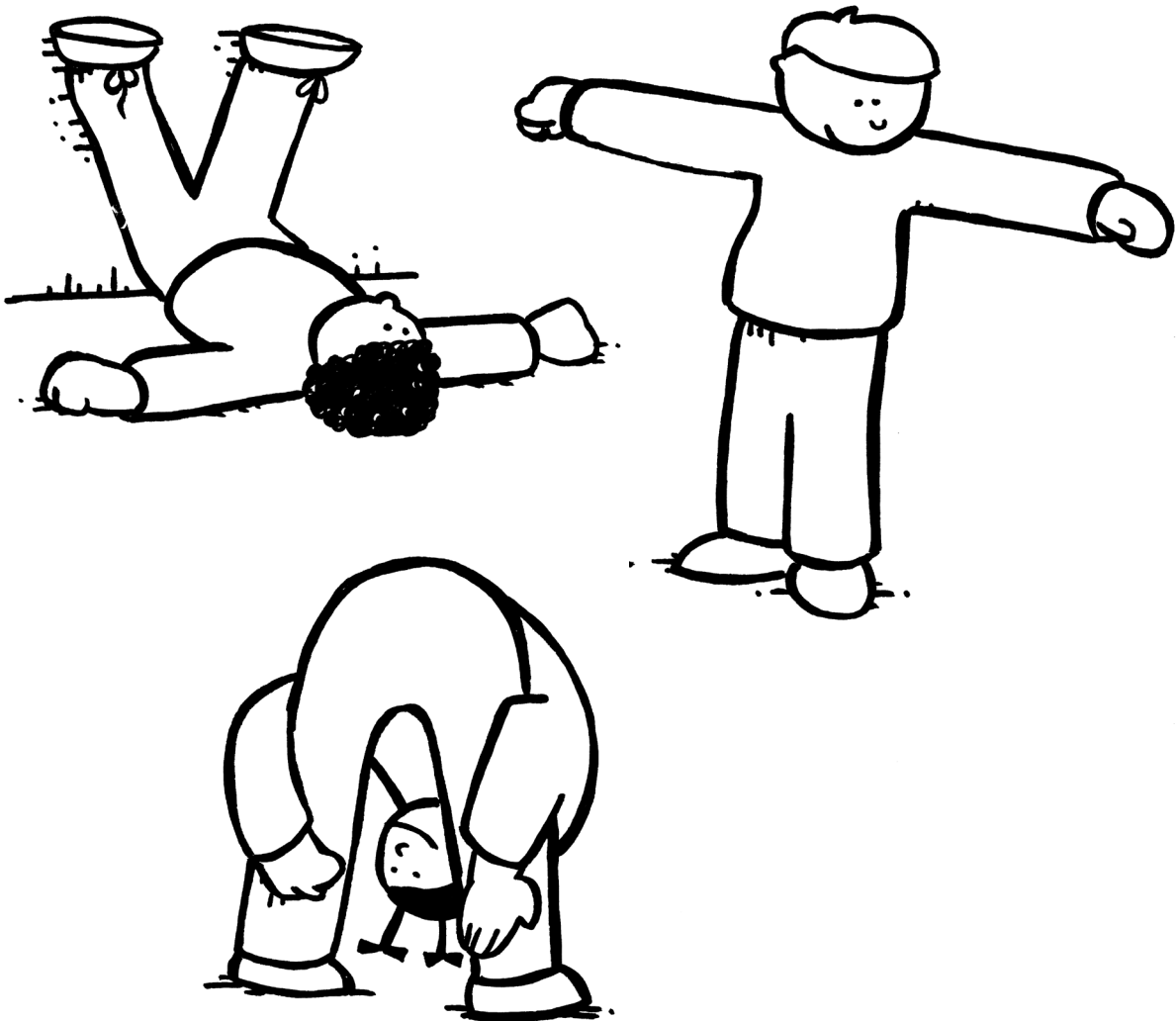


The children investigate what gravity is.



Hanging head 10 min.

Now encourage the children to feel gravity for themselves. They are going to stand and bend over with their head between their knees and look at the child behind them. Then ask them to stand upright and stretch out their arms as shown in the picture.



What does it feel like to bend over like this? Where can they feel the blood flowing? Do they find it difficult to stand with their arms stretched? What force makes this difficult?

Explain that when they bend over, more blood flows to their head. This is because of gravity 'pulling' the blood downwards. The same force makes it difficult to hold your arms outstretched.

You need strength to hold your arms up, but eventually gravity pulls them back down again.



On its head? 15 min.

Give each child a pencil and together look at the picture of the Earth for [Task 1](#) of the worksheet. Read through the instructions together. First of all the children turn over the page and draw what they have read about. Once they have drawn the boy with the cloud and the rain, they turn the paper 180 degrees. When they have finished drawing the girl with a cloud and rain, encourage them to examine their drawing closely. What do they notice? What happens to the rain? In what direction do the raindrops fall? Do the raindrops fall towards the Earth or away from it? Reach the conclusion that in one of the drawings the raindrops fall 'down', and in the other drawing they appear to fall 'upwards', but in both drawings they actually fall towards the Earth. Ask the children why this is. Explain clearly that gravity is always pulling everything towards the middle of the planet. That is why you can never fall off the planet, even if you are standing on the opposite side!



What do you know about gravity? 10 min.

Ask the children what they have learned in the previous activities. What did they find out from the falling cup of water? What did they feel when they were bent over? And when they had their arms outstretched? What did we find out from the drawing on the worksheet? Explain that gravity is always present, but that you don't always notice it. The children complete [Task 2](#) on the worksheet. Reach the conclusion that the Earth's gravity pulls everything towards the centre of the planet.



Feel gravity

1 *On its head?*



Read the instructions

Finish the drawing on the back of the worksheet.

- 1 Draw a boy standing on the planet.
- 2 Draw him holding an umbrella.
- 3 Draw a cloud above the umbrella.
- 4 Draw rain falling out of the cloud.
- 5 Turn the paper.
- 6 Draw a girl standing on the planet.
- 7 Draw her holding an umbrella.
- 8 Draw a cloud above the umbrella.
- 9 Draw rain falling out of the cloud.

2 *What do you know about gravity?*



Put a tick against what you know. There is more than one right answer.

Because of gravity:

- rain always falls towards the Earth.
- your hair hangs down.
- you can hold your arms outstretched.
- we stay standing on the ground.

