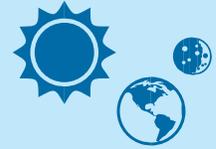


ACTIVITY 4

HEADS UP!



Level:
**preschool,
Grades 1-2**

Preparation:
easy

Number of students:
big group

Length:
30 min.

Place:
classroom

Type of activity:
**participatory activity,
discussion, colouring**

BRIEF DESCRIPTION

Students learn about gravity and our position on Earth. They learn that people on the other side of the Earth aren't "upside-down."

MATERIALS

- Earth and animal images printed on cardboard
- 20 Earth mosaic pieces
- colouring pencils
- scissors

PREAMBLE

Children often have difficulty visualizing the fact that we live on Earth, a spherical planet. If we place a globe with the North Pole up and imagine people standing on the Earth, those in Canada would be at an uncomfortable angle, while those in the Southern Hemisphere would be upside-down. In fact, children sometimes ask why people on the "bottom" of the Earth don't fall off.

This activity can help understand that our definition of up and down is relative to the centre of the Earth: regardless of where we are on the Earth, the direction "down" is always towards the centre of the Earth.

The image of the Earth we've provided is a photo taken from a satellite located 1.5 million kilometres from the Earth. It shows North America, Central America, and part of South America at bottom right. On the sheet, North is up.

PREPARATION

Print the images of the Earth and the animals on card stock and cut them out.

Print out the image of the mosaic piece so that you have enough for all the students; 20 mosaic pieces are enough to go around the Earth. If there are more or fewer than 20 children in a group, either group them in teams or have each student colour more than one piece.



STEPS

Start this activity by placing the polar bear at the North Pole and the penguin at the South Pole.

Make the characters speak the following dialogue:

Polar bear: “Hey there! How’s it going with your head upside down? It must be really uncomfortable!”

Penguin: “Me? What do you mean, upside down? You’re the one who’s upside-down!”

While the penguin is answering, quickly turn the Earth so that the penguin is on top. You can continue the dialogue between the two animals and get the students to understand that neither of them is really upside-down — it’s just a question of perspective.

Distribute the Earth mosaic pieces and ask each student to draw objects, animals, or people that they can find above and below the ground. For example, students might draw houses, trees, and mountains above the dotted line, while below it they might find earthworms, tunnels, or the subway. This drawing has two sections: a “top” and a “bottom”.

Cut out and place the 20 mosaic pieces around the image of the Earth.

Ideas for discussion with the students:

- Where are “up” and “down” in your drawings now? No matter where the drawing is located around the Earth, the bottom is always towards the centre of the Earth.
- If a person in each of your drawings were to drop an object, in which direction would it fall? It would always be towards the centre of the Earth, what we call the “bottom” of the mosaic, no matter where we are on it.
- Why are objects and people attracted to the centre of the Earth? The force of gravity.

If you like, you can then display the mosaic and the Earth on a wall as a classroom decoration.



Dialogue layout.
Photo Credit: Bertrand Nadeau.



Earth mosaic.
Photo Credit: Bertrand Nadeau.



INFORMATION

It is sometimes difficult to visualize that we live on a spherical planet. At any given moment, we can only see a small part of the Earth—everything within our horizon. On this small scale, the Earth appears flat to us, and gravity seems to pull everything down: everything that goes up eventually comes down. Since this is our day-to-day experience, it's easy to assume that this applies to the whole planet, and that people “below” the Earth are also pulled downwards.

Gravity is what draws us to Earth. To be more precise, we can mention that gravity pulls us **towards the centre** of the Earth. So, whatever our position on Earth or any other planet, “down” is always defined as being towards the centre of it. People on the other side of the Earth don't fall off, and are also pulled towards the centre —that's their “bottom”!

When we look at the Earth as a whole, there are no highs and lows. The Earth can be placed with the Northern Hemisphere up or down, or even on its side. There's no right or wrong way to represent it. This principle also applies to space and all the other planets.

Did you know that there are over 7 billion human beings on Earth? If we wanted to count them all, at a rate of 1 per second, it would take us over 220 years!

**DID YOU
KNOW...?**

SOURCE

This activity is inspired by an activity called *Up or Down* from the *Universe in a Box* guide from the international organization *Universe Awareness* (UNAWA).

TO LEARN MORE

- [Daily images of Earth from space](#), from the Deep Space Climate Observatory satellite.
- [Andromeda](#), *Wikipedia* page.



Photo Credit: NASA.

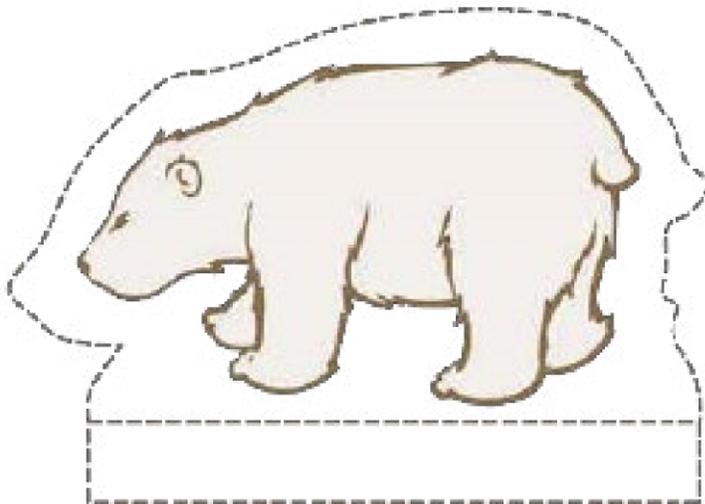


Photo Credit: UNAWA / C.Provot.

