

Background information

Title: “Earth-4 seasons”

Brief Description: In this scenario students will understand the phenomenon of the season’s alteration and how this is affected by the equator and the Earth’s movement around the Sun.

Keywords: Earth, Sun, shadow, rotation, equator, solstices

Target audience: 6th grade Primary school students

Age range: 11-12 years old

Context(s): School

Time required: 45’-60’

Technological tools required: MetAclass app, tablet/smartphone, model markers

Authors background: General education Primary school Teacher

Connection with the curriculum: This scenario is aligned with “Unit A: The Earth as a celestial object” of the new Geography curriculum for 6th class of Primary School.

Learning objectives:

- Understanding the phenomenon of different seasons on our planet.
- Exploring the role of the Earth's rotation around the Sun.

Materials:

- Three-dimensional models of the Earth and the Sun.
- Mobile phone or tablet with augmented reality application.
- AR markers
- Small cards with seasons names and solstices
- Pictures of Christmas in Australia

Guidance for preparation: upload scenario to student’s devices, follow the steps of this guide.

EARTH: 4 SEASONS

1. Setting the scene

Start with a brief discussion about the phenomenon of 4 seasons alternation.

Ask students what the season in Europe is. Ask them if every country on the planet is on the same season. Ask what the season in Australia is.

Display images from Christmas in Australia (Christmas in summer)

Encourage students to explain the phenomenon of different seasons on the same planet.



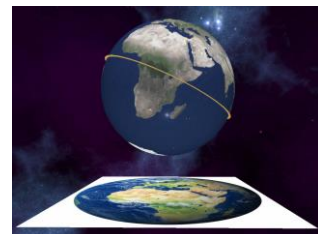
2. Look around

Provide student teams with the marker of the Earth and ask them to scan it. Ask students to observe the Earth's equator.

Provide student teams with the marker of the model of Sun.

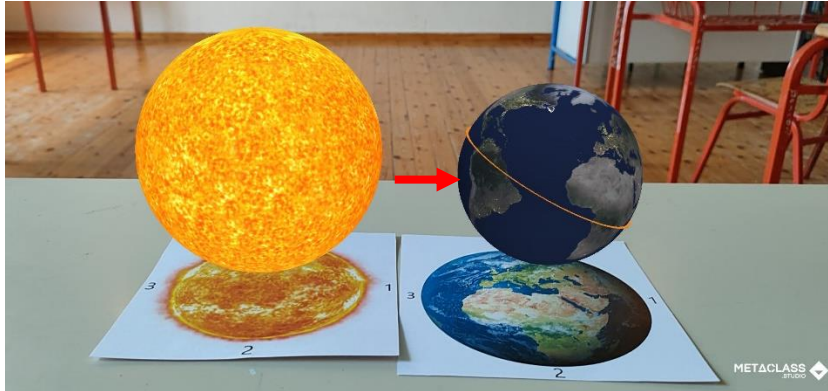
Start a discussion about the Earth's movement around the Sun and simulate that movement.

Introduce the concept of summer and winter [solstices](#).

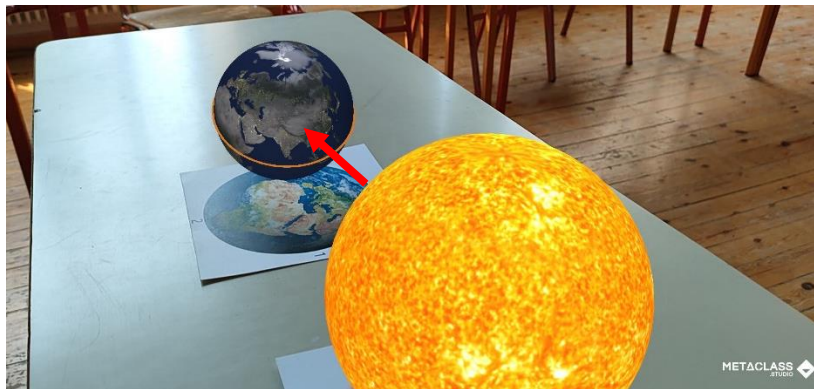


3. Investigation

Have students in groups use the augmented reality application to align the 3D models of the Earth and the Sun to simulate how the Sun's light hits the Earth's surface (Earth is placed in front of number 1 on the Sun's marker). Ask students to describe which hemisphere of the Earth receives the most energy from the Sun. Ask them to explain why. What is the season in that hemisphere? Encourage students to rotate the Earth and note in their notebook all the big countries that are on the same season.



Have students move the Earth in position number 3 of the Sun's marker. Ask students to describe which hemisphere of the Earth receives the most energy from the Sun and to note down the biggest countries that are in summer.



Ask students to move the Earth in position 2 and in position 4 according to the numbers on Sun's marker. Then explain what the season in Europe in each position is.

Assign students to place the season name cards on the correct positioning of the Earth, indicating which season corresponds to each position and to take pictures of every simulation (1 to 4) to create an image canvas that explains the phenomenon of the different seasons on the Earth.

4. Communication and discussion

Attract the class's attention and discuss the role of the Earth's axial tilt in the seasons and the effects of the amount of sunlight reaching the Earth's surface.

Have each group share their creations and explain how they used the models to replicate the phenomenon.

Conclude the lesson by highlighting the importance of experimental learning and exploration for understanding natural phenomena.