

## Background information

**Title:** “Day and Night alteration”

**Brief Description:** Through this scenario students will understand the phenomenon of the day and night alteration and how it is affected by the rotation of the Earth.

**Keywords:** Earth, Sun, shadow, rotation

**Target audience:** 6<sup>th</sup> 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 6<sup>th</sup> class of Primary School.

**Learning objectives:**

- Understanding the phenomenon of day and night alternation.
- Exploring the role of the Earth's rotation around its axis.

**Materials:**

- Three-dimensional models of the Earth and the Sun.
- Mobile phone or tablet with augmented reality application.
- Images and graphics depicting day and night alternation.
- AR markers

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

# EARTH: DAY AND NIGHT

## 1. Setting the scene

Start with a brief discussion about the phenomenon of day and night alternation and ask students about the differences in time in different places on the globe.

Display images that illustrate the Earth during daytime and nighttime.

Ask students to express their thoughts about the phenomenon.

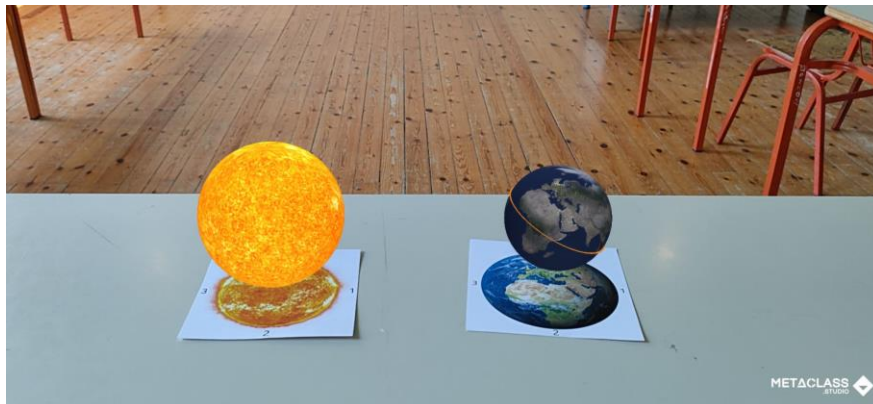


## 2. Look around

Play a video that shows [Earth from space](#) to ignite a discussion about the rotation of the Earth. Ask questions about how long does it take to a full rotate and what is the speed of rotation.

Provide students with the marker of digital Earth, the marker of the Sun. Ask them to align the 3D models to simulate how the Sun's light hits the Earth's surface.

Demonstrate how the phenomenon can be observed from different geographic locations, by changing the device camera angle.



## 3. Investigation

### Part 1

Ask students to rotate the digital Earth so as the Sunlight hits Europe (number 1 on the Earth's marker faces the Sun) and ask them to answer the following questions in their notebook:

1. Observe the system and think what might the time be in central Europe right now?

2. Locate New Zealand and imagine what might the time be in that area right now?
3. Locate India and think about what might the time be in that country right now based on the light that hits the country.
4. Locate the USA and think about what might the time be in that area right now?



## Part 2

Encourage students to rotate the Earth until Europe is placed to the opposite side of the planet (number 3 on the Earth's marker faces the Sun). Repeat the above questions again.

Ask students to take pictures of every simulation and create an image canvas to explain the phenomenon of the alteration of day and night.

## 4. Communication and discussion

Attract the class's attention and discuss how the day and night alternation phenomenon works.

Groups share their canvas creations and explain how they used the models to simulate the phenomenon.

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