



The **GEOGRAPHY** lesson plan provides teachers and students with the opportunity to investigate the impact climate change is having on the environment through classroom activities.

SUBJECT MATTER (SCHOOL DISCIPLINE / LEARNING AREA)–THE GEOGRAPHY

LESSON- Antarctica – a virtual expedition

OBJECTIVE - Integrating environment and climate change subconsciously to the learning outcome *Antarctica – a virtual tour* using digital games' web 2.0 tools. Thus, the students will be able to learn about *Antarctica – a virtual tour*, consciously while they are raising awareness on the environment and climate change subconsciously using digital games. These games can be applied to indoor and outdoor learning environments, distance and traditional (face-to-face) classrooms.

Learning Objectives of the lesson:

Upon completion of this lesson, students will be able to:

- **describe features of Antarctica**
- **describe the climate of Antarctica**
- **understand that food webs represent the complex feeding interactions within an ecosystem**
- **understand the effect of the tourism affecting Antarctica.**

Learning outcomes and environmental awareness and climate change implications - The environmental issues suggested by the game are represented by the tourism and development and describe the human impact on Antarctic life and also their effect upon climate change and environment. The outcome is to assess the impact of climate change, global warming sea level rise.



Description of the game and activities and technical specs: The digital game will consist of a map quiz of Antarctica, of a food web and a touristic expedition: The purpose of the game is to enable students to track important places and events.

Key points for the teacher to underline: Antarctica is an important part of our ecosystem, a very valuable natural resource; it keeps a balance for the climate and environment.

INSTRUCTIONS/ PROCEDURES

Teacher- Question 1 – What is Antarctica?

Teacher will introduce students Antarctica: the landscape- rivers, mountains, lakes and seas, the weather, living conditions, famous explorers, animals and plants (e.g. has the highest average altitude of all continents; comprises numerous massifs and mountain chains is covered with a thick ice cap (2000m-5000m max.); the hydrographic network is mostly represented by the water in solid state (ice cap) to which are added the Onyx River and Vanda Lake; comprises the largest freshwater reservoir in the world; is forever winter - 89.2 degrees C – world record at Vostok Station). In Antarctica was formed the largest glacier in the world, Lambert glacier 402 km long and 62 km wide; the maximum temperature ever recorded was +15 degrees C on January 5, 1974; fauna and flora is represented in the shore areas. Emil Racovita, a famous Romanian explorer and the founder of biospeology, studied in Antarctica over 1200 species of animals and about 400 types of plants; he publishes in 1903 a book called „Cetaceans”, about whales. In Antarctica there is the largest marine reserve in the world! etc.)

Activity 1

The digital game is designed to identify some important locations on the map of Antarctica (e.g. the following 14 locations: the four ice shelves; the four seas; the peninsula; the Ellsworth Mountains; Vinson Massif; Lake Vostok; the Antarctic Ocean (Southern Ocean); the South Pole.

Web 2.0 tool digital game model: map quiz - https://www.educaplay.com/learning-resources/11705414-antarctica_quiz.html



Teacher – Question 2 – What is the Antarctic food web?

The teacher makes an introduction to the animals of Antarctica. Then explains the impact of one animal on the rest of the food chain, how pollution such as a fuel spill, affect this food chain, how humans can minimise the impact on this food chain, what effect global warming has on food chain etc.

Activity 2

This digital game is designed to challenge students to developed a virtual food network to demonstrate the impact of overfishing/pollution and climate change to the Antarctic marine environment.

Web 2.0 tool digital game model: matching column game -

<https://www.educaplay.com/learning-resources/9476709-vocabulary.html>

Teacher - Question 3 – How did the development of Tourism and people impact on Antarctica ?

The teacher explains the human impact on Antarctica (the positive effects as well as the negative ones), then explains why it is important to preserve Antarctica. Further, discusses main aspects of global measures taken to ensure preservation of Antarctica (e.g. name organisations created to ensure preservation of Antarctica; identify one specific problem and describe briefly measures taken to combat this problem

Activity 3

The teacher will describe the following digital game – to complete a short journal entry to describe what they discovered about Antarctica in a hypothetical journey and explore their feelings and hardships they may have endured, using the missing words.

Web 2.0 tool digital game model: fill in the blanks https://www.educaplay.com/learning-resources/7287100-relief_oceania_and_antartica.html



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Assessment/ Evaluation

Upon completion of the three activities, ask students create a comprehensive and detailed PowerPoint presentation showing a deep understanding of Antarctica and its issues.
