

Lesson 7. Hot and cold deserts.

In this lesson pupils will be introduced to the living environment in hot and cold deserts, the animals and plants that live in them. Pupils will be made aware of the environmental changes that occur under the influence of global warming, i.e. how climate change affects hot deserts and cold ice deserts, and their inhabitants. During the lesson it will be possible to think about how each of us can act to reduce climate change, which has a negative impact on deserts. To make it more interesting, each pupil will be able to make his own desert animal – a camel – from reusable materials.

Lesson duration:

depending on the duration of discussions, experiments and additional activities, the lesson takes approximately 80 minutes.

Before the lesson:

get to know the methodological recommendations for the lesson and prepare materials to successfully plan and conduct the lesson for your pupils.

Materials necessary for the Eco workshops and experiments:

Activity 11: toilet paper rolls (two for each camel), egg carton packages (two egg "bowls" for each camel), carton, scissors.

Terms:

hot deserts – *places on earth with an extremely high air temperature (hot) and little precipitation, few plants and animals are found there (for example, sand deserts),*

cold deserts – *places on earth with an extremely low air temperature (cold) and little precipitation, few plants and animals are found there (for example, ice deserts).*

Hand-outs (for printing):

- 1) Worksheet for pupils to strengthen the new terms and learn more about hot and cold deserts. You can use encyclopedias about nature or internet sources to complete the tasks;
- 2) Instructions for the eco workshop and a stencil for making camels.

The lesson

At the beginning of the lesson introduce pupils to the behavioral rules, emphasizing that they should listen carefully because the board does not repeat information several times. In the lesson you will need to cooperate, express your opinion and be able to catch what others say. For younger pupils or pupils who find it challenging to stay focused on work for longer periods of time, dynamic breaks can be included between tasks.



Tablets can also be used for the interactive tasks.

1. What do you know about deserts?

Pupils get in the mood for the topic of the lesson by discussing and expressing their thoughts about what they associate with a desert. The possible answers could be more related to hot sand deserts: “Emptiness, sand, dry land, cacti, camels, scorpions, nothing grows.” When asked whether there are plants, animals or people in the desert, pupils can vote, for example, by raising their hand.

Additional activity.

You can ask pupils if they can name any desert.

3. Hot and cold deserts.

Pupils listen to information about different type of deserts. Afterwards they answer questions about how people, animals and plants feel in hot weather and in cold weather, how they adapt to it. After the discussion pupils listen to additional information about deserts, learning what lives there and which are the biggest hot and cold deserts in the world.

5. Desert animals and plants.

Pupils group the given organisms by whether they live in hot or cold deserts. With help from the teacher pupils name what is seen in each picture. Pupils might find it more difficult to identify meerkats and lichens.

Additional activity.

You can ask pupils what characteristics are typical of animals that live in cold deserts. The expected answers would be a thick, warm coat, a thick layer of fat (it can be seen well on seals).

2. Different types of deserts.

From the given pictures pupils choose and touch the ones that show a desert. Four correct answers colour in green, but two incorrect ones – red. In this way pupils find out that deserts tend to be different and are not just huge hot sand areas that are most often seen in book illustrations and nature programs.

Additional activity.

You can invite pupils to spot the feature that unite deserts but are not typical of other landscapes (habitats). Pupils will have the opportunity to hear the explanation during the next activity.

4. Deserts in the world map.

In the world map pupils colour in hot deserts with a yellow pencil and cold deserts with a white pencil. You can point out to pupils that the cold deserts on Earth are not only located closer to the poles of the globe, which receive less heat from the sun, but also in the place where the highest mountains are – it is also cold there, it rarely rains and plants and animals are rarely found..

6. Life in the hot deserts.

Pupils discuss about life in hot deserts, answering the questions. Pupils can firstly think individually, then discuss in smaller groups, so everyone has a chance to speak out, and then share their ideas with the whole class.

7. Changes in the deserts.

Pupils listen to information and watch an animation about how the Sahara desert has created and how deserts are spreading around the world as a result of climate change (long periods of drought), and human activities, such as intensive agriculture and animal husbandry.

Additional activity.

You can give pupils an approximate location on the map, so they can show the distance to the nearest hot desert.

9. Camels in the hot desert.

Pupils complete a maze to find out how much water a camel can drink in one go. Why so much – pupils will find out when they listen to the information in the next activity. Before making their way through the maze, pupils can vote, for example, by raising their hands, which of the four answers will be the correct one.

8. The formation of deserts.

Pupils strengthen their knowledge of what they heard and saw in the previous activity by arranging the pictures in the correct order so that they show the process of a desert forming from fertile land. It is important to emphasize for pupils that hot deserts on Earth form mainly in places where it is hot and dry (it does not rain for a long time), as well as their expansion is facilitated by intensive animal husbandry, where thousands of livestock graze in one place, which eat and erode the top layer of earth and the plants in it, consume a lot of water, leaving dry land where nothing grows anymore. Wild animals, small farms do not cause such damage. If people reduced the amount of animal husbandry, regularly watered the threatened areas, then it would be possible to reduce such desertification.

10. Camels.

Pupils listen to information about how camels accumulate fat in their hump or humps (there are both one-humped and two-humped camels) to be able to go without eating for a longer period of time, getting the energy they need to live from the fat. In this way camels have adapted to life in the desert, where plants are rare and therefore food is not available as often as in other habitats, such as a meadow or a forest.

Additional activity.

It is possible to transfer knowledge by telling pupils that other animals also store the energy they need to live in the form of fat. For example, bears also do this before going into hibernation, when they do not eat for several months (because there is little food available in winter), but only sleep.

11. Eco workshop.

At the beginning of the eco workshop explain how important it is to reuse materials as a principle of saving the environment, therefore camels will be made from cardboard egg packaging and toilet paper rolls. Step-by-step instructions, as well as the final result, can be seen on the screen or on a printed page in the form of drawings. The teacher can cut the necessary materials in advance, so that pupils only have to put them together. If pupils are expected to work with scissors, it is necessary to remind them of the safety rules for working with them. Pupils can work individually, in pairs or in small groups, and divide the roles.

Additional activity.

If possible, you can prepare a box or tray with sand for pupils to place their self-made camels in to create a desert landscape. The created camels or the deserts landscape can be photographed.

13. Melting ice.

Pupils listen to information, how under the influence of climate change and global warming glaciers are melting, and as a result the areas of cold deserts, where polar bears, penguins and other animals live, are decreasing. At the same time, the water level of the World Ocean is rising, which can flood coastal areas around the world.

12. Life in the cold deserts.

Pupils watch the animation and, by answering the questions, discuss going on and expedition to the North Pole to help polar bears. Pupils can firstly think individually and then discuss in smaller groups, so everyone has a change to express themselves, and then share their ideas with the whole class. Pupils can also vote on whether they would like to go to the North Pole. Pupils express their thoughts on what is wrong in the animation, later learning that polar bears and penguins live on almost the opposite sides of the world.

14. Helping polar bears.

Pupils get acquainted with the information about Rudis and his family. Although they do not live in the North Pole, the family are aware that their daily habits can contribute to climate change. Pupils divide into five groups, each group discusses one of the issues between one another, creating recommendations on how to live more environmentally friendly (e.g. going to school and work on foot, by bicycle, sorting and not creating more waste, saving water, turning off the water tap while brushing teeth, saving electricity, turn off the light when no one is in the room, etc.). Each group then shares their recommendations with the rest of the class. It is important to remind pupils that we are all inhabitants of the Earth and each of us is responsible for keeping the Earth clean, saving resources (water, electricity, fuel, food), and keeping the climate as long as possible suitable

for various plants, animals and people anywhere in the world.

15. Test “What have you learnt so far?”

With the help of interactive test pupils have the opportunity to test the knowledge gained in the lesson. The test can be done by everyone together or individually, using tablets. Pupils can also be divided into small groups and invited to discuss each question, and to agree on the correct answer together.

14. Forest and warmth.

Making the transition to the next lesson “Forests. What endangers forests? Forest fires”, pupils think whether it would be easier to endure heat in a city or in a forest. Pupils can vote, for example, by raising their hand, for what they think the correct answer is and then place the smiley or sad face on the appropriate pictures. When the face is placed correctly, pupils listen to the information. Pupils have the opportunity to choose between an easier or more difficult task. The harder version gives more details.

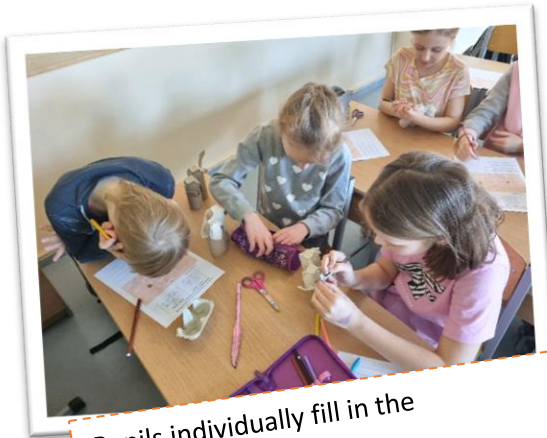
Additional activity.

To strengthen what pupils learned in the lesson about hot and cold deserts, they do tasks on the worksheet. In task 1 pupils circle the words or word combinations that describe the desert. In task 2 they circle the animals and plants that grow and live in the desert. In task 3 pupils tick off the given statements as correct or incorrect. In task 4 they colour the pictures found in the desert. In task 5 they write how a person can help plants and animals in hot weather. Pupils can also complete the worksheet at home and discuss it at the beginning of the next lesson.

At the end of the lesson ask pupils:

What did you like the most? What new did you learn? What will you tell your parents? What else would you like to know?

Images from the lesson process



Pupils individually fill in the worksheets.



A pupil is building a camel out of toilet paper rolls and an egg box.



A pupil is solving an interactive task – maze.



An exhibition of the camels created by the pupils.

I like every lesson because we put pictures in order on the smartboard and learn while playing.

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