

Lesson 9. Animals and climate.

In this lesson pupils will be introduced to animals' adaptation to their living environment and how these habitats are changing as a result of climate change. Pupils will learn how animals adapt to life in heat, cold and temperate climate, how they disguise to hide. The activities in the lesson will help pupils understand that as a result of climate change animals must look for a new home, because the current climate is no longer suitable for living. The lesson also includes practical activities, making bird feeders and watering places (baths) from reusable materials.

Lesson duration:

depending on the duration of discussions, eco workshop and additional activities, the lesson takes 60-80 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 workshop:

Activity 9: scissors, toothpicks, cardboard, glue, tape, string, metal can (a plastic bottle or tetra pack also works), acrylic paint (by choice), hard plastic plate, screw, screwdriver.

Terms:

animal adaptation – *adaptation of animals to the environment and climate which they have lived in for a long time,*

habitat – *an area suitable for certain plants, animals and fungi to live,*

animal migration – *movement of animals to another living environment caused by climate change, lack of food and shelter,*

global warming – *the general increase in air and water temperature over a long period of time, as a result of which climate change begins, for example, unusual precipitation, severe drought, heat or the very opposite – cold.*

Hand-outs (for printing):

A worksheet for pupils to strengthen the new terms and learn more about the effects of climate change on animals. You can use encyclopedias about nature, animals or internet sources to complete the tasks;

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. Animals, climate change and adaptations.

Pupils get in the mood for the lesson by listening to introductory information about it.

Additional activity.

You can recall to pupils what was taught in Lesson 2 that a habitat is an area suitable for the existence of certain plants, animals and fungi, clarifying that in this lesson it will be about animals. Ask pupils to name the habitats (forest, desert, etc.) shown in the pictures on the map.

3. Camouflage.

In the activity it is possible to choose between three difficulty levels. You can start with the easiest one and then choose more complicated tasks, or choose the most suitable difficulty level for the age and abilities of pupils. Pupils find and click on the animals that are disguised and hidden in the given pictures.

Additional activity #1.

Invite pupils to share examples from their lives where they have seen an animal hiding in nature, for example, a white hare in the snow, a greenish-brown lizard between leaves, a green grasshopper in the grass.

Additional activity #2.

2. Animal habitats.

Pupils drag the animals on the screen into the habitats suitable for them. The task has several levels of difficulty. At the beginning there are easier examples with animals and habitats perhaps previously familiar to pupils. Afterwards pupils verify how they made the choice, for example, based on the colour of fur, which would allow them to hide better in the particular environment. Discuss the questions of why certain animals live in one habitat and not others. The answers of pupils could be, for example, “an arctic fox could not live in the desert because it has thick fur, it would be too hot, and there would not be enough water”. This is followed by a more difficult task and a discussion. Pupils can first think individually, then discuss in smaller groups, so that every-one has a chance to speak out, and then share their ideas with the entire class.

4. Animal adaptations.

At first pupils listen to information about how animals have adapted or adjusted to the environment and climate where they have been living for a long time. Pupils arrange the given animals’ characteristics according to the climate in which they fit in the most. In order for everyone to be able to participate, pupils can first vote for each characteristic and then agree together on the correct answer. The second option – you can divide pupils into three groups (hot, cold and temperate zone) and they must agree which of the given characteristics fit into their zone. It is possible to discuss why certain traits are necessary to live in each particular place.

Additional activity.

To strengthen the newly obtained knowledge, you can offer pupils to do task 2 on the worksheet (notice and write what is common and what is different for the given three

You can offer pupils to do task 1 on the worksheet (draw a landscape and hide an animal in it).

5. Survival in different habitats.

Pupils discuss whether animals would be able to survive in a different climate than they live in now. Pupils can first think individually, then discuss in smaller groups so that everyone has the opportunity to speak out, and then share their ideas with the entire class. The discussion leads to the question of what would happen to animals if the usual climate in their habitat changed.

Additional activity #1.

To make it easier for pupils to imagine climate change, you can give examples and ask, what would change in people's lives if suddenly it was +40oC outside all the time and it stopped raining, or if it snowed non-stop and there was an extremely strong wind. How would that affect people's lives? Would it be easy for animals to change their coat, ear and leg size in order to adapt?

Additional activity #2.

You can invite pupils to do task 3 on the worksheet (connect the pictures of animals with the places (habitats) where they live).

7. Environmental changes I.

Pupils listen to information about environmental changes in different parts of the world caused by climate and how they affect the animals living there.

foxes) and task 4 (draw one animal of choice, write where it lives, and describe how it has adapted to the particular habitat).

6. Global warming and its consequences.

Pupils listen to information about what is happening to animals as a result of climate change.

8. Environmental changes II.

Pupils arrange the pictures in the correct order, strengthening their knowledge of how temperature changes in water affect the animals that live there. It is important to emphasize that here we are talking about global warming and long-term changes, not the usual annual changes in water temperature in winter and summer.

9. Eco workshop.

At the beginning of the eco workshop explain how important it is to take care of nature, but natural materials can be used to create goods for yourself and other living creatures. On the screen a video with instructions on how to make a bird feeder can be seen. The teacher has to prepare the necessary materials in advance. In small groups pupils make bird feeders or watering places from metal cans, empty water bottles, tetra packs and other reusable materials.

Additional activity #1.

If you want to make a different bird feeder instead of the one shown in the video, you can find inspiration for making all kinds of bird feeders in this hyperlink:

<https://happyhooligans.ca/32-homemade-bird-feeders>

Additional activity #2.

You can discuss with pupils that climate change affects birds just like any another animal. In summer drought can occur and birds can run out of water. In winter it can be difficult for them to find something to eat. Birds cannot always cope with these challenges by themselves, but people have the opportunity to help birds.

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

With the help of the interactive test pupils have the opportunity to test the knowledge obtained 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 agree on the correct answer within the group. In the last question, all of the given answers are correct (animals suffer from global warming in different ways), in which case each answer can be discussed separately by voting on whether it is a way for some animals to suffer, leading to the conclusion that all answers are correct.

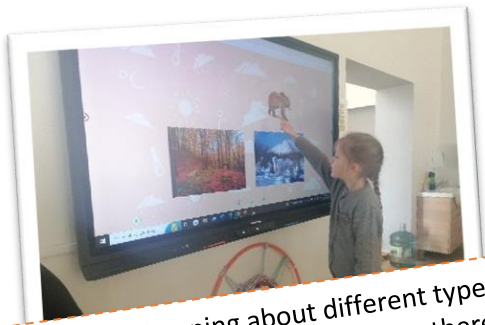
11. And what about plants?

To create a transition to Lesson 10 “Plants and global warming”, pupils first share their ideas about how changes in temperature affect plants. Pupils can give examples on how plants wither or dry up in extreme heat and drought, or freeze when it is too cold. Encourage pupils to think about how the extinction of plants affects different animals, explaining that all living organisms are interconnected. When plants disappear, animals may not have anything to eat or a place to live.

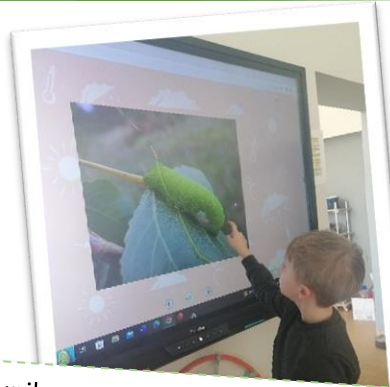
At the end of the lesson ask pupils:

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

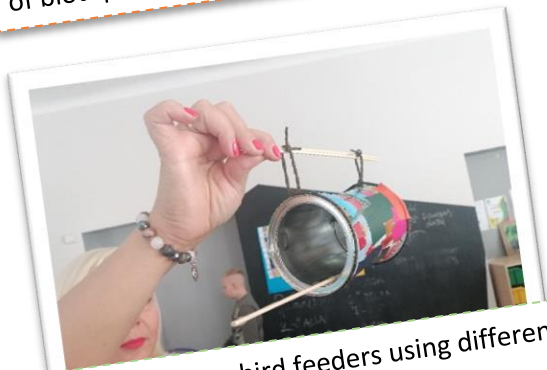
Images from the lesson process



Pupils are learning about different types of biotopes and the animals living there.



Pupils are searching for animals hidden in plain sight.



Pupils are building bird feeders using different household materials.



Pupils are creating and decorating their own pencil holder.

Pupils say that this was their favorite lesson, because everyone had a chance to come to the teacher's computer multiple times and solve part of the task.

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