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Teachers' Guidelines

🗮 Will taiga animals adapt to climate change?

Information about the package:

Brief Description: The taiga is the deep boreal forests of the north. Where the wolves roam, brown bears pick berries, and capercaillies dance and sing. The biodiversity is huge, and in the taiga ecosystem, all the species are intricately linked to each other. What happens to such closeness when the climate is changing?



Social science ID % Ecology 25% Subject fieeds Environmental sciences 7D %

How does the package relate to STEAM education?

Keywords: key-stone species, cascading effects, climate change, precipitation, extreme weather, boreal, conifer, deciduous, forest succession, heat stress

Age Range: 13-19 years

Didactical Hours: 3-6 school hours + students working on their own 5-15 hours (you can pick modules that suit your time schedule, see time allocation per module on the next page)

Learning objectives:

- \mathbb{P} knows what and where the taiga is
- iggvee understands ongoing and expected climate changes in the taiga
- \bigcirc are able to outline possible effects of these changes on specific taiga mammals and birds
- \bigcirc grasps how effects on one species also affects a whole range of other species

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EDU-ARCTIC 2: from polar research to scientific passion – innovative nature education in Poland, Norway and Iceland receives a grant of ca. 245 000 EUR received from Iceland, Liechtenstein and Norway under EEA funds. The purpose of the EDU-ARCTIC 2 project is to: enhance the knowledge about nature, geography, natural resources, political specificities concerning polar regions and increase awareness of environmental issues and climate change, increase of interest in pursuing STEM education and careers due to enhancement of knowledge about scientific research, and their place in the modern world, familiarizing young people with scientific career opportunities; introduce innovative tools by way of an e-learning portal and effective methods of teaching science in schools







Content of the package:

PREPARE: brief intro to the topic, learning goals, terms to learn **LEARN**: interactive room, research exercise **WRAP-UP**: summary of tool-kit, reflecting exercises

Guidelines for teachers:

The tool-kit is meant to be used digitally online, although there are options to download or print pages if necessary. It is best followed in the sequence in which the modules are given. All the modules made in Genially can easily be presented by the teacher on a large screen in front of the class. You can mix such presentation with intermittent individual work in-class, e.g., the pupils taking the quizzes on their own. Most of the modules have content with audio, so pupil headsets are recommended. All modules are self-explanatory so that the pupils can work completely on their own (also from home).

PREPARE

Didactic 15 minutes, individual 30 minutes

The introduction presents the learning goals. These mix learning of facts and the understanding of environmental and citizen challenges around the topic. A short intro to topic draws out the overall understanding, presented on a few slides of text and illustrations. Terms to learn are explained, and the learning of them facilitated with a quiz.

LEARN

Didactic 45-210* minutes, individual 4-10 hours

Interactive room are videos and articles linked in mainly from the internet, put into an interactive room with small facts and curiosity-stimulating bits and pieces along the way, where the pupils click their way through. The contents have been scrutinized by scientists for scientific merit and to avoid false news. There is a quiz to recap learning at the end of the interactive room

Research Lab is typically a group exercise for either in-class experiments or outdoor schooling. For some topics it is a purely theoretical exercise, like working with hypotheses. There are step-by-step instructions, and no advanced equipment is needed, only tools that everybody have access to. * *the outdoor schooling in this tool-kit takes 2-3 hours*

WRAP-UP

Didactic 45-90 minutes, individual 1-5 hours

Wrapping up the tool-kit is done in two steps. First there is a presentation, which the teacher can present in class or the pupils can interact with on their own. Then there is a reflecting exercise, which focuses on sustainability or ethics. This is a pedagogically important step. We advise that the pupils do the exercise individually (as in-depth homework), and afterwards the teacher opens for in-class discussion. The reflecting exercise can be uploaded on the Graasp platform as either text, video or audio. We also advice that the pupils can choose the communication form they prefer.

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