Lerneinheit 04: Connection between flora and environmental factors based on the example of different vegetation zones.

Lernziele: This learning unit shows the two kinds of environmental factors: abiotic and biotic. Furthermore, the interaction of several different environmental factors and the resulting vegetation will be worked out.
Lernergebnisse: After working with this unit, the learners will know the difference between abiotic and biotic factors. Moreover, they are able to understand the direct connection of environmental factors with flora and fauna, in different vegetation zones.
Vorwissen: Knowledge about the correlation between environmental factors and flora. The meaning of indicator plants (see first contact and advanced learner)
Zeitumfang: ca. 60 Min
Material: literature and picture provided
Methoden / Techniken: textual work, description, creative thinking, transfer task, (teamwork possible)
Modul/Niveau: Modul 3: „M03 Sammlung und Analyse Biodiversitätsdaten“/ expert learning

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Einführung:
You will learn the difference between abiotic and biotic factors. Moreover, you will explore different vegetation zones all over the world and you are able to see their direct connections with environmental factors.

Aufgaben:
Task 1
Read text one. Explain the meaning of abiotic and biotic factors.

Task 2
Read text two. Which types of flora do you expect in the three vegetation zones (desert, northern coniferous forest and tropical rain forest)? (teamwork possible)

Task 3
Describe the vegetation zone you live in and find examples for the flora. (teamwork possible)

Task 4
Look at the picture. Here you can see a vegetation zone called deciduous and mixed forests. Please write down ideas how the abiotic factors (climate, relief, soil, sunlight and water) look like in this area. (teamwork possible)

Resourcen:

Text 1. Abiotic and biotic factors
In level two you can see the influence of different environmental factors on vegetation. They influence the fauna as well. The environmental factors - climate, relief, soil, sunlight and water - are called abiotic factors. Biotic factors exist too. They can also influence the flora and fauna. These biotic factors are living beings. Influences occur by their own species (intraspecific) or through other species (interspecific).

(Source:: http://www.spektrum.de/lexikon/biologie/abiotische-faktoren/156, http://www.spektrum.de/lexikon/biologie/biotische-faktoren/8827, retrieved 29 July 2015

Text 2. Different vegetation zones

The following text will introduce to you three different kinds of vegetation zones: desert, northern coniferous forest and tropical rain forest.
The desert is characterized by long droughts and high temperature. There are strong differences of temperature and air humidity between day and night. In this zone the yearly precipitation is the lowest. There are different kinds of deserts: sandy desert, gravel desert, stone- or rock desert and salt desert. The northern coniferous forest is located in the northernmost vegetation zone, in which trees and bigger shrubs grow. In this zone there is a noticeable seasonal climate with warm summers and very cold winters. The average temperature values between -15°C and 0°C, showing a dominating cold climate. Precipitation is low. Because of treetops, moss and long frost periods, the water can barely seep away or evaporate. The consequences are ponds and swamps, and generally low nutrient soils.
In the tropical rain forest you can find high precipitation, which is spread out regularly over the year and high humidity. Temperature average is constantly 25°C. Against expectation, the soil is nutrient poor.

(Source: http://www.unser-planet-erde.de/vegetationszonen/ retrieved 29 July 2015)
Picture 1. Deciduous and mixed forest
https://www.flickr.com/photos/bisfogo/shares/E924T2 <html><img src=„https://farm6.staticflickr.com/5728/20136446674_7b03935ae5.jpg“ width=„100%“ alt=„Abb.1“></html>

Mögliche Resultate:
1. Abiotic factors are non-living (climate, relief, soil, sunlight, water)
Biotic factors are living (animals, plants)
Both factors can influence the flora and fauna
2. Desert: flora which does not need much water, can stand the heat and nutrient poor soil, for example: cacti or acacia
Northern coniferous forest: flora must be able to handle different temperatures and moist, nutrient poor ground. For example: coniferous tree, moss
Tropical rain forest: flora needs to be used to high precipitation, humidity and high temperature all year long and nutrient poor soil. For example: orchid, tropical wood
3. Learners´ opinion is wanted
4. Climate: moderate climate, four seasons; moderate precipitation - regular over the whole year
Relief: mixed relief; low land, hilly landscape, low mountain range and high mountain regions
Soil: high nutrient value and water storage capacity
Sunlight: moderate warm temperature
Water: many lakes, rivers and streams

Thematisch ähnliche Lerneinheiten:

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