

Ecosystems

Extension resource: Biomes

Through your ecosystem study in the school grounds, you will have discovered that there can be significant variations in the abiotic conditions even on the smallest of scales.

What if we were to think about these variations on a much bigger scale? How do abiotic conditions vary between different biomes, for example?

In this activity, you are going to:

1. Research the main biomes, and fill in a table to compare the abiotic features of each
2. Decide on the most suitable locations for 'Educational Eden-Zones' within your school grounds (explained later!)

Task 1

Using the following websites as a starting point, research the abiotic features of each biome listed. Fill the information in the table on the following page as you go.

- www.blueplanetbiomes.org/world_biomes.htm - a good map and links to pages and information on some of the biomes.
- www.cof.edu/ete/modules/mseese/earthsysflr/biomes.html - detailed information on different biomes, including climate graphs.
- www.enchantedlearning.com/biomes/ - very good table comparing characteristics of different biomes and links to information about each biome.
- bennett.karoo.net/topics/ecosystem.html - a good map and rainfall graph comparing biomes. Also links to further information about each biome.
- www.mbgnet.net/index.html - a colourful and informative site.
- Find some others of your own!

A Comparison of the Features of World Biomes

Biome	Geographical location	Physical features	Climate	Precipitation	Soils
Temperate deciduous forest					
Mediterranean (Chaparral)					
Tropical rainforest					
(Savanna) grassland					
Alpine (mountains)					
Tundra					
Coniferous forest (Taiga)					
Desert (hot <i>and</i> cold!)					

Task 2

Have you heard of the Eden Project in Cornwall? Or maybe you've visited it? It is a large-scale environmental project comprising several domes, each of which represent a different biome.

The Eden Project was built on the site of a reclaimed china clay pit, and there was no soil there when it was set up. The developers had to think very carefully about the soil and climatic conditions they would need in each dome, so that it would mimic the natural biome.

Find out some information about how they did that here:

- www.edenproject.com/foundation/1087.html - soils
- www.edenproject.com/about/517.html - general information, including how they maintain and control the climate in the domes.

'Educational Eden-Zones'

You are going to imagine that your school wants to set up a 'mini Eden project' within the grounds. It will be used as an educational resource throughout the school.

Your fieldwork data will be used to identify the most suitable site for the proposed biomes. Initially, there will be two, like in the real Eden project - a temperate biome and a Mediterranean biome.

You are going to draw up a plan for this project, which should include;

- An introduction to the proposal, saying what the aims are;
- A sketch map / plan of the school grounds showing the chosen location for each 'biome';
- A written explanation of how data was collected in the school grounds, and;
- A justification of why these sites were chosen in particular.

You could also include;

- Details of your plans for the plants which will become part of each 'biome'
- Details of how you plan to maintain the abiotic conditions of each 'biome'

If you're being really brilliant you could even consider the energy requirements for maintaining the 'biomes', and devise a plan for achieving a sustainable supply of irrigation water and nutrients to add to the soil.

Good luck!