



## Blue Planet

### Subject

#### Geography:

#### Climate change:

Climate change is when there is a big difference in normal climate patterns over a long amount of time. The Earth's climate appears to be changing very fast, something that has not happened since the end of the last ice age, 10 000 years ago. Scientists believe that the world is getting hotter, which we can see by the melting of the polar ice caps and the rise in sea levels. They think that the increase in 'greenhouse gases', gases from factories, cars and aeroplanes that go into the atmosphere, are partly to blame.

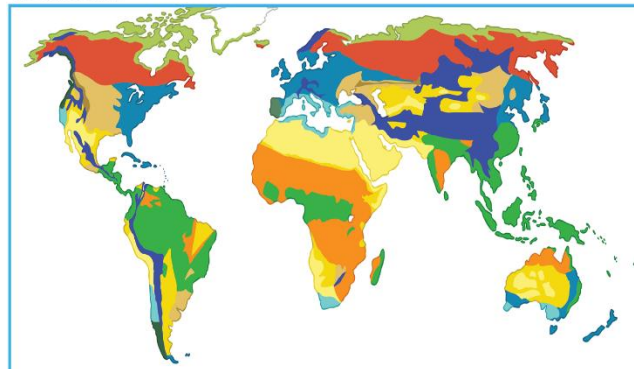


#### Biome:

A biome is a large region of Earth that has a certain climate and certain types of living things. Major biomes include: grassland, desert, forest, rainforest, tundra and aquatic.

The plants and animals of each biome have traits that help them to survive in their particular biome. Plants and animals that live within smaller areas of a biome also depend on each other for survival. These smaller areas are called ecosystems. Each biome has many ecosystems.

World Biomes



### Key Vocabulary

Climate change  
 Atmosphere  
 Greenhouse effect  
 Greenhouse gases  
 Global warming  
 Environment  
 Man made  
 Natural resource

Biome  
 Ecosystem  
 Grassland  
 Desert  
 Forest  
 Rainforest  
 Tundra  
 Aquatic



**Climate Zone:**

The world has several climate zones. The classification is based on maximum and minimum temperatures and the temperature range as well as the total and seasonal distribution of precipitation.

Simple summary of climatic zones:

**Polar** - very cold and dry all year

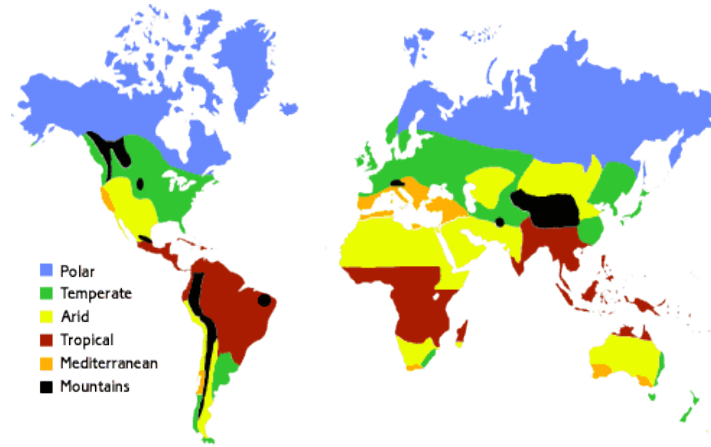
**Temperate** - cold winters and mild summers

**Arid** - dry, hot all year

**Tropical** - hot and wet all year

**Mediterranean** - mild winters, dry hot summers

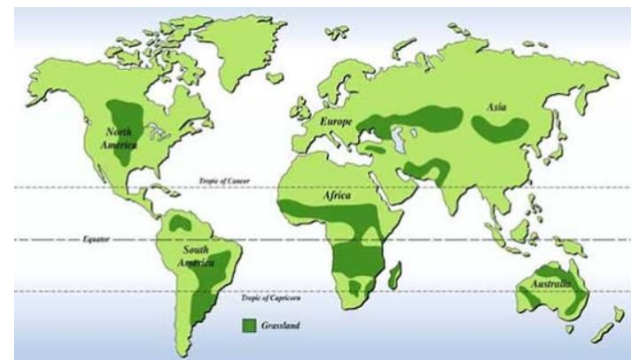
**Mountains (tundra)** very cold all year



Climate zone  
Polar  
Temperate  
Arid  
Tropical  
Mediterranean  
Mountains

**Grassland:**

**Grasslands** are wide expanses of land filled with low growing plants such as grasses and wildflowers. The amount of rain is not enough to grow tall trees and produce a forest, but it is enough to not form a desert. The temperate **grasslands** have seasons including a hot summer and a cold winter.



Tropical grassland  
Temperate grassland

**Desert:**

Deserts are the driest places on Earth. By day, deserts may be baking hot, but at night they can be freezing cold. There are 4 different types of desert: **Subtropical, Semiarid, Coastal and Polar**. They all have things in common, including

Subtropical desert  
Semiarid desert



very little rainfall, few animals and plants, and strong winds. When people think of deserts, they usually think of sand, the tiny particles of rocks and minerals that also occur on beaches. In fact, only 20% of the world's deserts are covered in sand. Most deserts are mainly made up of rocks or gravel, while others are icy. Deserts cover more than one-quarter of Earth's land surface.



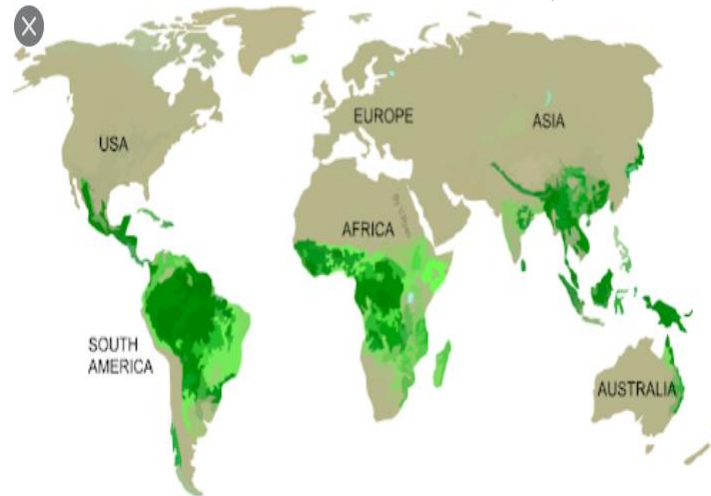
Coastal desert  
Polar desert

### Forest:

A forest is a land area that is populated by many trees. Forests are one of the most common and most important kinds of ecosystems on our earth. Their trees help produce oxygen that all living things need.

**Temperate deciduous forests** are most notable because they go through four seasons. Leaves change colour in autumn, fall off in the winter, and grow back in the spring; this adaptation allows plants to survive cold winters.

**Coniferous forest**, vegetation composed primarily of cone-bearing needle-leaved or scale-leaved evergreen trees, found in areas that have long winters and moderate to high annual precipitation.



Temperate deciduous forest  
Coniferous forest

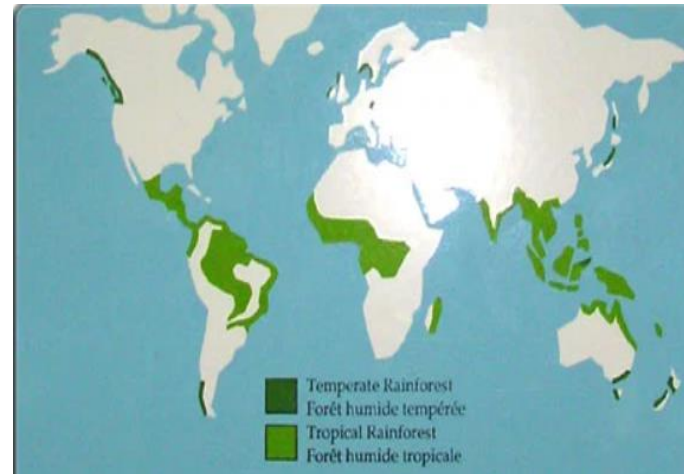


### Rainforest:

"**Rainforest**" is a term for a forest of broad-leaved evergreen trees that receives high annual rainfall and is characteristically associated with tropical and subtropical regions of the world.

**Temperate rainforests** are found in regions with heavy rainfall similar to tropical rainforests but have cooler temperatures. The rainfall is not evenly distributed throughout the year, and there can be dry periods, when fog from the sea supports the forest, so most temperate rainforests are found along coasts.

**Tropical rainforests** are very warm, and humid throughout the year due to the even rainfall that they receive. Found near the equator, these forests are always warm, with 12 hours of sunlight around the year.



Temperate rainforest  
Tropical rainforest

### Tundra:

There are three types of tundra: **Arctic tundra**, Antarctic tundra, and **alpine tundra**. Tundra is a vast, treeless landscape that covers almost 20 percent of the Earth's surface. Most tundra is around the Arctic circle, but this is also tundra near Antarctica and on high mountains. The region is cold, dry and windy. Snow covers the ground for nine months of the year when plants cannot grow. When the snow melts, the tough grasses, mosses and small shrubs have a short, quick growing season. They have short roots as only the top layer of soil thaws out. The conditions are so harsh that few animals live in the tundra all year. When snows covers the ground, many animals move to warmer areas to find food.

**The arctic tundra** is a harsh environment that only the toughest plants and animals can survive in. The habitat has a long and brutal winter and the barren landscape provides many challenges.

Arctic tundra  
Antarctic tundra  
Alpine tundra



**Antarctic tundra** is very similar to the Arctic, only it is located on Antarctica and its surrounding islands such as the Falkland Islands. **Alpine tundra** is a type of geological terrain. It is to be found at high enough altitude at any latitude on Earth. **Alpine tundra** lacks trees. The lower parts do not have permafrost.

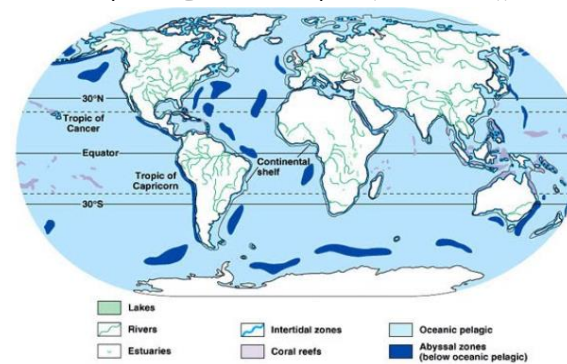


**Aquatic:**

The aquatic biome is the largest of all the biomes, covering about 75 percent of the Earth's surface. This biome is usually divided into two categories: freshwater and marine.

Typically, **freshwater** habitats are less than 1 percent salt. **Marine** life, however, has to be adapted to living in a habitat with a high concentration of salt.

Freshwater habitats include ponds, lakes, rivers, and streams, while marine habitats include the ocean and salty seas.



Freshwater biomes  
Marine biome  
Biosphere

**Plastic pollution:**

**Plastic pollution** is the accumulation of plastic objects and particles (e.g. plastic bottles, bags and microbeads) in the Earth's environment that adversely affects wildlife, wildlife habitat, and humans. Plastic pollution can afflict land, waterways and oceans. It is estimated that 1.1 to 8.8 million tonnes of plastic waste enters the ocean from coastal communities each year.<sup>[6]</sup> Living organisms, particularly marine animals, can be harmed either by mechanical effects, such as entanglement in plastic objects, problems related to ingestion of plastic waste, or through exposure to chemicals within plastics that interfere with their physiology.

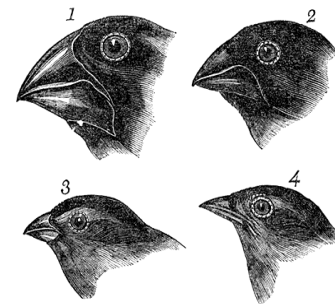
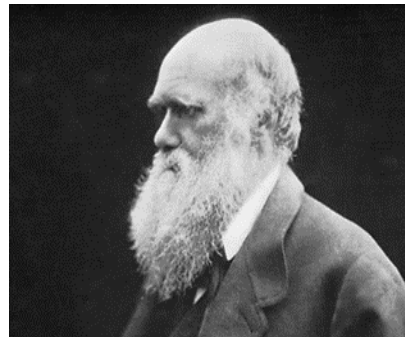
Plastic pollution  
Environmental issues  
Microplastics



**Science:**

**Charles Darwin and evolution**

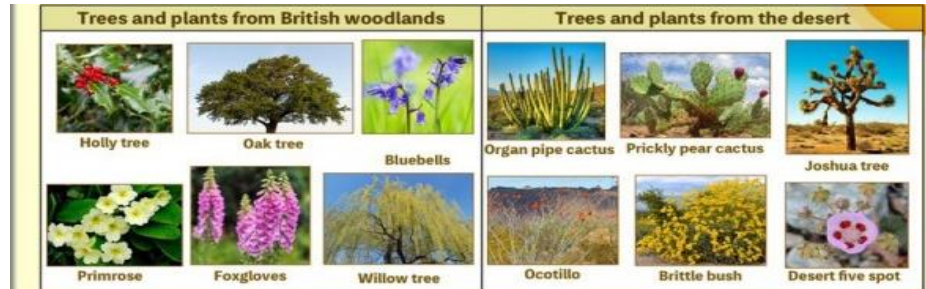
Darwinism is a theory of biological evolution developed by the English naturalist Charles Darwin (1809-1882) and others, stating that all species of organisms arise and develop through the natural selection of small, inherited variations that increase the individual's ability to compete, survive, and reproduce.



Charles Darwin  
Evolution  
Organisms  
Inherited  
Environment

**Adaptation:**

An adaptation is a trait (or characteristic) changing to increase a living thing's chances of surviving and reproducing.



Adaptation  
Surviving  
Reproducing

**Art:**

**Andy Goldsworthy:**

Andy Goldsworthy OBE is a British sculptor, photographer and environmentalist who produces site-specific sculptures and land art situated in natural and urban settings.



Landscape  
Artist  
Environmentalist



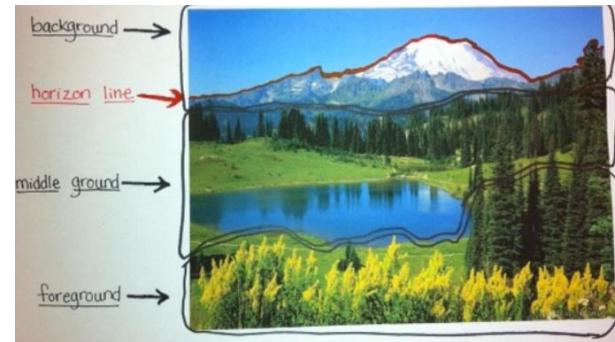
**John Constable:**

John Constable was an English Romantic painter and landscape painter. His most famous work is The Hay Wain, painted in 1821 and now one of the most popular of British paintings.



**Proportion and perspective:**

Scale is used in **art** to describe the size of one object in relation to another, each object is often referred to as a whole. **Proportion** has a very similar definition but tends to refer to the relative size of parts within a whole. ... Essentially, scale and **proportion** help the viewer make sense of the **artwork**.



Foreground  
Middle ground  
Horizon line  
Background

**Design Technology:**

**Cross section:**

A view into the inside of something made by cutting through it. Cross sections make it easy to draw details of solid objects.

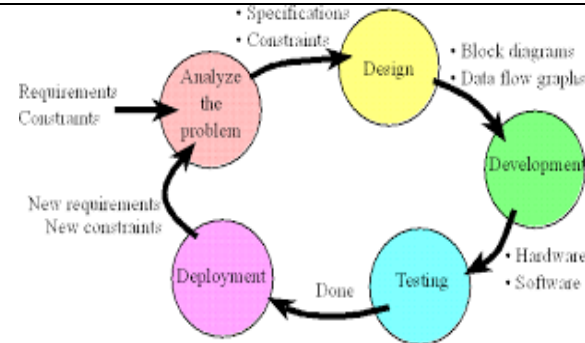


Cross section



### Design specification:

**Design specification.** A **design specification** is a detailed document providing a list of points regarding a product or process. For example, the **design specification** could include required dimensions, environmental factors, ergonomic factors, aesthetic factors, maintenance that will be needed, etc.



Design specification