Section 1.4: Adaptations and the Environment

Adaptations and Competition

- That an adaptation is a characteristic which helps an organism to survive in its environment.
- That desert animals have adaptations including a large surface area compared to volume, a thin layer of body fat, a thin insulating coat and camouflage.
- That arctic animals have adaptations including a small surface area compared to volume, a thick layer of body fat (blubber), a thick insulating coat and camouflage.
- That desert plants have adaptations including a small surface area compared to volume, water storage tissues and a wide or deep root system.
- That some plants and animals have adaptations to deter predators, such as thorns or spines, poisons and warning colours.
- That an extremophile is an organism that is adapted to survive in extreme conditions (e.g. at very high temperatures, in very high salt levels or at high pressure).
- How to identify adaptations of a given organism and explain how the adaptations help the organism to survive in its environment, e.g. help it to find food.
- That plants need light, space, water and nutrients to survive and reproduce.
- That animals need space, food, water and mates to survive and reproduce.
- That plants and animals compete with other species and members of their own species for the resources they need to survive and reproduce.

Environmental Change

- That environmental changes can be caused by living factors (e.g. a change in the number of competitors) and non-living factors (e.g. a change in average temperature or rainfall).
- That environmental changes can cause an increase or decrease in population size, or a change in the distribution of populations.
- How to evaluate data showing the effect of environmental changes on organisms.

Measuring Environmental Change

- That lichens are living indicators that can be used to monitor air pollution because they are sensitive to the concentration of sulfur dioxide in the atmosphere.
- That some invertebrate animals are living indicators that can be used to monitor water pollution because they are affected by the concentration of dissolved oxygen in water.
- That non-living indicators are not alive, but can be measured or monitored to give information about environmental change, e.g. sea surface temperature can be monitored by satellites, rainfall can be measured using rain gauges.