

Knowledge: Abiotic and Biotic Factors

**Abiotic:** Non-living factors of an environment e.g. moisture, light, temperature, CO<sub>2</sub>, wind, O<sub>2</sub> or PH

**Biotic:** Living factors of an environment e.g. predators, competition, pathogens

Knowledge : Adaptations

1	Structural adaptations are features of the organism's body e.g. colour for camouflage
2	Behavioural adaptations are how the organism behaves e.g. migration to a warmer climate
3	Functional Adaptations are the ways the physiological processes work in the organism e.g. lower metabolism during hibernation to preserve energy

Knowledge: Food Chains

1	The source of all energy in a food chain is the sun's radiation. It is made useful by plants and algae
2	The living organisms use the energy to produce biomass and grow. When a living organism is consumed, some of the biomass and energy is transferred.

Key Vocabulary

1	Biodiversity	The variety of living organisms
2	Carrion	Decaying flesh and tissue of dead animals
3	Community	Made up of the populations of different species living in a habitat
4	Competition	The negative interaction between two or more organisms which require the same limited resource
5	Consumers	Feed on other organisms for their energy
6	Decomposers	Organisms which feed on dead and decaying organisms
7	Deforestation	The removal and destruction of trees

Key Vocabulary

8	Ecosystem	The interaction between the living organisms and the different factors of the environment
9	Global warming	The increase of the average global temperature
10	Habitat	Where a living organisms live
11	Interdependence	The interaction between two or more organisms- where it is mutually beneficial
12	Population	The number of individual organisms of a single species living in habitat
13	Predators	Organisms which kill for food
14	Prey	The animals which are eaten by the predators

### Knowledge: Water Cycle

Convection is the movement caused within a fluid as the hotter, less dense material rises and colder dense material sinks

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| 1 | Evaporation occurs when heat energy is transferred to water particles as kinetic energy – particles turn from liquid to a gas                              |
| 2 | Condensation occurs when moving particles transfer kinetic energy to surroundings – gas turn into a liquid   |
| 3 | Precipitation occurs when rain, snow, sleet, or hail falls to the ground   |
| 4 | Transpiration is the process by which water is carried through plants from roots to the stoma on the underside of leaves and it evaporates to surroundings |

### Knowledge: Carbon Cycle

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| 1 | Carbon is continuously transferred to and from atmosphere  |
| 2 | Carbon in the atmosphere combines with oxygen to make CO <sub>2</sub>  |
| 3 | Processes involved in the carbon cycle are photosynthesis, respiration, dissolving, combustion and decomposition |

### Knowledge: Field Technique ( RP)

The distribution of an organism is affected by the environment and abiotic factors

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| 1 | Quadrats can be used to measure the frequency of an organism in a given area e.g. school field |
| 2 | Quadrats should be placed randomly and collect data from two different areas to compare        |
| 3 | Mean = $\frac{\text{total number of organisms}}{\text{number of quadrats}}$                    |

### Knowledge: Decomposition ( Triple)

Decomposition is the process of rotting ( decay) of a material

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| 1 | The optimum conditions for decay to occur are warm, moist and plenty of O <sub>2</sub>   |
| 2 | Foods can be preserved by cooling, canning, freezing, drying, pickling or adding salt or sugar   |
| 3 | Microorganism ferment waste materials. Producing biogas, which can be used as a fuel source. Biogas is produced in a generator using microorganism |

### Knowledge: Decay – RP – ( Triple)

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| 1 | Investigating the effect of temperature on the rate of Decay of Milk by measuring pH change   |
| 2 | IV : temperature<br>DV: time taken for indicator to change colour                             |
| 3 | Mean = $\frac{\text{total time taken for pink colour to disappear}}{\text{number of trials}}$ |

### Knowledge : Food Security ( Triple)

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| 1 | Food security means a whole population have access to enough nutritious food to sustain a healthy lifestyle  |
| 2 | This is achieved using methods which the planet can continue to sustain for further generations of the populations   |
| 3 | Several biological factors which can threaten food security are<br>Increasing birth rate, changing diets, new pests and pathogens, widespread famine, drought, increasing costs, war and conflicts |

Additional info: Trophic levels describe the position of an organism within food chain  
Level 1 : Producers  
Level 2: Primary consumers  
Level 3: Secondary consumers  
Level 4: Tertiary consumers