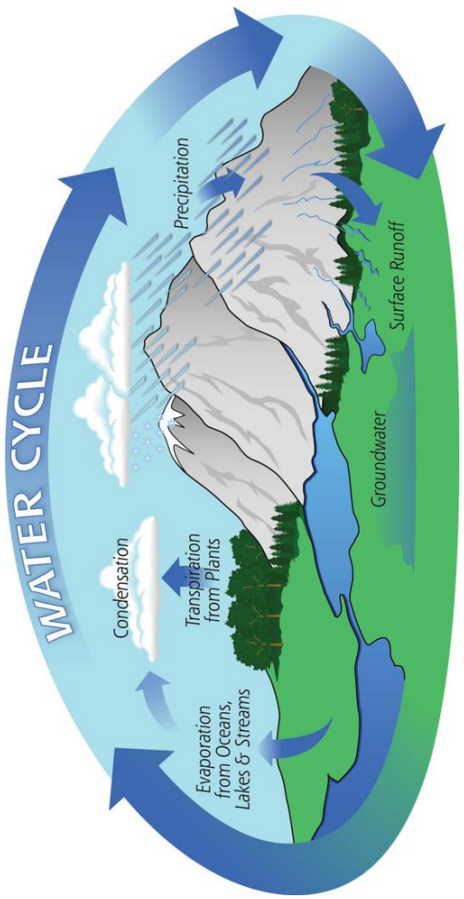
EDEXCEL GCSE Ecosystems and material cycles PART 1

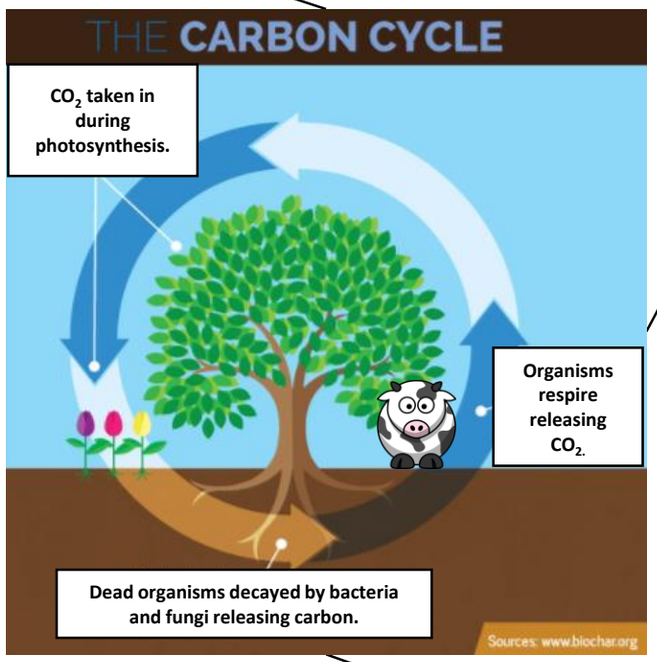
Ecosystem		
	Environment	The conditions surrounding an organism; abiotic and biotic.
	Habitat	Place where organisms live e.g. woodland, lake.
	Population	Individuals of a species living in a habitat.
	Community	Populations of different species living in a habitat.

Organisms require a supply of materials from their surroundings and from the other living organisms.

Bacteria respire when breaking down dead organisms releasing CO_2.

In times of drought desalination plants can be used to produce potable water.



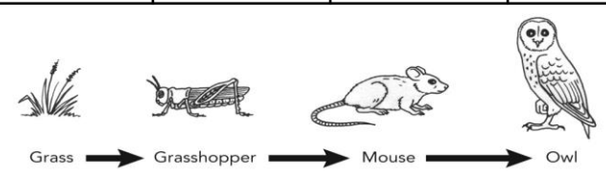


Materials are recycled to provide the building blocks for future organisms

Rate of decomposition (biology only) $= \frac{mass\ lost}{number\ of\ days}$

Factors affecting rate of decay and food preservation (biology only)
Temperature, water, oxygen
Increase the rate of decay when increased. In enzyme controlled reactions raising the temperature too high will denature the enzymes.

Food chains			
Feeding relationships in a community			
Producer	Primary consumer	Secondary consumer	Tertiary consumer



All food chains begin with a producer e.g. grass that is usually a green plant or photosynthetic algae.	Consumers that kill and eat other animals are predators and those eaten are prey.

Decomposition and material cycling in abiotic an biotic systems

Interdependence and competition

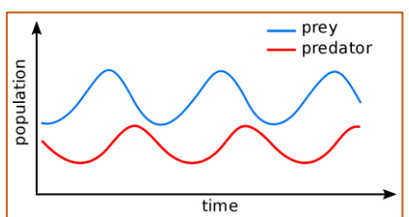
Surviving and reproducing		
	Competition	Plants in a community or habitat compete with each other for light, space, water and mineral ions.
		Animals compete with each other for food, mates and territory.
	Interdependence	Species depend on each other for food, shelter, pollination, seed dispersal etc. Removing a species can affect the whole community

Parasitism and mutualism		
	Parasites	Parasites feed off a host causing harm to the host e.g. tape worm living inside digestive system.
	Mutualistic relationships	e.g. insects and flowers in pollination. Plant ovum are successfully fertilised, insect species receive food (nectar)

Abiotic and biotic factors.

Levels of organisation

Photosynthetic organisms are the producers of biomass for life on Earth



In a stable community the numbers of predators and prey rise and fall in cycles.

Abiotic	**Biotic**
Non-living factors that affect a community	***Living factors that affect a community***
Living intensity.	Availability of food.
Temperature.	
Moisture levels.	New predators arriving.
Soil pH, mineral content.	
Wind intensity and direction.	New pathogens.
Carbon dioxide levels for a plant.	One species outcompeting so numbers are no longer sufficient to breed
Oxygen levels for aquatic organisms.	

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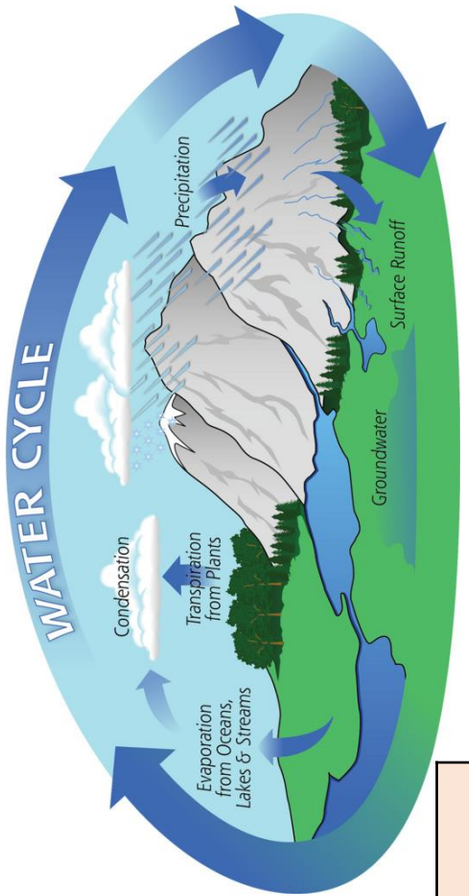

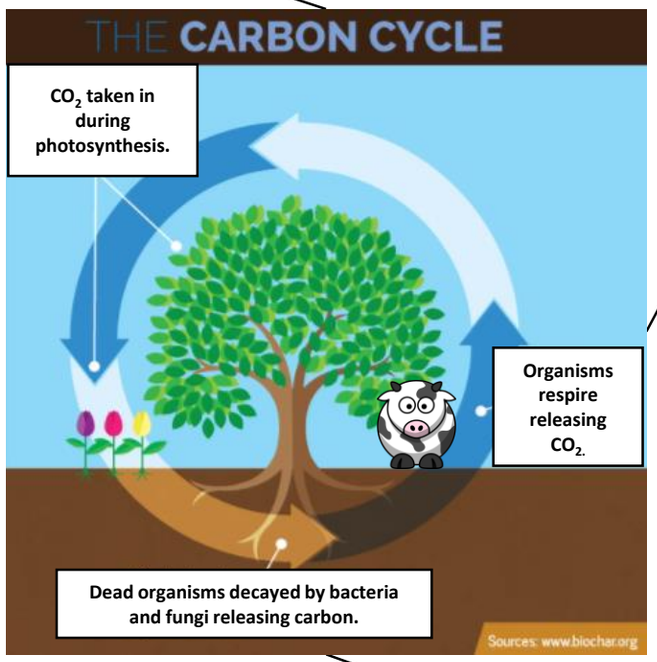

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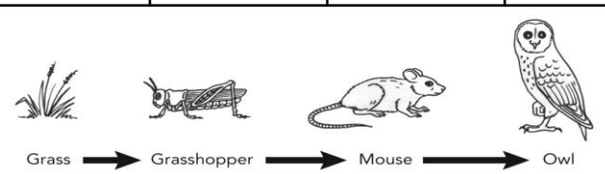
Temperature, water, oxygen
Increase the rate of decay when increased. In enzyme controlled reactions raising the temperature too high will denature the enzymes.

$$\text{rate} = \frac{\text{mass lost}}{\text{number of days}}$$

Feeding relationships in a community			
Producer	Primary consumer	Secondary consumer	Tertiary consumer



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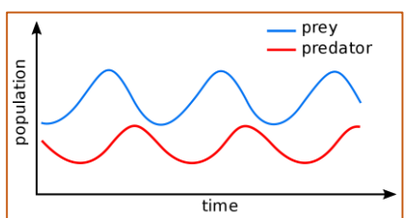

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Decomposition and material cycling in abiotic an biotic systems

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Decomposition and material cycling in abiotic an biotic systems

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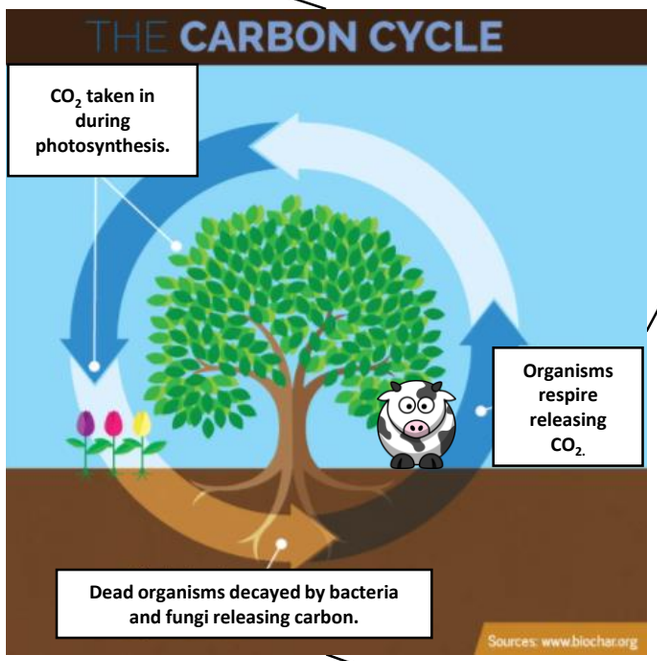

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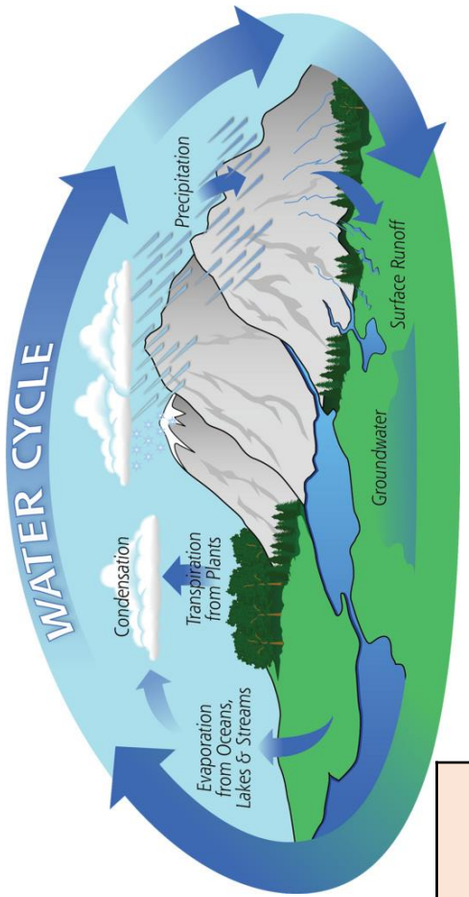

Materials are recycled to provide the building blocks for future organisms

Producer	Primary consumer	Secondary consumer	Tertiary consumer
Grass →	Grasshopper →	Mouse →	Owl
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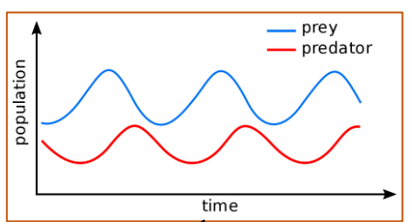

In a stable community the numbers of predators and prey rise and fall in cycles.

Increase the rate of decay when increased. In enzyme controlled reactions raising the temperature too high will denature the enzymes.	

$$\text{mean} = \frac{\text{sum of values}}{\text{number of values}}$$

$$= \frac{\text{mass lost}}{\text{number of days}}$$

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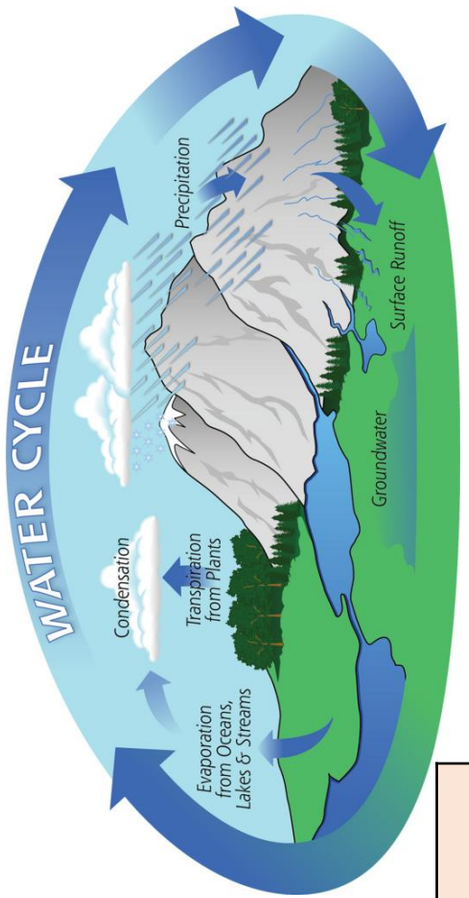

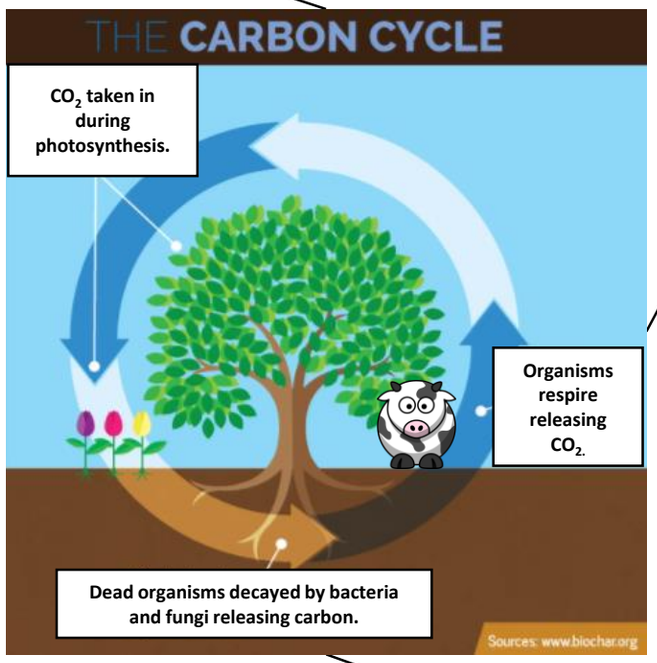

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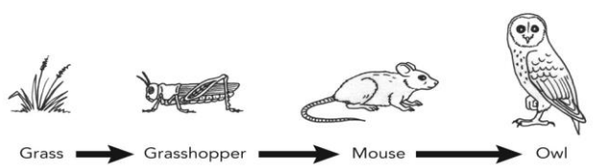

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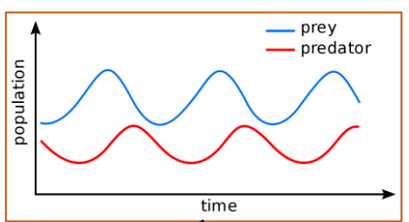

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