Key Knowledge for B7- Ecology (Foundation/ Higher)

Communities- keywords	
Habitat	• Where an organism lives
Population	• All the organisms of one species living in a habitat
Community	• All the different populations living together in a habitat
Abiotic factors	• Non-living factors eg. temperature, pH
Biotic factors	• Living factors eg. food, disease
Ecosystem	• All the interactions between living things and their abiotic environment
What do animals compete for?	• Space (territory), food, water, mates
What do plants compete for?	• Light, space, water, mineral ions
Name some abiotic factors	• Temperature, light intensity, temperature, carbon dioxide level, wind intensity, oxygen level, pH
Name some biotic factors	• New predators, competition, new pathogens, availability of food
What do we mean by interdependence?	• Within a community each species depends on other species for food, shelter, pollination, seed dispersal etc.. • If one species is removed it can affect the whole community
What do we mean by a stable community?	• All the species and environmental factors are in balance so that population sizes remain fairly constant

Adaptations	
What are structural adaptations?	• Features of an organism's body • Eg. white fur for camouflage
What are behavioural adaptations?	• Behaviours which help an organism survive • Eg. birds migrating to warmer countries
What are functional adaptations?	• Things that go on inside an organism's body • Eg. dessert animals conserve water by not sweating much
What is an extremophile?	• Microorganisms that are adapted to living in very extreme conditions
Give an example of an extremophile	• Bacteria living in deep sea vents
Feeding Relationships- keywords	
Producers	• Green plants that carry out photosynthesis to make their own food (glucose) • Always at the start of a food chain
Biomass	• Mass of living material
Primary consumers	• Animals that eat plants/ producers
Secondary consumers	• Animals that eat primary consumers
Tertiary consumers	• Animals that eat secondary consumers
Prey	• Animals that get eaten by other animals
Predators	• Animals that eat other animals
Where does the energy for all life come from?	• The sun
Describe a predator-prey relationship	• The number of prey increase due to good food supply/ less predators • The number of predators increase as there are lots of prey to eat • This causes the number of prey to decrease • As there is now less food for predators their numbers decrease

Water Cycle	
How is evaporation involved in the water cycle?	• Water evaporates from land and sea to form vapour water
How is transpiration involved in the water cycle?	• Evaporation of water from the leaves of plants
How is condensation involved in the water cycle?	• Water vapour is carried upwards, as it gets higher it cools down and condenses to form clouds
How is precipitation involved in the water cycle?	• Water falls from the clouds as rain or snow
Carbon Cycle	
How is photosynthesis involved in the carbon cycle?	• Plants remove carbon dioxide from the atmosphere to use in photosynthesis
How is respiration involved in the carbon cycle?	• Respiration returns carbon dioxide to the atmosphere
How is eating involved in the carbon cycle?	• When animals eat plants the carbon from the plants is passed onto animals
How is decay and decomposition involved in the carbon cycle?	• Microorganisms digest waste/ dead matter. • These microorganisms respire and return carbon dioxide into the atmosphere.
How is combustion involved in the carbon cycle?	• Burning fossils fuels returns carbon dioxide to the atmosphere
Why are microorganisms important in the recycling of materials?	• They decompose dead/ waste matter which releases mineral ions back into the soil. • As they respire they return CO_2 to the atmosphere

Global Warming	
Name 2 greenhouse gases	• Carbon dioxide + methane
Describe the process of global warming	• Increased levels of greenhouse gases in the atmosphere act as an insulating layer • More of the sun's heat energy is absorbed and less is radiated back to space • The Earth is gradually warming up, causing climate change
Give some effects of global warming	• Ice caps melting = sea levels rising = flooding = loss of habitat • Changes in the distribution of organisms • Changes to migration patterns • Reduction in biodiversity

Why is deforestation increasing?	• More land needed for:
	  ○ cattle farming
	  ○ rice fields
	  ○ to grow crops for biofuels

Give 2 effects of deforestation	• Increased global warming • Reduced biodiversity
Why does deforestation cause global warming?	• When land is cleared, trees are burned which releases carbon dioxide into the atmosphere • When trees are cut down they are no longer photosynthesising and removing carbon dioxide form the atmosphere
What are peat bogs?	• Areas that are acidic and waterlogged. • Plants that die don't decay fully as there's a lack of oxygen • The carbon in the plants remains locked up in the peat
Why are peat bogs being drained?	• To make land available for farming • The peat can be dried out and used as a fuel or as compost
How is peat bog destruction causing global warming?	• When peat bogs are drained they come into contact with oxygen • Microorganisms start to respire and decompose the dead plant remains • Microorganisms release carbon dioxide into the atmosphere that was previously locked up

Biodiversity	
What is biodiversity?	• The number of different plant and animal species in an ecosystem/ on Earth
Why is high biodiversity important?	• Makes ecosystems stable
Give some negative effects of our rapidly increasing human population	• Increased waste • Increased use of raw materials • Increased energy usage

Give some examples of water pollution	• Fertilisers wash into lakes and ponds
	  ○ They cause algae to grow rapidly
	  ○ When the algae die it's decomposed by microorganisms which respire and use up oxygen in the water
	  ○ Fish die due to lack of oxygen
	• Sewage and toxic chemicals wash into water

Give some examples of land pollution	• Use of toxic chemicals for farming • Nuclear waste is buried underground • Landfill
Give some examples of air pollution	• Smoke and acidic gases cause acid rain
How can we protect ecosystems and increase biodiversity?	• Breeding programmes to help endangered species • Regeneration of rare habitats • Reintroduce hedgerows • Reduce deforestation • Reduce global warming • Reduce waste and increase recycling
Why might there be conflicts over protecting ecosystems and increasing biodiversity	• Costs money • Affects people's jobs • Land needed for more houses/ farmland to house and feed our growing population