

A. Adaptations, interdependence and competition

1. What is the definition of an ecosystem?
2. What do plants compete with other plants for?
3. What do animal compete with each other for?
4. List two ways a plant may depend on another species for its survival.
5. What is interdependence?
6. What is meant by a stable community?
7. What is the definition of an abiotic factor?
8. List three abiotic factors which can affect an aquatic organism.
9. List three abiotic factors which can affect a plant.
10. What is the definition of a biotic factor?
11. List four biotic factors which can affect a community.
12. There are three types of adaptation that an organism may show to aid its survival. What are the three types?
13. What is an extremophile?
14. Give three examples of what might make an environment be described as extreme.
15. Name a particular extremophile you have studied.

B. Organisation of an ecosystem.

1. What is biomass?
2. What does a food chain show?
3. What do all food chains begin with?
4. Name two different types of organism which would be found at the start of a food chain.
5. What is meant by the terms mode and median?
6. What might eat a secondary consumer?
7. Define the term predator.
8. Define the term prey.
9. What piece of equipment is usually used to sample abundance of an organism in an area?
10. Why is it essential that materials are recycled in the living world?
11. What is precipitation in the water cycle?
12. List **three** main processes in the carbon cycle.

Biology Only

13. Name **three** factors which must be present for rapid decay of waste biological material to occur.
14. What do gardeners call the end product after waste biological material has decayed?
15. What is this end product then used for?
16. What causes anaerobic decay to occur?
17. Name a useful end product of anaerobic decay.
18. What is this product used for?
19. What is the name of the equipment used to process and collect this end product?

Biology Higher Tier only

20. List **three** environmental changes which may alter the distribution of a species in an ecosystem.
21. Name **three** reasons why these environmental changes may occur.

C. Biodiversity and the effect of human interaction on ecosystems

1. Define the term biodiversity?
2. What **two** factors have increased the use of resources by humans?
3. List **three** categories of pollution caused by human activity.
4. What can cause pollution in each of these three categories?
5. Name **four** processes which humans carry out that reduces the land available to other animals, plants and microorganisms.
6. Give **three** reasons why humans should not destroy peat bogs to make compost.
7. What is a biofuel?
8. Why do humans undertake large scale deforestation in tropical areas?
9. Name two gases which are increasing in the atmosphere and contribute to global warming.
10. List **three** biological consequences of global warming.

11. Consider the negative aspects of how humans interact with ecosystems. Copy and complete the table to show what could be done positively to counteract this effect?

Negative effects of human interaction on an ecosystem	Positive effects of human interaction on an ecosystem
Global warming and deforestation	
Animals and plants becoming in danger of extinction due to reduction in habitat	
Large 40 acre fields growing one crop	
Dumping waste in landfill sites	

D. Trophic levels in an ecosystem (biology only)

1. Define the term trophic level.
2. What is a carnivore?
3. What is a herbivore?
4. What type of consumer is a carnivore which eats another carnivore?
5. What do we call a carnivore that has no predators?
6. What is a decomposer?
7. How do decomposers gain their food from dead plant or animal matter?
8. How much energy as a percentage is transferred by producers from incident light for photosynthesis?
9. Approximately how much biomass, as a percentage, is transferred from one trophic level to the one above it?
10. List **two** ways in which biomass can be lost at each stage of a food chain.
11. What is the equation which should be used to calculate the efficiency of biomass transfer between trophic levels as a percentage?
12. What does the pyramid of biomass represent?

E. Food production (biology only)

1. What is meant by the term food security?
2. List **four** biological factors which threaten food security.

3. Give **two** ways in which energy transfer to the environment can be restricted in food animals.
4. Some farmers feed their animals high protein food. Why?
5. List **two** things which can be done to conserve fish stocks in the ocean at a sustainable level.
6. What type of food does the fungus *Fusarium* produce?
7. How is *Fusarium* grown?
8. What is golden rice?
9. What type of organism produces genetically engineered human insulin?