KS3 SCIENCE · BIOLOGY

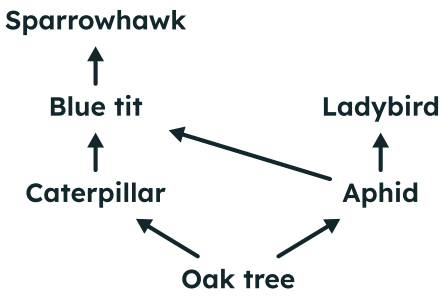
Ecosystems: exam questions

Name _____
Total: 22 marks

1 State what an arrow in a food chain shows. **[1 mark]**

2 Here is a food chain from a rocky shore: seaweed → limpet → crab → gull. Name (a) the producer and (b) the secondary consumer. **[2 marks]**

3 The diagram shows a food web from an oak wood. **[4 marks]**



(a) Write down one food chain from this web that has four living things in it.
(b) Name one animal in the web that is both a predator and prey.
(c) A disease kills most of the ladybirds. Predict what happens to the number of aphids, and explain why.

4 Describe what decomposers do in an ecosystem. **[2 marks]**

5 Rabbit numbers in a wood go up. A year later, fox numbers go up too. Explain why. **[2 marks]**

6 Grey squirrels were brought to Britain from North America. They eat the same food as red squirrels. Explain why the number of red squirrels fell. **[2 marks]**

7 Explain why a fall in the number of bees could mean that farmers grow less food. **[3 marks]**

8 Give one example of a living thing changing its environment. **[1 mark]**

9 A long, dry summer dries out a pond. Describe what is likely to happen to the population of frogs that breed there, and explain why. **[2 marks]**

10 A long-lasting pesticide is washed into a lake. Explain why a heron at the top of the food chain ends up with far more of it in its body than a small fish. **[3 marks]**

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Ecosystems: mark scheme

Total: 22 marks

1 [1 mark]

- The direction in which energy is transferred, from the food to the living thing that eats it (accept: “is eaten by”) **(1)**

2 [2 marks]

- (a) Seaweed **(1)**
- (b) Crab **(1)**

3 [4 marks]

- (a) Oak tree → caterpillar → blue tit → sparrowhawk, or oak tree → aphid → blue tit → sparrowhawk (the arrows must point this way) **(1)**
- (b) Blue tit **(1)**
- (c) The number of aphids rises **(1)**
- (c) Because fewer of them are eaten by ladybirds **(1)**

4 [2 marks]

- They break down dead plants and animals (accept: and waste) **(1)**
- This returns nutrients to the soil, so that plants can use them again (accept: recycles nutrients) **(1)**

5 [2 marks]

- The foxes have more food (accept: more prey) **(1)**
- So more foxes survive and breed (accept: more cubs survive) **(1)**

6 [2 marks]

- The two species compete for food **(1)**
- So there was less food left for the red squirrels (accept: grey squirrels also carry a disease that kills red squirrels) **(1)**

7 [3 marks]

- Bees pollinate the flowers of many food crops (accept an example, such as apples) **(1)**
- Flowers that are not pollinated do not make fruit or seeds **(1)**
- So the harvest is smaller (accept: there is less of these foods, or they cost more) **(1)**

8 [1 mark]

- Any one: a beaver builds a dam that makes a pond; a tree shades the ground beneath it; earthworms mix air into the soil (accept any correct example) **(1)**

9 [2 marks]

- The population falls (accept: the frogs die or move away) **(1)**
- Frogs need water to breed (accept: their eggs and tadpoles need water, or their habitat is lost) **(1)**

10 [3 marks]

- The pesticide is not broken down or passed out, so it stays in the body (accept: it is taken in faster than it is lost) **(1)**
- Each animal eats many of the living things below it in the chain, and takes in the pesticide from all of them **(1)**
- So the amount builds up at each step and is greatest in the top predator (accept: bioaccumulation) **(1)**