

Ecosystems Homework 1 Answers

1) Which of the organisms in the food web shown is the producer? (1)

a) Sea Weed

2) Give one example of a consumer from the food web shown in figure 1 (2)

1.2 Any one from: sea urchin [1 mark] / sea otter [1 mark]
/ octopus [1 mark] / sea snail [1 mark] / crab [1 mark] /
periwinkle [1 mark]

3) Using figure 1, explain how the population of octopuses and seaweed in this ecosystem might be affected if a disease reduced the crab population (2)

1.3 **Octopuses:** The population will decrease because there will be fewer crabs for them to eat [1 mark].
Seaweed: The population of seaweed will increase because less of it will be being eaten by the crabs [1 mark].

4) Using figure 1, explain how the organisms in the food web might be affected if more sea otters were introduced into the area (3)

1.4 A bigger population of sea otters would cause the populations of octopuses, crabs and sea urchins to fall because more of them would be being eaten [1 mark]. This would cause the population of sea snails to increase because there would be fewer octopuses feeding on them [1 mark]. The population of seaweed would increase because there would be fewer sea urchins and crabs feeding on it [1 mark].

5) Describe how nutrients are cycled in a land-based ecosystem (4) –
hint – describe the nutrient cycle)

This question is level marked. How to grade your answer:

Level 0: There is no relevant information. [0 marks]

Level 1: There is a basic description of some parts of the nutrient cycle. [1-2 marks]

Level 2: There is a clear explanation of the complete nutrient cycle. [3-4 marks]

Here are some points your answer may include:

- When dead material decomposes, nutrients are released into the soil.
- The nutrients are then taken up from the soil by plants.
- The plants may be eaten by consumers, so the nutrients they contain are transferred to the consumers.
- When the plants or consumers die, the nutrients are returned to the soil, and the cycle continues.