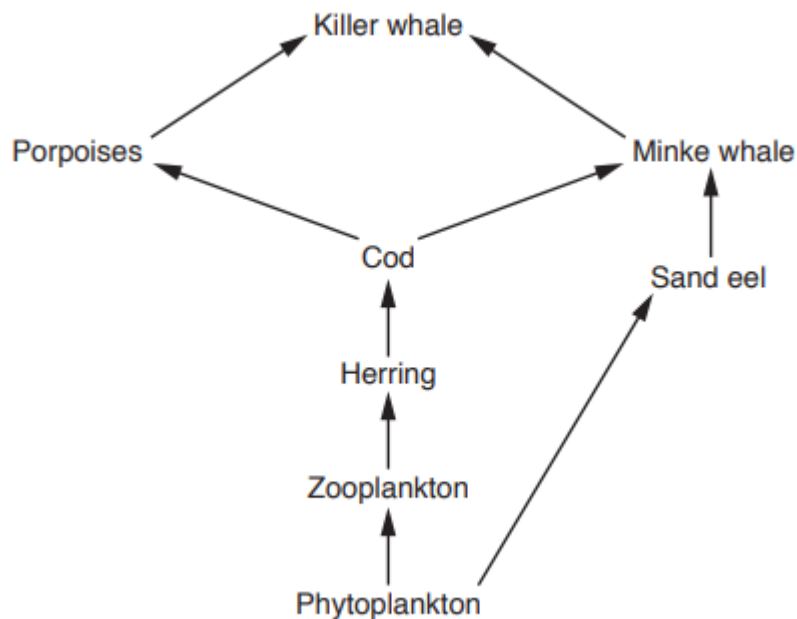


**GCSE Biology B (Twenty First Century Science)**  
**J257/03 Breadth in Biology (Higher)**

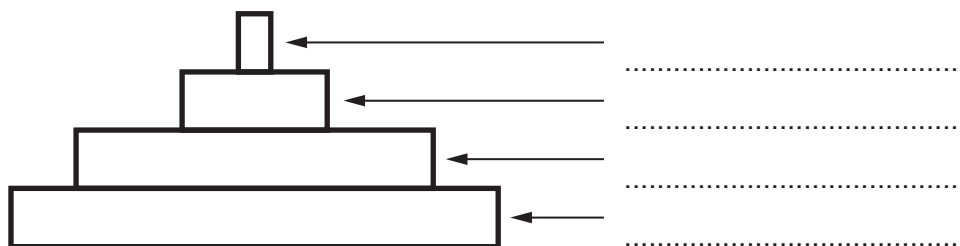
**Question Set 17**

1 (a) Killer whales can be found off the coast of Scotland.

The diagram shows part of their food web.



(i) Use the food web to label this pyramid of biomass correctly.



[2]

(ii) Describe how biomass is lost at each stage of a food chain.

[2]

(b) (i) A killer whale was found dead off the coast of Scotland.

The post mortem found that chemicals called PCBs had bioaccumulated in the whale's body.

Use your knowledge of food chains to explain how the PCBs bioaccumulated.

[3]

(ii) Scientists have worked out that the quantity of PCBs required to damage marine mammal health is 9 mg/kg.

The dead killer whale's blubber (fat) was analysed. They found  $9 \times 10^2$  mg/kg in the blubber.

Do you think scientists would be concerned by this figure?

Explain your answer.

[1]

**(iii)** Whale calves feed on their mother's milk for 11 months. The milk is high in fat.

Suggest why scientists are concerned about the effect of PCBs on the whale population.

**[2]**

**(c)** Explain what would happen to the dead whale's body if it was left in the sea.

**[2]**

**Total Marks for Question Set 17: 12**

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