

19. Organisms and their environment

19.2 Food chains and food webs

Paper 1 and 2

Question Paper

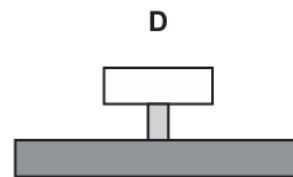
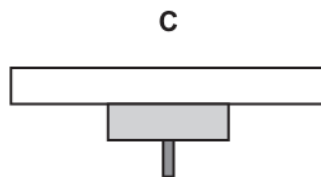
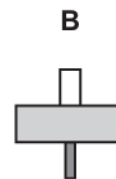
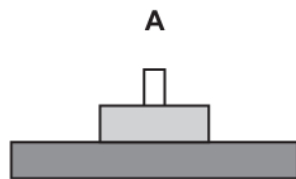
Paper 1

Questions are applicable for both core and extended candidates

1 Which trophic level describes an organism that only eats herbivores?

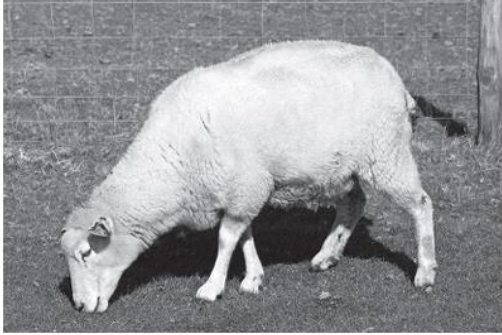
- A producer
- B primary consumer
- C secondary consumer
- D tertiary consumer

2 Which diagram shows a pyramid of biomass for the food chain shown?



3 The images show four animals.

1



sheep

2



eagle

3



tortoise

4



tiger

Which two animals show adaptive features for being secondary consumers?

A 1 and 3

B 1 and 4

C 2 and 3

D 2 and 4

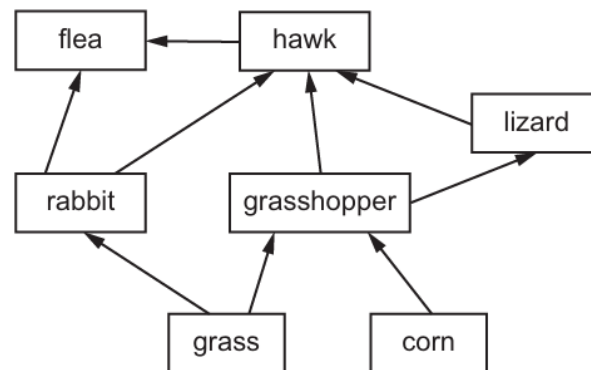
- 4 The diagram shows a food chain.

plant leaf → slug → frog → fox

Which terms describe the position of the fox in this food chain?

	consumer	trophic level
A	quaternary	fourth
B	tertiary	third
C	quaternary	third
D	tertiary	fourth

- 5 The diagram shows a food web.



Which food chain shows a correct flow of energy through the web?

- A** corn → grasshopper → hawk → lizard
- B** grass → grasshopper → hawk → rabbit
- C** grass → rabbit → hawk → flea
- D** corn → grass → rabbit → hawk

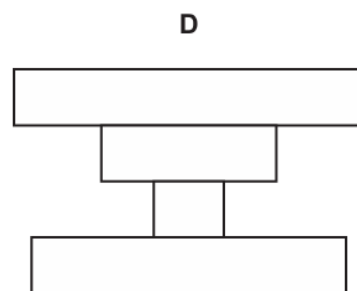
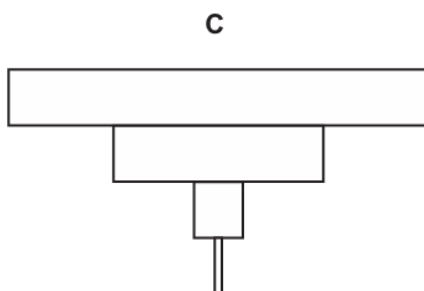
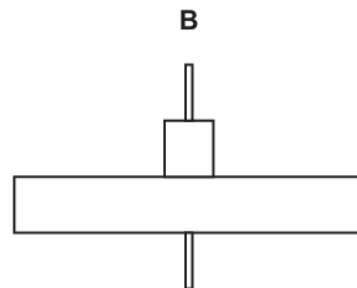
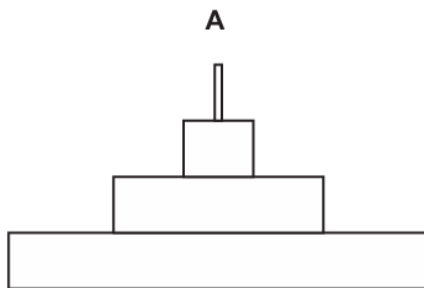
- 6 A food chain is shown.

lettuce plant → slug → hedgehog

By which process is energy transferred from the lettuce plant to the slug?

- A egestion
 - B excretion
 - C ingestion
 - D respiration
- 7 A single bush is food for a large population of greenfly. Several ladybirds eat the greenfly. The ladybirds are eaten by a bird.

Which diagram shows the pyramid of numbers for this food chain?



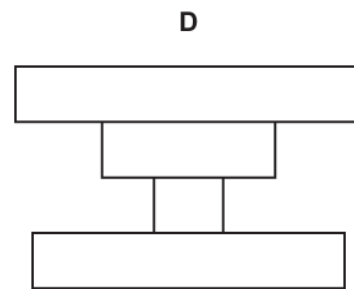
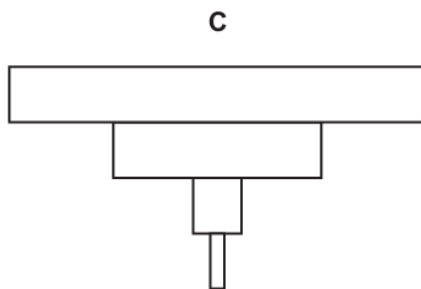
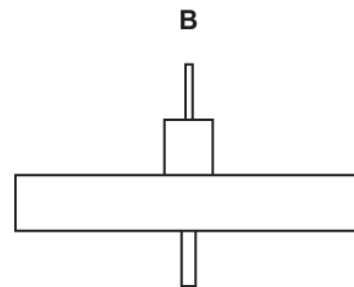
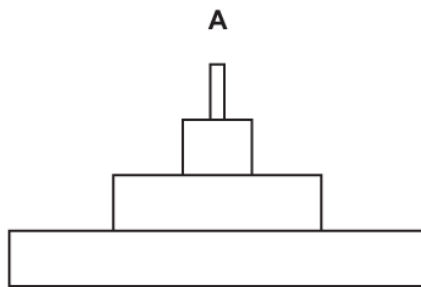
- 8 In a pyramid of numbers, what does the top of the pyramid represent?
- A carnivores
 - B decomposers
 - C herbivores
 - D Sun

9 Which term is used to describe an organism that makes its own organic nutrients?

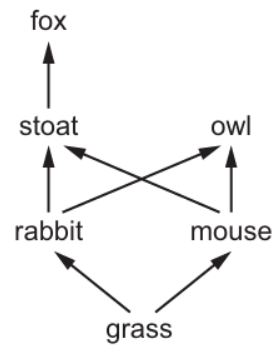
- A carnivore
- B decomposer
- C herbivore
- D producer

10 A single tree is food for a large population of caterpillars. Several small birds eat the caterpillars. The small birds are eaten by a bird of prey.

Which is the pyramid of biomass?



- 11 The diagram shows a woodland food web.



Which organisms are secondary consumers?

- A** fox and owl
- B** fox and stoat
- C** mouse and rabbit
- D** owl and stoat

- 12 The diagram shows a food chain.

rose bush → aphids → ladybirds → spiders

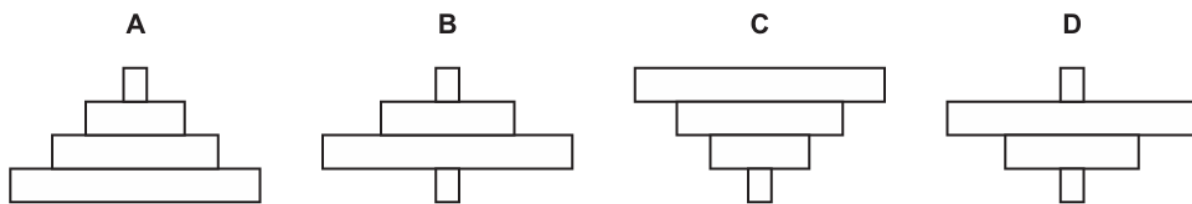
A disease reduced the number of ladybirds.

What would be the likely effect of this on the numbers of aphids and spiders?

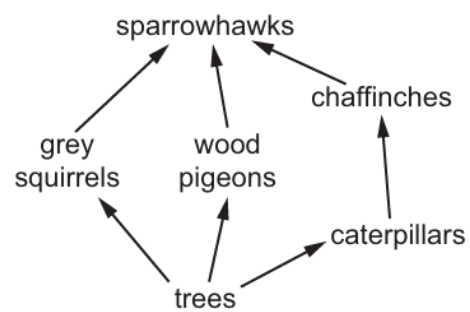
	aphids	spiders
A	decrease	decrease
B	decrease	increase
C	increase	decrease
D	increase	increase

- 13 The block at the base of each pyramid represents the number of producers.

Which pyramid of numbers has more tertiary consumers than secondary consumers?



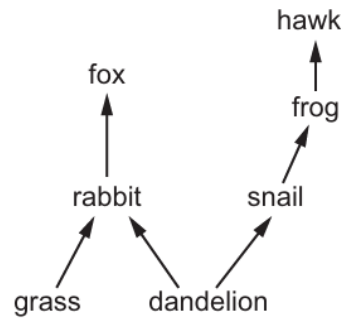
- 14 The food web shows the feeding relationships in a woodland.



If all the chaffinches in the food web die, which effect would this have?

- A The amount of damage to trees will increase.
- B The food supply for grey squirrels will increase.
- C The number of wood pigeons will increase.
- D The population of caterpillars will decrease.

- 15 The diagram shows a woodland food web.



Which statement is **not** correct?

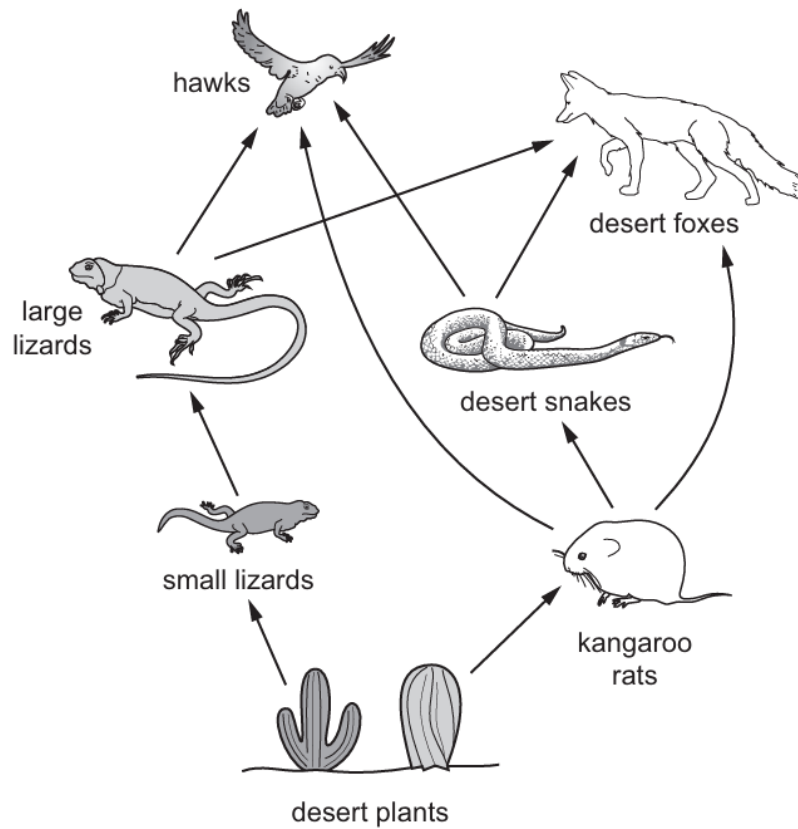
- A Dandelions and grass are both producers.
 - B The fox and the hawk are both tertiary consumers.
 - C The frog is a secondary consumer.
 - D The rabbit and the snail are both primary consumers.
- 16 Which organism makes its own organic nutrients using light energy?
- A producer
 - B consumer
 - C herbivore
 - D carnivore
- 17 The diagram shows a food chain.

grass → grasshopper → frog → snake → hawk

What is the tertiary consumer in this food chain?

- A frog
- B grasshopper
- C hawk
- D snake

18 The diagram shows a food web in a desert.



Which organisms are **all** secondary consumers?

- A desert foxes, hawks, large lizards and desert snakes
- B desert foxes and hawks only
- C kangaroo rats and small lizards
- D large lizards and desert snakes only

- 19 The diagram shows a food web.



Which statement is correct?

- A** Eagles obtain all their energy by eating foxes.
 - B** If the hummingbirds all die the caterpillars will have more food.
 - C** The food chain nectar in flowers → ants → small birds → foxes is part of this food web.
 - D** The mice and caterpillars are the only examples of herbivores in this food web.
- 20 The diagram shows a food chain.

clover plant → rabbit → fox

Which terms can be used to describe the fox in this food chain?

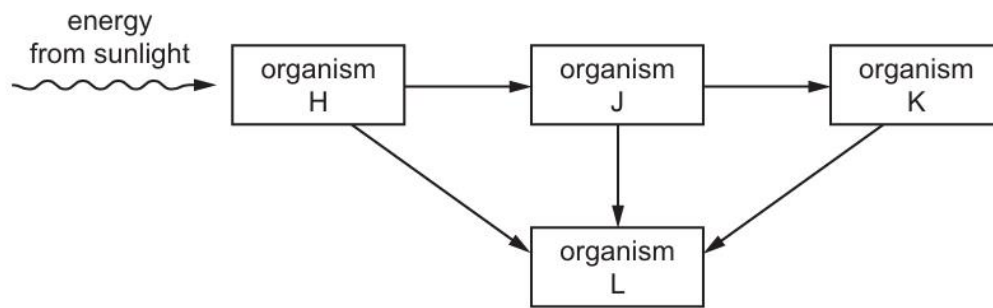
- A** carnivore and primary consumer
 - B** carnivore and secondary consumer
 - C** carnivore and tertiary consumer
 - D** carnivore only
- 21 A food chain is shown.

potato plant → slug → hedgehog

By which process is energy transferred from the slug to the hedgehog?

- A** egestion
- B** excretion
- C** ingestion
- D** photosynthesis

- 22 The diagram shows a food web.



What is organism L?

- A** a carnivore
 - B** a decomposer
 - C** a herbivore
 - D** a producer
- 23 The diagram shows a food chain in a rock pool.

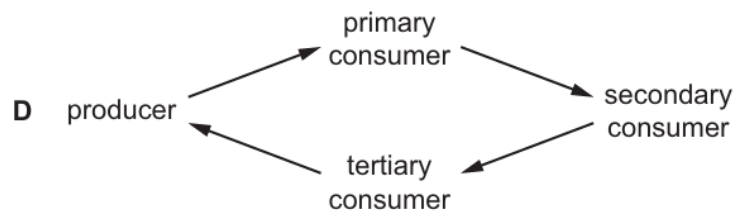
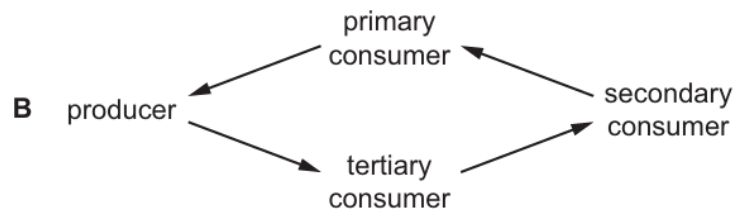
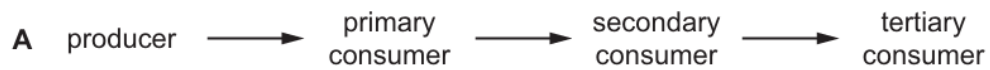
seaweed → whelks → crabs → seagulls

What will happen if the number of secondary consumers increases?

There will be

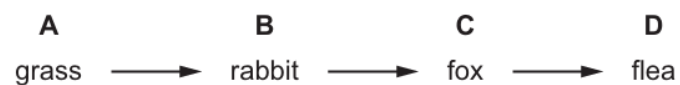
- A** fewer crabs.
- B** fewer seagulls.
- C** fewer whelks.
- D** less seaweed.

24 Which diagram shows energy passing along a food chain?

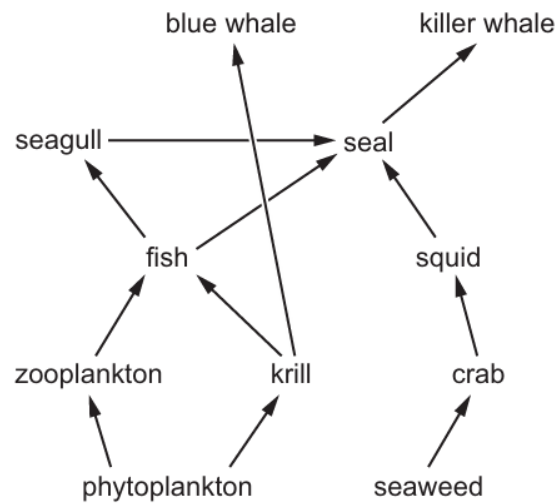


25 The diagram shows a food chain.

Which organism is the secondary consumer?



- 26 The diagram shows an aquatic food web.



Which statement is correct?

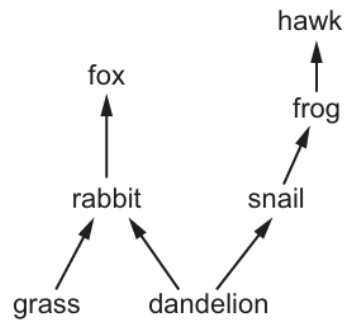
- A There are two producers and three herbivores.
 - B There are two primary consumers and two secondary consumers.
 - C There are three producers and two primary consumers.
 - D There are two herbivores and two tertiary consumers.
- 27 The food chain shows how energy is transferred to a human.

lettuce → snails → duck → human

Where did the energy in the lettuce come from?

- A snails
- B soil
- C Sun
- D water

28 The diagram shows a woodland food web.



Which statement is correct?

- A** Dandelions and grass are both primary consumers.
- B** The fox and the hawk are both secondary consumers.
- C** The frog is a tertiary consumer.
- D** The rabbit and the snail are both primary consumers.

Paper 2

Questions are applicable for both core and extended candidates unless indicated in the question

- 29 The diagram shows the amount of energy in $\text{kJ m}^{-2} \text{yr}^{-1}$ at each trophic level of a food chain.

producers \longrightarrow primary consumers \longrightarrow secondary consumers (extended only)
 88 000 14 000 2000

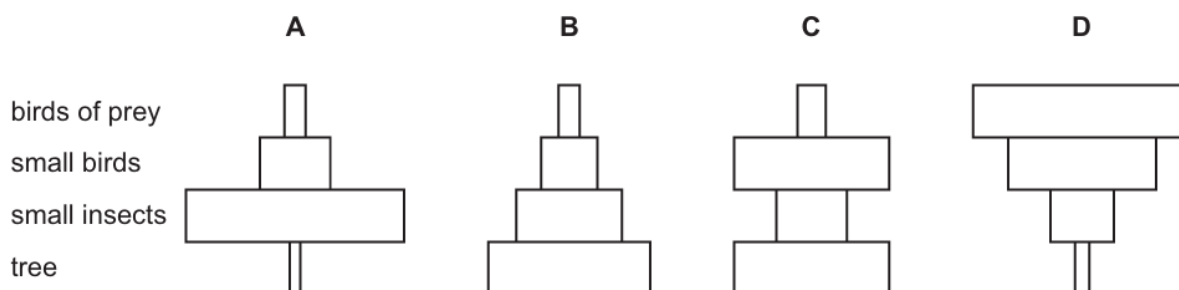
Approximately how much energy is lost between the producers and the secondary consumers?

- A** 0.2% **B** 2.0% **C** 84% **D** 98%

- 30 The diagram shows a food chain.

tree \longrightarrow small insects \longrightarrow small birds \longrightarrow birds of prey

What is the correct pyramid of numbers for this food chain?



- 31 The diagram shows a food chain.

tree \longrightarrow insect \longrightarrow blue tit \longrightarrow hawk

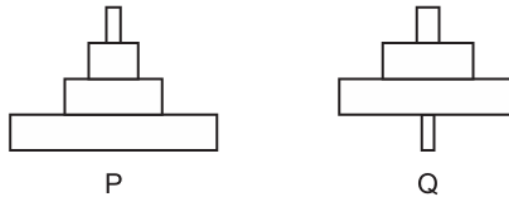
Which statement about a pyramid based on this food chain is correct? (extended only)

- A** Drawn as a pyramid of biomass, the hawk would have the largest bar size.
B Drawn as a pyramid of energy, the tree would have the largest bar size.
C Drawn as a pyramid of energy, the tree would have the smallest bar size.
D Drawn as a pyramid of numbers, the hawk would have the largest bar size.

32 Which term is used to describe an organism that makes its own organic nutrients?

- A carnivore
- B decomposer
- C herbivore
- D producer

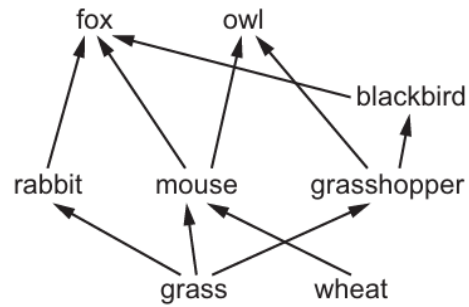
33 The diagram shows two pyramids based on food chains in which the producer is a large tree.



What do the two pyramids represent?

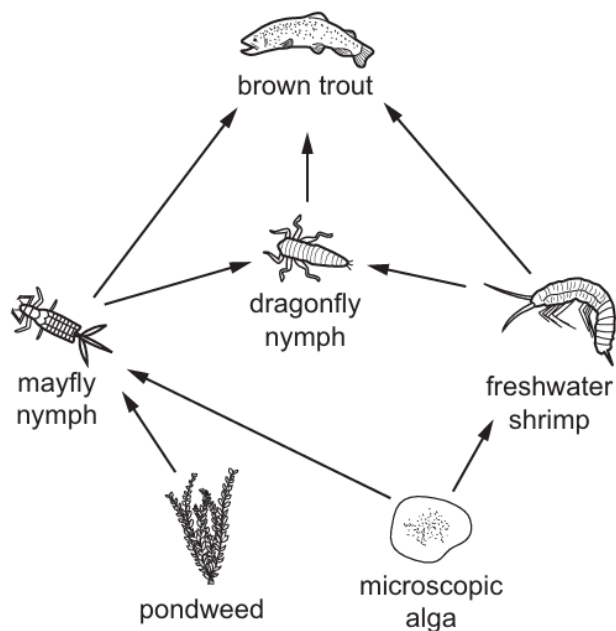
	P	Q
A	biomass	biomass
B	biomass	numbers
C	numbers	biomass
D	numbers	numbers

- 34 The diagram shows the feeding relationships in a food web.



Which organism may feed as both a secondary and a tertiary consumer?

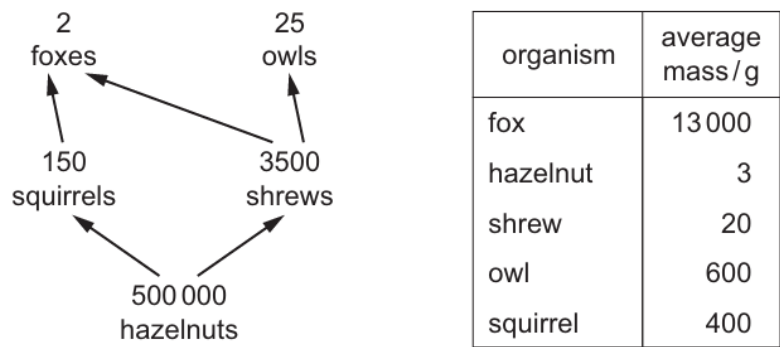
- A fox
 - B owl
 - C blackbird
 - D rabbit
- 35 The diagram shows a food web.



How many organisms feed at more than one trophic level?

- A 0
- B 1
- C 2
- D 3

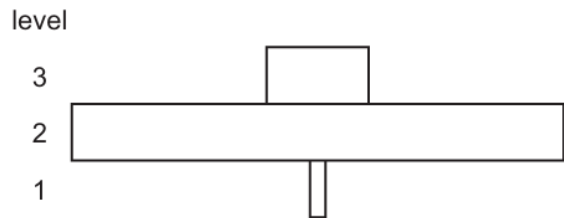
36 The diagram contains information about the number and mass of organisms in a food web.



What is the total biomass of all the primary consumers in this food web?

- A 130 kg
- B 420 kg
- C 3650 kg
- D 130 000 kg

37 The diagram shows a pyramid of numbers.



What is the correct description of the trophic levels?

	trophic level		
	1	2	3
A	producers	primary consumers	secondary consumers
B	producers	secondary consumers	tertiary consumers
C	secondary consumers	primary consumers	producers
D	secondary consumers	tertiary consumers	producers

- 38 The diagram shows a food chain in a rock pool.

seaweed → whelks → crabs → seagulls

What will happen if the number of secondary consumers increases?

There will be

- A fewer crabs.
- B fewer seagulls.
- C fewer whelks.
- D less seaweed.

- 39 The diagram shows a food chain.

maize	→	locusts	→	lizards	→	snakes	
10 000 kJ		1000 kJ		100 kJ		10 kJ	(extended only)

What is the efficiency of energy transfer between the maize and the lizards in this food chain?

- A 0.01% B 0.1% C 1% D 10%