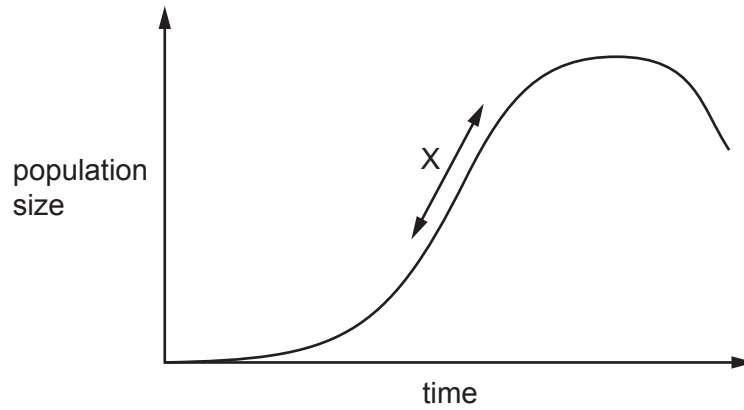


1 The graph shows a population growth curve.



Which factors would cause region X on the graph to become steeper?

- A decrease in predation, decrease in food supply
- B increase in food supply, decrease in disease
- C increase in food supply, increase in predation
- D increase in predation, decrease in disease

2 The diagram shows a simple food chain.

green plant → herbivore → carnivore

If a disease causes the number of herbivores to decrease, what will be the effect on the numbers of green plants and carnivores?

	green plants	carnivores
A	decrease	decrease
B	decrease	increase
C	increase	decrease
D	increase	increase

3 In the food chain below, the population of snakes is halved owing to a viral disease.

grass → locusts → snakes → eagles

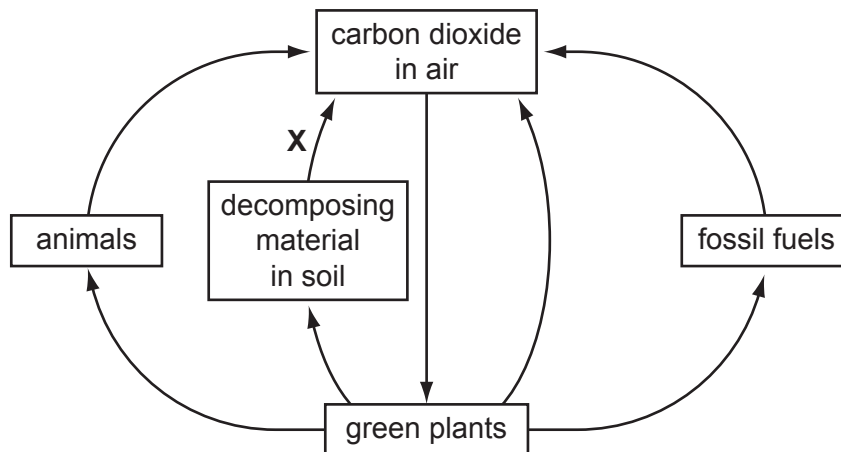
What effect does this have on the other members of the food chain?

	grass	locusts	eagles
A	decrease	increase	decrease
B	decrease	increase	increase
C	increase	decrease	decrease
D	increase	increase	decrease

4 Which is an example of a population?

- A** all the animals and plants living in a pond
- B** all the mahogany trees growing in a forest
- C** all the people born in a country over a period of 100 years
- D** all the species of animals in Africa

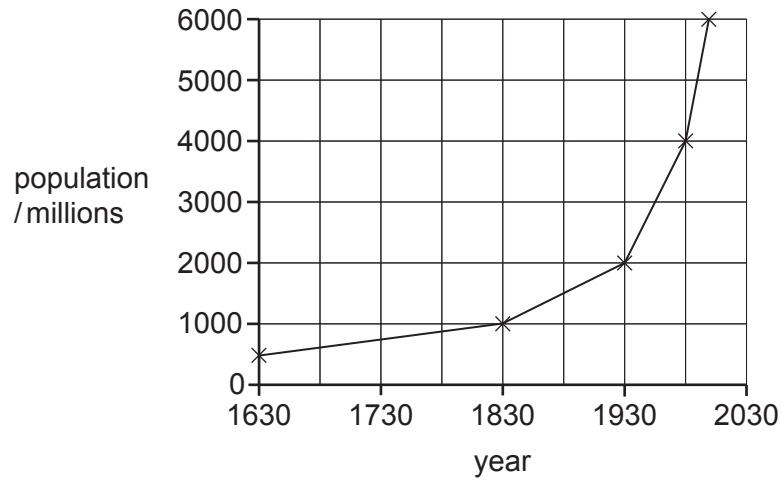
5 The diagram represents the carbon cycle.



Which process is represented by arrow **X**?

- A** combustion
- B** feeding
- C** photosynthesis
- D** respiration

6 The graph shows the increase in the human population of the world since 1630.



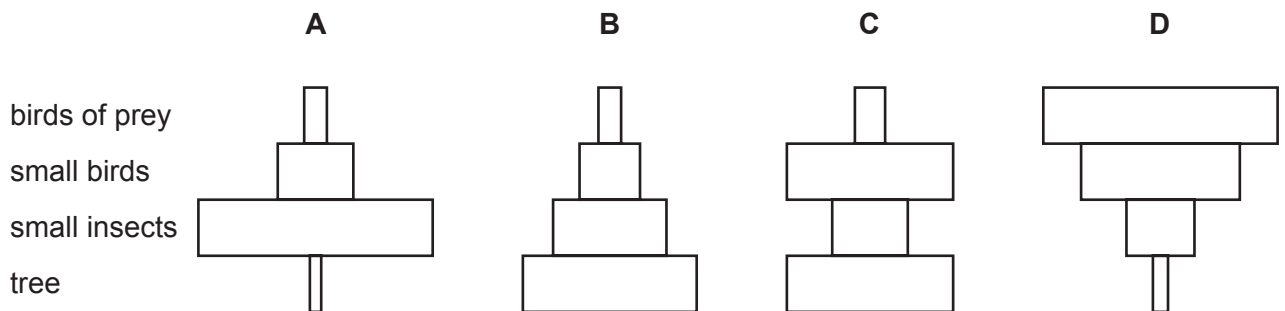
What was the longest time taken for the population to double?

- A** 100 years **B** 200 years **C** 300 years **D** 400 years

7 The diagram shows a food chain.

tree → small insects → small birds → birds of prey

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



8 Which process is **not** part of the water cycle?

- A** condensation
B fossilisation
C precipitation
D transpiration

9 Which processes are part of the carbon cycle?

	decomposition	evaporation	ingestion
A	✓	✓	x
B	✓	x	✓
C	x	✓	x
D	x	x	✓

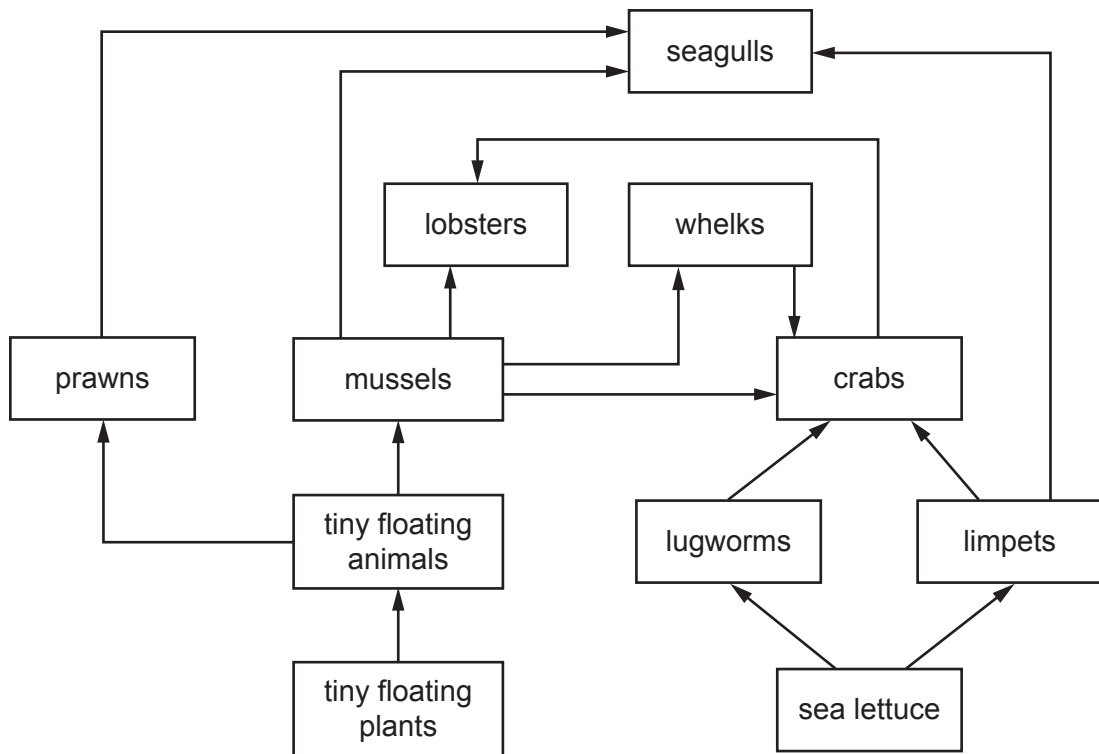
10 The diagram shows organisms feeding on a dead rat and one of the organisms which, in turn, feeds on them.



What is needed to complete the food chain?

- A** carnivore
- B** consumer
- C** predator
- D** producer

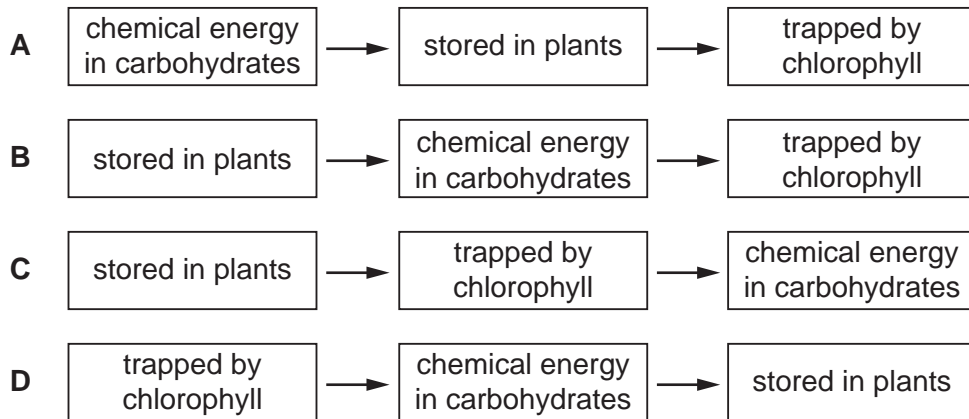
11 The diagram shows a food web.



Which organisms feed on the greatest variety of other organisms, as shown in **this** food web?

- A prawns
- B limpets
- C lobsters
- D mussels

12 Which pathway is taken by energy from the Sun?



13 The diagram shows a food chain.

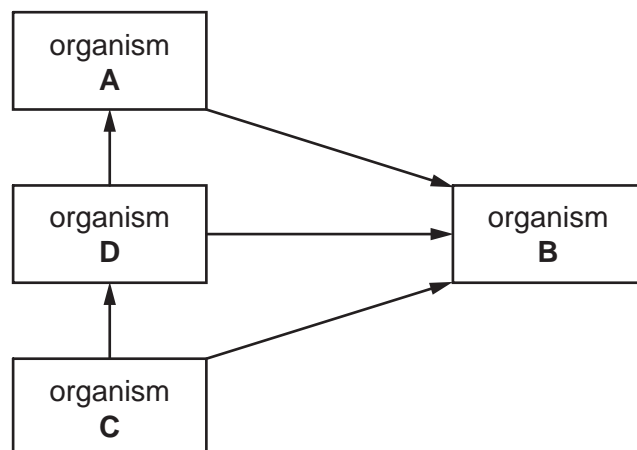


If the hawks are removed from this food chain, what is likely to happen to the numbers of the other organisms in this chain?

	greenflies		insect-eating birds
A	decrease	increase	decrease
B	decrease	increase	increase
C	increase	decrease	decrease
D	increase	decrease	increase

14 The diagram shows a food web including a producer, consumers and a decomposer.

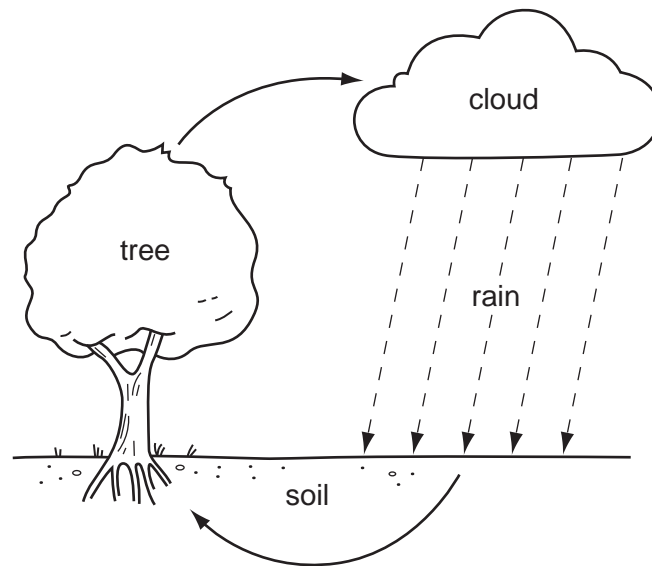
Which organism is the decomposer?



15 Which organisms remove carbon dioxide from the atmosphere?

- A carnivores
- B decomposers
- C herbivores
- D producers

16 The diagram shows a simple water cycle.

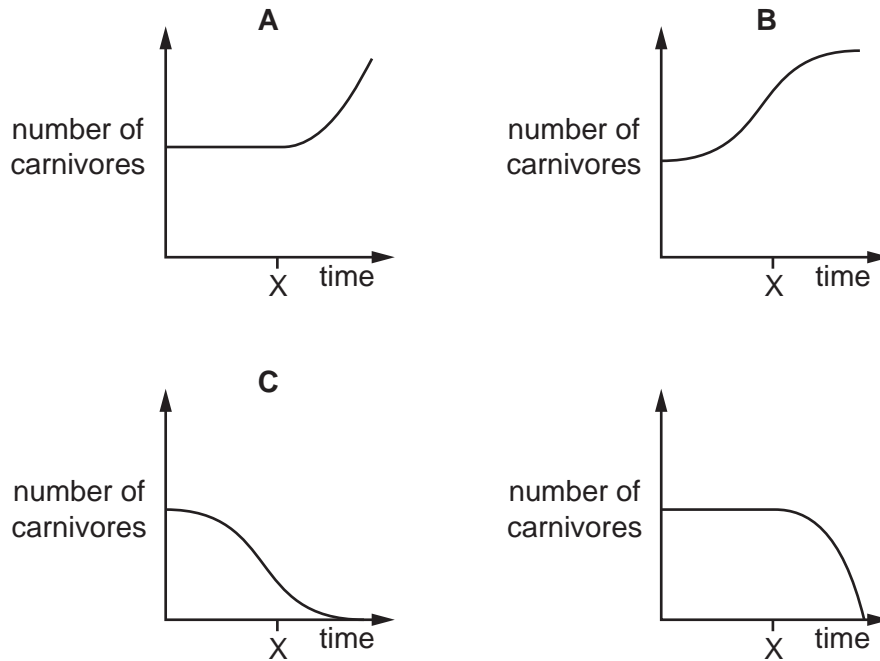


What is responsible for water loss from the tree?

- A evaporation
- B photosynthesis
- C respiration
- D translocation

17 The graphs show the number of carnivores in a habitat over a period of time. At time X the herbivores in their food chain are removed from the habitat.

Which graph shows the effect of this on the number of carnivores?



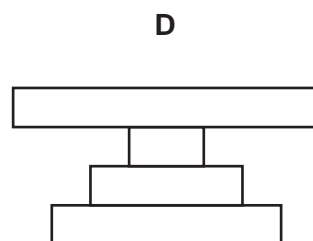
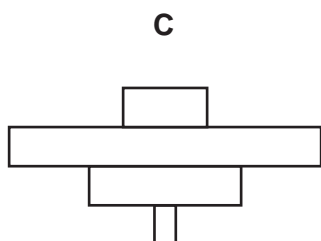
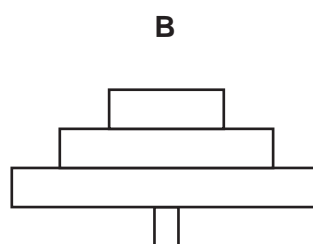
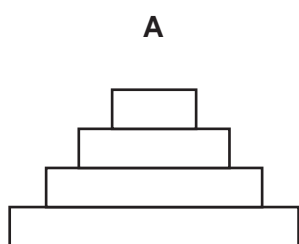
18 Which factors affect the rate of growth of a plant population?

	disease	grazing by herbivores	light intensity
A	✓	✓	✓
B	✓	✓	x
C	✓	x	✓
D	x	✓	✓

19 What can be continuously recycled in ecosystems?

	carbon	energy	water
A	✓	✓	x
B	✓	x	✓
C	x	x	✓
D	x	✓	x

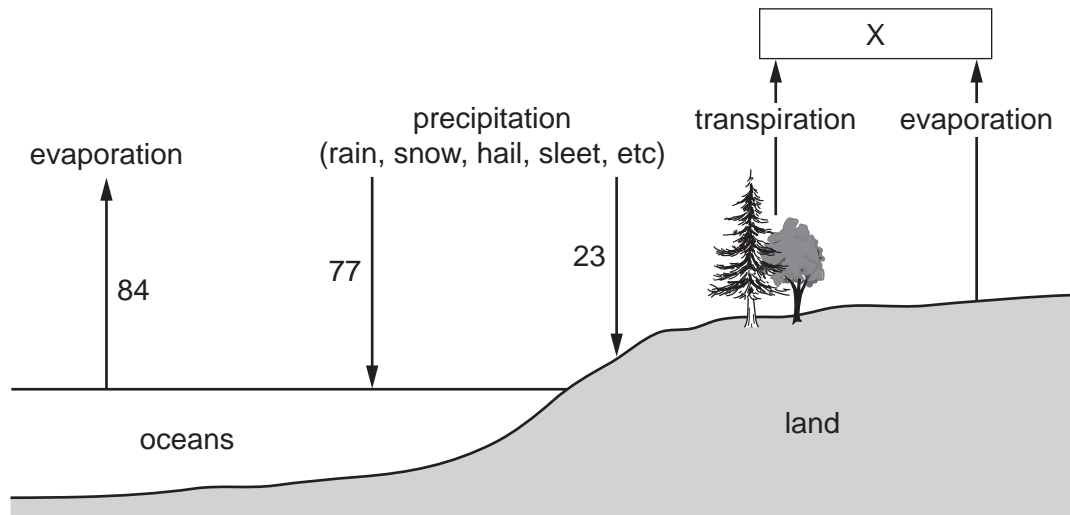
20 Which diagram shows a pyramid of biomass for a woodland?



21 Which of the following is an example of a food chain?

- A** carnivore → herbivore → producer
- B** flower → fruit → seed
- C** grass → antelope → lion
- D** starch → maltose → glucose

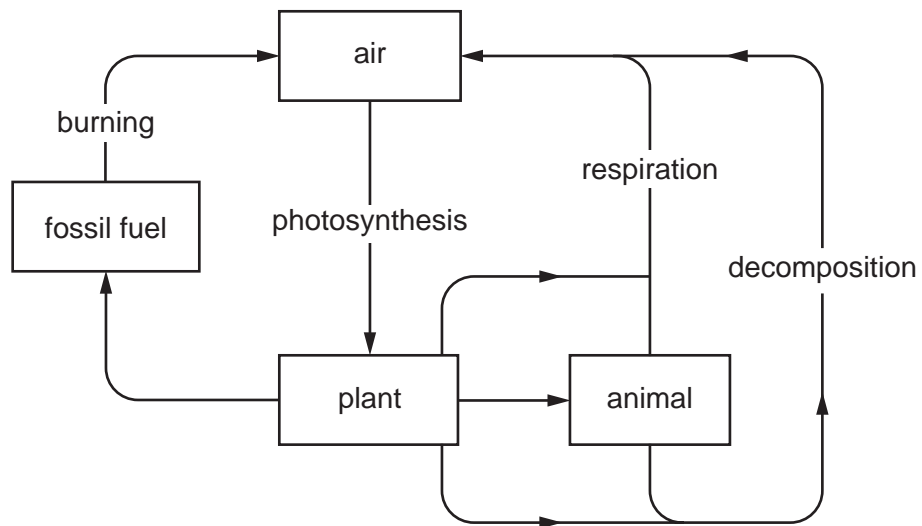
- 22 The diagram shows the movements of water between oceans, land and the air. The figures are based on an annual mean precipitation of 100 units.



What is the total of evaporation from the land and transpiration from plants at X?

- A** 7 **B** 13 **C** 16 **D** 77

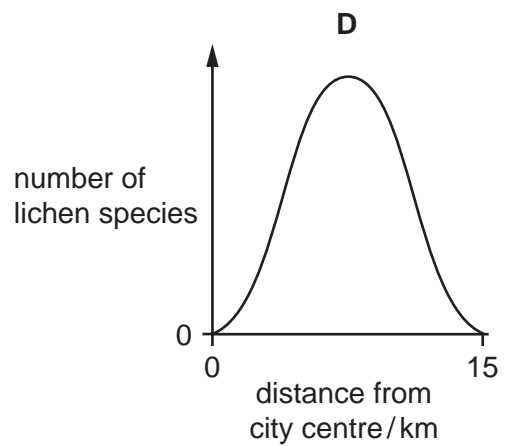
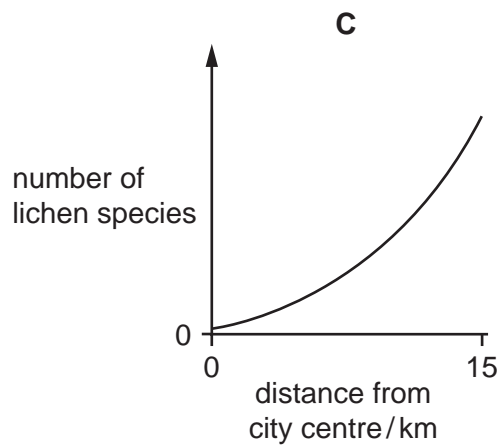
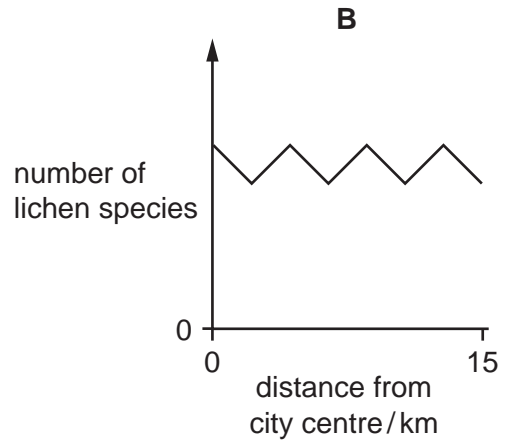
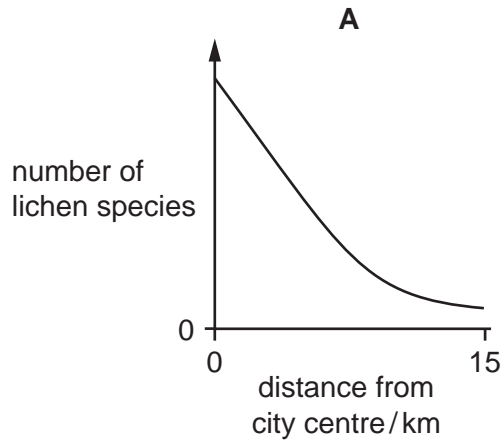
- 23 What is shown in the diagram?



- A** a food web
B non-cyclical energy flow
C the carbon cycle
D the water cycle

24 Lichens are organisms that do **not** grow well in air containing sulfur dioxide.

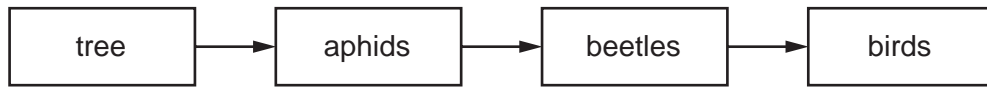
Which graph shows the change in number of lichen species from the centre of an industrial city to the countryside 15 km away?



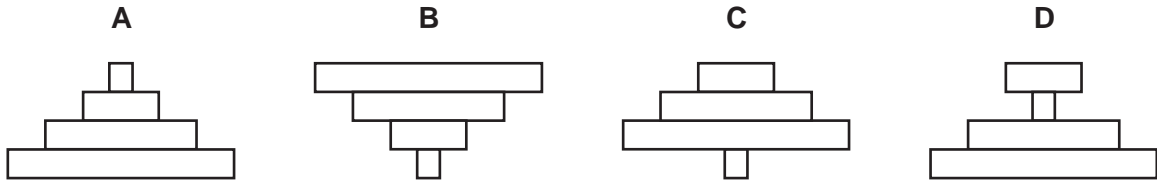
25 Which pair of statements about energy flow in ecosystems is correct?

	energy entering the ecosystem from the Sun	nature of energy flow
A	light and chemical	cyclical
B	light and chemical	non-cyclical
C	light and heat	cyclical
D	light and heat	non-cyclical

26 The diagram shows a food chain based on a tree.



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



27 Which process forms part of the carbon cycle?

- A combustion
- B evaporation
- C osmosis
- D transpiration

28 Herbivores take in carbon atoms from plants.

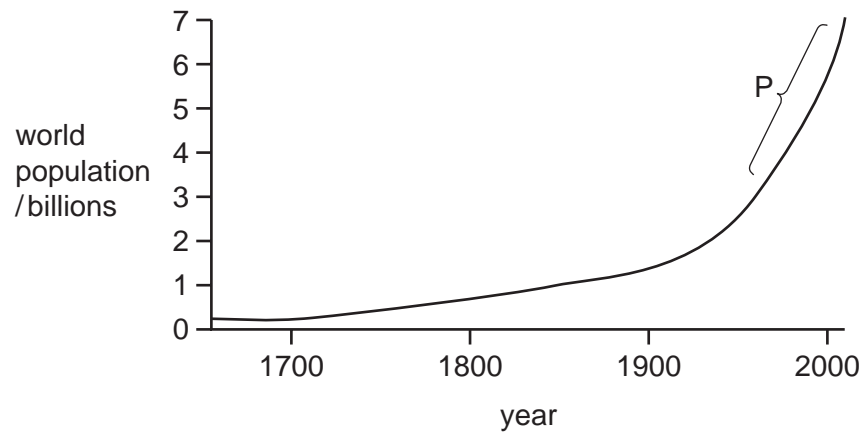
How do carbon atoms leave the herbivores?

	in faeces	in respiration	through death and decay
A	✓	✓	✓
B	✓	x	✓
C	✓	x	x
D	x	✓	✓

29 In which stages in the water cycle is the water in vapour form?

	absorption by plant roots	movement from sea to clouds	precipitation	transpiration
A	✓	✓	x	x
B	✓	x	✓	x
C	x	✓	x	✓
D	x	x	✓	✓

30 The graph shows how the population of the world has increased from 1650 until the present day.



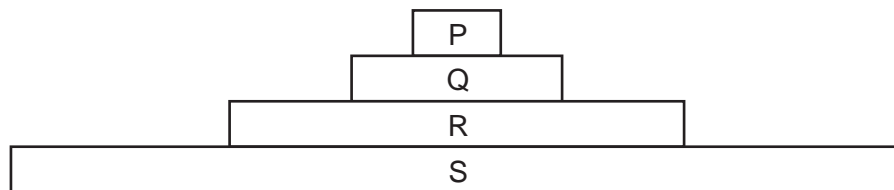
What stage in the sigmoid population growth curve is represented by region P?

- A death phase
- B exponential (log) phase
- C lag phase
- D stationary phase

31 Which organisms can be sources of energy for decomposers?

	producers	herbivores	camivores
A	✓	✓	✓
B	✓	x	x
C	x	✓	✓
D	x	x	x

32 The diagram shows a pyramid of biomass for all organisms in an ecosystem.



Which organisms are carnivores?

- A P and Q
- B P and R
- C Q and R
- D R and S

33 The diagram shows a food chain.



A disease reduced the numbers of consumer 3.

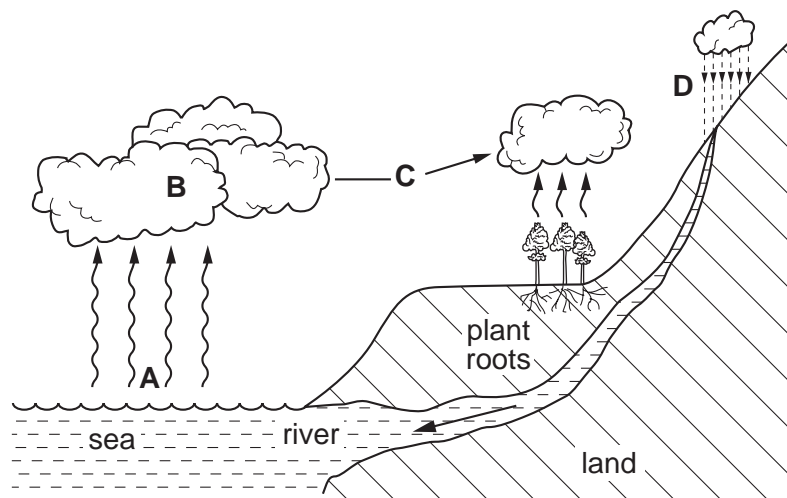
What would be the likely effect of this on the numbers of consumer 1 and consumer 2?

	consumer 1	consumer 2
A	decrease	decrease
B	decrease	increase
C	increase	decrease
D	increase	increase

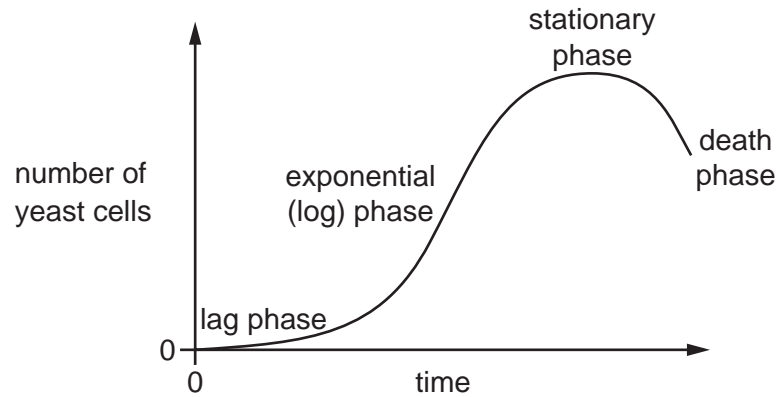
34 Which process removes carbon dioxide from the atmosphere?

- A** combustion
- B** decomposition
- C** photosynthesis
- D** respiration

35 In which labelled stage in the water cycle is the water in vapour form?



36 The graph shows a growth curve for a population of yeast.



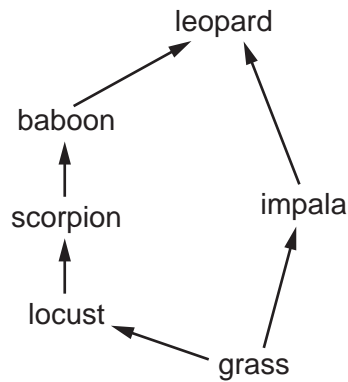
Which two phases of the growth curve are caused by factors such as predation, disease or lack of food?

- A** exponential (log) and death
- B** exponential (log) and stationary
- C** lag and exponential (log)
- D** stationary and death

37 Which way does energy flow directly in a food chain?

- A** carnivore to herbivore
- B** consumer to producer
- C** decomposer to producer
- D** producer to herbivore

38 The diagram shows a food web.

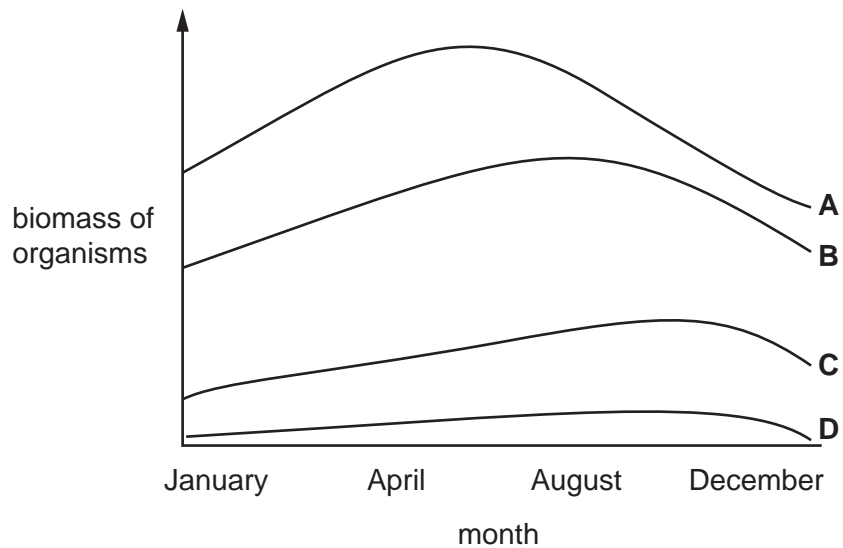


At which trophic levels is the leopard feeding?

- A first and second
- B second and third
- C second and fourth
- D third and fifth

39 The graph shows changes in biomass of different organisms in an ecosystem over a 12 month period. Each line represents a different trophic level.

Which line represents the herbivores?

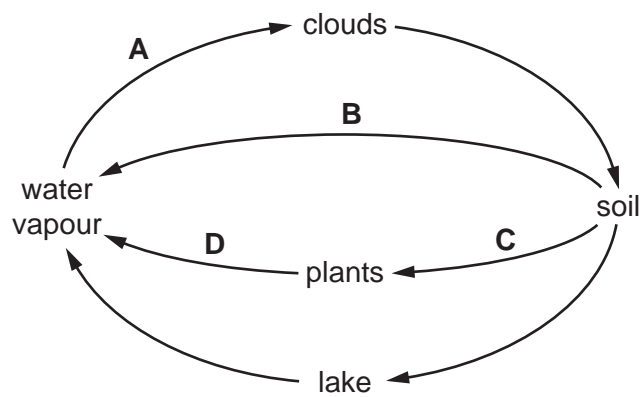


40 Which processes result in organisms gaining carbon compounds, and in the addition of carbon dioxide to the atmosphere?

	organisms gaining carbon compounds	addition of carbon dioxide to the atmosphere
A	photosynthesis and combustion	respiration by animals
B	photosynthesis and combustion	respiration by plants
C	photosynthesis and feeding	dead organisms changing to fossil fuels
D	photosynthesis and feeding	respiration by plants

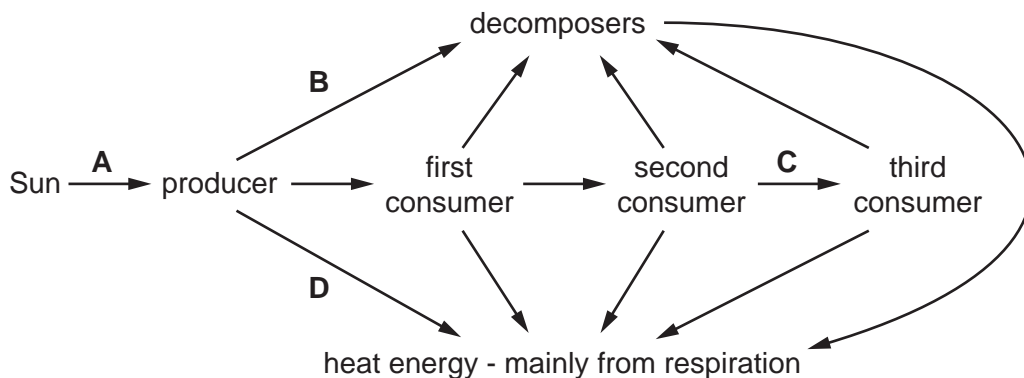
41 The diagram shows part of the water cycle.

Where is osmosis occurring?

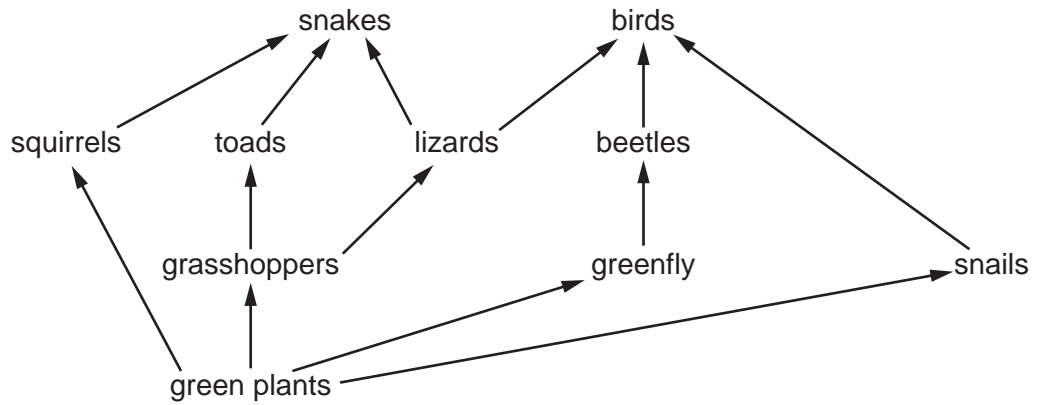


42 The diagram shows energy passing through an ecosystem.

Which arrow shows energy leaving the food web?



43 The diagram shows a food web.

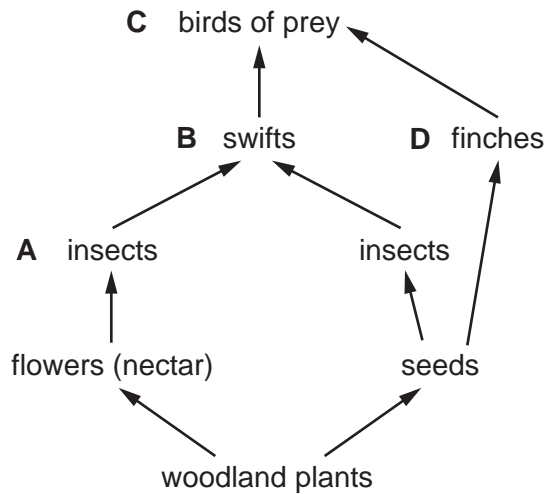


Which organisms will increase in number, if the number of snakes increases?

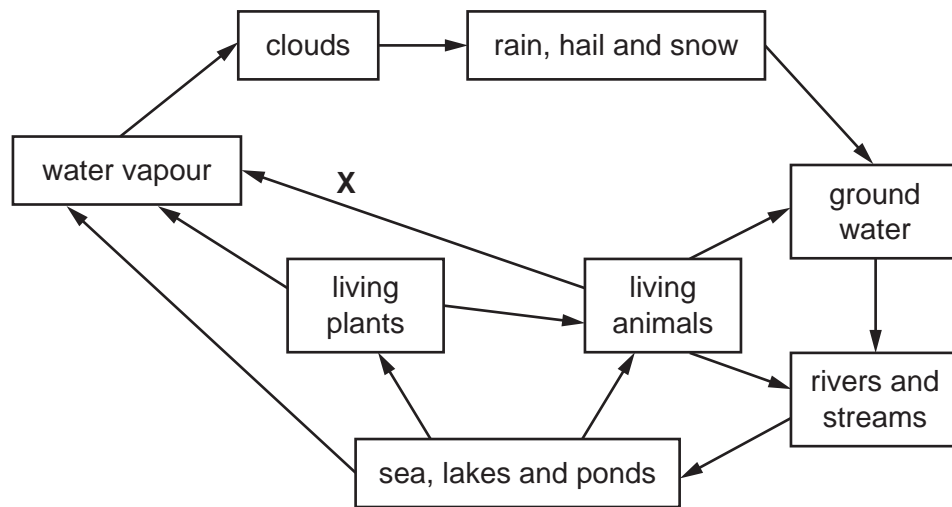
- A birds
- B grasshoppers
- C lizards
- D squirrels

44 The diagram shows some feeding relationships in a woodland area.

Which of the labelled animals are in competition with seed-eating insects for their food?



45 The diagram shows the water cycle.

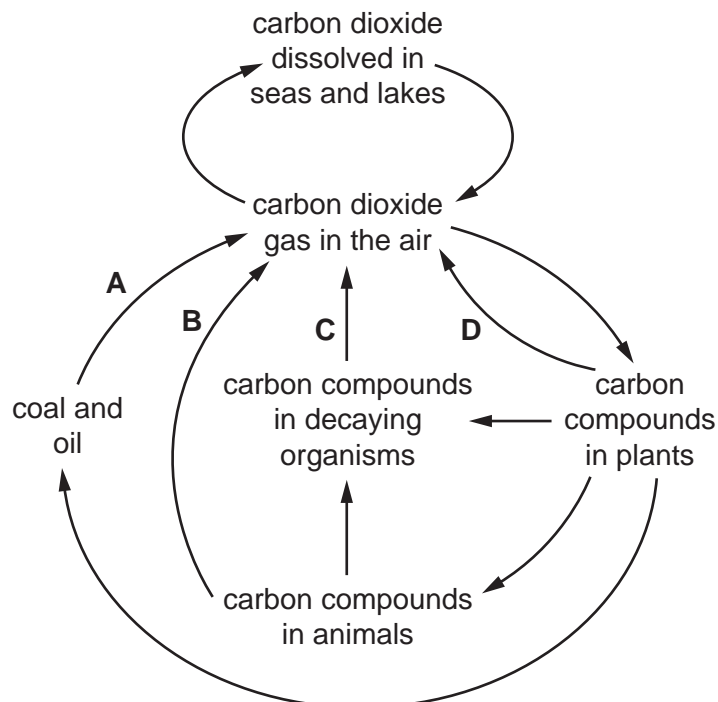


Which process is represented by X?

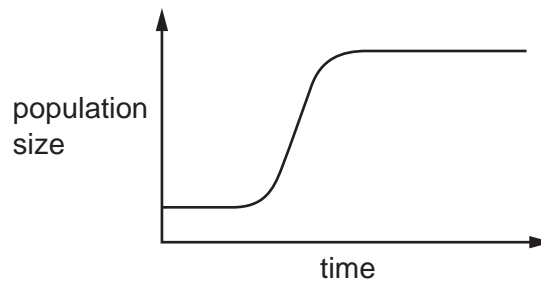
- A osmosis
- B photosynthesis
- C respiration
- D transpiration

46 The diagram shows the carbon cycle.

Which process produces carbon dioxide from substances made by photosynthesis millions of years ago?



47 The graph shows part of a growth curve for a bacterial population.



What is missing from the graph?

- A the death phase
- B the exponential phase
- C the lag phase
- D the stationary phase

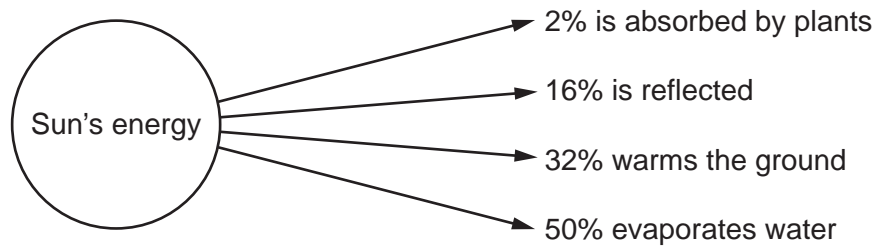
48 Which diagram shows energy passing along a food chain?

- A producer → primary consumer → secondary consumer → tertiary consumer
- B producer → primary consumer ← secondary consumer ← tertiary consumer
- C producer ← primary consumer ← secondary consumer ← tertiary consumer
- D producer ↔ primary consumer ↔ secondary consumer ↔ tertiary consumer

49 Which statement about population growth is correct?

- A The rate of population growth decreases as disease increases.
- B The rate of population growth increases as food supply decreases.
- C The rate of population growth increases when predation increases.
- D The rate of population growth is not affected by social conditions.

50 The diagram shows what happens to the energy that enters the atmosphere from the Sun.



How much of the Sun's energy is **not** used for photosynthesis?

- A less than 2%
- B about 32%
- C about 66%
- D more than 98%