

Science

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Class:

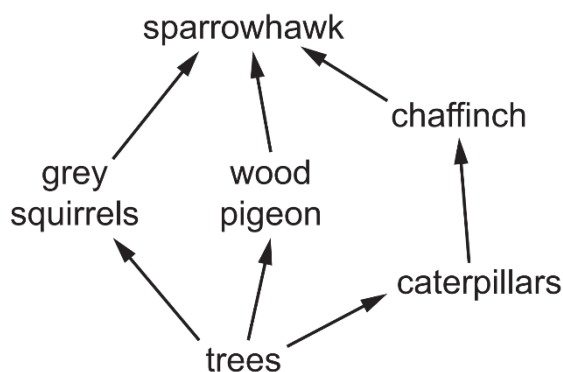
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Revision of Secondary Two Biology – Ecosystems

1. Which substances are used for photosynthesis?

- A Carbon dioxide and glucose
- B Carbon dioxide and water
- C Glucose and oxygen
- D Glucose and water

2. 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.

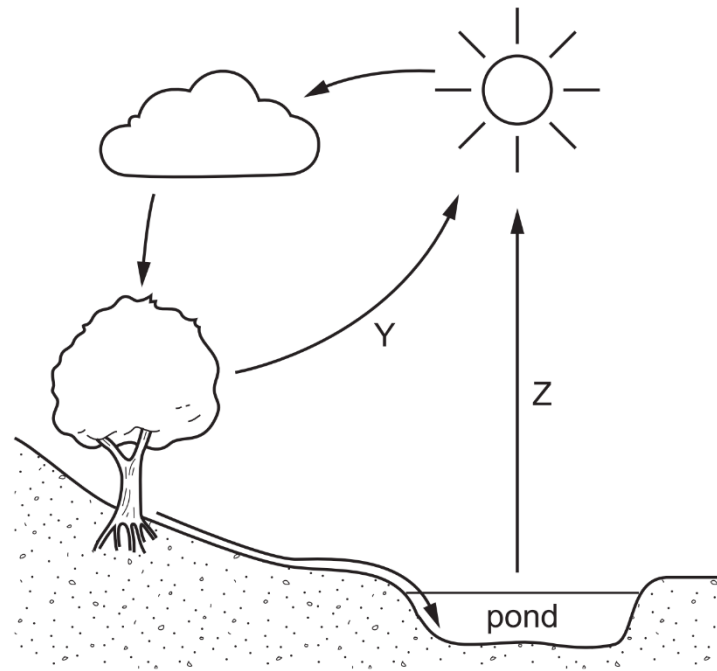
3. The diagram shows a food chain in a rock pool.

seaweed → whelks → crabs → seagulls

What will happen if the number of secondary consumers increases?

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

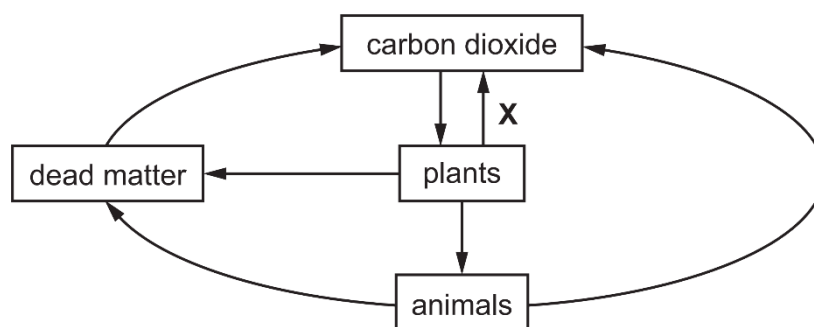
4. The diagram shows the water cycle.



Which processes do **Y** and **Z** represent?

	Y	Z
A	condensation	evaporation
B	precipitation	evaporation
C	transpiration	condensation
D	transpiration	evaporation

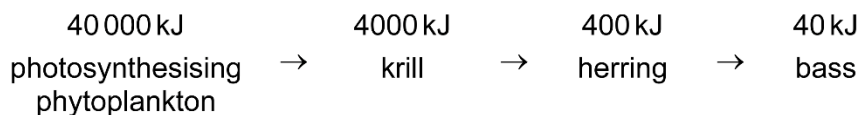
5. The diagram shows part of the carbon cycle.



What does arrow **X** represent?

- | | |
|-------------------------|------------------------|
| A Photosynthesis | B Respiration |
| C Decomposition | D Transpiration |

6. The diagram shows the energy in a food chain.



What percentage of energy present in the producer is transferred to the secondary consumer?

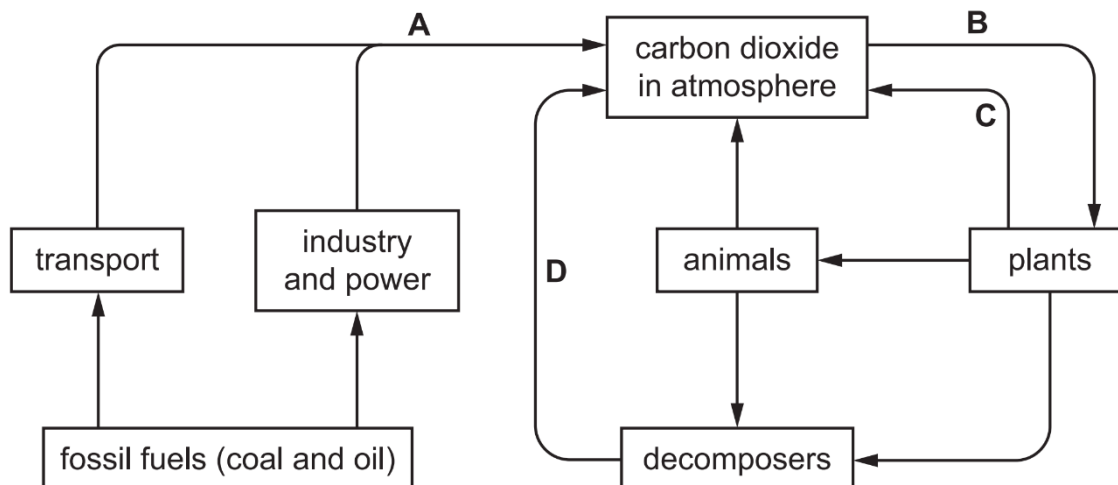
- A** 0.010 % **B** 0.10 % **C** 1.0 % **D** 10 %

7. Which factor will cause a decrease in population size?

- A** Decreased food supply **B** Decreased predation
C Decreased disease **D** Decreased death rate

8. The diagram shows part of the carbon cycle.

Which process reduces the carbon content of the Earth's atmosphere?



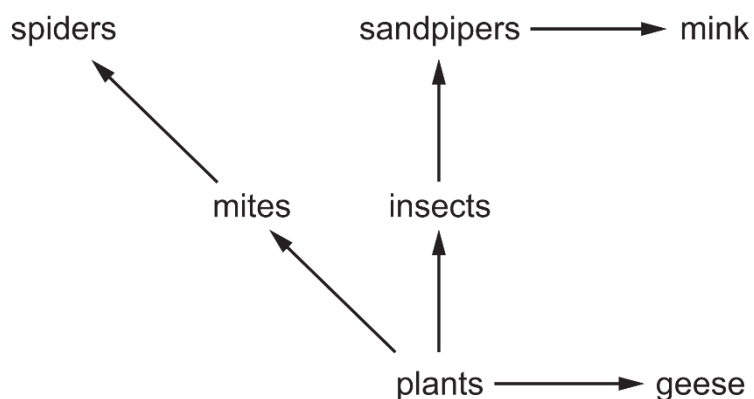
9. What is the principle source of energy input to a biological system?

- A** Carbon dioxide in the air **B** Glucose in green plants
C Mineral salts in the soil **D** Sunlight

10. How does cutting down trees contribute to the greenhouse effect?

- A** There will be less carbon dioxide absorbed.
B There will be less oxygen absorbed.
C There will be less shade from trees.
D The soil will become dry.

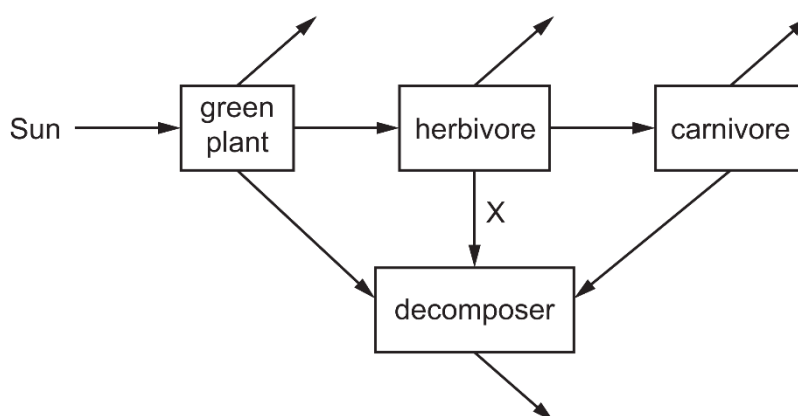
11. The diagram shows part of a food web.



Which members of the food web are examples of producers, herbivores and carnivores?

	producers	herbivores	carnivores
A	insects	sandpipers	mink
B	geese	mites	sandpipers
C	plants	geese	spiders
D	plants	sandpipers	insects

12. The diagram shows energy flow through an ecosystem.



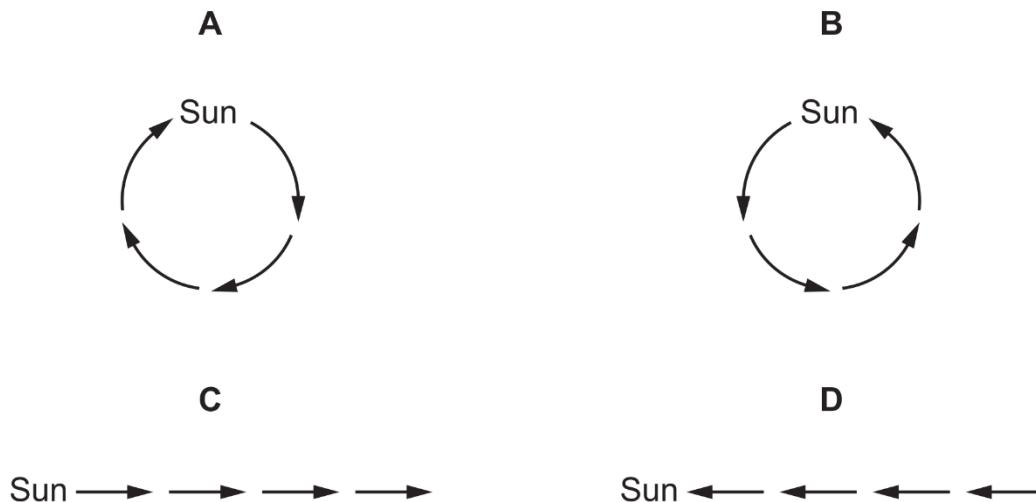
In what form is energy transferred at **X**?

- A** Chemical **B** Heat **C** Kinetic **D** Light

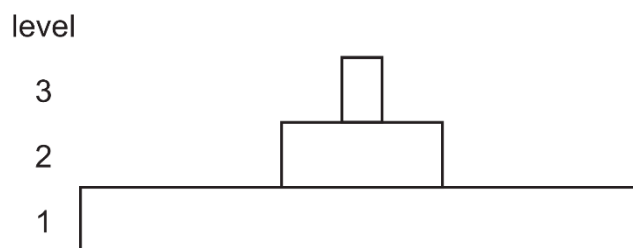
13. Which is an example of an undesirable effect of deforestation?

- A** Decreased carbon dioxide concentration in the atmosphere.
B Decreased soil erosion.
C Increased flooding.
D The variety of organisms is maintained.

14. Which diagram shows how energy flows through an ecosystem?



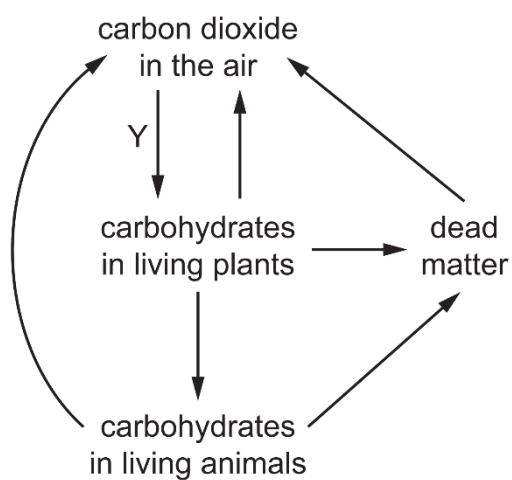
15. The diagram shows a pyramid of numbers.



Which type of organism is typically found at level one?

- A** Carnivore
- B** Decomposer
- C** Herbivore
- D** Producer

16. The diagram shows part of the carbon cycle.



Which process occurs at Y?

- A** Combustion
- B** Decay
- C** Photosynthesis
- D** Respiration

17. Which one of the following is an example of a population?

- A All of the animals and plants growing in a lake.
- B All of the different herbivores living in a forest.
- C All of the mahogany trees growing in a forest.
- D All of the species of animals living in Africa.

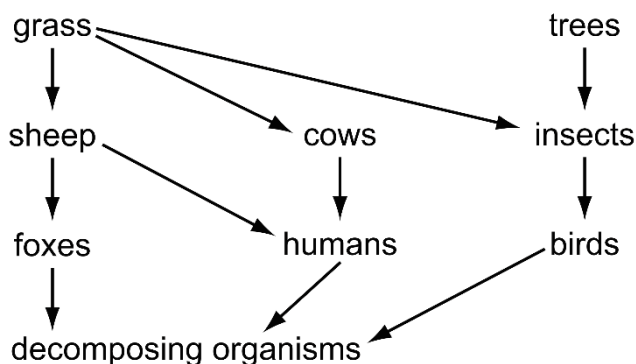
18. The diagram shows a food chain.

grass → mouse → owl

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

	consumer	trophic level
A	secondary	second
B	secondary	third
C	tertiary	second
D	tertiary	third

19. The diagram shows part of a food web.



What is the original source of energy for this food web?

- A Decomposer organisms
- B Oxygen
- C Grass and trees
- D Sunlight

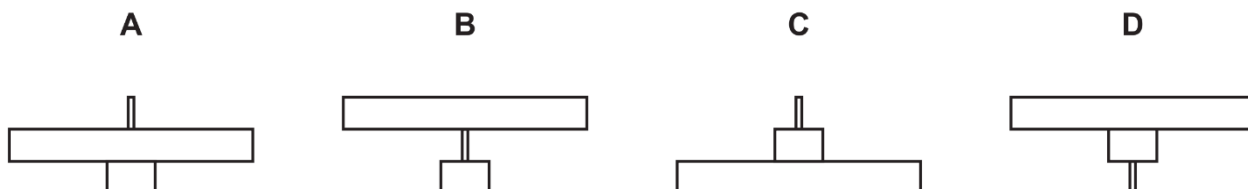
20. What is defined as 'all of the populations of different species in an ecosystem'?

- A Community
- B Environment
- C Habitat
- D Trophic level

21. The table shows the mean dry biomass for the organisms in a food chain.

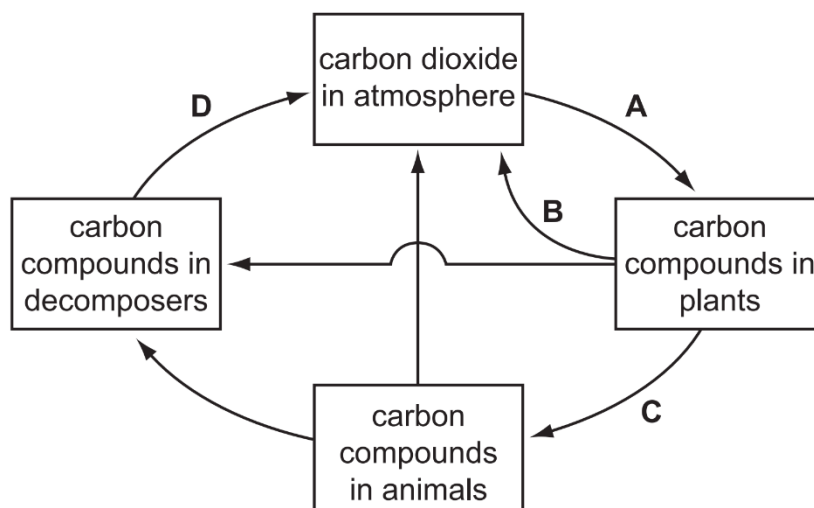
type of organism	mean dry biomass / g per m ²
producer	540
herbivore	26
carnivore	2

Which pyramid of biomass is correct for this food chain?



22. The diagram shows part of the carbon cycle.

Which process causes the largest amount of carbon to be converted from one form to another?



23. The presence of high concentrations of nitrogen-containing fertilisers in a pond can lead to the death of fish.

What is the sequence of events leading to the death of the fish?

- A Increase in algae → algae die → increase in bacteria → drop in oxygen
- B Increase in algae → drop in oxygen → increase in bacteria → algae die
- C Increase in bacteria → drop in oxygen → increase in algae → algae die
- D Increase in bacteria → increase in algae → algae die → drop in oxygen

24. What is correct for the organisms at the beginning of every food chain?

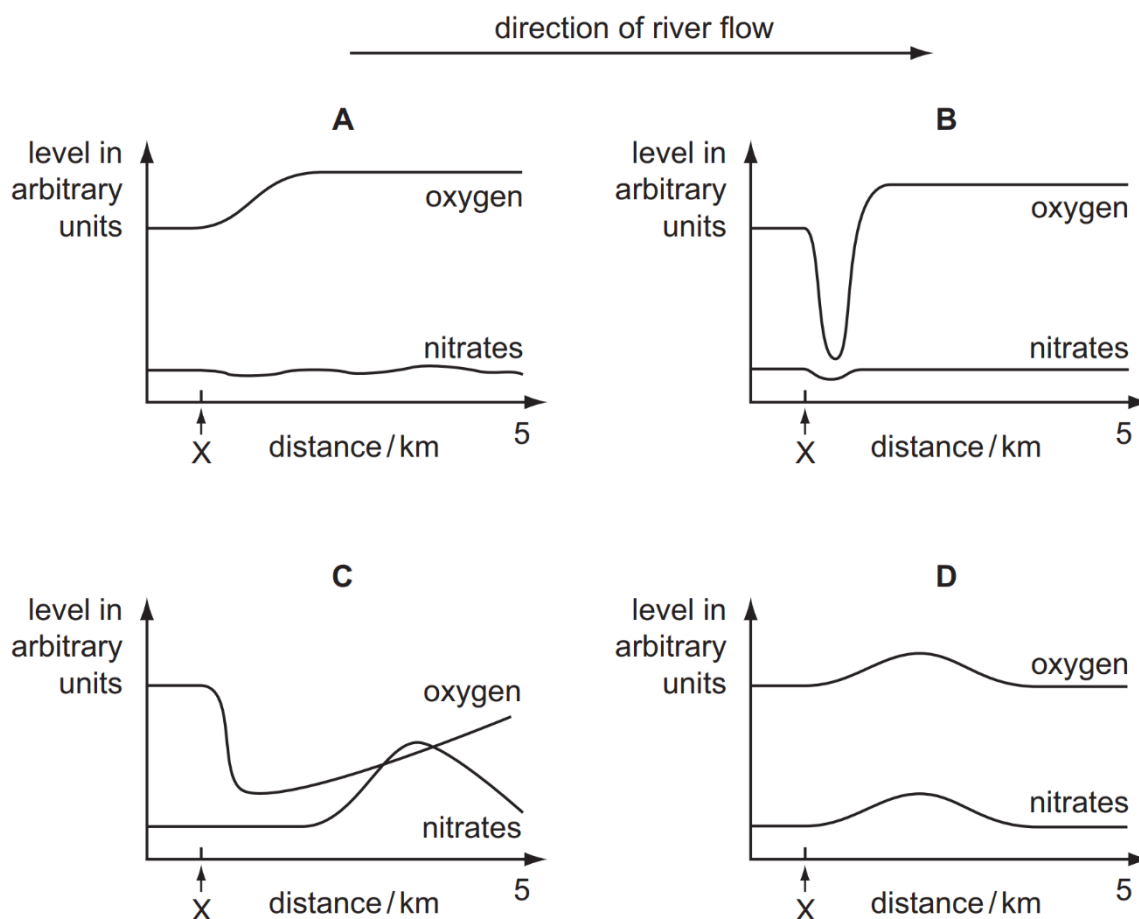
- A They cause decay and provide minerals for the ecosystem.
- B They feed on animals and recycle energy.
- C They feed on plants and provide food for animals.
- D They absorb nutrients and photosynthesise.

25. What is the balanced chemical equation for respiration?

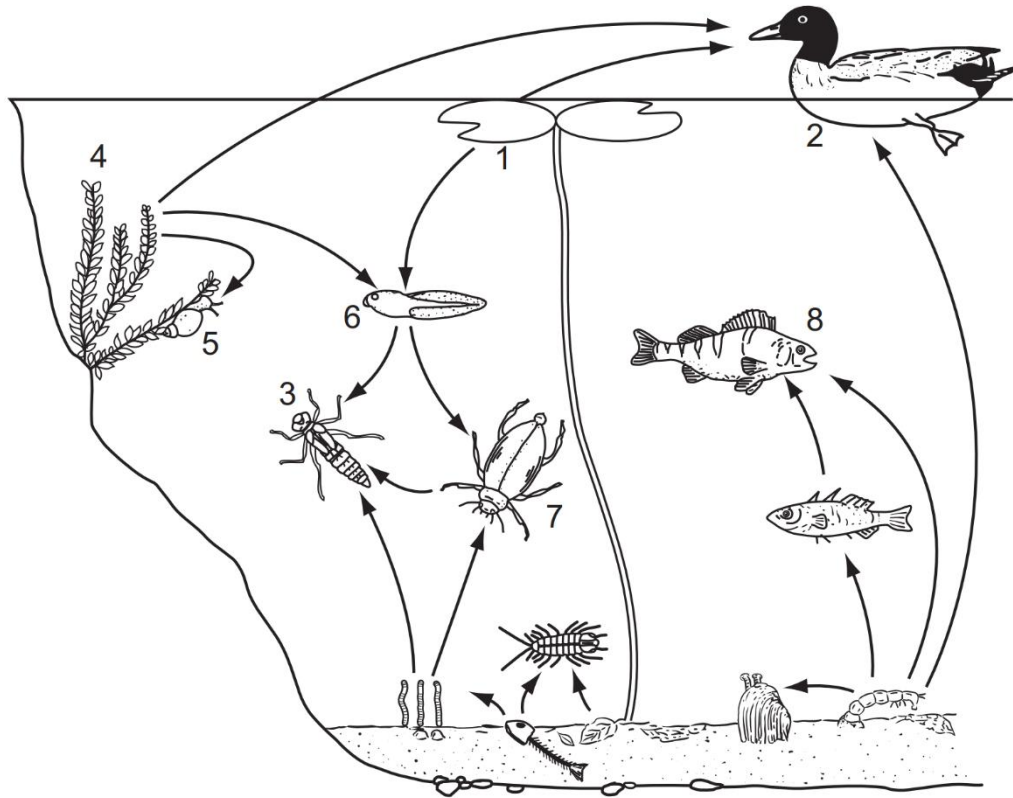
- A $\text{C}_6\text{H}_{12}\text{O}_6 \rightarrow 2\text{CH}_3\text{CH}_2\text{OH} + 2\text{CO}_2$
- B $\text{C}_6\text{H}_{12}\text{O}_6 + 6\text{O}_2 \rightarrow 6\text{CO}_2 + 6\text{H}_2\text{O}$
- C $6\text{CO}_2 + 6\text{H}_2\text{O} \rightarrow \text{C}_6\text{H}_{12}\text{O}_6 + 6\text{O}_2$
- D $\text{C}_6\text{H}_{12}\text{O}_6 \rightarrow 2\text{CH}_3\text{CH}(\text{OH})\text{COOH}$

26. The graphs show how the levels of dissolved oxygen and nitrates change along the length of a river.

Which graph shows the effect of sewage entering the river at the point marked X?



27. The diagram shows a food web in a pond.



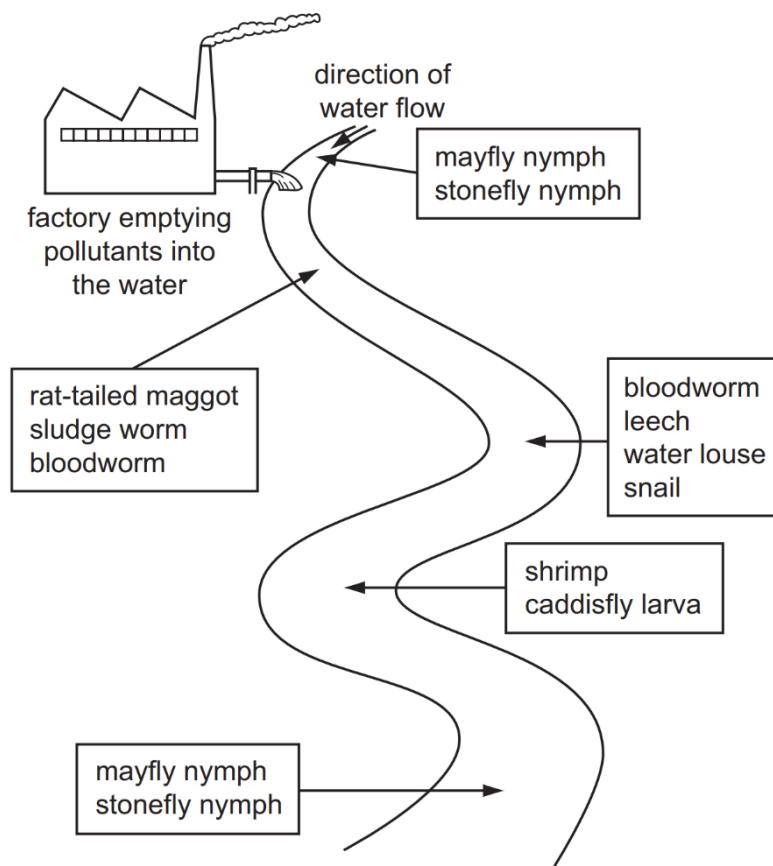
Which of the organisms is a carnivore, which is a herbivore and which is a producer?

	carnivore	herbivore	producer
A	3	8	1
B	7	6	1
C	8	3	4
D	5	2	4

28. Which row describes how energy flows through a biological system?

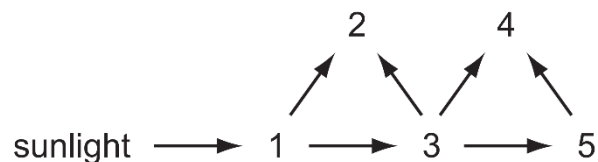
	type of energy		
	entering a biological system	transferred between organisms in a biological system	transferred from a biological system to the environment
A	chemical	heat	light
B	heat	chemical	heat
C	light	chemical	heat
D	light	heat	chemical

29. The diagram shows the results of a survey on the types of animals found along a stretch of river near to a factory.



Which animal lives in the least polluted water?

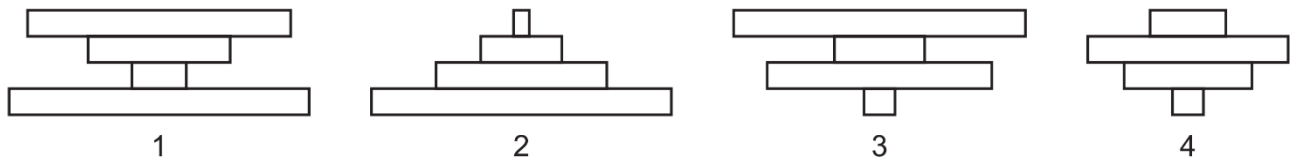
- A Bloodworm B Caddisfly larva
C Leech D Stonefly nymph
30. By which process do producers obtain energy?
- A Digestion B Photosynthesis
C Translocation D Transpiration
31. The diagram shows energy flow in a food web.



Which number represents an organism that eats both plants and animals?

- A 2 B 3 C 4 D 5

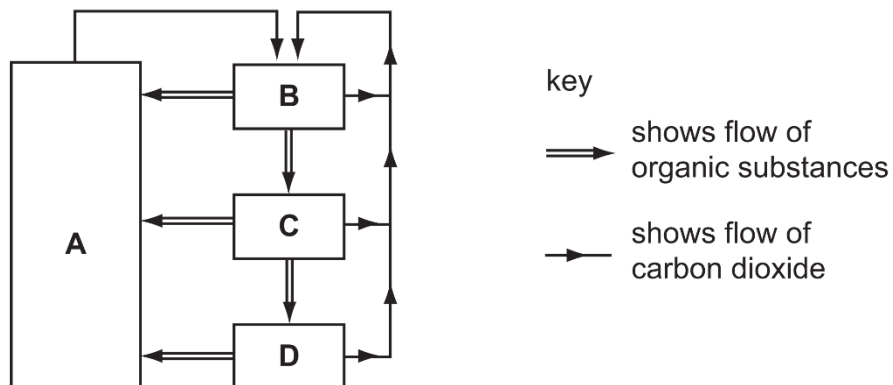
32. A tree has insect larvae burrowing in its leaves. The emerging insects are eaten by birds and the birds have parasitic fleas living amongst their feathers.



Which is a pyramid of biomass and which is a pyramid of numbers for this food chain?

	pyramid of mass	pyramid of numbers
A	1	3
B	1	4
C	2	3
D	2	4

33. The diagram represents the flow of substances within a balanced ecosystem. The boxes are various trophic levels. Which box represents producers?

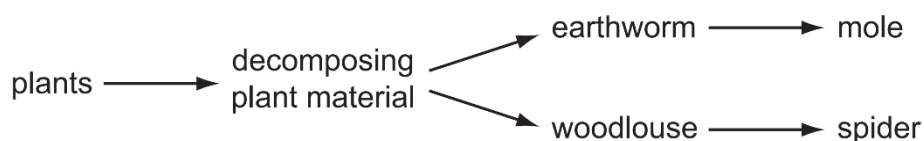


34. What is **not** a consequence of global warming?
- A** Reduction in sea level.
 - B** Reduction in thickness of polar ice.
 - C** Species migration to cooler habitats.
 - D** Spread of deserts.

35. Which processes increase and decrease the amount of carbon dioxide in the air?

	process causing increase in carbon dioxide	process causing decrease in carbon dioxide
A	burning of fossil fuels	respiration of plants
B	photosynthesis in plants	respiration of bacteria
C	respiration of animals	photosynthesis in plants
D	respiration of bacteria	burning of fossil fuels

36. The flow chart shows part of a food web in a field.



What describes both the earthworm and the woodlouse?

- A** Carnivore and consumer.
- B** Consumer and herbivore.
- C** Decomposer and herbivore.
- D** Producer and carnivore.

37. Which organisms **always** obtain their energy from dead organic matter?

- A** Consumers
- B** Decomposers
- C** Fungi
- D** Producers

38. What eventually happens to all the energy in an ecosystem?

- A** It is lost from the system as heat.
- B** It is recycled by decomposers.
- C** It is used by the producers.
- D** It is used by the top carnivore.

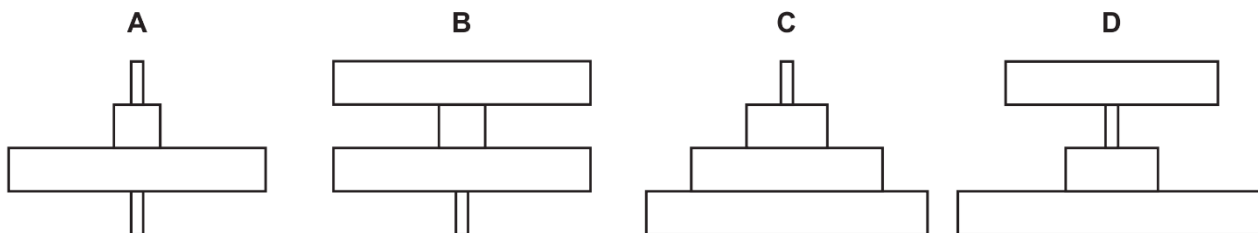
39. Which statement correctly describes relationships in ecosystems?

- A** Carbohydrates are passed from decomposers to producers.
- B** Energy is passed from carnivores to herbivores.
- C** Proteins are passed from primary consumers to producers.
- D** Water is passed from respiring decomposers to producers.

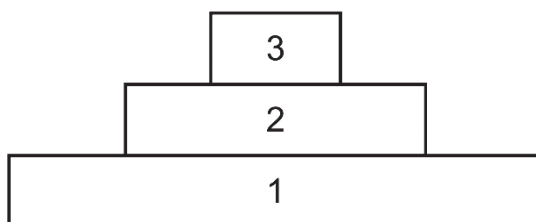
40. The diagram shows a food chain.

grass → rabbit → fox → flea

Which pyramid of numbers matches this food chain?



41. The diagram shows a pyramid of biomass.

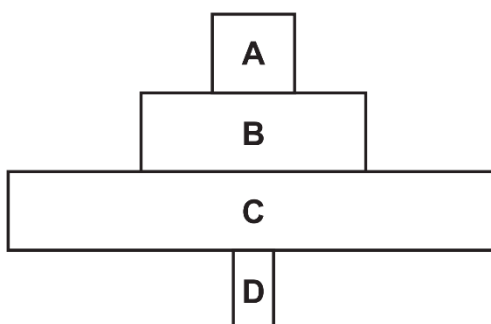


What do levels 1, 2 and 3 represent?

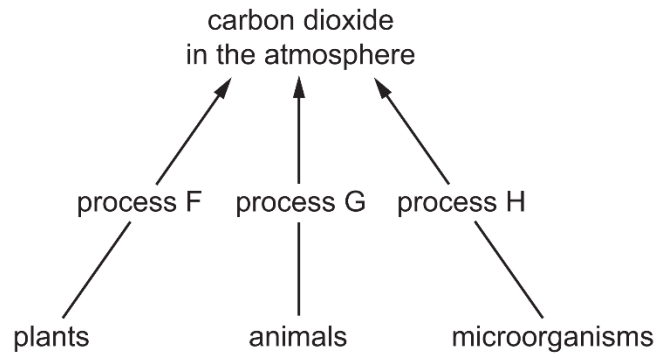
	1	2	3
A	carnivore	herbivore	producer
B	carnivore	producer	herbivore
C	producer	carnivore	herbivore
D	producer	herbivore	carnivore

42. The diagram shows a pyramid of numbers in a woodland ecosystem.

At which trophic level are the individual organisms **largest in size**?



43. The diagram shows some of the stages in the carbon cycle.



What are processes F, G and H?

	process F	process G	process H
A	photosynthesis	respiration	photosynthesis
B	photosynthesis	respiration	respiration
C	respiration	respiration	respiration
D	respiration	photosynthesis	photosynthesis

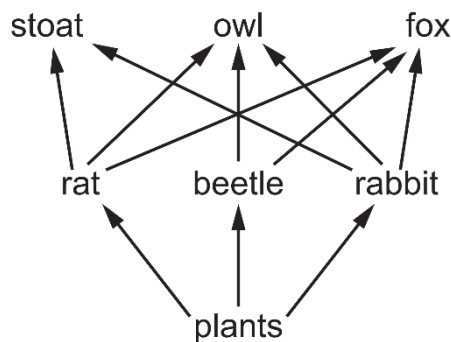
44. Why does an ecosystem need to be exposed regularly to sunlight?

- A** Energy is converted to biomass.
- B** Energy is lost as heat.
- C** Energy is lost to decomposers.
- D** Energy is reflected by plants.

45. Which sequence describes the flow of energy in an ecosystem?

- A** carnivore → herbivore → plant → Sun
- B** plant → herbivore → carnivore → Sun
- C** Sun → carnivore → herbivore → plant
- D** Sun → plant → herbivore → carnivore

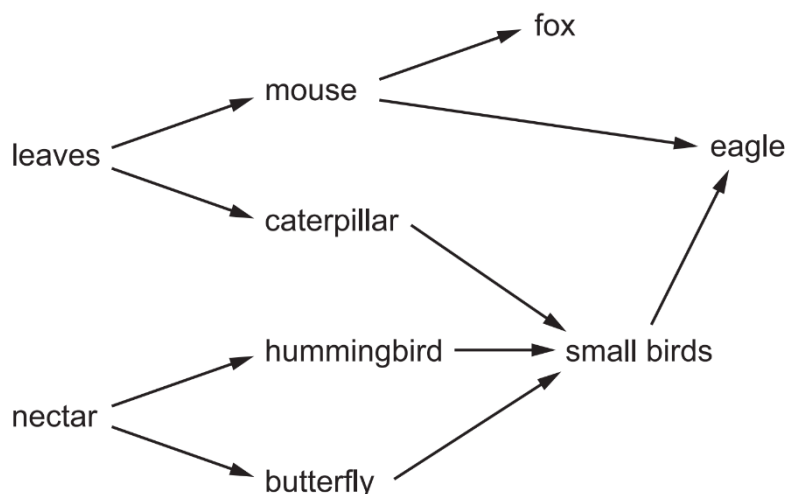
46. The diagram shows a food web.



What is likely to happen to the owl population if foxes die out?

- A It will decrease because there will be more competition with stoats for food.
- B It will increase because there will be more rats, beetles and rabbits for them to eat.
- C It will stay the same because owls do not eat foxes.
- D It will stay the same because stoats will eat less food.

47. The diagram shows a food web.



Which statement about this food web is correct?

- A Eagles obtain their energy from foxes.
- B If the hummingbirds all die the caterpillars will have more food.
- C Part of this food web is the food chain: nectar → caterpillar → small birds
- D The small birds are carnivores.

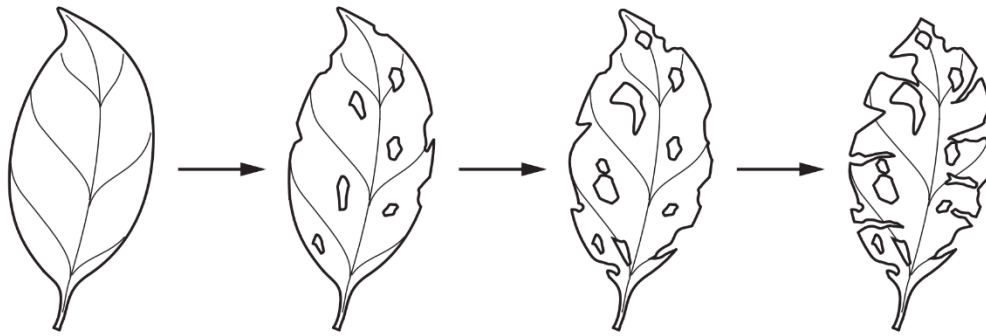
48. The diagram shows a food chain.

mahogany tree → caterpillar → songbird → hawk

Which type of organism is present in the largest numbers in this food chain?

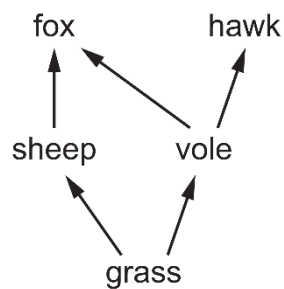
- | | |
|--------------|-------------|
| A Carnivores | B Consumers |
| C Herbivores | D Producers |

49. The diagram shows changes in the appearance of a leaf over a period of time, as it lies on the damp ground.



Which type of organism is most likely to cause these changes?

- A Carnivore
 - B Decomposer
 - C Herbivore
 - D Producer
50. The diagram shows a food web.



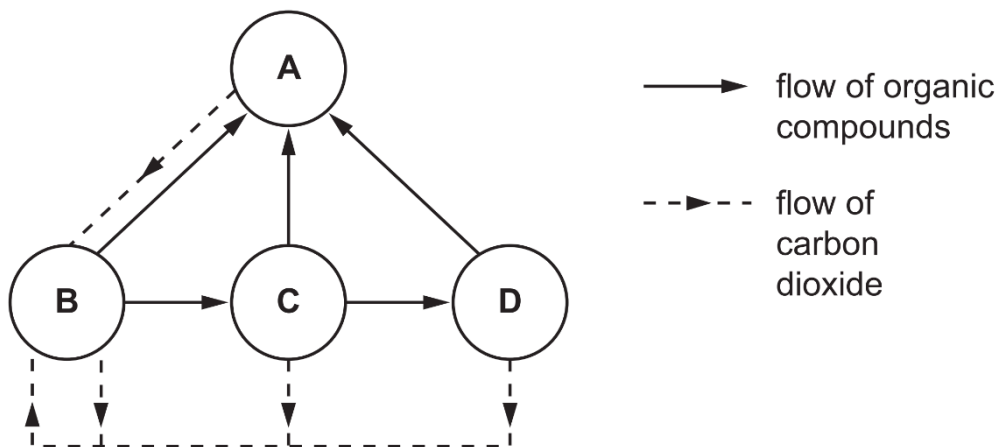
To which pair of animals is the greatest amount of energy available?

- A Fox and hawk.
 - B Fox and sheep.
 - C Hawk and vole.
 - D Sheep and vole.
51. Some effects of deforestation are listed.
- 1 Less absorption of carbon dioxide from the atmosphere.
 - 2 Desertification.
 - 3 Release of carbon from soil and decaying wood by action of microorganisms.
 - 4 Soil dryness.
 - 5 Flooding, landslides and soil erosion.

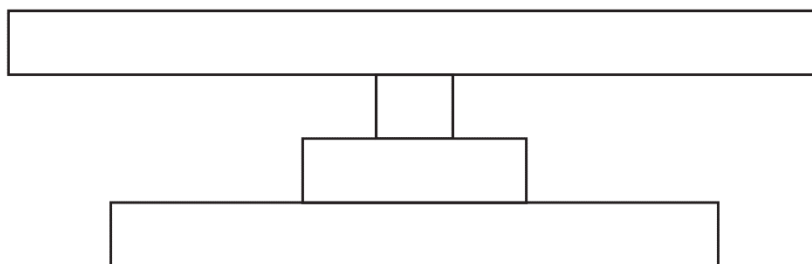
Which effects contribute to **causing** climate change?

- A 1 and 3
- B 1 and 5
- C 2 and 3
- D 2 and 4

52. The diagram shows the flow of substances within an ecosystem.
The circles represent trophic levels.
Which circle represents herbivores?



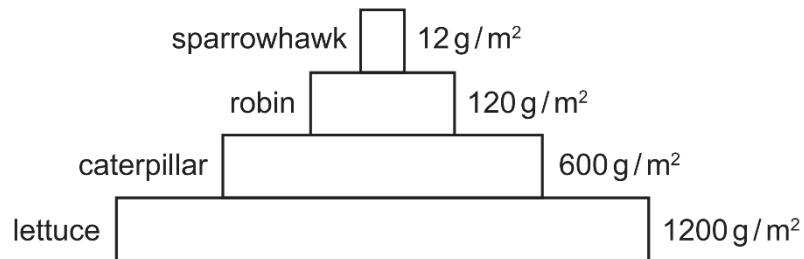
53. The diagram shows a pyramid of numbers.



Which food chain is represented by this pyramid of numbers?

- A grass → antelope → lion → flea
 - B mahogany tree → caterpillar → finch → hawk
 - C microscopic plants → microscopic animals → small fish → shark
 - D pond plant → snail → large beetle → fish
54. Which processes occur in the carbon cycle?
- A assimilation, decomposition, fixation and nitrification
 - B combustion, decomposition, nitrification and photosynthesis
 - C combustion, decomposition, photosynthesis and respiration
 - D condensation, evaporation and precipitation
55. Which statement is correct for the flow of energy through an ecosystem?
- A All organisms lose energy from metabolic processes to the environment.
 - B An organism in a food chain passes on as much energy as it receives.
 - C Energy from decomposition is essential for the growth of plant roots.
 - D Top carnivores represent the final stage in the flow of energy.

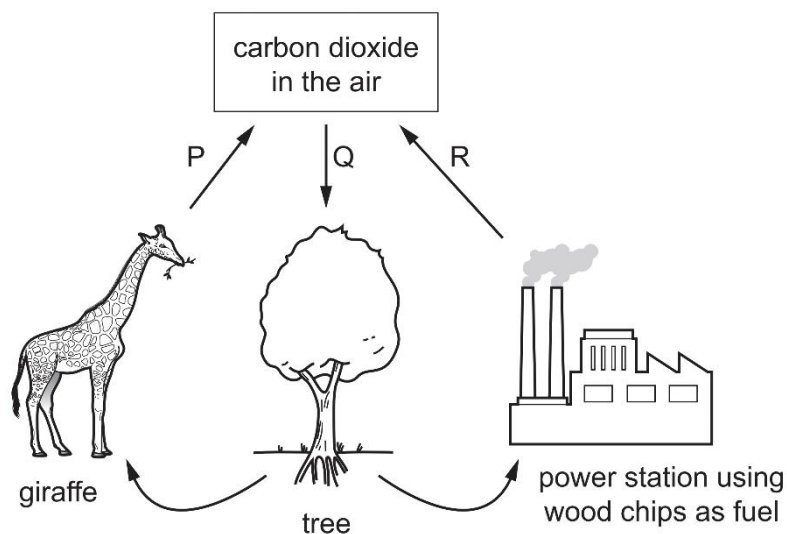
56. The diagram shows a pyramid of biomass.



Which percentage of biomass is passed from the primary consumer to the secondary consumer?

- A** 1% **B** 10% **C** 20% **D** 50%

57. The diagram shows part of the carbon cycle.



What are processes **P**, **Q** and **R**?

	P	Q	R
A	combustion	photosynthesis	respiration
B	photosynthesis	combustion	respiration
C	respiration	combustion	photosynthesis
D	respiration	photosynthesis	combustion

- To view the answers to this assignment, scan the QR code given below.



http://www.nygh.sg/lower_secondary_science/sec_two_science/sec_2_biology/multiple_choice_ecosystems_ans.pdf