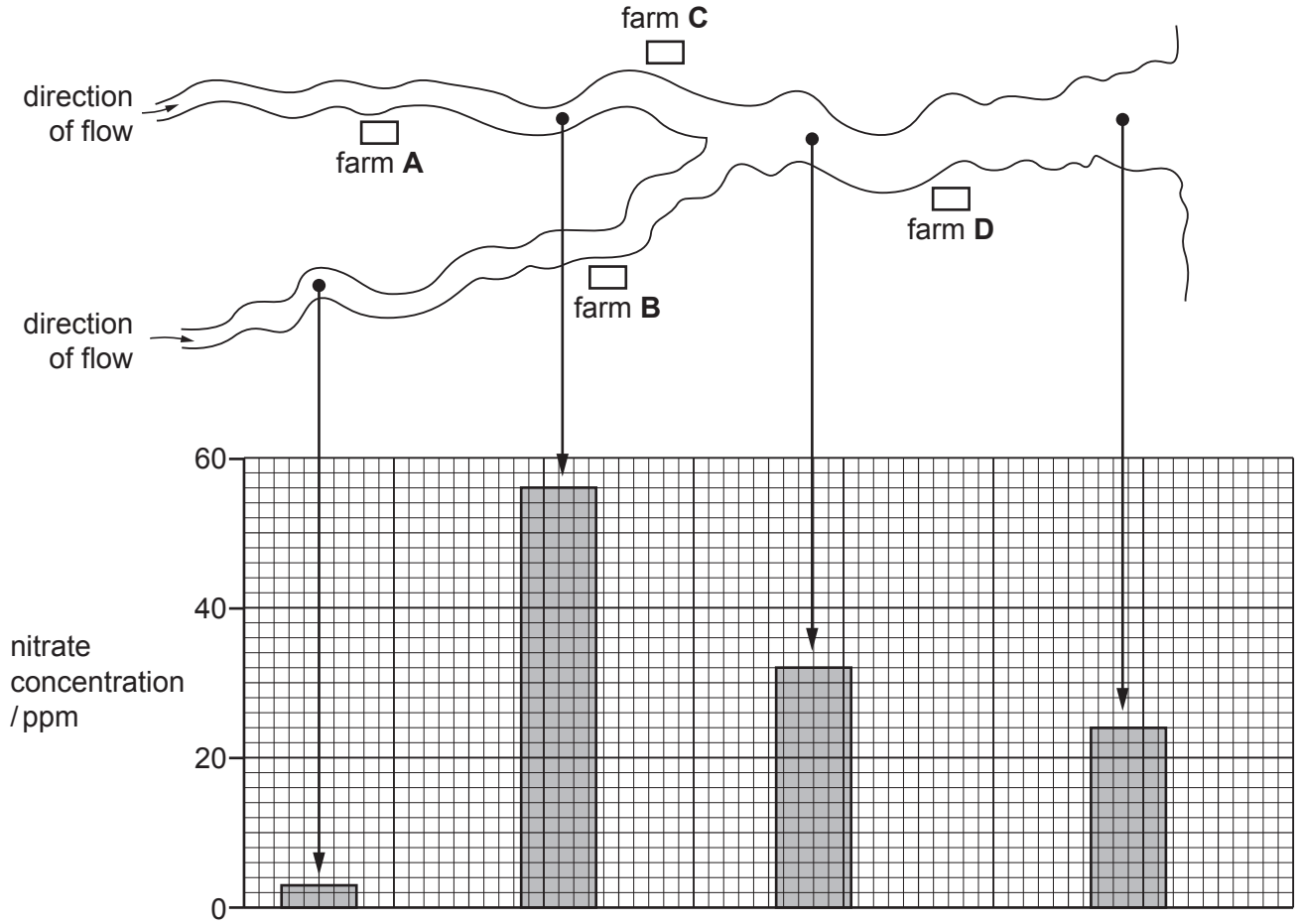
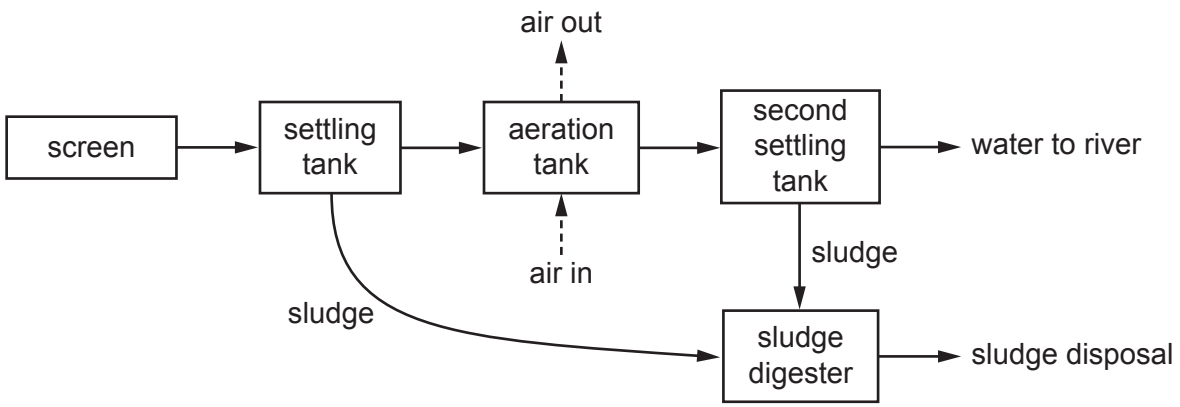
1 The diagram shows the positions of four farms and the concentrations of nitrate at different points in a river.

Which farm is likely to have been using too much fertiliser on its land?



2 The diagram shows how sewage is treated.



Why is air bubbled through the aeration tank?

A to encourage microorganisms to reproduce quickly

B to float the sludge

C to settle the sludge

D to stop microorganisms from reproducing too quickly

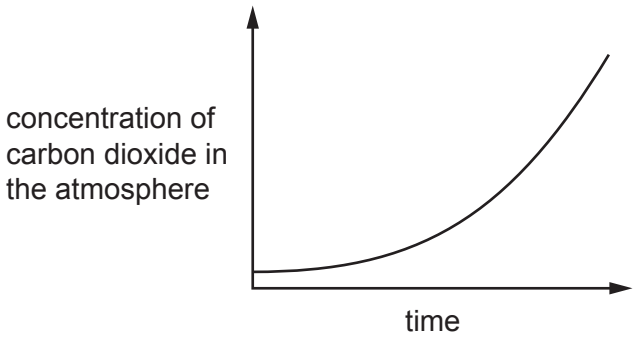
3 Three human activities are listed.

1 burning fossil fuels

2 deforestation

3 overusing fertilisers

Which activities can cause the change shown in the graph?



A 1, 2 and 3 **B** 1 and 2 only **C** 1 only **D** 2 and 3 only

4 What is a reason for conserving plant species?

A to absorb oxygen from the air

B to decrease rainfall

C to obtain drugs for medicinal use

D to release carbon dioxide into the air

5 What is **reduced** after deforestation?

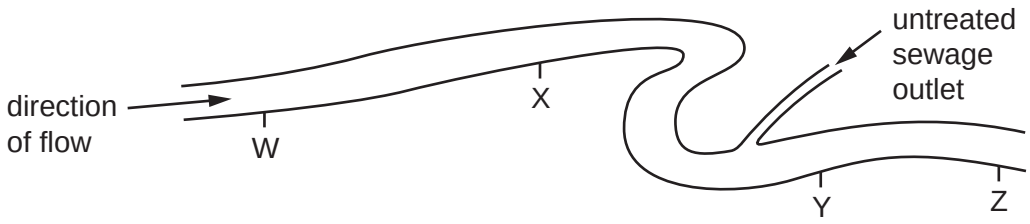
A force of rain hitting the ground

B rainwater run-off

C soil erosion

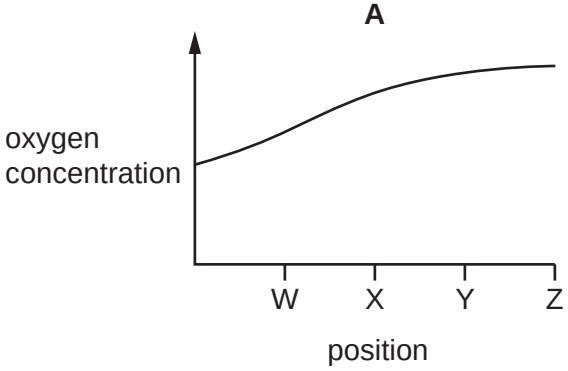
D soil fertility

6 The diagram shows four positions on a river where water samples were taken.

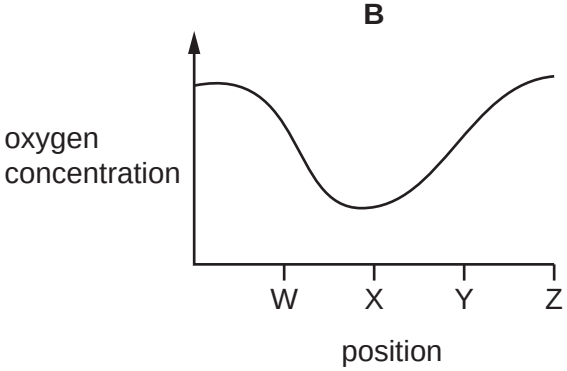


Which graph shows oxygen concentrations in the river?

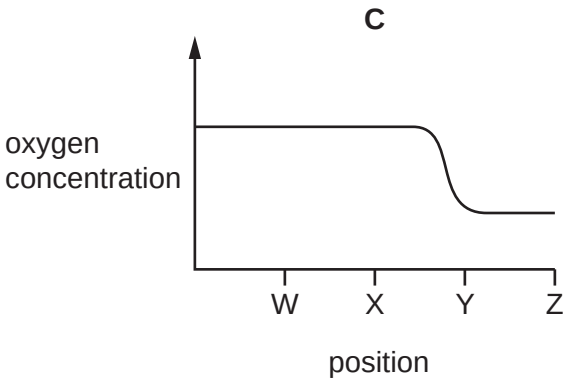
A



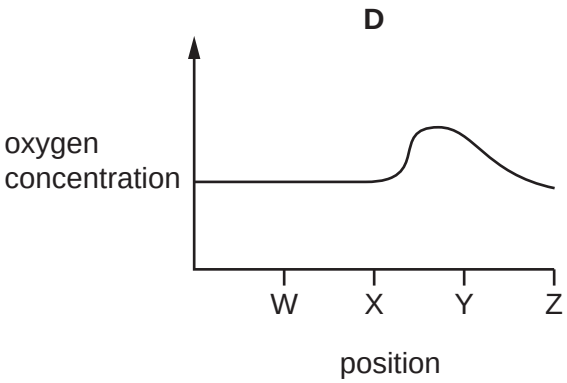
B



C



D



7 Which two gases **both** contribute to global warming?

A carbon dioxide and methane

B methane and oxygen

C oxygen and sulfur dioxide

D sulfur dioxide and carbon dioxide

8 Which process may result in eutrophication in a lake?

A bleach entering from a factory

B fertilisers entering from farmland

C hot water entering from a power station

D pesticides entering from farmland

9 Which two gases are the biggest contributors to the greenhouse effect?

A carbon dioxide and methane

B carbon monoxide and carbon dioxide

C methane and sulfur dioxide

D sulfur dioxide and carbon monoxide

10 Over-use of fertilisers on farmland causes the chemicals in the fertilisers to be washed into ponds and lakes.

This causes eutrophication resulting in the following events.

1 algae grow

2 fish die

3 bacteria grow

4 oxygen decreases

What is the correct sequence of these events?

A $1 \rightarrow 3 \rightarrow 4 \rightarrow 2$

B $1 \rightarrow 4 \rightarrow 3 \rightarrow 2$

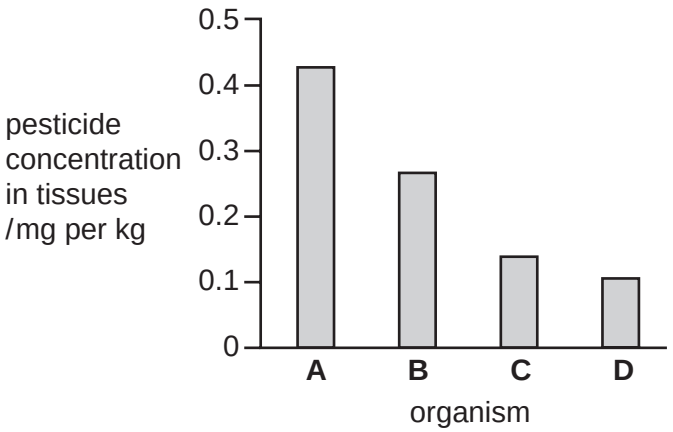
C $3 \rightarrow 4 \rightarrow 2 \rightarrow 1$

D $4 \rightarrow 1 \rightarrow 2 \rightarrow 3$

11 The concentration of a pesticide in the tissues of the organisms in the following food chain was measured.

plants → small fish → large fish → birds of prey

Which bar on the chart represents the large fish?



12 Which activity will be **least** likely to lead to the extinction of species?

A conservation

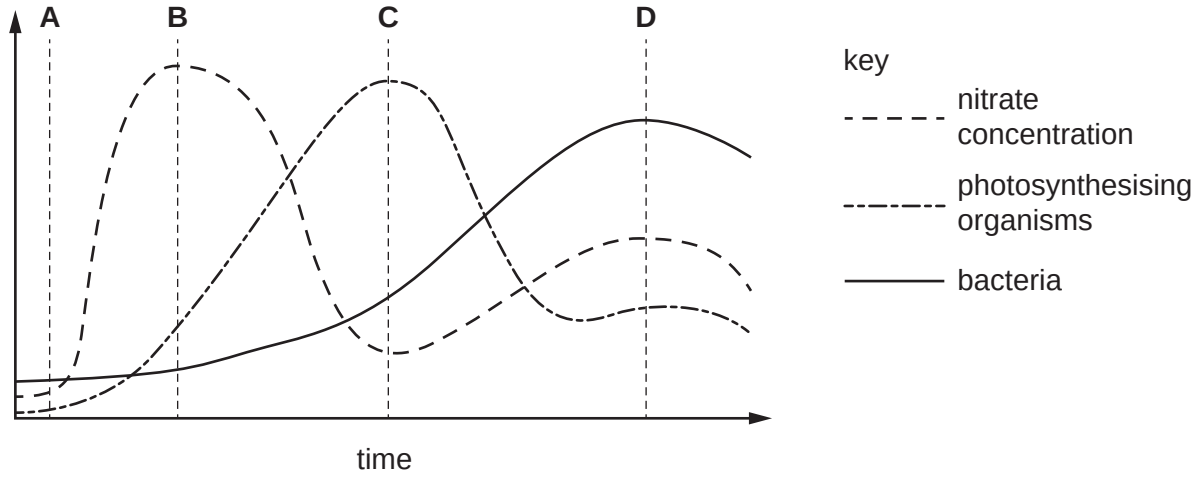
B deforestation

C use of herbicides

D use of pesticides

13 The graph shows changes in part of a lake after it has been polluted by fertilisers from a nearby farm.

At which time will the oxygen concentration in the water be lowest?



14 What is reduced when untreated sewage is released into rivers?

A the amount of nitrate

B the concentration of carbon dioxide

C the concentration of oxygen

D the number of bacteria

15 The diagram shows a food chain.

A farmer sprays his cabbages with pesticide.

Which organisms does the farmer want to kill?

16 Which pollutants of water can lead to eutrophication?

	fertilisers	herbicides	insecticides	sewage
A	✓	✓	✗	✗
B	✓	✗	✗	✓
C	✗	✓	✓	✗
D	✗	✗	✓	✓

17 What is an effect of pollution by nuclear fall-out?

A deforestation

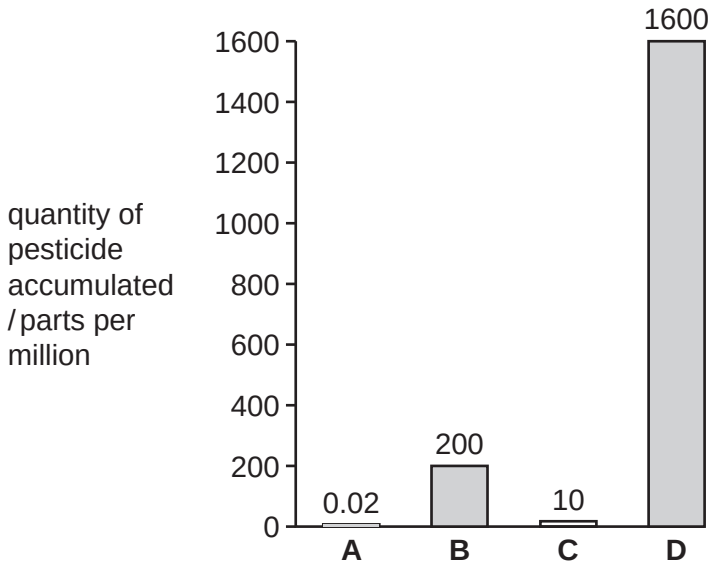
B eutrophication

C global warming

D increased mutation rate

18 The graph shows the quantities of pesticides that accumulate in four populations, each at different trophic levels in a food chain.

Which population is most likely to be herbivores?



19 Which feature of deforestation has the greatest effect on the atmosphere?

A extinction of forest animal species

B increased risk of flooding

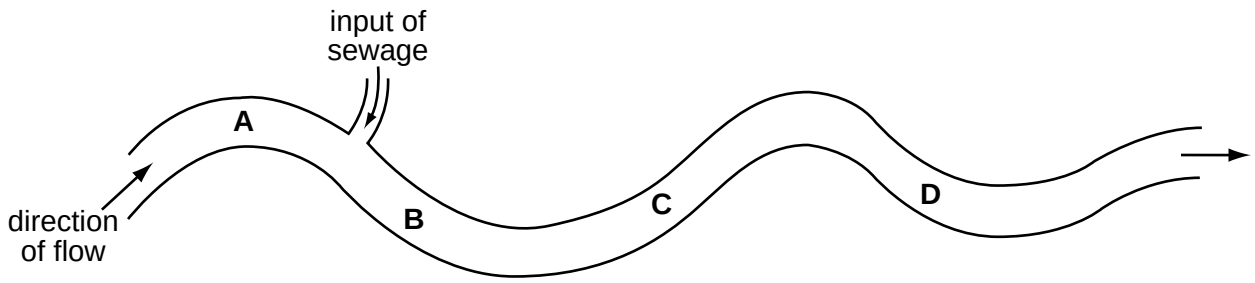
C reduction of photosynthesis

D soil erosion

20 The bloodworm is found in heavily polluted water.

The diagram shows where raw sewage flows into a river.

Where would there be fewest bloodworms?



21 What describes eutrophication and its effect on a river?

A Nutrients are depleted in the river, causing bacteria to die. This allows plants to grow and deoxygenate the water.

B Nutrients are depleted in the river, causing plants to die. These decompose, so the water is deoxygenated.

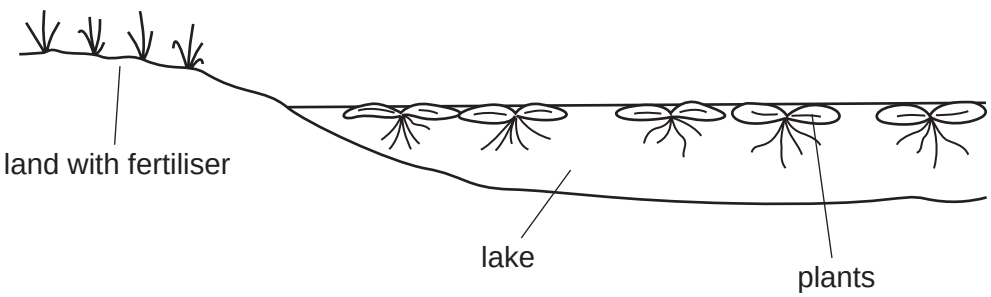
C Nutrients enter the river, causing algae to grow. These die and decompose, so the water is deoxygenated.

D Nutrients enter the river, causing plants to grow. These provide extra food for animals, which deoxygenate the water.

22 What are the possible effects of deforestation?

	loss of soil	flooding	decrease in atmospheric carbon dioxide
A	✓	✓	✗
B	✓	✗	✓
C	✗	✓	✗
D	✗	✗	✓

23 A farmer put some fertiliser on his field. Soon afterwards, there was a heavy storm and some of the fertiliser drained into a lake.



What is the effect of the fertiliser on the growth of the crop plants in the field and the plants in the lake?

	crop plants	lake plants
A	decrease growth	decrease growth
B	decrease growth	increase growth
C	increase growth	decrease growth
D	increase growth	increase growth

24 There is evidence that the concentration of carbon dioxide in the Earth's atmosphere is increasing.

Which change could explain this?

A less combustion of fossil fuels

B more combustion of stored carbon compounds from dead organisms

C more photosynthesis by plants

D people breathing faster

25 Which human activity can cause eutrophication of lakes?

A releasing carbon dioxide

B releasing sulfur dioxide

C using fertilisers

D using pesticides

26 Insecticides sprayed in low concentrations may increase the yield of a crop, but may also be harmful to wildlife.

What is an explanation for this?

A Insecticides cause acid rain.

B Insecticides enter the food chain.

C Insecticides increase the nitrates in soil.

D Insecticides kill other plants.

27 Which pollutant is **most** likely to cause mutations?

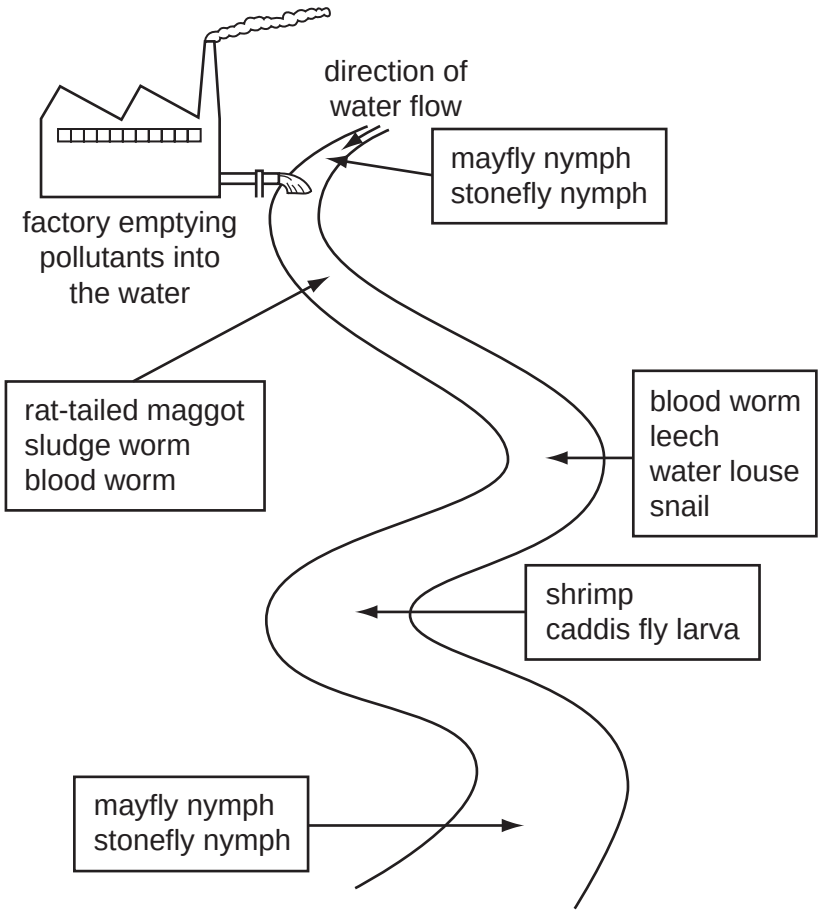
A carbon dioxide

B methane

C nuclear radiation

D sulfur dioxide

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



Which of the following animals lives in the most polluted water?

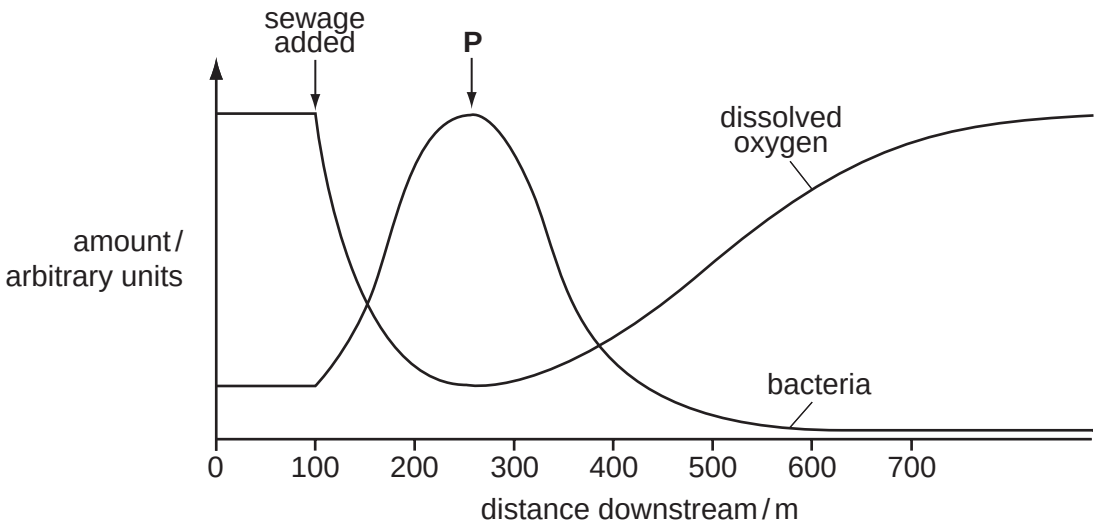
A blood worm

B caddis fly larva

C leech

D stonefly nymph

29 The graph shows how oxygen concentration and the number of bacteria change when sewage is added to a river.



What describes the oxygen concentration and the number of bacteria between the point at which sewage is added and point **P**?

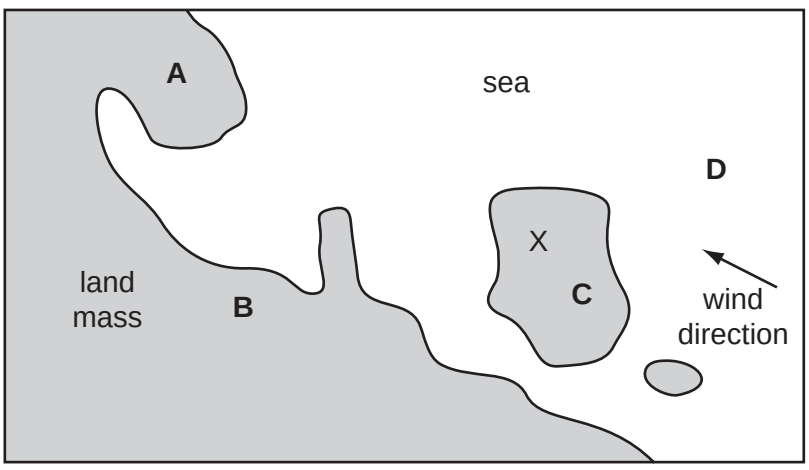
A Oxygen concentration and number of bacteria stay the same.

B Oxygen concentration decreases and number of bacteria increases.

C Oxygen concentration increases and number of bacteria decreases.

D Oxygen concentration remains the same and number of bacteria increases.

30 On the map shown, sulfur dioxide is produced at X. Which region is most likely to experience acid rain?



31 Which agricultural activity can cause the most pollution?

A adding artificial fertilisers

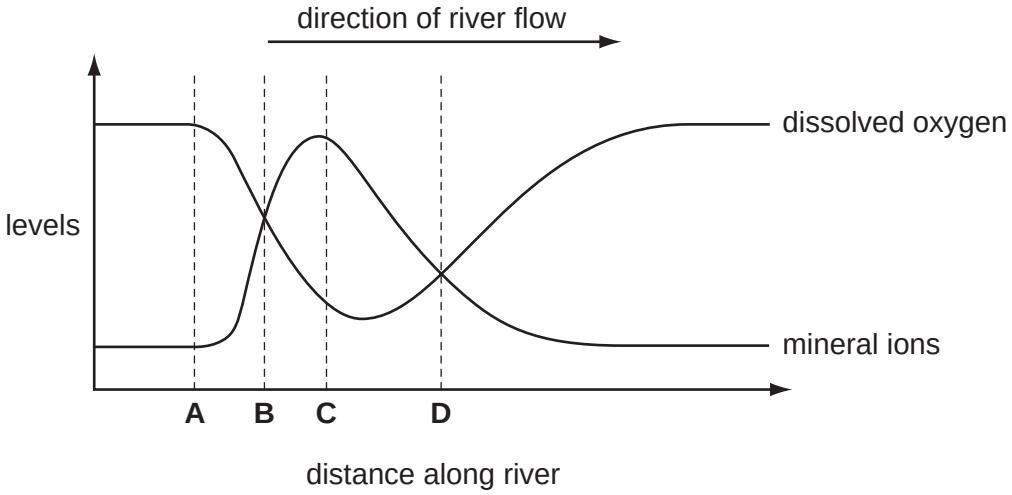
B cutting down trees

C digging plant material into the soil

D growing high-yielding crops

32 The graph shows the levels of dissolved oxygen and mineral ions in a river.

At what point does raw sewage enter the river?



33 Different pesticides were tested to see how poisonous they were to fish. Scientists found the concentration of pesticide that killed 50 % of the fish within four days.

The table shows the results of the tests.

pesticide	concentration that killed 50 % of the fish / p.p.m.
DDT	0.03
dieldrin	0.01
malathion	12.20
parathion	2.11

Which pesticide was the most dangerous to the fish?

A DDT

B dieldrin

C malathion

D parathion

34 Weeds are growing in a crop.

What should be used to kill the weeds?

A artificial fertiliser

B herbicide

C magnesium salts

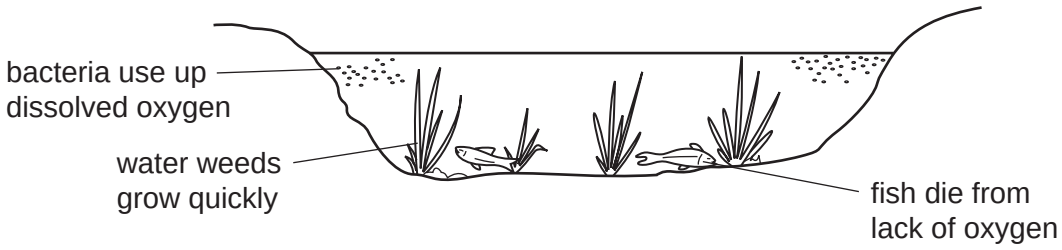
D organic manure

35 A large area is heavily overgrazed for many years.

How does this affect soil nutrients and soil erosion?

	soil nutrients	soil erosion
A	decrease	decrease
B	decrease	increase
C	increase	decrease
D	increase	increase

36 The diagram shows some of the effects of human activity on a river.



What could have caused these effects?

A air pollution

B deforestation

C over-use of fertilisers

D presence of weed killers

37 What effect does deforestation have on the levels of carbon dioxide, oxygen and water vapour in the atmosphere?

	carbon dioxide	oxygen	water vapour
A	less	less	more
B	less	more	more
C	more	less	less
D	more	more	less

38 A persistent pesticide is one that does not break down.

What is one disadvantage of a persistent pesticide?

A It becomes more concentrated at each level in the food chain.

B It breaks down within a few months.

C It only destroys one particular pest in the food chain.

D It does not dissolve in water.

39 What makes nuclear fall-out dangerous to living organisms?

A It causes flooding.

B It causes global warming.

C It damages DNA.

D It damages soils.

40 A very large area of land has been cleared of rainforest and planted with soybean.

What result of deforestation will encourage the growth of the soybean plants?

A decrease in atmospheric oxygen

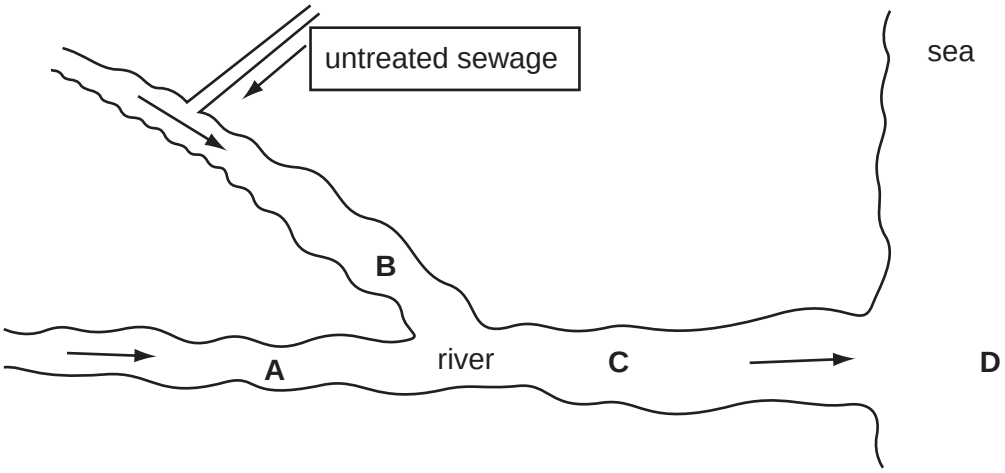
B decrease in rainfall

C increase in atmospheric carbon dioxide

D increase in soil erosion

41 The map shows a river flowing into the sea. The river is polluted by untreated sewage.

At which labelled point will the oxygen content of the water be lowest?



42 The levels of carbon dioxide in the Earth's atmosphere have increased during the last one hundred years.

What is the **most** likely cause of this?

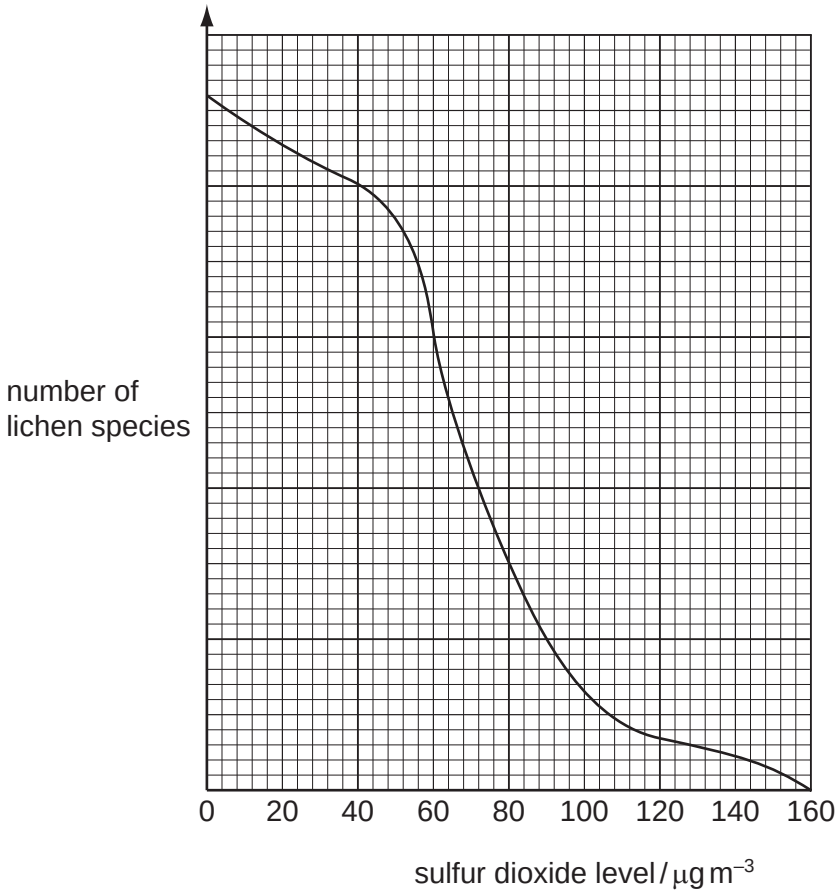
A cutting down large areas of forest

B increased production of crops

C over-use of inorganic fertilisers

D widespread use of pesticides

43 The graph shows the relationship between sulfur dioxide pollution and the number of lichen species found on trees.



From the graph, which statement is correct?

A As sulfur dioxide levels increase the number of lichen species decreases.

B Lichens cannot survive if any sulfur dioxide is present.

C Lichens are not affected by sulfur dioxide pollution.

D As sulfur dioxide levels increase so do numbers of lichen species.

44 What could be a consequence of deforestation?

A More habitats are produced for animals and plants.

B More transpiration may increase rainfall.

C Rainwater runs off the land causing flooding.

D Soil erosion is less likely.

45 Untreated sewage can cause pollution of streams and rivers. Some changes in streams and rivers after sewage is added are shown.

1 fish die

2 the dissolved oxygen in the water decreases

3 the number of anaerobic organisms increases

4 the number of bacteria increases

What gives the order in which these events occur?

A $1 \rightarrow 2 \rightarrow 4 \rightarrow 3$

B $1 \rightarrow 4 \rightarrow 3 \rightarrow 2$

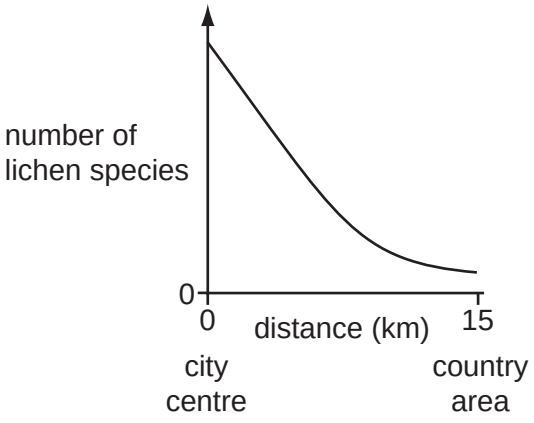
C $2 \rightarrow 1 \rightarrow 4 \rightarrow 3$

D $4 \rightarrow 2 \rightarrow 1 \rightarrow 3$

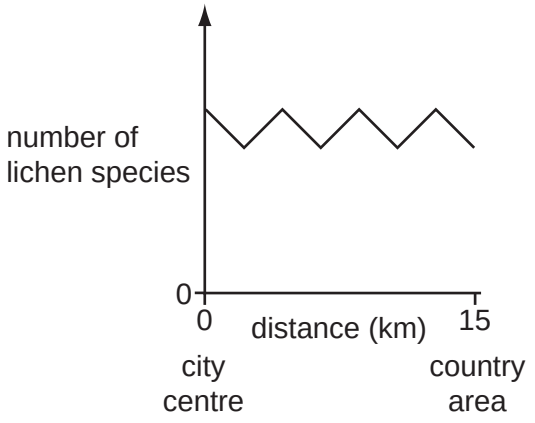
46 Lichens are organisms that do **not** grow well in air containing sulphur dioxide.

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

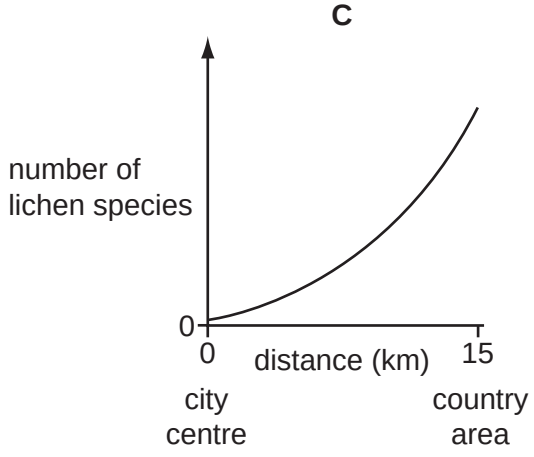
A



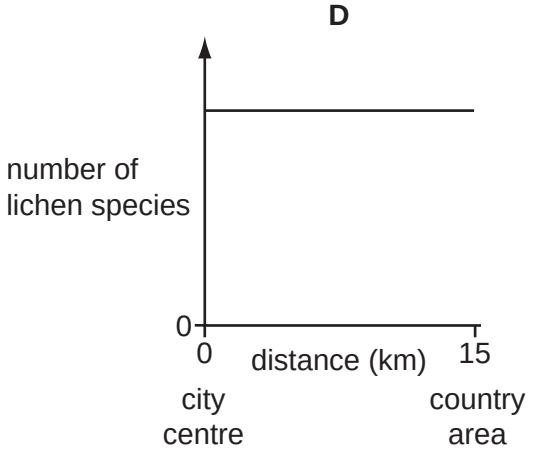
B



C



D



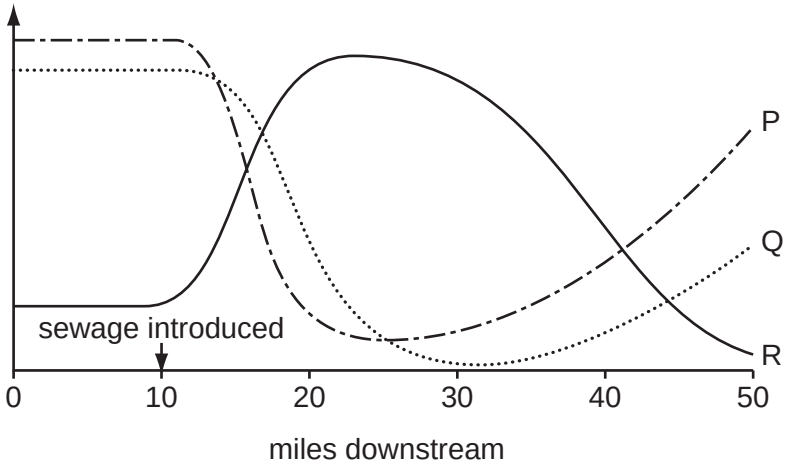
47 Four water samples are collected from different places along a river. The average number of organisms per species and the number of different species of organisms are counted.

The table shows the results.

Which water sample is most polluted?

	average number of organisms per species	number of species
A	650	5
B	280	30
C	400	17
D	420	43

48 The graph shows how the concentration of oxygen and the numbers of fish and bacteria in a river change when sewage flows into it.



What are P, Q and R?

	P	Q	R
A	bacteria	oxygen	fish
B	fish	bacteria	oxygen
C	fish	oxygen	bacteria
D	oxygen	fish	bacteria

49 Why might pesticides sprayed onto the fields reduce a bean crop?

A Pesticides damage plant leaves.

B Pesticides damage plant roots.

C Pesticides kill insects that feed on bean plants.

D Pesticides kill insects that pollinate bean plants.

50 What may cause the rapid growth of plants in a lake?

A excess fertilisers

B excess herbicides

C low water pH

D low water temperature