

Reporting Category 5

2 Surtsey is an island located south of Iceland. The island was formed by a volcanic eruption and first appeared in 1963. The table below contains descriptions of changes in the population and diversity of species on Surtsey. **(R11D)**

	Description
I	Sea lyme grass, sea rockets, oyster plants, and other vascular plants appear.
II	The lava and sands have few nutrients and are barren.
III	Dwarf willow trees colonize the island.
IV	Mosses, lichens, and plants that are adapted to dispersal by the sea or the wind and that grow in sand appear.

Which of these lists the descriptions in the correct order of ecological succession on Surtsey?

F I, II, IV, III

H IV, III, I, II

G III, I, II, IV

J II, IV, I, III

9 The overgrowth of algae poses a major problem for coral reefs. Intensive fishing is one factor that contributes to algae overgrowth because it does which of the following? **(R12F)**

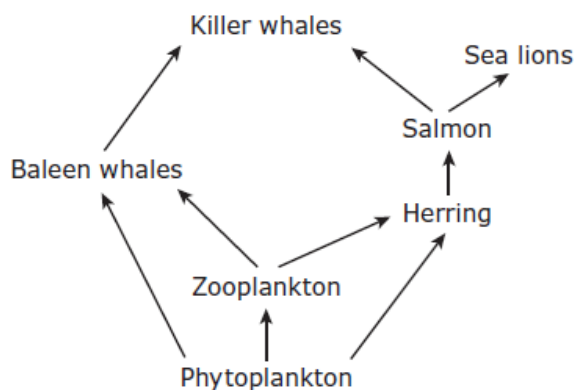
A Allows more sunlight to be available to algae

B Inhibits the spread of pathogens in algae colonies

C Reduces the number of organisms that feed on algae

D Increases the competition between different algae species

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Which of the following are missing from the food web shown above? **(R12C)**

F Producers

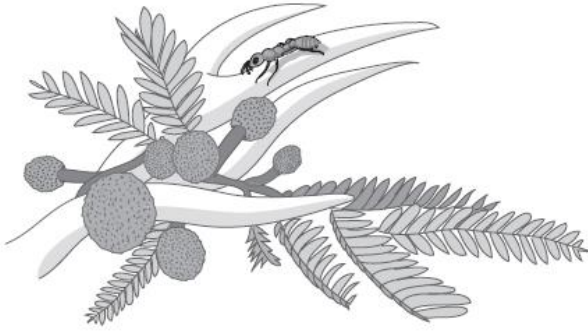
G Decomposers

H Omnivores

J Predators

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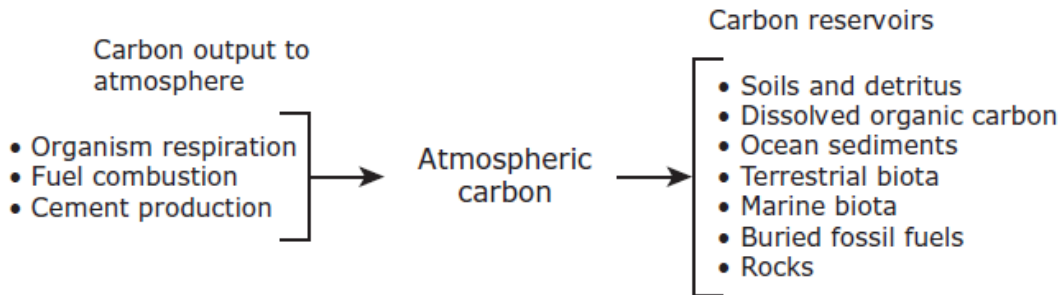
24 The acacia ant (*Pseudomyrmex ferruginea*) lives in the bullshorn acacia plant, as shown below. (R12A)



The acacia ant nests and feeds in the plant's hollow thorns. The ant helps protect the bullshorn acacia by attacking insects and grazing animals that come near the plant. The relationship between the acacia ant and the bullshorn acacia is an example of which of the following?

- F Commensalism
- G Mutualism
- H Neutralism
- J Parasitism

27 The carbon cycle includes processes that release carbon into the atmosphere and places that act as carbon reservoirs. The diagram below shows both major processes that release carbon and major carbon reservoirs. (S12E)

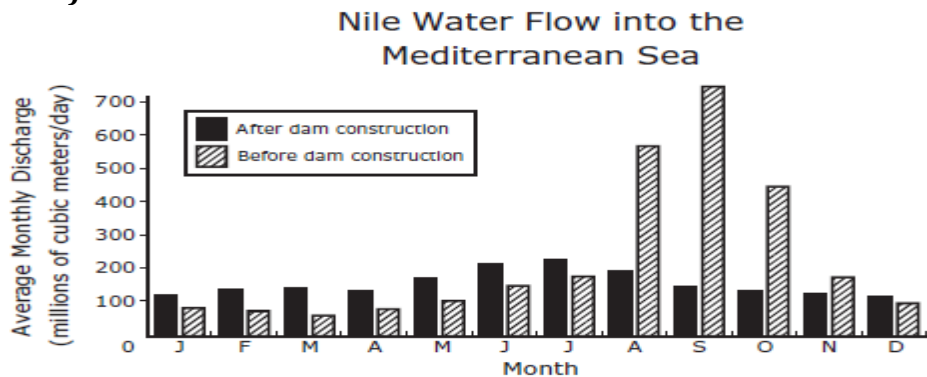


Which of these disruptions would cause an excess output in the carbon cycle?

- A The destruction of terrestrial biota
- B Increases in marine biota
- C A reduction in the use of fossil fuels
- D A thickening of ocean sediments

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31 The Nile River flows into the Mediterranean Sea. The Aswan High Dam contains the flow of water from the river and reduces the annual fall flooding. The floodwater is trapped behind the huge dam, allowing irrigation for agriculture. Sediments that would be washed away by the annual floods are also trapped behind the dam. The graph shows the water flow from the Nile that enters the Mediterranean Sea. **(R12F)**



How has this dam most likely affected the Mediterranean Sea ecosystem?

- A** Reduced nutrients from the land support fewer producers in the sea.
- B** Water trapped behind the dam causes the marine ecosystem to move inland.
- C** The flooding in August through November causes marine life to be destroyed.
- D** The water temperature of the sea has increased.

37 The Texas blind salamander (*Eurycea rathbuni*) lives in the Edwards Aquifer region around San Marcos. Along with other species the salamander lives in total darkness in the underground crevices and caves of the aquifer region. The table lists some of the organisms that live in this environment and their food sources. **(R12C)**

Edwards Aquifer Cave Inhabitants	Food Sources
Texas blind salamander	Blind shrimp, amphipods
Blind shrimp	Protozoa, fungi, detritus
Snails	Detritus
Amphipods	Detritus
Intestinal roundworm	Texas blind salamander

In an energy pyramid for these aquifer cave dwellers, which of the following would be placed at the bottom?

- A** Snails
- B** Blind shrimp
- C** Protozoa
- D** Texas blind salamanders

40 A student sets up a compost bin outdoors. Inside the bin microorganisms convert the student's vegetable and paper scraps into rich fertilizer. Which of the following best describes the role that these microorganisms play in natural habitats? **(S11C)**

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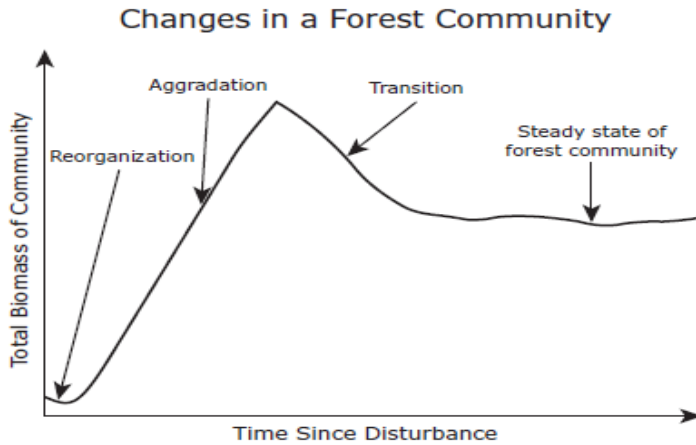
F The microorganisms help balance the numbers of producers and consumers.

G The microorganisms help keep nutrients cycling through the ecosystem.

H The microorganisms turn solar energy into sugars.

J The microorganisms function as autotrophs.

42 The graph shows the basic changes in a forest community after a disturbance occurred. **(R11D)**



The information shown in the graph suggests that the changes in the forest community were caused by —

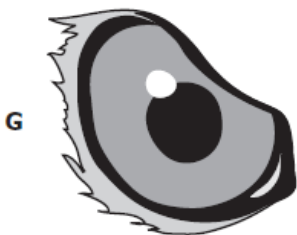
F tree-leaf replacement after a storm

H repeated habitat destruction

G succession after a fire

J decreased species diversity

46 The iris controls the size and shape of the pupil. Which eye most likely belongs to an animal that is active most of the day on white desert sand? **(S12B)**



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50 A native species and a non-native species are competing for resources within the same ecosystem. The non-native species is more likely to survive than the native species in which of the following situations?
(R12A)

F Both the native species and the non-native species thrive on the same food source.

G The native species is immune to certain pathogens in the ecosystem.

H Predators prey on both native and non-native species.

J The non-native species has no natural enemies in the ecosystem.