

## Block 1

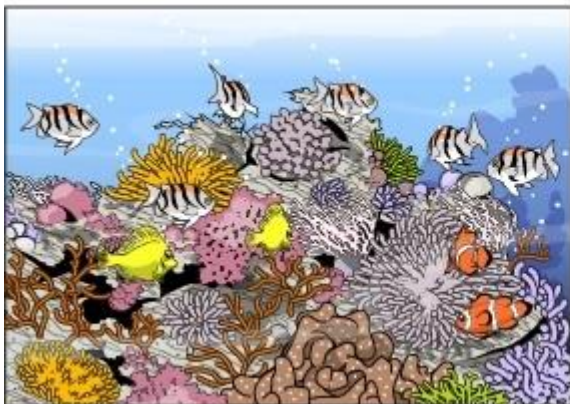
### Grade 5 Changing Coral

Student State ID

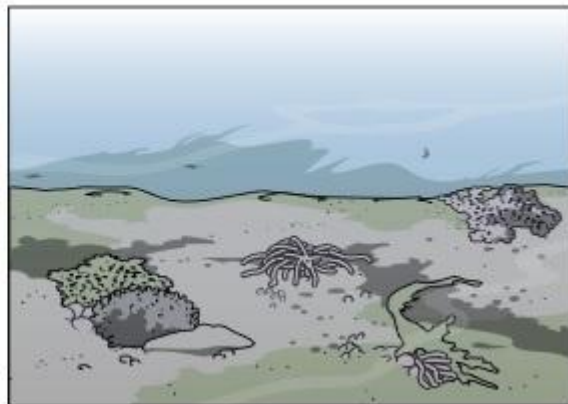
Use the information provided in any part of this task to answer the questions.

Scientists have been investigating coral reef ecosystems over time. They have observed many changes. In some areas, coral reefs have disappeared. The scientists are wondering what is causing these changes.

**Coral Reef Before 1980**



**Coral Reef Today**



#### Information about Coral Reefs

- Coral reefs are made from animals that live in the same place their entire lives.
- Corals need shallow, clear, warm water to survive.

- Most corals live with algae, which are tiny, plant-like organisms that need sunlight to grow.

### Question 1

Some scientists claim that there is a land-based cause for this ocean problem. Which evidence would support their claim?

- A) The ocean today is warmer than it was in 1980.
- B) The ocean today has more algae than it did in 1980.
- C) There is more oxygen in the ocean today than there was in 1980.
- D) There is more soil and sediment in the ocean today than there was in 1980.

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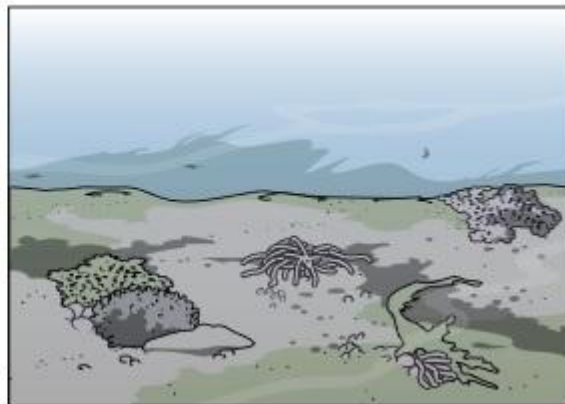
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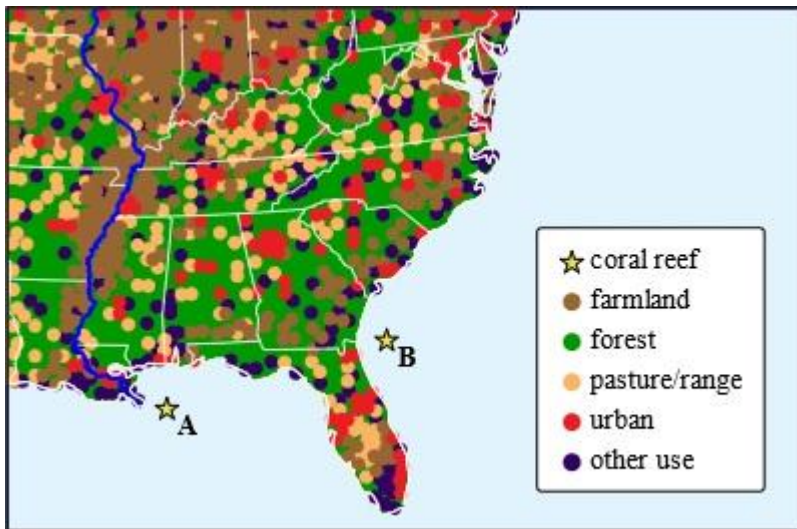
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## Question 2



This question has two parts. Answer Part A, and then answer Part B.

Scientists have determined that soil and sediment entering the ocean are negatively affecting coral reefs.

### Part A

Which claim compares the health of coral reef A to coral reef B?

- A) Coral reef A is most likely healthier than coral reef B.

- B) Coral reef B is most likely healthier than coral reef A.
- C) The health of each coral reef is most likely the same.

## Part B

Which evidence from the map supports the claim in Part A about the health of the coral reefs? Select **all** the evidence statements that apply to the chosen claim.

- A) Coral reef B is farther from rivers than coral reef A is.
- B) Coral reef A is farther from forests than coral reef B is.
- C) Coral reef A is farther from urban areas than coral reef B is.
- D) Coral reef B is more damaged by waves than coral reef A is.
- E) Coral reef B is closer to more urban areas than coral reef A is.
- F) Coral reef A is closer to runoff from farmland than coral reef B is.

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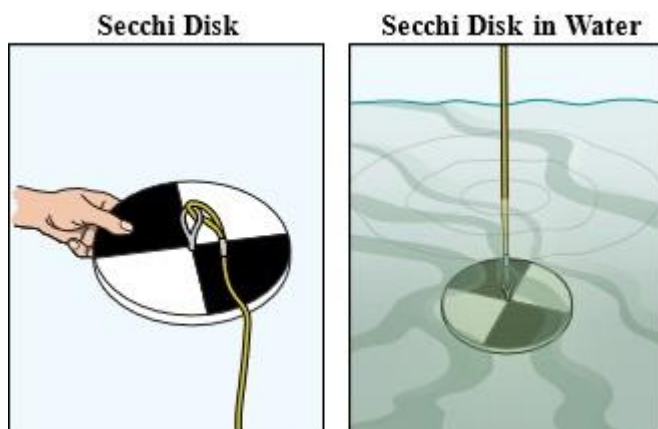
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## Question 3

Scientists use a Secchi disk to measure how far light reaches in water. A Secchi disk is used by lowering it into the water. At the point the Secchi disk cannot be seen, they record the depth. This depth is how far the sunlight is reaching into the water.



## Secchi Disk Depth and Amount of Sediment

Secchi Disk Depth (centimeters)	Amount of Sediment (milligrams/Liter)
4.6	1,000
8.0	500
12.0	300
23.0	100
33.0	50

Identify the pattern in the data that describes the relationship between the amount of sunlight and the amount of sediment in the water. Select each pattern that describes the relationship.

- A) As the sediment increases, the depth the light can reach increases.
- B) As the sediment increases, the depth the light can reach decreases.
- C) As the sediment decreases, the depth the light can reach decreases.
- D) As the Secchi disk depth increases, the amount of sediment increases.
- E) As the Secchi disk depth decreases, the amount of sediment increases.

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#### Question 4

Organism	Picture	How it obtains energy
Dolphin		eats fish
Triggerfish		eats coral
Coral		eats algae
Algae		from the Sun
Bacteria		from dead organisms

Use the information given about the organisms in the ocean ecosystem to predict the organism that will be MOST affected when sediment in the ocean increases.

- A) dolphin
- B) triggerfish
- C) coral
- D) algae
- E) bacteria

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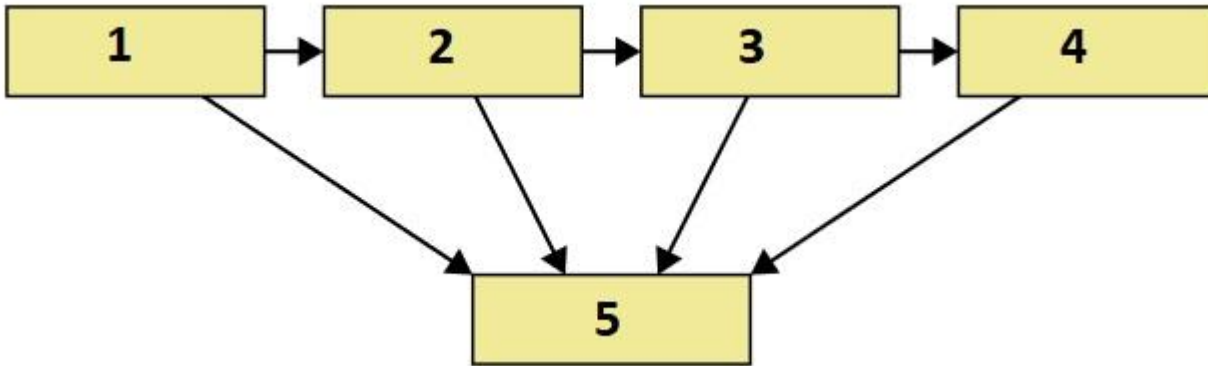
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## Question 5



Complete the model of the ocean ecosystem to describe how matter moves among these five organisms. Move the names of the organisms into the boxes in the model.

	Box 1	Box 2	Box 3
Dolphin	<input type="text"/>	<input type="text"/>	<input type="text"/>
Triggerfish	<input type="text"/>	<input type="text"/>	<input type="text"/>
Coral	<input type="text"/>	<input type="text"/>	<input type="text"/>
Algae	Box 4		
Bacteria	<input type="text"/>		
	Box 5		
	<input type="text"/>		

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**Question 6**

Based on this ecosystem model, how will the populations of the organisms be affected if the population of algae greatly decreases? Select the effect on each organism's population.

Algae decreases 	Organism	Population Effect		
	Dolphin	increase	decrease	little to no effect
	Triggerfish	increase	decrease	little to no effect
	Coral	increase	decrease	little to no effect

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**Question 7**

Place one statement into each box to explain how changes in land use affect populations of organisms.

**Items**

More sediment in ocean waters near the river

Less sediment in ocean water near the river

Decreased sunlight in the water

Increased sunlight in the water

More algae for other organisms to feed on

Less algae for other organisms to feed on

Decreased populations of other organisms

**Change in the way land is used results in...**

**Which causes...**



Increased populations of other organisms

**Which causes...**

**Which causes...**

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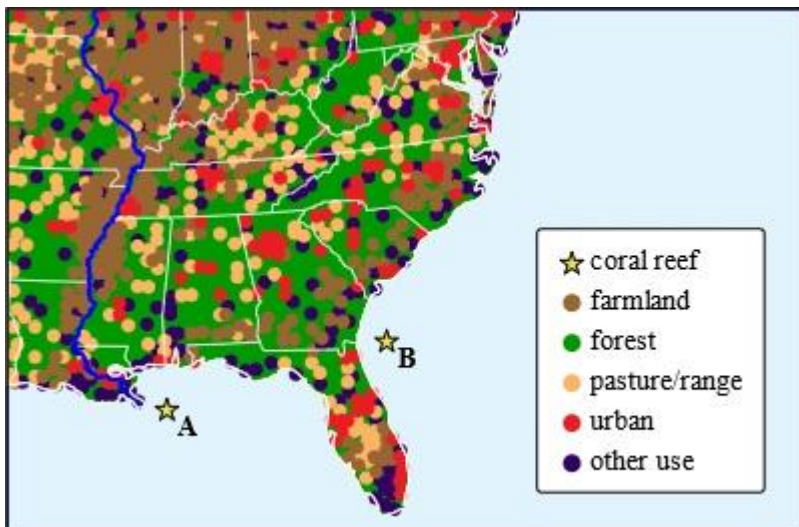
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### Question 8



Construct an explanation—citing evidence from the text, graph, and models—to describe changes humans could make to land use to increase the health of coral reefs.



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## **Student Feedback**

### **Feedback Question #1**

How interesting was the task you just completed?

1 star is not interesting and 5 stars is very interesting.

### **Feedback Question #2**

How difficult was the task as a whole?

1 star is not difficult and 5 stars is very difficult.

### **Feedback Question #3**

Please rate the difficulty **to understand how to respond to each question.**

1 star is not difficult and 5 stars is very difficult.

Question 1

Question 2

Question 3

Question 4

Question 5

Question 6

Question 7

Question 8

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