Grade Level Standard: Science HS Life Science 2: Evaluate evidence that interactions in ecosystems remain relatively consistent over time in stable conditions (in terms of numbers and types of organisms) but ecosystems can change with disruptions (e.g. flooding, farming, hunting, fire, or volcanic eruption) that are moderate to extreme.

| Material(s) Provided for Science 11 D	Question(s)	Page Number
Science 11 D Oceanic Heat Content Over Time Graph	1, 5	13
Science 11 D Percent of Live Coral Reef Cover Over Time Graph	1, 5	15
Science 11 D Attainment Task Questions for Student Use	1 - 5	19

Response Code:
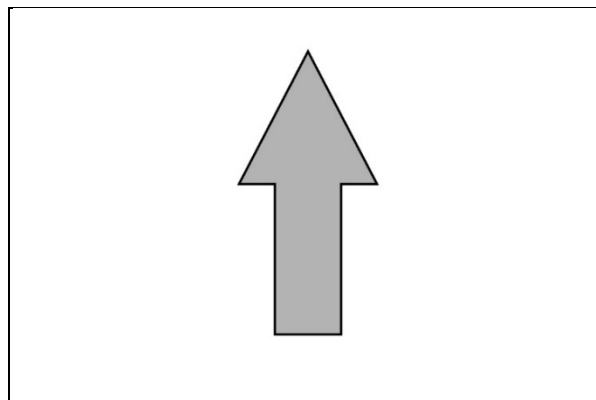- Indicate the answer provided by the student.

Text Coding:
- "Quotation marks" indicate the script that the teacher should read to the student.
- *Italicized text* provides further direction for the test administrator.
- Words in parenthesis ( ) are optional; they may replace or be read in addition to the word(s) immediately preceding.
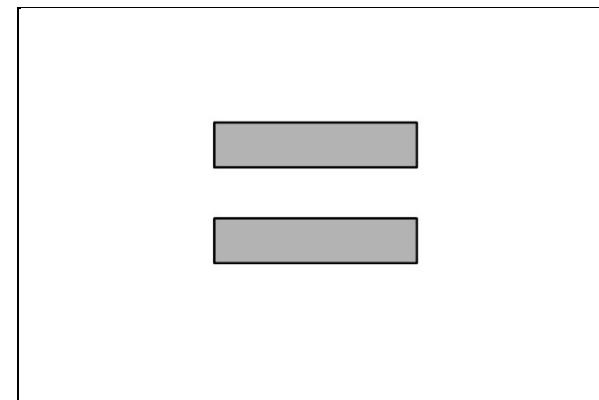
a. Decreases
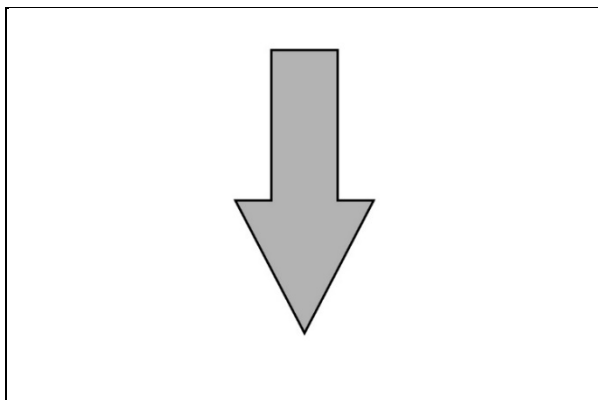
b. Increases

c. Stays the same

Before beginning task administration, please ensure that all conditions specified in the administration protocol (starting on page 10 of the Administration Guide Overview and Attainment Task Administration) have been met. Inform the student that the task is about to start by saying, "We are about to start the task, and I am going to ask you some questions."

All questions from this task are available for presentation to the student in the supplemental material Science 11 D Attainment Task Questions for Student Use.

"On a trip to the aquarium, Adrienne the tour guide teaches the class about coral reef ecosystems. One thing Adrienne talks about is oceanic heat content which is the measure of heat stored in the ocean."

Present the student with Science 11 D Oceanic Heat Content Over Time Graph and Science 11 D Percent of Live Coral Reef Cover Over Time Graph.

1. "Based on the data in the graphs, as oceanic heat content rises what happens to the percentage of live sea coral reef cover?"

Response Option	Response Rationale
a. Decreases **(Correct)**	*The student evaluates the data in both graphs and recognizes the pattern that as the heat content increases the live coral decreases.*
b. Increases	*The student attempts to evaluate the data however switches the content of the graphs and the data trends in the graphs.*
c. Stays the same	*The student attempts to evaluate the data however does not recognize the increasing and decreasing trends of the data in the graphs.*
Depth of Knowledge (DOK) 3	

Science 11 D Oceanic Heat Content Over Time Graph
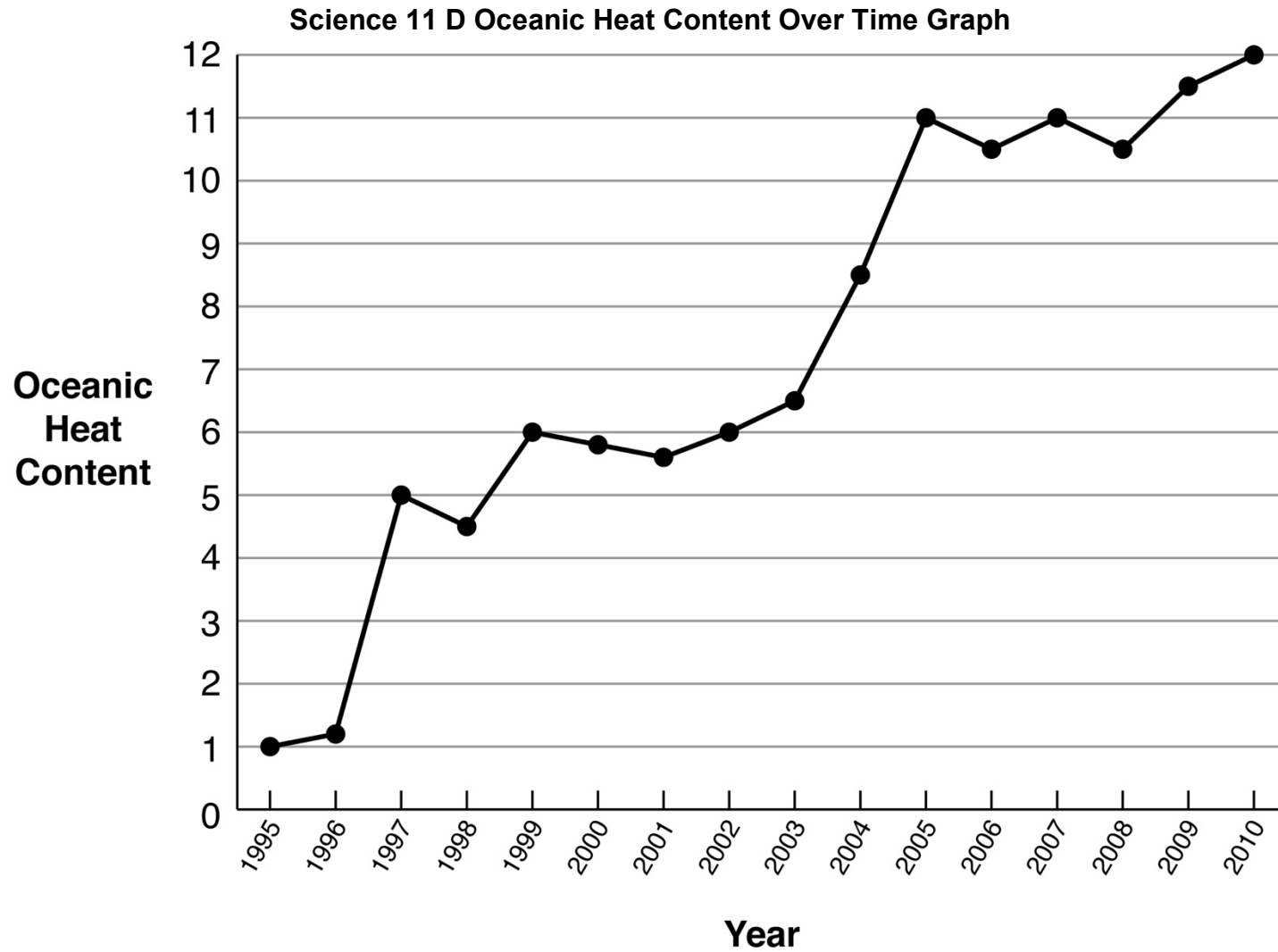
Science 11 D Percent of Live Coral Reef Cover Over Time Graph
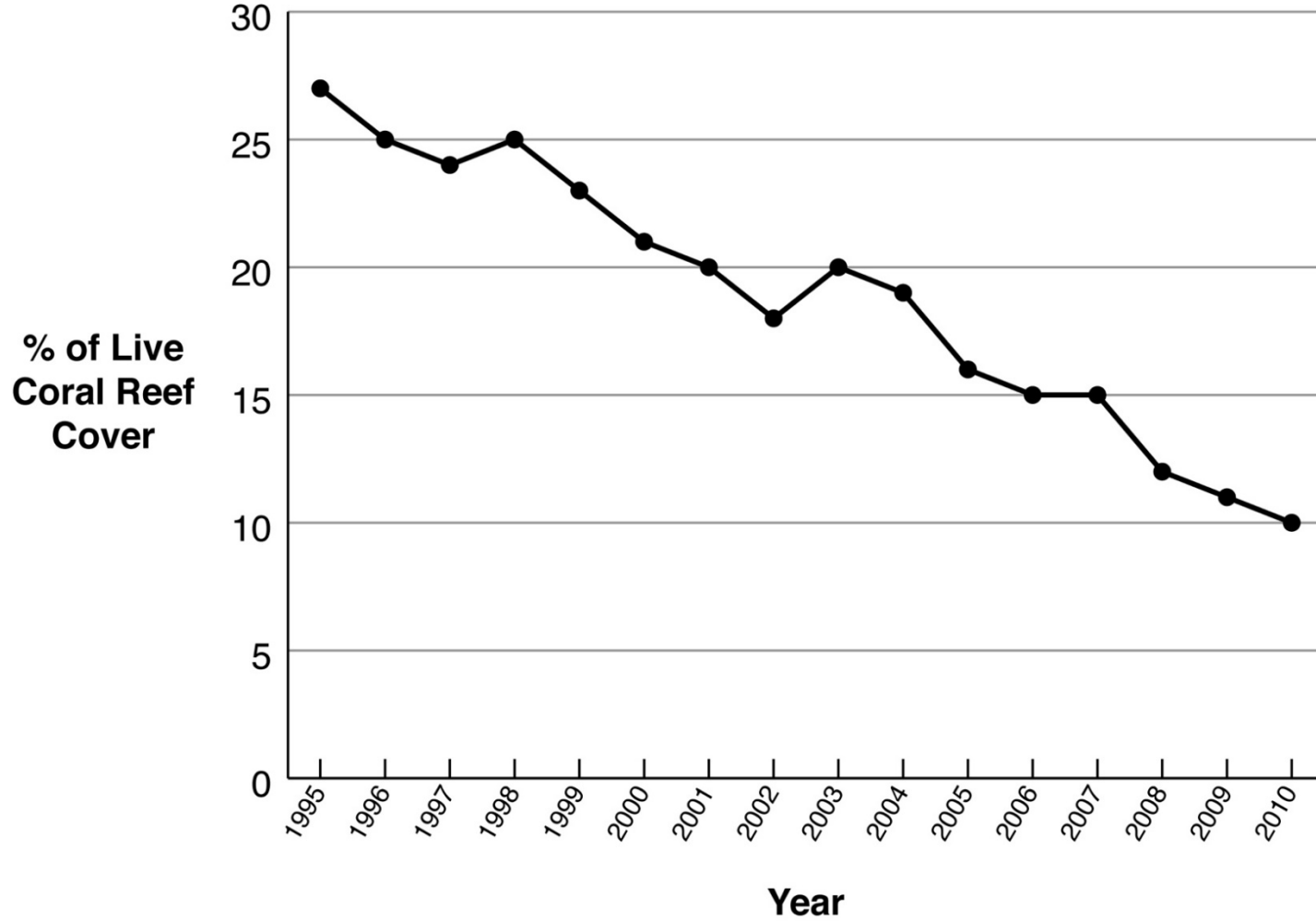
Science 11 D Attainment Task Questions for Student Use

1. Based on the data in the graphs, as oceanic heat content rises what happens to the percentage of live sea coral reef cover?

Kentucky Academic Standard: Evaluate the claims, evidence, and reasoning that the complex interactions in ecosystems maintain relatively consistent numbers and types of organisms in stable conditions, but changing conditions may result in a new ecosystem. [Clarification Statement: Examples of changes in ecosystem conditions could include modest biological or physical changes, such as moderate hunting or a seasonal flood, and extreme changes, such as volcanic eruption or a sea-level rise.] HS-LS2-6

Alternate Assessment Target: *Evaluate evidence that interactions in ecosystems remain relatively consistent over time in stable conditions (in terms of numbers and types of organisms), but ecosystems can change as a result of disruptions (e.g., farming, hunting, flooding, fire, or volcanic eruption) that are moderate to extreme.*

Student Group	Number of Students	Percent Correct
All Students	532	48.87%
Gender		
Female	186	49.46%
Male	346	48.55%
Ethnicity		
African American	69	43.48%
American Indian or Alaska Native	<10	Not Reported
Asian	14	21.43%
Hispanic of Latino	<10	Not Reported
Native Hawaiian of Pacific Islander	<10	Not Reported
White (Non-Hispanic)	396	52.02%
Two or More Races	49	36.73%
English Learner	22	31.82%
Economically Disadvantaged	422	48.58%

*Number of students that attempted the item