



Science
Grade 4

Sample Items

Introduction

The South Carolina State Department of Education provides districts and schools with tools to assist in delivering focused instruction aligned with the *South Carolina College- and Career-Ready Science Standards 2021*. This document contains a set of ten SC READY Science grade 4 test items that have been written to align with the 2021 standards for *Grade 4 Science*. These items were reviewed for content, fairness, and sensitivity prior to being field tested and approved for release to the public.

Purpose

This document is intended to be a resource for educators; it is not designed to be a practice test for students. The sample items are examples of college- and career-ready assessment items. The SC READY test assesses content standards in a variety of ways. This document does not include all item types. To see the full functionality of Technology-Enhanced items see Online Tools Training.

<https://wbte.drcedirect.com/SC/portals/sc>

Item Information Format

SC READY SCIENCE 4 Sample Item (#)	
Standard Alignment	PE Code (2D or 3D) Science and Engineering Practice (SEP) Disciplinary Core Idea (DCI) Crosscutting Concept (CCC)
Standard Description	text from the <i>South Carolina College- and Career-Ready Science Standards 2021</i>
Item Type	Selected Response, Evidence-Based Selected Response (EBSR), Multi-select, Drag and Drop, Drop-down, Match Interaction; Short Text Input
Answer Key	correct answer
Depth of Knowledge	cognitive demand
Estimated Difficulty	estimate based on student responses

Links

Assessment Quick Links for Teachers

<https://ed.sc.gov/tests/assessment-information/quick-links-for-teachers/>

South Carolina Science College- and Career-Ready Standards

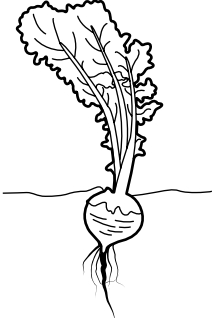
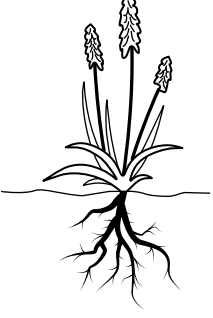
<https://ed.sc.gov/instruction/standards/science/standards/>

Norman Webb's Depth-of-Knowledge for the Four Content Areas

<https://www.webbalign.org/dok-summary-tables>

1. A student observed the roots of two plants. The student's observations are shown below.

Plant Root Diagrams

Plant A	Plant B
 <ul style="list-style-type: none"> • short • one main thick root • some smaller root structures 	 <ul style="list-style-type: none"> • short • many small roots with hair-like structures

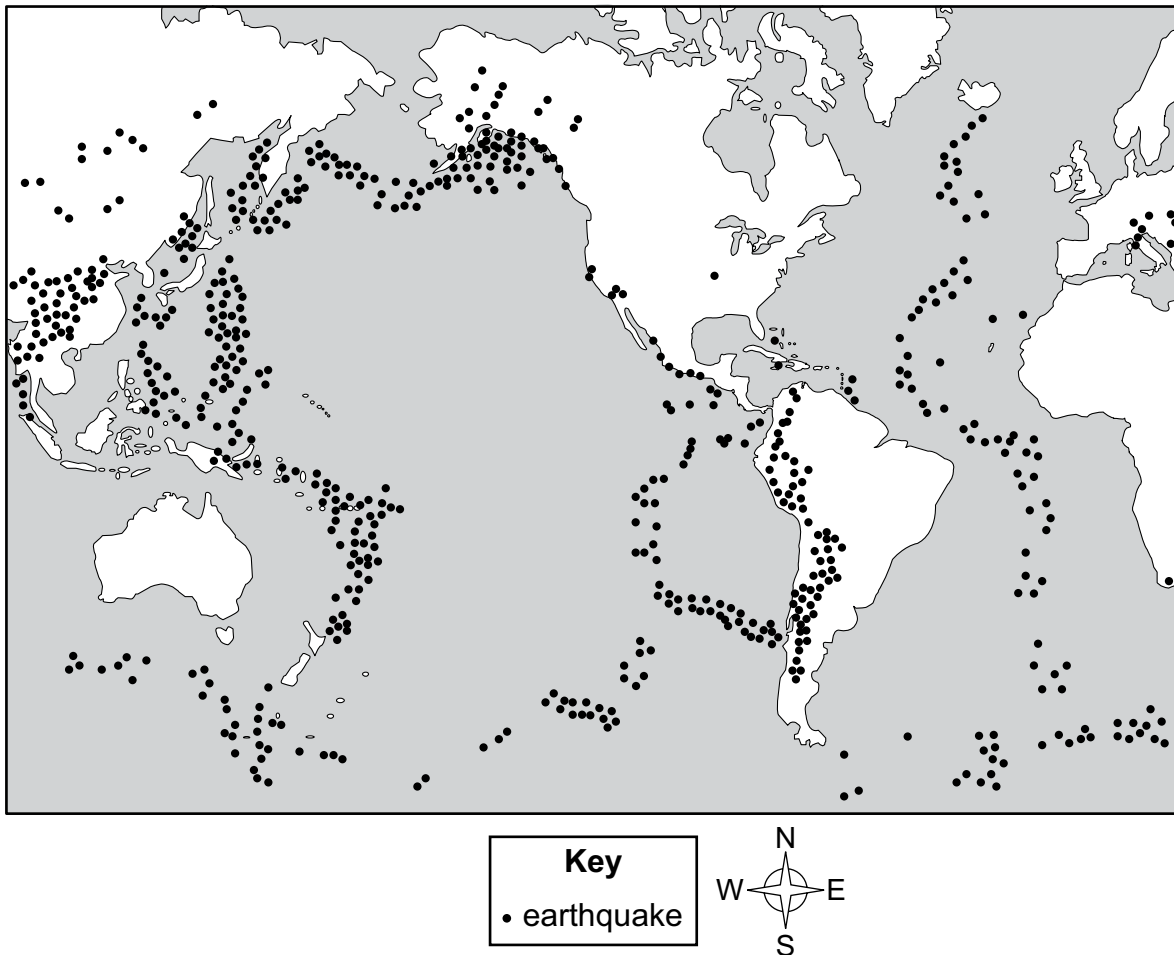
The student concluded that plant B would survive better than plant A during a period without rain. Why did the student **most likely** make this conclusion?

- A. The hair-like structures on the roots increase its ability to absorb light from the Sun.
- B. The hair-like structures on the roots increase its ability to absorb water from the soil.
- C. The hair-like structures on the roots increase its ability to store food made by the plant.
- D. The hair-like structures on the roots increase its ability to release heat into the environment.

SC READY SCIENCE 4 Sample Item 1	
Standard Alignment	4-LS1-1 (3D) SEP: Engaging in Argument from Evidence DCI: LS1.A CCC: Systems and System Models
Standard Description	Construct an argument that plants and animals have internal and external structures that function together in a system to support survival, growth, behavior, and reproduction.
Item Type	Selected Response
Answer Key	B
Depth of Knowledge	2
Estimated Difficulty	Medium

2. The map shows locations where earthquakes are frequent around the world.

Earthquake Locations around the World



Which statement **best** describes the data in the map?

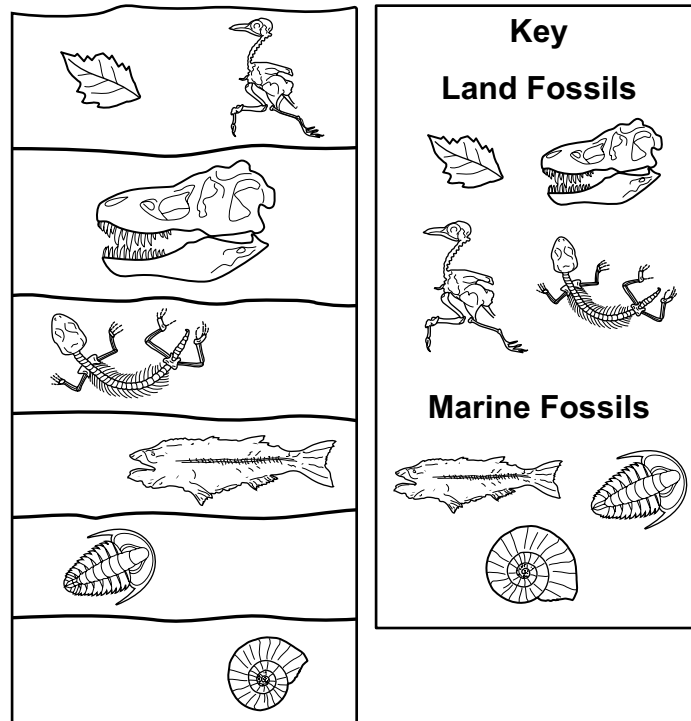
- A. Earthquakes occur in random locations.
- B. Most earthquakes occur in the Southern Hemisphere.
- C. The strongest earthquakes occur near the middle of oceans.
- D. Most earthquakes occur along boundaries between continents.

Item information on following page 

SC READY SCIENCE 4 Sample Item 2	
Standard Alignment	4-ESS2-2 (3D) SEP: Analyzing and Interpreting Data DCI: ESS2.B CCC: Patterns
Standard Description	Analyze and interpret data from maps to describe patterns of Earth's features.
Item Type	Selected Response
Answer Key	D
Depth of Knowledge	2
Estimated Difficulty	Medium

3. The drawing shows the rock layers and fossils in an area.

Rock Layers and Fossils



Use the drop-down menus to **best** describe this area and how it has changed over time.

The oldest rock layer is the layer, and it has fossils.

This means that a very long time ago, the area was .

More recently, the area has been .

Key:

The oldest rock layer is the layer, and it has fossils.

This means that a very long time ago, the area was .

More recently, the area has been .

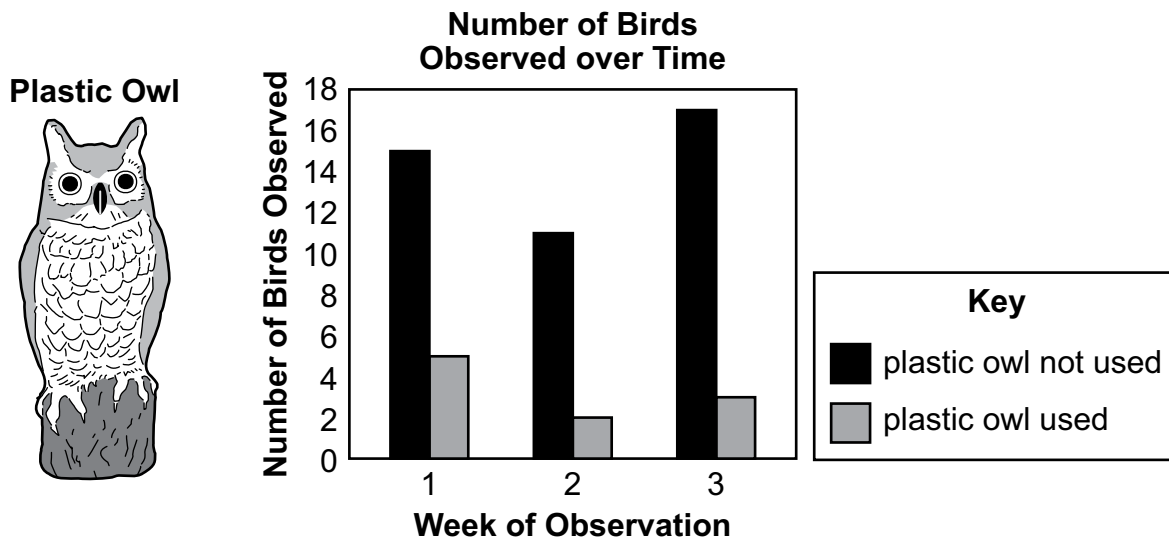
Item information on following page

SC READY SCIENCE 4 Sample Item 3	
Standard Alignment	4-ESS1-1 (3D) SEP: Constructing Explanations and Designing Solutions DCI: ESS1.C CCC: Patterns
Standard Description	Identify evidence from patterns in rock formations and fossils in rock layers to support an explanation for changes in a landscape over time.
Item Type	Drop-Down
Answer Key	bottom, marine; underwater; dry land
Depth of Knowledge	2
Estimated Difficulty	Medium

4. This question has two parts.

A student read that some people place large plastic owls in areas where they want to prevent birds from gathering.

The student decided to conduct an investigation. Over three weeks, the student counted the number of birds that were present in an area when a plastic owl was not used. Then, over the next three weeks, the student counted the number of birds that were present in the same area when the plastic owl was used.

**Part A**

Which statement **most likely** explains what the student observed?

- A. Other birds avoid owls.
- B. Owls avoid other birds.

Part B

Which data **best** support the answer selected in part A?

- A. More birds were observed when the plastic owl was used.
- B. Fewer birds were observed when the plastic owl was used.

Item information on following page 

SC READY SCIENCE 4 Sample Item 4	
Standard Alignment	4-LS1-2 (3D) SEP: Developing and Using Models DCI: LS1.D CCC: Systems and System Models
Standard Description	Use a model to describe that animals receive different types of information through their senses, process the information in their brain, and respond to the information in different ways.
Item Type	EBSR
Answer Key	A/B
Depth of Knowledge	2
Estimated Difficulty	Low

5. A school wants a plan to keep people safe when there is a tornado.

Which **two** solutions are **most likely** to keep people at the school safe if a tornado is near?

- A. announcing a warning
- B. turning off building lights
- C. locking classroom windows and doors
- D. preparing students to ride home on school buses
- E. moving students out of classrooms to inside hallways

SC READY SCIENCE 4 Sample Item 5	
Standard Alignment	4-ESS3-2 (3D) SEP: Constructing Explanations and Designing Solutions DCI: ESS3.B CCC: Cause and Effect
Standard Description	Generate and compare multiple solutions to reduce the impacts of natural Earth processes on humans.
Item Type	Multi-Select
Answer Key	A, E
Depth of Knowledge	2
Estimated Difficulty	Medium

6. A person opened a can of tuna fish to make a sandwich for lunch. A cat ran into the kitchen from another room and began to meow.

Which model **best** describes how the cat processed the information in its environment?

- A.

tuna can makes a sound	→	cat's brain receives a signal	→	cat runs into the kitchen
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- B.

cat's brain receives a signal	→	tuna can makes a sound	→	cat runs into the kitchen
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- C.

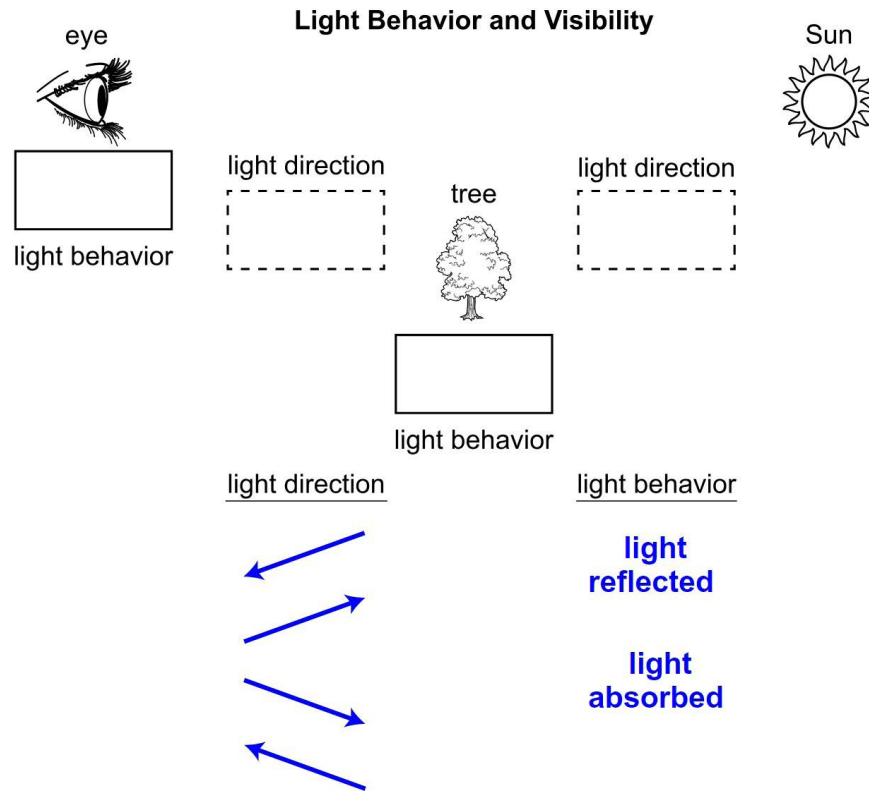
cat sees can being opened	→	cat runs into the kitchen	→	cat's brain receives a signal
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- D.

cat's brain receives a signal	→	cat sees can being opened	→	cat runs into the kitchen
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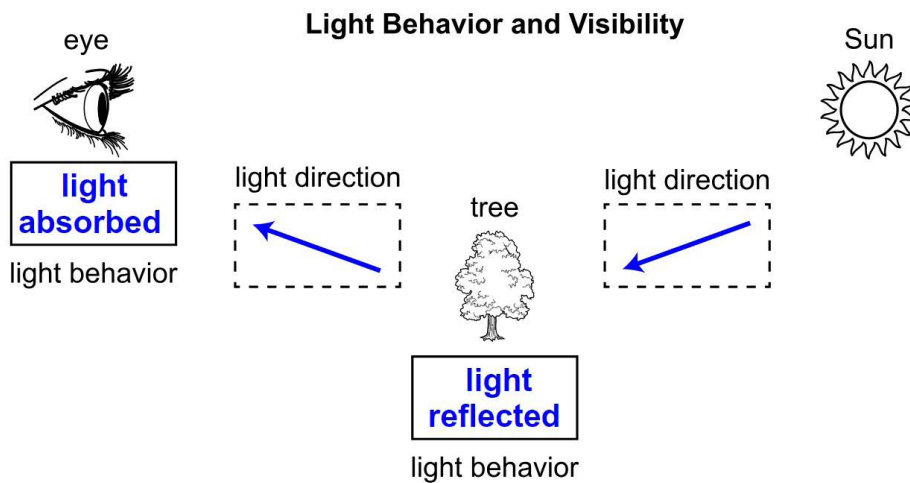
SC READY SCIENCE 4 Sample Item 6	
Standard Alignment	4-LS1-2 (3D) SEP: Developing and Using Models DCI: LS1.D CCC: Systems and System Models
Standard Description	Use a model to describe that animals receive different types of information through their senses, process the information in their brain, and respond to the information in different ways.
Item Type	Selected Response
Answer Key	A
Depth of Knowledge	3
Estimated Difficulty	Medium

7. A student wants to develop a model that shows how a tree can be viewed by the eye.

Drag arrows and labels into the boxes to complete the model.



Key:



Item information on following page

SC READY SCIENCE 4 Sample Item 7	
Standard Alignment	4-PS4-2 (3D) SEP: Developing and Using Models DCI: PS4.B CCC: Cause and Effect
Standard Description	Develop a model to describe that light reflecting from objects and entering the eye allows objects to be seen.
Item Type	Drag and Drop Input
Answer Key	See key
Depth of Knowledge	3
Estimated Difficulty	High

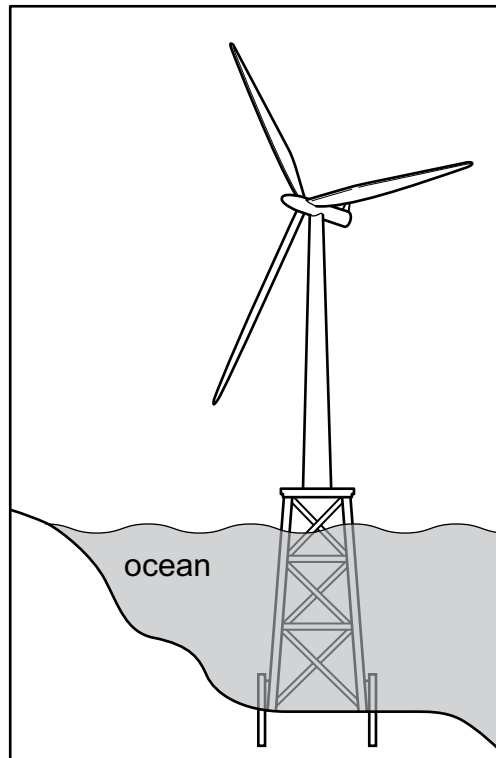
Use the passage to answer the next three questions.

Energy at the Beach

At the beach, the wind blows almost all the time. The wind is the main cause of waves at the beach.

People near the coast sometimes use wind as an energy source to provide electricity to homes and businesses. A wind turbine is shown.

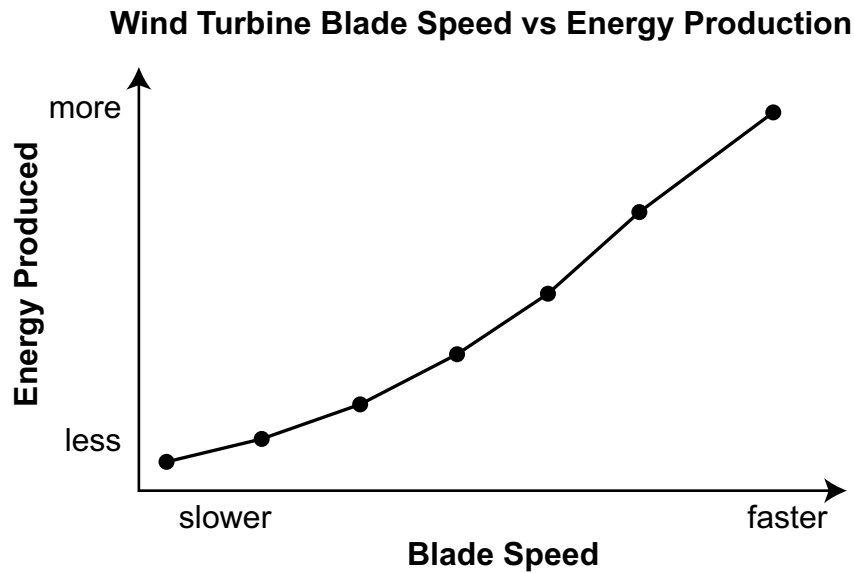
Offshore Wind Turbine



Offshore Wind Turbine Energy Facts

- fossil fuels not used
- air not polluted
- wind almost always available
- can negatively affect wildlife
- noise pollution
- expensive to build

8. Students collected data on how the speed of a wind turbine's blade affected the amount of energy the turbine produced.



Which statement **best** explains the relationship shown on the graph?

- A. A faster blade speed will produce more energy.
- B. A slower blade speed will produce more energy.
- C. More energy production will cause faster blade speeds.
- D. Less energy production will cause slower blade speeds.

SC READY SCIENCE 4 Sample Item 8	
Standard Alignment	4-PS3-1 (3D) SEP: Constructing Explanations and Defining Solutions DCI: PS3.A CCC: Energy and Matter
Standard Description	Use evidence to construct an explanation relating the speed of an object to the energy of that object.
Item Type	Selected Response
Answer Key	A
Depth of Knowledge	2
Estimated Difficulty	Medium

9. Four students describe offshore wind turbines.

Descriptions of Wind Turbines

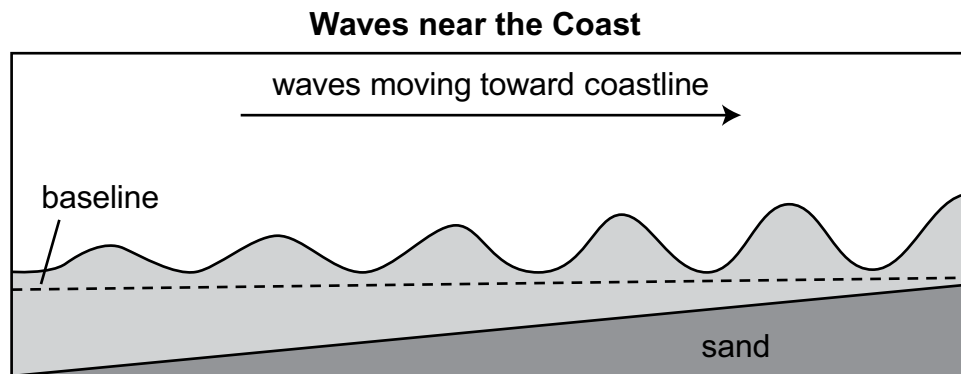
Student	Renewable	Fact
W	no	can harm wildlife
X	no	causes air pollution
Y	yes	can harm wildlife
Z	yes	causes air pollution

Which student **best** describes the offshore wind turbines?

- A. Student W
- B. Student X
- C. Student Y
- D. Student Z

SC READY SCIENCE 4 Sample Item 9	
Standard Alignment	4-ESS3-1 (3D) SEP: Obtaining, Evaluating, and Communicating Information DCI: ESS3.A CCC: Cause and Effect
Standard Description	Obtain and combine information to describe that energy and fuels are derived from natural resources and how their uses affect the environment.
Item Type	Selected Response
Answer Key	C
Depth of Knowledge	2
Estimated Difficulty	High

10. Look at the model that shows waves moving toward a coastline.



What change happens to a water wave as the wave gets closer to the coastline?

- A. wavelength increases
- B. amplitude increases
- C. wavelength decreases
- D. amplitude decreases

SC READY SCIENCE 4 Sample Item 10	
Standard Alignment	4-PS4-1 (3D) SEP: Developing and Using Models DCI: PS4.A CCC: Patterns
Standard Description	Develop a model of waves to describe patterns in terms of amplitude and wavelength and that waves can cause objects to move.
Item Type	Selected Response
Answer Key	B
Depth of Knowledge	2
Estimated Difficulty	High

STOP.