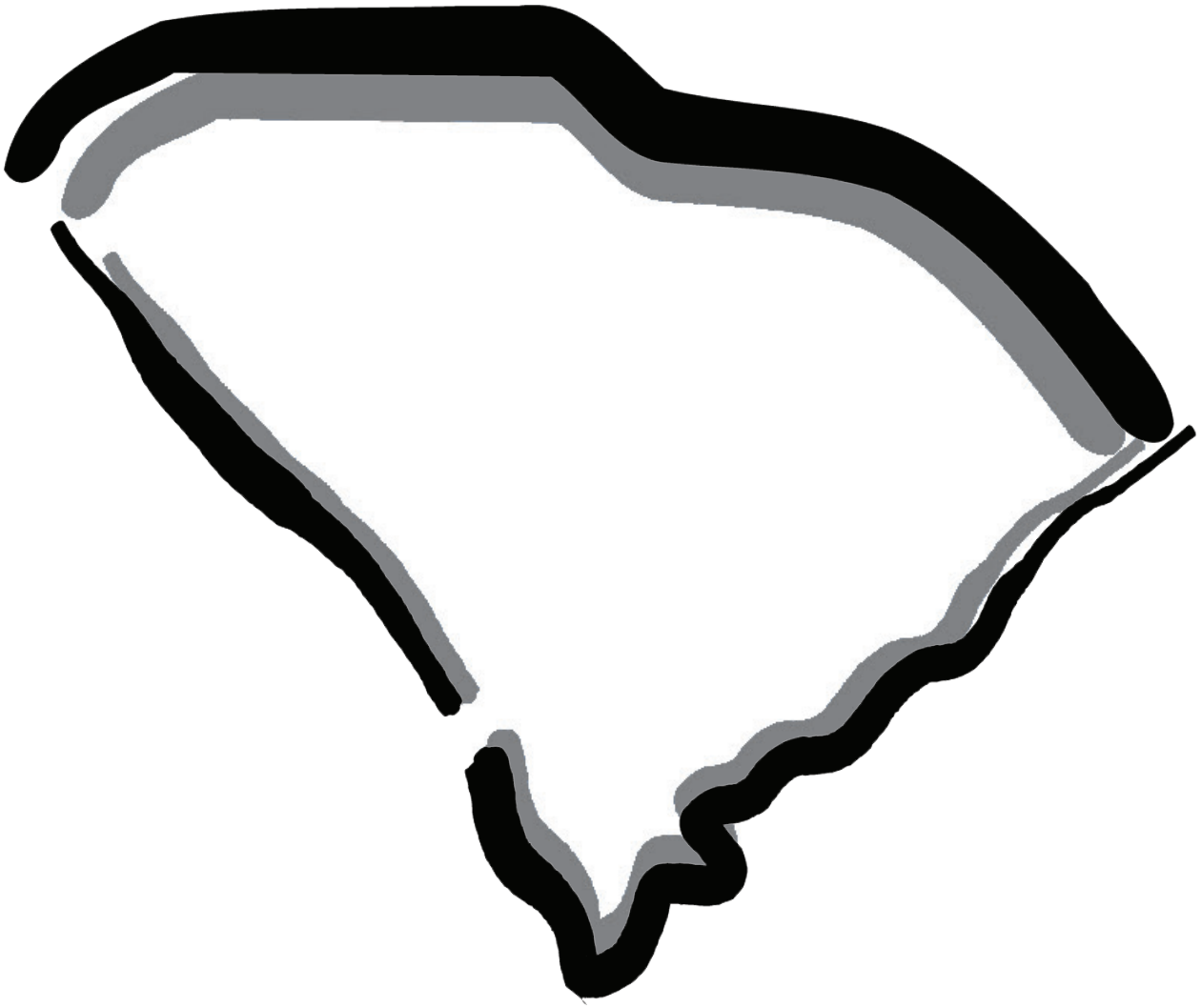
South Carolina SC PASS 2018 Grade 4 Science Practice

Exam & Answer Key Materials Pages 2 - 26

South Carolina

SCPASS

Palmetto Assessment of State Standards



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 Academic Standards and Performance Indicators for Science. This document contains a set of twenty South Carolina Palmetto Assessment of State Standards (SCPASS) for 4th Grade Science test items that have been written to align with the South Carolina Academic Standards and Performance Indicators for Science. These items were reviewed for content and bias 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. These items were chosen to reflect the increased rigor of assessing two-dimensional standards that blend disciplinary knowledge with science and engineering practices.
The SCPASS assesses content standards in a variety of ways. This document does not include all item types.

Item Information Format

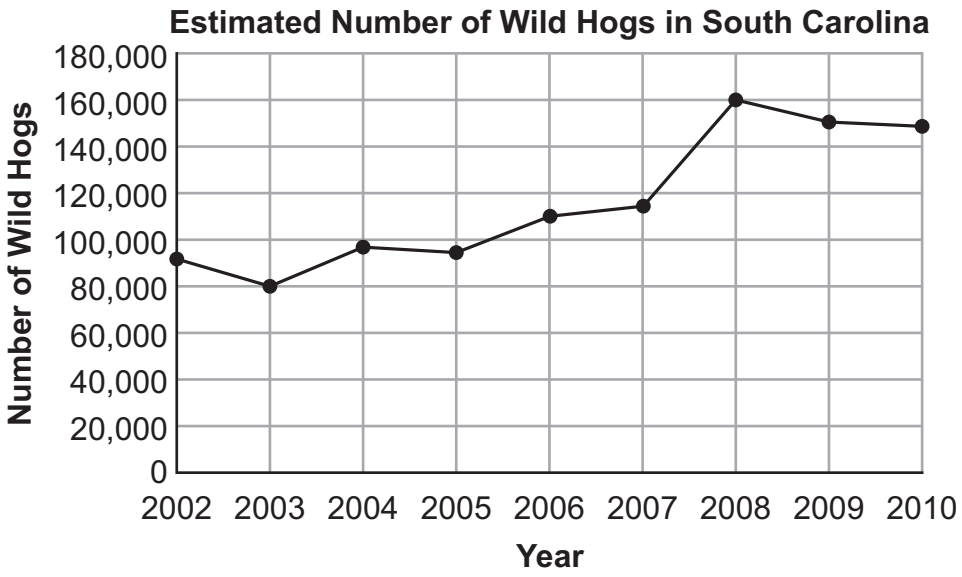
Indicator Alignment	South Carolina Academic Standards and Performance Indicators for Science
Indicator Description	text from the South Carolina Academic Standards and Performance Indicators for Science
Answer Key	correct answer
Depth of Knowledge	cognitive demand
Estimated Difficulty	estimate based on student responses

Links

South Carolina Academic Standards and Performance Indicators for Science
https://ed.sc.gov/instruction/standards-learning/science/standards/

Norman Webb's Depth-of-Knowledge for the Four Content Areas
http://www.webbalign.org/Webbs-DOK-Levels-Summary.pdf

1. The graph shows the estimated population of wild hogs in South Carolina between 2002 and 2010.



Which information is **best** supported by these data?

A. The wild hog population increased between 2008 and 2009.

B. More wild hogs were in South Carolina in 2010 than in 2002.

C. The wild hog population decreased between 2005 and 2008.

D. More people in South Carolina had wild hogs in 2007 than in 2008.

SCPASS Sample Item 1

Indicator Alignment	4.S.1A.4 (4.L.5B.3)
Indicator Description	Analyze and interpret data from informational texts, observations, measurements, or investigations using a range of methods (such as tabulation or graphing) to (1) reveal patterns and construct meaning or (2) support explanations, claims, or designs.
Answer Key	B
Depth of Knowledge	2
Estimated Difficulty	**Medium Difficulty**

2. Use the data table to answer the question.

Planet Data

Planet	Distance from the Sun (millions of kilometers)	Length of Year (Earth days)
Venus	108.2	224
Mars	227.9	687
Jupiter	778.6	4,331
Saturn	1,433.5	10,747

Which claim is **best** supported by the data?

A. Planets closer to the Sun have longer years.

B. Planets farther from the Sun have longer years.

C. Saturn is closer to the Sun and has longer years than Jupiter.

D. Venus is farther from the Sun and has longer years than Mars.

SCPASS Sample Item 2

Indicator Alignment	4.S.1A.7 (4.E.3A.1)
Indicator Description	Construct scientific arguments to support claims, explanations, or designs using evidence from observations, data, or informational texts.
Answer Key	B
Depth of Knowledge	2
Estimated Difficulty	**Medium Difficulty**

3. A student reads the following information on a website.

> Earth's axis is an imaginary line going through the center of Earth from the North Pole to the South Pole. Earth spins around this line, making one complete rotation each day.

Which question does this information help answer?

A. Why does Earth have only one moon?

B. What causes Earth to have day and night?

C. Why does Earth have oxygen in its atmosphere?

D. What causes Earth to be warm enough for living things?

SCPASS Sample Item 3		
	Indicator Alignment	4.S.1A.8 (4.E.3B.2)
	Indicator Description	Obtain and evaluate informational texts, observations, data collected, or discussions to (1) generate and answer questions, (2) understand phenomena, (3) develop models, or (4) support explanations, claims, or designs. Communicate observations and explanations using the conventions and expectations of oral and written language.
	Answer Key	B
	Depth of Knowledge	3
	Estimated Difficulty	**Low Difficulty**

4. A student is designing a tool to allow a person to see around a corner. Which statement **best** describes what the tool must do in order to be used in this way?

A. The tool must shine light.

B. The tool must change the color of light.

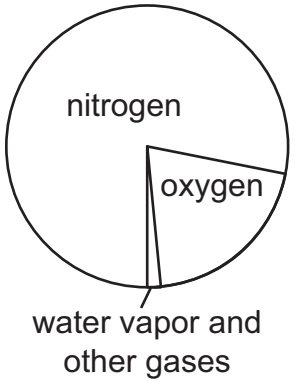
C. The tool must change the direction of light.

D. The tool must increase the brightness of light.

SCPASS Sample Item 4		
	Indicator Alignment	4.S.1B.1 (4.P.4A.4)
	Indicator Description	Construct devices or design solutions to solve specific problems or needs: (1) ask questions to identify problems or needs, (2) ask questions about the criteria and constraints of the devices or solutions, (3) generate and communicate ideas for possible devices or solutions, (4) build and test devices or solutions, (5) determine if the devices or solutions solved the problem and refine the design if needed, and (6) communicate the results.
	Answer Key	C
	Depth of Knowledge	2
	Estimated Difficulty	**Medium Difficulty**

5. Which model correctly shows the percentages of different gases in the air on Earth?

A.



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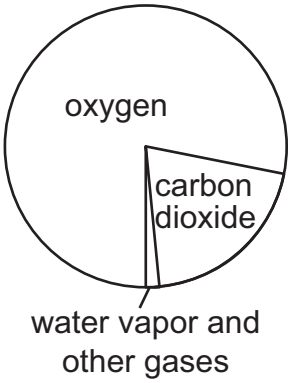

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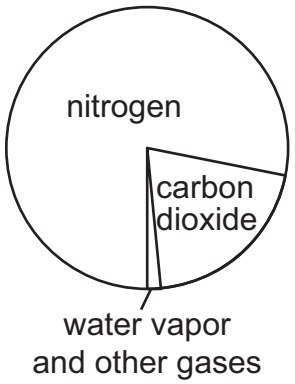

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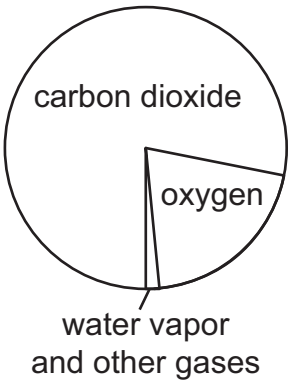


SCPASS Sample Item 5

Indicator Alignment	4.E.2A.1
Indicator Description	Obtain and communicate information about some of the gases in the atmosphere (including oxygen, nitrogen, and water vapor) to develop models that exemplify the composition of Earth's atmosphere where weather takes place.
Answer Key	A
Depth of Knowledge	2
Estimated Difficulty	**High Difficulty**

6. A student observes data showing cloud types and the reported weather in an area for one week.

Weather Data

Day	Cloud Type	Reported Weather
1	cumulonimbus	sunny, then stormy
2	cumulus	sunny
3	cumulonimbus	stormy
4	cirrus	sunny
5	stratus	rainy
6	stratus	cloudy, then rainy
7	cumulonimbus	stormy

Which weather pattern can **best** be described by these data?

A. Cirrus clouds and stratus clouds are good predictors of sunny weather.

B. Stormy weather is likely with cumulus clouds and cumulonimbus clouds.

C. When there are stratus clouds in the sky, the weather could be either sunny or rainy.

D. When there are cumulonimbus clouds in the sky, the weather will likely be stormy.

SCPASS Sample Item 6

Indicator Alignment	4.E.2B.1
Indicator Description	Analyze and interpret data from observations, measurements, and weather maps to describe patterns in local weather conditions (including temperature, precipitation, wind speed/direction, relative humidity, and cloud types) and predict changes in weather over time.
Answer Key	D
Depth of Knowledge	2
Estimated Difficulty	**High Difficulty**

7. Look at the map below. The letters represent 4 different locations.

Where would a hurricane **most likely** form?

A. W

B. X

C. Y

D. Z

SCPASS Sample Item 7

Indicator Alignment	4.E.2B.2
Indicator Description	Obtain and communicate information about severe weather phenomena (including thunderstorms, hurricanes, and tornadoes) to explain steps humans can take to reduce the impact of severe weather phenomena.
Answer Key	C
Depth of Knowledge	2
Estimated Difficulty	**High Difficulty**

8. Study the table.

Daily High Temperatures for Columbia, SC	
Day	**Temperature (°F)**
Monday	38
Tuesday	44
Wednesday	48
Thursday	53
Friday	42

During what time of year were these temperatures **most likely** recorded?

A. late spring

B. mid-summer

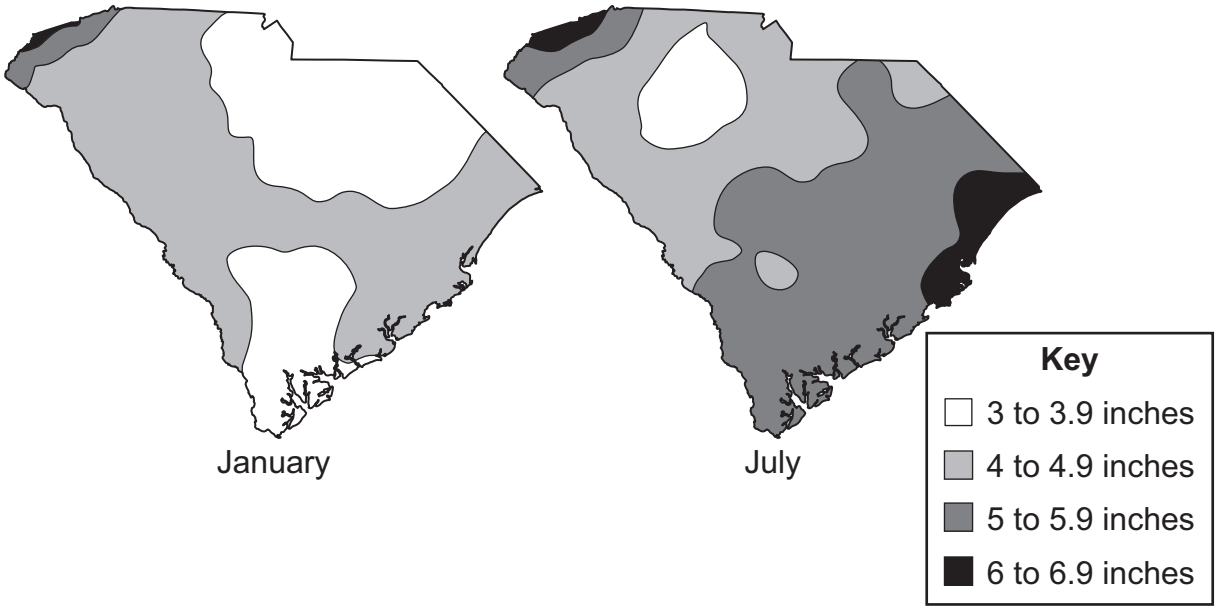
C. early fall

D. mid-winter

SCPASS Sample Item		
8	**Indicator Alignment**	4.E.2B.3
	Indicator Description	Construct explanations about regional climate differences using data from the long term weather conditions of the region.
	Answer Key	D
	Depth of Knowledge	2
	Estimated Difficulty	**Medium Difficulty**

9. The maps show the long-term average precipitation amounts in South Carolina in January and July.

Average Precipitation in South Carolina in January and July



Which statement about precipitation in South Carolina is **best** supported by these data?

A. Most areas of South Carolina have more precipitation during January than during July.

B. Most areas of South Carolina have less precipitation during January than during July.

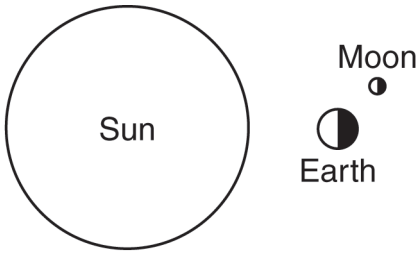
C. In July, there is usually the same amount of precipitation across the entire state of South Carolina.

D. In January, there is usually the same amount of precipitation across the entire state of South Carolina.

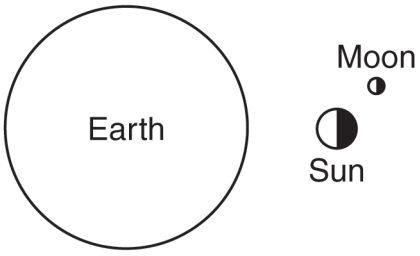
Item Information on following page ☞

SCPASS Sample Item			
		Indicator Alignment	4.E.2B.3
		Indicator Description	Construct explanations about regional climate differences using data from the long term weather conditions of the region.
	9	**Answer Key**	B
		Depth of Knowledge	2
		Estimated Difficulty	**Medium Difficulty**

10. Which picture is correctly labeled?



A.



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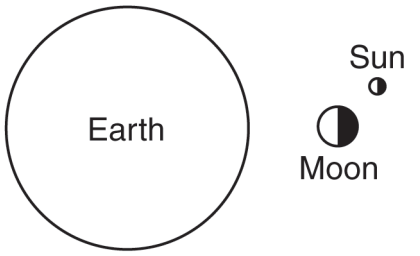

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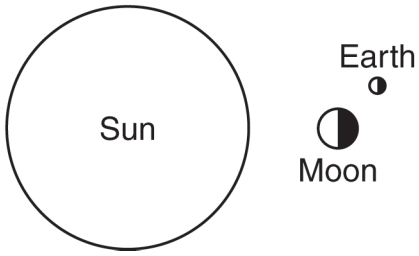
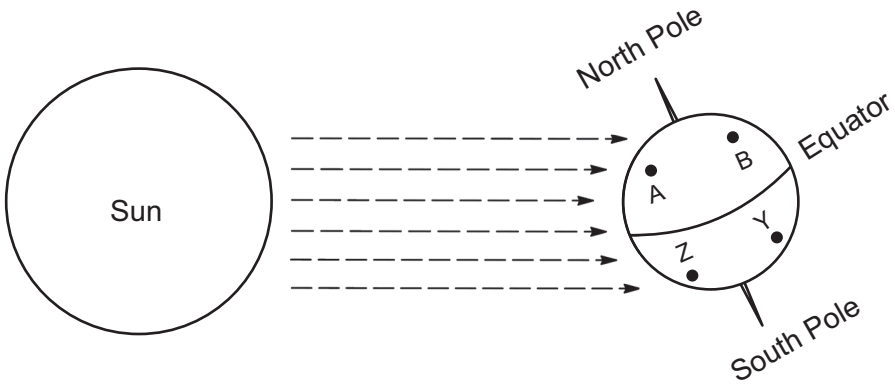


D.

SCPASS Sample Item 10		
	Indicator Alignment	4.E.3A.1
	Indicator Description	Develop and use models of Earth's solar system to exemplify the location and order of the planets as they orbit the Sun and the main composition (rock or gas) of the planets.
	Answer Key	A
	Depth of Knowledge	1
	Estimated Difficulty	**Low Difficulty**

11. The diagram below represents sunlight shining on the Earth.



At which points on the Earth would it be day?

A. Z and Y

B. B and Y

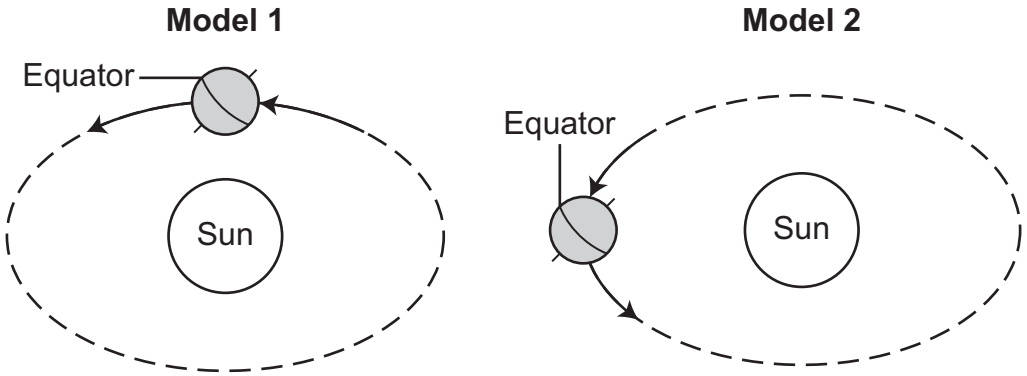
C. Z and A

D. A and B

SCPASS Sample Item 11

Indicator Alignment	4.E.3B.2
Indicator Description	Construct explanations of how day and night result from Earth's rotation on its axis.
Answer Key	C
Depth of Knowledge	2
Estimated Difficulty	**Low Difficulty**

12. A student studies two models of Earth in its orbit. The student knows that these models show two different seasons on Earth.



Which pair of statements **best** explains which season of the Northern Hemisphere is shown by each model?

A. Model 1 shows spring since the Sun shines more equally in both hemispheres. Model 2 shows winter since the Sun shines more directly below the Equator.

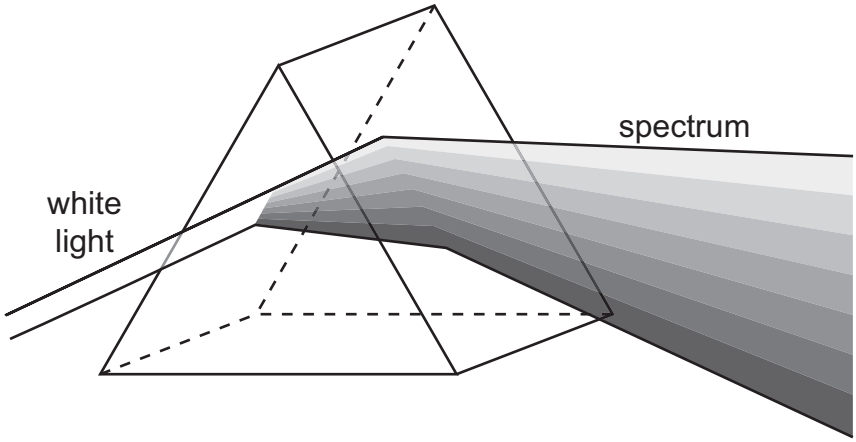
B. Model 1 shows fall since the Sun shines more equally in both hemispheres. Model 2 shows summer since the Sun shines more directly below the Equator.

C. Model 1 shows fall since the Sun shines more equally in both hemispheres. Model 2 shows winter since the Sun shines more directly above the Equator.

D. Model 1 shows spring since the Sun shines more equally in both hemispheres. Model 2 shows summer since the Sun shines more directly above the Equator.

SCPASS Sample Item		
12	**Indicator Alignment**	4.E.3B.4
	Indicator Description	Develop and use models to describe the factors (including tilt, revolution, and angle of sunlight) that result in Earth's seasonal changes.
	Answer Key	D
	Depth of Knowledge	2
	Estimated Difficulty	**High Difficulty**

13. A student pointed a light at a prism as shown in the diagram.



Which statement **best** explains what the diagram shows?

A. White light mixes with colors inside the prism.

B. White light is made up of different colors.

C. Prisms contain the colors of the rainbow.

D. Colors let people see objects.

SCPASS Sample Item		
13	**Indicator Alignment**	4.P.4A.1
	Indicator Description	Construct scientific arguments to support the claim that white light is made up of different colors.
	Answer Key	B
	Depth of Knowledge	2
	Estimated Difficulty	**Medium Difficulty**

14. A student viewed a book in three different lighting conditions. The data table shows the observations made by the student.

Investigation Results

Lighting Condition	Observations
1	easy to view clearly
2	more difficult to view clearly
3	unable to be viewed

Which statement **most likely** explains the observations made by the student?

A. The book was most easily viewed in condition 1 because the book produced its own light.

B. The book was not viewable in condition 3 because the light was brighter than in condition 1.

C. The book was not viewable in condition 3 because there was no light to reflect from the book.

D. The book was difficult to view in condition 2 because the book reflected less light than in condition 3.

SCPASS Sample Item 14

Indicator Alignment	4.P.4A.3
Indicator Description	Obtain and communicate information to explain how the visibility of an object is related to light.
Answer Key	C
Depth of Knowledge	2
Estimated Difficulty	**Medium Difficulty**

15. A beam of a light passes through a glass of water and onto a piece of cardboard. Which statement correctly describes the properties of the glass of water and the cardboard?

A. The glass of water is transparent, and the cardboard is translucent.

B. The glass of water is transparent, and the cardboard is opaque.

C. The glass of water is opaque, and the cardboard is translucent.

D. The glass of water is opaque, and the cardboard is transparent.

SCPASS Sample Item 15

Indicator Alignment	4.P.4A.5
Indicator Description	Plan and conduct scientific investigations to explain how light behaves when it strikes transparent, translucent, and opaque materials.
Answer Key	B
Depth of Knowledge	2
Estimated Difficulty	**Medium Difficulty**

16. A teacher demonstrated how a vibrating rubber band can produce sound. The teacher stretched a rubber band around an empty box. The teacher asked the students to investigate the vibrations caused by the rubber band.

Which procedure and results **best** investigate pitch?

A.

Procedure	Results
1. Stretch the rubber band to different lengths. 2. At each length, pluck the rubber band with an equal amount of force.	The more a rubber band is stretched, the higher the pitch of the sounds produced.

B.

Procedure	Results
1. Stretch the rubber band to one length. 2. Pluck the rubber band with different amounts of force.	The more force needed to pluck a rubber band, the higher the pitch of the sound produced.

C.

Procedure	Results
1. Stretch the rubber band to different lengths. 2. At each length, pluck the rubber band with an equal amount of force.	The less a rubber band is stretched, the higher the pitch of the sounds produced.

D.

Procedure	Results
1. Stretch the rubber band to one length. 2. Pluck the rubber band with different amounts of force.	The less force used to pluck a rubber band, the higher the pitch of the sound produced.

Item Information on following page ☞

SCPASS Sample Item 16		
	Indicator Alignment	4.P.4B.1
	Indicator Description	Plan and conduct scientific investigations to test how different variables affect the properties of sound (including pitch and volume).
	Answer Key	A
	Depth of Knowledge	3
	Estimated Difficulty	**High Difficulty**

17. Which pair of pictures shows nonflowering plants?

A.

fern

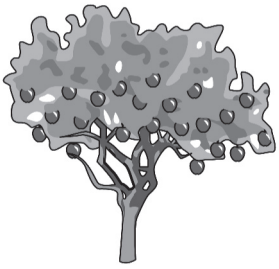
moss

B.

rosebush

azalea

C.



apple tree

oak tree

D.

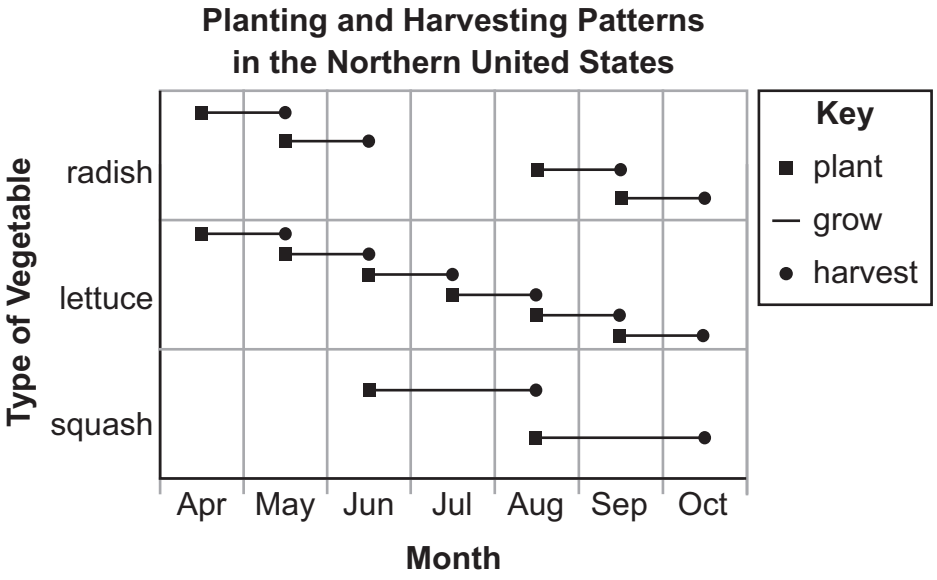
tomato plant

bean plant

Item Information on following page ☞

SCPASS Sample Item 17		
	Indicator Alignment	4.L.5A.1
	Indicator Description	Obtain and communicate information about the characteristics of plants and animals to develop models which classify plants as flowering or nonflowering and animals as vertebrate or invertebrate.
	Answer Key	A
	Depth of Knowledge	1
	Estimated Difficulty	**Low Difficulty**

18. The graph shows the best times to plant and harvest (pick) three different vegetables in northern regions of the United States.



Which conclusion is **best** supported by the data?

A. Squash seeds sprout best in April and May.

B. Squash and radishes can both be picked in August.

C. Lettuce is the only type of vegetable that can be planted in more than one month.

D. Lettuce and radish seeds become mature plants in about the same length of time.

SCPASS Sample Item 18

Indicator Alignment	4.L.5A.2
Indicator Description	Analyze and interpret data from observations and measurements to compare the stages of development of different seed plants.
Answer Key	D
Depth of Knowledge	2
Estimated Difficulty	**High Difficulty**

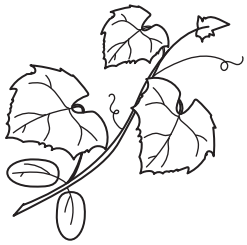
19. A group of students planted cucumber seeds in the spring. The data table shows some information about cucumber plants.

Cucumber Plant Growth

Days after Planting until Sprouting	Days after Planting until Fully Grown
4	50

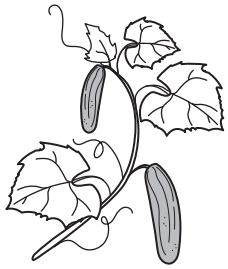
What did the students **most likely** see in the garden seven days after they planted the cucumber seeds?

A.



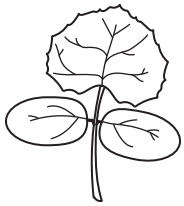
young plant

B.



plant with cucumbers

C.



seedling

D.

flowering plant

SCPASS Sample Item

19

Indicator Alignment	4.L.5A.2
Indicator Description	Analyze and interpret data from observations and measurements to compare the stages of development of different seed plants.
Answer Key	C
Depth of Knowledge	2
Estimated Difficulty	**High Difficulty**

20. What is an example of an inherited characteristic in an animal?

A. using a tool

B. hunting for food

C. having brown fur

D. having a large territory

SCPASS Sample Item 20		
	Indicator Alignment	4.L.5A.4
	Indicator Description	Construct scientific arguments to support claims that some characteristics of organisms are inherited from parents and some are influenced by the environment.
	Answer Key	C
	Depth of Knowledge	1
	Estimated Difficulty	**Medium Difficulty**