



Grade 8 Science

Answer Key



This booklet contains the answers to the sample items from the National Assessment of Educational Progress (NAEP) included in the NAEP Grade 8 Science Sample Questions Booklet. It also references the corresponding Florida Next Generation Sunshine State Standards (NGSSS). Additional NAEP items can be accessed at www.nces.ed.gov/nationsreportcard/itmrls.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics (NCES), National Assessment of Educational Progress (NAEP).

This answer booklet and the corresponding Grade 8 Science Sample Questions Booklet are posted at <http://www.fldoe.org/asp/naep/naep-pt.asp>.

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Florida’s Science Next Generation Sunshine State Standards (NGSSS)	
L = Life Science	E = Earth and Space Science
P = Physical Science	N = Nature of Science

NAEP GRADE 8 SCIENCE
Alignment to Florida’s Next Generation Sunshine State Standards (NGSSS) and
Answers to NAEP Sample Questions

NAEP Grade 8 Earth and Space Science

Question 1, NGSSS.SC.7.E.6.2, NGSSS.SC.7.E.6.5

Description: Predict a geological consequence of tectonic plate movement

Difficulty: Easy

Science Practices: Using Science Principles

Correct answer is **C**

Answers	Percent chosen by Florida’s participating students
*C	70%
A	15%
B	10%
D	4%
Omitted	1%

Question 2, NGSSS.SC.8.E.5.7

Description: Identify how some lunar surface features formed

Difficulty: Easy

Science Practices: Identifying Science Principles

Correct answer is **B**

Answers	Percent chosen by Florida’s participating students
*B	74%
A	8%
C	13%
D	5%
Omitted	1%

Question 3, NGSSS.SC.6.E.7.9

Description: Relate oxygen level to atmospheric conditions at higher elevations

Difficulty: Easy

Science Practices: Identifying Science Principles

Correct answer is **B**

Answers	Percent chosen by Florida's participating students
*B	69%
A	17%
C	10%
D	4%

Question 4, NGSSS.SC.6.E.7.5

Description: Identify a source of energy for Earth's water cycle

Difficulty: Medium

Science Practices: Identifying Science Principles

Correct answer is **B**

Answers	Percent chosen by Florida's participating students
*B	54%
A	12%
C	24%
D	10%

Question 5, NGSSS.SC.7.E.6.1.

Description: Identify a characteristic of Earth’s structure

Difficulty: Medium

Science Practices: Identifying Science Principles

Correct answer is **B**

Answers	Percent chosen by Florida’s participating students
*B	51%
A	31%
C	11%
D	7%
Omitted	1%

Question 6, NGSSS.SC.6.E.6.1

Description: Order soils in terms of permeability

Difficulty: Medium

Science Practices: Using Science Principles

Correct answer is **B**

Answers	Percent chosen by Florida’s participating students
*B	40%
A	21%
C	38%
D	2%
Omitted	1%

Question 7, NGSSS.SC.7.E.6.2**Description:** Explain why seismic activity occurs near the fault**Difficulty:** Hard**Science Practices:** Using Science PrinciplesCorrect answer is **C**

Answers	Percent chosen by Florida's participating students
*C	26%
A	27%
B	24%
D	22%

Question 8, NGSSS.SC.8.E.5.7**Description:** Predict the Sun's position in the sky**Difficulty:** Hard**Science Practices:** Using Science PrinciplesCorrect answer is **C**

Answers	Percent chosen by Florida's participating students
*C	30%
A	19%
B	31%
D	20%

Question 9, NGSSS.SC.7.E.6.2

Description: Identify and explain the most recent rock formation

Difficulty: Hard

Science Practices: Using Science Principles

Score & Description

Complete

Student response selects (A) 1 and provides a correct explanation that refers to rock formation 1 cutting through all the other rock layers.

Essential

Student response selects (A) 1 and provides an incomplete explanation regarding rock formation 1 cutting other rock layers.

OR

Student response selects (A) 1 and provides an explanation based on superposition (younger layers are on top of older layers) of rock layers.

Partial

Student response is partially correct.

Unsatisfactory/Incorrect

Student response is inadequate or incorrect.

Answers	Percent chosen by Florida's participating students
*Complete	4%
Essential	24%
Partial	21%
Unsatisfactory/Incorrect	48%
Omitted	3%

Question 10, NGSSS.SC.6.E.7.2

Description: Explain why rainwater is not salty

Difficulty: Hard

Science Practices: Using Science Principles

Score & Description

Complete

Student response explains that when the Sun heats ocean water, only water molecules evaporate into the air. The dissolved salt remains behind in the ocean, so the rain that falls from clouds formed when the water in the air condenses is salt-free. Student response includes an explanation of two steps of the process by which ocean water cycles to rainwater: evaporation and condensation.

Essential

Student response explains that when the Sun heats ocean water, only water molecules evaporate into the air. The dissolved salt remains behind in the ocean. Response does not address condensation.

Partial

Student response explains one or two steps of the water cycle correctly (evaporation, condensation) but does not state that the salt remains in the ocean.

OR

Student response explains that salt does not evaporate but does not explain evaporation or condensation of water in the water cycle.

Unsatisfactory/Incorrect

Student response is inadequate or incorrect.

Answers	Percent chosen by Florida's participating students
*Complete	1%
Essential	27%
Partial	23%
Unsatisfactory/Incorrect	38%
Off task	1%

Question 11, NGSSS.SC.6.E.6.1, NGSSS.SC.7.E.6.2, and NGSSS.SC.7.E.6.6

Description: Explain and critique two plans to prevent erosion

Difficulty: Hard

Science Practices: Using Technological Design

Score & Description:

This item was scored in 3 parts.

Part A: Explain each plan

Part B: Advantage and disadvantage of grasses

Part C: Advantage and disadvantage of a seawall

Part A:

Complete

Student response correctly explains how planting grasses and building a seawall would prevent erosion.

Partial

Student response correctly explains either how planting grasses or building a seawall would prevent erosion.

Unsatisfactory/Incorrect

Student response is inadequate or incorrect

Part B:

Complete

Student response correctly provides a plausible advantage and disadvantage of planting grasses.

Partial

Student response correctly provides a plausible advantage or a plausible disadvantage of planting grasses.

Unsatisfactory/Incorrect

Student response is inadequate or incorrect.

Part C:

Complete

Student response correctly provides a plausible advantage and disadvantage of building a seawall.

Partial

Student response correctly provides a plausible advantage or a plausible disadvantage of building a seawall.

Unsatisfactory/Incorrect

Student response is inadequate or incorrect.

Question 11, continued

Composite Score:

Student response received one of five possible composite scores (Complete, Satisfactory, Essential, Partial, Unsatisfactory/Incorrect) based on the student's combined performance on Parts A, B, and C of the item. For example, a student response Complete for Part A, Complete for Part B, and Partial for Part C received a composite score of Satisfactory.

Composite Score	Part A	Part B	Part C
Complete	Complete	Complete	Complete
Satisfactory	Complete	Complete	Partial
	Complete	Partial	Complete
	Partial	Complete	Complete
Essential	Complete	Partial	Partial
	Partial	Complete	Partial
	Partial	Partial	Complete
	Complete	Complete	Unsatisfactory/Incorrect
	Complete	Unsatisfactory/Incorrect	Complete
	Unsatisfactory/Incorrect	Complete	Complete
	Partial	Partial	Partial
	Complete	Partial	Unsatisfactory/Incorrect
	Partial	Complete	Unsatisfactory/Incorrect
	Complete	Unsatisfactory/Incorrect	Partial
	Partial	Unsatisfactory/Incorrect	Complete
	Unsatisfactory/Incorrect	Complete	Partial
Unsatisfactory/Incorrect	Partial	Complete	
Partial	Partial	Partial	Unsatisfactory/Incorrect
	Partial	Unsatisfactory/Incorrect	Partial
	Unsatisfactory/Incorrect	Partial	Partial
	Complete	Unsatisfactory/Incorrect	Unsatisfactory/Incorrect
	Unsatisfactory/Incorrect	Complete	Unsatisfactory/Incorrect
	Unsatisfactory/Incorrect	Unsatisfactory/Incorrect	Complete
	Partial	Unsatisfactory/Incorrect	Unsatisfactory/Incorrect
	Unsatisfactory/Incorrect	Partial	Unsatisfactory/Incorrect
Unsatisfactory/Incorrect	Unsatisfactory/Incorrect	Partial	
Unsatisfactory/Incorrect	Unsatisfactory/Incorrect	Unsatisfactory/Incorrect	

Question 11, continued

Composite

Answers	Percent chosen by Florida's participating students
*Complete	0%
Satisfactory	1%
Essential	17%
Partial	41%
Unsatisfactory/Incorrect	22%
Off task	1%
Omitted	18%

Part A

Answers	Percent chosen by Florida's participating students
*Complete	12%
Partial	30%
Unsatisfactory/Incorrect	35%
Off task	2%
Omitted	21%

Part B

Answers	Percent chosen by Florida's participating students
*Complete	6%
Partial	28%
Unsatisfactory/Incorrect	42%
Off task	2%
Omitted	23%

Question 11, continued

Part C

Answers	Percent chosen by Florida's participating students
*Complete	2%
Partial	26%
Unsatisfactory/Incorrect	43%
Off task	3%
Omitted	26%

NAEP Grade 8 Physical Science

Question 1, NGSSS.SC.6.P.13.1

Description: Explain what causes an object to change its motion

Difficulty: Easy

Science Practices: Using Science Principles

Correct answer is **C**

Answers	Percent chosen by Florida's participating students
*C	76%
A	3%
B	3%
D	17%

Question 2, NGSSS.SC.6.P.11.1

Description: Identify energy transfers in an application

Difficulty: Easy

Science Practices: Using Science Principles

Correct answer is **A**

Answers	Percent chosen by Florida's participating students
*A	67%
B	17%
C	8%
D	7%

Question 3, NGSSS.SC.8.P.8.5 and NGSSS.SC.8.P.8.6

Description: Identify the atomic components of the molecule

Difficulty: Medium

Science Practices: Identifying Science Principles

Correct answer is **C**

Answers	Percent chosen by Florida's participating students
*C	47%
A	8%
B	39%
D	6%

Question 4, NGSSS.SC.8.P.8.6

Description: Identify chemically similar elements in the Periodic Table

Difficulty: Hard

Science Practices: Using Science Principles

Correct answer is **B**

Answers	Percent chosen by Florida's participating students
*B	21%
A	70%
C	5%
D	4%

Question 5, NGSSS.SC.6.P.13.1

Description: Recognize the direction of force of friction

Difficulty: Hard

Science Practices: Identifying Science Principles

Correct answer is **B**

Answers	Percent chosen by Florida's participating students
*B	35%
A	42%
C	9%
D	13%

Question 6, NGSSS.SC.7.N.1.1, NGSSS.SC.7.N.1.4, and NGSSS.SC.8.N.1.1

Description: Critique and improve investigation about forces

Difficulty: Medium

Science Practices: Using Scientific Inquiry

Score & Description

Complete

Student response indicates that the experiment did not control all variables except for the variable being tested and indicates a valid way to redesign the experiment.

Partial

Student response indicates that the experiment did not properly control all variables except for the variable being tested.

OR

Student response indicates a valid way to redesign the experiment.

Unsatisfactory/Incorrect

Student response is inadequate or incorrect.

Answers	Percent chosen by Florida's participating students
*Complete	25%
Partial	31%
Unsatisfactory/Incorrect	34%
Omitted	9%
Off task	1%

Question 7, NGSSS.SC.8.P.9.1 and NGSSS.SC.8.P.9.2

Description: Critique a conclusion about chemical change based on observations.

Difficulty: Hard

Science Practices: Using Science Principles

Score & Description

Complete

Student response indicates that the student's conclusion is not accurate and correctly explains why water changing into steam is not a chemical change and why wood burning and producing smoke is a chemical change. Response demonstrates understanding that water changing to steam is a physical change, is a reversible process, or does not produce a new substance. Response demonstrates understanding that wood burning produces new substances or is not a reversible process.

Partial

Student response indicates that the student's conclusion is not accurate and correctly addresses why water changing to steam is not a chemical change or why wood burning and producing smoke is a chemical change.

OR

Student response indicates that the student's conclusion is accurate or fails to address the accuracy of the conclusion, and correctly addresses why water changing to steam is not a chemical change or why wood burning and producing smoke is a chemical change, supporting that the student's conclusion is not accurate.

Unsatisfactory/Incorrect

Student response is inadequate or incorrect.

Answers	Percent chosen by Florida's participating students
*Complete	7%
Partial	22%
Unsatisfactory/Incorrect	63%
Off task	1%
Omitted	7%

NAEP Grade 8 Life Science

Question 1, NGSSS.SC.7.L.17.1

Description: Recognize the role of decomposers

Difficulty: Easy

Science Practices: Identifying Science Principles

Correct answer is **D**

Answers	Percent chosen by Florida's participating students
*D	68%
A	11%
B	15%
C	5%
Omitted	1%

Question 2, NGSSS.SC.7.L.17.1

Description: Identify relationships in a food web

Difficulty: Easy

Science Practices: Identifying Science Principles

Score and Description:

This item was scored in 3 parts.

Part A: Organism makes its own food.

Part B: Organism eats only plants.

Part C: Organism eats only animals.

Part A:

Complete

Student response indicates oak or pine tree and no other organism.

Unsatisfactory/Incorrect

Student response is inadequate or incorrect.

Part B:

Complete

Student response indicates pine borer or squirrel and no other organism.

Unsatisfactory/Incorrect

Student response is inadequate or incorrect.

Question 2, continued

Part C:

Complete

Student response indicates hawk, fox, kinglet, or salamander, and no other organism.

Unsatisfactory/Incorrect

Student response is inadequate or incorrect.

Composite

Answers	Percent chosen by Florida's participating students
Complete	70%
Partial	25%
Unsatisfactory/Incorrect	3%
Omitted	2%

Part A

Answers	Percent chosen by Florida's participating students
Complete	0%
Partial	79%
Unsatisfactory/Incorrect	19%
Omitted	2%

Part B

Answers	Percent chosen by Florida's participating students
Complete	0%
Partial	83%
Unsatisfactory/Incorrect	15%
Omitted	3%

Part C

Answers	Percent chosen by Florida's participating students
Complete	0%
Partial	94%
Unsatisfactory/Incorrect	4%
Omitted	2%

Question 3, NGSSS.SC.7.L.17.1

Description: Identify the primary consumers in a food web

Difficulty: Medium

Content Classification: Knowing and Doing Science, Conceptual Understanding
(Framework in place from 1996-2005)

Correct answer is **C**

Answers	Percent chosen by Florida's participating students
*C	36%
A	39%
B	13%
D	11%
Omitted	1%

Question 4, NGSSS.SC.6.L.14.5

Description: Identify path of blood flow in the human heart

Difficulty: Hard

Content Classification: Knowing and Doing Science, Conceptual Understanding
(Framework in place from 1996-2005)

Correct answer is **A**

Answers	Percent chosen by Florida's participating students
*A	14%
B	19%
C	24%
D	43%

Question 5, NGSSS.SC.6.L.14.5**Description:** Organ needed for survival**Difficulty:** Medium**Content Classification:** Knowing and Doing Science, Conceptual Understanding
(Framework in place from 1996-2005)Correct answer is **B**

Answers	Percent chosen by Florida's participating students
*B	39%
A	8%
C	46%
D	7%

Question 6, NGSSS.SC.7.L.16.4**Description:** Example of genetic engineering**Difficulty:** Hard**Content Classification:** Knowing and Doing Science, Conceptual Understanding
(Framework in place from 1996-2005)Correct answer is **C**

Answers	Percent chosen by Florida's participating students
*C	29%
A	16%
B	35%
D	21%

Question 7, NGSSS.SC.6.L.14.2

Description: Identify location of cell’s genetic material

Difficulty: Medium

Content Classification: Knowing and Doing Science, Conceptual Understanding
(Framework in place from 1996-2005)

Correct answer is **A**

Answers	Percent chosen by Florida’s participating students
*A	50%
B	12%
C	25%
D	13%
Omitted	1%

Question 8, NGSSS.SC.7.N.1.1 and NGSSS.SC.8.N.1.1

Description: Compare heart rates before, during, and after running

Difficulty: Easy

Content Classification: Knowing and Doing Science, Science investigation
(Framework in place from 1996-2005)

Correct answer is **D**

Answers	Percent chosen by Florida’s participating students
*D	59%
A	34%
B	5%
C	3%

Question 9, NGSSS.SC.7.L.17.1

Description: Recognize ecological role of an organism

Difficulty: Hard

Content Classification: Knowing and Doing Science, Conceptual Understanding
(Framework in place from 1996-2005)

Correct answer is **A**

Answers	Percent chosen by Florida's participating students
*A	33%
B	24%
C	18%
D	24%
Omitted	1%