



**NEW ENGLAND
COMMON ASSESSMENT PROGRAM**

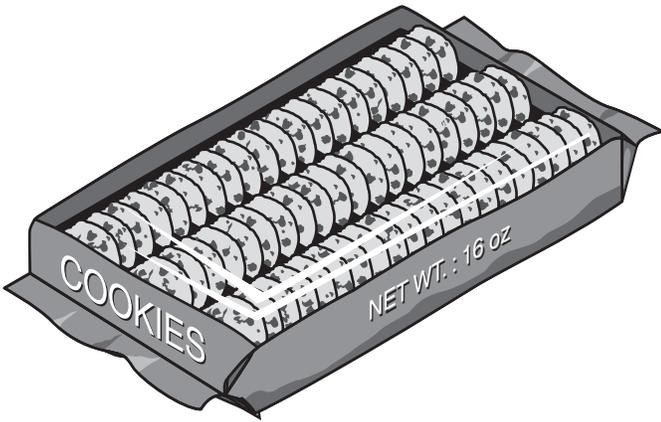
**Released Items
Support Materials
2008**

**Grade 4
Science**

NECAP 2008 RELEASED ITEMS
GRADE 4 SCIENCE

PS1.3 (K–4) Use measures of weight (data) to demonstrate that the whole equals the sum of its parts.

- 1 A teacher buys the package of cookies shown below at a store. The cookies in the package weigh 16 oz.



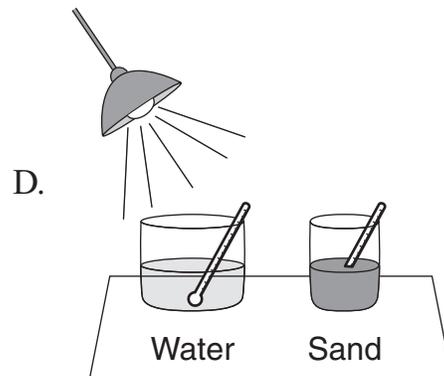
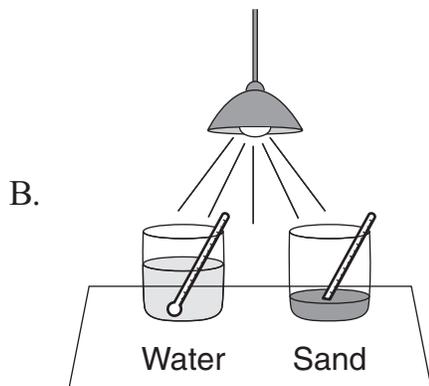
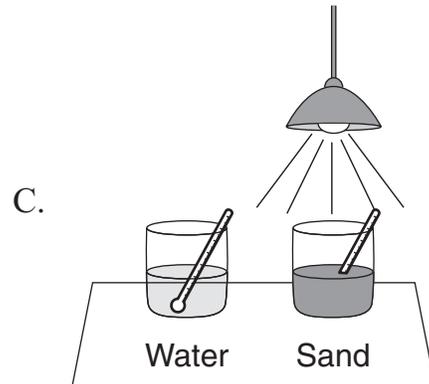
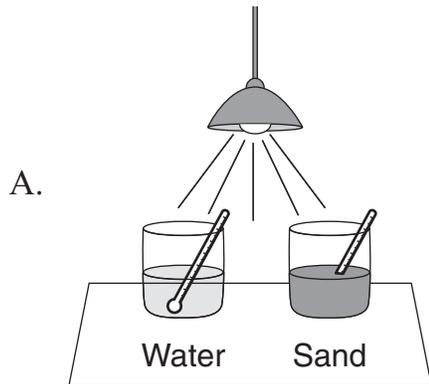
The cookies broke on the way home from the store. What is the weight of the cookies in the package now?

- A. 12 oz
- B. 16 oz
- C. 21 oz
- D. 25 oz

NECAP 2008 RELEASED ITEMS
GRADE 4 SCIENCE

PS2.6 (K–4) Experiment, observe, or predict how heat might move from one object to another.

- 2 A student wants to compare how heat affects water and sand. He uses a lamp to heat a jar of water and a jar of sand. Which setup is **best** for the experiment?



NECAP 2008 RELEASED ITEMS
GRADE 4 SCIENCE

PS3.7 (K–4) Use data to predict how a change in force (greater/less) might affect the position, direction of motion, or speed of an object (e.g., ramps and balls).

- 3 A student predicts that the distance an object moves depends on how hard it is pushed. He designs an experiment to test his prediction. The student repeats the experiment 10 times.

Which of the following should stay the same each time he does the experiment?

- A. the weight of the object
- B. the temperature of the object
- C. the force used to push the object
- D. the distance the object moves

**NECAP 2008 RELEASED ITEMS
GRADE 4 SCIENCE**

ESS1.1 (K–4) Given certain Earth materials (soils, rocks or minerals), use physical properties to sort, classify, and describe them.

- 4 The table below shows the characteristics of five minerals.

Characteristics of Minerals

Mineral	Shiny or Dull	Magnetic
1	Dull	No
2	Shiny	No
3	Shiny	Yes
4	Shiny	No
5	Dull	No

A student wants to classify the minerals that are shiny **and** nonmagnetic in the same group.

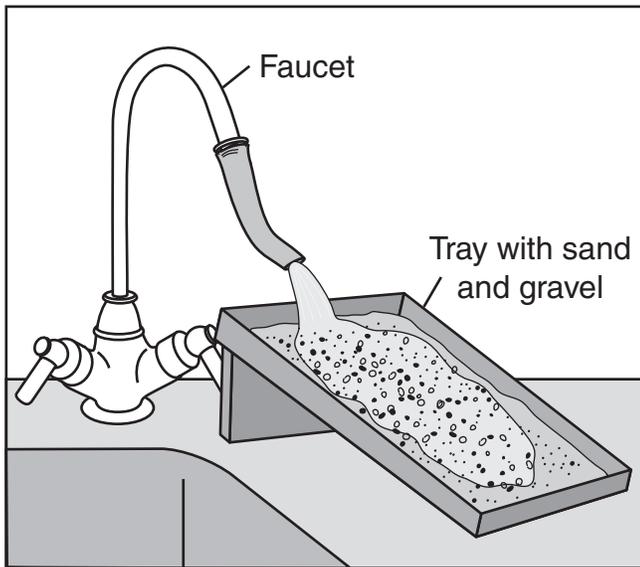
Which minerals belong in this group?

- A. Minerals 1 and 2
- B. Minerals 2 and 3
- C. Minerals 2 and 4
- D. Minerals 4 and 5

NECAP 2008 RELEASED ITEMS
GRADE 4 SCIENCE

ESS1.2 (K–4) Use results from an experiment to draw conclusions about how water interacts with earth materials (e.g., percolation, erosion, frost heaves).

- 5 Two students designed the experiment shown below to study stream erosion.



A steady stream of water flows from a faucet into a tray holding sand and gravel. The water forms a channel by eroding some of the sand and gravel.

How can the students **increase** the amount of sand and gravel being eroded?

- A. by increasing the water temperature
- B. by adding coarse gravel to the tray
- C. by increasing the tilt of the tray
- D. by reducing the amount of flowing water

NECAP 2008 RELEASED ITEMS
GRADE 4 SCIENCE

ESS1.4 (K–4) Explain how wind, water, or ice shape and reshape the Earth’s surface.

- 6 A student sees pavement that is raised and cracked on her street. She knows that this happens in only the winter. Her mother calls these “frost heaves.”

Which sentence **best** explains how frost heaves occur?

- A. Ice crystals cover the entire surface of the pavement.
- B. Water trapped under the pavement expands as the water freezes.
- C. The weight of heavy snowfalls puts too much pressure on the pavement.
- D. Shoveling snow damages the pavement.

**NECAP 2008 RELEASED ITEMS
GRADE 4 SCIENCE**

ESS1.6 (K–4) Given information about Earth materials, explain how their characteristics lend themselves to specific uses.

7 Aluminum is an earth material. Some useful properties of aluminum are listed below.

- strong
- lightweight
- resistant to rust
- good conductor of heat
- easily shaped and bent

a. Identify **two** objects that could be made using aluminum.

b. For **each** object you identified in part (a), choose **two** properties of aluminum that make it useful for making the object. Explain why these properties are important for the object.

**NECAP 2008 RELEASED ITEMS
GRADE 4 SCIENCE**

Scoring Guide

Score	Description
4	Response demonstrates a thorough understanding of how the characteristics of a particular material lend themselves to specific uses. Response gives two objects that could be made using aluminum. Response chooses two properties of aluminum for each object identified in part (a) and explains why these properties are important for the object. The response has no errors or omissions.
3	Response demonstrates a general understanding of how the characteristics of a particular material lend themselves to specific uses. The response has an error or omission.
2	Response demonstrates a limited understanding of how the characteristics of a particular material lend themselves to specific uses. The response has errors and omissions.
1	Response demonstrates a minimal understanding of how the characteristics of a particular material lend themselves to specific uses. The response has several errors and omissions.
0	Response is incorrect or contains some work that is irrelevant to the skill or concept being measured.
Blank	No response

Training Notes:

Score responses holistically. A score of 4 requires an explanation for all properties identified as useful for the object. A score of 3 applies to responses that provide a minimum of two appropriate explanations for properties. A score of 2 applies to responses that do not include explanations for properties. Responses that identify appropriate objects but provide no other information can receive a score of 1. It is acceptable to identify a property not listed in the stem.

Object	Property	Explanation
<ul style="list-style-type: none"> • cans for food and beverages • cars • rockets • bicycles • ladders • outdoor furniture • foil for wrapping food • cookware 	rust resistant	<ul style="list-style-type: none"> • last longer • keep food clean
	strong	<ul style="list-style-type: none"> • hold heavy objects • do not easily break
	lightweight	<ul style="list-style-type: none"> • easy to carry
	easily shaped and bent	<ul style="list-style-type: none"> • easy to make into complicated shapes • wraps around food
	good conductor of heat	<ul style="list-style-type: none"> • cooks food • transfers heat to food

NECAP 2008 RELEASED ITEMS
GRADE 4 SCIENCE

SCORE POINT 4

7

① A Brige because if it rains it willn't rust it is strong to hold cars and trucks.

② A chain because it is strong to hold the person. Lightveighted is good because it could easaly be moved.

For part (a), the response correctly identifies two objects (a bridge and a chain) that could be made using aluminum. For part (b), the response correctly identifies two properties of aluminum that make it useful for making a bridge (rust-resistant, strong) and explains why these properties are important for a bridge to have (withstand rain, hold cars and trucks). The response also correctly identifies two properties of aluminum that make it useful for making a chain (strong, lightweight) and explains why these properties are important for a chain to have (hold a person, transportable). All necessary elements are present and plausible, so the response receives a score of 4.

Notice that the response is not set up the same way as the prompt. The response does not identify two objects in part (a) and then explain properties of aluminum that are important for each object to have in part (b). Instead, the response separates each object into its own bullet point. Any arrangement is acceptable as long as the response covers all aspects of the prompt.

NECAP 2008 RELEASED ITEMS
GRADE 4 SCIENCE

SCORE POINT 3

7



aluminum should
be used for a
baseball bat
because it's
light so its
easier to swing



aluminum should
be used for
ladders because
its lighter to
carry around
with you.

For part (a), the response identifies two objects (a baseball bat and a ladder) that could be made using aluminum. For part (b), the response identifies one property of aluminum that makes it useful for making each object (lightweight for both objects) and explains why the property is important for each object to have (easier to swing, transportable). The response omits a second property of aluminum and an explanation for each object.

A response with a total of two properties and explanations—whether one is provided for each object or both are provided for the same object—receives a score of 3 as long as the response identifies **two** objects. The response must have two or three plausible explanations of why the properties of aluminum are important for the objects named in part (a) to receive a score of 3. Since the properties are given in the prompt, the explanations are the most valued portion of the response. A response that includes two or three explanations is considered to reflect a general understanding of the prompt. An omission of any part of the prompt prevents a response from receiving a score of 4.

NECAP 2008 RELEASED ITEMS
GRADE 4 SCIENCE

SCORE POINT 2

7
statue because it is
easy to shape and bent and
it is resistant to rust
coin because it is easily
shaped and bent and because
it is lightweight

For part (a), the response identifies two objects (a statue and a coin) that could be made using aluminum. For part (b), the response identifies two properties of aluminum that make it useful for making each object (malleable, rust-resistant; malleable, lightweight). However, the response does not explain why any of these properties are important for each object to have (e.g., "the coin is lightweight so it is easier to carry" would have received credit as an explanation).

A partial response that includes zero or one explanation(s) of the properties is considered to reflect a limited understanding of the prompt and receives a score of 2. In addition, a response that identifies only one object with two properties and explanations receives a score of 2.

SCORE POINT 1

7
The 2 things that could be
made using aluminum would be
a bowl and silver ware.

The response simply identifies two objects (a bowl and silverware) for part (a) but omits part (b) entirely. Without any properties of aluminum or explanations, the response demonstrates a minimal understanding and receives a score of 1. Even if the response only identified one object, it still would receive a score of 1 for not being totally incorrect or irrelevant.

NECAP 2008 RELEASED ITEMS
GRADE 4 SCIENCE

SCORE POINT 0

7
lightweight and good conductor
of heat.

The response receives no credit because it is a copy of the prompt. The response simply lists two bullet points provided in the prompt. The response does not identify any object that could be made using aluminum, and the response provides no information that can receive any credit. There is no evidence of an understanding of the prompt.

**NECAP 2008 RELEASED ITEMS
GRADE 4 SCIENCE**

LS1.1 (K–4) Sort/classify different living things using similar and different characteristics. Describe why organisms belong to each group or cite evidence about how they are alike or not alike.

- 8 A student puts sunflower seeds in one bird feeder and millet seeds in another bird feeder. He predicts that blue jays like to eat sunflower seeds more than millet seeds. The student watches the feeders for an hour each morning and an hour each evening.

Which information is **most** important for testing his prediction?

- A. the number of blue jays that eat at each feeder
- B. how often the same blue jay eats at each feeder
- C. the number of different kinds of birds that eat at each feeder
- D. how often the feeders have to be refilled

**NECAP 2008 RELEASED ITEMS
GRADE 4 SCIENCE**

LS2.5 (K–4) Recognize that energy is needed for all organisms to stay alive and grow or identify where a plant or animal gets its energy.

9 Plants get energy from which source?

- A. fertilizer
- B. soil
- C. sunlight
- D. water

LS4.9 (K–4) Distinguish between characteristics of humans that are inherited from parents (i.e., hair color, height, skin color, eye color) and others that are learned (e.g., riding a bike, singing a song, playing a game, reading).

10 Which characteristic do children inherit from their birth parents?

- A. beliefs
- B. language
- C. manners
- D. skin color

NECAP 2008 RELEASED ITEMS
GRADE 4 SCIENCE

Broad Area of Inquiry: Conducting Investigations

INQ3.8 (K-4) Use accepted methods for organizing, representing, and manipulating data (compare data; display data).

- 11 Use the data you collected to graph the number of each food item you picked up with the tweezers. Be sure to title your graph.

Title: _____

Number of Food Items

Kind of Food

**NECAP 2008 RELEASED ITEMS
GRADE 4 SCIENCE**

Scoring Guide

Score	Description
3	All elements of the graph are correct. Response contains an appropriate title, scale, and range, and data sets for the tweezers are correctly graphed.
2	Response contains one error or omission. Data sets for the tweezers are correctly graphed.
1	Response contains more than one error. or Data sets may or may not be correctly graphed, or the wrong data sets may be correctly graphed. or Axes are switched.
0	Response is incorrect or contains some work that is irrelevant to the skill or concept being measured.
Blank	No response

Training Notes:

- Points on the graph do not need to be connected.
- A bar graph is the expected presentation, but points marking the correct values are acceptable.
- The graph is not considered to have correct data sets if the data points do not match the table, if there is no scale (an inappropriate scale is considered the same as a normal incorrect element), or if the “food types” are not labeled or not clearly assigned. These errors prevent understanding of the presented data points. The highest score under these conditions is a 1. If it is clear that “food types” without labels follow the order in the data table, then this is considered an incorrect element.

Any of the following terms are acceptable:

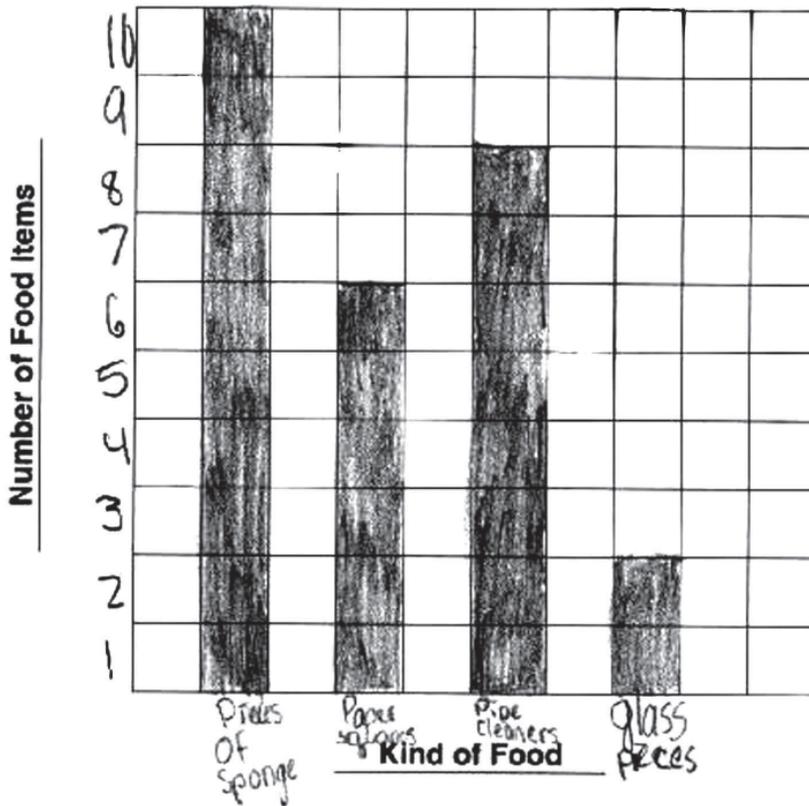
- glass pieces or seeds
- pipe cleaners or worms
- sponges or insects
- paper squares or leaves

NECAP 2008 RELEASED ITEMS
GRADE 4 SCIENCE

SCORE POINT 3 (EXAMPLE A)

- 11 Use the data you collected to graph the number of each food item you picked up with the tweezers. Be sure to title your graph.

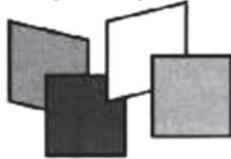
Title: Food Items Collected By Tweezers



The data set in the graph is correct based on the data in the table. The graph is correctly titled, labeled, and scaled.

NECAP 2008 RELEASED ITEMS
 GRADE 4 SCIENCE

SCORE POINT 3 (EXAMPLE A CONTINUED)

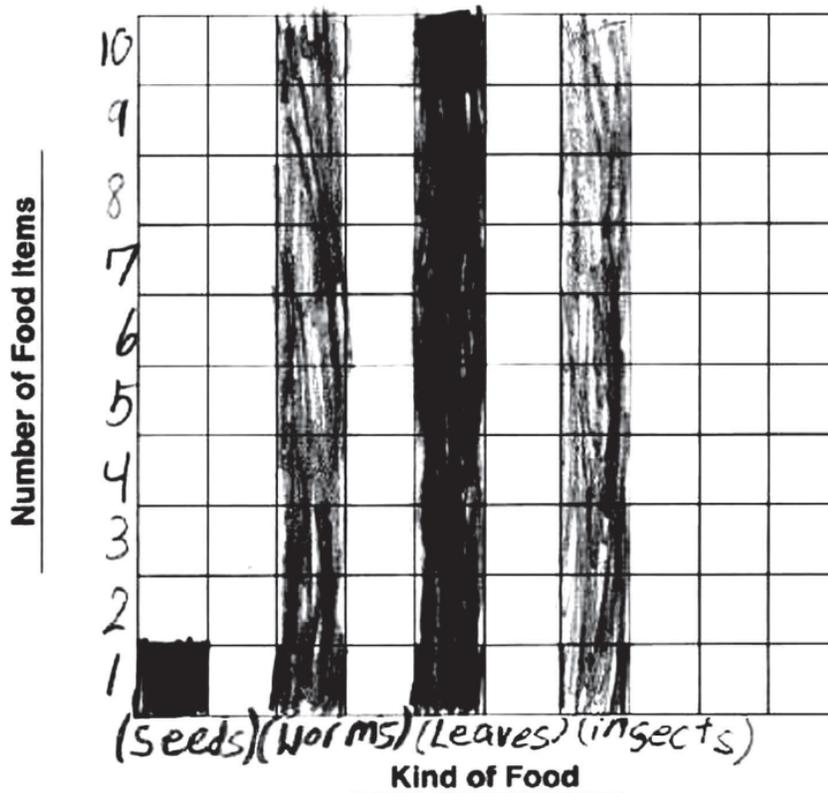
	Glass pieces	Pipe cleaners	Paper squares	Pieces of sponge
Tweezers 				
Spoon 				
Toothpick 				

NECAP 2008 RELEASED ITEMS
GRADE 4 SCIENCE

SCORE POINT 3 (EXAMPLE B)

- 11 Use the data you collected to graph the number of each food item you picked up with the tweezers. Be sure to title your graph.

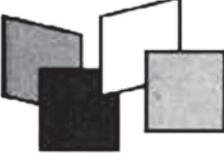
Title: *What tweezers can pick up*



All elements of the graph are present and correct based on the data in the table.

NECAP 2008 RELEASED ITEMS
 GRADE 4 SCIENCE

SCORE POINT 3 (EXAMPLE B CONTINUED)

	Glass pieces 	Pipe cleaners 	Paper squares 	Pieces of sponge 
Tweezers 	1	10	10	10
Spoon 	10	10	10	10
Toothpick 	0	1	5	10

NECAP 2008 RELEASED ITEMS
GRADE 4 SCIENCE

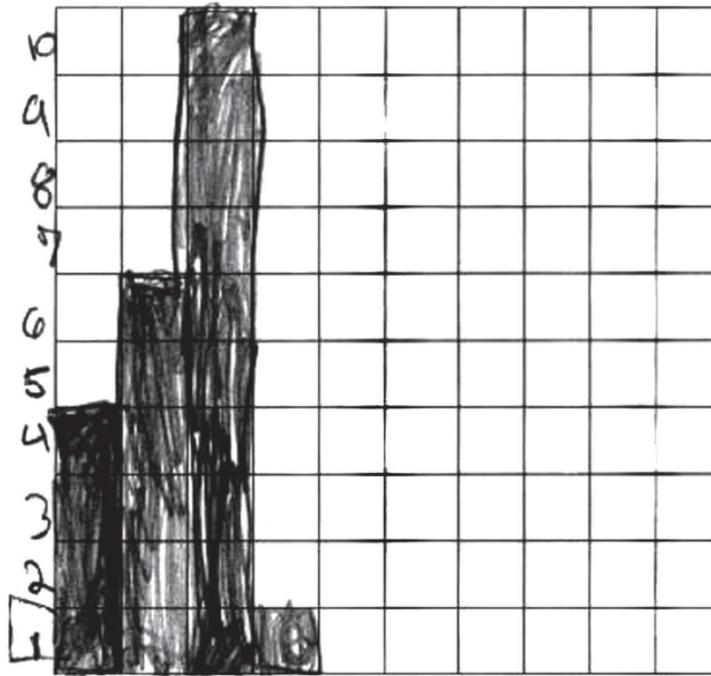
SCORE POINT 2

- 11 Use the data you collected to graph the number of each food item you picked up with the tweezers. Be sure to title your graph.

Key	
S	Spong
GP	Glass
PS	Paper squares
PC	Paper circles

Number of Food Items

Title: _____

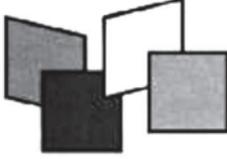


S GP PC PS
Kind of Food

The data set in the graph is correct, even though it is not in the same order as the data in the table, which is acceptable. The labels, scale, and key for the graph are all correct. The graph is not titled, so the response receives a score of 2.

NECAP 2008 RELEASED ITEMS
 GRADE 4 SCIENCE

SCORE POINT 2 (CONTINUED)

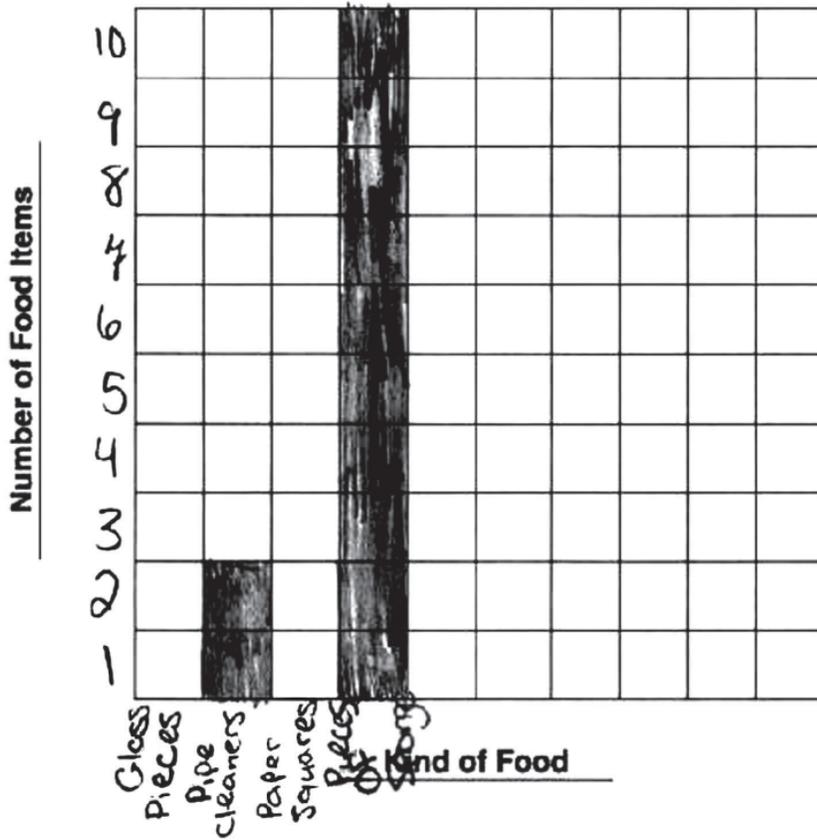
	Glass pieces 	Pipe cleaners 	Paper squares 	Pieces of sponge 
Tweezers 	6	10	1	4
Spoon 	10	10	10	10
Toothpick 	0	10	0	10

NECAP 2008 RELEASED ITEMS
GRADE 4 SCIENCE

SCORE POINT 1 (EXAMPLE A)

- 11 Use the data you collected to graph the number of each food item you picked up with the tweezers. Be sure to title your graph.

Title: How much food tweezers pick up.



The title, labels, and scale for the graph are all correct. However, the graph is based on the data set for the toothpick instead of the data set for the tweezers. This is considered a major error, so the response receives a score of 1.

NECAP 2008 RELEASED ITEMS
 GRADE 4 SCIENCE

SCORE POINT 1 (EXAMPLE A CONTINUED)

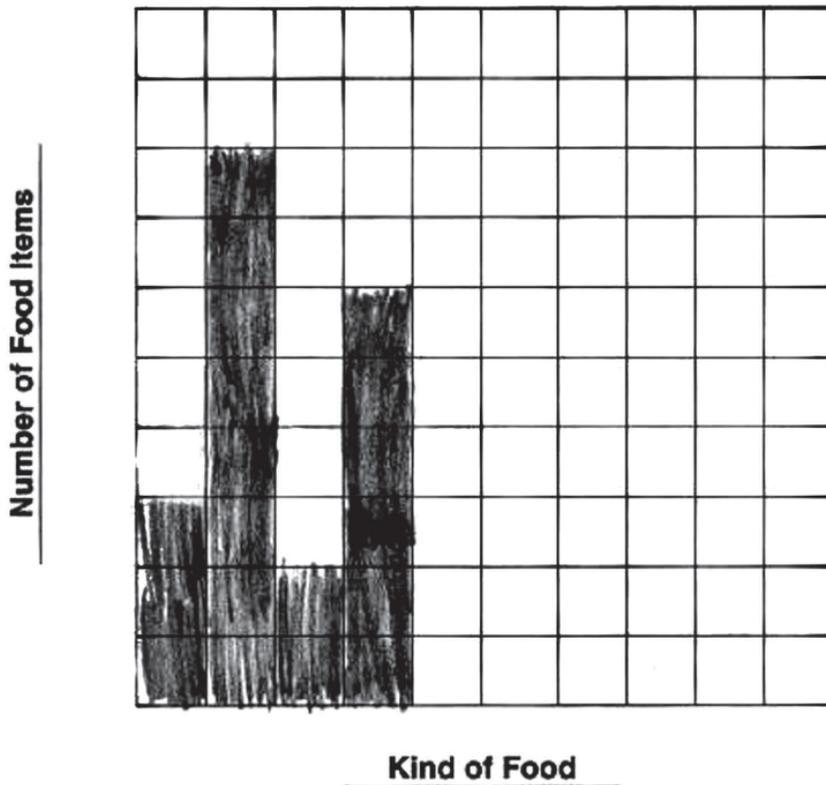
	Glass pieces 	Pipe cleaners 	Paper squares 	Pieces of sponge 
Tweezers 	0	10	2	10
Spoon 	10	10	10	10
Toothpick 	0	2	0	10

NECAP 2008 RELEASED ITEMS
GRADE 4 SCIENCE

SCORE POINT 1 (EXAMPLE B)

- 11 Use the data you collected to graph the number of each food item you picked up with the tweezers. Be sure to title your graph.

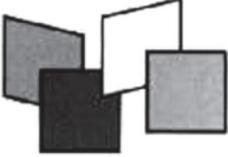
Title: Tweezers



The data set is graphed correctly. However, the graph does not include a label or scale for either axis, and the title "tweezers" is very minimal. Without an appropriate title, labels, or scale, the response cannot receive more than a score of 1.

NECAP 2008 RELEASED ITEMS
 GRADE 4 SCIENCE

SCORE POINT 1 (EXAMPLE B CONTINUED)

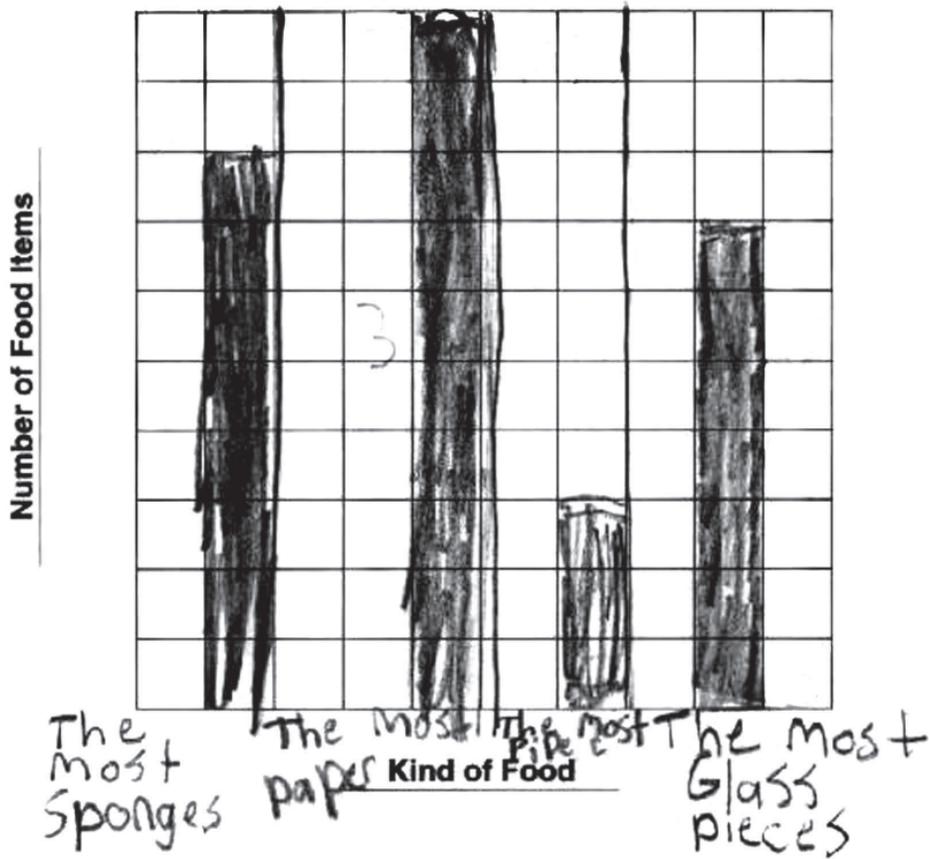
	Glass pieces 	Pipe cleaners 	Paper squares 	Pieces of sponge 
Tweezers 	3	8	2	6
Spoon 	7	2	6	10
Toothpick 	0	5	0	10

NECAP 2008 RELEASED ITEMS
GRADE 4 SCIENCE

SCORE POINT 0

- 11 Use the data you collected to graph the number of each food item you picked up with the tweezers. Be sure to title your graph.

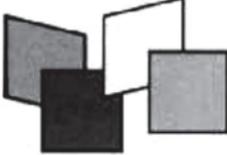
Title: Spoon



The graph does not have an appropriate title, and the graph does not include an appropriate label or scale for either axis. Only the highest number for each food type is graphed, which is off-task. The response receives no credit.

NECAP 2008 RELEASED ITEMS
 GRADE 4 SCIENCE

SCORE POINT 0 (CONTINUED)

	Glass pecces	Pipe cleaners	Paper squares	Pieces of sponge
Tweezers 				
Spoon 	0	3	10	5
Toothpick 	0	3	5	8
	0	0	0	3

**NECAP 2008 RELEASED ITEMS
GRADE 4 SCIENCE**

Broad Area of Inquiry: Conducting Investigations

INQ3.7 (K–4) Follow procedures for collecting and recording qualitative or quantitative data, using equipment or measurement devices accurately (DOK 1 – use tools; routine procedure; DOK 2 – follow multi-step procedures; make observations).

12 How many different kinds of food did you pick up with the **tweezers**?

_____ different kinds of food

How many different kinds of food did you pick up with the **spoon**?

_____ different kinds of food

How many different kinds of food did you pick up with the **toothpick**?

_____ different kinds of food

Scoring Guide

Score	Description
2	Response indicates the correct amount for each section as identified in the data table. Response records kinds of foods, not totals of foods.
1	Response indicates at least one or two correct amounts.
0	Response is incorrect or contains some work that is irrelevant to the skill or concept being measured.
Blank	No response

NECAP 2008 RELEASED ITEMS
GRADE 4 SCIENCE

SCORE POINT 2

12 How many different kinds of food did you pick up with the **tweezers**?

4 different kinds of food

How many different kinds of food did you pick up with the **spoon**?

4 different kinds of food

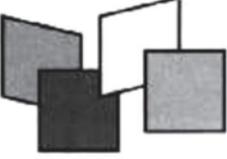
How many different kinds of food did you pick up with the **toothpick**?

2 different kinds of food

The response answers all three questions correctly based on the data table.

NECAP 2008 RELEASED ITEMS
 GRADE 4 SCIENCE

SCORE POINT 2 (CONTINUED)

	Glass pieces	Pipe cleaners	Paper squares	Pieces of sponge
Tweezers 	 	 	 	 
Spoon 				
Toothpick 				

NECAP 2008 RELEASED ITEMS
GRADE 4 SCIENCE

SCORE POINT 1

12 How many different kinds of food did you pick up with the **tweezers**?

4 different kinds of food

How many different kinds of food did you pick up with the **spoon**?

4 different kinds of food

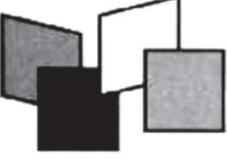
How many different kinds of food did you pick up with the **toothpick**?

4 different kinds of food

The response answers two of the three questions correctly based on the data table. The toothpick picked up only two different kinds of food.

NECAP 2008 RELEASED ITEMS
 GRADE 4 SCIENCE

SCORE POINT 1 (CONTINUED)

	Glass pieces 	Pipe cleaners 	Paper squares 	Pieces of sponge 
Tweezers 	1	7	8	9
Spoon 	10	9	10	9
Toothpick 	0	9	0	9

NECAP 2008 RELEASED ITEMS
GRADE 4 SCIENCE

SCORE POINT 0

12 How many different kinds of food did you pick up with the **tweezers**?

Sponges different kinds of food

How many different kinds of food did you pick up with the **spoon**?

classpieces different kinds of food

How many different kinds of food did you pick up with the **toothpick**?

pipe cleaner different kinds of food

The response does not answer any of the questions correctly. The response needs to answer two questions correctly to receive one point or three questions correctly to receive two points.

NECAP 2008 RELEASED ITEMS
 GRADE 4 SCIENCE

SCORE POINT 0 (CONTINUED)

	Glass pieces 	Pipe cleaners 	Paper squares 	Pieces of sponge 
Tweezers 	0	9	0	10
Spoon 	8	9	2	10
Toothpick 	0	1	0	10

**NECAP 2008 RELEASED ITEMS
GRADE 4 SCIENCE**

Broad Area of Inquiry: Developing and Evaluating Explanations

INQ4.11 (K–4) Analyze data, including determining if data are relevant, artifact, irrelevant, or anomalous (specify relationships between facts; ordering, classifying data).

- 13 a. Which type of bird beak was able to pick up the most different kinds of food? Use your data to explain your answer.
- b. Which bird beak(s) picked up the fewest kinds of food? Use your data to explain your answer.

Scoring Guide

Score	Description
2	Response for part (a) identifies a beak and supports the answer with data (quantitative) and/or describes observations of why the beak picked up the most different kinds of food (qualitative). Response for part (b) identifies the beak that picked up the fewest kinds of food and supports the answer with data (quantitative) and/or describes observations of why the beak picked up the fewest different kinds of food (qualitative).
1	Response is a general description. Response addresses either part (a) or part (b) or the response correctly identifies the appropriate beaks in part (a) and part (b) but does not provide complete support.
0	Response is incorrect or contains some work that is irrelevant to the skill or concept being measured.
Blank	No response

NECAP 2008 RELEASED ITEMS
GRADE 4 SCIENCE

SCORE POINT 2 (EXAMPLE A)

- 13 a. Which type of bird beak was able to pick up the most different kinds of food? Use your data to explain your answer.

the spoon picked up the most because it picked up 9 glass pieces, 6 pipe cleaners, 7 paper squares, and 10 pieces of sponge

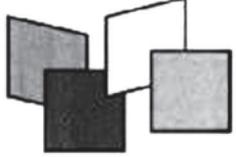
- b. Which bird beak(s) picked up the fewest kinds of food? Use your data to explain your answer.

the toothpick picked up the least because it picked up 0 glass pieces, 0 pipe cleaners, 0 paper squares & 10 sponges

The response correctly identifies the spoon (tweezers would have also been acceptable) as the beak that picked up the most different kinds of food for part (a) and the toothpick as the beak that picked up the fewest different kinds of food for part (b). The response correctly cites data from the table.

NECAP 2008 RELEASED ITEMS
 GRADE 4 SCIENCE

SCORE POINT 2 (EXAMPLE A CONTINUED)

	Glass pieces 	Pipe cleaners 	Paper squares 	Pieces of sponge 
Tweezers 	2	8	5	5
Spoon 	9	6	7	10
Toothpick 	0	0	0	10

NECAP 2008 RELEASED ITEMS
GRADE 4 SCIENCE

SCORE POINT 2 (EXAMPLE B)

- 13 a. Which type of bird beak was able to pick up the most different kinds of food? Use your data to explain your answer.

The spoon was able to pick up the most because it can scoop more things up with the hole at the end.

- b. Which bird beak(s) picked up the fewest kinds of food? Use your data to explain your answer.

The toothpick picks up less because it is too thin and long to pick up anything.

The response correctly identifies the spoon as the beak that picked up the most different kinds of food for part (a) and the toothpick as the beak that picked up the fewest different kinds of food for part (b). The response cites observational data to explain the answers and describes how the shape of an object affects its ability to pick up items.

NECAP 2008 RELEASED ITEMS
 GRADE 4 SCIENCE

SCORE POINT 2 (EXAMPLE B CONTINUED)

	Glass pieces 	Pipe cleaners 	Paper squares 	Pieces of sponge 
Tweezers 	1	10	10	10
Spoon 	10	10	10	10
Toothpick 	0	1	5	10

NECAP 2008 RELEASED ITEMS
GRADE 4 SCIENCE

SCORE POINT 1

- 13 a. Which type of bird beak was able to pick up the most different kinds of food? Use your data to explain your answer.

The Spoon picked up the most different foods.

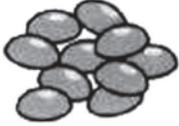
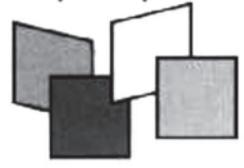
- b. Which bird beak(s) picked up the fewest kinds of food? Use your data to explain your answer.

The toothpick, it was only able to get a few insects (sponges.)

The response correctly identifies the spoon as the beak that picked up the most different kinds of food for part (a) and the toothpick as the beak that picked up the fewest different kinds of food for part (b) but does not offer an adequate explanation for part (a). The response offers some explanation ("only able to get a few insects" is correct) of the data for part (b). However, because of the omission of an explanation for part (a), the response receives a score of 1.

NECAP 2008 RELEASED ITEMS
 GRADE 4 SCIENCE

SCORE POINT 1 (CONTINUED)

	Glass pieces 	Pipe cleaners 	Paper squares 	Pieces of sponge 
Tweezers 	2	10	0	10
Spoon 	10	10	9	10
Toothpick 	0	0	0	10

NECAP 2008 RELEASED ITEMS
GRADE 4 SCIENCE

SCORE POINT 0

- 13 a. Which type of bird beak was able to pick up the most different kinds of food? Use your data to explain your answer.

The bird that was able to pick up the most food was the bird that eats out of the bird feeder.

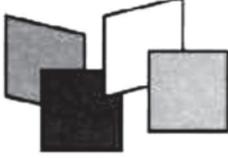
- b. Which bird beak(s) picked up the fewest kinds of food? Use your data to explain your answer.

The bird that the fewest variety of food was the wood pecker, pecking at the bark of a tree.

The response does not answer the question and receives a score of 0. The response must at least identify the appropriate bird beak in part (a) or part (b) to receive credit.

NECAP 2008 RELEASED ITEMS
 GRADE 4 SCIENCE

SCORE POINT 0 (CONTINUED)

	Glass pieces 	Pipe cleaners 	Paper squares 	Pieces of sponge 
Tweezers 	0	10	11	10
Spoon 	10	10	11	10
Toothpick 	0	8	0	10

**NECAP 2008 RELEASED ITEMS
GRADE 4 SCIENCE**

Broad Area of Inquiry: Developing and Evaluating Explanations

INQ4.12 (K–4) Use evidence to support and justify interpretations and conclusions or explain how the evidence refutes the hypothesis.

- 14 a. Look at your prediction on page 5 in your Task Booklet. Now look at your data. Did your data support what you thought about what the shape of a bird's beak tells you about the kind of food it can eat?

Yes

No

- b. Explain how your data and observations did or did not support your prediction.

Scoring Guide

Score	Description
2	Response clearly explains how the data do or do not support the prediction and cites at least one example within the answer. Response provides enough of a description to identify the tool (spoon, tweezers, toothpick).
1	Response partially explains how the data do or do not support the prediction but provides no examples. Response provides enough of a description to identify the tool (spoon, tweezers, toothpick).
0	Response is incorrect or contains some work that is irrelevant to the skill or concept being measured.
Blank	No response

Training Notes:

- Response must take a position on whether the data support the prediction or no credit will be given.
- Response reflects data collected and checks an answer box (Yes or No).
- If data connects to the prediction but the response argues it does not, only one point is awarded (the reverse would also get one point).
- If only data are listed or only the prediction is discussed—no points are awarded.

NECAP 2008 RELEASED ITEMS
GRADE 4 SCIENCE

SCORE POINT 2 (EXAMPLE A)

- 14 a. Look at your prediction on page 5 in your Task Booklet. Now look at your data. Did your data support what you thought about what the shape of a bird's beak tells you about the kind of food it can eat?

Yes

No

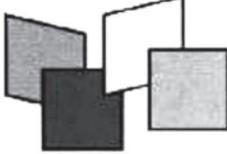
- b. Explain how your data and observations did or did not support your prediction.

I thought the tweezers, was going to
get everything but it didn't, because it can
only pick up things where the
spoon can scoop every-thing.

The response explains that the prediction is not supported by the data and explains the observation that the shape of the spoon allowed it to collect the most food items.

NECAP 2008 RELEASED ITEMS
 GRADE 4 SCIENCE

SCORE POINT 2 (EXAMPLE A CONTINUED)

	Glass pieces 	Pipe cleaners 	Paper squares 	Pieces of sponge 
Tweezers 	1	8	6	10
Spoon 	10	9	6	9
Toothpick 	0	2	0	10

NECAP 2008 RELEASED ITEMS
GRADE 4 SCIENCE

SCORE POINT 2 (EXAMPLE B)

- 14 a. Look at your prediction on page 5 in your Task Booklet. Now look at your data. Did your data support what you thought about what the shape of a bird's beak tells you about the kind of food it can eat?

Yes

No

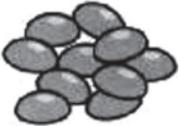
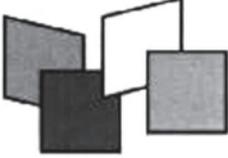
- b. Explain how your data and observations did or did not support your prediction.

Because I predicted that the tweezers would pick up the most. But the tweezers picked up the second amount of food and that was 22 pieces of food. But the spoon really picked up the most food and that was 36 pieces of food.

The response explains that the prediction is not supported by the data and correctly cites the total number of food items collected.

NECAP 2008 RELEASED ITEMS
 GRADE 4 SCIENCE

SCORE POINT 2 (EXAMPLE B CONTINUED)

	Glass pieces 	Pipe cleaners 	Paper squares 	Pieces of sponge 
Tweezers 	2	10	0	10
Spoon 	9	9	10	8
Toothpick 	1	7	0	10

NECAP 2008 RELEASED ITEMS
GRADE 4 SCIENCE

SCORE POINT 1

- 14 a. Look at your prediction on page 5 in your Task Booklet. Now look at your data. Did your data support what you thought about what the shape of a bird's beak tells you about the kind of food it can eat?

Yes

No

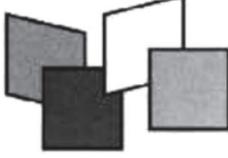
- b. Explain how your data and observations did or did not support your prediction.

It didn't because I thought the tweezers would pick up the most but really the spoon did.

The response states that the prediction is not supported by the data and tells the result of the investigation. However, the response does not cite any specific observations or any specific data to support the result.

NECAP 2008 RELEASED ITEMS
 GRADE 4 SCIENCE

SCORE POINT 1 (CONTINUED)

	Glass pieces 	Pipe cleaners 	Paper squares 	Pieces of sponge 
Tweezers 	0	9	10	10
Spoon 	9	6	9	6
Toothpick 	0	7	0	9

NECAP 2008 RELEASED ITEMS
GRADE 4 SCIENCE

SCORE POINT 0

- 14 a. Look at your prediction on page 5 in your Task Booklet. Now look at your data. Did your data support what you thought about what the shape of a bird's beak tells you about the kind of food it can eat?

Yes

No

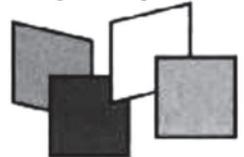
- b. Explain how your data and observations did or did not support your prediction.

My observation did not support
my prediction because I
got my prediction wrong.

The response does not indicate any of the results of the investigation or offer any explanation of how the conclusion was reached.

NECAP 2008 RELEASED ITEMS
 GRADE 4 SCIENCE

SCORE POINT 0 (CONTINUED)

	Glass pieces 	Pipe cleaners 	Paper squares 	Pieces of sponge 
Tweezers 	0	10	4	10
Spoon 	10	8	8	10
Toothpick 	0	10	0	10

**NECAP 2008 RELEASED ITEMS
GRADE 4 SCIENCE**

Broad Area of Inquiry: Developing and Evaluating Explanations

INQ4.12 (K–4) Use evidence to support and justify interpretations and conclusions or explain how the evidence refutes the hypothesis.

- 15 Use what you learned in your investigation and what you know about what birds eat to explain how the shape of a bird’s beak affects its survival.

Scoring Guide

Score	Description
3	Response correctly identifies a connection among types of bird beaks, how they help a bird to eat, and how this affects a bird’s survival.
2	Response partially identifies a connection among types of bird beaks, how they help a bird to eat, and/or how this affects a bird’s survival.
1	Response minimally identifies a connection among types of bird beaks, how they help a bird to eat, and/or how this affects a bird’s survival.
0	Response is incorrect or contains some work that is irrelevant to the skill or concept being measured.
Blank	No response

Training Notes:

- If a response is a good discussion of the topic but uses only a specific case as an example, the response can still receive a score of 3.

NECAP 2008 RELEASED ITEMS
GRADE 4 SCIENCE

SCORE POINT 3

- 15 Use what you learned in your investigation and what you know about what birds eat to explain how the shape of a bird's beak affects its survival.

The shape of a birds beak affects its survival. A bird has a spoon shaped beak than it can eat insects, worms, leaves and seeds. If you have a toothpick shaped beak than you can only pick up insects. If you have a tweezers shaped beak than you can pick up worms and insects.

The response identifies a connection between the shape of a bird's beak and the types of food the bird can eat. The response cites observations from the investigation to support the claim.

SCORE POINT 2 (EXAMPLE A)

- 15 Use what you learned in your investigation and what you know about what birds eat to explain how the shape of a bird's beak affects its survival.

I learned in my investigation that spoons pick up the most food and the toothpick picks up the least, because the shape of each bird's beak helps them get the food they need for survival.

The response discusses the relationship between the shape of a bird's beak and the bird's ability to find food to survive, but the response does not explain which foods correlate to which beak shapes or how beak shape might dictate which foods a bird is able to eat.

NECAP 2008 RELEASED ITEMS
GRADE 4 SCIENCE

SCORE POINT 2 (EXAMPLE B)

- 15 Use what you learned in your investigation and what you know about what birds eat to explain how the shape of a bird's beak affects its survival.

If a birds beak is skinny and long it
is harder to pick up food with.
But if your beak is like a spoon
then it is easier to pick up food with.

The response identifies that the shape of a bird's beak affects the bird's ability to pick up food and uses observations from the investigation as support. However, the response does not explain which types of food are easier/harder to pick up for birds with different beak shapes or why this might affect survival. The response partially identifies a connection between the shape of a bird's beak and the bird's ability to find food to survive, so it receives a score of 2.

NECAP 2008 RELEASED ITEMS
GRADE 4 SCIENCE

SCORE POINT 1

- 15 Use what you learned in your investigation and what you know about what birds eat to explain how the shape of a bird's beak affects its survival.

Because they need special beaks
to eat what they're supposed to eat.

The response gives a minimal correct statement but does not give any details from the investigation as support.

SCORE POINT 0

- 15 Use what you learned in your investigation and what you know about what birds eat to explain how the shape of a bird's beak affects its survival.

all Bird Beaks are not the
same

The response is not clear and does not attempt to explain how the shape of a bird's beak affects the bird's ability to find food to survive. The statement is too vague to receive any credit.

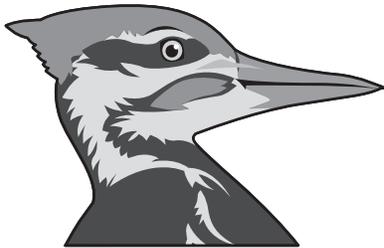
NECAP 2008 RELEASED ITEMS
GRADE 4 SCIENCE

Broad Area of Inquiry: Formulating Questions and Hypothesizing

INQ1.1 (K–4) Analyze information from observations, research, or experimental data for the purpose of formulating a question, hypothesis, or prediction: a) Appropriate for answering with scientific investigation; b) For answering using scientific knowledge.

16 Look at the bird and the foods shown below.

Bird



Food



Insect



Worm



Plant

Based on what you learned in your investigation, predict which food(s) a bird with this type of beak would eat and explain why.

**NECAP 2008 RELEASED ITEMS
GRADE 4 SCIENCE**

Scoring Guide

Score	Description
3	Response predicts the type of food the bird would eat and clearly explains why the bird would eat this type of food.
2	Response predicts the type of food the bird would eat and partially explains why the bird would eat this type of food.
1	Response predicts the type of food the bird would eat. Explanation for the prediction may be minimal.
0	Response is incorrect or contains some work that is irrelevant to the skill or concept being measured.
Blank	No response

Training Notes:

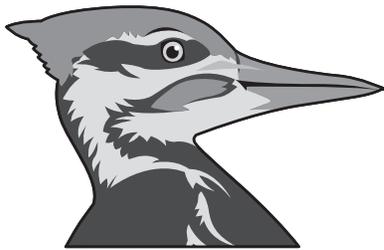
- If the prediction in the response is supported by evidence presented by the task, then full credit can be given—even if the evidence presented does not represent the expected results.

NECAP 2008 RELEASED ITEMS
GRADE 4 SCIENCE

SCORE POINT 3

16 Look at the bird and the foods shown below.

Bird



Food



Insect



Worm



Plant

Based on what you learned in your investigation, predict which food(s) a bird with this type of beak would eat and explain why.

Insects- Because a woodpecker uses his beak like the toothpick to get bugs out of a tree and the easiest thing to pick up with the toothpick was a sponge which represents a insect

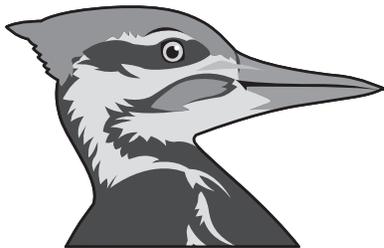
The response demonstrates a clear understanding of the analogies between the investigation and the real world. The response also demonstrates an understanding that the bird's beak is shaped like a toothpick and that the toothpick had the easiest time collecting sponges (which represent insects) in the investigation.

NECAP 2008 RELEASED ITEMS
GRADE 4 SCIENCE

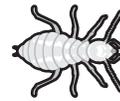
SCORE POINT 2

16 Look at the bird and the foods shown below.

Bird



Food



Insect



Worm



Plant

Based on what you learned in your investigation, predict which food(s) a bird with this type of beak would eat and explain why.

I think this birds food would be the bug because its sharp, pointy beak would be perfect for grabbing the insect.

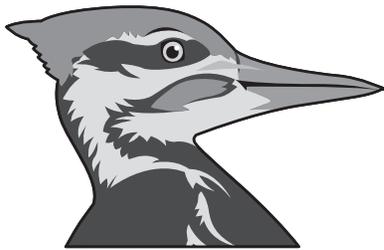
The response demonstrates an understanding of the connection between the question and the investigation. However, the response is not clearly connected to what the student learned in the investigation. The response does not fully explain why the bird's beak is "perfect for grabbing insects."

NECAP 2008 RELEASED ITEMS
GRADE 4 SCIENCE

SCORE POINT 1

16 Look at the bird and the foods shown below.

Bird



Food



Insect



Worm



Plant

Based on what you learned in your investigation, predict which food(s) a bird with this type of beak would eat and explain why.

This bird would eat the insect because it has that kind of beak.

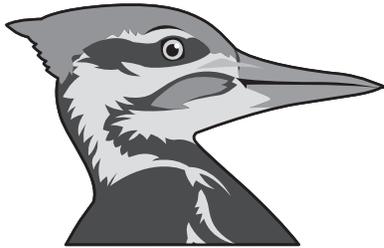
The response offers a prediction and a minimal explanation of why the food was chosen.

NECAP 2008 RELEASED ITEMS
GRADE 4 SCIENCE

SCORE POINT 0

16 Look at the bird and the foods shown below.

Bird



Food



Insect



Worm



Plant

Based on what you learned in your investigation, predict which food(s) a bird with this type of beak would eat and explain why.

that some bird I learned
UP all stuff. bird can not pick

The response does not answer the question. The response does not offer a prediction, so it receives no credit.

**NECAP 2008 RELEASED ITEMS
GRADE 4 SCIENCE**

Broad Area of Inquiry: Planning and Critiquing of Investigations

INQ2.5 (K–4) Develop an organized and logical approach to investigating the question, including controlling variables (DOK 2 – routine; DOK 3 – non-routine).

- 17 a. Write a plan Mr. Brown’s students can follow to help them answer their question.
- b. Identify one thing in your plan that will stay the same in the investigation.

Scoring Guide

Score	Description
3	Response provides a clear plan for Mr. Brown’s students to follow and identifies one thing that will stay the same. A reasonable control is clearly identified.
2	Response provides a clear plan for Mr. Brown’s students to follow but does not identify one thing that will stay the same. or Response provides a partial plan for Mr. Brown’s students to follow and identifies one thing that will stay the same.
1	Response provides a minimal plan for Mr. Brown’s students to follow. The one thing that will stay the same is missing or incorrect.
0	Response is incorrect or contains some work that is irrelevant to the skill or concept being measured.
Blank	No response

NECAP 2008 RELEASED ITEMS
GRADE 4 SCIENCE

SCORE POINT 3

- 17 a. Write a plan Mr. Brown's students can follow to help them answer their question.

Take a few bird feeders and fill them with different foods. Then hang them on the same branch, close together. That way, the bird will have to choose, instead of going to the one that's closest. Pick a student for each birdfeeder and have them keep track of the number of birds that go to the birdfeeder. After, compare the tallies!

- b. Identify one thing in your plan that will stay the same in the investigation.

The same amount of the food in the bird feeders.

For part (a), the response provides a clear plan for Mr. Brown's students. For part (b), the response demonstrates a clear understanding of the concept of controlled variables (using the same amounts of food, keeping the bird feeders on the same tree branch) and correctly identifies a controlled variable in the investigation. The response is enhanced by also offering a method to collect data.

NECAP 2008 RELEASED ITEMS
GRADE 4 SCIENCE

SCORE POINT 2

- 17 a. Write a plan Mr. Brown's students can follow to help them answer their question.

They should follow these steps:

1. Put out several bird feeders, each with a different kind of food.
2. Watch outside every day and make a chart for each bird feeder and amount of birds.
3. At the end of the week tally up your answers and look to see which had the most birds.

- b. Identify one thing in your plan that will stay the same in the investigation.

Watch outside every day.

For part (a), the response provides a clear plan, including data collection, for Mr. Brown's students. However, for part (b), the response does not demonstrate an understanding of controlled variables and fails to specifically identify a controlled variable in the investigation (time of day would have been acceptable).

NECAP 2008 RELEASED ITEMS
GRADE 4 SCIENCE

SCORE POINT 1

- 17 a. Write a plan Mr. Brown's students can follow to help them answer their question.

feed the birds
4 different foods and
see if one food
is more popular

- b. Identify one thing in your plan that will stay the same in the investigation.

the food

The response provides minimal answers to the questions. The response provides a minimal plan for Mr. Brown's students and demonstrates a minimal understanding of controlled variables and data collection. The controlled variable identified, "the food," is not specific enough ("amount of food" or "type of food in each feeder" would have been acceptable).

NECAP 2008 RELEASED ITEMS
GRADE 4 SCIENCE

SCORE POINT 0

- 17 a. Write a plan Mr. Brown's students can follow to help them answer their question.

Trees, Plants, Flowers,
if, there are dirt areas there maybe worms
or insects flying around maybe there
are ant hills or ants walking around.

- b. Identify one thing in your plan that will stay the same in the investigation.

the trees will stay the same and maybe
even the plants and flowers.

The response is irrelevant to the prompt. The response offers no evidence of a plan for Mr. Brown's students or the ability to design an investigation.