



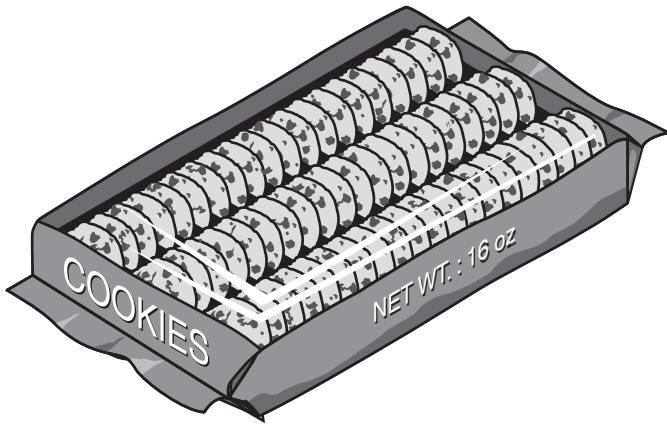
**NEW ENGLAND
COMMON ASSESSMENT PROGRAM**

**Released Items
2008**

**Grade 4
Science**

Science

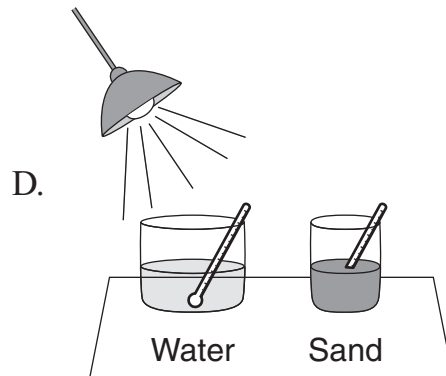
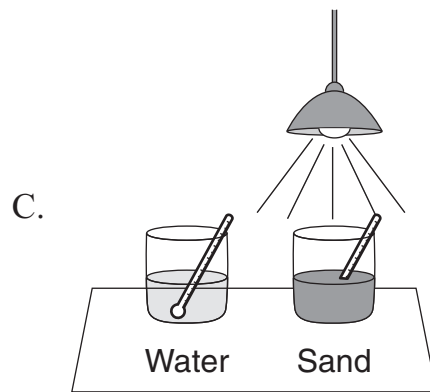
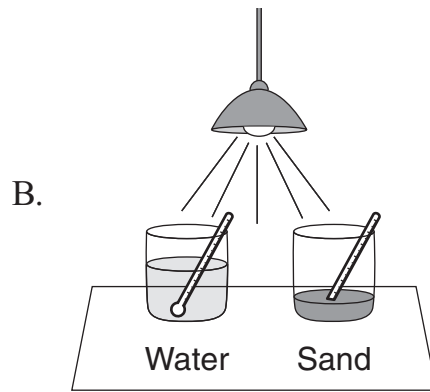
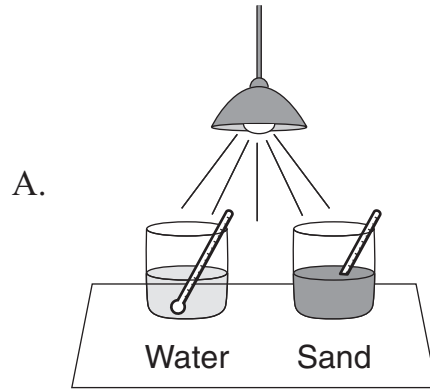
- 1 A teacher buys the package of cookies shown below at a store. The cookies in the package weigh 16 oz.



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

- 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?



- 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

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

Characteristics of Minerals

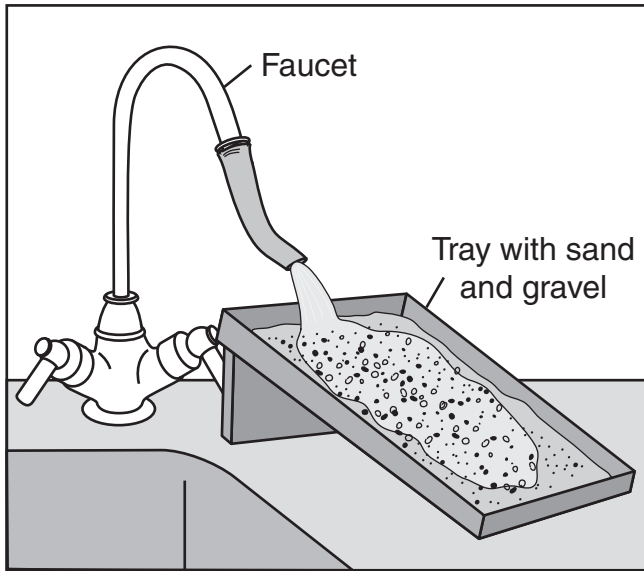
Mineral	Shiny or Dull	Magnetic
1	Dull	No
2	Shiny	No
3	Shiny	Yes
4	Shiny	No
5	Dull	No

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

- 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

- 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.

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.

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

9 Plants get energy from which source?

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

10 Which characteristic do children inherit from their birth parents?

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

Grade 4 Inquiry Task

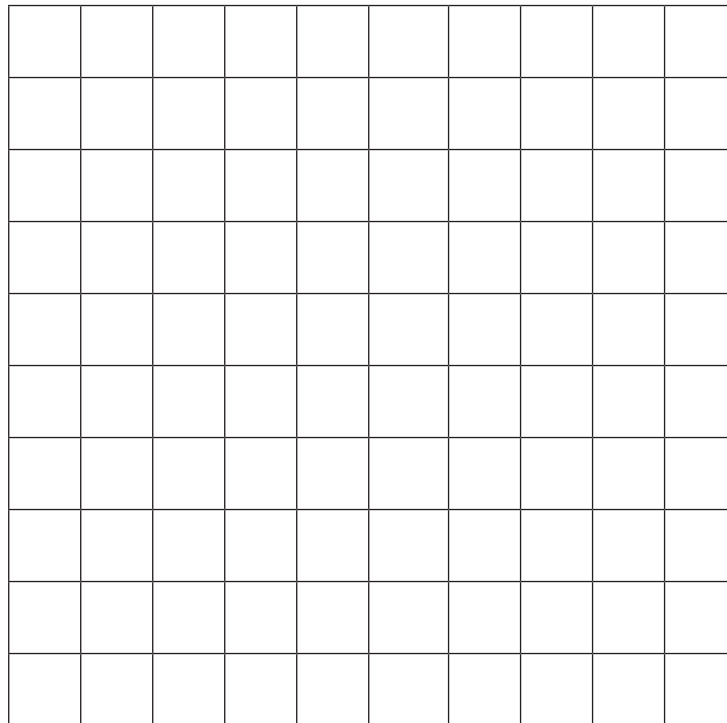
Directions:

Students should perform work in the Task Booklet before answering questions 11 through 17.

- 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

Analyzing and Using Your Results

Directions:

Use the data from your investigation to answer questions 12 through 15.

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

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.

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.

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.

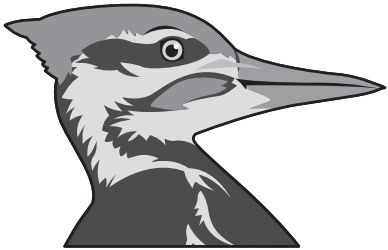
Applying What You've Learned

Directions:

Use the data from your investigation and what you know about bird beaks to answer questions 16 and 17.

16 Look at the bird and the foods shown below.

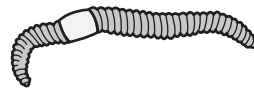
Bird



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.

Planning a New Investigation

Mr. Brown's class wants to learn more about the birds in their school yard and the kinds of food that they eat. The students want to answer this question:

Which type of food do birds in the school yard eat the most?

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.

Grade 4 Science Released Item Information

Released Item Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Big Idea ¹	SAE	SAE, INQ	INQ, SAE	INQ	INQ	INQ, SAE	FAF	INQ, POC	SAE	POC	INQ	INQ	INQ	INQ	INQ	INQ	INQ
Assessment Target	PS1.3	PS2.6	PS3.7	ESS1.1	ESS1.2	ESS1.4	ESS1.6	LS1.1	LS2.5	LS4.9	INQ3.8	INQ3.7	INQ4.11	INQ4.12	INQ4.12	INQ1.1	INQ2.5
Depth of Knowledge Code	2	2	2	2	2	2	2	2	1	1	2	2	2	2	3	3	3
Item Type ²	MC	MC	MC	MC	MC	MC	CR	MC	MC	MC	CR	SA	SA	SA	CR	CR	CR
Answer Key	B	A	A	C	C	B		A	C	D							
Total Possible Points	1	1	1	1	1	1	4	1	1	1	3	2	2	2	3	3	3

¹Big Idea: NOS = Nature of Science, SAE = Systems and Energy, MAS = Models and Scale, POC = Patterns of Change, FAF = Form and Function, INQ = Scientific Inquiry

²Item Type: MC = Multiple Choice, CR = Constructed Response, SA = Short Answer