STUDENT NAME _____
(please print)

Grade
5

New Jersey Student Learning Assessment–Science (NJSLA–S) Practice Test

FORM
A

Spring 2024

SCHOOL USE ONLY:

Sample Items

This test booklet contains several different types of test questions. See the samples below, which will help you understand how to respond to each question type.

Record/mark your answers by circling the answer in the test booklet. If you need to change an answer, be sure to erase your first answer completely. **Only the answers you write in your test booklet will be scored.**

One of the questions will ask you to write a response. Write your response in the box provided in the test booklet. Be sure to keep your response within the provided space. Only responses written within the provided space will be scored.

Sample Item 1. Multiple-Choice (Select one answer.)

Which claim about the Sun is accurate?

A. The Sun appears smaller and brighter than other stars because it is the closest star to Earth.

B. The Sun appears larger and brighter than any other star because it is the closest star to Earth.

C. The Sun appears larger and less bright than other stars because it is the farthest star from Earth.

D. The Sun appears smaller and less bright than any other star because it is the farthest star from Earth.

Sample Item 2. Multi-Select (Select multiple answers.)

Select **two (2)** answers for this item. The risk of an earthquake happening is **higher**

A. in the South than in Alaska.

B. on the West Coast than in the Northeast.

C. on the East Coast than on the West Coast.

D. in Alaska than in the center of the country.

E. in the center of the country than on the West Coast.

Sample Item 3. Multi-Select Box Item (Select one answer for each box.)

A student claims that a soccer ball has less energy after it hits a wall. Select the correct word from each box to complete the statement that explains why this claim is true.

When a soccer ball hits the wall, [Y] of the soccer ball's energy is transferred to the air in the form of [Z].

[Y]

A. all

B. some

C. none

[Z]

A. light

B. sound

Sample Item 4. Constructed Response (Write out your answer.)

Many New Jersey towns have started programs to reduce the amount of traffic on roads as a means to help improve air quality. Give **two (2)** examples of programs that would help reduce traffic and improve air quality.

Answers to Sample Questions

1. A (B) C D

2. A (B) C (D) E

3. [Y]
A (B) C

[Z]
A (B)

4. *Carpooling is one means to reduce the number of cars on the roads. Using public transit when available would also decrease the number of individual cars. Both of these measures would help improve air quality.*

Unit 3 Practice Test

Directions:

Today you will take Unit 3 of the Grade 5 New Jersey Student Learning Assessment–Science (NJSLA–S) Practice Test.

Read each question. Then, follow the directions to answer each question. Circle the answer or answers you have chosen in your test booklet. If you need to change an answer, be sure to erase your first answer completely.

If a question asks you to show or explain your work, you must do so to receive full credit. Only responses written within the provided space will be scored.

If you do not know the answer to a question, you may go on to the next question. If you finish early, you may review your answers and any questions you did not answer in this unit **ONLY**. Do not go past the stop sign.

Use the information below to answer questions 1–3.

Butter melts even though it is not directly heated.

In Trial 1 of an investigation, 300 milliliters of water at 55°C was placed into a cup. Then 5 grams of butter at 22°C (room temperature) was placed into the bowl of a spoon. Only the handle of the spoon was placed in the cup of water as shown in Figure 1.

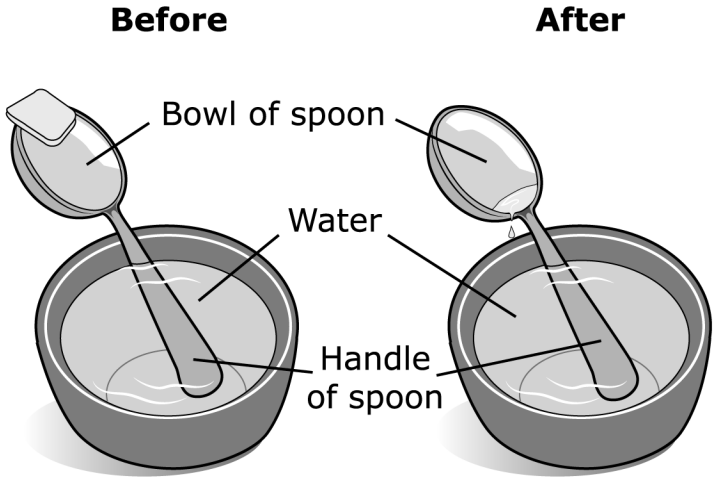

Figure 1. Melting Butter Investigation

An additional trial was performed in which only the temperature of the water was changed. The data are shown in Table 1.

Table 1. Data from Melted Butter Investigation

Trial	Amount of Butter on Spoon (grams)	Temperature of Water in Cup (°C)	Speed of Melting
1	5	55	Slower than Trial 2
2	5	80	Faster than Trial 1

1. Based on the data, which is the **best** prediction for how warm the water in the cup in Trial 1 will be if left on a counter for two hours?

A. 15°C

B. 22°C

C. 55°C

D. 80°C

2. Suppose the water in the cup was 100°C. Based on Table 1, predict what would happen.

Complete the sentence by choosing the correct answer from each box.

The butter would most likely melt **X** than **Y** because **Z** heat energy would be transferred.

X

A. faster

B. slower

Y

A. Trial 1 only

B. Trial 2 only

C. both trials

Z

A. less

B. more

3. Which question can be answered by analyzing the data?

A. Do higher water temperatures transfer more heat energy?

B. Will more butter melt faster when heated at the same temperature?

C. How many minutes does it take for heat energy to transfer and melt the butter?

D. Will a larger spoon melt the butter faster when heated at the same temperature?

Use the information below to answer questions 4–6.

The overall health of an ecosystem is dependent on interactions between organisms.

Organisms and their food sources from an ocean ecosystem are shown in Table 1.

Table 1. Organisms in an Ocean Food Web

Organism	Food Source
Crabs	Sea snails
Fish	Seaweed
Octopuses	Fish, sea snails, crabs
Seagulls	Fish, crabs
Sea snails	Seaweed
Seaweed	Makes food from sunlight

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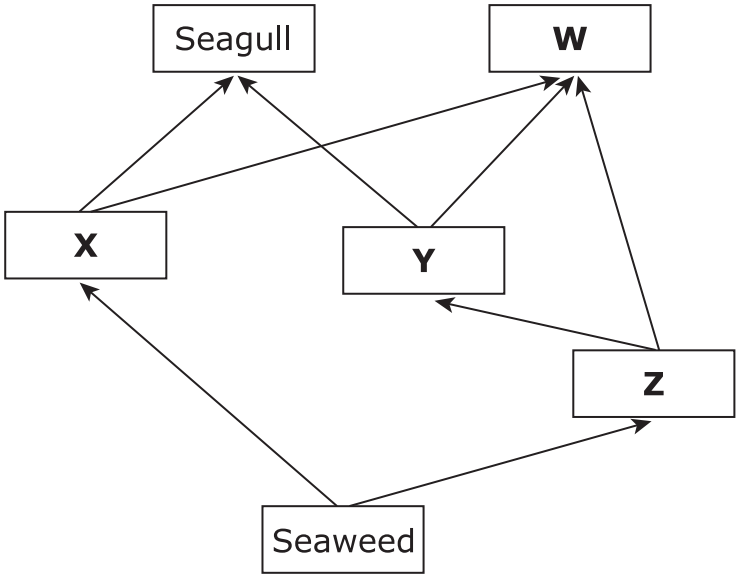
4. Based on Table 1, complete the food web and show how animals, even if they do not eat plants, still get energy from plants.

Complete the food web by choosing the correct animal for each box.



W

A. Crab

B. Fish

C. Octopus

D. Sea Snail

X

A. Crab

B. Fish

C. Octopus

D. Sea Snail

(Item 4 continued)

Y

A. Crab

B. Fish

C. Octopus

D. Sea Snail

Z

A. Crab

B. Fish

C. Octopus

D. Sea Snail

5. Based on Table 1, an answer to which question would **best** help biologists determine if the ecosystem is healthy?

A. What is the temperature range of the ecosystem?

B. How many organisms live in freshwater instead of salt water?

C. What is the average yearly amount of precipitation in the ecosystem?

D. How many species of plants and animals are present in the ecosystem?

6. Based on Table 1, a student claims that a rapid decrease in the snail population would impact many other organisms in the ecosystem. Describe the changes that would be expected if the student's claim is correct.

Complete the sentence by choosing the correct answer from each box.

If the snail population rapidly decreases, both [X] populations would decrease and the [Y] population would [Z].

[X]

A. fish and crab

B. octopus and crab

[Y]

A. octopus

B. seaweed

[Z]

A. increase

B. decrease

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GO ON →

Use the information below to answer questions 7–9.

Three tokens may be the same size and look similar, but when inserted into the same arcade game, only one of the tokens will start the game.

Tokens look a lot like coins and can be used to play games in arcades. Students collect three tokens, each made from a different metal. The students want to determine the composition of each token, so they collect data on some of the properties, as shown in Table 1.

Table 1. Properties of Three Tokens

Token	Color	Mass (grams)	Magnetic
 1	Gold	9	No
 2	Silver	9	Yes
 3	Silver	7	No

GO ON →

Figure 1 shows an arcade game in which a token may be used.

Figure 1. Claw Arcade Game

7. Based on Table 1, which tools did the students use to collect the data?

Select **two (2)** of the five tools.

A. a beaker

B. a magnet

C. a balance

D. a test tube

E. a microscope

8. Copper is gold in color and not magnetic. Zinc is silver in color and not magnetic. Nickel is silver in color and magnetic. Based on Table 1, identify the metal that likely was used to make each token.

Complete the table by selecting the correct answer from each box.

Table 2. Properties of Three Tokens

Token	Metal	Mass (grams)	Magnetic
1	X	9	No
2	Y	9	Yes
3	Z	7	No

X

A. Zinc

B. Nickel

C. Copper

Y

A. Zinc

B. Nickel

C. Copper

Z

A. Zinc

B. Nickel

C. Copper

9. If a student placed a conventional coin, such as a quarter, or any object other than the correct token into an arcade game, the game would not recognize the object and would not work. If the claw game in Figure 1 rejected Token 1 and Token 3, which statement **best** describes how this claw arcade game was designed?

This claw arcade game was designed to accept tokens that

A. are magnetic.

B. are non-magnetic.

C. have a silver color.

D. have a mass of 9 grams.

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Use the information below to answer questions 10–13.

Understanding the life cycle of brood cicadas helps people know if and when their New Jersey town will be overrun by these insects.

Based on New Jersey Department of Agriculture records, some areas in Mercer and Monmouth Counties have been home to Brood X cicadas since the early 1800s. Figure 1 illustrates the life cycle of brood cicadas.

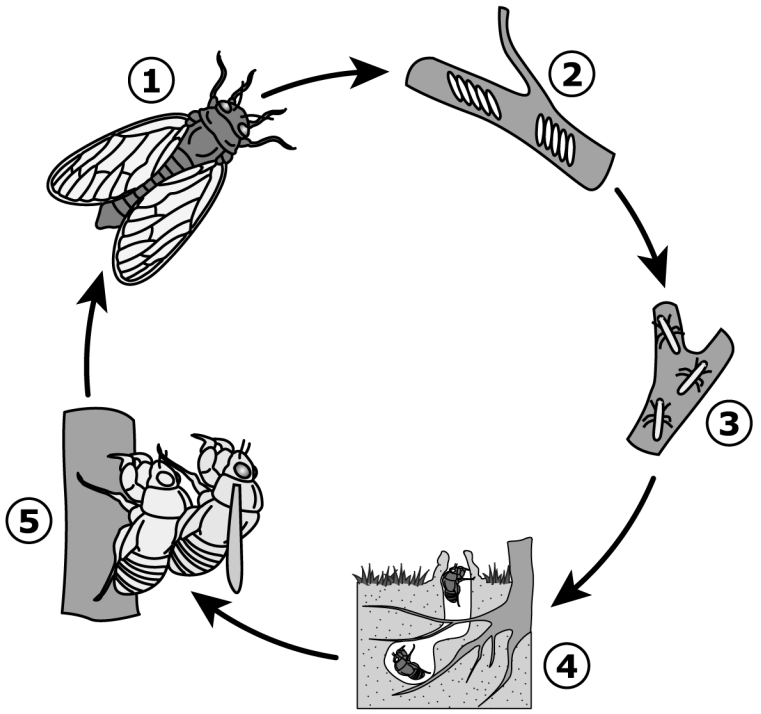

Figure 1. Life Cycle of the Brood Cicada

Table 1 describes each stage of the brood cicada life cycle.

Table 1. Description of the Life Cycle Stages of the Brood Cicada

Step	Description of Step
1	Only male cicadas produce a loud mating call to attract females. Males live between two and four weeks.
2	After mating, females lay as many as 600 eggs in small slits on a tree or shrub's twig-like branches.
3	Nymphs are born 6 to 10 weeks later. The nymphs fall out of the trees and burrow about 6 to 18 inches underground.
4	Nymphs spend years growing while eating the sap in tree roots. When the soil reaches 64°F, all the mature nymphs come out of the ground at the same time.
5	The nymphs molt and shed their skin, leaving behind an insect casing.

Brood II and Brood X are the largest broods found in New Jersey. Figure 2 shows a timeline that indicates the year each brood is predicted to make its next appearance.

Timeline Appearance of Cicada Broods in New Jersey

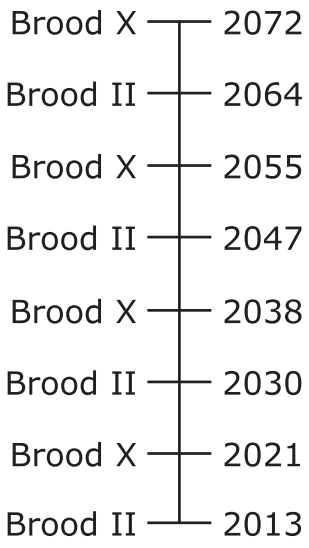

Figure 2.

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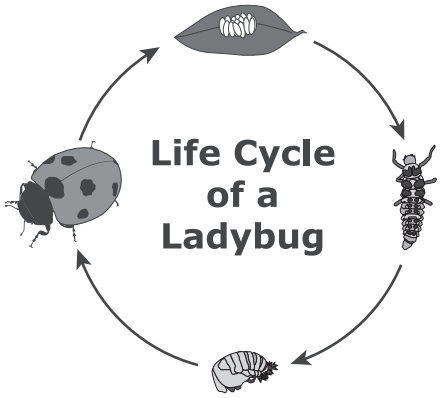
10. Based on Figure 1, which insect life cycles have stages **least** similar to those of cicadas?

Select **two (2)** of the five life cycles.

A.



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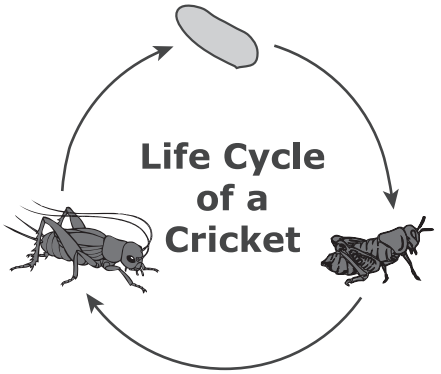

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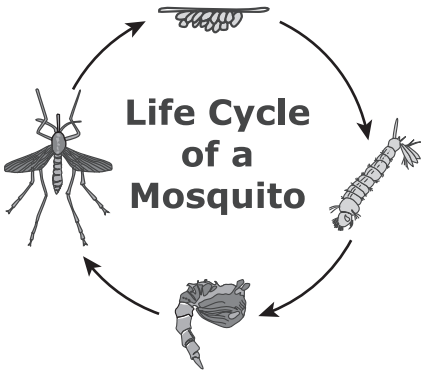
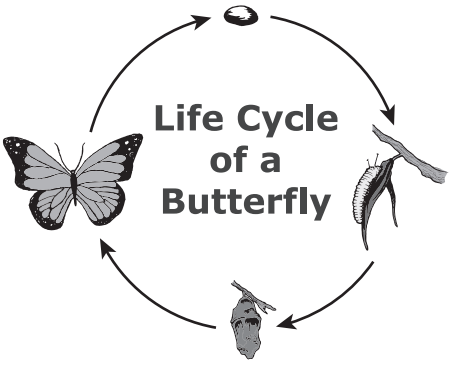
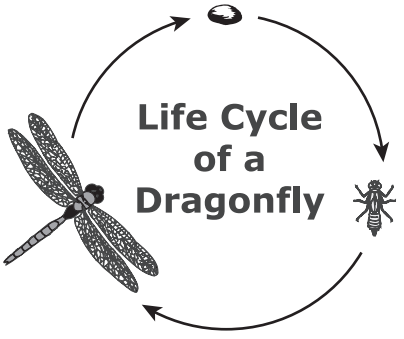
C.



D.



E.



11. Identify whether each claim is supported or is not supported by Figure 1 and Table 1.

Select all the correct answers.

Nymphs molt underground

A. Supported

B. Not supported

A cicada has a nymph stage before it reaches the adult stage.

A. Supported

B. Not supported

Reproduction takes place in both the nymph stage and the adult stage.

A. Supported

B. Not supported

Molting must take place in order for the cicada to reach the adult stage.

A. Supported

B. Not supported

12. The life-stage patterns of brood cicadas are predictable. Based on Figure 2, describe their life stages.

Complete the sentences by choosing the correct answer from each box.

After 2064, the next appearance of Brood II cicadas will likely be in **Y**. After 2072, the next appearance of Brood X cicadas will likely be in **Z**.

Y

A. 2080

B. 2081

C. 2082

Z

A. 2089

B. 2090

C. 2091

13. A typical food chain for adult cicadas that live above ground is shown.

Sun → Sap from plant roots and stems → Cicada → Lizard → Snake

Suppose underground predators, such as moles, ate an entire colony of cicada nymphs. Which impact, if any, would this **most likely** have on the aboveground food chain?

A. The lizard population would decrease because they would have lost a food source.

B. The snake population would increase because there would no longer be competition for food from lizards.

C. The plant population would decrease because there would no longer be cicada nymphs to provide nutrients.

D. There would be no impact because the lizards would start eating the plants and the snakes would continue to eat lizards.

Use the information below to answer questions 14–18.

Composting is nature's way of recycling.

New Jersey has four separate recycling classes. Table 1 describes the types of materials that can be recycled in the four classes.

Table 1. Types of Materials That Can Be Recycled in New Jersey

Class	Description of Items in Each Class
A	Metal, glass, paper, plastic containers, cardboard
B	Roofing materials, unpainted wood, concrete, bricks, tires; tree parts, such as limbs and stumps
C	Plant matter, such as grass and leaves, as well as food matter
D	Used oil, batteries, pesticides, paint, antifreeze

Non-recycled solid waste gets sent to a landfill, where it breaks down slowly over time. The waste often arrives inside plastic trash bags. Once in the landfill,

- the trash bags often break open as the waste is moved around in big piles.
- the deep piles do not allow for large amounts of air to move around.
- toxic gases are released as waste breaks down.

A landfill is shown in Figure 1. Items in the landfill are not drawn to scale.

Figure 1. Landfill

Table 2 shows the approximate time it takes for certain solid waste items to break down in a landfill.

Table 2. Time for Items to Break Down in a Landfill

Item	Length of Time to Break Down
Paper	2 weeks–2 months
Banana peels	1 month
Grass clippings and leaves	1–6 months
Orange peels	6 months
Tree limbs and stumps	50–100 years
Metal cans	50–200 years
Plastic bottles	450 years
Glass bottles	Undetermined (possibly millions of years)

Figure 2A shows how the population of the United States compares to other countries. Figure 2B shows the amount of trash produced each year in the United States compared to other countries.

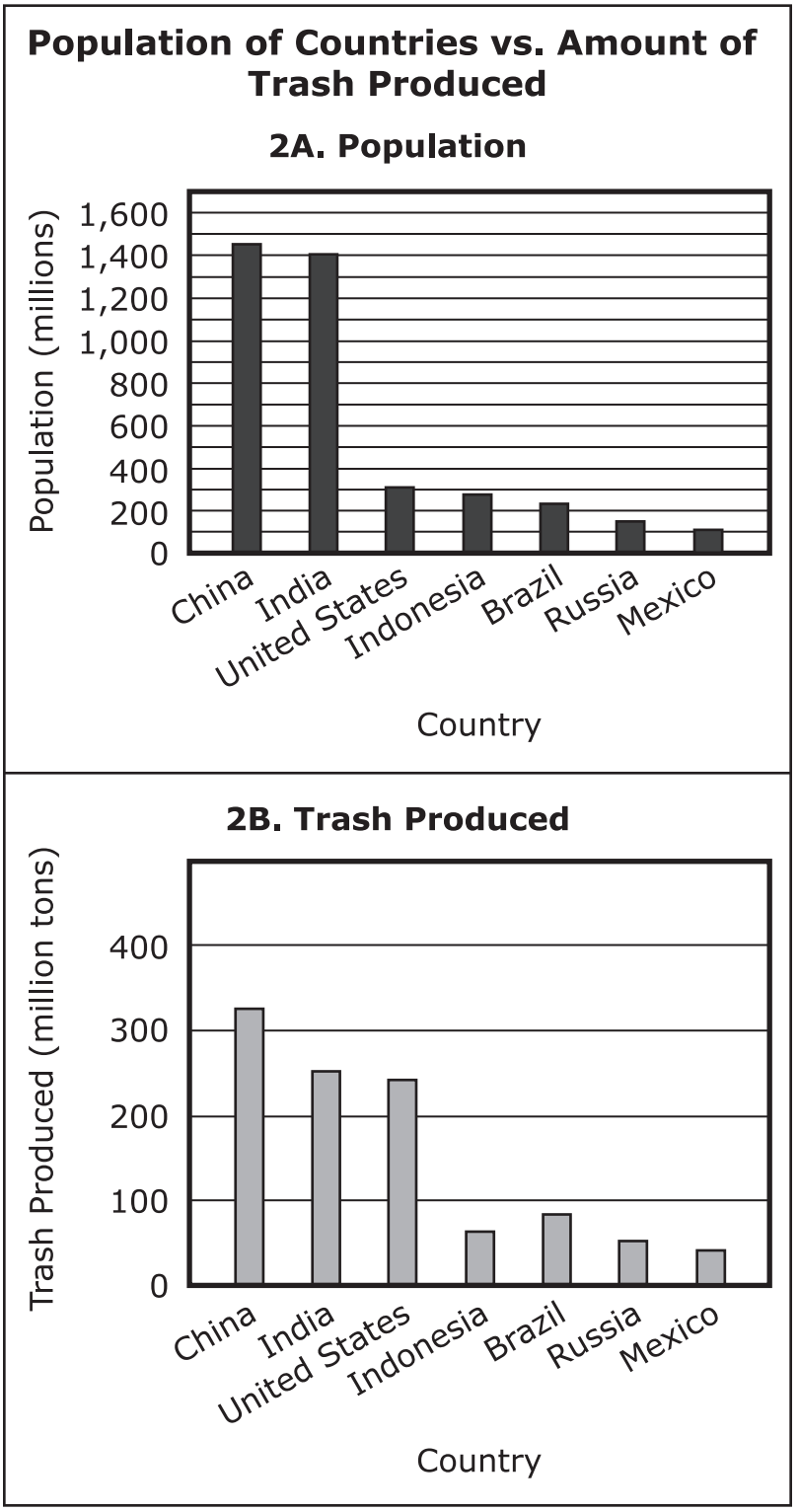


Figure 2.

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A compost pile is a way to dispose of food and yard waste. Compost is high in plant and soil nutrients. A model of the composting process is shown in Figure 3.

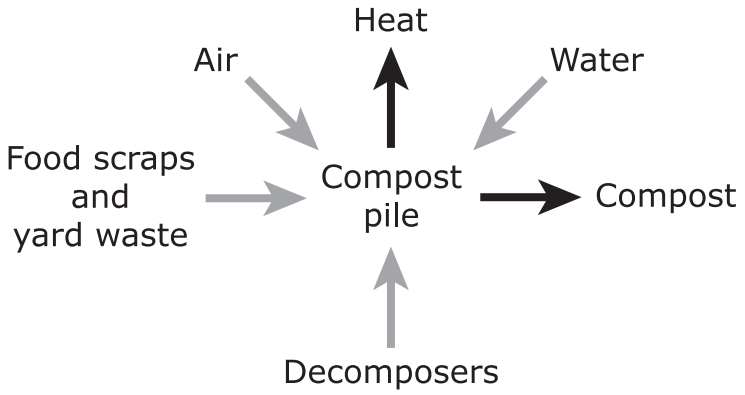

Figure 3. Compost Process

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14. A town wants to reduce the amount of recyclable solid waste that ends up in its landfill. Based on the data, which question should the town planners be concerned with answering to **best** approach this goal?

A. Why are some materials not recyclable?

B. Is there a need to increase the size of landfills or build additional landfills?

C. Why does it take so long for recyclable materials to break down in landfills?

D. How can residents be encouraged to stop putting recyclable waste in the trash?

15. Identify whether each claim about solid waste is supported or is not supported by Table 2.

Select all the correct answers.

More solid waste is recycled in New Jersey than ends up in landfills.

A. Supported

B. Not supported

A glass jar should always be recycled because it takes the longest to break down.

A. Supported

B. Not supported

A plastic container would take less time than a metal container to break down in the landfill.

A. Supported

B. Not supported

16. Based on Figure 3, explain the role of decomposers in the process of composting.

Complete the sentences by choosing the correct answer from each box.

Decomposers [Y] food and yard waste to produce compost. To complete the process, decomposers require [Z].

[Y]

A. break down

B. add nutrients to

[Z]

A. only air

B. only water

C. both air and water

17. Communities should encourage the composting of food and yard waste. Based on the data, describe **two (2)** positive environmental effects of composting and the use of compost in New Jersey communities.

Enter your answer in the box.

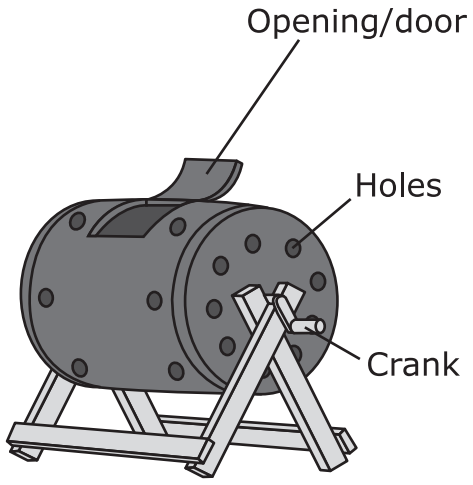
(Item 17 continued)

Some people in the community argue that food and yard waste already break down in existing landfills. Based on the data, provide **one (1)** reason why the composting process does not happen as efficiently in landfills as it does in people's backyards.

Enter your answer in the box.

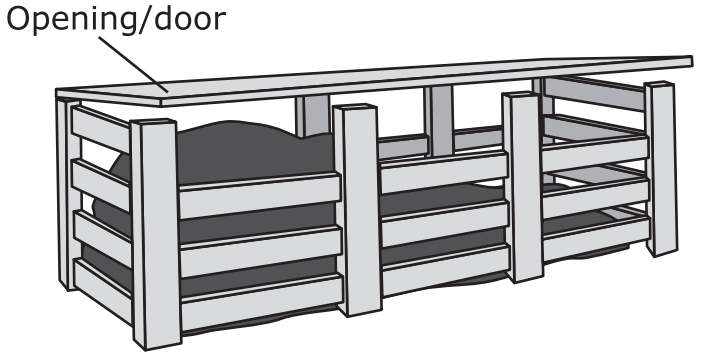
18. Two types of home composters are shown in Figure 4. Some composters are metal and have a crank that allows the container to rotate, as in Composter 1 (Figure 4A). Some are made of wood and have separate areas to store the material being composted, as in Composter 2 (Figure 4B).

4A. Composter 1



Composter 1 holds 16 cubic feet of compost.

4B. Composter 2



Composter 2 holds 32 cubic feet of compost.

Figure 4. Model of Two Home Composters

A person is trying to decide which home composter works best. Based on Figure 3 and Figure 4, compare the two composters by filling out the checklist.

(Item 18 continued)

Select all the correct answers.

Preserves more heat

A. Composter 1

B. Composter 2

Exposes yard waste to more air and water

A. Composter 1

B. Composter 2

Holds the greatest amount of food scraps and yard waste

A. Composter 1

B. Composter 2

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You have reached the end of Unit 3 of the test.

- **Review your answers from Unit 3.**