Directions:

Today, you will be taking the Grade 7 English Language Arts/Literacy Performance-Based Assessment Practice Test.

Read each passage and all questions carefully. Some questions will ask you to choose one correct answer, while others will ask you to choose more than one correct answer. You may look back at the passage or passages as often as necessary.

Mark your answers by filling in the circles in your test booklet. Do not make any stray marks in the test booklet. If you need to change an answer, be sure to erase your first answer completely.

To answer a question that asks you to pick one answer, fill in the circle as follows:

Ⓐ●ⒸⒹⒺⒻⒼ

To answer a question that asks you to pick more than one answer, fill in the circles as follows:

Ⓐ●Ⓒ●●ⒻⒼ

Some questions will ask you to provide a written response to the passages you have read. You may plan your response using scratch paper. Be sure to write your response in the box provided in your test booklet. Crossed-out work, writing that falls outside of the box, or work on scratch paper will not be scored.

If you do not know the answer to a question, you may skip it and go on. If you finish the test early, you may review your answers and any questions you may have skipped.

Today you will research electricity and consider some of the methods used in science texts to support different purposes. First, you will read a passage that explains some general principles of electricity. Then you will read an article about what causes a short circuit. Finally, you will read an article that explains how different materials conduct electricity. As you review these sources, think about the purpose of each and the role that explanations, examples, and descriptions play in communicating that purpose. At the end of the task, you will be asked to write an essay.

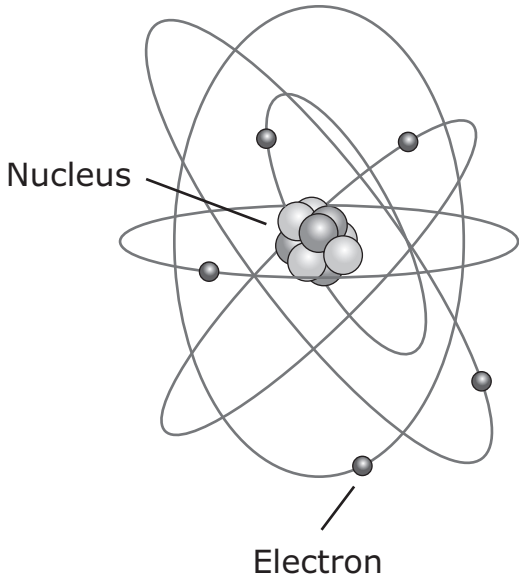
Read the passage titled "Energy Story." Then answer questions 1 through 3.

Energy Story

1 Electricity figures everywhere in our lives. Electricity lights up our homes, cooks our food, powers our computers, television sets, and other electronic devices. Electricity from batteries keeps our cars running and makes our flashlights shine in the dark.

2 Here's something you can do to see the importance of electricity. Take a walk through your school, house or apartment and write down all the different appliances, devices and machines that use electricity. You'll be amazed at how many things we use each and every day that depend on electricity.

3 But what is electricity? Where does it come from? How does it work? Before we understand all that, we need to know a little bit about atoms and their structure.



4 All matter is made up of atoms, and atoms are made up of smaller particles. The three main particles making up an atom are the proton, the neutron and the electron.

5 Electrons spin around the center, or nucleus, of atoms, in the same way the moon spins around the earth. The nucleus is made up of neutrons and protons.

6 Electrons contain a negative charge, protons a positive charge. Neutrons are neutral—they have neither a positive nor a negative charge.

7 There are many different kinds of atoms, one for each type of element. An atom is a single part that makes up an element. There are 118 different known elements that make up every thing! Some elements like oxygen we breathe are essential to life.

8 Each atom has a specific number of electrons, protons and neutrons. But no matter how many particles an atom has, the number of electrons usually needs to be the same as the number of protons. If the numbers are the same, the atom is called balanced, and it is very stable.

9 So, if an atom had six protons, it should also have six electrons. The element with six protons and six electrons is called carbon. Carbon is found in abundance in the sun, stars, comets, atmospheres of most planets, and the food we eat. Coal is made of carbon; so are diamonds.

10 Some kinds of atoms have loosely attached electrons. An atom that loses electrons has more protons than electrons and is positively charged. An atom that gains electrons has more negative particles and is negatively charged. A "charged" atom is called an "ion."

GO ON ▶

11 Electrons can be made to move from one atom to another. When those electrons move between the atoms, a current of electricity is created. The electrons move from one atom to another in a "flow." One electron is attached and another electron is lost.

12 This chain is similar to the fire fighter's bucket brigades in olden times. But instead of passing one bucket from the start of the line of people to the other end, each person would have a bucket of water to pour from one bucket to another. The result was a lot of spilled water and not enough water to douse the fire. It is a situation that's very similar to electricity passing along a wire and a circuit. The charge is passed from atom to atom when electricity is "passed."

13 Scientists and engineers have learned many ways to move electrons off of atoms. That means that when you add up the electrons and protons, you would wind up with one more proton instead of being balanced.

14 Since all atoms want to be balanced, the atom that has been "unbalanced" will look for a free electron to fill the place of the missing one. We say that this unbalanced atom has a "positive charge" (+) because it has too many protons.

15 Since it got kicked off, the free electron moves around waiting for an unbalanced atom to give it a home. The free electron charge is negative, and has no proton to balance it out, so we say that it has a "negative charge" (-).

16 So what do positive and negative charges have to do with electricity?

17 Scientists and engineers have found several ways to create large numbers of positive atoms and free negative electrons. Since positive atoms want negative electrons so they can be balanced, they have a strong attraction for the electrons. The electrons also want to be part of a balanced atom, so they have a strong attraction to the positive atoms. So, the positive attracts the negative to balance out.

18 The more positive atoms or negative electrons you have, the stronger the attraction for the other. Since we have both positive and negative charged groups attracted to each other, we call the total attraction "charge."

19 Energy also can be measured in joules. Joules sounds exactly like the word jewels, as in diamonds and emeralds. A thousand joules is equal to a British thermal unit.

20 When electrons move among the atoms of matter, a current of electricity is created. This is what happens in a piece of wire. The electrons are passed from atom to atom, creating an electrical current from one end to the other, just like in the picture.

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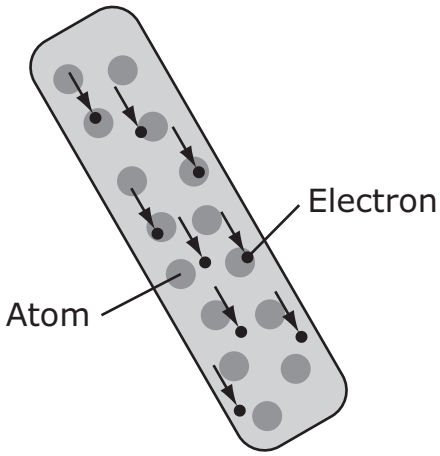


21 Electricity is conducted through some things better than others. Its resistance measures how well something conducts electricity. Some things hold their electrons very tightly. Electrons do not move through them very well. These things are called insulators. Rubber, plastic, cloth, glass and dry air are good insulators and have very high resistance.

22 Other materials have some loosely held electrons, which move through them very easily. These are called conductors. Most metals—like copper, aluminum or steel—are good conductors.

"Energy Story" from http://energyquest.ca.gov/story/index.html—Public Domain/California Energy Commission

1. **Part A**

In paragraph 12 of "Energy Story," what does the word **circuit** mean?

Ⓐ a conductor

Ⓑ a balance

Ⓒ a charge

Ⓓ a path

Part B

Which sentence from "Energy Story" **best** supports the answer in Part A?

Ⓐ "Each atom has a specific number of electrons, protons and neutrons."

Ⓑ "So, if an atom had six protons, it should also have six electrons."

Ⓒ "The charge is passed from atom to atom when electricity is 'passed.'"

Ⓓ "Most metals—like copper, aluminum or steel—are good conductors."

2. **Part A**

Why does the author **most likely** place the information in paragraphs 1–2 at the beginning of "Energy Story"?

Ⓐ to encourage the reader to learn how electronic devices are made

Ⓑ to show the reader how different machines can improve our lives

Ⓒ to draw the reader in by showing how electricity affects everyone

Ⓓ to teach the reader how to use electricity in different settings

Part B

Which detail from "Energy Story" **best** supports the answer in Part A?

Ⓐ ". . . walk through your school, house or apartment . . ."

Ⓑ ". . . how many things we use each and every day that depend on electricity."

Ⓒ ". . . in the same way the moon spins around the earth."

Ⓓ ". . . each person would have a bucket of water to pour from one bucket to another."

3. **Part A**

Which sentence **best** states the central idea of paragraphs 21–22 in "Energy Story"?

Ⓐ Materials that are insulators and conductors have a high resistance to electricity.

Ⓑ It is more difficult for electricity to pass through insulators than conductors.

Ⓒ Insulators and conductors are able to generate a high amount of electricity.

Ⓓ Electrons move through rubber easier than they move through metal.

Part B

Which sentence from "Energy Story" **best** supports the answer in Part A?

Ⓐ "Electricity is conducted through some things better than others."

Ⓑ "Its resistance measures how well something conducts electricity."

Ⓒ "Some things hold their electrons very tightly."

Ⓓ "Other materials have some loosely held electrons, which move through them very easily."

Read the article "Short Circuit." Then answer questions 4 through 7.

Short Circuit

What happens when you blow a fuse?

Current flowing through a wire heats the wire. The length of a wire affects its resistance, which determines how much current flows in the wire and how hot the wire gets.

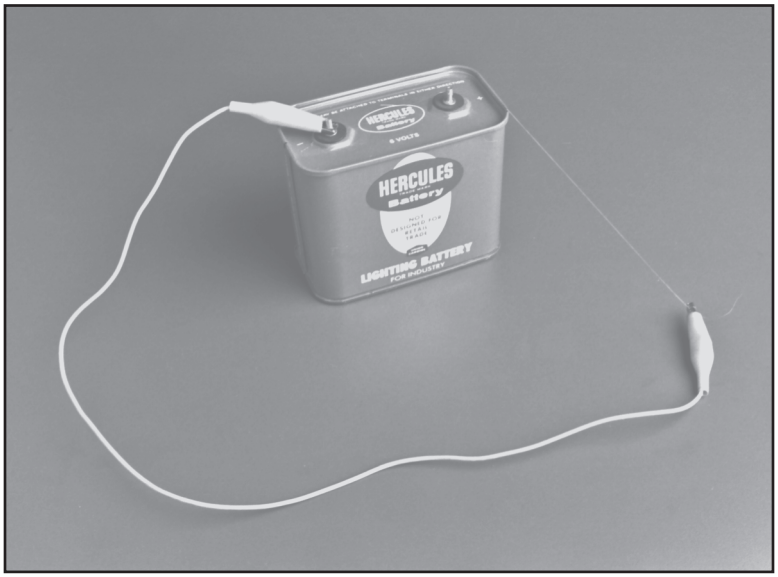
Materials

- **A fresh 6-volt or 12-volt lantern battery.**
- **A length of copper wire** with alligator clips attached to each end (or a test lead) from any electronics supply store.
- **A strand of very fine iron wire,** about 5 to 6 inches (13 to 15 cm) long. (You can get this by unbraiding a short length of picture-hanging wire or any braided iron wire.)
- **Adult help**

Assembly

(5 minutes or less)

1 Attach one end of the clip lead to one of the battery terminals. Attach one end of the fine iron wire to the other terminal. Attach the other end of the clip lead to the other end of the iron wire, placing the clip as far from the terminal as possible.



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To Do and Notice

(15 minutes or more)

2 Observe what happens to the iron wire after you connect the clip. Move the clip on the iron wire a little closer to the battery and watch what happens. Keep moving the lead closer until you see the final dramatic result. (*CAUTION*: The wire gets very hot!)

What's Going On?

3 The thin iron wire is a good conductor of electricity, but not as good as the copper wire, which is deliberately chosen to have very low resistance. Thus, most of the resistance of the circuit is in the iron wire. When you connect the clip to the iron wire, the voltage of the battery pushes electrons through the circuit against the resistance of the iron wire, causing the iron wire to heat up. As you move the clip closer to the battery, the resistance of the iron wire decreases. Because the same voltage is applied across a lower resistance, more current flows, and the wire heats up more. Eventually, when you make the iron wire short enough, so much current flows that it melts the wire. Even the copper wire becomes warm.

4 In a normal electric circuit, an electric current powers an appliance, such as a refrigerator or TV. Every such appliance has a certain amount of resistance to the current flow, which keeps the current from reaching very large values. A *short circuit* occurs when the current finds a way to bypass the appliance on a path that has little or no resistance—for example, where frayed insulation bares a wire and allows it to touch the frame of the appliance, so the current can flow straight to the ground. In this situation, a very large current can occur, producing a lot of heat and a fire hazard.

5 Although houses today often contain circuit breakers rather than fuses, fuses are still around. A fuse contains a thin strip of wire, somewhat like the thin iron wire in our experiment. The current that goes to appliances must also pass through this strip of wire. If a short circuit occurs—or even if too many appliances get hooked up to one wire, so that too much current flows—the wire in the fuse heats up quickly and melts, breaking the circuit and preventing a fire from breaking out.

GO ON ▶

4. **Part A**

Which phrase is closest in meaning to the word **deliberately** as it is used in paragraph 3 of "Short Circuit"?

Ⓐ for the most part

Ⓑ by general agreement

Ⓒ with short notice

Ⓓ with careful consideration

Part B

Which detail from "Short Circuit" provides the **best** clue to the meaning of the word **deliberately**?

Ⓐ "good conductor"

Ⓑ "not as good"

Ⓒ "chosen to"

Ⓓ "very low"

GO ON ▶

5. **Part A**

Which sentence **best** states a central idea of "Short Circuit"?

Ⓐ Appliances can be destroyed by a heavy flow of electrons.

Ⓑ The flow of electrons follows a path of least resistance.

Ⓒ Fuses are an important means to keep homes safe from electrical hazards.

Ⓓ Circuit breakers are a tool to control the flow of electricity in homes.

Part B

Which detail from the article provides the **best** example of the central idea in Part A?

Ⓐ "In a normal electric circuit, an electric current powers an appliance, such as a refrigerator or TV."

Ⓑ "Every such appliance has a certain amount of resistance to the current flow, which keeps the current from reaching very large values."

Ⓒ "Although houses today often contain circuit breakers rather than fuses, fuses are still around."

Ⓓ ". . . the wire in the fuse heats up quickly and melts, breaking the circuit and preventing a fire from breaking out."

GO ON ▶

6. **Part A**

Which step of the experiment is repeated multiple times in "Short Circuit"?

Ⓐ Use an alligator clip to attach a copper wire to a battery terminal.

Ⓑ Attach one end of an iron wire to the other battery terminal.

Ⓒ Use a second alligator clip to attach the other end of the copper wire to the iron wire.

Ⓓ Shorten the distance between the second alligator clip and the battery.

Part B

A result occurs when the step is repeated in the experiment. Which phrase from "Short Circuit" shows the result of the repeated step that is the answer to Part A?

Ⓐ ". . . deliberately chosen to have very low resistance."

Ⓑ ". . . voltage of the battery pushes electrons through the circuit . . ."

Ⓒ ". . . more current flows . . ."

Ⓓ ". . . which keeps the current from reaching very large values."

7. **Part A**

Which paragraph **best** summarizes the conclusions of the experiment in "Short Circuit"?

Ⓐ paragraph 2

Ⓑ paragraph 3

Ⓒ paragraph 4

Ⓓ paragraph 5

Part B

Identify **three** details from "Short Circuit" that provide the **best** summary of the conclusions in the experiment.

Ⓐ Most houses have circuit breakers.

Ⓑ Frayed wires can touch appliances.

Ⓒ Iron wire is a good conductor of electricity.

Ⓓ The length of a wire affects its resistance.

Ⓔ Electric current powers appliances.

Ⓕ A short circuit occurs when there is a high flow of current with low resistance.

Ⓖ Appliances can short-circuit, creating a fire hazard.

GO ON ▶

Read the article titled "Conducting Solutions." Then answer questions 8 and 9.

Conducting Solutions

by Rodney Schreiner

1 An electric current is a flow of electrical charge. When a metal conducts electricity, the charge is carried by electrons moving through the metal. Electrons are subatomic particles with a negative electrical charge. When a solution conducts electricity, the charge is carried by ions moving through the solution. Ions are atoms or small groups of atoms that have an electrical charge. Some ions have a negative charge and some have a positive charge.

2 Pure water contains very few ions, so it does not conduct electricity very well. When table salt is dissolved in water, the solution conducts very well, because the solution contains ions. The ions come from the table salt, whose chemical name is sodium chloride. Sodium chloride contains sodium ions, which have a positive charge, and chloride ions, which have a negative charge. Because sodium chloride is made up of ions, it is called an ionic substance.

3 Not all substances are made up of ions. Some are made of uncharged particles called molecules. Sugar is such a substance. When sugar is dissolved in water, the solution does not conduct electricity, because there are no ions in the solution.

4 Some substances that are made of molecules form solutions that do conduct electricity. Ammonia is such a substance. When ammonia dissolves in water, it reacts with the water and forms a few ions. This is why laundry ammonia, which is a solution of ammonia in water, conducts electricity, but not very well.

5 Sometimes, when two different solutions are mixed, the substances they contain react with each other and form ions. This is what happens when ammonia and vinegar are mixed. An ammonia solution contains only a few ions, and it conducts electricity only poorly. A vinegar solution also contains only a few ions and conducts only a little electricity. But when these solutions are mixed, the ammonia reacts with the acid in vinegar (acetic acid), and they form a lot of ions. This is why the mixture of ammonia and vinegar conducts electricity very well.

GO ON ▶

8. **Part A**

As it is used in the passage, what does the word **solution** mean?

Ⓐ an ability to combine smaller parts

Ⓑ an answer to a problem

Ⓒ a capacity to carry a stronger charge

Ⓓ a liquid mixture

Part B

Which detail from "Conducting Solutions" provides the **best** clue to the meaning of the word **solution**?

Ⓐ "conducts electricity"

Ⓑ "dissolved in water"

Ⓒ "are no ions"

Ⓓ "made of molecules"

9. **Part A**

In "Conducting Solutions," why does the author **most likely** include the information in paragraph 5?

Ⓐ to explain how solutions that contain ions conduct electricity

Ⓑ to show how some solutions low in ions can conduct electricity

Ⓒ to describe several ways to use solutions that conduct electricity

Ⓓ to list several solutions that are effective conductors of electricity

Part B

Which detail from paragraph 5 of "Conducting Solutions" **best** supports the answer in Part A?

Ⓐ "This is what happens when ammonia and vinegar are mixed."

Ⓑ "An ammonia solution contains only a few ions, and it conducts electricity only poorly."

Ⓒ "A vinegar solution also contains only a few ions and conducts only a little electricity."

Ⓓ "But when these solutions are mixed, the ammonia reacts with the acid in vinegar (acetic acid), and they form a lot of ions."

Refer to the articles "Energy Story," "Short Circuit," and "Conducting Solutions." Then answer question 10 .

10. You have learned about electricity by reading three articles, "Energy Story," "Short Circuit," and "Conducting Solutions."

In an essay, analyze how each source uses explanations, examples, and/or descriptions to help accomplish its purpose. Support your response with evidence from each source.

10. Continued

GO ON ▶

10. Continued

GO ON ▶

10. Continued