

## Energy

### Sources of Energy

With numerous types of energy occurring all around us in the activities we do, the power that we use, and the warmth we feel, it is important to understand how energy can be used and, in some cases, reused.

Renewable energy is energy that comes from resources that are constantly replenished. Sources that give off renewable energy are environmental such as wind, solar, and hydro.

Nonrenewable energy is energy that cannot be renewed. These resources are finite and need to be created over and over again. Sources of nonrenewable energy are natural gas, coal, and oil.

## Energy

Have you ever wondered what gives your body the ability to run, jump, climb or swing? The ability to do these things is called movement. Movement is made possible because of energy.

What is energy? Energy is the ability to make something move or cause change. Animals use energy, plants use energy, and even bicycles and books have energy. Humans use energy too. Our bodies use energy to put on a jacket, turn on the TV, and brush our teeth. We gain the energy for these things from the food that nourishes our bodies.

Everything in the universe is made of matter and energy.

## Energy

Name: \_\_\_\_\_

6. What does the word ability mean?
  - a. to move
  - b. being able to do something
  - c. to sleep
  - d. liking to exercise
7. What is the main idea of paragraph 2?
  - a. completing different activities
  - b. food gives humans energy
  - c. many things use energy
  - d. humans use energy
8. Which of the following is NOT a type of energy?
  - a. light
  - b. motion
  - c. heat
  - d. electricity
9. What is the logical connection between renewable and nonrenewable energy?
  - a. renewable energy is new, while nonrenewable energy is old.
  - b. renewable energy naturally occurs, while nonrenewable energy does not.
  - c. renewable energy can power machines, while nonrenewable energy cannot.
  - d. renewable energy can power machines, while nonrenewable energy cannot.

## Annotate the Text

1 Number the paragraphs

2 Underline important statements

3 Circle unknown words

4 Question? Confusing?

## Energy

Name: \_\_\_\_\_

1. Select the word or phrase from the paragraph that helps the reader understand the meaning of the word improve.
  - a. no power needed
  - b. keep it running
  - c. utilize renewable resources
  - d. create electricity
2. What evidence does the author use to support the idea that we should focus on using renewable resources?
  - a. wind turbines consist of blades that spin
  - b. another way is to use the wind to generate power
  - c. by using electricity generated by the wind, we can reduce the amount of air pollution
  - d. this is a way to use renewable resources to improve the environment
3. Where in the text does the author show evidence to support the claim that energy is in everything?
  - a. Paragraph 2
  - b. Paragraph 3
  - c. Paragraph 4
  - d. Paragraph 5
4. What is the main idea of paragraph 9?
  - a. all things are made up of molecules or atoms
  - b. nonrenewable resources can damage the environment
  - c. wind turbines create electricity
  - d. there are many ways to reuse resources and help the environment
5. Which of the following details is most important to the topic of how humans use energy?



# This resource includes:

- Teacher Tips
- Questions to Ask Students
- Student Bookmarks:
  - Close Reading Steps
  - Annotate/Mark the Text
- 9 Informational Texts
- 90 Multiple Choice Questions – 10 questions for each text
- 7 Graphic Organizers
- Answer Key



# Topics Included:

## 9 Informational Texts:

- Energy
- Electrical Energy
- Mechanical Energy
- Light Energy
- Sound Energy
- Heat Energy
- Chemical Energy
- Circuits
- Conductors and Insulators



# Close Reading

Close Reading: A reading strategy that is used to comprehend and analyze a text closely. Students will typically read the text at least twice for comprehension, details, analysis, and deep questioning of the text's purpose and meaning.

## Steps for Close Reading:

1. Read the Text
2. Mark Up the Text or Annotate the Text
3. Read the Text Again
4. Define Unknown Words
5. Read the Text Again
6. Respond to Reading



## Includes:

- Teacher Tips
- Questions to Ask Students
- Close Reading Steps - Bookmark
  - Version with "Mark the text"
  - Version with "Annotate the text"
- Steps to "Mark the Text" Bookmark
- Steps to "Annotate the Text" Bookmark
- Informational Text: The
- 10 Multiple Choice Questions
- 7 Graphic Organizers

# Teacher Tips & Suggestions

## Questions to Ask Students

- What is the text mostly about?
- Who is the audience for this text?
- What's is the writer's purpose of this text?
- What's your favorite part of the passage?
- What words are new to you? What do you think the words mean?
- What detail stands out to you?
- What questions do you now have about the topic?
- If you can ask the author 2 questions, what would you ask them?
- In this paragraph, what is the author saying?
- What is the structure of the text? How does it help

## Teacher Tips

Close reading: A reading strategy that is used to comprehend and analyze a text closely. Students will typically read the text at least twice for comprehension, details, analysis, and deep questioning of the text's purpose and meaning.

1. Read the Text: When students read the text for the first time, they are reading just to identify what the passage is mostly about. The first read is surface level and allows the students to understand the gist of the text.
2. Mark Up the Text or Annotate the Text: Encourage students to use their annotation bookmarks (provided below) to make notes directly on the text. Students can write in the margins, use sticky notes to make notes, use color coding. You can even slip the text inside a dry-erase pocket and encourage students to use dry-erase markers to mark up the text.
3. Read the Text Again: If the teacher is working with the students for this, the teacher can read the text aloud this time. Model think-alouds and use expression while you read. If students are working with partners in a station, encourage them to each read a paragraph then switch readers.
4. Define Unknown Words: During this step, invite students to circle any unknown or unfamiliar words. Use the provided graphic organizer to select 4-5 unknown words and work to identify the meaning of each word.
5. Read the Text Again: With this third time reading the text, encourage the students to read the passage independently.
6. Respond to Reading: Students will now use the text to answer the 10 multiple choice questions. Encourage students to use the text to help them



# Graphic Organizers

- Main Ideas with Text Evidence
- Central Ideas with Text Evidence
- Central Ideas with Details
- Main Idea, Details, Conclusion
- KWL: What I Know, What I Want to Know, What I Learned
- Overview: Topic, Author's Purpose, Key Vocabulary, Most Important Thing, I Wonder, Important Facts, Illustration
- Context Clues (3 Versions: 3 words, 4 words, 5 words)
- Arthropods



Name: \_\_\_\_\_

Unknown Word

Context Clue

Word Meaning

Name: \_\_\_\_\_

What I Know

What I Want to Know

What I Learned

Name: \_\_\_\_\_

Topic

Author's Purpose

Key Vocabulary

Most Important Thing

I Wonder...

Important Facts

Illustration

Graphic  
Organizers



# Ideas for Use

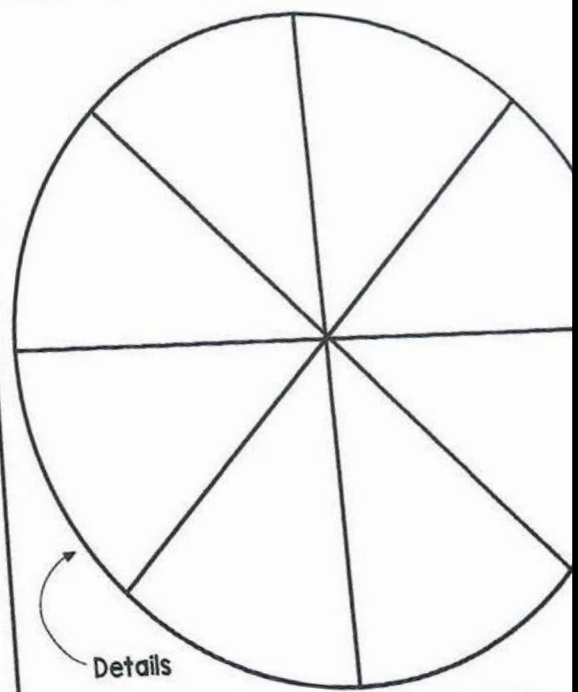
- Science or ELA Stations
- Whole Group Instruction
- Partner Practice
- Guided Reading Groups
- Substitute Plans
- Send home to practice
- ELA Work Stations or Centers
- Assessment



Unknown Word	Context Clue

Name: \_\_\_\_\_

Central Idea



Details

Name: \_\_\_\_\_

Main Ideas

- 1
- 2
- 3

Text Evidence #1

Text Evidence #2

Text Evidence #3

Name: \_\_\_\_\_

Main Idea

Detail

Detail

# Graphic Organizers



Purchase now to  
connect science  
and literacy  
in your  
classroom!



## Electrical Energy

A natural example of electrical energy is lightning. You may be wondering what lightning and power for our TVs have in common. Many years ago, people learned how to harness electrical energy and use it to create power. Whether it's for our refrigerators, vacuums, all are powered by electrical energy.

### Examples of Electrical Energy

Anything you plug in is likely to have electrical energy. For example, a toaster and a dishwasher: both use electrical energy.

Other examples of electrical energy are batteries. Batteries also have an electrical energy. Do you know anything we use frequently that has electrical energy too? Think about it.

Lightning bolts are also an example of electrical energy. Lightning bolts are very long and can show us how powerful electrical energy is.

Electrical energy is the

## Electrical Energy

The school day is over, your homework is completed, and it's time to watch your favorite TV show. So you kick your feet up, sit in front of your TV, and turn it on. Of course, you know your favorite shows are displayed on the screen whenever you turn it on, but how do TVs get power?

TVs, and several other objects we use in our everyday lives, get power from electric charges. Electrons create these electric charges. The faster that electrons within an atom move, the more electrical energy they create.

Electrical energy, made from tiny particles called electrons, is responsible for powering your TV, phones, vacuums, and even lightning. Electrical energy is a large part of our day-to-day lives because it can create a charge for many of our everyday objects.

How is Electrical Energy Produced?

Electrical energy is produced by the movement of electrons. When electrons move from one atom to another, they form an electric current. An electric current is formed as these electrons continue connecting with other atoms. This electrical energy interacts with an outside object. The different types of electrical energy are produced by different methods.

Electrical energy is produced by the movement of electrons. When electrons move from one atom to another, they form an electric current. An electric current is formed as these electrons continue connecting with other atoms. This electrical energy interacts with an outside object. The different types of electrical energy are produced by different methods.

## Close Reading Steps

- 1 Read the text
- 2 Annotate the text
- 3 Read the text again
- 4 Define unknown words
- 5 Read the text again

# Non-Fiction Passage



## Electrical Energy

Name: \_\_\_\_\_

6. What does the word join mean?
  - a. to move away from
  - b. to come together
  - c. to draw
  - d. to run away from
7. What is the main idea of paragraph 1?
  - a. you sit on the couch to watch TV
  - b. TVs get power, but we aren't sure how
  - c. you can watch TV when you get home from school
  - d. you should do your homework before watching TV
8. Which of the following is NOT powered by electrical energy?
  - a. lightning
  - b. toaster
  - c. vacuum
  - d. water hose
9. What is the logical connection between electrical energy and wires?
  - a. wires block electrical energy and send power to other devices
  - b. wires carry electrical energy to give some devices power
  - c. wires are not used for electrical energy
  - d. wires are used for electrical energy

## Electrical Energy

Name: \_\_\_\_\_

1. Select the word or phrase from the paragraph that helps the reader understand the meaning of the word harness.
  - a. people learned
  - b. use it
  - c. contain it
  - d. many years ago
2. What evidence does the author use to support the idea that electrical energy is a large part of our everyday lives?
  - a. it's made from tiny particles called electrons
  - b. as electrons move faster, they create more electrical energy
  - c. it powers our TVs, phones, and vacuums
  - d. lightning is produced by electrical energy
3. Where in the text does the author show evidence to support the claim that electrons attach to other atoms to create an electrical current?
  - a. Paragraph 2
  - b. Paragraph 3
  - c. Paragraph 4
  - d. Paragraph 5
4. What is the main idea of paragraph 5?
  - a. it powers electronics
  - b. our TVs use electrical energy
  - c. lightning uses electrical energy
  - d. electrical energy is harnessed and used
5. Which of the following details is most important to the topic of how electric currents form?
  - a. electrons continue connecting with other atoms
  - b. this electric current interacts with an outside object
  - c. when electrons move out of orbit, they join another atom
  - d. opposites attract

10 Multiple  
Choice  
Questions



## Light Energy

### Examples of Light Energy

Examples of Light Energy

The forms of light energy that we can see, also known as visible light, are likely the ones we are the most familiar with. Light energy is also found in other forms such as starlight and sunlight, which light up the sky. It also comes from other hot objects. In addition, humans have created light sources such as flashlights, lanterns, lightbulbs, lasers, and candles.

Dental and medical x-rays, microwaves, burning charcoal  
infrared cameras, Bluetooth, WIFI, and electric heaters  
energy examples that we cannot see. With light having  
several examples, it's apparent that it's all around us.

**Close Reading Steps**

- 
- 1 Read the text
  - 2 Annotate the text
  - 3 Read the text again
  - 4 Define unknown words
  - 5 Read the text again

### Light Energy

Light is all around us. Each day, it shines down from the sun above us. In our homes, we turn on lamps to help us see through the darkness. However, with a variety of ways that we can see the light, it may cause you to wonder where light comes from.

The sun produces a large amount of energy, but we humans can only harness a small part of it. The light that we can see is referred to as visible light energy. This visible light energy is made up of photons. Photons are tiny particles of energy that form when atoms interact with heat. They can be found in microwaves, cell phone signals, flashlights, and many other things. Light energy is the fastest moving type of energy, moving at over 180,000 miles per second. This shows that light energy is much quicker while sound energy is fast.

### Types of Light Energy

# Non-Fiction

Remember that you are using Infrared light.

# Passage



## Light Energy

Name: \_\_\_\_\_

6. What does the word interact mean?
  - a. talking or doing things with others
  - b. to misbehave
  - c. to listen
  - d. working with something else to cause an effect
7. Each of the following is an example of an infrared light except:
  - a. night vision goggles
  - b. X-rays
  - c. microwaves
  - d. TV remote
8. Each of the following is an example of visible light, infrared light, and Choose the answer that shows the correct designation.
  - a. visible light: flashlight; infrared light: bluetooth; ultraviolet
  - b. visible light: lantern; infrared light: x-rays; ultraviolet light
  - c. visible light: night goggles; infrared light: starlight; ultraviolet
  - d. visible light: dental x-rays; infrared light: fire; ultraviolet
9. What is the logical connection between infrared light and ultraviolet?
  - a. Both can be seen by the human eye but cannot be seen
  - b. Humans can see neither, but some animals can see both.
  - c. Humans or animals cannot see them.
  - d. Both humans and animals can see them.

# 10 Multiple Choice Questions

## Light Energy

Name: \_\_\_\_\_

1. Select the word or phrase from the paragraph that helps the reader understand the meaning of the word invisible:
  - a. We cannot see it.
  - b. We can see the effects of it.
  - c. Infrared light energy is another type of light energy.
  - d. It's the naked eye.
2. What example does the author use to support the idea that photons are a part of light energy?
  - a. the light that we can see is visible light energy
  - b. photons are tiny particles of energy that form when atoms interact with heat
  - c. they can be found in microwaves, cell phone signals, and flashlights
  - d. light energy is the fastest moving type of energy
3. Where in the text does the author show evidence to support the claim that x-rays are taken using a form of light energy?
  - a. Paragraph 2
  - b. Paragraph 3
  - c. Paragraph 4
  - d. Paragraph 5
4. What is the main idea of paragraph 4?
  - a. Infrared light allows you to turn on your TV using a remote.
  - b. We cannot see infrared light, but we can use it.
  - c. Infrared light is invisible.
  - d. Visible light is something we can see.
5. Which of the following details is most important to the topic of how we can see visible light energy?
  - a. The first type of light energy is visible light energy.
  - b. Think about lightbulbs and the many types of lamps that they ignite.
  - c. The forms of light energy that we can see, also known as visible light energy, are likely the ones we are the most familiar with.
  - d. Examples of light energy exist naturally, such as starlight and sunlight.



## Mechanical Energy

### Kinetic Energy

Now that we understand potential energy, we need to unpack kinetic energy. Kinetic energy is the energy of movement. As your body moves faster, it creates more kinetic energy. This is the same for objects. As objects exert kinetic energy, remember the soccer ball example? As the ball hits the net, kinetic energy is released.

Whenever  
time for  
an endle

Mechan

The car

Mechan

you ev

nails in

ready

The p

mech

Has y

desk

comb

### Close Reading Steps

1 Read the text

2 Annotate the text

3 Read the text again

4 Define unknown words

5 Read the text again

6 Respond to reading

## Mechanical Energy

Imagine you're on a rollercoaster. You're sitting in the little car just like the other people on the ride. The ride starts, and the car starts to climb a steep hill. The process of the car going up is called potential energy. You've reached the top of the hill and are looking out over the amusement park. Then, whoosh! The car drops, and you're sent pivoting back down. When this happens, the potential energy in your body transfers to kinetic energy. A rollercoaster utilizes both types of energy: kinetic and potential. The combination of these two energies is what allows you to continue enjoying the ride!

The combination of kinetic energy and potential energy is referred to as mechanical energy. A rollercoaster isn't the only place we see this, although it may be the most fun place. When you think about mechanical energy, you need to think about moving things, such as a soccer ball sailing into a net or a motorcycle zooming down the highway. Both of these instances can occur because of mechanical energy. To understand how mechanical energy works, we must first understand its counterparts: potential and kinetic energy.

### Potential Energy

Do you know what potential means? Consider the following example. The cold weather brought forth the potential for snow. Have you ever wondered if it may snow? Depending on where you live, I'm sure you have. The potential for snow means there's a good chance it could happen if the right conditions are met.

There is a potential energy stored in the ball. For example, if a ball is sitting on the ground, it has potential energy. When the ball is kicked by the soccer player's foot, it begins to sail through the air. Now the potential energy is gone and is replaced with kinetic energy.

# Non-Fiction Passage



## Mechanical Energy

Name: \_\_\_\_\_

6. What does the word utilize mean?
  - a. uses
  - b. keeps
  - c. wants
  - d. likes
7. What is the main idea of paragraph 1?
  - a. a rollercoaster car going up has potential energy
  - b. kinetic and potential energy combined is a part of riding a rollercoaster
  - c. the rollercoaster going over a hill creates kinetic energy
  - d. kinetic and potential energy make mechanical energy
8. Which of the following shows an example of both kinetic and potential energy?
  - a. kinetic: a rollercoaster going up a hill; potential: a rollercoaster going down a hill
  - b. kinetic: a hammer being lifted; potential: a hammer hitting a nail
  - c. kinetic: a soccer ball being kicked; potential: a soccer ball sitting still
  - d. kinetic: a planet sitting still; potential: a planet moving

# 10 Multiple Choice Questions

## Mechanical Energy

Name: \_\_\_\_\_

1. Select the word or phrase from the paragraph that helps the reader understand the meaning of the word potential.
  - a. something will never happen
  - b. something will happen
  - c. something could happen
  - d. something didn't happen
2. What example does the author use to represent potential energy?
  - a. a soccer ball sitting on the ground
  - b. a ball being kicked by a soccer player's foot
  - c. a roller coaster car going down a hill
  - d. a hammer hitting a nail
3. Where in the text does the author show evidence to support the claim that mass and position affect potential energy?
  - a. Paragraph 2
  - b. Paragraph 3
  - c. Paragraph 4
  - d. Paragraph 5
4. What is the main idea of paragraph 5?
  - a. kinetic energy occurs when a ball hits a net
  - b. kinetic energy is the energy of movement
  - c. kinetic energy turns back into potential energy
  - d. the faster your body moves, the more energy you exert
5. Which of the following details is most important to the topic of what potential energy is?
  - a. Have you ever wondered if it may snow?
  - b. could happen if the right conditions are in place
  - c. the energy that is stored up and ready to be used
  - d. there's a good chance that it could happen




## Chemical Energy

**Chemical Energy**

Have you ever used a hot pack before? They can be used to keep warm during cold temperatures or for athletes to put on injuries swelling. These large pouches contain a section of water and dry. When the seal is broken, these two ingredients combine. Just shake, and feel as the chemical reaction occurs. If the reaction your hands or feet should feel warm thanks to the hot pack. The same process that a cold pack follows.

## Close Reading Steps

- 
- 1 Read the text
  - 2 Annotate the text
  - 3 Read the text again
  - 4 Define unknown words
  - 5 Read the text again
  - 6 Respond to reading

## Chemical Energy

Chemical energy exists in many objects surrounding you without you even realizing it. For example, consider the batteries inside your remote or your favorite toy. Did you know that these batteries contain chemical energy? What about oil such as petroleum? Did you know that it possesses chemical energy as well? It may sound unlikely, but it's true.

Chemical energy is the energy stored within a chemical. It lies dormant and can only be seen when atoms and molecules interact, experiencing a reaction. When the reaction occurs, chemical energy is then released.

### What Products Experience Chemical Energy?

Substances that are considered a fuel experience chemical energy. You may be wondering what fuel is. A fuel, also known as a fossil fuel, is a resource found naturally on the Earth's surface that can be extracted and burned to create power. Examples of fossil fuels include coal, natural gas, and petroleum.

Possibly one of the most fascinating ways that chemical energy is used is to get our bodies moving and give us energy! The food that we eat contains chemical energy. When we digest this food, chemical energy is released. The chemical energy moves out of our bodies to help us do a range of things, including grow, get moving, and think! You can thank chemical energy for

chemical energy. When it's time for the wood to be used and it's ignited, that chemical energy is released in the form of warmth and light. The wood also

# Non-Fiction Passage



## Chemical Energy

Name: \_\_\_\_\_

6. What does the word dormant mean?
  - a. temporarily inactive
  - b. awake
  - c. rolling around
  - d. moving quickly
7. Each of the following has chemical energy except:
  - a. firewood
  - b. a cold pack
  - c. coal
  - d. a phone
8. Which of the following are examples of how chemical energy is used?
  - a. stay warm, get moving, and grow
  - b. grow, rest, and get moving
  - c. sit, run, and eat
  - d. eat, relax, and walk
9. What is the logical connection between chemical energy and heat?
  - a. Chemical energy appears before a reaction.
  - b. Chemical energy is passed to other substances.
  - c. Chemical energy is released when a reaction occurs.
  - d. Chemical energy disappears when a reaction occurs.

## Chemical Energy

Name: \_\_\_\_\_

1. Select the word or phrase from the paragraph that helps the reader understand the meaning of the word released:
  - a. get our bodies moving
  - b. moves out of our bodies
  - c. give us energy
  - d. when we digest this food
2. What evidence does the author use to support the idea that hot packs contain chemical energy?
  - a. Just shake, shake, shake, and feel as the chemical reaction occurs.
  - b. They can be used to keep your hands warm during cold temperatures.
  - c. When the seal is broken, these two ingredients combine.
  - d. This is also the same process that a cold pack follows.
3. Where in the text does the author show evidence to support the claim that firewood can contain chemical energy?
  - a. Paragraph 2
  - b. Paragraph 3
  - c. Paragraph 4
  - d. Paragraph 5
4. What is the main idea of paragraph 3?
  - a. fossil fuels are resources naturally found on Earth
  - b. fossil fuels experience chemical energy
  - c. fossil fuels can create power
  - d. natural gas is a fossil fuel
5. Which of the following details is most important to the topic of why chemical energy is crucial for humans?
  - a. Chemical energy exists in many objects surrounding you without you even realizing it.
  - b. Chemical energy moves out of our bodies to help us do many things.
  - c. We wouldn't be able to metabolize our food and use it for energy.
  - d. We quite literally could not survive if chemical energy did not exist.

# 10 Multiple Choice Questions



## Energy

### Sources of Energy

With numerous types of energy occurring all around us in the actions power that we use, and the warmth we feel, it is important to understand how energy is used and, in some cases, reused.

Renewable energy is energy that comes from resources that are replenished. Sources that give off renewable energy are environmental such as wind, solar, and hydro.

Nonrenewable energy is energy that comes from resources that are not replenished. These resources include fossil fuels, such as coal, oil, and natural gas.

We need to use energy wisely to solve the problem with energy that are not easily replaced.

Have you ever wondered what gives your body the ability to run, jump, climb or swing? The ability to do these things is called movement. Movement is made possible because of energy. What is energy? Energy is the ability to make something move or cause change. Animals use energy, plants use energy, and even bicycles and books have energy. Humans use energy too. Our bodies use energy to put on a jacket, turn on the TV, and brush our teeth. We gain the energy for these things from the food that nourishes our bodies.

Everything in the universe is made up of molecules or atoms that are bonded together. Within these molecules, energy exists. All things contain energy, but all types of energy don't look the same. By understanding the different types of energy, we can understand how it works to power our world.

### Fun Facts

- The sun is a giant ball of gas.
- Did you know that the sun is made of hydrogen and helium?
- Energy is how vibrations move through matter. Each time an object vibrates, it creates sound.

## Annotate the Text

1 Number the paragraphs

— Underline important statements

○ Circle unknown words

❓ Question? Confusing?

❗ Interesting!

## Energy

Have you ever wondered what gives your body the ability to run, jump, climb or swing? The ability to do these things is called movement. Movement is made possible because of energy.

What is energy? Energy is the ability to make something move or cause change. Animals use energy, plants use energy, and even bicycles and books have energy. Humans use energy too. Our bodies use energy to put on a jacket, turn on the TV, and brush our teeth. We gain the energy for these things from the food that nourishes our bodies.

Everything in the universe is made up of molecules or atoms that are bonded together. Within these molecules, energy exists. All things contain energy, but all types of energy don't look the same. By understanding the different types of energy, we can understand how it works to power our world.

### Types of Energy

There are eight main types of energy. These types of energy make up existence as we know it. By creating change and movement, they keep things going.

1. Chemical energy is created when atoms and molecules interact. Gasoline and batteries are made from chemical energy.
2. Electrical energy is made from tiny particles called electrons that move through wires.
3. Radiant energy is energy that travels in waves. Light and radio waves are examples of radiant energy.
4. Thermal energy is the energy of heat. It occurs when molecules move and vibrate.
5. The movement of light creates light energy. The sun is a source of light energy.
6. Kinetic energy is the energy of motion. A moving car has kinetic energy.
7. Nuclear energy is the energy stored in the nucleus of an atom. It can be used to create electricity.
8. Sound energy is how vibrations move through matter. Each time an object vibrates, it creates sound.

# Non-Fiction Passage



## Energy

Name: \_\_\_\_\_

6. What does the word ability mean?
- to move
  - being able to do something
  - to sleep
  - liking to exercise

7. What is the main idea of paragraph 2?
- completing different activities
  - food gives humans energy
  - many things use energy
  - humans use energy

8. Which of the following is NOT a type of energy?
- light
  - motion
  - heat
  - electricity

## Energy

Name: \_\_\_\_\_

1. Select the word or phrase from the paragraph that helps the reader understand the meaning of the word improve.
- no power needed
  - keep it running
  - utilize renewable resources
  - create electricity
2. What evidence does the author use to support the idea that we should focus on using renewable resources?
- wind turbines consist of blades that spin
  - another way is to use the wind to generate power
  - by using electricity generated by the wind, we can reduce the amount of air pollution
  - this is a way to use renewable resources to improve the environment

Where in the text does the author show evidence to support the claim that energy is in everything?

- Paragraph 2
- Paragraph 3
- Paragraph 4
- Paragraph 5

4. What is the main idea of paragraph 9?
- all things are made up of molecules or atoms
  - nonrenewable resources can damage the environment
  - wind turbines create electricity
  - there are many ways to reuse resources and help the environment
5. Which of the following details is most important to the topic of how humans use energy?
- our bodies use energy to put on a jacket, turn on the TV, and brush our

# 10 Multiple Choice Questions



## Conductors and Insulators

Despite the differences between conductors and insulators, they are both needed to create electric charges. Neither is more important than the other. As a team, they keep the electricity flowing and the light on.

### Types of Conductors

Several types of conductors can be used to create power. Some are better than others. For example, aluminum is the most common, but mercury is a better conductor.

### Types

Several  
of the

### Fun Facts

- T
- S
- t
- v
- 

## Annotate the Text

① Number the paragraphs

— Underline important statements

○ Circle unknown words

❓ Question? Confusing?

❗ Interesting!

## Conductors and Insulators

Think about the power lines that run along your street. The wire inside is made of metal, such as aluminum or copper. Because it's made of metal and allows electricity to pass through it, it is called a conductor. Its ability to do this is why we have electricity in our homes. You cannot actually see the wire inside of the power line. What we see on the outside is a rubber casing. This rubber casing is an insulator. Its job is to provide a barrier between conductors. This gives you an idea of how conductors and insulators work together.

### Conductors vs. Insulators

All things are made up of atoms. Within each atom, tiny electrons are moving around. Some materials, like metals, have a looser hold on the electrons inside them. This is what makes them powerful conductors. These electrons usually move around freely, but sometimes force is applied, which causes the electrons to attach themselves to another atom. This process of moving from atom to atom is called electricity. This is why we use metal for power lines. Metal is one of the best conductors.

We know that insulators are a barrier and prevent electricity from passing through them. That's why they are the perfect tool to keep conductors safe. When it comes to electricity, we can see that conductors and insulators work together.

# Non-Fiction Passage



Name:

## Conductors and Insulators

6. What does the word prevent mean?

- a. likes
- b. wants
- c. allows
- d. stops

7. Which part of a power line is a conductor?

- a. conductor: wire
- b. conductor: plastic
- c. conductor: glass
- d. conductor: wire

8. Which of the following is NOT a conductor?

- a. air
- b. oil
- c. ceramic
- d. mercury

9. What is the logical connection between conductors and insulators?

- a. conductors carry electricity where it is needed
- b. insulators prevent electricity from flowing where it is needed
- c. conductors are used to create electricity
- d. insulators are used to create electricity

Name:

## Conductors and Insulators

1. Select the word or phrase from the paragraph that helps the reader understand the meaning of the word barrier.

- a. conductors could interact or combust
- b. called an insulator
- c. necessary to have around conductors to protect them
- d. insulators have a more difficult time

2. What evidence does the author use to support the idea that both conductors and insulators are important?

- a. they keep electrons safe by containing them
- b. [there are] differences between conductors and insulators
- c. all things are made up of atoms
- d. they are both needed to create electric charges

3. Where in the text does the author show evidence to support the claim that insulators make sure electricity doesn't flow to the wrong places?

- a. Paragraph 2
- b. Paragraph 3
- c. Paragraph 4
- d. Paragraph 5

4. What is the main idea of paragraph 3?

- a. insulators have a hard time carrying electric currents
- b. metal is a great conductor that carries power
- c. our homes and businesses need power
- d. atoms have electrons inside

5. Which of the following details is most important to the topic of why insulators don't carry energy?

- a. [insulators create] a barrier around conductors to protect them
- b. that's why they are the perfect tool to protect conductors
- c. insulators have a more difficult time allowing electric currents to flow through them
- d. insulators are made of different materials than conductors

10 Multiple  
Choice  
Questions



## Sound Energy

# Sound Energy

For us to hear a sound, there must be some resource for the vibrations to bounce off. Without this, no vibrations will occur, and no sound will be heard. Molecules must be present for sound to be heard. Does space lack molecules? Because of the makeup of space, there are no molecules. Without molecules, there can be no sound. Even if vibrations travel through space, no one would be able to hear it. Is there a way to hear vibrations traveling through space?

Consider a bell ringing in a vacuum. These three conditions are necessary for sound energy to be heard:

- 1. A vibrating object
- 2. A medium for the vibrations to travel through
- 3. A receiver to hear the vibrations

## Annotate the Text

- 1** Number the paragraphs
- Underline important statements
- Circle unknown words
- ?** Question? Confusing?
- !** Interesting!

## Sound Energy

Consider a baby crying, a telephone ringing, and waves crashing. What do these three things have in common? They all are the result of sound.

Sound energy is the process of how vibrations move through matter. Each time an object vibrates, noise is created. For example, think about a guitar string. You can see the string moving back and forth when you pluck it. These vibrations cause the molecules in the surrounding air to create sound waves. The sound waves allow you to hear the sound of a guitar being played.

### How is Sound Energy Produced?

Whether it's a lawnmower running, a helicopter flying, or a basketball dribbling, the noises that our ears hear can be attributed to sound energy. So how is it that sound energy is produced? When we hear a sound, it's due to the sound waves an object emits. Objects emit sound waves whenever an object vibrates or moves back and forth. Think about in music class when you play an instrument. Whether you're playing a bongo drum or a bass drum, whenever the drum is struck by a drumstick or your hand, the top of the drum vibrates. This shows you that the force of something striking the drums causes them to vibrate. These vibrations are what create the sound waves. When the vibrations occur,

# Passage

# Non-Fiction

# Passage



## Sound Energy

Name: \_\_\_\_\_

6. What does the word emit mean?
  - a. like or love
  - b. leave
  - c. dislike
  - d. make or produce
7. Each of the following is an example
  - a. bird watching
  - b. hands clapping
  - c. bird singing
  - d. music playing
8. Which of the following animals do
  - a. horses
  - b. zebras
  - c. elephants
  - d. cats

9. What is the logical connection between the speed of sound averaging 700 miles per hour and the fact that it is slow, but...

- a. ...the word instantly
- b. ...the word instantly
- c. ...the word instantly
- d. immediately

## Sound Energy

Name: \_\_\_\_\_

1. Select the word or phrase from the paragraph that helps the reader understand the meaning of the word vibrations:
  - a. move through matter
  - b. noise is created
  - c. moving back and forth
  - d. create sound waves
2. What example does the author use to support the idea that no sound can be heard if vibrations have nothing to bounce off of?
  - a. rocket ships cannot be heard flying through space because outer space lacks molecules
  - b. talking closely with a friend emits sound waves your ears can hear
  - c. a volcano erupting is the loudest natural sound
  - d. a crowd cheering causes big sound waves
3. Where in the text does the author show evidence to support the claim that our eardrums process sound waves?
  - a. Paragraph 2
  - b. Paragraph 3
  - c. Paragraph 4
  - d. Paragraph 5
4. What is the main idea of paragraph 3?
  - a. objects make sound waves when vibrations occur
  - b. tapping on a drum creates vibrations
  - c. molecules bump into each other to create sound
  - d. plucking a guitar string causes vibrations
5. Which of the following details is most important to the topic of how animals can hear better than humans?
  - a. This is the loudest sound that exists in nature.
  - b. Dogs, cats, dolphins, horses, and elephants are among the creatures with the best hearing.
  - c. Consider that they may be barking at something that you can't hear.

# 10 Multiple Choice Questions



## How Do Circuits Work?

A circuit is a device used to help electricity flow to large devices. Circuits are specifically used to generate power and carry it to larger devices such as stoves, refrigerators, and washing machines. It is often a source of difficulty powering big appliances like the oven.

For a circuit to work, several parts are needed. If a circuit does not have all of the parts needed, it will not work. The circuit is the device receiving the power. The device receiving the power is the power source. The device receiving the power is made up of a piece of metal, the conductor. Next, a wire is connected to either end of the circuit.

One wire is connected to the positive end, and one is connected to the negative end. The wires carry electricity to the device. The power source, such as a battery, provides the power. Circuits require these three parts to do their job.

### Series vs. Closed Circuits

There are two types of circuits. The first is a series circuit. In a series circuit, all parts of a circuit are connected in a single loop. If one part of the circuit cannot occur, the electricity cannot flow.

When you break circuits even for a moment, we leave a room, which turns off the power, thus breaking the circuit. This is only temporary. When the light is switched back on, the circuit is closed again.

## How Do Circuits Work?

A closed-circuit is doing its job correctly. If a circuit is closed, all parts function properly, meaning electricity is being transferred to an object to create power. So when your light switch is on, and your overhead light fixture is giving off light or running the fan, the closed circuit is being used.

There are purposes to both types of circuits, and at times, objects may be using closed or open circuits depending on the criteria.

### Series Circuits vs. Parallel Circuits

Open and closed circuits can be set up in two different ways: a series circuit or a parallel circuit. Series circuits form a loop, meaning all parts connect, and energy flows continuously through the loop. Because of this, if one part of the series is broken, no electricity will be produced. Take Christmas lights, for example. If one Christmas light burns out, the rest of the Christmas lights will also stop receiving electricity. If this has happened to you, it's time to throw them out and get some new ones!

Parallel circuits are split into two parts. Each part can be controlled separately. So, unlike Christmas lights, if one part of a parallel circuit goes out, the other parts will still work. For example, in a house, if one light goes out, the other lights will still be on. This is because the circuit is split into two parts. Each part is controlled separately. This is only temporary. When the light is switched back on, the circuit is closed again.

# Non-Fiction Passage

## Annotate the Text

1 Number the paragraphs

2 Underline important statements

3 Circle unknown words

4 Question? Confusing?

5 Interesting!



## How Do Circuits Work?

Name: \_\_\_\_\_

6. What does the word ceases mean?
  - a. wants
  - b. begins
  - c. moves
  - d. stops
7. What is the main idea of paragraph 1?
  - a. circuits are important
  - b. circuits are needed to power small appliances
  - c. circuits are needed to power large appliances
  - d. circuits are needed to power refrigerators
8. Which of the following is NOT necessary for a circuit to work?
  - a. a device to receive power
  - b. Christmas lights
  - c. a power source
  - d. insulated wires
9. What is the logical connection between a conductor and a circuit?
  - a. wires are conductors and need to be connected to a power source

## How Do Circuits Work?

Name: \_\_\_\_\_

1. Select the word or phrase from the paragraph that helps the reader understand the meaning of the word require.
  - a. three objects
  - b. work successfully
  - c. all parts are needed
  - d. do its job
2. What example does the author use to support the idea that broken series circuits will not produce electricity?
  - a. using big appliances
  - b. turning off a light switch
  - c. powering a house
  - d. a Christmas light burning out
3. Where in the text does the author show evidence to support the claim that we break circuits every day without realizing it?
  - a. Paragraph 2
  - b. Paragraph 3
  - c. Paragraph 4
  - d. Paragraph 5
4. What is the main idea of paragraph 8?
  - a. parallel circuits run through Christmas lights
  - b. parallel circuits allow power to exist separately
  - c. houses run on parallel circuits
  - d. lights in one part of your house can be on while others are off
5. Which of the following details is most important to the topic of how all parts are needed for a conductor to do its job?
  - a. if a circuit does not have all of the parts needed, it won't work
  - b. circuits must have something to send the power to
  - c. these wires will carry electricity to the device to give it power
  - d. the final piece of a circuit is the power source, such as a battery

10 Multiple  
Choice  
Questions



## Heat Energy

parent to cook dinner, they may pull a pan out of the cabinet and set it on the stove. After turning the dial to begin heating the burner, they will add food to the pan. Heat transfer from the burner to the pan is an example of conduction.

Convection is the process of heat transferring to a liquid or a gas. The process of heating liquids and gases is slightly different from heating solids. For convection to occur, air needs to be heated. As molecules in the air warmer, they carry heat energy. Heat rises, so warm air will rise above liquid or gas while cool air will remain below it. The warm and cool air surrounding an object and moving in a circular motion allows it to be heated. This is called convection. An example of convection involves the air in your warmer air, or heat, is generated, it rises and replaces the colder air stays below it. As the warmer air rises, it warms your house.

Radiation is the process of using infrared waves to create heat. Infrared waves come off of hot objects and then hit another object. The object retains the heat. By holding onto the heat, it becomes warm. For example, radiation involves a campfire. When a campfire is lit, the heat comes off in waves. Your body or hands can retain the heat.

## Heat Energy

While heat keeps us warm, heat energy occurs when heat is spread from a warm object to a cold one. So, much like how every object consists of matter, every object also consists of heat energy. It might sound odd, but even the coldest objects like ice, snow, or a frozen pizza contain heat energy!

### How is Heat Energy Produced?

Heat energy, also known as thermal energy, occurs when molecules move and different temperatures interact. Warm molecules contain more energy than cold molecules do. Therefore, warm molecules transfer some of their energy to the colder molecules when they collide. When this occurs, the colder molecules can also speed up, causing them to warm up.

As these molecules heat, a transformation may occur. Think about ice. When it's kept in a temperature-controlled freezer, it stays cool and keeps it in its solid state. But if you removed that ice from the freezer and put it out in the sun, it wouldn't stay cold and solid. Instead, it would interact with warm molecules, causing the ice to get warmer. As the ice gets warmer, what does it start to do? It melts. The melting ice changes form from a solid to a liquid. It can also continue the transformation process from a liquid to a gas if it gets even warmer.

Three major processes cause heat transfer to occur. These processes are convection, conduction, and radiation.

Conduction occurs when a pan is on the stove. When you turn on your

© Chloe Campbell

# Non-Fiction Passage



## Heat Energy

Name:

6. What does the word collide mean?
- get closer to
  - two things hitting each other with force while moving
  - move away from
  - two things lightly hitting each other

7. Each of the following is an example of conduction.
- pan on a burner
  - ice melting in your hand
  - hot coffee heating a mug
  - air being warmed

8. Which of the following is an example of radiation?
- a campfire
  - hot cocoa heating a mug
  - pot on a burner
  - cold air

9. What is the logical connection between conduction and radiation?
- All are ways that heat disappears.
  - Conduction and convection are the same as radiation is not.
  - All are ways that heat is transferred.
  - Radiation and convection are the same as conduction is not.

## Heat Energy

Name:

1. Select the word or phrase from the paragraph that helps the reader understand the meaning of the word retains:
- holding onto the heat
  - the heat from the fire comes off in waves
  - heat waves come off of hot objects and then hit another object
  - a campfire

2. What example does the author use to support the idea that convection can warm things up?
- keeping ice in the future
  - cooking food in a pan on a stove
  - air circulating through your house
  - sitting by a fire

3. Where in the text does the author show evidence to support the claim that warm molecules transfer their warmth to some cold molecules?
- Paragraph 2
  - Paragraph 3
  - Paragraph 4
  - Paragraph 5

4. What is the main idea of paragraph 3?
- Ice can change when it interacts with heat.
  - Changes to an object's state of matter can occur due to heat.
  - Liquids can change into gases once they reach high temperatures.
  - Solids are not affected by heat energy.

5. Which of the following details is most important to the topic of how heat energy is produced?
- Warm molecules contain more energy than cold molecules do.
  - When molecules collide, the warm molecules transfer some of their energy to the colder molecules.
  - The process of changing a material due to heat is called heat energy.
  - Three major processes cause heat transfer to occur.

# 10 Multiple Choice Questions