

## 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, it creates more kinetic energy. This is the same for objects. As you exert kinetic energy. Remember the soccer ball example? As it hits the net, kinetic energy is released. Whenever kinetic energy is gone, it turns back into potential energy. The time for the potential energy to be activated, it turns into kinetic energy, repeating itself constantly.

## 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!

## 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
9. What is the logical connection between potential energy and kinetic energy?
  - a. potential energy exists waiting for something to happen
  - b. potential energy occurs when something does happen
  - c. potential energy occurs when something is waiting for something to happen
  - d. potential energy never happens; kinetic energy never happens

## 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
  - 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 of 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 is kicked
  - b. potential energy is the energy of movement
  - c. mechanical energy is the combination of kinetic and potential energy
  - d. kinetic energy is the energy of movement

## Annotate the Text

1 Number the paragraphs

- Underline important statements

o Circle unknown words

# This resource includes:

- Teacher Tips
- Questions to Ask Students
- Student Bookmarks:
  - Close Reading Steps
  - Annotate/Mark the Text
- Informational Text: Mechanical Energy
- 10 Multiple Choice Questions
- 7 Graphic Organizers
- Answer Key



## 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 move faster, they exert more kinetic energy. Remember the soccer ball example? As the ball hits the net, kinetic energy is released.

Whenever  
time for  
an endle

Mechan

The cor

Mechan

you eve

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 in place or there is a possibility. Potential energy is the stored energy that an object has because of its position or condition. For example, a ball sitting on the edge of a cliff 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.

© Chloe Campbell

# 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 car at the top of the 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



# 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

# 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
Important Facts	Illustration

# Graphic Organizers

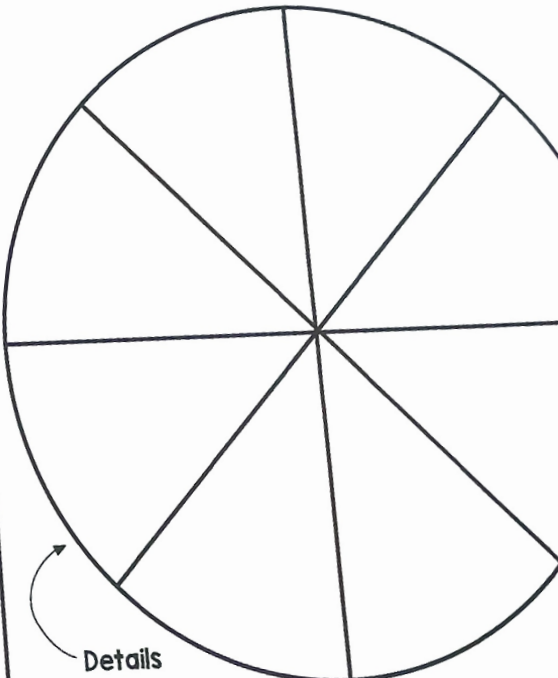
# Ideas for Use

- 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

# Graphic Organizers



Purchase now to  
connect science  
and literacy  
in your  
classroom!