Grade: 4th
Strategy: Inferring
Technique: Double Entry Notebook
Text Type: Science

Energy – How It Works

Aims of the Lesson:

- Help students infer key elements of the text using the Double Entry Notebook technique.
- Identify and describe different forms of energy.
- Develop critical thinking skills by making inferences and predictions.

Energy is all around us and comes in many forms. Animals get their energy from food, which helps them grow and move. Electricity is another type of energy, and it comes from tiny particles inside everything around us. These particles, called electrons, move from one place to another, creating energy. Heat and light are also different forms of energy, and one type of energy can change into another.

For example, a battery stores chemical energy and changes it into electricity when used. A light bulb takes electrical energy and turns it into both light and heat. These changes happen all the time around us.

All types of energy can be placed into two main groups: potential energy and kinetic energy. Potential energy is stored energy that is waiting to be used. The food we eat has potential energy because it stores energy for our bodies. A rock sitting on the edge of a cliff also has potential energy because it could fall at any moment. Even a stretched bowstring holding an arrow has potential energy because, when released, it will turn into motion.

Kinetic energy is energy in motion. When the rock falls, its stored energy changes into kinetic energy as it moves. When the arrow is released from the bow, it flies through the air using kinetic energy. Everything that moves, from running water to a spinning wheel, is using kinetic energy.

Energy is always present in different forms, and it never disappears, it just changes from one type to another. Understanding energy helps us see how the world around us works, from the food we eat to the electricity that powers our homes.

Process Phase 1: Planning (Teacher's Perspective)
During this stage, the teacher prepares the **Double Entry Notebook** strategy, ensuring students focus on identifying **key energy concepts** and making **predictions and inferences**.

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Materials: Picture and four labelled charts on the wall (**Inference - Evidence**), and sticky notes for students and video on (YouTube Video).
Teacher shows the picture and introduces key vocabulary:

- **Energy:** The ability to do work or cause change.
- **Kinetic Energy:** Energy of movement.
- **Potential Energy:** Stored energy that has the potential to move.

The teacher then **shows the picture** and asks:

Guiding Questions:

- What do you see in the picture?
- What do you think energy is used for?
- Can energy disappear, or does it just change forms?
- Why do we need energy?

Teacher presents **Inference - Evidence table**

What I think (Inference)	What I see (Evidence from text)

Cognitive Stage 1: Pre-Reading (Student's Perspective)
The students answer the guiding questions by using phrases such as:

- *I think...*
- *Maybe...*
- *My guess is...*
- *It looks like...*

Process Phase 2: Teaching (Teacher's Perspective)

- The teacher guides students to **read the story aloud** in small groups.

Cognitive Stage 2: During Reading (Student's Perspective)

- Students read assigned parts of the text.
- **They highlight key details** related to different types of energy.

Process Phase 3: Feedback (Teacher's Perspective)

- The teacher **reviews students' notes** and helps correct misunderstandings.

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- The teacher shows the video to the students
- Teacher asks discussion questions:
  - What are some examples of energy we see in everyday life?
  - How does potential energy turn into kinetic energy?
  - What happens when we eat food? How does our body use energy?
  - How does a battery work?

Cognitive Stage 3: Post-Reading (Student's Perspective)

- Students watch the video and answer discussion questions.

Modes of Communication (Skills):

- **Interpretive (Receptive):** Students listen to the teacher's explanation of key words (**energy, kinetic energy, potential energy**) and read the text. After reading, they listen to their peers and review their Double Entry Notebook to make modifications or additions.
- **Interpersonal (Mixed):** Students collaborate in groups to categorize information into inference and evidence. They discuss and negotiate their predictions and observations about energy, ensuring logical reasoning.
- **Presentational (Productive):** Students present their completed Inference-Evidence table to the class, explaining different forms of energy with real-life examples. They summarize key details, discuss energy transformations, and reflect on how energy affects daily life.

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