Energy Forms

1. Question & Research Task

We use energy to move our bodies. Energy is always all around us. We even use energy when we sit still.

Energy is the ability to do work or make change.

It is what we use to make things happen!

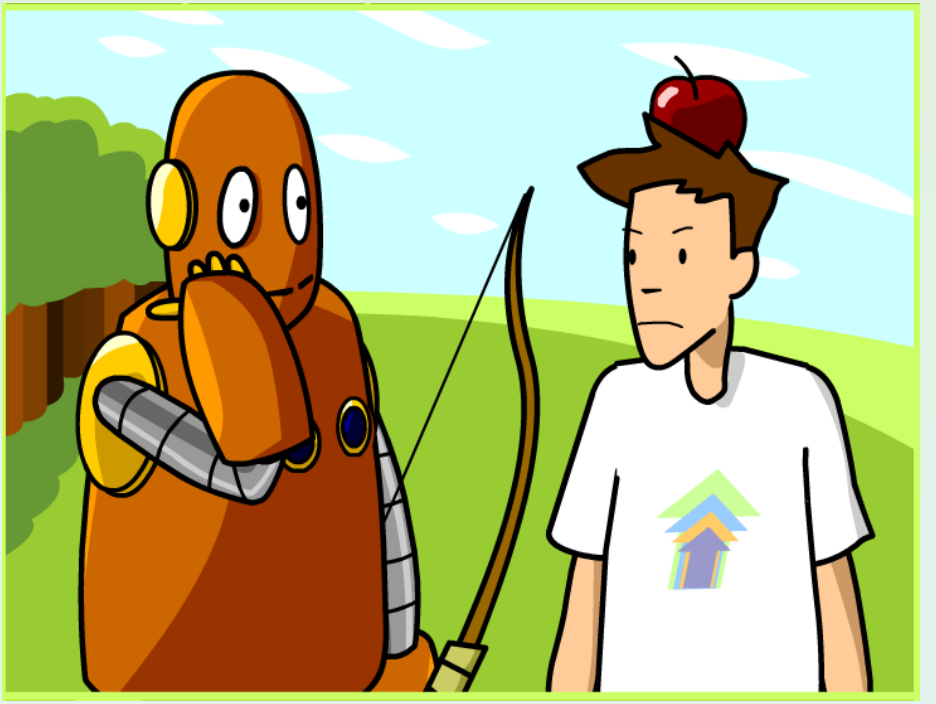


Image Source: Brain Pop

Let's build some background knowledge about the different forms of energy:

- Click on the BrainPop image to view video, ***Forms of Energy***.

Keep these questions in mind as you research the different forms of energy:

- What are the different forms of energy?
- How and when is energy used?
- How does energy change from one form to another?

In this Slam Dunk, you will conduct brief, focused research to respond to the inquiry question:

How are different forms of energy used?

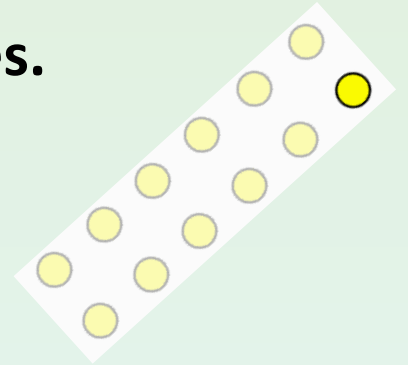
2. Information Sources

Energy moves in different ways…

Heat, sound, light, electricity, and motion are all ways that energy moves.

Your own voice carries energy that moves on sound waves.

Sunlight carries energy that plants use to make food.



Use these resources to continue researching each of the different energy forms

What is Energy

Energy

Different Forms of Energy

Introduction to Sound Waves

Light

Images Source: Wikimedia Commons

3. Student Activity

As you research forms of energy using the sources on Slide 2, look for information that helps you to answer these questions:

- **What are some sources of this form of energy?**
- **How is this energy used?**
- **What are the advantages and disadvantages on the environment of using this form of energy?**
- **What are some technologies that use this form of energy?**
- **What technologies are used to find or extract this form of energy?**

Organize your thoughts and ideas on the ***Forms of Energy*** web or foldable organizer.

NOTE: The web can be used in digital form, but the foldable organizer will need to be printed out.

Image Source: Fashions-clouds.net

4. Assessment Activity

How are different forms of energy used?

Now it's time to show what you know!

Click the link below to create a trading card to share your new knowledge with your classmates:

Trading Card

Be sure to reference the rubric to ensure that you have included the necessary information.

Image Source: EandEManagement.com

5. Enrichment Activities

Renewable and Non-Renewable Resources

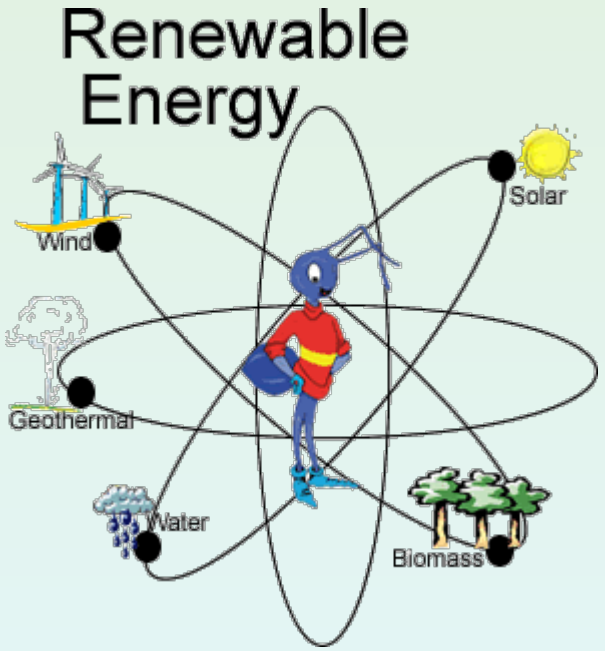


Image Source: ResearchGate.net

Renewable energy can be used over and over.

- sunlight
- wind
- moving water
- heat beneath the ground
- energy from plants

Non-renewable energy sources cannot be "recycled" and can run out.

- coal, oil, and natural gas

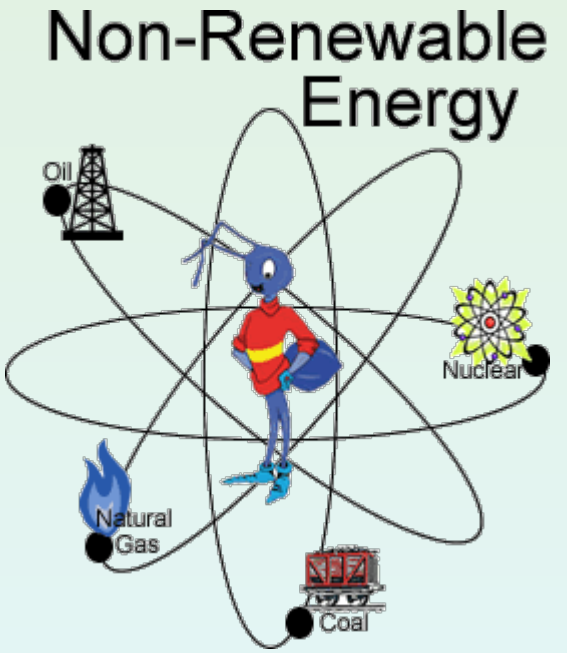


Image Source: ResearchGate.net

Visit these sources to learn more …

- Energy
- Renewable and Non-Renewable Energy Resources
- Energy Sources (BrainPop video)

6. Teacher Resources

SLIDE NAVIGATION

1	2	3	4	5	6

Learning Standards Alignment

Next Generation Science Standards NGSS

4PS3-2 Make observations to provide evidence that energy can be transferred from place to place by sound light, heat, and electric currents.

4-ESS3-1- Science and Engineering Principle (SEP) "Obtain and combine information from books and other reliable media to explain phenomena. "

Common Core State Standards for English Language Arts & Literacy

Reading: 1. Read closely to determine what the text says explicitly and to make logical inferences from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text.

Writing: 7. Conduct short as well as more sustained research projects based on focused questions, demonstrating understanding of the subject under investigation.

AASL Standards Framework for Learners Inquire: Build new knowledge by inquiring, thinking critically, identifying problems, and developing strategies for solving problems.

Think: Learners display curiosity and initiative by:

I.A.2 Recalling prior and background knowledge as context for new meaning.

Create: Learners engage with new knowledge by following a process that includes:

I.B.1 Using evidence to investigate questions. I.B.3 Generating products that illustrate learning.

Share: Learners adapt, communicate, and exchange learning products with others in a cycle that includes:

I.C.1 Interacting with content presented by others.

Grow: Learners participate in an ongoing inquiry-based process by:

I.D.2 Engaging in sustained inquiry.

P21 Framework: 21st Century Student Outcomes
3. Information, Media & Technology Skills: Information Literacy: Access information efficiently and effectively; Use information accurately and creatively for the issue or problem at hand.
ICT Literacy: Use technology as a tool to research, organize, evaluate and communicate information.

Grade 4 Science: Energy

Objective: Students will conduct brief, focused research in order to define and describe forms of energy and how they may affect the environment.

Time Frame: 1-2 class periods for research; 1-2 class periods for product creation and jigsaw.

Differentiation strategies for this lesson:

- Have students use learning supports provided in BCPS Digital Content found in the Apps Portal. Refer to Digital Content Snapshot/Support pages as needed.

Notes to the teacher:

- Collaborate with your school library media specialist to plan and implement this lesson.
- Provide students with login information as needed to authenticate BCPS Digital Content. Login information is available on the **BCPS Digital Content** page found via the Apps Portal
- This slam dunk could be implemented as a jigsaw in which each student researches only one form of energy, collaborates in an expert group, and then shares with groups who researched a different energy forms.