

Energy Transformations

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1. Question & Research Task

Energy is often transformed from one form to another. As the **Law of Conservation of Energy** states: “energy is neither created nor destroyed only transformed.” Therefore, the **amount of energy** before a transformation is equal to the **amount of energy** after a transformation.



Energy Makes Things Happen

chemical, thermal, electrical, electromagnetic, mechanical

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

What are the specific energy transformation that matter undergoes?

2. Information Sources

You will use the following web resources in order to explore energy transformations.

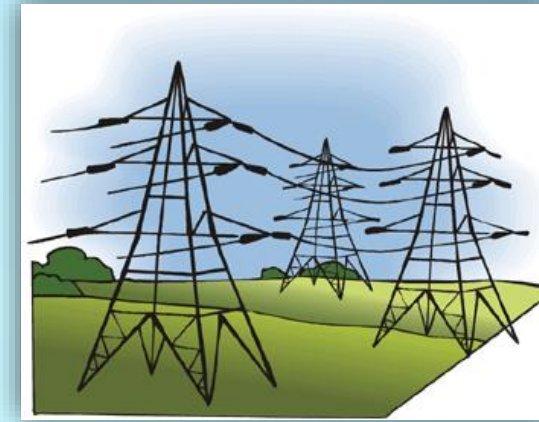
When required, see your teacher/librarian for login information.

Task 1 (Explore All):

- a. [World Book Online: Energy](#)
- b. [Discovery Education: Energy](#)
- c. [Discovery Education: Energy Transfers & Work](#)

Task 2 (Choose 1):

- a. [Energy Changes Makes Things Happen](#)
- b. [Laws of Energy](#)
- c. [Energy Transfer](#)



**How does
energy transform?**

3. Student Activity

Choose one of these resources to review as you complete your activities.

a. Energy Changes Makes Things Happen

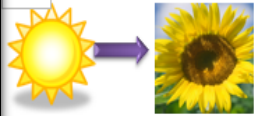


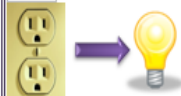

b. Laws of Energy

Then, complete Activity A as assigned by your teacher through Schoology.

Next, complete Activity B as assigned by your teacher through Schoology.

ENERGY TRANSFORMATIONS

A. Observe and analyze the **first box**.
B. Think about the **transformation** that allows the things to work.
C. Use the drop-down in the **purple boxes** to select the **energy transformation**.

	ENERGY TRANSFORMATIONS	ENERGY TRANSFORMATIONS	ENERGY TRANSFORMATIONS	ENERGY TRANSFORMATIONS		
1.		<input type="text"/>	→	<input type="text"/>		
	Try again			Try again		
2.		<input type="text"/>	→	<input type="text"/>		
	Try again			Try again		
3.		<input type="text"/>	→	<input type="text"/>		
	Try again			Try again		
4.		<input type="text"/>	→	<input type="text"/>		
	Try again			Try again		
5.		<input type="text"/>	→	<input type="text"/>	→	<input type="text"/>
		Try again		Try again		Try again

What energy transformations make things work?

4. Assessment Activity

What are the specific energy transformation that matter undergoes?

Use the picture below to complete the assessment activity as assigned by your teacher through Schoology.

Assessment

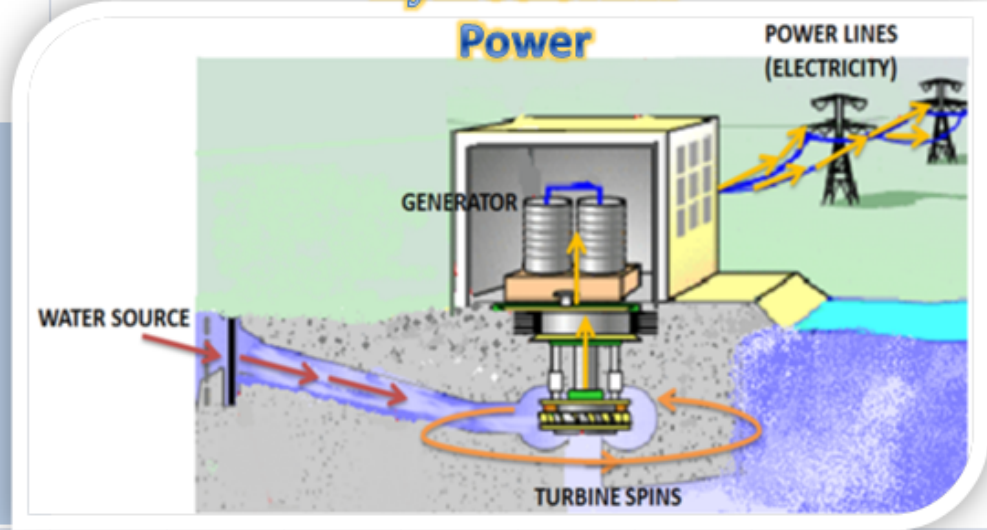
Instructions:

- A. Read the **description**.
- B. Examine and Analyze **figure 1: Hydroelectric Power**
- C. Respond to the **question** by using the drop down menus located in the boxes in blue.

Before electricity reaches homes, business and even schools to use, the energy must first undergo transformations. In parts of the U.S. where there are many rivers (ie. Maryland), hydroelectric power, a green source of energy is used. Flowing water from a river turns a water wheel which rotates a turbine. As the turbine turns, electrical energy is produced. Figure 1 is a diagram of a water wheel which can be used to produce electricity without burning fossil fuels like coal or oil.

Energy Select

Figure 1:
Hydroelectric Power



What is the energy transformation that occurs while producing hydroelectric power?

Energy Transformations

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5. Enrichment Activities

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To learn more, check out the following sites:

- [Energy Transformations](#)
- Transformation of Energy: [English](#) / [Spanish](#)
- [Trash to Energy Plant in Baltimore, MD](#)
- [BrainPOP](#)
- [Medieval Trebuchet Machine](#) (drop down to English or Spanish available)

6. Teacher Resources

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Learning Standards Alignment

Content Learning Standards MS-PS3-5. Construct, use, and present arguments to support the claim that when the kinetic energy of an object changes, energy is transferred to or from the object.

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 7 Science

Objective: Students will be conduct brief, focused research in order to explain the specific energy transformation that matter undergoes.

Time Frame: up to 4 hours

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.
- **The Student [Activity A](#) and [Activity B](#) on Slide 3, and the [Student Assessment](#) on Slide 4 are Google Drive assignments**
- 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](#)

Last updated: July 2022 Use this form to [Report Broken Links](#)

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