

# Energy Transformations 2021

How is energy converted from one form to another?

Name: Key  
Date: \_\_\_\_\_ Period: \_\_\_\_\_

OBJECTIVE 2: Examine the conservation and transformation of energy within systems.

## Link 1:

<https://www.texasgateway.org/resource/energy-transformation>

## Types of Energy

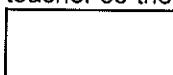
Click on the icons to briefly review the different types of energy.

## Energy Transformations

1. Describe the energy transformations when a flashlight is turned on.

chem PE  $\rightarrow$  electrical  $\rightarrow$  light / thermal

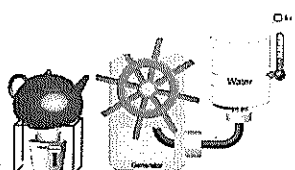

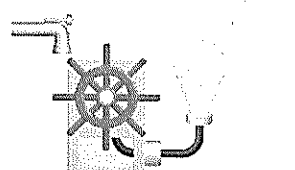
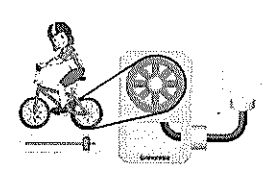
2. Complete the Energy Transformations Practice. Insert screenshot of completed task or show your teacher so they can sign off on it.



## Link 2: Energy Forms and Changes PhET

[https://phet.colorado.edu/sims/html/energy-forms-and-changes/latest/energy-forms-and-changes\\_en.html](https://phet.colorado.edu/sims/html/energy-forms-and-changes/latest/energy-forms-and-changes_en.html)

Click on the Systems tab. Use the PhET to explore different energy transformations. Then, identify the transformations taking place in the following images.

	Image	Energy transformation explanation
1		thermal $\rightarrow$ mechanical $\rightarrow$ electrical $\rightarrow$ thermal
2		light $\rightarrow$ electrical $\rightarrow$ mechanical
3		Mechanical (water) $\rightarrow$ mechanical (turbine) $\rightarrow$ electrical $\rightarrow$ thermal / light
4		chemical (girl) $\rightarrow$ mechanical (bike) $\rightarrow$ mechanical (turbine) & some thermal (friction) $\rightarrow$ electrical $\rightarrow$ light / thermal

5. Describe the difference between the 2 lightbulbs in terms of energy production.

LED bulb gives off less thermal than incandescent

**Link 3: EduMedia - E3.1 Energy Transformations**

<https://www.edumedia-sciences.com/en/curriculum/2133-e31-describe-and-compare-various-types-of-energy-and-energy-transformations-eg-transformations-related-to-kinetic-sound-electric-chemical-potential-mechanical-nuclear-and-thermal-energy>

Click on the following boxes and explain the energy transformations.:

1. Solar Energy: light  $\rightarrow$  electrical via photovoltaic cell - also stored in batteries as chem PE
2. Power Plant: thermal  $\rightarrow$  mechanical  $\rightarrow$  electrical (generator)
3. Hydroelectric Plant: mechanical (water & turbine)  $\rightarrow$  electrical (generator)

**Link 4: Lincoln's Energy Resources**

<https://www.les.com/company/generation-resources>

Where does the energy that WE use in Lincoln come from? Investigate on LES's website and briefly summarize below.

Natural gas (35%)  
 Renewables (34%)  
 - wind, hydro, solar, landfill gas  
 Coal (31%)

**Reflection Questions:**

1. Outline the energy transformations that occur within your cell phone every day. Be specific!  
 electrical  $\rightarrow$  chem PE  $\rightarrow$  light / sound / thermal  
 (outlet) (battery)
2. Outline the energy transformations that occur within your chromebook every day. Be specific!  
 electrical  $\rightarrow$  chem PE  $\rightarrow$  light / sound / thermal
3. Come up with your own example of an energy transformation. Explain. shoot rubber band:  
 elastic PE  $\rightarrow$  mechanical  $\rightarrow$  sound / thermal (when lands)  
 What happens if the sequence isn't completed?  
 the end result is not achieved

**Link 5: CK 12 10 point Check for Understanding**

[https://www.ck12.org/assessment/ui/?test/view/practice/physics/energy-conversion-Practice&ep=https://www.ck12.org/physics/energy-conversion/?referrer=concept\\_details](https://www.ck12.org/assessment/ui/?test/view/practice/physics/energy-conversion-Practice&ep=https://www.ck12.org/physics/energy-conversion/?referrer=concept_details)

Click the link and take the 10 question quiz. Insert screenshot of completed task or show your teacher so they can sign off on it.

