



Third Grade Science



3rd Grade Science: Summer Activity 3

What Makes Things Move?

Directions: This handout can also accompany a KCSatHome Teacher Video. If you have access to the video, watch the video before doing this activity. You can find the videos at <https://www.knoxschools.org/Page/21816>

Using Water to Recognize How Energy Is Transferred in Motion

Introduction:

Three friends were setting the table for lunch and one dropped a cup of milk on the floor. They started talking about the spill that the milk made on the ground. They started wondering about the sizes of spills.

- **Julian** said that no matter where you spill milk from, it will be the same size spill. It is the same amount of milk.
- **Emily** said that the milk dropped from a higher place, like standing, will make the largest spill.
- **Caleb** said that the milk knocked over on a table would spread out more.



Who do you agree with most and why? *I agree with* _____ *because*

Part 1: Energy: What makes things move?

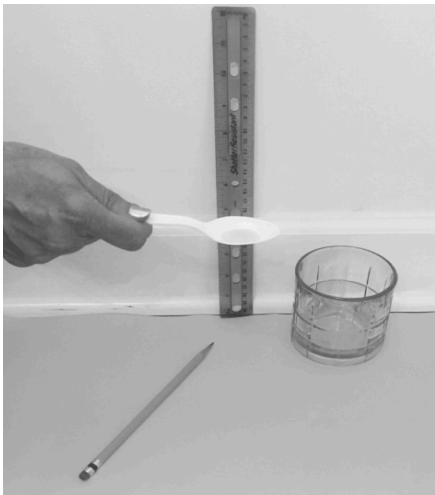
In this activity, you are going to drop water from different heights. You will investigate how the kinetic energy in water changes, when it hits the ground, when dropped from different elevations. Will the height of the water affect the amount of kinetic energy? You will measure the kinetic energy of the water, by measuring the size of the splash, made by the drop of water hitting the paper.

Make a Prediction: What do you think will happen to the water splatter, when water is dropped from different heights? Explain your prediction in words and/or drawings.

If water is dropped from different heights then

- Materials needed:**
- ¼ Teaspoon or a regular spoon ¼ full
 - Cup to hold water
 - Measuring stick or measuring tape
 - Pencil or pen
 - 2 pieces of paper or construction paper

- Carry out the investigation:**
- Step 1** Fill a small cup with water.
- Step 2** Fill a spoon with ¼ teaspoon of water.
- Step 3** Drop the water from 6 inches and immediately draw a circle around the splash.
- Step 4** Measure the diameter of the splash. In other words, measure the distance from one edge of the splash to the other.
- Step 5** Record your data in the chart below.
- Step 6** Repeat the investigation for the height of 24 inch.



Record Data

	Height of 6 inches	Height of 24 inches
Diameter of splash		
Diameter of splash		

Part 2: Reflection

What pattern did you see in your results? Draw and/or write about your results.

Look back at your prediction and your data. How did your prediction compare with your results?

Part 3: Conclusion- How does it work?

Civil Engineers understand energy, to build powerplants. A dam is a large man-made structure built to hold back water, control the waterflow, and prevent flooding. Civil Engineers have discovered that by building a body of water at the top of a dam, called a reservoir, a shift in energy can take place. Potential energy transforms to kinetic energy, that becomes hydroelectric power and electricity, to be sent to homes and businesses. *How does that work?*

As you explored energy, you made discoveries about potential and kinetic energy. In the activity, you discovered that as you placed height to the water, you add stored energy in the object. *(This scientific discovery supports Emily's idea in the introduction.)* The stored potential energy in the falling water is released as the water falls as kinetic energy. This is just like an upper reservoir, in a hydroelectric dam. This is the potential energy. The water falls, with the transfer of kinetic energy. The energy is moved. The force of the water spins a turbine at a low speed. *(Note: This slow speed is so any fish in the water will pass through safely.)* Inside the generator a shaft spins coils of copper wire inside a ring of magnets creating an electric field and producing electricity. The energy moves from one object to another as the water moves turbines within the dam. This movement of the turbines will create the electricity that is harnessed and sent to homes or businesses within your community.

