

Energy can be transferred from one form to another. For example, a torch turns chemical energy in a battery into light energy that you can see. However, most energy transformations are not 100% efficient. Energy can't be lost, so where does the rest of the energy go?

A series of investigations will help you find what happens to wasted energy. Use your senses (sight, touch, sound) and write down your observations in the table below.

Heat energy is one type of energy produced in many of these reactions. If possible, record the temperature of the surface in each situation before and after each activity.

Activities may be done in any order.

	ACTIVITY	EQUIPMENT	OBSERVATIONS	TYPES OF ENERGY PRODUCED	TEMPERATURE CHANGE (°C)
A	Flatten a metal sheet with a hammer by hitting it several times in quick succession.	metal sheet hammer			
B	Bounce a basketball as fast as you can.	basketball			
C	Make a 'guitar' by putting a few elastic bands around a shoebox without a lid. Pluck the elastic bands quickly.	bottom part of a shoebox 5 elastic bands			
D	Put on safety glasses. Add a few marble chips to 10 mL of dilute hydrochloric acid in a test tube.	marble chips 10 mL hydrochloric acid			
E	Create an electrical circuit by joining a battery to a small globe with alligator leads, for 10 seconds.	6 V battery 2 electrical leads with alligator clips small globe			
F	Light a candle.	candle matches			

Questions

1. Which activities involve production of heat energy?

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2. Give an example of a situation where useful heat energy is produced. Explain.

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3. Give an example of a situation where heat energy produced is not useful (it's waste). Explain.

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4. What happens to energy that's transformed into heat? Energy can't be lost but eventually everything feels like it returns to room temperature. Where does the energy go?

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