



TeachEngineering

STEM Curriculum for K-12

Exploring Energy: What Is Energy?

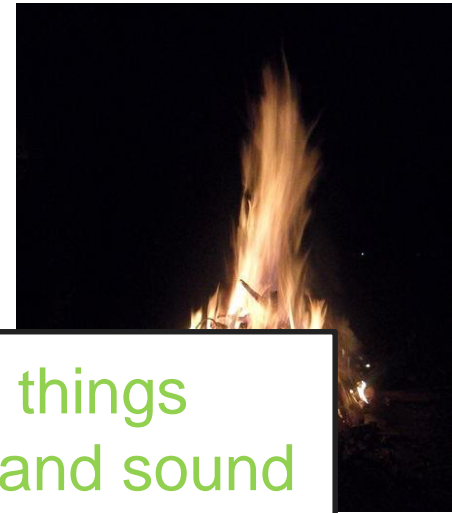
[exploding water heater video](#)



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Which of these items have energy?
What is your evidence?



Energy: The ability to make things happen. Motion, heat, light and sound are clues that energy is present.



Does the pulled bow have energy?



What do each of these have in common in terms of energy?

What type of energy is present?

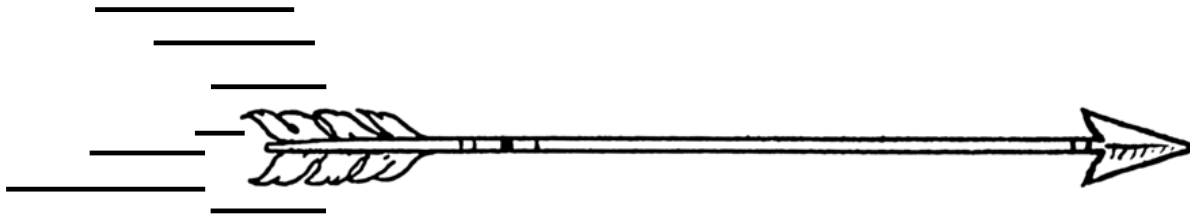
Potential Energy: Energy that is stored.

What are other examples of potential energy?



What type of energy does the moving arrow have?

How is this energy different than when the bow was pulled back?



What do each of these have in common in terms of energy?

What type of energy is present?

Kinetic Energy: Energy of motion.

Synonyms for **kinetic** are active and lively



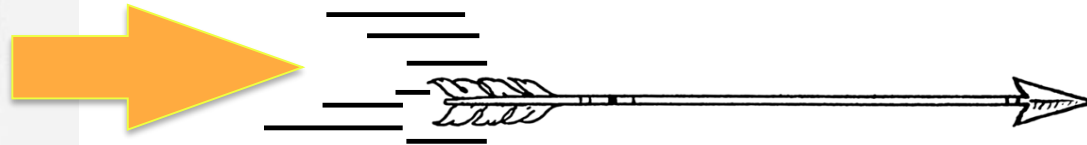
What are other examples of kinetic energy?

Energy Transfer

Energy can be transferred from one type to another type.



potential energy



kinetic energy



Which has more potential energy?

The **blue ball** is higher up, so it has more potential energy.



Who has more kinetic energy?

Tanya - 3 miles per hour



Tamara - 6 miles per hour



Tamara has more kinetic energy.

Which has more potential energy?

spring 1



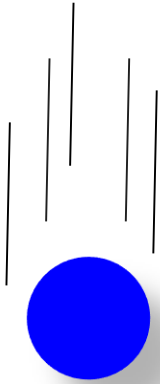
Spring 2 is more compressed, so it has more potential energy.

spring 2



Which has more energy?

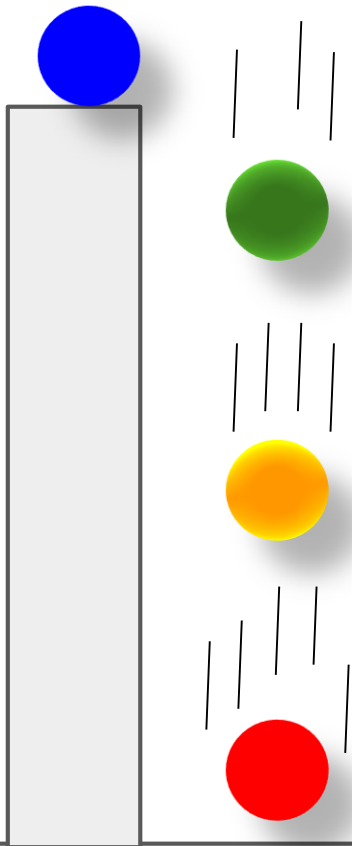
The balls are at exactly the same height.



Both balls have the same amount of potential energy.

The **blue ball** has more kinetic energy.

How is the energy transferred?



All potential

A little kinetic, a
lot of potential

Some kinetic,
some potential

All kinetic

Write a description of what happened in the exploding water heater video.

Use the concepts we learned today:

- energy
- potential energy
- kinetic energy
- transfer of energy