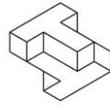


Potential Energy-Kinetic Energy

Lab Related Activity: *Physics of Roller Coasters*



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This activity is meant to extend your students' knowledge of the topics covered in our Physics of Rollercoasters lab. Through this activity, your students will deepen their understanding of potential and kinetic energy and learn that these energies are not only found in rollercoasters!

Grade Levels: 2-3

Estimated Time: 20 minutes

Student Outcomes:

1. Students will be able to demonstrate and describe potential and kinetic energy.

California State Science Standards

Grade 2: *Physical Sciences* 2.1.b

Grade 3: *Physical Sciences* 3.1. c

Investigation and Experimentation:

Grade 2: 4.g

Common Core ELA Standards

Grade 2: *Speaking and Listening* 2.SL.3

Grade 3: *Speaking and Listening* 3.SL.3

Next Generation Science Standards: N/A

Vocabulary:

Familiarity with these terms and concepts will enhance students' experience in the activity.

- Energy: (from Greek, meaning "activity, operation") the capacity to do work
- Potential energy: stored energy, not in motion
- Kinetic energy: energy that is in motion

Materials:

- Large area for running

Procedure:

1. Begin with a reminder discussion about potential and kinetic energy. Have students give their definitions of potential and kinetic energy and some examples of things that have kinetic and potential energy.
2. Ask students if they have potential energy.
 - Why or why not?
 - How can they show that they have potential energy? (Students can remain perfectly still-this is an example of potential energy).
 - Where did their potential energy come from? (Sleep, food, water, etc.)
 - How can they convert their potential energy into kinetic energy? (Running, walking, etc.)
3. To further cement the idea of potential and kinetic energy, this activity will use the classic game of "Red Light-Green Light."
4. Have all the students line up on one end of the field or basketball court with the teacher at the opposite end of the court.
5. Review the ground rules:
 - When the teacher yells out "kinetic energy," everyone walks or runs as fast as they can. (They're converting their stored potential energy into kinetic energy).
 - When the teacher yells out "potential energy," everyone must stop right where they are and hold as still as possible. (They're resting and not moving, so they are storing potential energy; plus they have stored chemical energy from their breakfast/snack/lunch).
 - The first student to the teacher is the winner and has the most kinetic energy.