

Module 2 Energy

Lessons 6-9

Anchor Phenomenon: Windmills at Work

Essential Question: How do windmills change wind to light?

Focus Question: How does energy transfer from place to place?

Effect of Energy on Speed

- Energy is the ability to work or make something happen.
- Light, sound, temperature change, and motion indicate the presence of energy in a system.
- A moving object covers a specific distance over a period of time. This is called its speed. The speed of an object increases as it covers more distance in a shorter period of time. As an object **increases in speed**, it gives the object **more energy** of motion.
- **Energy transfer** takes place when energy moves from one place to another. Energy can move from one object to another, like when the energy from your moving foot is **transferred** to a soccer ball.
- The amount of energy transferred to an object affects its **speed** – transferring **more** energy to an object causes it to move **faster**.

Energy Changes During a Collision

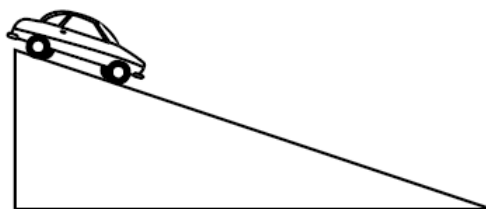
- The **speed and energy** of a moving object is impacted when it collides with another object. A **collision causes the energy in one object to transfer to the other object**, affecting how the second object moves.
- When objects collide, the **impact transfers some energy to the surrounding air by sound or heat**.

Less energy stored in the height of the car will make the car travel down the ramp slower than ramp 2.

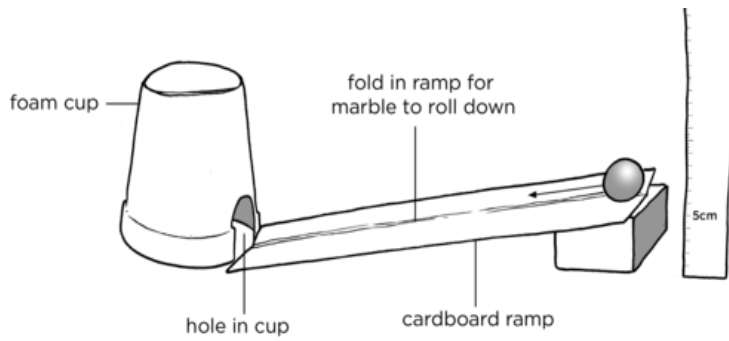


Ramp 1

More energy stored in the height of the car will make the car travel down the ramp faster than ramp 1.



Ramp 2



When the marble travels down the ramp and hits the cup, it will transfer some of the energy to the cup and make it move in the same direction the marble is going. You will also hear a sound of the marble hitting the cup.

***Students will need to analyze data on charts and graphs to answer questions related to energy, speed, and energy transfer.