

## THE STANDARD

# Energy & Collisions

"Ask questions and predict outcomes about the changes in energy that occur when objects collide."

## DCI

DISCIPLINARY  
CORE IDEA

### PS3.A · Definitions of Energy

"Energy can be moved from place to place by moving objects or through sound, light, or electric currents."

This standard lives in the moment two things crash. Before the crash, a moving object carries energy. During the crash, that energy moves into whatever it hits. **After the crash, 4th graders see the change: one object slows, the other speeds up, you hear a sound, and the air warms a tiny bit.**

## SEP

SCIENCE &  
ENGINEERING  
PRACTICE

### Asking Questions and Defining Problems

"Ask questions that can be investigated and predict reasonable outcomes based on patterns such as cause and effect relationships."

4th graders aren't handed the question. **They watch a crash, notice it changes something, and ask a question they could actually test, like "What happens to the still marble if I roll a faster one into it?" Then they predict the outcome using a pattern they've seen: faster crash, bigger change.**

## CCC

CROSSCUTTING  
CONCEPT

### Energy and Matter

"Energy can be transferred in various ways and between objects."

Here's the idea 4th graders carry out the door: in a crash, energy doesn't disappear, it moves. When the rolling marble hits the still one, its energy of motion transfers over and the still marble takes off. Some energy also leaks into a sound and warms the air. **It's all still there.**