THE STANDARD

Newton's Third Law in Collisions

Apply Newton's Third Law to design a solution to a problem involving the motion of two colliding objects.

ANCHORING PHENOMENON

The Egg That Survives a Wall

A raw egg taped to a small toy car. The car rolls down a ramp at the same speed in two trials. In trial one, the car hits a bare wall and the egg cracks. In trial two, the car hits the same wall, but with a pile of crumpled paper towels stacked in front. The egg survives. Same ramp. Same car. Same wall. Different outcome. Students will keep circling back to this all week.

> DRIVING QUESTION
> *"What did the crumpled paper towels actually change about the crash?"*

INVESTIGATIVE 1

The Skater and the Wall

A short video clip of an ice skater pushing off a smooth wall with both hands. The wall doesn't move. The skater glides backward. Almost nothing was touching her except the wall, so where did her motion come from? Use this to sharpen the force-pair lens the anchor is pushing on: every push is two pushes, on two different things.

> DRIVING QUESTION
> *"If the wall didn't push her, what made her move?"*

INVESTIGATIVE 2

Balloon Car Across the Floor

A small car with a balloon taped to the top, the balloon's neck pointing out the back. Inflate the balloon, let it go, and the car shoots forward. The air rushes backward out of the balloon. The car goes the other way. Same kind of push-pair as the skater on the wall, only here both objects are free to move. Use this to extend the lens further: when nothing is holding either object in place, both move in opposite directions from a single force pair.

> DRIVING QUESTION
> *"If the air is what's moving, how is the car moving too?"*