Section 5-4

Action and Reaction

Momentum

Place two coins on your desk, one in the middle (coin M) and the other at the edge (coin E).

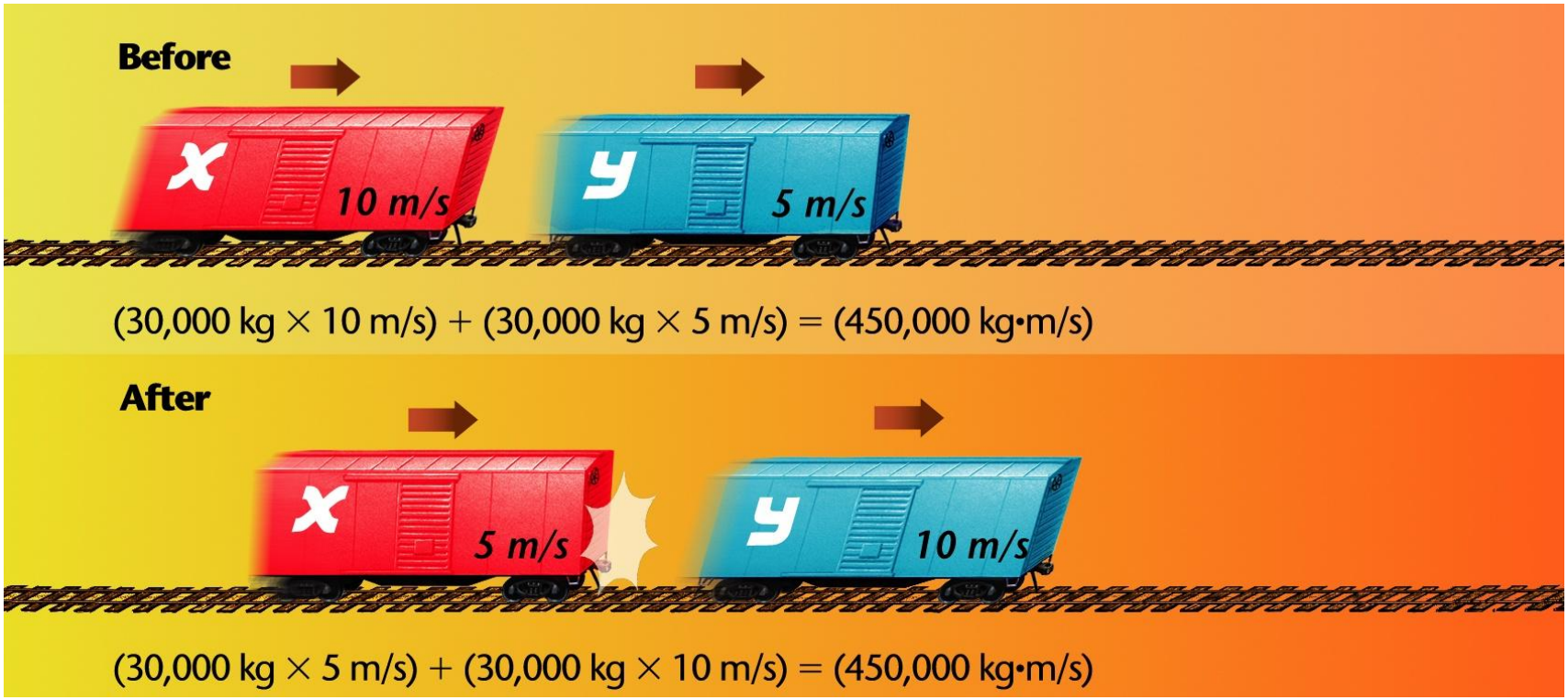
Push coin E into coin M and observe what happens to each coin when they collide.

Newton's 3rd Law of Motion:

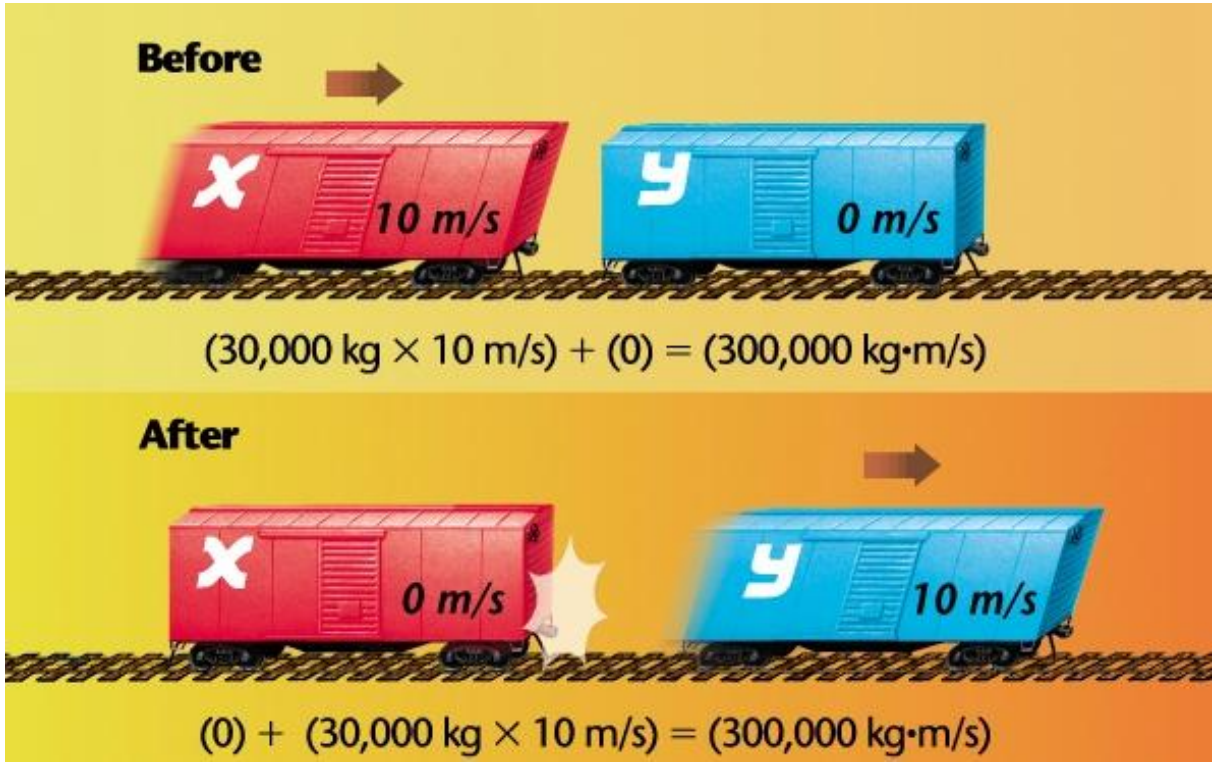
- If one object exerts a force on another object, then the second object exerts a force of equal strength in the opposite direction on the first object.

Remember: $Momentum = Mass \times Velocity$

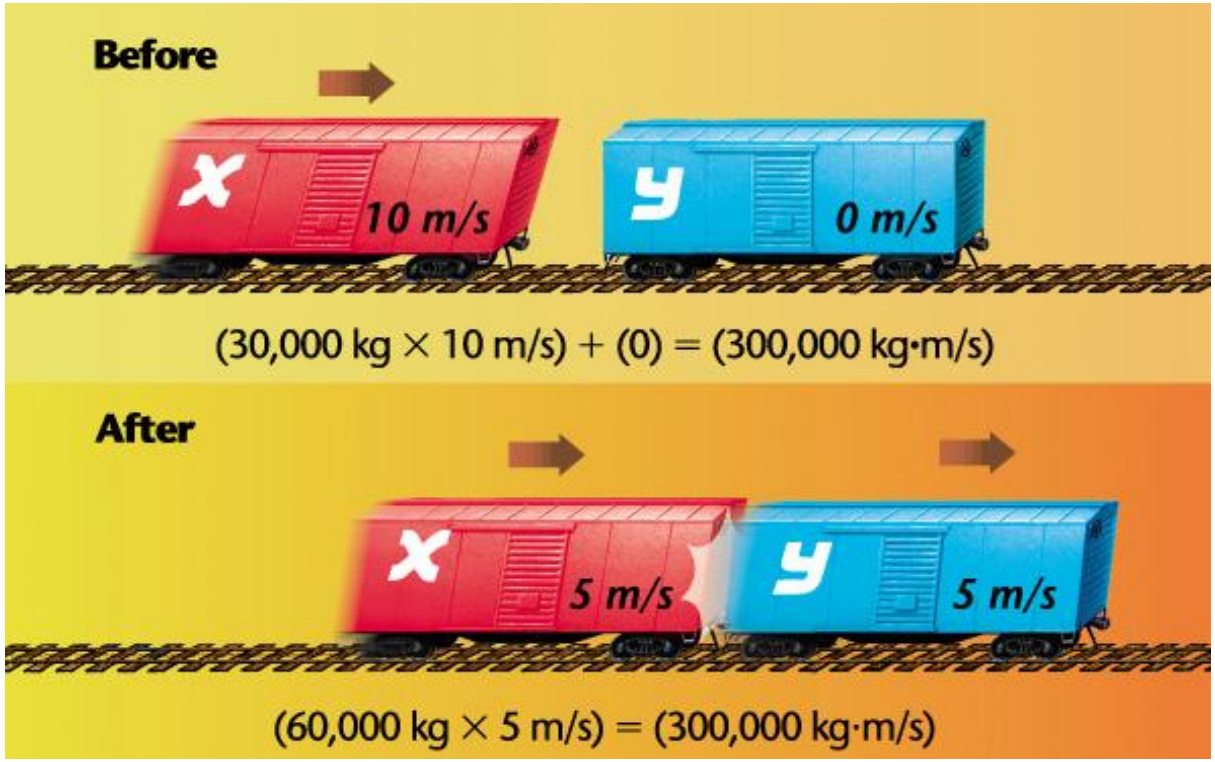
Momentum



Momentum



Momentum

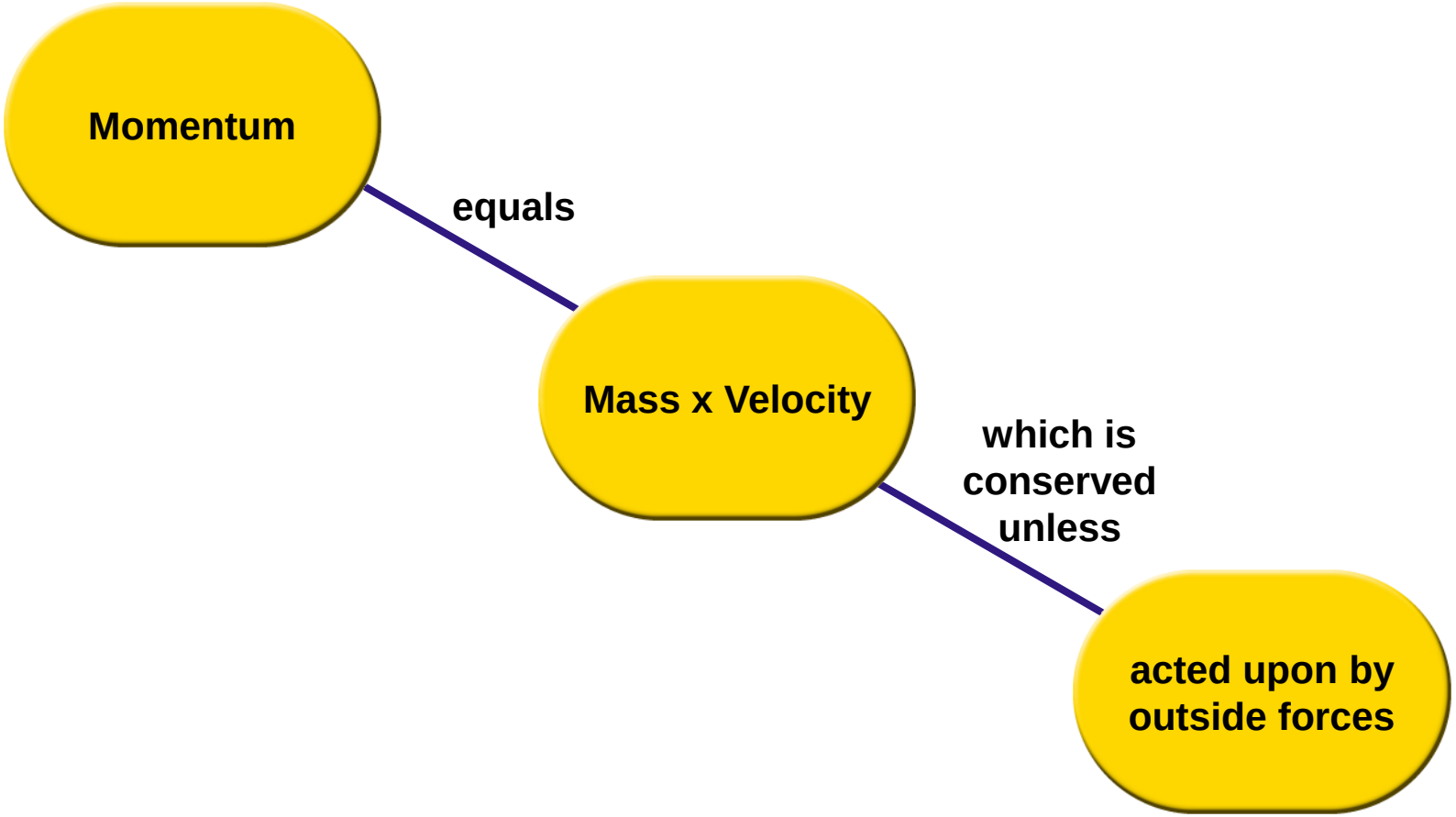


Newton's 3rd Law of Motion:

- If one object exerts a force on another object, then the second object exerts a force of equal strength in the opposite direction on the first object.

This explains how a rocket lifts off.

Momentum



Section 5-5

Orbiting Satellites

Satellites:

- Any object that travels around another object in space.
- Two types:
  - Natural
  - Artificial

Circular Motion:

- Centripetal force is any force that causes an object to move in a circle.

- Gravity pulls a satellite toward the center of the earth

Satellite Motion:

- Satellites in orbit around the Earth continually fall toward Earth, but because Earth is curved, they travel around it.

- The higher the orbit the slower the speed needs to be to maintain the orbit.