

Newton's Three Laws

8th Grade

Why things move, keep moving, and push back.

Three statements that describe almost all everyday motion.

FIRST LAW — INERTIA

1

An object stays still, or keeps moving steadily, unless a force acts on it.

SECOND LAW — $F = ma$

2

Force equals mass times acceleration. More force, more acceleration; more mass, less.

THIRD LAW — ACTION AND REACTION

3

Every force has an equal and opposite force acting on the other object.

EVERYDAY EXAMPLES

1st: you lurch forward when a car brakes

2nd: an empty trolley is easier to push

3rd: a rocket pushes gas down, gas pushes rocket up

The third law's pair acts on two **DIFFERENT** objects. That is why they never cancel out.