

1

Newton's First Law of Motion

• Objects at rest will stay at rest, and objects in motion will stay in motion in a straight line unless acted upon by an unbalanced force.

• REST

• MOTION

• UNBALANCED FORCE

2

Newton's Second Law of Motion

- **Force is equal to mass times acceleration.**

- **MASS**

- **ACCELERATION**

- **FORCE**

3

Newton's Third Law of Motion

- For every action there is an opposite and equal reaction.

- ACTION

- REACTION

Newton's Laws of Motion

Putting Them Together

with Model Rocketry

Law 1:

An unbalanced force must be exerted for a rocket to lift off from a launch pad.

Law 2:

The amount of thrust (force produced by a rocket engine) will be determined by the mass of rocket fuel that is burned and how fast the gas escapes the rocket.

Law 3:

The reaction, or motion, of the rocket is equal to and in an opposite direction from the action, or thrust, from the engine.