Newton’s Laws of Motion
Who is Isaac Newton?

- English physicist, astronomer, mathematician, and natural philosopher…

- Famous for his work on laws of motion, optics, gravity, and calculus

  - Did all this before he turned 25!!!!
Newton’s First Law of Motion

Law of Inertia

Every object in a state of motion tends to stay in that state of motion unless acted on by an external force.
Newton’s Second Law of Motion

Law of Acceleration
Newton’s Third Law of Motion

Law of Reciprocal Forces

For every action there is an **equal** and **opposite** reaction
Hovercrafts

• A hovercraft is a vehicle that glides over a smooth surface

• The hovercraft creates vents of air, which are trapped beneath the vehicle by a curtain surrounding the base

• How does the air cushion beneath the hovercraft allow the vehicle to glide to freely?
  – The key to the ease of movement is reducing friction
How a Hovercraft Works

Diagram showing how a hovercraft works. The fan blows air into the flexible skirt, allowing the craft to hover above the water.
Homemade Hovercrafts
Plate + Fan = Hovercraft
Hovercraft Essentials

Motor: 12 volt PC fan

Power Supply: 9 volt batteries

Adhesive: Electrical tape

Hovercraft base and skirt?????????????????
Goal: Pass Newton’s Test for Hovercrafts

First test: (Law of Inertia)

Second test: (Law of Acceleration)
Newton’s Third Test
Newton’s Third Test