

Galileo Galilei and The Leaning Tower of Pisa



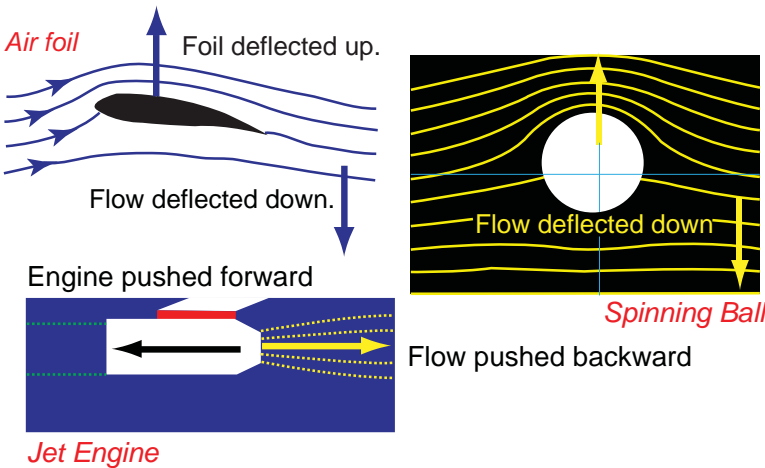
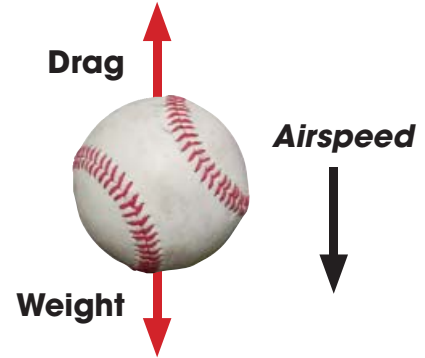
It has been said Galileo discovered how objects fall by dropping balls of different masses from the Leaning Tower of Pisa. Actually he rolled balls down a ramp.

Isaac Newton



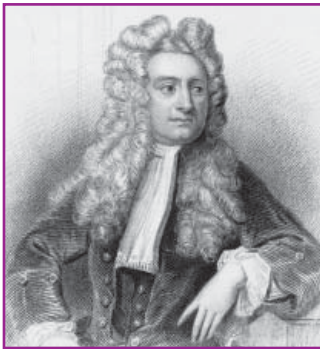
First law of motion:

An object at rest remains at rest, and an object in motion continues to move in a straight line with a constant speed unless an unbalanced force acts upon it.



Second law of motion:

The acceleration of an object equals the net force on that object divided by its mass.
 $a = F/m$ or $F = ma$

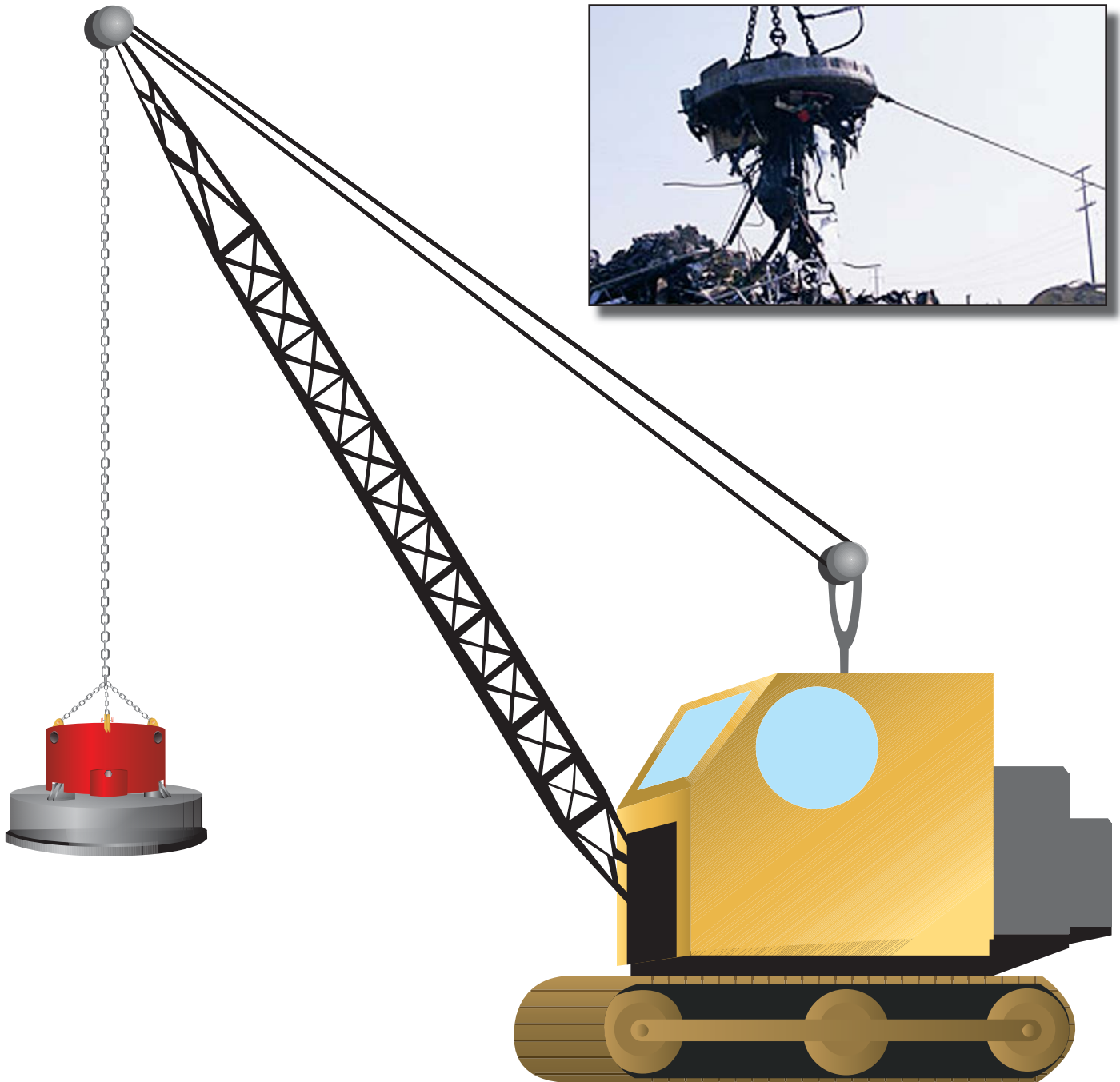


Third law of motion:

For every action force there is an equal reaction force in the opposite direction.



A Large Electromagnet



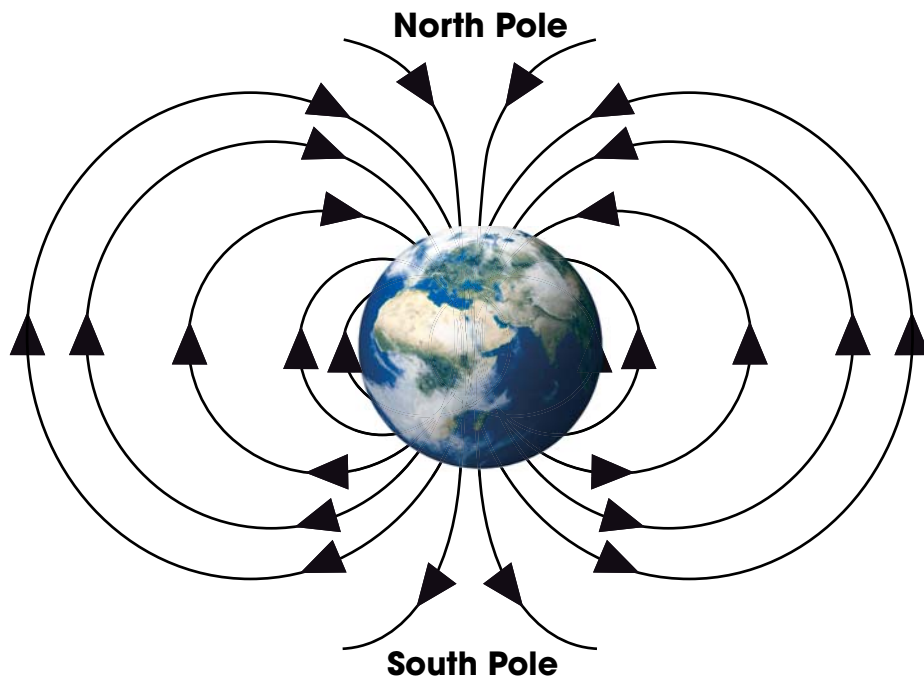
Large electromagnets are used to lift heavy objects made of iron or steel and to separate iron from other kinds of scrap metal.

The Force of the Moon's Gravity



“The Moon’s gravity pulls at the Earth so hard that it makes the water in the oceans slosh towards the moon! We see this when we see the ocean tides rising and falling.”

Earth's Magnetic Field

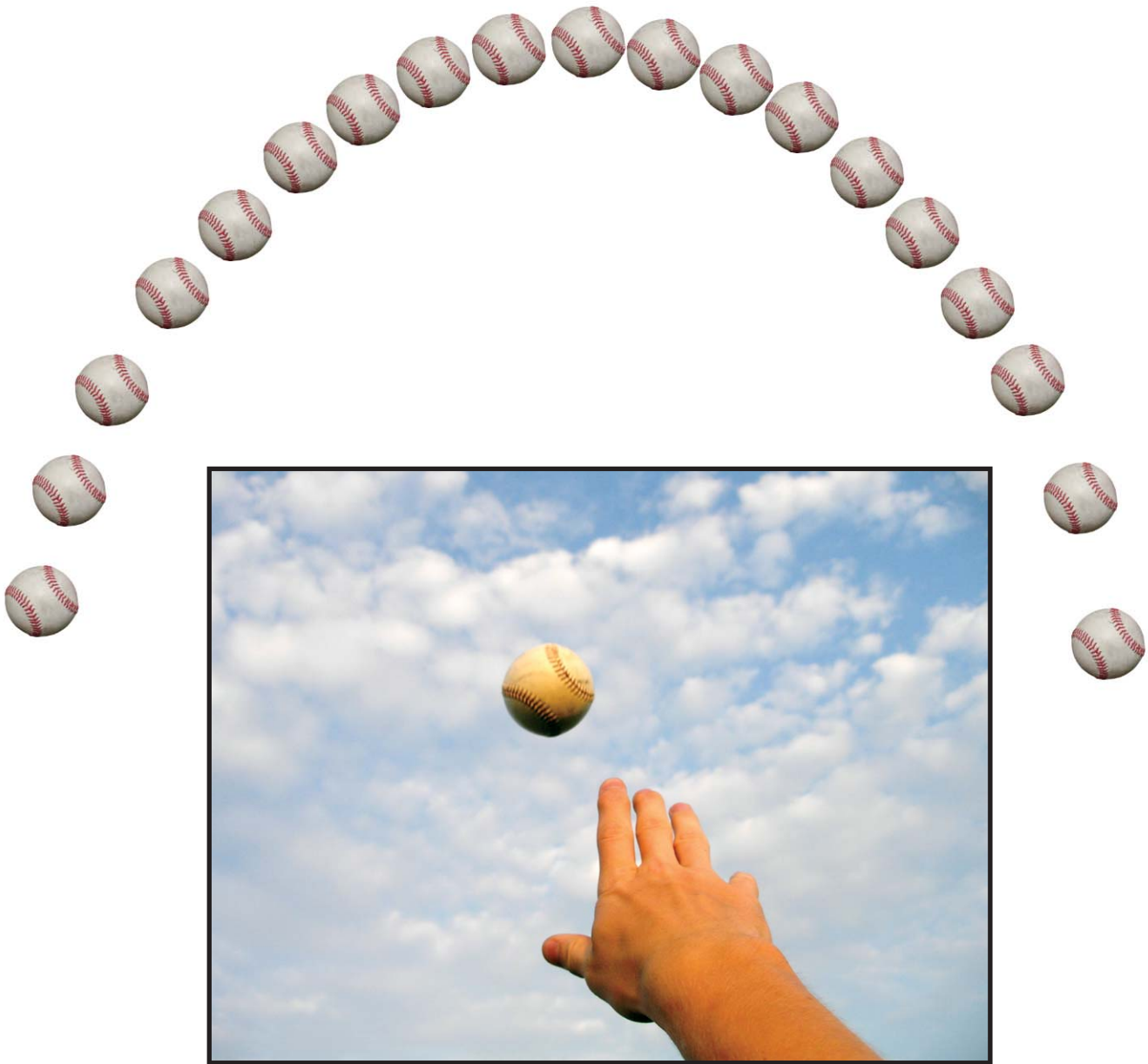


These are the magnetic lines of force of Earth's magnetic field.



Earth's magnetic field causes the aurora borealis, also called the northern lights.

A Projectile in Motion



“When you throw a ball it is decelerating on the way up and accelerating on the way down. The Ball is changing motion because it is acted on the unbalanced force of Gravity. Gravity is acting in the downward direction.”