

GRAVITY AND CHANGING DIRECTION STUDY GUIDE

Gravity is the force that exists between any two objects that have mass.

Gravity is the force that pulls objects on Earth towards the surface.

It often causes satellites orbiting Earth to fall into the earth's atmosphere.

When objects are thrown in the air, gravity pulls them back to the ground at the same speed. Even if one object weighs 10 pounds and another weighs 5 pounds, gravity will work the same on both objects unless wind resistance gets in the way.

Weight is a measure of the force of gravity pulling on an object so it determines the weight of matter.

Mass is the amount of matter in an object. The mass of an object tends to make the object resist movement.

Newton's first law of motion, often called the Law of Inertia, states that every object moving in a straight line will continue to move in a straight line at a constant speed unless an external force is applied to it. This is why we should wear our seatbelts!

Newton's second law of motion says that force is equal to mass times acceleration ($F=MA$). The greater the mass of an object being accelerated, the greater the amount of force needed to accelerate the object.

Newton's third law of motion explains how rockets are launched into space and says that for every action there is an equal and opposite reaction.

How does gravity affect things on or near Earth? Things tend to fall toward the Earth when dropped. Gravity is the force of attraction between any two masses.

How do mass and distance affect the gravitational pull between objects? The greater the masses of two object, the greater the gravitational pull between them. The smaller the distance between two objects, the greater the gravitational pull between them.

What is needed to change the direction of a moving mass? A force must act on a moving mass for it to change direction.

What happens to a ball thrown horizontally? A ball thrown horizontally will change direction because of gravity. Gravity will pull it down to the surface of the Earth.