

# Gravity Newton's Law of Gravitation

All objects that have mass are attracted to each other.

**NEWTON'S LAW OF UNIVERSAL GRAVITATION:** Every object in the universe attracts every other object with a force directed along the line of centers for the two objects.

## THINK ABOUT IT!

Using the diagram to the right explain what you see. Will the watermelon hit first or the apple? Why?

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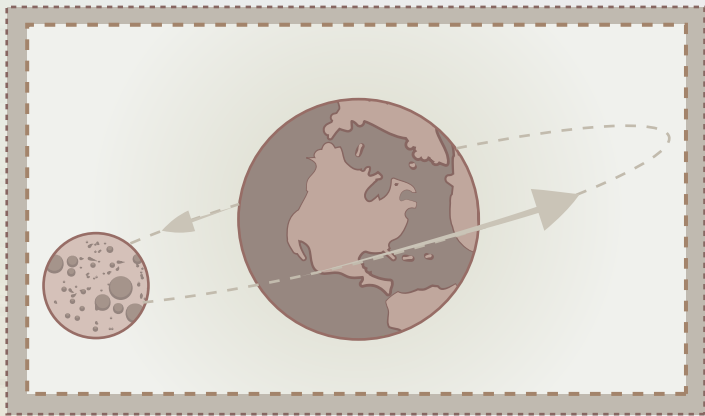
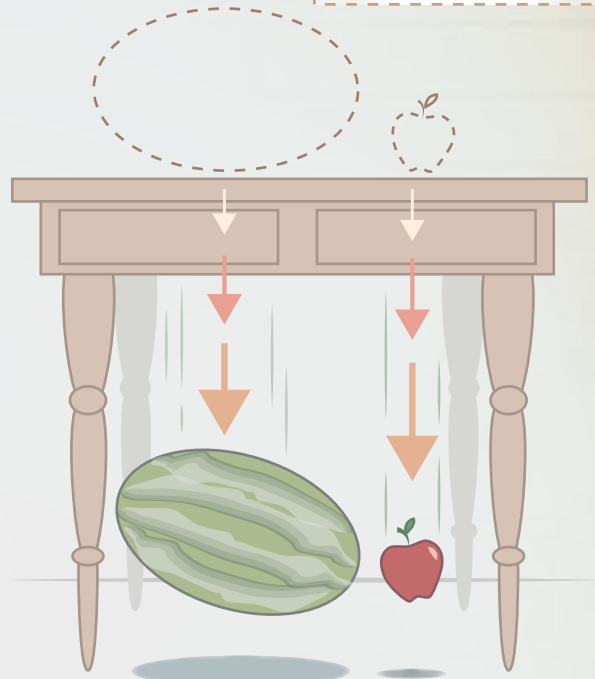
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Gravity pulls **ALL** objects towards the earth at the same rate of speed!



## DID YOU KNOW?

The moon doesn't circle around the earth? It is actually falling towards the Earth. It does not crash into us because it is held in an orbit by gravity.

## FUN FACT:

Weight depends on how strong the gravitational pull is. You'll weigh less or more on different planets. Because of differences in gravity, a 220 pound person would only weigh 84 pounds on Mars.

## WHAT CAUSES THINGS TO ORBIT?

An orbits happens when there is a perfect balance between the forward motion of a body in space, such as a planet or moon, and the pull of gravity from another body in space, such as a large planet or star. An object with a lot of mass moves forward; however, the gravity of another body in space pulls. It's a continuous tug-of-war between the two objects.

