Pushing & Pulling

Week #1

A leaf drifts to the ground, A soccer ball rolls past the goal. How do these motions occur? They are due to powers called **forces**. All forces either pull or push. Sometimes it is easy to tell where the force is coming from: *you* push the scooter, and it moves. Other forces, like **gravity** are invisible. You can't see **gravity**, but it is pulling you down to Earth all of the time. A popular story is that Isaac Newton watched an apple fall one day and figured there must be a force pulling the apple down, rather than up, horizontally, or diagonally. The name of this force is **gravity**. **Gravity** is the attraction between objects and it is constantly at work.

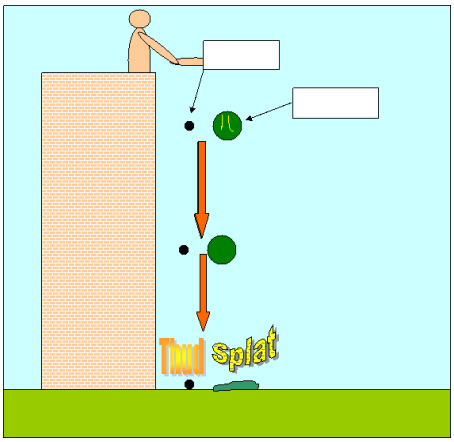
soccer ball rolls past the goal

apple falls down, not up

leaf falling to the ground

Drop it!

If you took a cannon ball and a watermelon and dropped them out of a six-story building, both would hit the ground at the same time. Back in the 1500's, Galileo did experiments trying to prove this point. He didn't use a cannon ball and watermelon, but he did climb the Leaning Tower of Pisa and dropped things to see how they fell. He discovered that **all things fall at the same speed**. The pull of the Earth's gravity, called G-force, moves everything toward the Earth at the same rate, no matter how much the object weighs!



Small black dot=cannon ball & large green dot=watermelon
Canon Ball and Watermelon hit the ground at the same time