

Suzy's World

Galileo

If I dropped a pebble and a stone from the same height at the same time which one would hit the ground first?

Fact

- The pebble and the stone will hit the ground at the same time.
- Scientists have described gravity as the force that pulls everything back towards the centre of the earth.
- Gravity pulls down on all objects. This pull is proportion to the object.
- Sometimes air pressure and air resistance can alter the results of a test like this.
- You can see the effect of air resistance on the pull of gravity by changing the surface area of an object. If we drop a flat piece of paper and a piece of paper scrunched into a ball the flat piece of paper will take longer to land because of the air resistance on its surface area.



Do you know

- In the 17th century an Italian scientist called Galileo showed that a large cannon ball fell at the same rate as a smaller cannon ball. He did this by dropping the objects from the top of the Leaning Tower of Pisa.

Experiments you can do

Try dropping a pebble and a stone at the same time from the same height and see if you get the same result as me. Try it at several different heights, and preferably out of the wind.

Does the pebble hit the ground at the same time as the stone?

Try the same experiment with ten 10cent pieces. Tape five of the 10cent pieces together in a stack. Hold the other five 10cent pieces in a stack in your other hand and drop them from the same height at the same time. Do they all land together at the same time?

Other Investigations

Experiment with gravity.

The pull of gravity on the mass of your body gives you your weight. The more matter you have, the more mass and the heavier you will weigh. But you can make yourself weightless for about a second, if you want. Stand on a set of scales and look at how much you weigh. Slowly bend your knees so you are crouching down. Does your weight change? (It shouldn't) Now crouch down quickly watching the reading on your scales closely. For a brief time your weight will show as nothing. You may need to do this a few times to get the speed just right. This happens because for the short time you are moving gravity has no effect on you.

Think about what happens to your weight when you're standing in water. Your weight is counterbalanced by the buoyancy of the water holding you up so you appear to weigh less.

It's easier to carry someone in water but harder to push them through water.

