

Newton experiments

Coin and cup experiment

See video for instructions.

<https://thehomeschoolscientist.com/newtons-first-law-experiment/>

Isaac Newton and Gravity

According to legend Issac Newton was sitting under an apple tree when an apple fell on his head, which made him wonder why it fell to the ground.

Newton published the Theory of Universal Gravitation in the 1680s, setting forth the idea that gravity was a force acting on all matter. His theory of gravity and laws of motion are some of the most important discoveries in science and have shaped modern physics.

Meteor Showers

This experiment is a great introduction to the idea of gravity and how the weight of an object and the height from which it is falling influences its gravitational pull. Meteors are the perfect example of this type of occurrence. Learn more about meteors in this Meteor Facts for Kids lesson.

Materials you will need:

- Flour
- Newspaper
- Large baking sheet
- Assortment of objects of various sizes and weights (marbles, rocks, coins)
- Step stool or ladder

Instructions:

1. Place newspaper on the floor, then place the baking sheet on top.
2. Fill the baking sheet with flour until it's approximately one inch deep.
3. Stand on your knees in front of the baking sheet and drop the lightest object onto the baking sheet. Observe the approximate time it takes for the object to hit the flour and how deep of a crater it makes once it lands.

4. Staying on your knees in the same position, drop the heaviest object in a different spot on the baking sheet. Observe the results, noting the differences in this object's landing time and its imprint in the flour compared to the lighter object.

5. Using the ladder or step stool, continue to drop various objects from different heights and compare the sizes of their craters and the rate at which they fall.

Inclined Planes

Another experiment is to use an inclined plane to test how gravity effects the movement of objects. Students can time how long a ball or car takes to roll down planes of different heights. A simple ramp made with a piece of plywood or card and a stack of books will provide an inclined plane that can be changed easily.

Film Canister Rocket

A **film canister rocket** is a fantastic demonstration of all three of **Newton's Laws of Motion**, but it falls back to the ground thanks to gravity. **Water powered bottle rockets** are another great fun example of gravity and lots of other forces too