

Magnificent Motion

What do gravity, inertia, and centripetal force have in common? They are all part of the fun in this introduction to physics. Feel the pull of precession with the bike wheel gyroscope, and measure distance with air rockets.

SUMMARY:

Find out what makes the world go around in an entertaining introduction to the basic concepts of forces. Sir Isaac Newton would be proud when young scientists investigate his law of inertia. Children experiment with timed launches and measured distance travelled. Gyroscopes, bike wheels, and toy race tracks reveal the concepts of precession and centripetal force. Children leave with a thirst for physics along with their very own spring things. An optional rocket launch can be added to this program!

EDUCATIONAL VALUE:

Students know that gravity pulls any object on or near the earth toward it without touching it. Students know that friction is a force that is created anytime two surfaces move or try to move across each other. Students know that all matter has mass. Students understand that changing any or all of these factors will affect the motion of an object. Students know that it is possible to measure the motion of an object based on the distance it will travel in a certain amount of time. Students know that the greater a force is, the greater the change (in motion) it produces. The greater the mass of the object being acted on, the less the effect of the (same) force.



TAKE-HOME MESSAGE:

- 1 The motion of objects is affected by gravity, friction, and mass.
- 2 The motion of an object can be measured by time, distance, and direction.
- 3 Forces and changes in mass help us predict changes in the motion of an object.

TAKE-HOME PRODUCT:

Mad Science® Air Blaster

North Carolina Essential Standards:

Understand force, motion and the relationship between them.

- 5.P.1.1 Explain how factors such as gravity, friction, and change in mass affect the motion of objects.
- 5.P.1.2 Infer the motion of objects in terms of how far they travel in a certain amount of time and the direction in which they travel.
- 5.P.1.3 Illustrate the motion of an object using a graph to show a change in position over a period of time.
- 5.P.1.4 Predict the effect of a given force or a change in mass on the motion of an object.