



Family Fun Activities and Investigations

Visit the following places to experience hands-on science:

Maryland Science Center

601 Light Street

Baltimore, MD 21230

410-685-5225

Baltimore Museum of Industry

1415 Key Highway

Baltimore, MD 21230

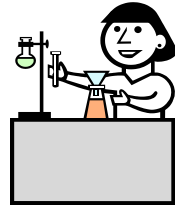
410-727-4808

Port Discovery

35 Market Place

Baltimore, MD 21202

410-727-8120



Career Connections

Take a few minutes to discuss, with your child, these different career opportunities for people interested in designing and performing scientific investigations.

Fighter Pilot

A person who flies military aircraft

Architect

A person who designs buildings

Physicist

A scientist who studies the science concerned with the interaction of matter and energy

Video Game Designer

A person who writes computer programs for video games

Aerospace Engineer

A person who designs, builds, and repairs aircraft and spacecraft

Mechanical Engineer

A person who designs and builds the interior components of a structure

Prepared by

Office Of Science, Pre K–12

A Parent's Informational Guide to the Science Unit:

Physics is Phun!

The Science of Toys



Grade 5



Physics is Phun!

The Science of Toys

Physics is Phun is a fifth grade unit designed to be taught to develop understanding of the concepts of force and motion, and light. In this unit students will conduct investigations to learn the relationship of motion to speed, distance, direction, and time. They will learn about the different types of motion, and be able to give examples of how changes in speed or direction are caused by an interaction of forces, such as gravity or friction, acting on an object. Students will conduct investigations to explore objects that are transparent, translucent, and opaque; as well as the phenomena of reflection and refraction. They will use what they have learned to analyze how a kaleidoscope works. Finally, students will create posters for a Physics Is Phun! Expo, to accompany demonstrations on how the yo-yo and kaleidoscope work. The Maryland Voluntary State Curriculum Indicators addressed in the unit are listed below:

Physics—Mechanics

Describe the motion of objects using distance traveled, time, and speed.

Explain that the changes in motion of objects are determined by the mass on an object and the amount of force applied to it.

Cite evidence that energy in various forms exist in mechanical systems.

Provide evidence to show that light travels in a straight line until it is reflected or refracted.

Recognize and describe how light interacts with different materials.

Math Connection

Students will apply the properties of one-, two-, or three-dimensional geometric figures to describe reason or solve problems about shape, size, position, or motion of objects.

Students will identify attributes, units, or systems of measurements or apply a variety of techniques, formulas, tools or technology for determining measurements.

Students will collect, organize, display, analyze, or interpret data to make decisions or predictions.



Unit Vocabulary

Encourage your children to use the vocabulary listed below when telling you about what they are learning during this science unit.

Kinetic Energy - the energy in a moving body, such as a speeding train or a flying baseball.

Opaque - blocking light or other rays. Wood is opaque, glass is not.

Potential Energy - the energy that is available when an object is raised, stretched, or squeezed.

Reflection - the change in direction of a wave of energy, such as light, bouncing off of a surface.

Refraction - the bending of light rays as they pass through different substances at an angle.

Translucent - letting light rays pass through, but not transparent, such as frosted glass.

Transparent - letting through so things on the other side can be clearly seen.

Uniform Motion - motion that is equal distance over equal time, such as an escalator.

Variable Motion - motion that is different distances in equal times, such an accelerating car.

Periodic Motion - motion repeated in equal intervals of time, such as a rocking chair, a bouncing ball, or a swing in motion.



Books to Read

Take some time to read books about science fair projects with your child. Books on this topic can be found in the non-fiction section of the library with the call numbers 507. You can also find books on this topic in the children's section of your school and public library.

Physics for Every Kid: 101 Easy Experiments in Motion

by Janice VanCleave

The Usborne Illustrated Dictionary of Physics

by Corinne Stockey and Chris Oxlade

Elementary Physics-Motion

by Ben Morgan

Science in Seconds with Toys; over 100 Experiments You Can Do in Ten Minutes or Less

by Jean Potter

Internet Sites



<http://howstuffworks.com/>

www.brainpop.com

<http://school.discovery.com/sciencefaircentral>

http://www.physics4kids.com/files/motion_intro.html

<http://www.tpt.org/newtons/>

<http://www.learner.org/exhibits/parkphysics/index.html>