



## Family Fun Activities and Investigations

Visit the following places to experience  
hands-on science



222 North 20th street  
Philadelphia, PA 19103



501 East Pratt Street  
Baltimore, Maryland 21202



## Career Connections

Take a few minutes to discuss  
these different career opportunities  
in Chemistry with your child

### Private Investigator

Private investigators are privately hired  
to do investigative or detective work.

### Chemist

A scientist who studies the composition,  
properties and structure of matter.

### Forensic Pathologist

*Forensic pathologists* investigate crime  
scenes in search of clues.

### Medical Lab Technician

A *medical lab technician* tests materials  
for doctors and for pathologists

### Marine Biologist

A *marine biologist* studies the actions and  
interactions of marine organisms.

Prepared by  
Office Of Science, Pre K–12  
George A. Newberry, Director

A Parent's Informational  
Guide to the Science Unit

## As a **Matter** of Fact

A CSI Chemistry Unit



Grade 4



# As a Matter of Fact

## A CSI Chemistry Unit

This is a fourth grade unit designed to help students learn more about chemistry concepts such as the states of matter, conservation of matter, physical properties, physical and chemical changes, filtration, evaporation, and paper chromatography. In this unit, students will use the content knowledge learned in hands-on, minds-on investigations to assist in finding the solution to a neighborhood mystery.

The Maryland Voluntary State Curriculum Indicators addressed in this unit are listed below:

**1.0 Skills and Processes- Students will demonstrate the thinking and acting inherent in the practice of science.**

- A. Constructing Knowledge
- B. Applying Evidence and Reasoning
- C. Communicating Scientific Information

**4.0 Chemistry- Students will use scientific skills and processes to explain the composition, structure, and interactions of matter in order to support the predictability of structure and energy transformations.**

- A. Structure of Matter
- B. Conservation of Matter
- D. Physical and Chemical Changes

## Unit Vocabulary

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

**matter** - anything that has mass and takes up space

**solid** - a form of matter that has a shape of its own

**liquid** - the form of matter that does not have its own shape, but takes the shape of the container

**gas** - the only kind of matter that always fills all the space inside a container and takes the shape of the container

**physical property** - a property that can be observed, measured, or changed without changing the substance itself

**mass** - the amount of matter in an object

**weight** - the measure of the pull of gravity on an object

**condensation** - the process of changing from a gas to a liquid

**evaporation** - the process of changing from a liquid to a gas

**water vapor** - the gas state of water

**solubility** - a measure of the amount of a material that will dissolve in another material

**solution** - a special mixture in which the particles of different kinds of matter are mixed evenly

**mixture** - a combination of two or more different kinds of matter, each of which keeps its own physical properties

**filtration** - using a filter, a device with tiny holes that strains out solids from a liquid or gas, to remove something unwanted

**acid** - a substance that can taste sour; very strong acids can burn your skin

**base** - a substance that is the opposite of an acid and can taste bitter; very strong bases can burn your skin

**neutral** - a substance that is neither acid nor base

**litmus paper** - a common indicator used to determine whether a solution is acid or base

**physical change** - a change of matter from one form to another without becoming a new substance

**chemical change** - a change of matter in which a new substance is formed

**paper chromatography** - a method for separating mixtures into their different parts by using special paper that absorbs a liquid material, such as water



## Books to Read



Take some time to read books about chemistry with your child. Books on this topic can be found in the non-fiction section of the library with the call numbers 540. You can also find books on this topic in the children's section of your school and public library.

*Chemistry from Discovery School Science*

*Chemical Reactions* by Carol Baldwin

*Acids and Bases* by Carol Baldwin

*Solids, Liquids, and Gases* by the Ontario Science Center

## Internet Sites



<http://kids.mysternet.com>

A website with short mystery stories that enables children to gather clues and "solve" the mystery.

<http://www.chemistry.org/kids>

A child-friendly website created by the American Chemical Society.

<http://www.brainpop.com>

A good source for information regarding science content and concepts. Password is required. Check with your school's library media specialist for the username and password.