TEACHING STRATEGIES:

Discuss how chemistry is used in everyday life.
Have a student show the hazardous aspects of the individual lab.
Have the class research the chemical industry and their safety record.
Have the class discuss the safety aspects of chemistry before and after the video is watched. Note the differences.
Name a few of the chemicals that the class uses everyday. (Everything is chemical, even the water we drink).
Ask the class if they had ever thought about Personal Protective Equipment and can they name the pieces they would use in everyday life. (Gloves, Glasses, Coats and Jackets, Raingear, Clothing in general is considered PPE).
Safety is important at all times in the chemistry lab. Have the class go through a fire scenario. What would the first thing they should do. (Evaluate the situation, call 911, evacuate).
Have the class learn how to properly use a fire extinguisher using the **PASS** procedure. (**PASS** stands for **P**ull the pin, **A**im the nozzle, **S**queeze the trigger in the area, **S**weep the area).
Discuss how dangerous a chemistry lab can be if the students are not careful.
Discuss with the class how the chemistry lab is environmentally sensitive. (Dumping things down the sink is a no. Dispose of chemicals properly).

CONCEPTS AND TERMS TO LISTEN AND WATCH FOR:

Acid
Base
Burners
Catalyst
Cleanup Kit
Distillation Apparatus
Evacuation Plan
Fire Extinguisher
Fume Hood
Gas Cylinder
Glass Beakers
Grounding
Personal Protective equipment
Respirator
Safety Equipment
Safety Gloves
Sharps Container

CAREER OPPORTUNITIES FOR THOSE WORKING DIRECTLY WITH CHEMISTRY:

Biomedical Engineer
Chemical Engineer
Chemical Plant Operator
Chemist
Chemistry Teacher
Doctor
Food Technician
Lab Technician
Painter
Pharmacist
Pool Cleaner
Safety Engineer
Waste Water Technician

QUESTIONS FOR THOUGHT, DISCUSSION & FURTHER STUDY:

Describe the safety equipment in the chemistry laboratory.
Describe how a fume hood works.
Describe how a chemical spill is cleaned up in a lab?
What does a Bunsen burner do?
What is a chemical reaction?
Why do you use glass for beakers?
How hot is a Bunsen burner flame?
Why should you use a fume hood when you do experiments?
Describe the proper way of smelling a chemical?
Describe a use for an acid?
If glass beaks on the floor describe how to clean it up properly.
Name several chemicals used around the house.
Describe how a fire extinguisher works?
PPE is important in the chemistry lab. Describe the different types of PPE that one uses in the lab?
Do you add water to acid or acid to water?
Why do certain chemicals need to be put under lock and key?
Why are gas cylinders dangerous?
What should you do if a chemical is accidentally poured down the sink drain?
Why should you never smell a chemical directly?
How do you use a fire blanket? A safety shower? An eyewash station?

GLOSSARY:

Acid- A compound usually having a sour taste and capable of neutralizing alkalis and reddening blue litmus paper, containing hydrogen that can be replaced by a metal or an electropositive group to form a salt, or containing an atom that can accept a pair of electrons from an alkali.
Alchemy- A form of chemistry and speculative philosophy practiced in the Middle Ages and the Renaissance.
Alkali- Any of various bases, the hydroxides of the alkali metals and of ammonium, that neutralize acids to form salts.
Atom- The smallest component of an element having the chemical properties of the element.
Base- A compound that reacts with an acid to form a salt, as ammonia, calcium hydroxide, or certain nitrogen-containing organic compounds.
Catalyst- A substance that causes or accelerates a chemical reaction without itself being affected.
Chemistry- The science that deals with the composition and properties of substances and various elementary forms of matter.
Coalescence- Is the process by which two or more droplets or particles merge during contact to form a single daughter droplet (or bubble).
Distillation- Evaporation and condensation of a liquid, as when water is boiled in a retort and the steam is condensed in a cool receiver.
Electron- An elementary particle with negative charge.
Elements- One of a class of substances that cannot be separated into simpler substances by chemical means.
Endothermic- Pertaining to a chemical change that is accompanied by absorption of heat.
Exothermic- Pertaining to a chemical change that is accompanied by a release of heat.
Experiment- A test, trial, or tentative procedure; an act or operation for the purpose of discovering something unknown.
Inert- Having little or no ability to react, as with nitrogen.
Litmus- A water-soluble blue powder derived from certain lichens that changes to red with increasing acidity and to blue with increasing alkalinity.
Litmus Paper- Paper treated with litmus for use as an acid-base indicator.
Matter- Physical substance, whether solid, liquid, or gaseous.
Metallurgy- Is a branch of materials science that studies the physical and chemical behavior of metallic elements.
pH- A measure of the acidity or alkalinity of a solution.
PPE- Personal Protective Equipment used to protect one from potential accidents.
Proton- An elementary particle with a positive charge.
Reaction- The action of chemical agents upon each other also a chemical change.
Reagent- A substance used in a chemical reaction to detect, measure, examine, or produce other substances.
Vacuum- A space entirely devoid of matter.

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