



# Safety Science Tools

## Safe or Not?

Open your students' eyes to the importance of scientific literacy. As a Science Educator, you can help them draw connections between science, engineering, math, and language. These lessons can help build their confidence, strengthen their interest, and apply their knowledge to solve new problems.

How can I identify a dangerous chemical? Safety Smart students play it safe and keep out of harm's way!

### THE SAFETY LESSON

We use chemicals in and around our homes for many different reasons, like cleaning the bathrooms, fertilizing the vegetable garden, or treating the lawn. There are all types of chemicals, some stop weeds from growing while others help clean our clothing.

Many chemicals are hard to identify by their appearance and all are dangerous even in small dosages. There are liquids, powders and tablets in our homes that can look like things we eat or drink but are really dangerous chemicals and should not be touched.

In this activity, you'll help children to understand the importance of staying away from chemicals, and to seek an adult's permission before touching any liquid, powder or tablet they may find in the house or at school.

### MATERIAL

Household items, sealed with superglue in unbreakable, transparent containers  
Chemical products, sealed with superglue in unbreakable, transparent containers





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### HOUSEHOLD ITEM AND SIMILAR CHEMICAL LOOK-A-LIKE POSSIBILITIES

#### TABLET OR CAPSULE LOOK-A-LIKES

Altoid mint  
Cinnamon (Red Hots) candies  
M&M candies  
Sweet Tart candies  
Jelly beans  
Hershey's chocolate bar squares  
Clarets gum

#### CHEMICAL

Aspirin  
Sudafed tablets  
Drixoral cold tablets  
Tums antacid tablets  
Iron supplements  
Ex-Lax chocolate laxative  
Aspergum

#### LIQUID LOOK-A-LIKES

Water  
Mountain Dew  
Gatorade (lemon-lime)  
Listerine  
Grape Kool Aid  
Kool Aid Bursts (blue)  
Gatorade (blue)  
Vegetable oil  
Dark syrup

#### CHEMICAL

Rubbing alcohol  
Mr. Clean liquid detergent  
Antifreeze  
Turpentine  
Dimetapp liquid cough syrup  
Vicks cough spray  
Window cleaner (blue)  
Brake fluid  
Used motor oil

#### POWDERED LOOK-A-LIKES

Pancake mixp

#### CHEMICAL

Seven Dust (pesticide) or  
powdered carpet cleaner

#### PACKAGE LOOK-A-LIKES

Parmesan cheese container  
Tooth paste  
Eye drops

#### CHEMICAL

Comet cleanser container  
Bathtub caulking  
Super glue

\* List compiled by Progressive Ag. Brand names are provided only to help the presenter quickly find products for this activity. There are many other products that could be used.





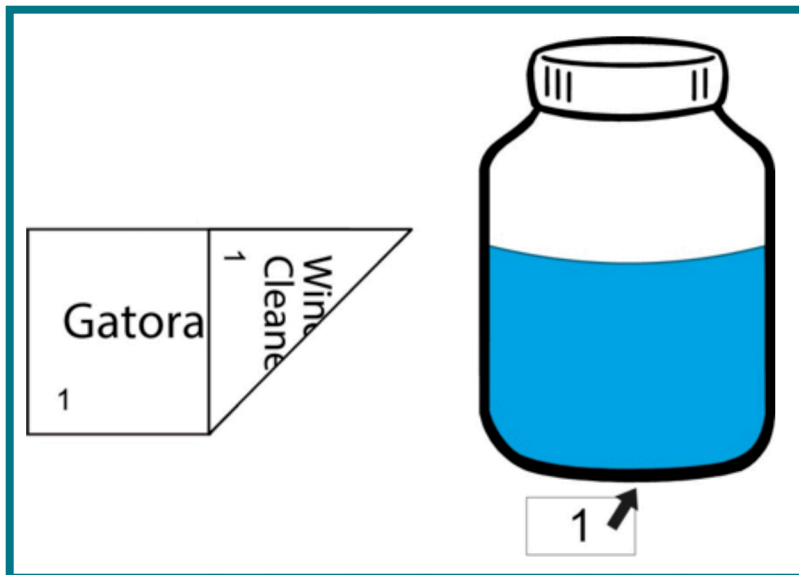
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Index cards printed with name of the household item (i.e., water) on one side and the similar look-a-like chemical (i.e., rubbing alcohol) on the other side; and numbered

NOTE: number each container (household product and similar look-a-like chemical) with the corresponding number from the index card. Make sure the numbers on the containers cannot be seen, i.e., put the number on the bottom of the container.

Safe or Not? worksheet (1 per student)



### SAFE OR NOT? GAME

On a flat surface, line-up the containers of household products. Do not tell the students that these containers are all household products!

Share that the purpose of this game is to see if they can identify household products from chemical products. Ask for 3 – 5 volunteers. Divide the index cards evenly and give each volunteer a set.

Until all of the containers are labeled, have the volunteers take turns identifying what is in each container by placing the corresponding index card next to the container.

Once done, set the containers of look-a-like chemicals next to the containers of household items. Give your students time to come up and look at the similarities. Ask them to share their thoughts on how easy it is to mistake a dangerous chemical for a harmless household item.

Remind them not to touch the containers. Even though they are sealed, the chemicals inside are very powerful substances and the purpose of this game is to help them understand to play it safe and keep out of harm's way!

Once they've had a chance to compare the chemicals and items, give each student a copy of the Safe or Not? worksheet.

As you talk about each chemical and the household item it looks like, have the students fill in their worksheet.





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Encourage your students to take the worksheet home to share with their families.

### THE SCIENCE

There are many different types of chemicals and all are dangerous.

#### PESTICIDES

A pesticide is any substance used to kill, repel, or control certain forms of plant or animal life that are considered to be pests. Pesticides include herbicides for destroying weeds and other unwanted vegetation, insecticides for controlling a wide variety of insects, fungicides to prevent the growth of molds and mildew, disinfectants for preventing the spread of bacteria, and rodenticides to control mice and rats.

#### FERTILIZERS

Chemical fertilizers promote plant growth and are produced by a chemical process. There are many different types of chemical fertilizers and they come in powder, granular, liquid and gas forms.

#### PLANT GROWTH REGULATORS/PLANT HORMONES

Chemicals that promote or inhibit plant growth.

Chemical containers always carry warnings.

#### DANGER! POISON! SKULL/CROSSBONES

These signal words and symbol appear on the most toxic chemicals. A very small amount can be fatal.

#### WARNING!

The Warning label indicates the chemical is corrosive or toxic and skin contact and inhalation should be avoided. A small amount such as a teaspoon to one ounce can be fatal.

#### CAUTION!

This chemical may be irritating to your skin and eyes or make you sick if you breathe the fumes. A moderate amount such as one ounce to one cup can be fatal.







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NAME \_\_\_\_\_

## SAFE OR NOT?

Fill in the worksheet using information learned during the Safe or Not? game.

CHEMICAL LOOK-A-LIKE	HOUSEHOLD ITEM	HOW DOES CHEMICAL ENTER HUMAN BODY *	CHEMICAL FORM +

\* Chemicals can enter the human body by:

- Dermal – touching the skin.
- Oral - drinking or placing contaminated objects in the mouth.
- Inhalation – breathing in fumes or dust.

+ What form does the chemical come in?

- Liquid
- Powder
- Tablet

