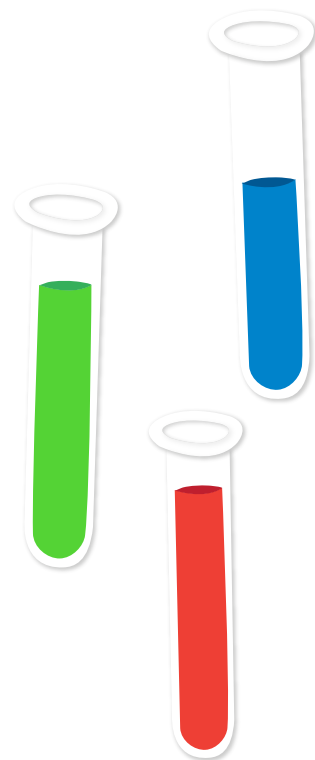


# Create a Kitchen Chemistry Kit

## First, you will need to collect the following items:

- A large box (this will be used to store lab notebooks, safety gear and chemicals)
- Clean and dry glass or plastic containers with plastic lids (such as plastic peanut butter, jelly or jam jars)
- Ziploc bags (sandwich and snack sized)
- Set of measuring cups and spoons (that will no longer be food-safe)
- Permanent markers
- Labels
- Lab notebook
- Safety goggles
- Disposable gloves
- Lab coat (an old shirt or smock will work just fine)



## Now, look around the kitchen, bathroom or garage and collect the following items:

Common Name	Chemical Name	Formula	Where You Might Find It
Moisture Absorber	calcium chloride	$\text{CaCl}_2$	Garage
Citric Acid	citric acid	$\text{C}_6\text{H}_8\text{O}_7$	Kitchen (cooking)
Copper Wire	copper	$\text{Cu}$	Garage
Iodine Tincture	iodine (in alcohol)	$\text{I}_2$	Bathroom
Iron Tablets	iron sulfate	$\text{FeSO}_4$	Bathroom
Steel Wool	iron	$\text{Fe}$	Kitchen (cooking)
Baking Soda	sodium bicarbonate	$\text{NaHCO}_2$	Kitchen (cooking)
Salt	sodium chloride	$\text{NaCl}$	Kitchen (cooking)
Vinegar	acetic acid	$\text{CH}_3\text{COOH}$	Kitchen (cooking)
Borax	sodium tetraborate decahydrate	$\text{Na}_2\text{B}_4\text{O}_7$	Laundry
Epsom Salt	magnesium sulfate	$\text{MgSO}_4$	Bathroom

## To prepare your chemicals, follow the procedure below:

1. Label the clean, dry containers you have found with the name of the chemical you plan to put in it. You may want to write the common name as well as the actual chemical name. The only exception to this is the iodine – it must stay in its original container, as it needs a dark bottle!
2. Make sure you have your safety gear: goggles, gloves, and lab coats.
3. Carefully transfer the chemicals to their new containers. Make sure the chemicals are being placed in the correctly labeled containers.
4. Store the chemicals in the large box. When you are not experimenting, store the chemistry kit in a cool, dry place.

## HERE ARE TWO EASY EXPERIMENTS TO TRY WITH YOUR NEW CHEMISTRY KIT!

### Grow It!

#### You will need:

- Deep bowl
- ½ cup of warm water
- ½ cup of Epsom salt



#### Procedure:

1. Add the Epsom salt to the warm water and stir until the salt is dissolved. Then gently pour the salt solution into the bowl.
2. Place the bowl in the refrigerator and allow it to sit undisturbed for a few hours.
3. Observe what happens as the water evaporates.

You've just witnessed a physical change. When the salt is added to the water, it doesn't disappear, it just dissolves. This may seem like a chemical change since you can no longer separate the water from the salt. However, as the solution is left out, the water evaporates and the salt crystals magically return!



# Rust It!

## You will need:

- Rubber gloves
- Steel wool
- Sand (the lightest color possible)
- Scissors
- A shallow plastic container with lid
- Water



*Caution! For this experiment you will be cutting steel wool, which can be sharp and may cause splinters. Wear the gloves whenever you are handling steel wool.*

## Procedure:

1. Sprinkle a thin layer of sand on the bottom of the container.
2. With the rubber gloves on, unroll the steel wool as best you can.
3. Cut across the strands of steel wool so that small bits of it fall into container. Keep cutting until you have a small pile of steel wool bits on top of the sand.
4. Secure the lid on the container and shake to mix up the sand and steel wool pieces.
5. Remove the lid and slowly add water until the sand is just barely covered.
6. Leave the container uncovered for a few days. Give it a stir each day.
7. Observe what happens to the sand?

Steel wool has a large quantity of iron in it. If it gets wet, iron reacts with oxygen to produce iron oxide also known as rust. Iron oxide is typically a reddish-brown color. Chances are you have seen rust before since most iron-based metals are left outside in the rain.

