

NOEO
SCIENCE
CHEMISTRY 1
EXPERIMENT GUIDE

**NOEO
SCIENCE
CHEMISTRY 1**
EXPERIMENT GUIDE

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noeo science
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Noeo Science Packages

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Physics 3
Chemistry 3

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unit 1:
**THE SCIENTIFIC
METHOD**

Week 1: How Scientists Learn

Activity: Exploring the Scientific Method.....1



WEEK 1: HOW SCIENTISTS LEARN

Activity: Exploring the Scientific Method

Instructions

1. Use the scientific method to answer one of your questions!
2. Using the student workbook, come up with a question, find some information on your question, make a hypothesis, do a test, and write down what happened.



unit 2:

WHAT MATTER IS

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WEEK 2: GLOOP AND OOBLECK

Experiment: Oobleck

Our Question

What state of matter is oobleck?

Materials

From Home

- 7 tablespoons cornstarch
- bowl
- spoon

Instructions

Do the experiment on page 44 of *What's the Matter in Mr. Whisker's Room?: Oobleck*.

What We Learned

Oobleck changes from a solid to a liquid, and back again. When it is in the bowl it feels hard, but when you pick it up, it feels squishy and drips through your fingers.



WEEK 3: SOLIDS AND LIQUIDS

Experiment: Liquid to Solid

Our Question

How can a liquid turn into a solid?

Materials

Included in Kit

- 2 craft sticks
- 2 paper cups

From Home

- orange juice

Instructions

1. Pour your orange juice into the paper cups, so that the cups are $\frac{2}{3}$ full.
2. Put a craft stick into each cup.
3. Place your cups in the freezer.
4. Check your cups after two hours by jiggling the craft stick. If it doesn't move, your popsicles are ready!

What We Learned

Freezing is a great (and delicious) way to turn a liquid into a solid!



WEEK 3: SOLIDS AND LIQUIDS

Experiment: Dissolving and Evaporation

Our Question

What happens when you add a solid to a liquid, and then the liquid evaporates away?

Materials

Included in Kit

- string
- paper clip

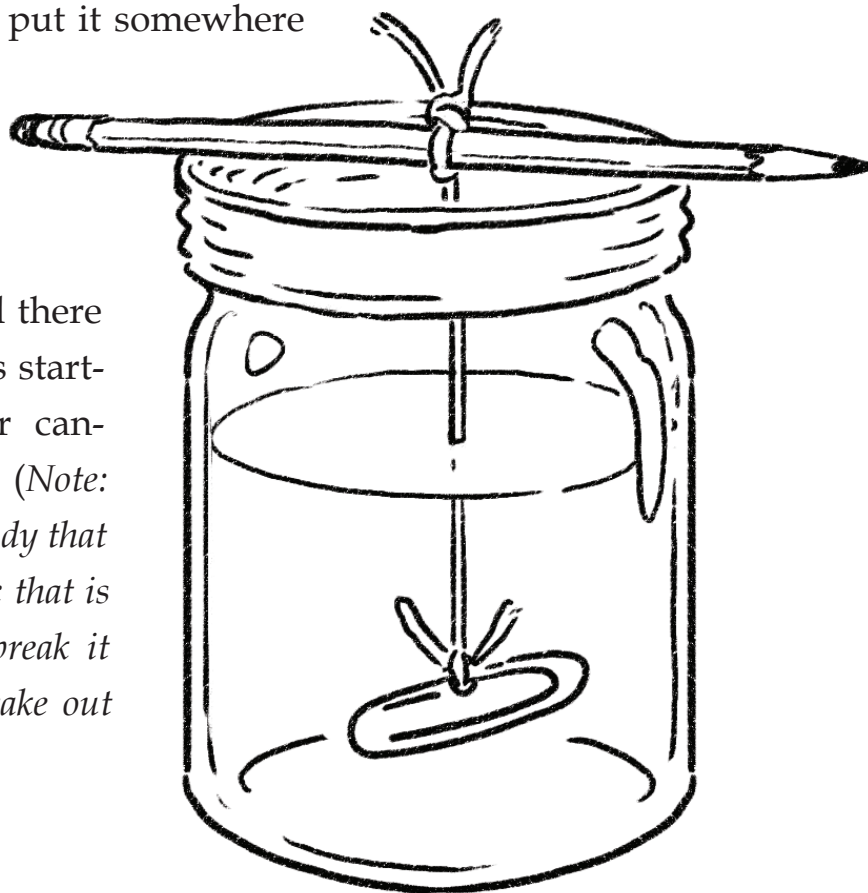
From Home

- pan
- $\frac{1}{2}$ cup water
- $1\frac{1}{2}$ cups sugar
- food coloring (optional)
- vanilla (optional)
- ruler
- scissors
- glass cup or jar
- pencils
- plastic wrap or paper towels

Instructions

1. Have someone older help you heat up a pan with 1 cup of water until it is boiling.
2. Add sugar to the hot water $\frac{1}{2}$ cup at a time. Each time, stir the water until the sugar dissolves completely.

1. Let your sugar water sit and cool. If you would like to add food coloring and flavoring to your candy, stir it in now. (*Note: The candy will be much lighter than your sugar water, so make sure your sugar-water is quite dark if you would really like the candy to be colorful.*)
2. Cut your string to be a little longer than your glass cup.
3. Tie one end of the string around the middle of a pencil and the other end around the paperclip. The paperclip will weigh down the string in the water.
4. Run your string under water to get it wet then roll it in a little sugar.
5. Put the pencil with a string on top of the glass cup, so that the paperclip is hanging in the middle of the glass, and it almost touches the bottom.
6. When your sugar water is cool, fill the glass cup with it.
7. Gently put plastic wrap or a paper towel over the glass cup, and put it somewhere cool and dark, where it can sit without being disturbed.
8. Check the glass cup in a couple of days, and there should be a few crystals starting to grow! Let your candy grow for 7-10 days. (*Note: There will be a layer of candy that grows at the top of the jar; that is completely normal, just break it when you would like to take out your candy.*)



What We Learned

When we poured sugar into the water and it dissolved, it was still inside the water, we just couldn't see it anymore. When the water evaporated, the sugar was too heavy to join it and got left behind, which is how we got our rock candy!

What We Learned

The water from your washcloth evaporates into the air and changes from a liquid to a gas. This is part of the water cycle.





WEEK 4: GASES

Experiment: Dancing Rice

Our Question

Liquids and solids are very easy to see, but how can we see gas in action?

Materials

From Home

- clear glass cup or jar
- $\frac{1}{2}$ cup water
- 1 drop food coloring (optional, just to see the rice better)
- $\frac{1}{2}$ tablespoon baking soda
- 1 tablespoon uncooked rice
- $\frac{1}{2}$ tablespoon white vinegar

Instructions

1. Pour water into the glass cup. If you would like to use food coloring, stir a drop in now.
2. Add the baking soda, and stir so it dissolves.
3. Add the rice.
4. Add the white vinegar. The reaction should start soon after; if it does not, try adding one more teaspoon of white vinegar.

What We Learned

By mixing together baking soda and vinegar, we made a chemical reaction that creates gas! The gas bubbles float to the top as they try to escape into the air, carrying the rice with them.



WEEK 4: GASES

Experiment: Inflating a Balloon

Our Question

Since vinegar and baking soda mixed together create a gas, will they make a balloon inflate?

Materials

Included in Kit

- balloon
- funnel (save with your kit supplies to use in future experiments)

From Home

- 1 teaspoon baking soda
- 1 tablespoon vinegar
- plastic water bottle

Instructions

1. Blow up the balloon to stretch it out then let the air out again. Have the balloon ready to put over the top of the bottle.
2. Using the funnel, pour the baking soda into the balloon.
3. Using the funnel, pour the vinegar into the bottle.
4. Place the balloon over the top of the bottle and let the baking soda fall out of the balloon into the vinegar.
5. Write down what happens.



What We Learned

When mixed together, baking soda and vinegar make a gas called carbon dioxide. This gas expands inside of the bottle making the balloon inflate!