Although they are much too small to see, atoms make up everything around us. And atoms are made of protons (positive charge) and electrons (negative charge). In the dryer, as your socks rub together, electrons move from atoms of one sock onto atoms of the other. As one sock becomes more loaded with electrons than the other, an attraction is created causing one sock to stick to the other. As they say, opposites attract!

A shooting star is really a meteoroid—a fragment of an asteroid or a comet, made up of iron, silicates or a mixture of both. When the asteroid or comet is shattered by an explosion in space, meteoroids are propelled through the earth's atmosphere, creating friction, which heats up the “shooting star” and gives it the glow we see.

Birds sing for many reasons— to greet each other, to define their territories, to let their parents know they're hungry, to attract a mate, to warn each other of approaching danger and to tell each other about good feeding spots. Go outside and listen for yourself!

Water molecules are polarized, meaning one end is negatively charged and the other is positively charged. Like a magnet, their opposites attract. When soap is added, the water molecules lose their attraction and, rather than pulling together into a droplet, the molecules create a thin film. Inside, the air pressure is equally distributed along each wall. It's that pressure that keeps the bubbles round.

As a candle burns, it gives off molecules in the form of gases. Those molecules are in a very excited state, causing a breakdown of the chemical bonds that bind them together. This releases energy which we see as both light and heat from the flame. In other words, the flame is simply a column of very excited gases.

Tornadoes form when a long funnel of quickly-rising warm air stretches up, often to a thundercloud. Winds inside the air tunnel can reach speeds of over 300 mph. A funnel may stretch for nearly 3 miles and can be clearly seen on the horizon because of the dust it makes and the condensation of water droplets in the center of the funnel.

To avoid the cold, many insects dig deep into the Earth—sometimes as deep as 10 feet! Others hide in logs or under rocks. Some emigrate south, or simply die off as temperatures drop. Just like people, some bugs like the cold and some just plain don’t!

The popcorn is a kind of corn. A kernel pops when it is heated to 400 degrees Fahrenheit, causing water inside each kernel to change to steam. Popcorn’s hard cover keeps the steam from escaping, causing pressure to build up, and finally, pop goes the kernel!
**EXPERIMENT 1**

**MATERIALS:**
- Borax
- Coffee filter

**PROCEDURE:**
1. Mix two teaspoons of Borax with warm water.
2. Slowly pour the Borax solution into the glue and water mixture. Keep stirring until there is no water/liquid left.
3. Notice the change in color.

**WHAT THIS MEANS:**
Chemical reactions occur when one chemical combines with another into a new substance. When you add baking soda and vinegar together, the bubbles you see are the result of a chemical reaction. For example, when you add baking soda (a base) and vinegar (an acid) together, carbon dioxide gas is produced. This reaction is what makes homemade volcanoes fun to watch!

**COOL COLORS**

**MATERIALS:**
- Black, green, orange, and/or brown markers
- Permanent marker ink
- Water

**PROCEDURE:**
1. Put one cup with coffee or leftover food on a sunny windowsill, one in the refrigerator, and one in a cabinet.
2. Look inside the cups every day for several days and write what you see. Your thinking gets cloudy, (it may take a few days for the ink to start changing.)
3. Does temperate affect the growth of the mold? Does the cup on the sunny windowsill grow faster than the one in the refrigerator?

**WHAT THIS MEANS:**
Mold is a way of separating the colored chemicals that make up the ink. This is what makes ink good for our friends and people who need it. But even if you don’t like it, you have to learn about it. This is what this experiment is all about!
**STICKY ICKY**

**DIY BRAVE BORAX GLUE**

**MATERIALS:****
- White school glue (not Elmer’s)  
- Borax  
- Warm water

**PROCEDURE:**
1. Take your cup of warm water.
2. Mix in two teaspoons of Borax (one for each cup).
3. Stir until the water turns color.

**WHAT THIS MEANS:**
This is a simple and fun way to create a glue that is sticky and fun for kids to play with. The Borax helps to create a stronger bond between the glue and water, making it stickier than regular glue.

**EXPERIMENT 1**

**DIY BORAX AND WATER MIXTURE CONTAINS MOLECULAR CHAINS CALLED “POLYMERS” WHICH MOVE RELATIVELY FREE AS A LIQUID. WHEN THE BORAX SOLUTION IS ADDED, IT ACTS AS A “CROSS-LINKER,” BINDING THE POLYMERS TOGETHER AND MAKING THE SOLUTION STICKIER. THIS IS THE BASE SOLUTION THAT CAUSES THE LIQUID TO TURN INTO STICKY GLUE.

**STICKY ICKY**

**DIY BRAVE BORAX GLUE**

**MATERIALS:****
- White school glue (not Elmer’s)  
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**STICKY ICKY**

**DIY BRAVE BORAX GLUE**

**MATERIALS:****
- White school glue (not Elmer’s)  
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- Warm water

**PROCEDURE:**
1. Take your cup of warm water.
2. Mix in two teaspoons of Borax (one for each cup).
3. Stir until the water turns color.

**WHAT THIS MEANS:**
This is a simple and fun way to create a glue that is sticky and fun for kids to play with. The Borax helps to create a stronger bond between the glue and water, making it stickier than regular glue.

**EXPERIMENT 1**

**DIY BORAX AND WATER MIXTURE CONTAINS MOLECULAR CHAINS CALLED “POLYMERS” WHICH MOVE RELATIVELY FREE AS A LIQUID. WHEN THE BORAX SOLUTION IS ADDED, IT ACTS AS A “CROSS-LINKER,” BINDING THE POLYMERS TOGETHER AND MAKING THE SOLUTION STICKIER. THIS IS THE BASE SOLUTION THAT CAUSES THE LIQUID TO TURN INTO STICKY GLUE.
**STICKY ICKY**

**MATERIALS:**
- Water for cleaning
- Food coloring
- Borax (found in the laundry aisle at store)
- Two tablespoons (one with nuts, one without nuts) for the sticky holders
- Paper cups
- Tape or rubber bands

**Procedure:**
1. Mix one tablespoon of borax with one cup of water. Take a pipe cleaner and place the end in the borax and water mixture. Be sure to twist the pipe cleaner to carry the solution around. Leave it to sit for 24 hours.
2. Remove the pipe cleaner and place it in a paper cup. The borax will make a solution which will help you make the sticky holders.

**WHAT THIS MEANS:**
- Borax is a chemical that can make a solution. This solution can be used to make sticky holders. The solution will help the sticky holders stick to the pipe cleaners.

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**MARTIAN JELLY**

**EXPERIMENT 4**

**MATERIALS:**
- Black, orange and brown ink
- Borax solution
- Melted crayons
- Salt

**procedure:**
1. Take the pitcher of warm water labeled “Borax Solution.” Add one teaspoon of Borax solution to the pitcher of warm water. Stir well with a popsicle stick. (To measure borax solution, use a tablespoon.)
2. Add a few drops of food coloring to the glue and water mixture. Stir well with a popsicle stick.
3. Take a clean glass jar and put the mixture in it. (To measure glass jar, use a measuring cup.)

**WHAT THIS MEANS:**
- The glue and water mixture contains Borax, which is a chemical that can make a solution. This solution can be used to make a Martian jelly. The solution will help the jelly stay in the jar.

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**COOL COLORS**

**MATERIALS:**
- Black, orange and brown ink
- Borax solution
- Melted crayons
- Salt

**procedure:**
1. Cut your coffee filter into a strip approximately 4 inches long and 1 inch wide (for each student).
2. Soak a coffee filter in a glass of warm water and note the color.
3. Add baking soda and stir. (Note: you should do this over a sink. A fizzing reaction will occur, possibly causing it to overflow.)
4. Take the strip of coffee filter and put it on the warm water. (This will turn the water into a blue green color.)

**WHAT THIS MEANS:**
- The solution contains Borax, which is a chemical that can make a solution. This solution can be used to make a cool color. The solution will help the color of the coffee filter change.

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**MOLD MADNESS**

**EXPERIMENT 2**

**MATERIALS:**
- 1/2 plastic cup of warm water
- 1 tablespoon of grape jelly
- 1/2 tablespoon of vinegar

**Procedure:**
1. Take a coffee filter and cut it into a strip. Place the strip in a glass of warm water.
2. Add some vinegar to the glass of water. Stir well with a popsicle stick. (To measure vinegar, use a tablespoon.)
3. Take a few drops of food coloring to the glue and water mixture. Stir well with a popsicle stick.

**WHAT THIS MEANS:**
- This experiment shows how we can use chemical reactions to create a mold. The solution contains grape jelly and vinegar, which react to create a mold. The solution will help the mold grow.

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**HANDS-ON SCIENCE TIPS**

Children are born with natural curiosity about the world. They love to explore, ask questions, and learn. And that’s what science is all about!

Today, our children need to be creative problem solvers and innovative thinkers. This is not just for themselves, but for the entire workforce. As parents and teachers, we can help by encouraging children to natural curiosity and love to explore and enjoy the science found all around us.

Here are some suggestions to help you get started:

- Make your own chemical technology by channeling your favorite comic book. (It’s a fun barnabas with water and compare the difference in Bunsen’s spaghetti and a rubber band toy)
- Go to a neighborhood park and try to identify the different types of trees, like those on the ground and those in the trees. (To measure trees, use a measuring cup.)
- Visit the local recycling plant and bring home a soda bottle and transform into a spaghetti jar. (On your own, put your local museum, library, zoo, plantations and science center as often as you can)

Most importantly, realize that this is only a handful of tips. “I don’t know.” Science is about looking for answers.

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**COOL SCIENCE WEB SITES**

- Boyer’s Making Science Make Sense — makingsscience.com
- NASA — nasa.gov
- Pbs Kids — pbskids.org
- Making Science Make Sense — MakingScienceMakeSense.com
- Npr Science Friday — sciencefriday.com
- Earth & Sky — earthsky.com
- Bill Nye the Science Guy — sciencefriday.com
- National Science Teachers Association — nsta.org
- Cool Science for Kids — coolscienceforkids.org
- Making Science Make Sense — MakingScienceMakeSense.com
STICKY ICKY

MARTIAN JELLY

COOL COLORS

MOLD MADNESS

EXPERIMENT 1

EXPERIMENT 2

EXPERIMENT 3

EXPERIMENT 4

STICKY ICKY

MATERIALS:

• White school glue

• Popsicle stick

• Borax (in the crystal salt of stores)

• Two tablespoons of white glue

• Warm water

• Three tablespoons of warm water

• Two teaspoons of warm water

• Two tablespoons of warm water

• Marked coffee filter

• Water

• Paint<br>• HD paper for waste<br>• Borax<br>• Two plastic cups (not mixing<br>• White<br>• Two<br>• One<br>• Popular items for the trick-or-treaters

PROCEDURE:

1. Put on the safety glasses.

2. In one plastic cup, mix one tablespoon of plain warm tap water and glue mixture and one for borax solution.

3. While stirring vigorously with popsicle stick, slowly pour the Borax solution into the glue and water mixture. Keep stirring until there is no water/liquid left.

4. Take the pitcher of warm water labeled “Borax Solution.” Add one teaspoon of Borax solution into the mixture. Keep stirring until the color of the grape jelly solution changes.

WHAT THIS MEANS:

Chemical reactions occur when one chemical reacts with another in a container. For example, when you add baking soda to vinegar, they change the water with the water and form a gas (carbon dioxide) and water. To see this in action, add a few drops of orange juice to the orange juice mixture in a beaker. What happens? The color changes.

What you will need:

• Coffee filter

• Marker line containing 1/2-inch Warm Water

• Water only

• One cup of coffee

• One tablespoon of Borax solution

• One tablespoon of plain warm tap water

• One tablespoon of white glue

• Borax

• Two teaspoons of Borax

• One tablespoon of white glue

• Two cups of warm water

• Two plastic cups (not mixing)

• Borax

• Two tablespoons of warm water

• Two teaspoons of warm water

• Borax

• Popular items for the trick-or-treaters

WHAT THIS MEANS:

This exercise demonstrates how certain materials react with each other to change color. The color reaction can be used to study the chemistry of different materials and to observe the changing properties of various substances.

CAUTION: THIS EXPERIMENT REQUIRES PARENTAL SUPERVISION. TAKE CARE NOT TO LET ANY VINEGAR SPLASH INTO YOUR CHILD’S EYES — IT CAN STING.

WHAT THIS MEANS:

The water dissolves the ink and carries it away from the filter, changing the different chemicals colored may make the ink the best to different places. On the paper, you see black (not really black, but instead a combination of colors). This is also true of green, orange, brown, and many other colors. Thus, the color writing is called chromatography that is a way of separating the colored chemicals that make up each ink.

COOL COLORS

MATERIALS:

• Black, orange, white or brown markers (best permanent markers are permanent)

• Color wheel

• Plastic cup containing 1/2-inch warm water

PROCEDURE:

1. Put one cup with coffee or leftover food on a sunny windowsill, one where it might be too hot, and one in a dark cupboard.

2. Look inside the cups every day for several days and note what kind of mold you see. (Keep your glasses handy. It is easy to take a close-up for the mold you’re seeing.) Sunlight may be the mold’s friend. (In the dark cupboard, you may see the mold start growing.)

3. Does temperature affect the mold’s growth? Does the cup on the windowsill grow more slowly, more quickly, or the same rate as the one in the refrigerated?

4. Does light affect the growth of the mold? Does the cup on the windowsill grow faster or slower than the one in the refrigerator?

5. Look around your house for other molds. Inspect: pickles in a jar, cottage cheese, bread, paint on the walls, oranges, house plants, tiles around a bathtub or shower.

WHAT THIS MEANS:

We can find molds in all sorts of unexpected places. Orange green plants, they don’t taste their own color from sunlight. Instead, they use different pigments for the colors they are growing on. Molds can be a hazard when they settle on our food or possessions. But molds are also useful. The green spots on old oranges are a penicillin mold. Is this the medicine making from mold?

MATERIALS:

• Three cups containing a little coffee or leftover food

• A measuring spoon

• Water

• One tablespoon of white glue

• Warm water

• One tablespoon of white glue

• Warm water

• Borax

• Two teaspoons of Borax

• One tablespoon of white glue

• Two cups of warm water

• Two plastic cups (not mixing)

• Borax

• Two tablespoons of warm water

• Two teaspoons of warm water

• Borax

• Popular items for the trick-or-treaters

WHAT THIS MEANS:

Children are born with natural curiosity about the world. They love to explore, ask questions and learn. That’s what makes science fun! Today, our children need to be creative problem solvers and critical thinkers in order to succeed in the workforce. As parents and teachers, you can help by encouraging children to natural curiosity and help them to explore and enjoy the science around us all around you.

Here are some suggestions to help you get started:

• Have how molecules change from liquid to solid.

• Discuss the power of sound technology and channel surfing with a remote control device.

• Fill a cup with water and compare the difference in buoyancy of a sponge and a rubber band.

• Go to a neighborhood park and try to identify the different trees, types of flowers, leaves from the top and bottom, and bark of different plants.

• Visit local recycling plant and learn how a whole bicycle can be transformed into a spaghetti jar.

• And, of course, pick your local museum, library, zoo, plant nursery and a variety of ways as you can.

Most importantly, realize it is not to tell others, “I don’t know.” Science is about looking for the answers.

COOL COLOR WEBSITES

• Bayer’s Making Science Make Sense — makingscience.makesense.com

• KidsQuest — kidsquest.org

• NPR Science Friday — sciencefriday.com

• Earth 911 — earth911.com

• NASA — nasa.gov

• PBS Kids — pbskids.org

• National Science Teachers Association — www.nsta.org

It’s easy to be a scientist. Simply look around and ask, “why?” As a science-based company, Bayer is committed to creating awareness of the science literacy among parents and fostering curiosity, creativity and critical thinking skills in children. So as you and your child use this booklet together, exploring even the simplest wonders inside your home, we hope not just to create a new scientist, but to reawaken the one that’s there already.
**STICKY ICKY**

**MATERIALS:**
- White school glue
- Four cups
- Borax (found in the laundry aisle at store)
- Two teaspoons (one for baking soda, one for warm water)
- One teaspoon warm water
- Two tablespoons water

**PROCEDURE:**
1. Put the safety glasses on.
2. Take the pile of marbles and label them “Borax block.” Add one gram of Borax for each cup of water.
3. In one plastic cup, mix one tablespoon of granulated sugar with one tablespoon of water. Stir well with a popsicle stick.
4. Add a few drops of coloring to the water and marbles until a light shade of blue is obtained. Stir well until the solution is uniform.

**WHAT THIS MEANS:**
This activity helps children understand the concept of **molecules**. When you dissolve a substance in water, it breaks down into smaller particles, forming a solution.

**TRY THIS:**
1. Pour a sugar cube into a strip approximately 4 inches long and 1 inch wide (one for each student).
2. Draw a line 1 inch from the bottom of your paper strip with a color inks. Then, shade the strip with the edge of the sugar cube. (Consider the way a sugar cube makes the water color.)
3. Notice the change in color. 
4. Next, add sugar cube and then fill the hole of the sugar cube solution changes.

**EXPERIMENT 1**

**MATERIALS:**
- 1/2 plastic cup of warm water
- 1/8 teaspoon baking soda
- 1 tablespoon grape jelly

**PROCEDURE:**
1. Add baking soda and stir. (Note: you should do this over a sink. A fizzing reaction will occur, possibly causing it to overflow.)
2. Dissolve grape jelly in the glass of warm water and note the color.
3. Watch how the molecules change. (What this means: Chemical reactions occur when one chemical comes into contact with another. For example, when you add baking soda to vinegar, you have a chemical reaction that creates carbon dioxide gas.)

**WHAT THIS MEANS:**
This activity helps children understand the concept of **chemical changes**. When two substances come into contact with each other, they can react to form new substances.

**TRY THIS:**
1. Fill one cup with coffee or leftover food on a sunny windowsill, one in the refrigerator and one in dark cupboard.
2. Look inside the cups every day for several days and write what you see. (You can make a graph to display your data. It may help to have the day for the first day to start graphing.)
3. Draw a comparison of the growth of the mold. Does the cup on the windowsill grow more mold? Is the cup in the refrigerator? Is the cup in the dark cupboard? (This activity helps children understand the concept of **environmental factors**. When two substances come into contact with each other, they can react to form new substances.)

**WHAT THIS MEANS:**
This activity helps children understand the concept of **environmental factors**. When two substances come into contact with each other, they can react to form new substances.

**EXPERIMENT 3**

**MATERIALS:**
- Black, green, orange or brown markers
- Three cups (one for plain water, one for warm water)
- One cup of leftover food
- One cup of leftover coffee

**PROCEDURE:**
1. Take your new materials, and try to identify the difference in buoyancy of a sponge and a rubber toy.
2. Test out the materials and ask questions and try to identify the different types of plants. For example, how does the weight of an orange compare to the weight of a banana?
3. Mix the coffee or leftover food on your hand for other materials. What happens? (This activity helps children understand the concept of **environmental factors**. When two substances come into contact with each other, they can react to form new substances.)

**WHAT THIS MEANS:**
This activity helps children understand the concept of **environmental factors**. When two substances come into contact with each other, they can react to form new substances.

**EXPERIMENT 4**

**MATERIALS:**
- Black, green, orange or brown markers
- Three cups (one for plain water, one for warm water)
- One cup of leftover food

**PROCEDURE:**
1. Take your new materials, and try to identify the difference in buoyancy of a sponge and a rubber toy.
2. Test out the materials and ask questions and try to identify the different types of plants. For example, how does the weight of an orange compare to the weight of a banana?
3. Mix the coffee or leftover food on your hand for other materials. What happens? (This activity helps children understand the concept of **environmental factors**. When two substances come into contact with each other, they can react to form new substances.)

**WHAT THIS MEANS:**
This activity helps children understand the concept of **environmental factors**. When two substances come into contact with each other, they can react to form new substances.

**COOL COLORS**

**MATERIALS:**
- Black, green, orange or brown markers

**PROCEDURE:**
1. Fill one cup with coffee or leftover food on a sunny windowsill, one in the refrigerator and one in dark cupboard.
2. Look inside the cups every day for several days and write what you see. (You can make a graph to display your data. It may help to have the day for the first day to start graphing.)
3. Draw a comparison of the growth of the mold. Does the cup on the windowsill grow more mold? Is the cup in the refrigerator? Is the cup in the dark cupboard? (This activity helps children understand the concept of **environmental factors**. When two substances come into contact with each other, they can react to form new substances.)

**WHAT THIS MEANS:**
This activity helps children understand the concept of **environmental factors**. When two substances come into contact with each other, they can react to form new substances.

**MARTIAN JELLY**

**MATERIALS:**
- 1/2 plastic cup of warm water
- 1/8 teaspoon baking soda
- 1 tablespoon grape jelly

**PROCEDURE:**
1. Add baking soda and stir. (Note: you should do this over a sink. A fizzing reaction will occur, possibly causing it to overflow.)
2. Dissolve grape jelly in the glass of warm water and note the color.
3. Watch how the molecules change. (What this means: Chemical reactions occur when one chemical comes into contact with another. For example, when you add baking soda to vinegar, you have a chemical reaction that creates carbon dioxide gas.)

**WHAT THIS MEANS:**
This activity helps children understand the concept of **chemical changes**. When two substances come into contact with each other, they can react to form new substances.

**TRY THIS:**
1. Fill one cup with coffee or leftover food on a sunny windowsill, one in the refrigerator and one in dark cupboard.
2. Look inside the cups every day for several days and write what you see. (You can make a graph to display your data. It may help to have the day for the first day to start graphing.)
3. Draw a comparison of the growth of the mold. Does the cup on the windowsill grow more mold? Is the cup in the refrigerator? Is the cup in the dark cupboard? (This activity helps children understand the concept of **environmental factors**. When two substances come into contact with each other, they can react to form new substances.)

**WHAT THIS MEANS:**
This activity helps children understand the concept of **environmental factors**. When two substances come into contact with each other, they can react to form new substances.

**COOL COLORS**

**MATERIALS:**
- Black, green, orange or brown markers

**PROCEDURE:**
1. Fill one cup with coffee or leftover food on a sunny windowsill, one in the refrigerator and one in dark cupboard.
2. Look inside the cups every day for several days and write what you see. (You can make a graph to display your data. It may help to have the day for the first day to start graphing.)
3. Draw a comparison of the growth of the mold. Does the cup on the windowsill grow more mold? Is the cup in the refrigerator? Is the cup in the dark cupboard? (This activity helps children understand the concept of **environmental factors**. When two substances come into contact with each other, they can react to form new substances.)

**WHAT THIS MEANS:**
This activity helps children understand the concept of **environmental factors**. When two substances come into contact with each other, they can react to form new substances.

**MOLD MADNESS**

**MATERIALS:**
- Black, green, orange or brown markers

**PROCEDURE:**
1. Fill one cup with coffee or leftover food on a sunny windowsill, one in the refrigerator and one in dark cupboard.
2. Look inside the cups every day for several days and write what you see. (You can make a graph to display your data. It may help to have the day for the first day to start graphing.)
3. Draw a comparison of the growth of the mold. Does the cup on the windowsill grow more mold? Is the cup in the refrigerator? Is the cup in the dark cupboard? (This activity helps children understand the concept of **environmental factors**. When two substances come into contact with each other, they can react to form new substances.)

**WHAT THIS MEANS:**
This activity helps children understand the concept of **environmental factors**. When two substances come into contact with each other, they can react to form new substances.

**COOL COLORS**

**MATERIALS:**
- Black, green, orange or brown markers

**PROCEDURE:**
1. Fill one cup with coffee or leftover food on a sunny windowsill, one in the refrigerator and one in dark cupboard.
2. Look inside the cups every day for several days and write what you see. (You can make a graph to display your data. It may help to have the day for the first day to start graphing.)
3. Draw a comparison of the growth of the mold. Does the cup on the windowsill grow more mold? Is the cup in the refrigerator? Is the cup in the dark cupboard? (This activity helps children understand the concept of **environmental factors**. When two substances come into contact with each other, they can react to form new substances.)

**WHAT THIS MEANS:**
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**MOLD MADNESS**

**MATERIALS:**
- Black, green, orange or brown markers

**PROCEDURE:**
1. Fill one cup with coffee or leftover food on a sunny windowsill, one in the refrigerator and one in dark cupboard.
2. Look inside the cups every day for several days and write what you see. (You can make a graph to display your data. It may help to have the day for the first day to start graphing.)
3. Draw a comparison of the growth of the mold. Does the cup on the windowsill grow more mold? Is the cup in the refrigerator? Is the cup in the dark cupboard? (This activity helps children understand the concept of **environmental factors**. When two substances come into contact with each other, they can react to form new substances.)

**WHAT THIS MEANS:**
This activity helps children understand the concept of **environmental factors**. When two substances come into contact with each other, they can react to form new substances.
EXPERIMENT 1

MATERIALS:
- White school mat
- Foam crosses
- Borax (in the laundry supply area of store)
- Two tablespoons of Borax
- One cup of Warm Water
- Two teaspoons of water for water
- Three tablespoons (one to measure water, one to measure salt, one to measure Borax)
- One teaspoon to measure Borax
- Two cups of warm water (one pure water and one for Borax mixture)
- One manual step (for the Borax solution with hot water and cool water)
- Safety glasses

PROCEDURE:
1. Put the safety glasses on.
2. Take the pile ofName varieties labeled “Borax blocks.” Add one gram of each variety on a clean paper plate and observe what happens. Borax and water will react.
3. In a plastic cup, mix one tablespoon of plant water and water (one tablespoon of glue with water). Stir well with paper stick.
4. Add a few drops of food coloring to the plant water and mix. Stir well with a paper stick.
5. In another plastic cup, mix one tablespoon of borax and water. Stir well and observe what happens.

WHAT THIS MEANS:
The glue and water mixture contains molecular chains called “Polymers.” Which move relatively freely as a liquid. When the borax solution adds, it acts as a “crosslinker” binding the polymer chains together and restricting their movement. It is this molecule that causes the liquid to turn into sticky icy.

STICKY ICKY

EXPERIMENT 2

MATERIALS:
- 1 tablespoon Baking Soda
- 1 tablespoon warm water
- 6 tablespoons white glue
- Food coloring
- Several drops of colored liquid

PROCEDURE:
1. In one plastic cup, mix one tablespoon of plain warm tap water
2. Take the pitcher of warm water labeled “Borax Solution.” Add one tablespoon of plain warm tap water and two tablespoons of Borax and stir well.
3. While stirring vigorously with popsicle stick, slowly pour the Borax solution into the glue and water mixture. Keep stirring until there is no water/liquid left.

WHAT THIS MEANS:
Chemical reactions occur when one chemical comes into contact with another for a chemical change. The water and glue mixture change from a liquid to a solid. As the glue thickens or coagulates, it will release gas called carbon dioxide.

EXPERIMENT 3

MATERIALS:
- Black, orange, or blue food coloring
- Baking soda (to measure one cup)
- Canned corn
- 1/8 teaspoon Rock salt
- 1/2 plastic cup of warm water

TRY THIS:
1. Cut a paper fish into a strip approximately 4 inches long and one inch wide for each student.
2. Draw a line from the bottom of your paper fish with a permanent marker. Then, tape the edge of the water onto the fish. Draw a line on the bottom of the fish indicating the water and the marker line. (I distinguish the water from the water color by dying the fish. What happens? Look at the color. Is the orange ink still there? Repeat the experiment and observe the orange and brown.)
3. Next, add vinegar and stir until the fish color changes.

WHAT THIS MEANS:
Chemical reactions occur when one chemical comes into contact with another for a chemical change. The water and glue mixture change from a liquid to a solid. As the glue thickens or coagulates, it will release gas called carbon dioxide.

EXPERIMENT 4

MATERIALS:
- 1 tablespoon cornstarch
- 1/8 teaspoon food coloring
- Food coloring
- 1/2 plastic cup of warm water

PROCEDURE:
1. Put one cup with coffee or leftover food on a sunny windowsill. Keep the other cup in the refrigerator.
2. Look inside the cups every day for several days and write what you see. (Remember to do this over a sink. It may take a few days for the liquid to start glowing.)
3. Does temperature affect the reaction? Does the cup on the windowsill grow more, more quickly, or at the same rate as the one in the refrigerator?

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COOL COLORS

MATERIALS:
- Black, orange, or blue food coloring
- Baking soda (1 cup)
- Canned corn
- 1/8 teaspoon Rock salt
- 1/2 plastic cup of warm water

PROCEDURE:
1. Put one cup with coffee or leftover food on a sunny windowsill. Keep the other cup in the refrigerator.
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MOLD MADNESS

MATERIALS:
- 1 teaspoon cornstarch
- 1/8 teaspoon food coloring
- Food coloring
- 1/2 plastic cup of warm water

PROCEDURE:
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2. Look inside the cups every day for several days and write what you see. (Remember to do this over a sink. It may take a few days for the liquid to start glowing.)
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Although they are much too small to see, atoms make up everything around us. And atoms are made of protons (positive charge) and electrons (negative charge). In the dryer, as your socks rub together, electrons move from atoms of one sock onto atoms of the other. As one sock becomes more loaded with electrons than the other, an attraction is created causing one sock to stick to the other. As they say, opposites attract!

A shooting star is really a meteoroid—a fragment of an asteroid or a comet, made up of iron, silicates or a mixture of both. When the asteroid or comet is shattered by an explosion in space, meteoroids are propelled through the earth’s atmosphere, creating friction, which heats up the “shooting star” and gives it the glow we see.

Birds sing for many reasons: to greet each other, to define their territories, to let their parents know they’re hungry, to attract a mate, to warn each other of approaching danger and to tell each other about good feeding spots. Go outside and listen for yourself!

Why do socks stick together?

What is a tornado?

What is a flame?

Why does popcorn pop?

What are bubbles round?

Why are bubbles round?

What is a flame?

Why do birds sing?

Where do bugs go in the winter?

Why do socks stick together?

Where is a tornado?

What is a flame?

Why do socks stick together?

Where is a tornado?

What is a flame?

Why do socks stick together?

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What is a flame?
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Birds sing for many reasons: to greet each other, to define their territories, to let their parents know they’re hungry, to attract a mate, to warn each other of approaching danger and to tell each other about good feeding spots. Go outside and listen for yourself!

Water molecules are polarized, meaning one end is negatively charged and the other is positively charged. Like a magnet, their opposites attract. When soap is added, the water molecules lose their attraction and, rather than pulling together into a droplet, the molecules create a thin film. Inside, the air pressure is equally distributed along each wall. It’s that pressure that keeps the bubbles round.

As a candle burns, it gives off molecules in the form of gases. Those molecules are in a very excited state, causing a breakdown of the chemical bonds that bind them together. This releases energy which you see as both light and heat from the flame. In other words, the flame is simply a column of very excited gases.

Popcorn is a kind of corn. A kernel pops when it is heated to 400 degrees Fahrenheit, causing water inside each kernel to change to steam. Popcorn’s hard cover keeps the steam from escaping, causing pressure to build up, and finally, pop goes the kernel!

To avoid the cold, many insects dig deep into the Earth—sometimes as deep as six feet. Others hide in logs or under rocks, travel south, or simply die off as temperatures drop. Just like people, some bugs like the cold and some just plain don’t!

Tornadoes form when a long funnel of quickly-rising warm air stretches up, often to a thundercloud. Winds inside the air tunnel can twist at speeds of over 300 mph. A twister may measure just a few yards or up to 2.6 miles and can be clearly seen on the horizon because of the dust it sucks up as it moves, as well as the condensation of water droplets in the center of the funnel.
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Although they are much too small to see, atoms make up everything around us. And atoms are made of protons (positive), electrons (negative charge), and neutrons in the center. In the dryer, as your socks rub together, electrons move from atoms of one sock onto atoms of the other. As one sock becomes more loaded with electrons than the other, an attraction is created causing one sock to stick to the other. As they say, opposites attract!

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Why do socks stick together?

What is a tornado?

Birds sing for many reasons: to greet each other, to define their territories, to let their parents know they're hungry, to attract a mate, to warn each other of approaching danger and to tell each other where good food is. Go outside and listen for yourself!

Birds Sing?

Why does popcorn pop?

Why are bubbles round?

Why do bees go in the winter?

Wool is a kind of corn. A kernel pops when it is heated to 400 degrees Fahrenheit, causing water inside each kernel to change to steam. Popcorn's hard cover keeps the steam from escaping, causing pressure to build up, and, finally, pops the kernel.

Tornadoes form when a long, thin column of warm, moist air, heated by the sun, reaches up to a thundercloud. Winds inside the air tunnel can travel at speeds of over 300 mph. A funnel may measure 100 feet wide or up to 2.6 miles and can be clearly seen on the horizon because of the dust it sucks up as it moves, as well as the condensation of water droplets in the center of the funnel.

Water molecules are polarized, meaning one end is negatively charged and the other is positively charged. These forces cause them to attract each other. When soap is added, the water molecules lose their attraction and, rather than pulling together into a droplet, the molecules create a thin film. Inside, the air pressure is equally distributed along each wall. It's that pressure that keeps the bubbles round.

Why is a flame?

Making Science Make Sense® is Bayer’s award-winning, company-wide initiative that advances science literacy through hands-on, inquiry-based science learning, employee volunteerism and public education.

For more information, please visit MakingScienceMakeSense.com
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What is a flame? As a candle burns, it gives off molecules in the form of gases. Those molecules are in a very excited state, causing a breaking of the chemical bonds that bind them together. This releases energy which you see as both light and heat from the flame. In other words, the flame is simply a column of very excited gases.

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What are bubbles round? Water molecules are polarized, meaning one end is negatively charged and the other is positively charged. If two molecules of water come too close to one another an attraction is created causing one molecule to stick to the other. As they say, opposites attract!