

Praise – God can do the impossible.

Observation:

1. Watch the video on the Sunday School page. The instructions for this experiment are at the end of this lesson, if you want to try it for yourself.
2. Wow, wasn't that amazing? It seemed like turning milk into a cat would be impossible. Are you surprised to be using science to learn about Easter? Normally, you probably think Easter and science don't go together.

Easter is a special time when we celebrate God's greatest miracle, and miracles can't be explained with science. But we know that God is the Creator of all things. He wrote the rules of science, and He alone has the power to break them. He also has the power to do the impossible, and for that, we dedicate this first study to praise.

Research:

1. Read about the first Palm Sunday in Mark 11:1-10.
2. Question:
 - Why did people greet Jesus this way? *They thought he was going to become the new king of Israel, like David had been. Many believed Jesus would be the Messiah who God promised to send to save His people.*
 - They thought Jesus was going to be an earthly king. But who was He really going to be? *Jesus had come not to reign on earth, but to reign eternally. Jesus was going to save all those who believed in God from their sins.*
 - How many times did Jesus sin during His life on earth? *Jesus is the only person who has never sinned. So He was a perfect, unblemished sacrifice. He took the punishment for our sins upon Himself and died for all humankind.*

Experiment:

Have fun attempting the impossible. Try the 2 brain teasers following this lesson. The answers are on a separate page for when you're ready for the solution.



Conclusion:

1. It is good to develop a habit of daily prayer. Try praying a prayer of praise each day this week. Praise God for sunshine or rain, depending on the weather. Praise Him for your family. Praise Him for a good meal, a good friend, of just a good moment. More importantly praise Jesus for what He has done for you.
2. You can also pray with a Psalm of praise. Here's Psalm 100:

Shout for joy to the Lord, everyone on earth.

Worship the Lord with gladness.

Come to Him with songs of joy.

Know that the Lord is God.

He made us, and we belong to Him.

We are His people.

We are the sheep belonging to His flock.

Give thanks as you enter the gates of His temple.

Give praise as you enter its courtyards.

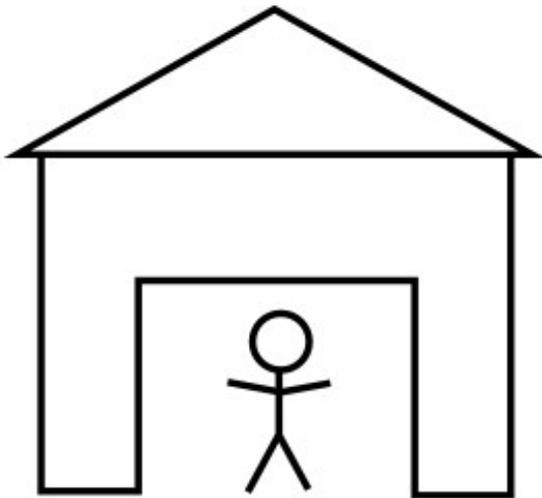
Give thanks to Him and praise His name.

The Lord is good. His faithful love continues forever.

It will last for all time to come.



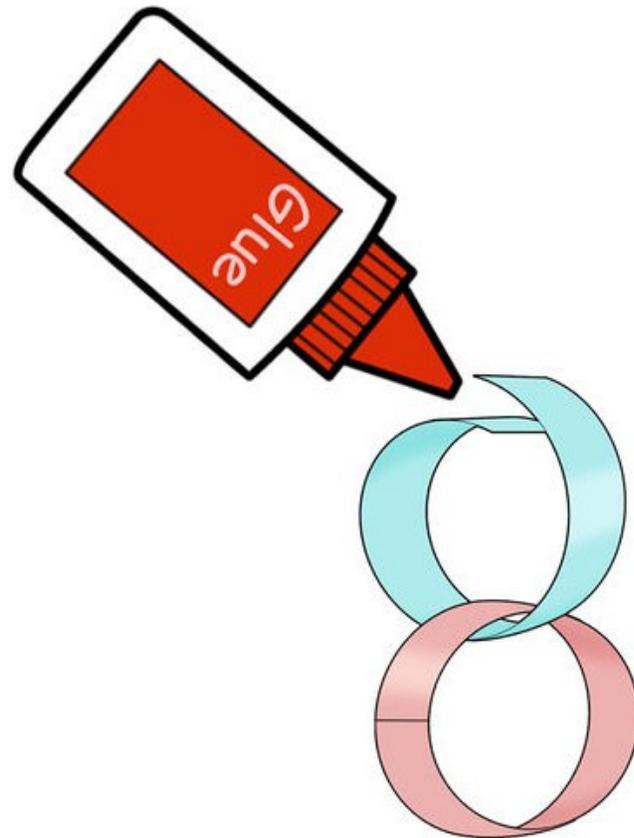
**Can you copy the image below
without ever lifting your pen
from the paper?
(it *is* possible!)**



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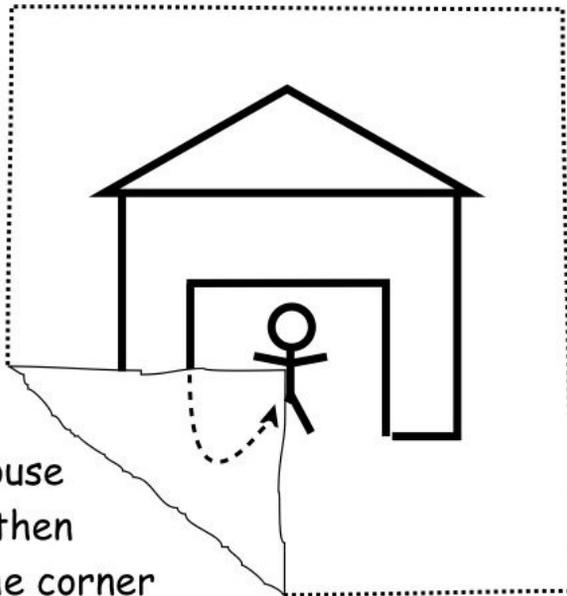
Can you turn 2 circles into 1 square?

To start cut 2 paper strips of equal length. Join them together to make 2 chain links. Now turn the circles into a square.



**Can you copy the image below
without ever lifting your pen
from the paper?
(it is possible!)**

The answer



Draw the house
outline and then
turn over the corner
of the paper to transfer
the pen without ever
removing it from the paper.

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TURN TWO CIRCLES INTO A SQUARE

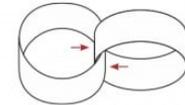
In this Frank Lloyd Wright Mathematical Challenge, students will learn how to turn two circles into a square.

MATERIALS NEEDED

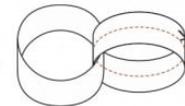
- 2 strips of paper per student
- tape
- scissors

INSTRUCTIONS

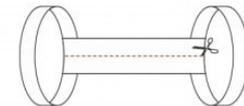
1. Form one strip of paper into a circle and tape together.
2. Loop the second strip through the circle (like a paper chain) and tape that circle together.
3. Now secure the two circles together with tape (tape the loops together on both sides, as shown by red arrows).



4. Carefully cut one circle completely in half lengthwise (this includes cutting through the area where the two are connected, as shown by red, dashed line).



5. Now, cut the remaining strip down the middle (as shown by red, dashed line), and open to show a square!



This is a great example of using your imagination to look at an object and see other shapes, and envision what else it could become, just like Frank Lloyd Wright did.



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MINI-LESSON FOUR
Teacher Instructions

Sculpted Science: Turn Milk into Plastic!

By Science Buddies on September 13, 2012

Introduction

Plastics are a group of materials that may look or feel different but can all be molded into varied shapes. The similarities and differences between different plastic products come down to the molecules that comprise them. All plastics are composed of molecules that repeat themselves in a chain, called a polymer. Polymers can be chains of either one type of molecule or different ones, which are linked together in a regular pattern. Also, in a polymer, a single repeat of the pattern of molecules is called a monomer, which can consist of just one type of molecule or include several different kinds. Milk contains many molecules of a protein called casein. Each casein molecule is a monomer and a chain of casein monomers is a polymer. The polymer can be scooped up and molded, which is why plastic made from milk is called casein plastic.

Materials

- Measuring cup
- Milk
- Stove-top oven & pan or a microwave & microwaveable container
- Mug or other heat-resistant cup
- Measuring spoons
- White vinegar
- Paper towels
- A clean, hard surface that won't be damaged by dampness
- Spoon
- Cookie-cutters, glitter, food coloring, markers (all optional)
- Adult help and supervision

Preparation

Heat one cup of milk in a pan or on a stove top until it is steaming hot. Alternatively, you can microwave the milk in a microwaveable container by warming it at 50 percent power for five minutes. It should be about the same temperature as milk you would use to make hot cocoa; heat longer if needed.

Procedure

1. Add four teaspoons of white vinegar to a mug or other heat-resistant cup.
2. Add the cup of hot milk to the mug. You should see the milk form white clumps that are called curds.

3. Mix the mug slowly with a spoon for a few seconds.
4. Stack 4 layers of paper towels on a hard surface that will not be damaged if it gets damp.
5. Once the milk and vinegar mixture has cooled a bit, use a spoon to scoop out the curds. You can do this by tilting the spoon against the inside of the mug to let excess liquid drain out while retaining the curds in the spoon. Collect as many curds as you can in this way and put them on top of the paper towel stack.
6. Fold the edges of the paper towel stack over the curds and press down on them to absorb excess liquid. Use extra paper towels if needed to soak up the remaining moisture.
7. Knead all of the curds together into a ball, as if it were dough. What you have in your hands is casein plastic.
8. If you want to use the casein plastic to make something, you can color, shape or mold it now (within an hour of making the plastic dough) and leave it to dry on paper towels for at least 48 hours. Once it has dried, the casein plastic will be hard.

Tip: To shape the plastic, the dough must be thoroughly kneaded. Molds and cookie-cutters work well or, with more patience, the dough can be hand sculpted. Food coloring, glitter or other decorative bits can be added to the wet casein plastic dough, and dried casein plastic can be painted or colored with markers.

Extra: How does the amount of vinegar used affect the yield of casein plastic? To find out, you can repeat this activity—but in addition to testing 4 tsp. of white vinegar with 1 cup of hot milk, try also testing 1 tsp., 2 tsp. or 8 tsp. of the vinegar, each with 1 cup of hot milk. To collect the most curds and get a better idea of their casein plastic yield, instead of scooping the curds with a spoon, you can pour the vinegar and milk mixture through a piece of cotton cloth (such as an old T-shirt) secured with rubber bands on top of a cup.

Extra: In addition to vinegar, there are a lot of other acids that we encounter in the kitchen all the time, such as lemon juice, orange juice, soda pop and tomato juice. Try the experiment with some of these common acids. Do any of them work better than others for making casein plastic?

The Science

After you add the hot milk to the vinegar, small, white chunks—or curds—become visible in the mixture. This is because adding an acid (such as vinegar) to the milk changes the latter's pH (acidity) and makes the casein molecules unfold and reorganize into a long chain, thereby curdling the milk.

Experiment from www.scientificamerican.com.