



Why do we paint our homes? We paint the outside of our homes mainly to protect them from the rain, wind, and the sun. Other reasons we paint are to make our homes and the rooms inside look nice or just to brighten our lives. Modern paints are highly specialized and complex, but they all have two basic parts: pigments and binders. The pigment gives paint its color. The binder adds important chemicals that “hold” the pigment, help the paint stick to surfaces, and allow it to form a smooth film when it dries. There are different types of paints used in a home depending on what needs to be painted. For instance, the outdoor paints need to be weather resistant while indoor paints are made to have less odors as they dry. In this activity you will make your own paint using chalk as a pigment, and glue and water as binders.

Materials

- ❖ 2 freezer-style zip-closing bags
- ❖ Colored chalk (regular or sidewalk)
- ❖ Mallet or hammer
- ❖ Small cups (4 oz.)
- ❖ Measuring spoons
- ❖ Water
- ❖ Wooden craft sticks
- ❖ White craft glue
- ❖ Paintbrushes
- ❖ Paper

NOTE: Wear a smock or apron to protect clothes from paint.

SAFETY! Be sure to follow Milli's Safety Tips and do this activity with an adult!

Do not eat or drink any of the materials in this activity!



Procedure

1. Place one freezer bag inside of the other.
2. Place 2–3 pieces of the same colored chalk or 1 sidewalk colored chalk into the inner bag and close both bags, squeezing as much air out as possible.
3. Carefully use the mallet or hammer to break the chalk into a fine powder. Your adult partner may need to help with this step. Make the powder as smooth as possible. It will be harder to break up the small chunks once you have taken the powdered chalk out of the bag. Your paint will end up lumpy if you do not break up the chalk.
4. Carefully open the bags and slowly pour the powder into a small cup.
Note: If you want to make more than one paint color, repeat step 3 with another color of chalk. Use separate cups for each color.
5. Add 3 teaspoons of water to the powder in the cup.
6. Using a craft stick, mix the chalk powder and the water until you have a fine paste. The smoother the paste, the smoother your paint will be.

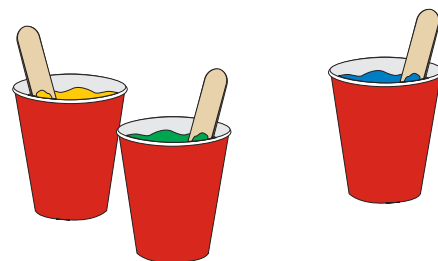
7. Add 1 tablespoon of white glue to the cup and stir everything together.
8. If your paint appears thick, you may need to add up to 3 more tablespoons of water to get the paint the consistency that you want. Add 1 tablespoon at a time and mix after each addition.
9. Paint a picture on the paper.
10. Thoroughly clean the work area and wash your hands.

Try this...

Try mixing different colored paints to see what other colors you can make.

Where's the Chemistry?

Paint is made of tiny particles of color that are suspended in a liquid instead of dissolved in it. Think about what happens when you add salt or sugar to water. It dissolves into what is called a solution. Unlike a solution, paint's particles “float” within a thick liquid such as oil or glue. The thick liquid helps the paint stick to and spread evenly across a surface, and then allows it to form a film on the surface as it dries. In the activity, the glue and water mixture suspended the chalk's colored pigments. That is, the glue acted as a binder to help spread the paint evenly across a surface to dry.



The American Chemical Society develops materials for elementary school age children to spark their interest in science and teach developmentally appropriate chemistry concepts. The *Activities for Children* collection includes hands-on activities, articles, puzzles, and games on topics related to children's everyday experiences.

The collection can be used to supplement the science curriculum, celebrate National Chemistry Week, develop Chemists Celebrate Earth Day events, invite children to give science a try at a large event, or to explore just for fun at home.

Find more activities, articles, puzzles and games at www.acs.org/kids.

Safety Tips

This activity is intended for elementary school children under the direct supervision of an adult. The American Chemical Society cannot be responsible for any accidents or injuries that may result from conducting the activities without proper supervision, from not specifically following directions, or from ignoring the cautions contained in the text.

Always:

- Work with an adult.
- Read and follow all directions for the activity.
- Read all warning labels on all materials being used.
- Wear eye protection.
- Follow safety warnings or precautions, such as wearing gloves or tying back long hair.
- Use all materials carefully, following the directions given.
- Be sure to clean up and dispose of materials properly when you are finished with an activity.
- Wash your hands well after every activity.

Never eat or drink while conducting an experiment, and be careful to keep all of the materials used away from your mouth, nose, and eyes!

Never experiment on your own!

For more detailed information on safety go to www.acs.org/education and click on "Safety Guidelines".



Name _____
Period _____

Date _____
Lumsden/Pittenger/Jurgrau

Chapter 3: Activity 6: Playtime Paint

- 1. In a ziplock bag, please bring in a sample of the paint that you made.**
- 2. Take a blank sheet of paper and make a painting using the paint you made.**
- 3. Answer the following questions in complete sentences.**

1. Modern paints have two basic parts, what are they?
2. Define pigment:
3. Define binder:
4. What materials are needed to make paint using sidewalk chalk?
5. What is paint?
6. Is paint a solution or suspension?
7. What binder is used to make playtime paint?