



The word plastic comes from the Greek word meaning “able to be molded”. Plastics are popular materials because they can be molded or shaped in many different ways. For instance your pencil box and the desk you write on at school are most likely made out of plastic. At home, the handle of your toothbrush and the one gallon container of milk are almost certain to be made out of it. What about your games and toys? Their parts and pieces may contain plastic too. Plastic is all around us! In this activity, you will turn a piece of plastic into a piece of art.

## Materials

- \* Conventional or toaster oven
- \* Clear polystyrene (PS) containers (#6 recycle code)
- \* Blunt-ended scissors
- \* Colored permanent markers
- \* Metric ruler
- \* Cookie sheet or metal tray
- \* Aluminum foil
- \* Oven mitts

NOTE: Make sure your container is a “number 6” recyclable plastic. Look for the number on the bottom of the container. Other types of plastics will not work. Good places to look for “number 6” containers are at your local deli or grocery store salad bar. If the edges of your final product are rough, your adult partner can help you to smooth them with sandpaper.



## Procedure

1. Have your adult partner preheat the oven to 325° F.
2. Make sure the piece of plastic is clean and free of dust.
3. Carefully cut a design of your choice from the plastic.
4. Use permanent markers to draw or write something on your piece of plastic. The more color you use, the more intense your final piece will be. If you write something, make your letters big and thick.
5. Measure and record the length and width of the plastic with the ruler at the longest and widest parts. Write your measurements in the “What Did You Observe?” section.
6. Cover a cookie sheet or metal tray with aluminum foil and place your design on the foil.
7. Ask your adult partner to place the tray in the oven. If you have a glass oven door, you will see the plastic curl at the edges and then flatten again. When this happens, the plastic is finished shrinking. This should take less than two minutes.
8. Have your adult partner take the tray out of the oven using the oven mitts. Be careful. It will be hot! Place the hot tray on a heat-resistant surface.
9. Do not touch your newly created piece of art until it has completely cooled. Your adult partner will tell you when it is ready to be touched.
10. When it has cooled, take your design off the cookie sheet and measure the length and width as you did in Step 5. Record your measurements in the “What Did You Observe?” section.
11. Thoroughly clean the work area and wash your hands.



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

Do not eat or drink with any of the materials used in this activity.

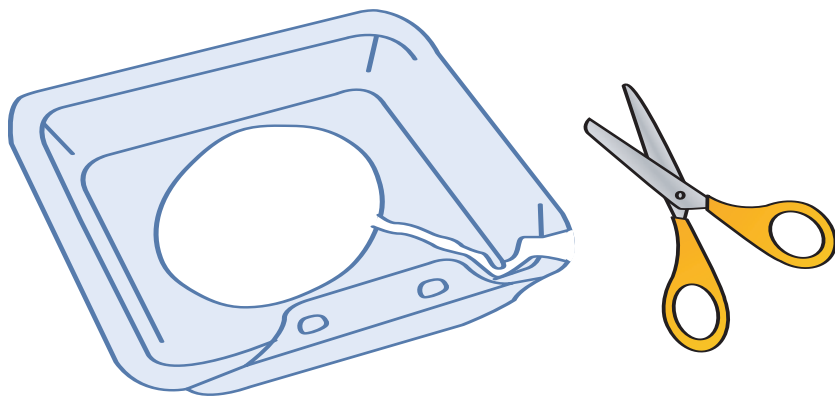


### Where's the Chemistry?

Plastic is a lightweight material that can be shaped, stretched, or bent into many different things. The material that you used to make your design is recyclable plastic called polystyrene. It is a polymer, a chemical made out of repeating chemical units. Polystyrene can be stretched or shrunk when heated. Not all plastics behave this way. Different types of plastic may melt into liquid or stay just the way they are even after you heat it.

### Try this...

You can also create designs using colored pencils. Use sandpaper to scratch the surface of plastic where you would like to draw. After you heat the plastic, does the surface still appear scratched? Make a charm or necklace by punching a hole(s) in the plastic before you place it in the oven. After the plastic shrinks and cools, thread a string through the hole.



### What Did You Observe?

	Length (cm)	Width (cm)
Plastic Before Shrinking		
Plastic After Shrinking		



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](http://www.acs.org/kids).

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## 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](http://www.acs.org/education) and click on "Safety Guidelines".**

