From Goo to Glue!

In this activity, you will be a glue inventor! You can mix your ingredients in any amounts that you like. You might want to make a few different combinations to see which works best, so don't use up all your ingredients on the first try. You will also need to think about how to test the glues to see which is best. We'll give you a few suggestions. Have fun and may the stickiest glue win!

Materials:

- Unflavored gelatin
- Milk
- Flour
- Plastic cups
- Plastic spoons
- Cotton swab

Procedures:

1. Cover your work surface with newspaper.
2. Experiment by mixing different amounts of ingredients to make something that looks and feels like a glue or paste.

3. Spread a little on a piece of paper and then stick another piece of paper to it. Try another combination of ingredients to see if it might work better. Test it again by gluing together two pieces of paper. Allow the glue to dry over night. Try pulling the papers apart the next day.

Which combination of ingredients made the stickiest glue?

Think about this ...

Glues work better on some surfaces than others. Try gluing different combinations of paper, plastic (sandwich bag), wood (Popsicle stick), and metal (aluminum foil) to see which surfaces your new glue sticks to the best.

Where's the Chemistry?

The ingredients in this activity have been used in different forms to make real glue and paste for many years. A protein in milk called casein has been used to make white school glue. The proteins in gelatin are closely related to the proteins from horse hoofs which have been used to make another kind of glue. Flour and water paste is the adhesive in paper mache which is used for many different types of art projects. The proteins in milk and gelatin and the starch in flour are all chemicals that have good characteristics for stickiness.

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".