Play Dough

Chemistry is the science of change – what could be more exciting for a preschooler than the chemical reaction that allows them to make their own play dough? By providing appropriate tools and ingredients for a mixing experiment, you can give your child an opportunity for some real, hands-on chemistry experimentation in the kitchen.

Before the activity...

- Review safety and mess-making rules with your child. Remind them that they will be helping, but that you will use the stove to heat the mixture when ready.

Supplies

- Flour
- Salt
- Kool aid (optional)
- Cream of tartar (optional, but will help your play dough stick together, and last longer.)
- Food coloring (optional)
- Vegetable oil
- Water
- Spoon
- Pot for cooking
- Bowl for mixing
- Plastic bag or Tupperware container for storage
- Measuring cups and spoons
- Recipe: 1 cup flour, 1 cup salt, 1 cup water, 1 tablespoon oil, 1 tablespoon cream of tartar, 1 packet of Kool-aid, food coloring if desired.

Procedure

- Ask your child to observe and describe each of the ingredients you will be using. Encourage him or her to use all five senses when observing. How does each ingredient sound when you shake the container? How does it feel if you touch it? Does it have a smell?
- Help your child use the measuring cups and spoons to measure ingredients into the bowl, and the spoon to stir. Your play dough mix should be roughly the consistency of cake batter.
- Pour your mix into a pot for cooking, and transfer to the stove. Cook over medium heat while stirring constantly. If it is safe for your child to watch, ask questions while the play dough cooks, such as, "how is our play dough changing as we cook it?"
- When your play dough pulls away from the side of the pot and sticks together, it is finished cooking! Scoop it onto a safe surface to cool. When the dough is no longer hot (make sure the inside is cool as well), it is ready to play with!

Inquiry based questions

As your child explores, guide his or her curiosity by asking open-ended questions that cannot be answered with one-word answers.

- How does your play dough feel?
- Why do you think it was important for us to use measuring spoons and measuring cups in our recipe?
- How was our play dough different before we cooked it?
- Why do you think we need to keep our play dough in a plastic bag?

Extension activities

- Your child may be interested in observing the combination of some of your play dough ingredients further. They might like to investigate, for example, salt dissolving in water, salt mixing with food coloring, Kool-aid mixing with oil, etc.
- By pressing small pieces of play dough against household objects, your child can collect a variety of textures. Encourage your child to find a texture they like and press their play dough against it to make a print, then bring it to you so that you can guess what object they used. Some examples might be towels, smooth glass, remote control buttons, plastic toys, a keyhole, etc.

CARNEGIE SCIENCE CENTER
One of the four Carnegie Museums of Pittsburgh

Provided by:

PNC Grow Up Great

Play Dough (cont.)

Extension activities (cont.)

- To learn why play dough must be kept in a plastic bag, your child may be interested in leaving a small piece out to air-dry. Observe the piece over the next several days to see what changes take place. When finished drying, does your child think the play dough can be softened by adding water? Try it!

Resources

Books:
When Clay Sings by Byrd Baylor
The Mud Pony by Caron Lee Cohen

Websites:
http://wonderopolis.org/wonder/who-invented-play-dough/