

Title

Galaxy Slime

Activity Overview

Description: Campers make their own fun slime to play with that can be seen to resemble our galaxy! (with the help of our imaginations)

Topic Area(s): Astronomy, Chemistry

Grade Level: 3-6

Duration: 30 min

Learning Outcomes:

- Chemical Reactions
- Varying the size of a polymer chain

Hook

Who knew you could hold the galaxy within your hands!?

Background Information

The Milky Way galaxy obtained its name from ancient times. Long ago, the Romans named the galaxy “via lactea,” which translates to “road of milk.” The Romans named it via lactea precisely because it looks like a milky patch of sky above the Earth at night.



A photo of the Milky Way Galaxy from the Cook Islands

You need two things to make slime: polyvinyl alcohol (the main ingredient in washable school glue) and borate ion (which you can get from borax, sodium tetraborate, or boric acid). What happens is that the polyvinyl alcohol in washable school glue is attracted to the borate ion from borax, sodium tetraborate, or boric acid (depending on whether you are using borax, liquid starch, or certain brands of laundry detergent. Slime can therefore be made from anything that can act as a source of borate ion (for example in our experiment borax is substituted with liquid starch). A polymer is a large chain of molecules made up of smaller units that repeat themselves.

The white glue in our slime is a polymer, a large chain of molecules that allows it to be poured. When we add the liquid starch it changes the structure of the chain making the polymer thicker which then makes our awesome slime.

Materials

Per group:

- Large bowl for mixing
- Food coloring (blue and red)
- Garbage bag
- Glitter
- 1/3 cup Baking Soda
- ½ bottle of Elmers glue
- Plastic spoons
- Liquid starch (1/5 can)

Safety Considerations

Don't eat science!

Be careful not to make a mess with the slime.

Procedure

1. Separate kids into groups of 3 and give them all a large mixing bowl and spoon and a garbage bag.
2. Lay out the garbage bag and have campers do all their mixing on top of the bags to limit the mess.
3. The following instructions are the steps that each group must follow to make their slime. Have campers take turns doing these steps so that they all have a part in making the slime!
4. First, pour some Elmer's glue into the large mixing bowl (approx. enough to just cover the entire bottom of the bowl)
5. Next sprinkle baking soda onto the glue (approx 1/3 cup) and stir to mix it in well with the glue
6. Next, add food coloring to the mixture (a couple drops of blue and a couple of red)
7. Next, sprinkle some glitter onto the mixture (optional)
8. The next step is spraying liquid starch to the mixture. This step is likely the most important because it is important not to add too little or too much. The best way to add the liquid starch is to do it in small intervals: add a small amount and stir and observe the consistency of the mixture. Repeat this step of adding small amounts of liquid starch until the consistency is thick and fun to play with!

Wrap-Up/Debrief

Did the campers find the slime fun to play with? Briefly explain to them how the slime formation process works (see above in background information)

Additional Resources

<http://www.instructables.com/id/How-to-Make-Slime-Easy-With-Liquid-Spray-Starch/>