MAD SCIENTIST Buddy Lab Experiment

THE AMAZING GOOP

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MAD SCIENTIST
Buddy Lab Experiment

Let out your inner mad scientist with this fun and exciting experiment. This experiment is for students and adults to do together. Complete this lab activity with an adult and bring this lab report back to class with you. Have fun!!

Student's Name: _____
Adult Buddy's Name: _____
Relationship to Student: _____

THE AMAZING GOOP

Purpose question: What do you think will happen when you mix cornstarch with water?
Your hypothesis:

Buddy's hypothesis:

Experiment Materials
- Measuring cups
- 1 cup of cornstarch
- Large bowl
- ½ cup of water
- Food coloring (optional)
- Spoon
- Plate

Procedure:
1. Gather materials.
2. Pour 1 cup of cornstarch into a large bowl. You can add a few drops of food coloring to the cornstarch if you like.
3. Slowly stir in ½ a cup of water until all the cornstarch is wet.
4. Keep slowly adding water until the goop feels like water when stirring but if you touch your finger to the surface the goop feels like a solid. If the goop is too wet add more cornstarch. If it is too powdery add more water.
5. Play with your goop and have fun, but please be sure to do steps 6-9 because you will have a few questions about what you observed in these steps later in this lab report.
6. Pick up a handful of your goop and squeeze it. As soon as you stop squeezing, it will run through your fingers.

7. Rest your fingers on the surface of the goop. Let them sink down to the bottom, then pull them out fast. Observe what happens.
8. Roll the goop into a ball between your hands. Stop rolling and see what happens.
9. Pour some of the goop onto the plate slowly being careful to not have any run over the edges. Take our hand and slap he mixture as hard as you can to see what happens.
10. Once you have en joyed your goop, clean up your mess.

** Never put goop down the drain, always throw it away. Goop cleans up easily with warm water. If goop gets on your clothes it should brush off when dry.

Observe and Record Data:
Think back to when you created your hypothesis at the beginning of this experiment. Was your hypothesis correct?? (Circle one.)

CORRECT INCORRECT

Was your buddy's hypothesis correct?? (Circle one.)

CORRECT INCORRECT

What happened when you let your hand sink to the bottom of the bowl and tried to remove it quickly? Write a sentence explaining your observation.

What happened when you stopped rolling the ball of goop between your hands? Write a sentence explaining what you observed.

What happened when you slapped your goop? Did the goop splash everywhere or did something else happen? Write a sentence and explain what you observed.

When you poured your goop was it acting as a liquid or solid?
When you slapped your goop was it acting as a liquid of solid?

WHAT IS HAPPENING?

Non-Newtonian Liquid

The amazing goop acts like a solid at times and a liquid at other times. So what exactly is our goop? A long time ago, Sir Isaac Newton identified the prosperities of an ideal liquid. These ideal liquids, such as water, are what we now call the Newtonian liquids. As you can see our amazing goop does not act like properties of an ideal liquid. This means our goop is a non-Newtonian liquid.

Suspension

Our amazing goop is made from cornstarch. Cornstarch is made up of very tiny particles. When we mix those with water to create our goop, the cornstarch particles did not dissolve in water. The mixture of these two substances is an example of suspension. **Suspension is placing fine particles into a liquid without them dissolving. The particles will eventually settle down to the bottom of the container that holds the mixture.**

Why does the amazing goop act the way it does?

Pressure has a lot to do with the way this works. The size, shape, and make up of the tiny particles of cornstarch causes the cornstarch to 'freeze' its shape when pressure is applied. As soon as the pressure is released the mixture goes back to its liquid state.

Conclusion

Explain what caused the amazing goop to act as a liquid one minute, but seem like a solid the next.

New Questions or Ideas

Now that you have completed your buddy lab, can you think of any other non-Newtonian liquids? Do you have an questions about non-Newtonian liquids or suspension?

Your signature _____

Buddy's signature _____

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