

Material Mystery: Liquid or Solid?

Determine if the mysterious substance you made is a liquid or a solid.

What you need:

1/2 quart of water
2 boxes of corn starch
Food coloring (optional)
Large bowl
Different size containers
Spoon or spatula

WARNING: Dispose of your project in the trash it will clog a sink.

What to do

1. Combine the water and food coloring in a large bowl.
2. Stir as you slowly add the corn starch to the water and food coloring mixture.
3. As you conduct the following experiments write down whether the mixture acts like a liquid or a solid:
 - Pour your mixture from the bowl to another container.
 - Slowly stir the mixture with a spoon.
 - Try to scoop the mixture out of the container with a spoon.
 - Squeeze some of the mixture in the palm of your hand.
 - Scoop the mixture into a plate and wait thirty seconds.

What to ask

- Do you think the material you created is a solid, a liquid or both? How do you know?
- Can you think of a material that can change from a liquid to a solid?

Did you know?

A scientist named Isaac Newton created a list of rules to determine if a substance was a liquid. The corn starch and water mixture does not follow those rules so this mysterious material that you made is called a non-Newtonian fluid. When you stir slowly with little force, it acts like a liquid. When you move it quickly and with more force it acts like a solid. Place some in your hand and try pushing it with your finger very quickly. Also, try clapping your hands together very gently and then again very quickly with more force. Do you notice a difference in how the material reacts? Quick sand is another type of non-Newtonian fluid. From what you observed with the corn starch and water what is the best way to get out of quicksand?

What's next?

- Change the recipe by adding different ingredients. What would happen if you replaced half the corn starch with flour? What if you added dish soap?



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