

STATES OF MATTER

Today we are going to do an experiment that includes three of the states of matter. Solids, liquids and gases are all around us and in us!

We will mix a liquid and solid together and they will react to form a gas. It is really neat to watch how the bubbles (gas) affect some pasta we put in the solution.

To do the experiment all you need are:

- Beaker (I use a 2 liter bottle with the top cut off or a tall glass will work)
- Water
- Baking soda
- Alphabet pasta
- Vinegar

1. Pour in about 3 inches of water into the beaker.
2. Add a spoonful of baking soda and stir.
3. Add in a tablespoon of alphabet pasta. Observe what happens
4. Pour in some vinegar. A little at a time so you don't have an overflow!
5. Observe what happens to the pasta.

What you are seeing is a chemical reaction where the vinegar and baking soda produce a gas called carbon dioxide. The gas takes up more space and makes lots of bubbles (more in depth description on back).

Take a photo/video and post it at www.whizbangscience.com. Mrs. Whiz Bang and Dr. Dave enjoy seeing young scientists performing experiments.



Dear Parents,

We are honored to have the opportunity to work with your child, but we know that you are the first and foremost educators in your children's lives. When you do this experiment with them, ask them lots of questions. We have posted a video at that will lead you through this experiment.

We encourage you to change things in the experiment and see what happens. Use hot water or ice water instead of room temperature water. Substitute baking powder for the baking soda, use Alka Seltzer, or just use a clear soda that already has carbon dioxide bubbles in it.

The pasta sinks at first because it is denser than the water. When the bubbles start forming, some attach to the pasta and this combination of pasta & bubbles together are less dense than the water and they become buoyant (start to float). When they get to the top the bubbles pop and the pasta sinks again. This is a lot like wearing floaties on our arms in a swimming pool.

This is a great opportunity to talk to your child about buoyancy to see how different items will behave when you use them instead of pasta. We have found the raisins, craisins and blueberries will sink and first and then float when the bubbles are present. Use your imagination and try other items around the house. Ask them to make a prediction before they do the experiment. This helps them to develop some critical thinking skills in a very basic setting.

It is also fun to put some drops of food coloring in the bubbling solution and watch it get mixed in with the currents that are moving in the solution.

We hope you enjoy doing science with your children!

Dr. Dove Mrs. Whiz Bang

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