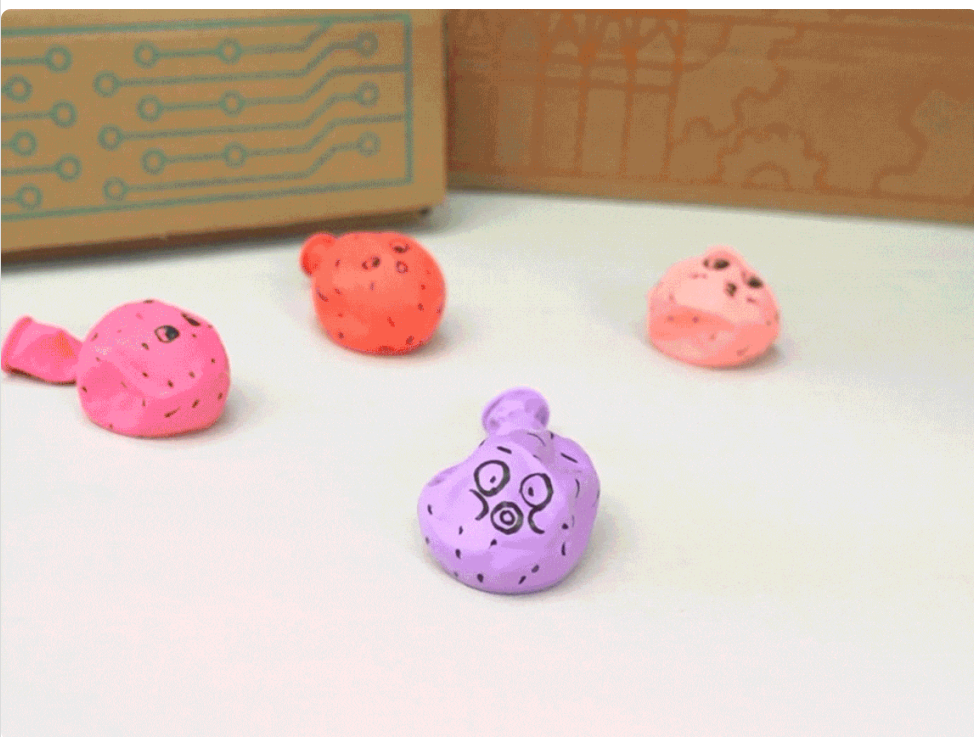


# Inflate & Deflate! The Scientific Pufferfish!

October 22, 2024 / DIY / Stem Activities / Chemistry / Age 3 - 5 / Inflating Pufferfish Balloon



When threatened or frightened, pufferfish quickly inflate themselves by taking in water or air, making them look like big round balloons. The pufferfish's inflation process is fascinating, and we can simulate it using common household materials. You'll see how a balloon can quickly inflate, just like an "angry pufferfish."

- Age: 3-5
- Time: Less than 30 minutes
- Messiness level: A little messy

## Materials Needed:

- Markers
- Scissors
- Baking Soda
- Vinegar
- Balloon
- Small Funnel (Optional)
- Rubber Band
- Disposable Glove or Small Plastic Bag
- Measuring Cup or Small Container



## Step-by-Step Instructions:

1. Use a small funnel to put 4 spoonfuls of baking soda into the balloon. If you don't have a small funnel, you can make one using stiff paper.



2. Cut off a finger from a disposable glove and pour 15ml of vinegar into it. Tie the opening tightly with a rubber band to create a small vinegar pouch.



3. Carefully insert the vinegar pouch into the balloon without breaking it. Then tie the balloon's opening tightly. Make sure the small plastic bag is separate from the baking soda in the balloon to avoid a premature reaction.



4. Draw a cute face and spots on the balloon to make it look more like a pufferfish.



5. Firmly tap the balloon to make the vinegar flow out of the pouch and react with the baking soda. Observe how the balloon inflates due to the chemical reaction.



## The Science Behind It:

When baking soda (an alkaline substance) mixes with vinegar (an acidic substance), a chemical reaction occurs, producing carbon dioxide. The carbon dioxide gas accumulates inside the balloon, pushing against its walls and causing it to expand and grow larger. This process is similar to how a pufferfish inflates when it feels threatened.