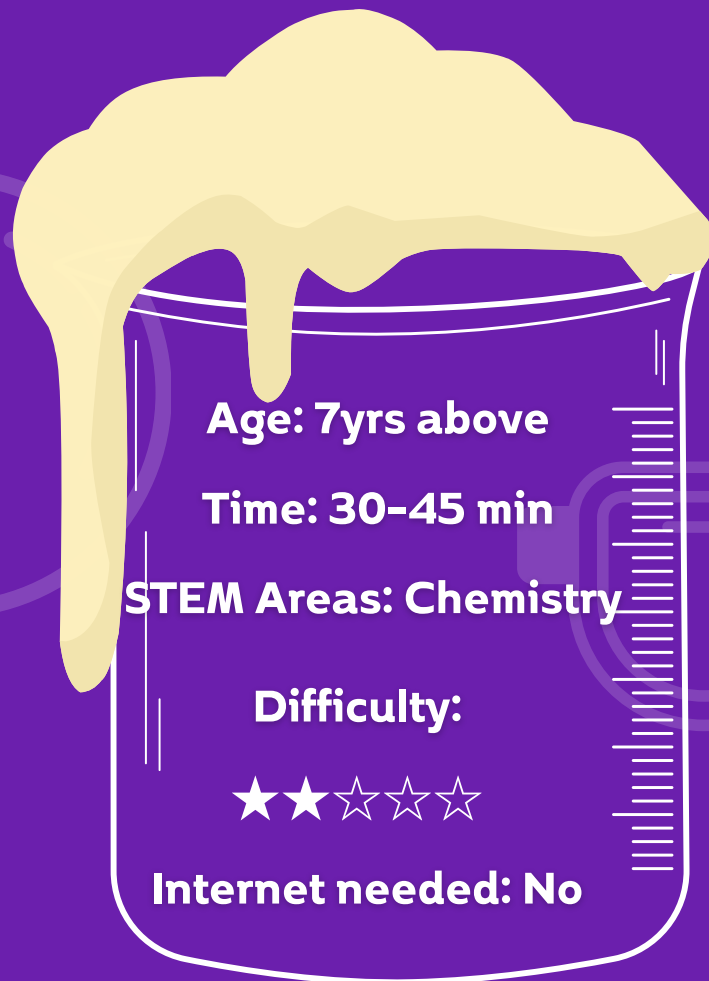


SMART CHELI

STEM challenge #02

Foamy potion



Age: 7yrs above

Time: 30-45 min

STEM Areas: Chemistry

Difficulty:



Internet needed: No



FOAMY POTION



One afternoon, Mina was helping her mother clean the kitchen. While putting away some leftover ingredients, she noticed something interesting.

Her mother had mixed two different ingredients in a bowl, and suddenly FIZZ! BUBBLE! FOAM! The mixture began to rise and fill the bowl with fluffy bubbles. Mina's eyes widened. "What just happened?"

She became curious. Why did the two ingredients suddenly produce so much foam? Could she make the same thing happen on purpose?

Mina decided to become a little scientist and investigate.

Let's create
biggest foamiest
potion



How should I make
them?





1. EXPLORE

What do you think will happen when you mix baking soda and vinegar?



Think about it:

1. Will the mixture stay still?
2. Will you see bubbles?
3. Will the mixture get bigger?
4. What might the soap do?



Don't worry about being right. Scientists make predictions and then test them!



Make your prediction

I think mixture of baking soda and vinegar will:



2. WHAT YOU'LL NEED



Cup



Baking soda



Tablespoon



Water colour / Food colour



Vinegar



Water



Dish soap



Tip:

You don't need expensive materials to become an scientist.



Look around your home what everyday materials could help you investigate a science question?



Safety first:

Ask a grown-up scientist to supervise, and wipe up any spills right away.



3. IMAGINE

Before you start, imagine what your foamy potion might look like.



Think about:

- What colour will your potion be?
- How high will the foam rise?
- Will the foam overflow the cup?
- What do you think will cause the foam?

What will your potion look like?



MY FOAMY POTION



4. CREATE

Follow the steps in order. go slowly and watch carefully.

Step 1 — Prepare your cup

Place your plastic cup on a flat surface, like a tray or a table.



Step 2 — Add water



Pour less than half a cup of water into the plastic cup.

Step 3 – Add baking soda

- Add about 3 tablespoons of baking soda to the water.
- Stir it gently until it mixes.





Step 4 — Add some color



- Add a few drops of liquid water color or food coloring.
- You can use red to make your potion look like a tiny lava flow!

Step 5 – Add the soap

- Add several drops or one small squirt of dish soap.
- Mix everything gently for a few seconds.



Step 6 – Add the vinegar



- Now comes the exciting part!
- Slowly pour a little more than half a cup of vinegar into the mixture.

Step back and watch carefully!

What happens?

The mixture creates a foam instantly and begins to rise rapidly, overflowing from the glass.





5. TEST IT !



Scientists don't just build - they test!

Try changing one thing at a time and observe what happens.

Test 1 – Change the amount of vinegar

What happens when you use:

Less vinegar?



ANSWER

More vinegar?



ANSWER



Test 2 — Change the amount of baking soda

What happens when you use:

Less baking soda?



ANSWER

More baking soda?



ANSWER



Test 3 — Change the amount of dish soap

What happens when you use:

Less dish soap?



ANSWER

More dish soap?



ANSWER



6. WHAT'S THE SCIENCE ?



- When you mix baking soda and vinegar, you create carbon dioxide gas.
- When the gas rises, the dish soap traps it into tiny bubbles.
- The growing bubbles pool together and push upward, overflowing out of the cup as thick foam.
- This demonstrates an important idea about chemical reactions and trapped gases.

Think about it

Why does the mixture make much more foam when we add dish soap?



WRITE FINDINGS



7. STEM AROUND US

Chemical reactions happen all around us.

We see them when food cooks, when bread rises, when some medicines dissolve in water, and even when plants use carbon dioxide to grow.

Find four things around you where you think a chemical reaction might happen.

1. _____
2. _____
3. _____
4. _____

What signs might tell you that a chemical reaction is happening?

Discuss your ideas with your friends.



WRITE FINDINGS



8. My STEM Discovery

One thing I discovered today:

One thing that surprised me:

REMEMBER

Scientists don't need a magic wand to make something amazing happen.

Every time you imagine, build, test, learn, and try again, you are thinking like an scientist.

Keep experimenting!

