
Get Slimed:
Ooey Gooey Science Fun

“If you trust play, you will not have to control your child’s development as much. Play will raise the child in ways you can never imagine.”
~ Vince Gowmon

OMG WE ARE MAKING SLIME THAT SLAPS-
Grade 12 Student

The Speaker?

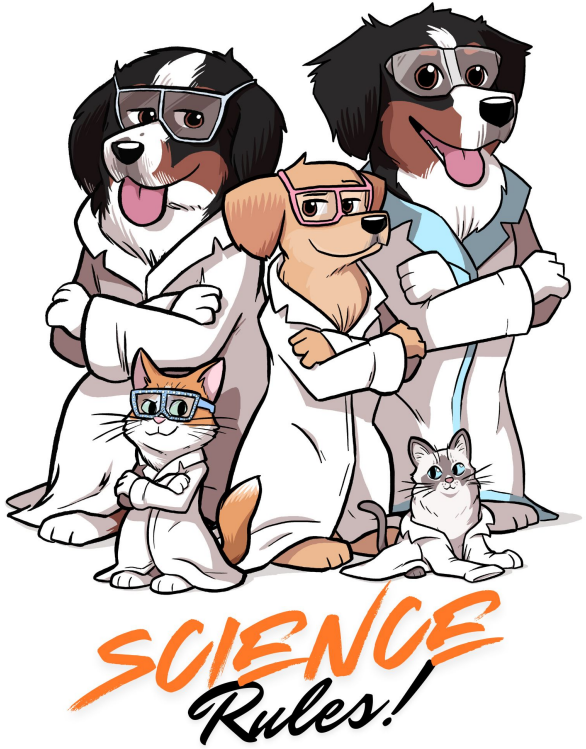
Jason Zackowski-

Science Lead Teacher at LTCHS in RDPSD

The Host of

The Science Pawdcast (along with my wife!)

Bunsen, Beaker, Bernoulli, and Brix!



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Where does Slime Fit in Curriculum?

Grade 2 – Properties of Objects and Materials

Grade 7 – Interactions and Ecosystems

Grade 8 – Mix and Flow of Matter

Grade 9 – Matter and Chemical Change

High School

Grade 10 Science 10 – Matter and Chemical Change

Chem 30 - polymers in the Organic Chemistry Unit

The Plan

1. Make THREE different types of slime.
2. Try Some of the Activities!
3. Clean up or at least try to!

Slime 1: Bunsen's Slime

This is inspired by Bunsen's Drool!

1 dixie cup of glue

¼ teaspoon of baking soda

2 teaspoons of Renufresh

Food coloring - one or two drops

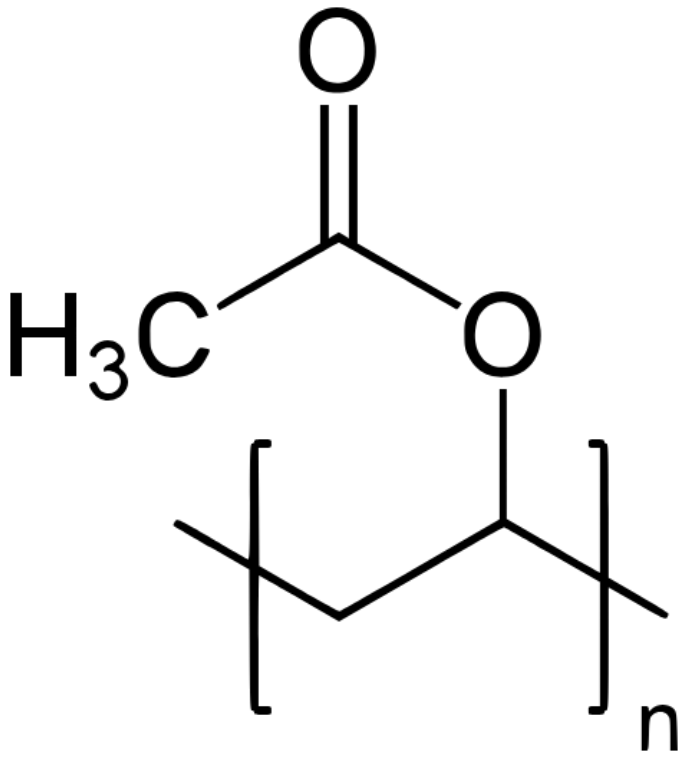
Try your best to keep the ratios as it says - it will work!

Too slimy? Add a TINY bit of renu fresh.

Way too bouncy and not slimy at all? You put in too much renu fresh.

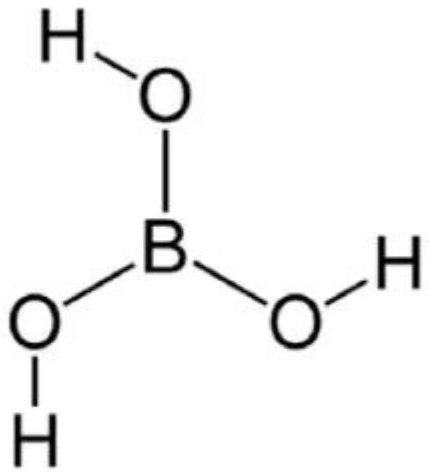
Ok. How does this work?

Slime made from glue, baking soda, and Renu Fresh works because of polymer cross-linking. White glue contains long polymer chains called polyvinyl acetate (PVA) that normally slide past each other, so the glue flows like a thick liquid.



Why baking soda?

When baking soda is added, it raises the pH, allowing boric acid in Renu Fresh to form borate ions. These borate ions act like tiny connectors that link different PVA chains together at many points. The result is a flexible, stretchy network that can flow slowly like a liquid but resist sudden pulling like a solid — giving slime its classic weird, non-Newtonian behavior.



It’s a Lewis Acid!

Activity 1

Slime HOLD - students hold the slime at shoulder height and the team with the slime that stretches the most without breaking wins!

Students get a maximum amount of glue/shaving cream/baking soda/renewfresh.

I would suggest they modify ONE compound.

This a brilliant and fun design lab to teach the scientific method:

Manipulated Variable

Responding Variable

Controlled Variable.

SO TEACHERS

Discuss at your table to make a new batch of BUNSEN'S SLIME

Change one variable in amount

Mix it up

Who is going to win?

Slime 2: Brix’s FLUFFY SLIME

90% full Dixie Cup of Glue

1 Dixie Cup of Shaving Cream

1/4 teaspoon of baking soda

2 teaspoons of RENUFRESH (which has boric acid)

Optional Small Amount of Food Coloring

Why are the two types of slime so different?

Shaving cream is mostly water, soap (surfactants), and air whipped into a foam. When you mix it into slime, the polymer network from the glue–borate cross-links stays the same, but you trap tiny air bubbles inside that network. Those bubbles act like microscopic cushions, making the slime lighter, softer, and fluffier — this is why it’s often called *fluffy slime*.

Activity 2: SLIME SINK (we aren't going to do this one)

Students put slime in a test tube or beaker or flat on the table and time how long a weight takes to sink through it up to a certain time. Measure!

Students get a maximum amount of glue/shaving cream/baking soda/renewfresh.

Students can modify the design to see how much better the slime can hold a marble. I would suggest they modify ONE compound.

This a brilliant and fun design lab to teach the scientific method:

Manipulated Variable

Responding Variable

Controlled Variable.

Ok Teachers!

That’s right, mix up TWO new batches of Ginger’s fluffy slime to RESIST the weight.

You can only alter ONE variable and at MOST double it.

Do something different at the table than the other team.

Activity 3: SLIME RACE

Students put slime on an incline plane and see which slime OOOZES the furthest in a set amount of time.

Students get a maximum amount of glue/shaving cream/baking soda/renewfresh/guar gum.

Students can modify the design to see how much better the slime can hold a marble. I would suggest they modify ONE compound.

This a brilliant and fun design lab to teach the scientific method:

Manipulated Variable

Responding Variable

Controlled Variable.

Slime 3: BEAKER’S GUAR GUM SLIME

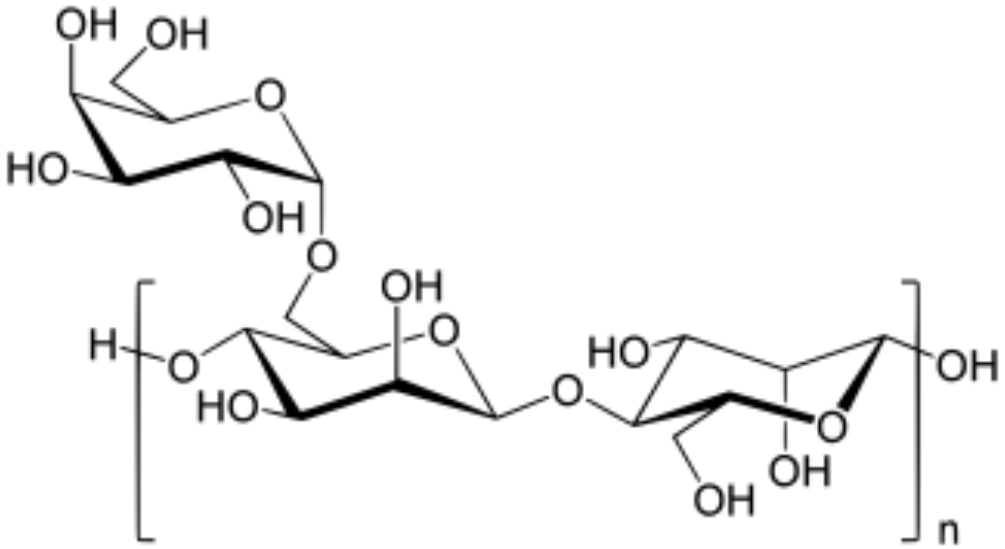
GUAR GUM SLIME

- pros - you don’t need glue!

- cons - you have to use borax

This one is a bit more finkinky but let’s try it!

Guar Gum



Why does the Guar Gum Slime form?

It’s made of long chains of sugar molecules
Those chains are loaded with **–OH (hydroxyl) groups**

Borax is **sodium tetraborate ($Na_2B_4O_7$)**.

When dissolved in water, it forms **borate ions**.

They can:

- Attach to the –OH groups on guar gum
- Link one polymer chain to another

1 dixie cup of water with ¼ teaspoon of guar gum to ½ teaspoon

(½ teaspoon is more likely to work but isn’t as slimy)

Stir (it’s hard to dissolve)

Let sit for 1 minute

Slowly add **saturated borax** ¼ teaspoon solution while stirring

OK TEACHERS IT’S SLIME RACE TIME

Alter the recipe and get two new batches of slime to the incline plan for SLIME RACES.

The slime must OOZE.

If it rolls, it’s disqualified!

OTHER SLIMES THAT WE DON’T HAVE TIME FOR

Tide Slime!

Use a 1 to 1 ratio of liquid laundry detergent to white glue.

Make sure the laundry detergent has boric acid in it.

Edible Slime!

(not making here for obvious reasons)

1 cup of mini marshmallows
1-2 tablespoons of cornstarch (for dusting and kneading)
Coconut oil or vegetable oil (for greasing hands and surfaces)
Optional: Food coloring or flavored extracts for color and taste

Edible Slime is outrageously fun and messy.

You will have to melt the marshmallows in a pot or microwave and wait until they are cool/warm to the touch so kids don’t get burnt.

Greasing everything up is essential.

But it is SO FUN.