Scientific Sue's Ultimate Slime Science Guide

Full of experiments, facts, and fun ways to bring Science2Life!

🧪 Make the Perfect Slime Every Time!

Welcome to the squishy, stretchy, super-fun world of slime-making! Whether you're a budding scientist, creative crafter, or enthusiastic educator, **Scientific Sue's Super Slime Activator** helps you create perfect slime at home or in the classroom.

This extended guide gives you **everything you need to mix, stretch, experiment, investigate, and discover the chemistry of slime!**

🧴 What's Inside Your Kit?

- 1 x 500 ml slime-activator
- 1 x 600 ml PVA Glue
- 5 x 30 ml measuring cup
- 5 x 3 ml pipette

That's enough to make **loads of stretchy, bouncy, squishy, sensational slime** while learning real science!

🧫 Safety First – Because Science Should Be Safe & Fun!

Your slime activator contains **sodium tetraborate (borax)** in a safe, diluted 4% solution.

✓ Non-toxic ✓ Washable ✓ Safe when used as directed

⚠️ Safety Guidelines

- Adult supervision required
- Not suitable for children under 5
- Wash hands before and after use

- Avoid contact with eyes and mouth
- Store away from pets and very young children

🧪 Preparing Your Activator

1. **Shake for 10–15 seconds before every use.**

👨‍🔬 Scientific Sue's Favourite Slime Recipe

Perfect for beginners and slime pros!

- **15 ml Classmates Blue PVA glue**
- **45 ml water**
- A small squeeze of paint or food colouring
- **3 - 4 ml Super Slime Activator**

(*Tested with Classmates Blue Label PVA – other glues used for slime production by us are: Brian Clegg, Cleopatra, and Sticky Situations clear PVA glue – water and activator quantities vary with each!*)

📌 **Some glues are pre-diluted**, so experiment a little to get the texture just right!
📌 Add activator **slowly**, mixing well after each addition.

PVA stands for Poly Vinyl Alcohol — and is used in paper coatings, textiles, and laundry pods.

🧠 Sue's Top Slime-Making Tips

✨ **Shake well!** Always shake the activator before use.
✨ **Different glues = different results** — adjust water/activator slightly.
✨ **Measure carefully** using the cups and pipettes.
✨ **Stretch and fold gently** once slime forms — helps align and strengthen polymer chains.
✨ **Keep a Slime Diary!** Record amounts and observations.

How to Achieve the Best Stretchy Slime

The exact amount can vary slightly depending on the specific concentration of your PVA glue, so it is best to add the activator solution a little at a time and stretch and fold the mixture to reach the desired consistency.

1 **Start with your basic mixture**

- 15 ml glue + 45 ml water

2 **Add activator slowly**

- Add 1–2 ml activator, stir 20–30 seconds.
- Add another 1–2 ml and mix again.
  Slime will thicken around 20 - 30 seconds as cross-linking begins – patience pays off!
- It takes time for the links to be made, if you add more activator before the links have been made your slime will be stiff and will break easily.

3 **When slime pulls away from the bowl**

Begin handling and stretching + folding.

This improves elasticity by aligning polymer chains.

4 **If still sticky**

Add only a few drops at a time.

Too much activator = stiff, rubbery slime.

5 **Sue's favourite consistency**

15 ml glue: 45 ml water

What will yours be?

🎨 Slime Add-Ins to Spark Creativity

Transform your slime with these sensory extras:

- ✨ *Foam beads* – crunchy texture
- 🧈 *Soft clay* – makes buttery slime
- 🌈 *Glitter & sequins* – sparkle galore!
- 💧 *Water beads* – super squishy
- 🌌 *Glow powder* – lights up in the dark
- 🔥 *Thermochromic pigments* – magical colour-changing slime

💡 *Mix and match to invent your own signature slime!*

🔍 The Science Behind the Slime – Meet Borax!

Sodium tetraborate (borax) is the secret ingredient in your activator solution and it is a natural mineral with an amazing history:

- Borax = **sodium tetraborate**, a naturally occurring mineral.
- Used historically for cleaning, metalworking, glassmaking, and even embalming.
- Mined commercially since the 1880s in the USA, Turkey, and Tibet.

🧪 What borax does in slime

- Borax dissolves in water → forms **borate ions**
- These ions link the PVA polymer chains together
- This process is called **cross-linking**

✨ **The result?** Stretchy, squishy, bouncy slime!

Borax is **safe when diluted and used correctly**, making it ideal for hands-on science.

🧪 How Slime Works – The Polymer Science!

Slime is a **non-Newtonian fluid**:

- Pull it slowly → It stretches like warm toffee.
- Pull it fast → It snaps like a solid.

Why?

- Glue contains **long polymer chains**.
- Borax links them together.
- These cross-links create a structure that is both solid *and* liquid.

Extra Science Facts

- Warm slime = stretchier (chains move more easily)
- Cold slime = firmer
- Too much activator = too many cross-links → rubbery
- Too little activator = runny slime
- pH matters: borate ions only form in **slightly alkaline solution**

🧪 Troubleshooting Your Slime

Too Sticky?	Add **1–2 ml** more activator.
Too Rubbery?	Add a teaspoon of water and knead well.
Too Hard?	Soften it with **hand lotion or baby oil**.
Too Runny?	Pull and fold more OR add small amounts of activator.

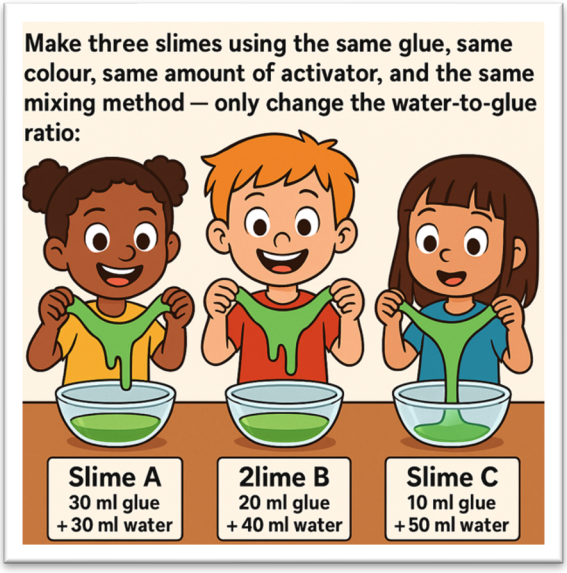
🧪 Fun Slime Science Experiments

Turn slime play into real scientific discovery with these extended investigations!

1 Activator Ratio Stretch Test – Fair Testing

A brilliant opportunity to practise **fair testing** — a key scientific skill! A fair test means changing **only one variable at a time** while keeping everything else the same.

Part 1 — Changing the Water-to-Glue Ratio (Slimes A, B & C)



Investigate:

- Which stretches furthest?
- Which is the stickiest?
- Which breaks most easily?
- How does the water level affect the final texture?

Science link: More water = looser polymer chains, so the slime becomes softer and stretchier.

Part 2 — Changing the Glue Amount Only (Slimes D, E & F)

Now keep the **water amount the same** while changing only the **amount of PVA glue**. This helps children clearly see how glue concentration affects slime structure.

Use **30 ml of water** for all three:

- **Slime D:** 15 ml PVA glue + 45 ml water
- **Slime E:** 25 ml PVA glue + 45 ml water
- **Slime F:** 35 ml PVA glue + 45 ml water

Investigate:

- Which slime is the strongest?
- Which needs more activator?
- Which shows the most resistance when stretched?

Science link: More glue = more polymer → thicker, stronger slime.

2 Glue Brand Comparison Challenge: Not all PVAs are created equal! Compare:

- **White school glues** (e.g., PVA craft glue)
- **Clear glues**
- **Different brands** like Brian Clegg, Cleopatra, Sticky Situations, and supermarket brands

Investigate:

- Which stretches furthest?
- Which holds its shape longest?
- Which feels smoothest?
- Which gives the *best* slime overall?

Science link: Different brands contain different polymer concentrations.

♻️ Reuse Your Bottle – Science Meets Sustainability

Our bottles are designed to be reused:

1. Rinse with warm water
2. Add a drop of washing-up liquid and shake
3. Rinse again
4. Air-dry upside down

🧪 Slime Care Tips

- Store slime in an **airtight container** or zip bag.
- If it begins to dry out at the edges, add **a few drops of water or a pea-sized amount of hand lotion**, then knead thoroughly. **Fully dried-out slime cannot be revived**, but slightly dry slime can often be refreshed., add **a teaspoon of water** and knead.
- Keep slime away from fabric, carpets, and pet fur!

👩‍🔬 Perfect for Home & Classroom STEM Learning

Use Scientific Sue's Super Slime Activator for:

- STEM lessons
- Science clubs
- Birthday parties
- Sensory play sessions
- Wet play in nurseries and classrooms

Slime encourages:

- Hands-on learning
- Scientific observation
- Creativity and design
- Sensory exploration
- Fine motor skills

Make learning **hands-on, messy, and memorable!**

🧠 Cool Slime Science Facts

- **Slime is a non-Newtonian fluid:** it stretches when pulled slowly and snaps when pulled quickly.
- **Temperature affects texture:** warm slime becomes softer and stretchier; cold slime becomes firmer.
- **Borate ions = polymer connectors:** when borax dissolves, it forms borate ions—tiny "bridges" that link glue molecules together.
- **PVA = polyvinyl alcohol:** a safe polymer used in glues, paper coatings, laundry pods, and more.
- **Borax is natural:** borax crystals form in ancient lakebeds in California, Turkey, and Tibet.

😊 Troubleshooting Guide

- **Too sticky?** Add 1 ml of activator at a time.
- **Too stiff or brittle?** Add a drop of baby oil or a few drops of warm water.
- **Slime leaving residue?** Too much water or not enough activator—note in your slime diary.
- **Cloudy or bubbly slime?** Stir more slowly next time.

♻️ Eco-Friendly Slime Ideas

- Store slime in clean **reused jars**.
- Make squishy **stress balls** using reusable balloons.
- Press slime into cookie cutters to make **colour-changing tokens**.
- Donate well-stored slime samples to **STEM clubs**.

🧼 Cleaning Tips for Parents & Teachers

- **On clothes:** soak the area in vinegar, then wash normally.
- **On carpets:** use warm water + a drop of washing-up liquid. *Blot—don't rub.*
- **In hair:** conditioner or warm olive oil helps slide slime out easily.

✨ Thank You!

Thanks for choosing **Scientific Sue's Super Slime Activator** — full of experiments, facts, and fun ways to bring Science2Life! ✨