GRASSHOPPER

🧪 Slime Science Lab: Gooey Physics & Chemistry

1 hour · 2nd – 8th · After School · Teacher: Kayla Battle

Instructions: This lesson plan is your starting point — feel free to edit, rearrange, or customize it to fit your teaching style and your students' needs! These notes are yours. They will not be published anywhere.

Topics Covered

States of matter · Chemical reactions · Non-Newtonian fluids · Polymer science · Scientific method · Measurement and observation

Lesson Plan

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1. Science Circle & Safety (8 min)

- Gather students in a circle and introduce today's gooey experiment with an exciting demo (teacher squeezes oobleck to show it solidifying)
- Review lab safety rules: no eating materials, wash hands after experiments, keep materials in designated areas
- Have students put on 'scientist name tags' and assign lab partners for the day
- Ask prediction question: 'What do you think will happen when we mix these ingredients?' and record 2–3 student predictions on chart paper

2. Mini Science Lesson (10 min)

- Explain the science concept of the day using simple visuals (week 1: states of matter with ice cube, water, steam examples)
- Demonstrate the experiment steps slowly while students watch and ask questions
- Introduce key vocabulary words written on cards (polymer, reaction, viscosity, etc.) and have students repeat them
- Show the 'mystery ingredient' of the day and let students smell or observe it safely before mixing

3. Hands-On Experiment (25 min)

- Students work in pairs at stations with pre-measured ingredients in small cups and bowls
- Teacher circulates to each station asking 'What's happening now?' and 'Why do you think that is?' to encourage observation
- Students mix, stretch, poke, and test their creations while recording observations on simple worksheets with pictures
- Mid-experiment challenge: 'Can your slime stretch over your head?' or 'Can you make your oobleck dance on a speaker?' depending on the material

4. Movement Break (5 min)

- Lead the themed movement break (see movementBreak field below)
- Students shake out their hands and do 5 jumping jacks
- Quick 'molecule dance' where students cluster together (solid), move slowly apart (liquid), or bounce around the room (gas)

5. Experiment Extensions & Challenges (10 min)

- Introduce today's challenge: test variables like adding glitter, food coloring, different amounts of ingredients, or temperature changes
- Students modify their creations and observe differences, recording results with drawings or simple charts
- Partner pairs share one surprising discovery with another pair using 'scientist voice' (e.g., 'We observed that...')
- Teacher highlights one interesting finding from each table and connects it to the science concept

6. Clean-Up & Reflection (2 min)

- Students store slime samples in labeled ziplock bags or containers to take home
- Quick team clean-up with designated roles: wiper, collector, hand-washer reminder
- Students share one word to describe today's experiment (sticky, surprising, cool, etc.)
- Teacher previews next week's experiment to build excitement: 'Next time we'll make slime that glows in the dark!'

Materials Checklist

☐ White school glue (4 oz bottles, 1 per pair)

- ☐ Borax powder or liquid starch (activator)
- ☐ Cornstarch (for oobleck weeks)
- ☐ Mixing bowls and spoons (1 set per pair)
- ☐ Measuring cups and spoons
- ☐ Food coloring, glitter, small beads (add-ins)
- ☐ Ziplock bags for storage
- ☐ Paper towels and hand wipes
- ☐ Simple observation worksheets with pictures
- ☐ Chart paper for predictions and vocabulary

Age Adaptations

Younger Kids: Pre-measure all ingredients into individual cups so 2nd-3rd graders focus on mixing rather than measuring. Use picture-based observation sheets with simple checkboxes (Is it stretchy? Is it sticky?). Assign clear roles like 'mixer' and 'observer' to structure partner work. Use simpler vocabulary and more physical demonstrations.

Older Kids: Have 7th-8th graders measure their own ingredients using graduated cylinders and scales for precision. Introduce chemical formulas (PVA for glue, H_2O) and molecular bonding diagrams. Add hypothesis writing and data tables to worksheets. Challenge them to research WHY reactions occur and present findings. Let them design their own slime recipes in later weeks.

Movement Break

Slime Stretch Yoga: Students pretend to BE slime by melting slowly to the ground, stretching arms and legs as far as they can like oozing goo, then snapping back into 'solid' form quickly. Add 'oobleck freeze dance' where students move in slow-motion (liquid) until teacher claps, then they freeze solid instantly.

Bonus Activities

- Slime texture hunt: Students test if their slime can pick up small paper bits like a sticky note, demonstrating adhesion
- Create slime sound effects by poking, squeezing, and stretching while recording on a device for a 'slime symphony'
- Slime art: Press slime onto paper to create textured prints or use it as a stamping tool with paint
- Scientific drawing challenge: sketch your slime sample and label its properties with arrows and descriptive words

Series Outline (8 Weeks)

Week	Theme	Key Activities
1	**Classic Slime Chemistry**	Mix white glue and borax solution to create basic slime while learning about polymers and cross-linking, Test slime properties: stretchiness, bounce, stickiness with simple tools, Introduce the scientific method: predict, observe, conclude with guided worksheet
2	**Oobleck: The Liquid-Solid Mystery**	Create cornstarch and water oobleck to explore non-Newtonian fluids, Conduct pressure tests: poke slowly vs. punch quickly to see different states, Dance challenge: place oobleck on a bluetooth speaker and watch it 'dance' to vibrations
3	**Glow-in-the-Dark Slime Lab**	Make slime with glow-in-the-dark paint and discuss phosphorescence, Charge slime with flashlights and observe in darkened area, Experiment with different 'charging' times and measure glow duration
4	**Magnetic Slime Challenge**	Add iron oxide powder to slime recipe to make it magnetic, Use magnets to make slime 'eat' or 'chase' the magnet, introducing magnetic fields, Build slime sculptures that defy gravity using magnetic attraction
5	**Fluffy Slime & Air Chemistry**	Create fluffy slime using shaving cream and discuss how air bubbles change texture, Compare density of fluffy vs. regular slime using simple balance scales, Test which version stretches further and record data in charts
6	**Color-Changing Mood Slime**	Make thermochromic slime using heat-sensitive pigment that changes color with temperature, Test color changes with warm water, ice packs, and hand heat, Discuss temperature and molecular movement using the slime as a thermometer
7	**Edible Slime: Safe Science**	Create edible slime using marshmallows, cornstarch, and powdered sugar to compare food chemistry to lab chemistry, Discuss difference between edible and non-edible experiments and lab safety, Conduct taste tests and texture comparisons with scientific observation language
8	**Design Your Own Slime Recipe**	Students use knowledge from previous weeks to design custom slime recipes with chosen properties (stretchy, fluffy, magnetic, etc.), Present their 'inventions' to the class with scientist explanations of

Week	Theme	Key Activities
		ingredients chosen, Host a Slime Science Fair where students display creations and answer questions from peers



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