Lesson Plan: Jack's Super Slime Science Lab

Materials Needed

- 1/2 cup of clear or white PVA school glue (like Elmer's)
- 1/2 cup of water
- 1/2 teaspoon of baking soda
- 1 tablespoon of contact lens solution (must contain boric acid and sodium borate)
- Large mixing bowl
- Measuring cups and spoons
- Spatula or spoon for mixing
- Optional: Food coloring, glitter, or other small mix-ins
- A tray or mat to protect your work surface
- "Scientist's Notebook" (a few sheets of paper or a notebook) and a pencil/crayons

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Learning Objectives

By the end of this lesson, Jack will be able to:

- **Observe and describe** how materials change when mixed together.
- **Ask questions** before, during, and after a scientific process to guide investigation.
- **Record observations** using drawings and simple sentences in a science notebook.
- **Follow a multi-step procedure** to create a new substance (slime) with different properties than the original ingredients.

Alignment with Science Standards (Typical for Ages 6-8)

- **Structure and Properties of Matter:** Students will observe that different materials have different properties and that mixing substances can create a new substance with new properties.
- **Scientific and Engineering Practices:** This lesson focuses on the core practice of asking questions, planning and carrying out investigations, and analyzing and interpreting data (observations).

Lesson Procedure

1. The "Hook": Becoming a Scientist (5 minutes)

Teacher: "Jack, today you are the Head Scientist in our lab! We have a very important mission. Our mission is to investigate a mystery: How can we turn this sticky, runny glue into a stretchy, gooey slime? Before great scientists start mixing, they always ask questions and make predictions. Let's get our Scientist's Notebook ready."

2. Investigation Part 1: Examine the Evidence (10 minutes)

Set out the main ingredients: glue, water, baking soda, and contact lens solution.

1. **Observe the Glue:** Pour the glue into the mixing bowl. Ask Jack prompting questions to guide his

observation.
    - "What does the glue look like? What color is it?"
    - "Touch it with the spoon. How does it feel? Is it thick or thin?"
    - "What do you think will happen if we add water?"
2. **Record in Notebook:** In his Scientist's Notebook, have Jack draw a picture of the glue in the bowl and write one or two words to describe it (e.g., "sticky," "white," "runny").
3. **Mix Glue and Water:** Add the 1/2 cup of water to the glue and stir. Ask more questions.
    - "How did the glue change after we added water? Is it thicker or thinner now?"
4. **Add the Extras:** If using food coloring or glitter, add it now. Ask, "What do you predict will happen when we stir this in? Does it change how the mixture feels, or just how it looks?"

3. The Experiment: The Chemical Reaction! (10 minutes)

This is the most exciting part! Emphasize slow, careful observation.

1. **Add the Baking Soda:** Sprinkle the 1/2 teaspoon of baking soda into the mixture and stir it in completely. Explain, "This ingredient helps our slime get firm."
2. **Introduce the Activator:** Hold up the contact lens solution. "This is our magic ingredient, our 'activator.' It's going to cause a big change. What do you think will happen the second it touches the glue mixture?" Have Jack write down his prediction.
3. **Activate the Slime:** Add 1 tablespoon of the contact lens solution. Begin stirring slowly. This is the key moment for observation! Ask questions while Jack stirs:
    - "Whoa! What's happening? Describe what you see!"
    - "Is it still a liquid? What is it turning into?"
    - "How does stirring feel now? Is it harder or easier?"
4. **Knead and Observe:** Once the slime begins to pull away from the sides of the bowl, take it out and place it on the tray. It will be sticky! Knead it with your hands.
    - "How does the slime feel now compared to the glue at the beginning?"
    - "Let's stretch it! Let's squish it! What are its new properties?"

4. Investigation Part 2: Creative Exploration (10 minutes)

Now that the slime is made, the scientific inquiry continues. Encourage Jack to "test" the slime's properties.

- **Ask "What if...?" Questions:**
    - "What if you pull it apart really fast? What happens?"
    - "What if you pull it slowly?"
    - "What if you roll it into a ball? Do you think it will bounce?" (Test it!)
- **Final Notebook Entry:** Have Jack draw a picture of his final slime and write words to describe it (e.g., "stretchy," "slimy," "blue," "fun"). He can compare this drawing to his first drawing of the glue.

5. Conclusion: Scientist Debrief (5 minutes)

Review the process with Jack by looking at his Scientist's Notebook together.

Teacher: "Scientist Jack, let's review your excellent work. You started with runny glue, and you ended with stretchy slime. What was the most important change you observed? What question would you want to investigate in our next slime experiment?"

Differentiation and Inclusivity

- **For Extra Support:** Pre-measure the ingredients to focus Jack's attention on mixing and observing. For writing, Jack can dictate his observations while the teacher writes them down in the notebook. The focus remains on his ideas and observations.
- **For an Extra Challenge:** Introduce vocabulary like "polymer" (the long chains in glue) and "activator" (the chemical that links the chains). Challenge Jack to design a new experiment: "What do you think would happen if we used half the amount of activator? Or double? Let's write down a plan and test it next time!"

Assessment Methods

- **Formative (During the Lesson):**
  - Listen to the quality of Jack's questions and descriptive words. Is he using observation-based language (e.g., "It's getting stringy," "It's harder to stir")?
  - Review his "Scientist's Notebook" to see if his drawings and words reflect the changes he saw.
- **Summative (End of Lesson):**
  - **Show and Tell:** Ask Jack to explain to another family member how he made the slime. His ability to recount the key steps (mixing glue, adding activator) and describe the change ("the glue got thick and turned into slime") demonstrates his understanding of the lesson's core concept.