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LESSON PLAN

SOLIDS, LIQUIDS AND GASES GRADES K-2

SUMMARY

Students will explore 3 states of matter and investigate what happens when a gas needs more room than its container provides. Duration: 30 minutes.



2-PS1-1. Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties.

Science & Engineering Practices	Connections to Classroom Activity
<p>Planning and Carrying Out Investigations</p> <p>Analyzing and Interpreting Data</p>	<ul style="list-style-type: none"> Students will experiment to determine how many Alka Seltzer tablets can create enough gas inside a baggie to cause the baggie to break.
Disciplinary Core Ideas	Connections to Classroom Activity
<p>PS1.A: Structure and Properties of Matter:</p> <p>Different kinds of matter exist and many of them can be either solid or liquid, depending on temperature. Matter can be described and classified by its observable properties. (2-PS1-1)</p>	<ul style="list-style-type: none"> Students will observe that gas fills the container it is in. This provides evidence that gas is there since we can't always see it.
Crosscutting Concepts	Connections to Classroom Activity
<p>Cause and Effect</p>	<ul style="list-style-type: none"> Heat from hands or breath will cause the ice to melt into water. The Alka Seltzer bubbles (gas) will cause the baggie to pop.



ENGAGE

Begin by blowing a bubble with bubble gum or blowing up a balloon. Ask, what's happening here? What's causing the balloon or bubble to fill up and get larger? (Students should respond with "air". Follow up with, "where is the air coming from?" They should say "your lungs." Air is a gas. It's hard to see unless it is put inside a container such as a bubble or balloon. Where else besides your lungs can you find a gas? (Examples: blowing from the air conditioner or heater, a hot air balloon, bubbles in soda, etc.)



EXPLORE

Students will explore all 3 states of matter. They will begin with an ice cube in a baggie (the solid) and work in their groups at melting it and changing it into a liquid. Once it is liquid, the students will add Alka seltzer tablets to the baggie and quickly reseal the bag. This will cause gas to build up inside their bag. (Tip: Bags with the zipper are much easier to close quickly and effectively)

Challenge the students to make a prediction or hypothesis about how many Alka seltzer tablets will cause their baggie to pop open. Then let them experiment and find out. (Be sure to have students place their baggies in a Tupperware container to contain messes)



EXPLAIN

Ask student groups to share their findings. Prompt with questions:
What happened when you first put your Alka Seltzer in the bag?
How many tablets did you predict would burst the baggie? What were your results?

Gases fill up their entire container. In our experiment today, there wasn't enough room in the container (the baggie) and this caused the baggie to pop open, so the gas could get out.



ELABORATE

Before watching the video, students should take a piece of paper and fold it into thirds. In the first column students write "Solid", in the middle column they write "Liquid" and the third they write, "Gas".



WATCH THE GENERATION GENIUS SOLIDS, LIQUIDS, AND GASES VIDEO AS A GROUP

As they watch the video they look for examples of each of the states of matter: When they see one, they can write it or draw it in the appropriate column.

MATERIALS

- Snack sized zip-lock baggies
- Ice cubes
- Alka seltzer tablets (generic brands are less expensive) 4-6 per group
- Tupperware

DIY Activity

- Styrofoam cooler
- 2 Cups Corn starch
- 1 Cup Water
- A bowl
- Measuring Cups
- A spoon
- Old newspaper
- Towels



EVALUATE

Students turn in their papers from the elaborate section to show what they learned. They can also complete the *Genius Challenge* worksheet or the online quiz game located below the video player.

