

Lesson Ideas for Bubble Wrap Day

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Since National Bubble Wrap Day falls on the last Monday of January, it's the perfect way to beat the "winter blues" with a mix of science, sensory play, and history.

Bubble wrap was actually invented by accident in 1957 (it was originally intended to be 3D wallpaper!), which makes for a great lesson on **innovation** and **persistence**.

Here are a few ways you could structure a classroom lesson around this National Day.

1. The Science of Pressure (Physics)

Explain why bubbles pop. You can introduce the concept of **Boyle's Law**, which describes the relationship between pressure and volume.

- **The Experiment:** Have students press on a bubble slowly versus quickly.
- **The Concept:** When you squeeze the bubble, you decrease the volume, which increases the air pressure inside until the plastic can no longer contain it—**POP!**

2. Engineering & Protection Challenge (STEM)

Bubble wrap's primary job is protection.

- **The Challenge:** Give students a single sheet of bubble wrap, some tape, and a fragile object (like an egg or a light cracker).
- **The Goal:** Design a "mailing package" that can survive a drop from a specific height. This teaches kids about **impact force** and **cushioning**.

3. Sensory Art Station (Creativity)

For younger students, bubble wrap makes an incredible texture tool.

- **Bubble Print Painting:** Dip bubble wrap into paint and press it onto paper to create honeycomb patterns or "snowflakes."
- **Sensory Walk:** Tape a "path" of bubble wrap to the floor for students to walk across, exploring the auditory and tactile feedback.

4. Stress Management (Social-Emotional Learning)

It's a scientific fact that popping bubble wrap can reduce stress!

- **The Discussion:** Talk about "fidgets" and how repetitive motions can help the brain focus or calm down.
- **The Activity:** Give each student a small square as a "focus tool" for a quiet reading period.

Fun Facts to Share with Students

Fact Category	The "Pop" Details
Accidental Invention	Invented by Al Fielding and Marc Chavannes while trying to make textured wallpaper.
Original Name	It was first called "Air Cap."
First Big Client	IBM used it to protect their 1401 computers during shipping in 1960.
The Sound	The "pop" is a miniature sonic boom!

A Quick Tip for Teachers

If the constant popping will be too distracting for a full hour of instruction, you can set a **"Pop Timer"**—five minutes of designated popping at the end of the lesson as a reward!



The Bubble Wrap Impact Challenge

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Objective: Students must design a protective casing for a "Fragile Passenger" (a large marshmallow or a cracker) using a limited amount of bubble wrap. The goal is to survive a drop from 5 feet (or higher!) without the passenger getting crushed or broken.

Logistics

- **Grade Level:** K–8 (Adjustable difficulty)
- **Time:** 45–60 Minutes
- **Group Size:** Pairs or small groups of 3

Materials Needed (Per Group)

- One 12" x 12" sheet of bubble wrap (small bubbles work best for precision).
- 12 inches of masking tape.
- 2 rubber bands.
- The "Passenger": 1 large marshmallow (easier) OR 1 Graham Cracker (harder).
- A "Drop Zone" (a plastic tarp or a marked spot on the floor).

Step-by-Step Instructions

1. The "Think" Phase (10 Minutes)

Before touching the materials, have students inspect their "passenger."

- **Ask:** "Where is the passenger most vulnerable?"
- **Discuss:** Explain that bubble wrap works by **distributing force**. Instead of the ground hitting the cracker all at once, the air in the bubbles compresses, slowing down the impact.

2. The Design & Build (20 Minutes)

Students wrap their passenger. Encourage them to think about:

- **Layering:** Is one thick layer better than many thin layers?
- **Air Pockets:** Should they leave some "slack" or wrap it tight? (Hint: A little slack usually helps absorb more shock).
- **Structural Integrity:** Using the rubber bands to ensure the passenger doesn't slide out the side upon impact.

3. The Drop Test (15 Minutes)

Create a "Ladder of Height."

- **Round 1:** Drop from desk height. If the passenger survives (no cracks/smooshing), they move on.
- **Round 2:** Drop from shoulder height.
- **Round 3:** The "Grand Finale" drop from a step-stool or the top of a door frame.

4. Post-Op Inspection & Reflection (10 Minutes)

Students unwrap their passengers to check for "injuries."

- **Analyze:** If the passenger broke, why? Did the tape fail? Did a bubble pop?
- **Improve:** If they had one more piece of tape, where would they put it?

Extension for Older Students: The Math of the "Pop"

If you want to add a math component, you can have students calculate the **Impact Surface Area**.

If a passenger is wrapped in a sphere of bubble wrap with a radius r , the total surface area protecting it is $A = 4\pi r^2$.

Students can compare if a larger "buffer" (larger r) actually results in fewer broken crackers

