

Photo Description



Snow covers everything in this winter picture. A wagon sits in the snow next to trees with white snow on their branches. The snow is thick and fluffy on top of everything outside.

Scientific Phenomena

This image represents the Anchoring Phenomenon of precipitation in the form of snow and its accumulation on surfaces. Snow forms when water vapor in clouds freezes into ice crystals at temperatures below 32°F (0°C). When these ice crystals become heavy enough, they fall to Earth as snowflakes. The accumulation occurs because the air and ground temperatures remain below freezing, preventing the snow from melting upon contact with surfaces.

Core Science Concepts

1. States of Matter: Water exists in three forms - liquid (water), solid (ice/snow), and gas (water vapor)
2. Weather Patterns: Snow is a type of precipitation that occurs during cold weather conditions
3. Temperature Effects: Freezing temperatures cause water to change from liquid to solid form
4. Seasonal Changes: Winter brings colder temperatures that allow snow to form and accumulate

Pedagogical Tip:

Use hands-on experiences with ice cubes melting and water freezing to help kindergarteners understand state changes. Let them observe and touch different forms of water safely to make concrete connections.

UDL Suggestions:

Provide multiple ways for students to explore this concept through sensory experiences: touching snow (if available), watching videos, using manipulatives like cotton balls to represent snow, and drawing or acting out snowfall to accommodate different learning preferences.

Zoom In / Zoom Out

1. Zoom In: Each snowflake is made of tiny ice crystals that form unique patterns. Water molecules slow down and stick together when it gets very cold, creating the solid form we see as snow.
2. Zoom Out: This snowy scene is part of Earth's water cycle, where water moves between the ground, air, and clouds. The snow will eventually melt and become part of streams, rivers, and eventually return to the atmosphere to form clouds again.

Discussion Questions

1. What do you notice about how the snow sits on different objects in the picture? (Bloom's: Observe | DOK: 1)
2. Why do you think the snow sticks to the tree branches but might fall off sometimes? (Bloom's: Analyze | DOK: 2)
3. What do you predict will happen to this snow when the weather gets warmer? (Bloom's: Predict | DOK: 2)
4. How might the animals and plants in this area be affected by all this snow? (Bloom's: Evaluate | DOK: 3)

Potential Student Misconceptions

1. Misconception: "Snow comes from somewhere else, not from clouds"

Clarification: Snow forms in clouds when water vapor freezes into ice crystals, just like rain forms in clouds but at colder temperatures.

2. Misconception: "All snow is the same"

Clarification: Snow can be different - sometimes wet and heavy, sometimes light and fluffy, depending on temperature and humidity conditions.

3. Misconception: "Snow only happens when it's windy"

Clarification: Snow falls because of gravity pulling the ice crystals down, not because of wind, though wind can affect how it falls.

NGSS Connections

- Performance Expectation: K-ESS2-1 Use and share observations of local weather conditions to describe patterns over time
- Disciplinary Core Ideas: K-ESS2.D Weather and Climate
- Crosscutting Concepts: Patterns, Cause and Effect

Science Vocabulary

- * Snow: Frozen water that falls from clouds as white flakes
- * Precipitation: Water that falls from the sky as rain, snow, or hail
- * Temperature: How hot or cold something is
- * Freezing: When liquid water becomes solid ice
- * Accumulation: When snow piles up and gets deeper over time

External Resources

Children's Books:

- The Snowy Day by Ezra Jack Keats
- Snow is Falling by Franklyn M. Branley
- The Story of Snow by Mark Cassino

YouTube Videos:

- "How Does Snow Form?" by SciShow Kids - Simple explanation of snow formation with animations suitable for young learners
<https://www.youtube.com/watch?v=fXwvL7n7NCQ>
- "The Snowy Day Read Aloud" by Storyline Online - Classic winter story that connects to weather observations



<https://www.youtube.com/watch?v=2wkdaXLpkSA>