

## Photo Description



This image shows snow falling from the sky onto a brick building surrounded by ivy-covered walls and trees. White snowflakes are visible floating through the air and landing on the roof and courtyard below. Snow is frozen water that falls from clouds when it is very cold outside.

## Scientific Phenomena

Anchoring Phenomenon: Snow precipitation during winter weather.

Why It's Happening:

When water evaporates from oceans, lakes, and rivers, it rises into the atmosphere as invisible water vapor. High in the sky where it is very cold, this water vapor cools and condenses into tiny water droplets that form clouds. When the temperature in the clouds is below freezing (32°F or 0°C), these water droplets freeze into ice crystals. These ice crystals stick together and grow larger, eventually becoming heavy enough to fall as snowflakes. This process is called the water cycle, and snow is one form of precipitation—water that falls from clouds to Earth.

## Core Science Concepts

- \* **Water Cycle:** Water moves continuously between Earth's surface and the atmosphere through evaporation, condensation, and precipitation. Snow is part of this cycle.
- \* **States of Water:** Water exists in three forms—solid (ice and snow), liquid (water), and gas (water vapor). Snow is the solid form of water that falls from clouds.
- \* **Temperature and Weather:** Snow only forms when it is cold enough in the clouds. Temperature affects what type of precipitation falls (rain, sleet, or snow).
- \* **Observable Weather Patterns:** Precipitation is a visible weather event that changes Earth's landscape and affects living things.

### Pedagogical Tip:

For Kindergarteners, focus on the direct sensory observation of snowflakes falling. Rather than diving deep into molecular structures, use language like "frozen water crystals" and anchor learning to their own experiences: "Have you felt snow on your hand? It's cold and melts into water!" Concrete, hands-on experiences will deepen understanding far more than abstract explanations at this developmental stage.

### UDL Suggestions:

**Representation:** Provide multiple ways to observe and understand snow—use real snowflakes (if available), photos, videos, and illustrations. Some students may not have experienced snow; virtual experiences ensure all learners can engage. **Action & Expression:** Allow students to show understanding through drawing, dramatic play (pretending to be falling snowflakes), and building with "snow" (shaving cream or cotton balls). **Engagement:** Connect to student interests by reading winter stories and playing snow-themed games outdoors or in the classroom.

### Discussion Questions

1. What do you see falling from the sky in this picture? (Bloom's: Remember | DOK: 1)
2. Why do you think the water from clouds turned into snow instead of rain? (Bloom's: Analyze | DOK: 2)
3. What do you think happens to the snow after it lands on the roof? (Bloom's: Predict | DOK: 2)
4. How is snow different from rain? (Bloom's: Compare | DOK: 2)

### Extension Activities

1. Indoor Snow Sensory Exploration: Fill a bin with shredded white paper, cotton balls, or crushed ice to simulate snow. Let students explore the texture, temperature, and color. Ask: "Does it feel cold? Does it stick together? What happens when you hold it in your warm hand?" This gives all students a tactile experience with snow-like materials, regardless of climate.
2. Snowflake Symmetry Art: Provide white paper, markers, and scissors. Show students how to fold paper and cut shapes to create snowflake patterns. Discuss how each snowflake is unique, just like in nature. Display snowflakes on windows to create a winter scene.
3. Water Cycle in a Bag: Fill a ziplock bag with a small amount of water mixed with blue food coloring. Seal it completely and tape it to a sunny window. Over several days, students observe evaporation (water rises as vapor), condensation (droplets form on the bag), and potentially "precipitation" as droplets fall. This models the water cycle in a simple, visible way.

### 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 (including types of precipitation and seasonal patterns)
- K-PS1.A Properties of matter (water exists as solid, liquid, and gas)

Crosscutting Concepts:

- Patterns (Weather patterns change with seasons)
- Cause and Effect (Cold temperature causes water to freeze into snow)

### Science Vocabulary

- \* Precipitation: Water that falls from clouds to Earth in the form of rain, snow, sleet, or hail.
- \* Snowflake: A tiny crystal of frozen water that falls from clouds; each snowflake has a different shape.
- \* Freezing: When a liquid (like water) becomes so cold that it turns into a solid (like ice or snow).
- \* Cloud: A white, fluffy shape in the sky made of tiny water droplets or ice crystals floating together.
- \* Water Cycle: The continuous movement of water from Earth's surface to the sky and back down again.

### External Resources

Children's Books:

- Snowflakes by Loretta Holland (features beautiful snowflake photography and simple text)

- Snow by Manya Stojic (celebrates snow across different habitats and cultures)
- The Snowy Day by Ezra Jack Keats (classic tale of a child playing in fresh snow)

YouTube Videos:

- "The Water Cycle Song" by Have Fun Teaching — A catchy, animated song explaining evaporation, condensation, and precipitation. <https://www.youtube.com/watch?v=ItLFzVfbJS0>
- "Snow for Kids" by National Geographic Kids — Short, engaging clip showing real snowflakes and winter weather. <https://www.youtube.com/watch?v=HIVaXvqvAlo>

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Teacher Note: Kindergarteners learn best through direct observation and play. If your region experiences snow, take students outside to observe snowflakes, listen to the sounds of snow, and feel the cold. If you're in a warm climate, use virtual videos and hands-on indoor simulations to make this phenomenon accessible and meaningful.