Catching Snowflakes

Are you in a place where snow falls in winter? If so, try catching snowflakes. Then take a close look. Can you find two snowflakes that look alike?

What you'll need:
- Falling snow!
- Warm winter cloths
- Black construction paper
- Magnifying glass
- Clipboards, paper, and pencils for snowflake sketches
- Glass microscope slides (optional)
- Aqua-Net hairspray (optional)

Directions:
1. Dress warmly and head outside into the falling snow with a black piece of paper and magnifying glass.
2. Hold the black paper flat so that snowflakes fall on it. Keep your hands at the paper's edges to avoid melting or crushing the snowflakes. (Note: If wind is blowing snowflakes, they will be hard to catch!)
3. Look for similar and different types of snowflakes through the magnifying glass. Draw the shapes you see.

Optional: Save your snowflakes for later...
4. Catch snowflakes on glass microscope slides instead of paper.
5. Spray the slides lightly with hairspray. The snowflakes will melt but their shapes will be preserved on the glass.

Ask yourself the following questions:
- How do snowflakes form? What makes them look as they do?
- In some snowstorms, most flakes will look similar, and in others there will be a variety of shapes and sizes. What kind of snowstorm was this one?
- Did you find two snowflakes that looked alike?

Science background:
Snowflakes are made from ice crystals which grow in symmetrical shapes in the atmosphere. Some snowflakes are simple, made of only a single crystal and are shaped like a rod. Other snowflakes are made of hundreds of crystals and form elaborate six-sided shapes. The shapes of snowflakes depend on the temperature and amount of water vapor in the air. When there is little water vapor in the air, snowflakes tend to form more simple shapes. When air is humid, more elaborate snowflakes are able to grow.

Learn more online!
- **Snowflakes** https://scied.ucar.edu/learning-zone/storms/snowflakes
- **Winter Storms** https://scied.ucar.edu/learning-zone/storms/winter-storms
- **Is Snow White?** https://scied.ucar.edu/longcontent/snow-white-maybe-or-maybe-not
- **SnowCrystals** http://www.its.caltech.edu/~atomic/snowcrystals/

For Teachers:

Student Learning Objective
- Students learn how snowflakes form and examine the variety of snowflake shapes.

Classtime
- 10 minutes to introduce snowflake shapes in class
- 20 minutes outside catching and drawing snowflakes
- 10 minutes discussion
- Optional 20 minutes looking at snowflakes preserved on glass slides

Teaching notes
- Introduce the variety of snowflake shapes students might find by looking at examples on the SnowCrystals web site (see "Learn more online!" section below)
- Make sure that students are dressed appropriately for snow before heading outside.
- Preserved snowflakes on glass slides can last for years as long as the slides are not stacked, crushing the snow. Or you can wash them off after the activity and use the slides again.

National Science Standards
- A: Science as Inquiry
- D: Earth Science