



Snowflake Shape and Size Identification Procedures

Purpose: To identify the shapes and sizes of snowflakes as they fall and to monitor any changes in shape during the progress of the storm. These procedures should be completed at least every two hours during a snow event to provide a complete "picture" of the entire snow event. Compared with other weather data such as air temperature and moisture content, these data should help you to understand what the shapes of snowflakes can tell you about snowstorms.

Estimated Time: 15 minutes for each observation

Materials:

Thermometer with string (readable to a tenth of a degree Celsius)

Black construction paper (8.5" x 11")

Magnifying glass or hand lens

Metric ruler

Pencil

Calculator (optional)

Weather Watch Field Data sheet

Snowflake Shape and Size Field Data sheet

Preparing the "Catch Surface" (Black construction paper with 3 cm x 3 cm grid)

1. Draw a 3 cm x 3 cm grid on the black construction paper. (See Figures 1 and 2.)
2. Place the black paper containing the 3cm x 3cm grid in a location that will allow it to cool below zero degrees Celsius for several hours to reach equilibrium. (Sheltered outside location, a freezer, etc.)

Figure 1

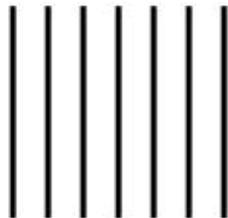
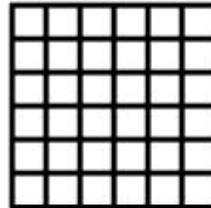


Figure 2



Snowflake Collection (Best completed with a partner.)

Before going outside:

While inside, record as much basic weather information as you can on the Weather Watch Field Data sheet.

Outside

1. Record any remaining basic weather conditions for your locality on the Weather Watch Field Data sheet. If you cannot measure these directly, you may use a weather site on the Internet. (for example use Unisys Internet Weather Data <http://weather.unisys.com/index.html> and enter your zip code in the search box on the left of the Unisys Home Page and click GO. Bookmark the page for your city. Be careful. Look at the actual location of the Unisys Weather Station – it may be some distance from your location and it may be across large bodies of water or hills.)
2. Go to the site suitable for snowflake collection. It should be out of the wind and with nothing overhead to block the fall of snow. Take a thermometer, Snowflake Identification Field Data sheet, a pencil, a magnifying glass and Catch Surface with you.
3. Place the Catch Surface parallel to the ground, allowing snowflakes to fall onto the Catch Surface. Expose the Catch Surface for several minutes depending on how fast the snow is falling. This may take some practice. If there are too few snowflakes, you won't be able to find many to identify. If there are too many snowflakes, they will begin to cover each other and make identification difficult.
4. Move the Catch Surface into a sheltered outside location or cluster in a group to prevent further snowflake accumulation or snowflake loss.
5. Choose a box from the grid for close study. Be careful not to breathe on the catch surface.
6. Using the magnifying glass select and study one of the snowflakes in the box and compare it to the sketches on the data sheet for identification.
7. Use your metric ruler to measure the size of the snowflake to the nearest 0.5mm
8. On the Snowflake Shape and Size Identification Field Data sheet, place a tally mark in the box next to the picture and size of the snowflake.
9. Repeat steps 6, 7 and 8 until all the snowflakes in the box are identified and tallied on the data sheet.
10. Select another box from the grid for close study.
11. Using the procedures describe in steps 6, 7, and 8, identify and tally all snowflakes in this box.
12. Repeat steps 10 and 11 until you have closely studied 10 boxes total.

Calculation of Each Snowflake Type Percentage

1. Divide the number of each type of snowflake by the total number of snowflakes you identified.
2. Convert the number to a percent by multiplying your answer from Calculation Step 1 by 100. Round your answer to the nearest whole number for each type of snowflake observed. Remember to label your answer with the percentage symbol.