

January Teacher Directions: Snowflake Bentley

Winter

Wilson Bentley was the first scientist to photograph snowflakes. He was interested in snowflakes and photography from the time he was a young boy. This book documents his lifelong passionate study of “snow crystals.” The story will captivate young readers, and the topic will appeal to all ages. Pursue the topic mathematically or scientifically.

Read the Book: [Snowflake Bentley](#), by Jacqueline Briggs Martin. The book is illustrated by Mary Azarian, whose woodcuts for this book earned her the 1999 Caldecott Medal for the artist of the most distinguished American picture book for children. (Read the main story, then go back to read the sidebars to start discussions about the math and science of snowflakes.)

Other Books about Snow

One book about snowflakes is not enough. Here are some others you will want to try:

For younger kids, try these nonfiction books about snow and other weather events:

[It's Snowing!](#) by Gail Gibbons, Includes a map of the world to show where it snows.

[Snow is Falling](#), by Franklyn M. Branley. Includes discussion of weather events and human impact.

For upper elementary, try these books describing the structure of snowflakes, the way they are formed, and the process of photographing them:

[The Secret Life of a Snowflake: An Up-Close Look at the Art and Science of Snowflakes](#), by Kenneth Libbrecht. Beautiful photos of real snowflakes (then go to www.snowcrystals.com.)

[The Story of Snow: The Science of Winter's Wonder](#), by Mark Cassino with Jon Nelson, PhD.

Detailed information about different kinds of snow crystals, and how to study them on your own.

Technology

There are lots of websites with pictures of snowflakes. Begin with Libbrecht's awe-inspiring snowflake photos at: www.snowcrystals.com. Here are some direct links to the photo galleries:

www.its.caltech.edu/~atomic/snowcrystals/photos/photos.htm

www.its.caltech.edu/~atomic/snowcrystals/photos2/photos2.htm

www.its.caltech.edu/~atomic/snowcrystals/photos3/photos3.htm

Also visit the Wilson A. Bentley website at www.snowflakebentley.com/match.htm to play a game of matching snowflakes. If desired, you can buy a disk with this and other snowflake games. Purchases go towards the maintenance of the Bentley museum in Jericho, VT.

The Snowflake Activities

The lesson activities are designed to make students aware of the hexagonal nature of snowflakes. Many Christmas ornaments and winter displays show snowflakes with 5 or 8 or 10 branches, not to mention all the school windows that have “snowflakes” made by cutting and folding *rectangular* pieces of paper! Make students aware of these inaccuracies. Note, though, that there are snowflakes with 12 points! “Twins” occur when two crystals start from the same speck and form two snowflakes on top of each other.

Both lesson activities involve making snowflakes with SIX points! The first activity is a “fold and cut” activity. The hardest part is to fold the half-circles into thirds! Older students can use a protractor for accuracy, making 60° angles. Younger students may need help with the folding. The second activity is making six-pointed snowflakes using cardboard toilet paper rolls. To turn them into Christmas ornaments, try spraying them white, or add glitter spray.

This month's packet (\$19.99) includes the book and a sample toilet paper snowflake. There are also two small mirrors for studying angles of reflection. The mirrors are used to form angles of different sizes. A small object dropped into a 90° angle results in four images. A small object in a 60° angle results in six images, just like a snowflake! This activity helps students with angle measurement.