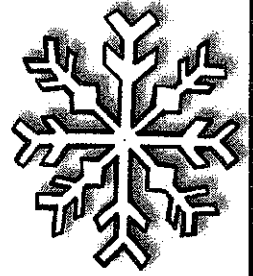


# Snowflakes



The water cycle is never-ending. Evaporation happens when the sun heats the water in our oceans, lakes, rivers, and other bodies of water. Water takes the form of a gas called vapor, and rises into the atmosphere. As the vapor rises, it begins cooling. When the vapor cools, it turns back into tiny water droplets. This process is called condensation. For those water droplets to form though, they need something to stick to. There are dust particles in our atmosphere, and those pieces of dust actually become the center of the droplets. All of the tiny water droplets come together to form clouds. Sometimes the air is so cold that instead of water droplets, ice crystals form on those specks of dust. When the clouds become too heavy, precipitation occurs. Rain is the most common form of precipitation. However, rain is not what you will see if the temperature is below freezing. If it is below freezing, the ice crystals fall to the ground as snow.

Snowflakes can be made of as many as 200 ice crystals. If you were to look at a snowflake under a microscope, you would find that most are symmetrical hexagons (six-sided figures). These beautiful, unique creations can also take the shape of columns, stars, needles, or even triangles. Although you might find two snowflakes that are similar, you will never find two snowflakes that are exactly alike. That is because the molecules that form the ice crystal can arrange themselves in an infinite number of ways. Snowflake formation is also affected by temperature and humidity. Sometimes, as the ice crystal falls to the ground, water vapor in the air sticks to it, forming a larger crystal. Once the flake hits the ground, it will melt if the ground temperature is above freezing. If it is below freezing, the flakes could accumulate<sup>1</sup> - perfect for making snow angels, building snowmen, and having snowball fights!

<sup>1</sup>accumulate: gather or build up

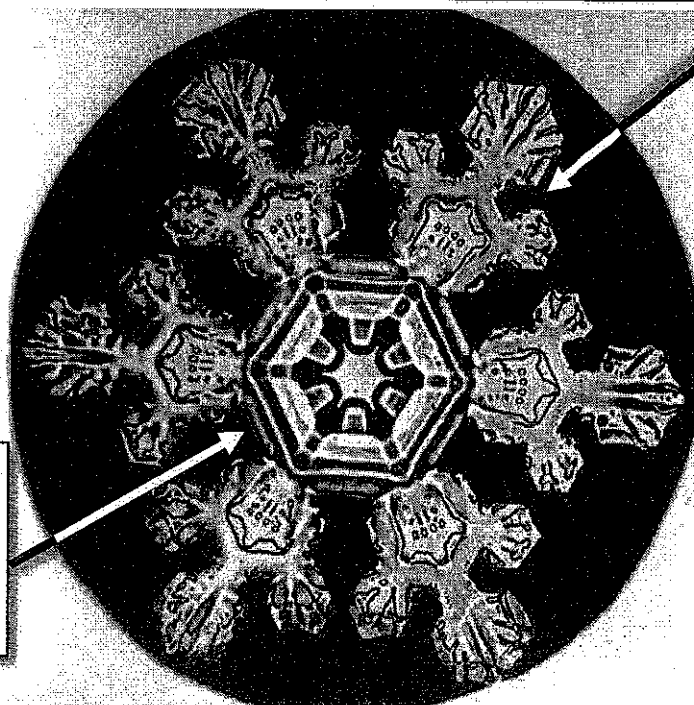
# Bentley's Snow Crystals

In 1885, Wilson Bentley was a 20-year-old farmer in Vermont who surprised the world with the first photograph of a snow crystal. In the next 46 years of his life, he captured over 5,000 snow crystals on film.

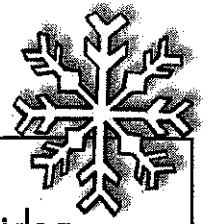
It all started when Bentley was fifteen and his mother bought him a microscope. He was so excited to look at a snowflake up close, only to be disappointed when it would melt. When his father bought him a camera, he combined his microscope with his camera and took the first photomicrograph of a snowflake! As he took several more pictures over the course of his life, he also collected data about the conditions of when he saw each crystal. This helped him to realize that the way the snow crystal looked depended on the temperature in which it was created and fell. Bentley taught people about snowflakes with his photographs through lectures and articles in popular magazines like *National Geographic*.

dendrites:  
branches and side  
branches off of the plate

plate:  
the center of the  
crystal, thin  
hexagonal prism



Stellar Dendrite by Wilson Bentley  
published in the US before 1923 and public domain in the US



Use both texts to answer the following questions.

<p>1. How are the ideas in paragraph 1 of <b>Snowflakes</b> mostly organized?</p> <ul style="list-style-type: none"> <li>a. in chronological order to tell the steps of the water cycle</li> <li>b. through compare and contrast to show the differences between rain and snow</li> <li>c. with descriptions that give the reader a mental image of snow</li> <li>d. in order from least important to the most important details</li> </ul>	<p>2. Which phrase from <b>Snowflakes</b> best supports the idea that snowflakes are unique?</p> <ul style="list-style-type: none"> <li>a. "ice crystals form on specks of dust"</li> <li>b. "snowflakes can be made of as many as 200 ice crystals"</li> <li>c. "it will melt if the ground temperature is above freezing"</li> <li>d. "you will never find two snowflakes that are exactly alike"</li> </ul>
<p>3. In paragraph 1 of <b>Snowflakes</b>, what does the word <u>particles</u> mean?</p> <ul style="list-style-type: none"> <li>a. giant flakes</li> <li>b. dirt</li> <li>c. small pieces</li> <li>d. droplets</li> </ul>	<p>4. How old was Wilson Bentley when he took his first photograph of a snow crystal?</p> <ul style="list-style-type: none"> <li>a. 1885</li> <li>b. 20</li> <li>c. 46</li> <li>d. 15</li> </ul>
<p>5. Which of the following statements is <b>NOT</b> true?</p> <ul style="list-style-type: none"> <li>a. Snow crystals might stick together to make a flake.</li> <li>b. Temperature will not affect a snowflake's shape.</li> <li>c. Dendrites are the branches of a snowflake.</li> <li>d. Wilson Bentley is a world-famous photographer.</li> </ul>	<p>6. How does the photograph in <b>Bentley's Snow Crystals</b> help the reader?</p> <ul style="list-style-type: none"> <li>a. It gives the reader a close-up view.</li> <li>b. The reader can see a piece of Bentley's work.</li> <li>c. It defines the parts of a snow crystal.</li> <li>d. all of the above</li> </ul>
<p>7. Which quote from <b>Snowflakes</b> shows an example of condensation?</p> <ul style="list-style-type: none"> <li>a. "...the sun heats the water in our oceans, lakes, rivers, and other bodies of water."</li> <li>b. "Water takes the form of a gas called vapor, and rises into the atmosphere."</li> <li>c. "When the vapor cools, it turns back into tiny water droplets."</li> <li>d. "When the clouds become too heavy, precipitation occurs."</li> </ul>	

