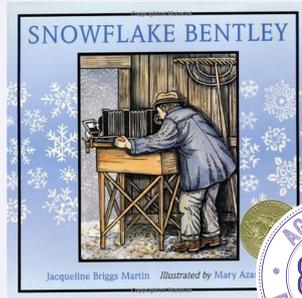


Snowflake Bentley

By Jaqueline Briggs Martin and illustrated by Mary Azarian

Themes

Never Give Up
Determination
Perseverance
Overcoming Obstacles
Learning from Mistakes
Problem Solving
Taking Risks



This Caldecott Medal-winning book is based on the real life story of Wilson Bentley. As a young boy, Willie was fascinated by nature. He spent hours observing and drawing. His favorite thing to examine was the winter snow. Drawing the individual flakes was impossible because they would melt so quickly, yet photographing individual snowflakes had never been done. So, Willie set his sights on a new invention and would spend the remainder of his life perfecting his art. His life exemplified perseverance and “Never Giving Up” on his goal!

PRINTABLE:
Wilson's Snowflakes

PRINTABLE:
KWL Chart

Build Background

Show 2 photos of Wilson’s snowflakes. Have students describe how these two flakes are different. *What makes them so different?*

What do you know about snowflakes? Jot down a list of what you think you “Know” in 3 minutes. Record it on the first column of the printable KWL chart (**K**now, **W**ant to Know, **L**earned). As a class, brainstorm a list of questions you want to learn about snowflakes. Have students fill in the “Want” column on the KWL chart (these can be the same or different than the class discussion)

Example: *Why are snowflakes white when they are made from clear ice? What makes some snowflakes appear to be round and others have arms? How big is the biggest snowflake?*

BACKGROUND INFO on SNOWFLAKES

- A snowflake is a microscopic super-cooled cloud droplet that freezes
- The droplet grows as water in the air collects on the ice crystal surface
- Complex shapes emerge as the flake moves through differing temperatures-making individual flakes unique in structure
- Most snowflakes are not perfectly symmetric due to dramatic changes as the flake falls through the cloud-each arm might not grow exactly the same
- Snowflakes appear white even though made of clear ice – diffuse reflection of the whole spectrum of light by the small crystal facets (get out your science books!).

Aligned to Common Standards

Reading: Informational Text

- Key Ideas and details
- Integration of Knowledge and Ideas

Writing

- Text Types and Purposes
- Research to build and present knowledge

Speaking & Listening

- Comprehension and Collaboration
- Presentation of Knowledge and Ideas

Language

- Conventions of Standard English
- Knowledge of Language

Discussion Starters

1. **Willie Bentley loved snow! What did he learn about snow as he was growing up? How did he learn it?** *Observed with his eyes, read his mother’s encyclopedia, studies snowflakes with microscope, studied moisture, kept record of weather, did experiments with raindrops, made drawings.*
2. **How was he able to make such detailed drawings of snowflakes at age 15? What problems did he encounter making those drawings?** *He used a microscope to enlarge the snowflake but he still had problems-melted so fast before he could finish drawing*
3. **Describe his first experience at taking pictures? What did he do to overcome obstacles and learn from his mistakes? Why did he NOT GIVE UP?** *His first photos were failures – just shadows. Mistake after mistake in the first year and he had no good pictures. He waited, solved problems and experimented the next year. He wanted everyone to see the great beauty of the tiny crystal and it was worth the time to not give up and reach his goal.*
4. **How did his parents react to his love of snowflakes?** *They both loved him, but mother was more*

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*supportive than father – she helped change father’s mind to use their life savings to buy the expensive camera. **The neighbors?** Thought him to be odd, laughed at him. **Audience at slide shows?** Seemed interested in looking at pictures. **Colleges and Universities?** Bought his photos and added to collections. **Artists and Designers?** Used his photographs to inspire their own work. **Magazine Editors?** Published his photographs. **How was he influenced when some people did NOT encourage him?** He kept working on his goal and did not let it bother him. **Can you think of time when you felt like Willie?***

- 5. How did Willie learn from his mistakes and failures?** *He kept trying even though he had no pictures for the first year. Tried new experiments - changed size of lens opening, etched on negatives, patiently waited for hours – no breathing on flakes, no twitching. **What character traits did he develop during the 50 years of working on his photographs?** Perseverance, determination, risk-taking, problem solving, divergent thinking, grit, personal satisfaction...*
- 6. How long did it take for his photographs to be published? Was it profitable? Why did he “Never Give Up,” even when he reached his goal?** *He spent every penny on his pictures. Other scientists raised money to publish his book. By 1927 he had spent \$15,000 on his work and received \$4,000 from the sale of photos and slides. He believed that others needed to see the great beauty that he saw.*
- 7. What was Willie’s gift to the world?** *His pictures and book of photographs.*

Writing Prompts

As a boy, Bentley loved snow more than anything else in world. What do you love more than anything else in the world? Why do you love it? What do you do differently because you love it?

If you were to give a gift to the world, what would it be and why? What might you have to do for the next 50 years to accomplish your goal?

Activities

The More You Know...

Assign individual or small group research projects to find answers to the questions on the KWL chart (**K**now, **W**ant to Know, **L**earned). Discuss where to find answers to their questions. Have students complete their KWL chart and then provide a time for sharing what they have learned.

Pictorial Time Line

Work as a class to make a list of important events and time line. Have each student create a pictorial time line that shows Wilson Bentley’s life. Make sure you visually represent the amount of time it took him to reach his personal goal. Remember, it’s important to “Never Give Up”!

DATE	SIGNIFICANCE
Feb 9, 1865	Wilson Bentley born
Age 14	Homeschooled by his mother
Age 15 – 17	Used a microscope to try and draw snow crystals.
Age 17	Parents gave him the camera with a microscope
Age 17-50	NEVER GAVE UP Developed his technique of microphotography
Age 66	First Snowflake book was published
Age 66 Dec 23, 1931	Walked in blizzard, ill with pneumonia and died
1971	Museum in his honor opened

Resources

Accelerated Reading Quiz: 27678

Visit www.snowflakebentley.com, the official Snowflake Bentley Web Site, operated by the Jericho Historical Society in Jericho, Vermont (hometown of Wilson A. Bentley)!

WILSON'S SNOWFLAKES

Wilson A. Bentley, 1902
Public Domain

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2



TOPIC: _____

KNOW

WANT TO KNOW

LEARNED

