

Board of Directors

- · DJ Aderman, Futurewood Corporation
- · Lisa Bauer Lotto, Green Bay Packaging
- Pete Denney, Procter & Gamble
- Jim Hoppe, Packaging Corp of America
- Tim Jadin, Georgia-Pacific
- Kelley Knoerr, We Energies
- · Connie Lawniczak, Wisconsin Public Service
- Jesse Long, Asplundh Tree Experts
- Eric Maki, Midwest Forest Products
- · Mitch Mekaelian, BPM Inc.
- Todd Miller, ATC
- Don Nelson, Domtar
- · Bill O'Brion, Weyerhaeuser
- · Henry Schienebeck,
- Great Lakes Timber Prof. Assn.
- Jane Severt, Wisconsin County Forests Assn.











Trees For Tomorrow, Inc. is a 501(c)3 nonprofit organization. Contributions are tax-deductible as permitted by law.



Trees For Tomorrow's campus includes National Forest Property under permit from the USDA Forest Service. TFT is an Equal Opportunity Employer.

Special Thanks to Wisconsin Public Service (WPS) for printing this newsletter. Thank you so much!



Wisconsin Public Service

Nonprofit Org. PRSRT STD Permit No. 26 Eagle River, WI 54521

ELECTRONIC SERVICE REQUESTED

YES! I Want to Support Trees For Tomorrow

As a private, nonprofit natural resources specialty school, we rely on donations from people like
you to support our educational efforts. Please consider making a financial contribution.
☐ I want to become a member of Trees For Tomorrow

(For a list of benefits for each m	embersnip ievei, visit TreesFo	or tomorrow.com)
☐ \$35 - \$49 Hemlock	☐ \$50 - \$99 Balsam	☐ \$100 - \$249 White Pine
☐ \$250 - \$499 Yellow Birch	☐ \$500 - \$999 Tamarack	☐ \$1,000 or more Red Oak
☐ I want to make a donation to Tr	ees For Tomorrow	
☐ General: \$ ☐ 5	Scholarships: \$	Endowment: \$
☐ Birds of Prev Care & Food Fu	nd· \$	

City _____ State ____ Zip ____

Payment Method: Check Visa MasterCard Credit Card # Expiration date: /

Please complete this form and return it with your donation to:

Trees For Tomorrow, P.O. Box 609, Eagle River, WI 54521



Heading into an Event-full 74th Year



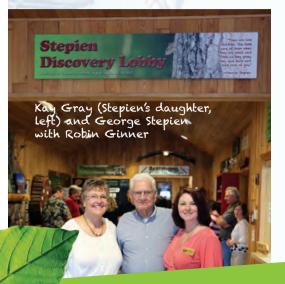
Executive Director

Lt's amazing to think that Trees For Tomorrow has been going strong for 74 years. February 22 will mark our anniversary, and we're moving into a two-year celebration that will keep us moving forward and implementing our mission every day.

But let's not get ahead of ourselves...

The second half of 2017 marked some wonderful achievements and celebrations of its own, and I would be remiss to bypass them to focus solely on the future without recognizing the significant contributions of our donors and supporters.

Early this fall we dedicated the lobby in our main Education Hall in honor of an individual donor who has made a noteworthy impact through his generosity to our scholarship program. The Stepien Discovery Lobby was dedicated on a warm September day with



many of George and his late wife Eleanor Stepien's family in attendance. The festive gathering included a dedication and ribbon cutting, and refreshments provided by our talented hospitality staff (see page 6 for a sample recipe from our renowned kitchen!) Our education staff was on-hand to walk the extended Stepien family through the newly updated, interactive lobby displays, introduce them to our resident snakes Google and Greta, and take part in the many activities that will provide continued learning opportunities during breaks for the thousands of students who come through our programs every year. We are very grateful to George for his continued support and goodwill.

"Trees are like children. You take care of them when they are small, and then as they grow, they give back and take care of you." ~George Stepien

In October, even more supporters came out to help us raise money to drive our mission at our Fall Fundraising Banquet at the Automobile Gallery in Green Bay. Seventy individuals representing the wood products industry and utilities, along with individual supports, took part in a fun evening hosted by "Doc Brown" of Back to the Future fame (played by auctioneer Sterling Strathe). Over the course of the evening \$18,000 was raised to support our programs, and despite the torrential rains, everyone left with smiles and the feeling of contributing to something much bigger. Thank you to our supporters who came out to take part in the shenanigans and help us raise money to educate even more students, including Georgia-Pacific for their venue sponsorship (see page 7 for our corporate spotlight on Georgia-Pacific).

(continued on page 3)

Notes from the **OUTDOOR** CLASSR(X)OM

Melissa Friel, Education Manager



ANIMAL ENCOUNTERS Students get an up-close and personal interaction with nature

As we move through winter, a fair share of animal signs become apparent and a majority of our students have the opportunity to experience an animal encounter. Students love to see animals, or signs of them, in the woods. While trees are certainly cool, animals have a certain appeal to students. Like us, animals move, talk to each other and leave mysterious signs for us to interpret. As the temperature falls, the animals begin to change their behavior and the TFT educators gear up for some exciting experiences!

Spotting an actual animal in the wild is very exciting for students, and second best is finding their tracks in the snow. While it's rare to see a track in the mud or scat in the forest, animals leave their tracks everywhere in the snow!

Seeing all the tracks in the woods is like seeing into the forest's memory. It's easy to spot a snowshoe hare den, trees that squirrels frequent, or deer runs. These tracks are like riddles written by animals. Students often question what animal was here, what happened, and why? Tracks allow students to imagine

(continued on page 7)

On Campus



Fall Update

had another busy fall at Trees For Tomorrow! We had great weather to get outside this fall with our students, and our always energetic staff stayed busy working with 36 groups and more than 1700 program participants. This included:

Tree Tips Attendance - September - November				
School	Town	Sponsor		
Belmont Community School	Belmont	Bleser Family Foundation		
Butternut High School	Butternut	Trees For Tomorrow		
Christian Heritage Academy	Northfield, IL	Trees For Tomorrow		
DC Everest Middle School	Weston	Domtar Paper		
Denmark Community School	Denmark	K.C. Stock Foundation		
Goodman Armstrong Creek High School	Goodman	Wisconsin Public Service Foundation		
Goodman Armstrong Creek Middle School	Goodman	WI SFI Implementation Committee and Mead Witter Foundation		
Iowa-Grant Middle School	Livingston	Trees For Tomorrow		
Kohler Elementary	Kohler	WI SFI Implementation Committee		
Marion High School	Marion	Trees For Tomorrow		
Northern Waters Environmental Charter School	Hayward	Trees For Tomorrow		
Oconto High School	Oconto	Wisconsin Public Service Foundation		
Sevastopol Elementary School	Sturgeon Bay	Mead Witter Foundation		
Sheboygan County High Schools	Sheboygan County	Sheboygan County Conservation Clubs		
St. Ritas School	Racine	We Energies Foundation		
Sugar Camp Elementary	Sugar Camp	Trees For Tomorrow		
Three Lakes Elementary	Three Lakes	Trees For Tomorrow		
Tomahawk Elementary	Tomahawk	Packaging Corp of America		
Wild Rose High School	Wild Rose	Lake States Lumber Association		

Other Groups	
Great Headwaters Trail	Vilas County
Road Scholar Hiking	Nationwide
Sno-Eagles Snowmobile Safety Training	Eagle River
TFT Advisory Council Fall Meeting	
TFT Board of Directors Annual Meeting	
Tincher Family	Wisconsin
Warehouse Art Center - Artist in Residence	New York
Wisconsin Headwaters Invasives Partnership	Vilas/Oneida County
Wreath Making	

Off-Campus
Honey Rock Camp
Demmer Library
Northland Pines School District - Log-a-Load
Wabeno School District
Woodland Charter School

To sponsor a school or group of students, please contact Cheryl Todea, Operations Manager. Sponsorships can range anywhere from \$10/ person up to \$300/person.

Looking Ahead

Winter 2018

We are looking forward to working with approximately 35 different groups and almost 1000 participants during winter of 2017-2018.

Even though we will be busy, we just might have room for your school or group! To schedule a day or overnight meeting or education program at Trees For Tomorrow, please contact Cheryl Todea, Operations Manager.

reesForTomorrow.com



Danielle Christensen, **Environmental Science Educator**

My favorite thing to do in the Northwoods: Stand up paddle boarding.

My favorite place to travel: Anywhere with great

What I love most about Trees for Tomorrow: The special bond amongst all the staff.

My favorite snack: Any kind of fresh fruit.

My favorite animal and why: Whale sharks! I went swimming with wild whale sharks in Australia, and it's been one of the highlights of my life.

Corporate Spotlight

By Tim Jadin, Senior Director, Engineering

eorgia-Pacific has proudly supported Trees For Tomorrow since 1997. In addition to financial support, Georgia-Pacific has contributed many volunteer hours over the years on the Board of Directors, and at the annual Golf Outing and Forest Fest events.

Georgia-Pacific is one of the world's leading makers of tissue, including paper towels, bath tissue, napkins and facial tissue with brands like Brawny®, Angel Soft®, Quilted Northern®, Vanity Fair®, Dixie ®, and enMotion®. We also manufacture containerboard, corrugated containers, cellulose pulp, and building products such as plywood and oriented strand board. We utilize trees, water, and other natural resources in a sustainable way that allows us to meet the needs of society today without jeopardizing our ability to do so in the future.

Trees For Tomorrow does an excellent job teaching students about sustainable management through field activities and classroom learning. Georgia-Pacific supports teaching students and adults the value of our natural resources, but, more importantly, how they can be utilized in a sustainable way to benefit everyone.

Georgia-Pacific has values similar to Trees For Tomorrow because we both believe sustainable management of our natural resources will benefit society, both today and in the future. Georgia-Pacific also believes in learning through personal knowledge, that is, learning a concept in a classroom and then applying that concept to get results. Trees For Tomorrow's programs allow students to learn concepts and ideas, and then go out to apply this knowledge in nature.

Georgia-Pacific has enjoyed seeing Trees For Tomorrow continue to teach students about the value of our natural resources. For many students, it's a great experience to escape the classroom and learn "in the northwoods" by being out in nature. It's always enjoyable to be on the TFT campus when a school is visiting and see the fun the students are having.

Thank you to Georgia Pacific for your continued support of Trees For Tomorrow.



Ralsam DOTM

WHEW! That was close!!

A winter storm packing strong winds hit the Eagle River area on the night of December 4th with winds so strong, a centuries old white pine tree was uprooted and toppled over near our Balsam dorm. So close in fact, the trunk of the tree came to rest a frightening 14" from the back wall of the building. After clearing away the brush and broken limbs from the fall area, we are pleased to report that Balsam Dorm suffered only minor damage to the rear roof overhang. It could have been so much worse. As the old saying goes "close only counts in horseshoes and hand grenades". In this case, thankfully adding falling white pines to that list.

OUTDOOR CLASSR(X)OM (continued from page 1)

different events that might have taken place in the forest.

Reclusive animals movements can now be visualized through their tracks. TFT education staff have found both bobcat and wolf tracks at many of the places they frequent with students. Seeing these tracks proves to them that these animals do indeed live and thrive here. The complicated topic of wolves can be broached when their track is seen in the snow. This is a great ice breaker to open discussions about wolves in our area.

The Trees For Tomorrow campus in Eagle River, Wisconsin has a very active deer population and provides resources for them. They are spotted eating the grass in the oval and hiding in the forest. Every year staff watch fawns grow and deer change their coats with the cold weather. Close to 99% of students see deer on campus and many of them comment about how exciting it was to wake up and see deer right outside their dorm window; this may be as close as they've ever come to interacting with wildlife.

In addition to exploring tracks, another fun and hands-on winter activity is to snowshoe or cross country ski to feed chickadees. In the cold weather chickadees will flock together and are constantly looking for food. A highlight of the student's winter

experiences is holding out their hands and seeing chickadees up close. The educator's favorite reactions from students come from chickadees landing on their hands to get some sunflower

When students arrive at Trees For Tomorrow it may initially seem like animals are out of reach. Maybe they've never seen a deer or tracks. Providing students with safe and engaging ways to interact with animals, whether hands-on, from a distance or from viewing their tracks, creates an eye-opening learning experience. These animal encounters allow students to see the forest as not only a bunch of trees, but an important resource for all of the animals.



Nancy Schuller



When did you attend Trees For Tomorrow? What grade were you in, and what school or program did you come

sen to attend a week long program.

How did your experience at Trees For Tomorrow change your life and/or career aspirations?

area. I fell in love with the area while attending Trees for Tomorrow in high school. It felt so removed and peaceful from the city life I had grown up in. I loved our trip to Bond Falls and our hikes in local forests to plant trees. The campus, housing and food were awesome!! The staff and other students in my session were inspiring to work with. I ended up looking for property in the area in the late 70's and relocated to Eagle River in 1983.

Why do you continue to support Trees For Tomorrow?

It's a wonderful educational organization that was life changing for me. Their programs are essential to the protection and growth of natural resources in our area and beyond.

My experience opened my eyes to a different life style and slower pace, and I enjoyed every minute of my time spent outdoors and in the forest. The education I received is something I will carry with me for life. The dedication of the staff and organization is outstanding! \wedge



Red Pine





White Pine

Since 1945, Trees For Tomorrow has been offering tree seedlings to encourage tree planting and sound forest management principles. The 2-year-old seedling species for 2018 include red (Norway) pine, white pine, northern white cedar and white spruce hybrid; all do well in the sandy soils across much of Wisconsin.

Each seedling has been grown in its own cell in nutrientrich solk, These "containerized" seedlings with their roots already growing in a plug of soil have a much better chance of survival.

Cost is \$1.50 per seedling and orders can be placed in advance by calling TFT or on our website.

TreesForTomorrow.com page 6

attended in the Spring of 1973 when was a Senior at Pulaski High School in Milwaukee. We had students in our group from all over Milwaukee County - two from each high school were cho-

I had only been to Eagle River a couple of times as a child while vacationing with family in the Minocqua

What are some of the values that you took away from your visit?

I learned to appreciate and value our forests and learned their importance to our quality of life. I fell in love with the outdoors and the peace and tranquility of the Northwoods.

Anything else you would like to add about your experiences at Trees For Tomorrow?

ORDER YOUR 2018 TREE SEEDLINGS



White Spruce

White Cedar

Recipe: Trees For Tomorrow's Chicken Salad Recipe

Mandy Gingerich, Hospitality Manager



- 2-4 boneless skinless chicken breasts cooked and cubed
- 2 stalks of celery diced
- ¾ cup chopped red onion
- 2 cups grapes halved
- 1 cup craisins • 2-3 cups of mayo depending on how creamy you like it
- A dash of tarragon
- Salt and pepper to taste

"Thank you for spon-

soring me to go to

Trees For Tomorrow.

I learned about ev-

erything from using

a compass to observ-

ing bog vegetation to

studying animal signs.

TFT is amazing and I

personally think that

everyone should have

Press Forest which was

absolutely breath-tak-

ing! Using compasses,

GPS and other skills

to observe plants and

many amazing people.

My instructors went

my original expecta-

tions. They were very

kind and considerate.

new side of my teach-

I got to see a whole

er who was so happy

and having an awe-

for this experience,

the knowledge, the skills and most of all

that we were learning

some time. Thank you

the memories I made

during my time here."

Goodman-Armstrong

Creek School District,

October 2017

well-informed and

were so incredibly

above and beyond

wildlife I met so

the chance to go. We

got to trek through

Place all ingredients in a large bowl and mix. This recipe is fun to switch up your ingredients! For vegetarian replace the chicken with tofu!



(continued from page 1)

Overall, our 2017 events raised \$41,000 and brought over 1,300 people to support our mission. This represents an 11% increase in money raised over 2016, and an astounding 36% increase in attendance! It's a humbling experience to see so many people make Trees For Tomorrow a priority with both their time and their treasure.

If you didn't join us at one of our events in 2017, we hope you'll plan to attend this year. Our 2018 events are already on the calendar, and it's never too early to include us in your plans for summer and early fall.

Trees For Tomorrow's first event of the year kicks off on Friday, June 1 with our 16th annual Golf Outing. Get a round of golf in while supporting an organization that's preparing today's youth to be tomorrow's stewards of our natural world. Registration will open in April, and includes a round of golf, games, lunch, and access to raffles and

fabulous prizes! Don't know how to golf? We're always in search of volunteers to staff challenge holes and help us out with running the event. No matter what your talent – hitting a hole in one, or selling raffle tickets – we can use your support!

Our popular summer event Forest Fest will be back for it's 7th year on Saturday, July 28. This fun festival celebrates all the forest has to offer, including demonstrations by timber industry companies, information about our area forests, games for the kids, horse drawn wagon rides, food and music, crafts, and so much more. Plan to join us for a day outside on the Trees For Tomorrow campus in July and celebrate our timber heritage.

And finally, we have a **new fundraising event** lined up as part of the famous Eagle River Cranberry Fest on Saturday, October 6: The Cranberry Crush Casino Night and Music Fest. Join us for either part, or all of the evening which includes a fundraiser with casino games for prizes, silent auction items, local beer and wine, and heavy hors d'oeuvres. You can end the evening there, or join us under the big top to continue the celebration with music and dancing into the night. We're planning on a fun event to add to a weekend of

cranberry-centered celebration in Wisconsin's northwoods. We hope you'll join us!

Sponsorships for all of these events are available. Call or email Diane Anderson at diane@treesfortomorrow.com, 715-479-6456, and she'll be happy to share with you how you can make an impact with an event sponsorship.

As we enter into our 74th year, attending our events is but one way you can help support our mission. Another way is by contributing to our two-year major gifts campaign to help us raise \$100,000 to be used to improve the infrastructure on the Trees For Tomorrow campus through facility modernization and the addition of an outdoor classroom to enhance our students' experiences. Watch your mailbox for information coming soon. Our major gifts campaign kicks off on our 74th anniversary, February 22, 2018, and will conclude at the end of our 75th year, February 21, 2020.

Thank you for your continued support of Trees For Tomorrow, and we hope you'll consider supporting us as we're poised to enter into our hallmark 75th year of promoting sustainable use of our natural resources through transformative educational experiences.

While events and individual donations go a long way to supporting Trees For Tomorrow's mission, we also receive grants from many corporations and foundations. We would like to thank the following grant-awarding groups for their recent support of Trees For Tomorrow's programs:

Weyerhaeuser and Cellcom have, once again, awarded funds for support of our summer High School Natural Resources Careers Workshop, to be held June 18-22, 2018. Thirty students will spend five days exploring different career paths and college, apprenticeship and training programs to realize a rewarding career in natural resources management. Visit our website for more information on the application process if you know a high school student that can benefit from this program.

Our middle school and elementary school curriculum have undergone revision over the past three years, and next on the agenda is Trees For Tomorrow's high school curriculum sponsored by a generous grant from the Wisconsin SFI Implementation Committee. Not only will our high school students continue to learn about the science of resource management, but our education staff will be implementing a career readiness element in the curriculum so students come away with not only knowledge, but also with a spark to investigate a potential career in natural resources.

Continuing students education back in their home schools is just as important as the experiences we offer them here at Trees For Tomorrow. Our Teacher Workshops will continue in 2018 thanks to funding provided





by the **Sustainable Forestry Initiative**. These workshops give teachers the skills and confidence they need to develop an outdoor lesson and implement it back in their classrooms – or rather, outside of their classrooms! The workshops will be expanded in 2018 to include a separate workshop on implementing Citizen Science.

Trees for Tomorrow's campus has a unique feature: a trail system with access to a 20-acre forest which includes three distinct micro-environments – old growth forest, tree plantation, and a wetlands that drains directly into our town's namesake water way, the Eagle River. The Wisconsin Society of American Foresters and Lumberjack RC&D have both pledged generous grants to help us revitalize our trail system, improve drainage, add wayfinding signage, and build a boardwalk across the wetlands to reduce impact on this delicate ecosystem.

Although it's arguably a vital element, it takes more than money to change the world. We also have an army of dedicated volunteers who assist us with everything from sharing their expertise and guidance, to staging events, to chaperoning programs, to helping us with the everyday un-glamorous tasks like database management and envelope stuffing. A special thank you to those individuals who give of their time to help us make the world a better place.









Volume 35, Issue 1, Winter 2018

The Secret Life of Snowflakes

Melanie Stewart-Clarke,

Environmental Science Educator

authored last year's winter edition with an article on winter star-gazing; I opened that piece with a story about my favorite childhood coat, complete with color-changing snowflakes, built-in thermometer, and the words "I LOVE SNOW!", to demonstrate my lifelong love of winter. So, it's no surprise I find myself here, writing this year's winter edition. While there are so many great wintery topics to choose from, I needed only flashback to that coat to remember that my absolute favorite thing about winter is, of course, snow!

Humans have been documenting observations of snowflakes for centuries, even millennia, and we have many reasons for our fascination. How can such a tiny, non-living object spontaneously form such beautiful, complex patterns? While we know more than we ever have about snowflakes, there is still a lot to learn and love about these enigmatic crystals.

The Legacy of Wilson "Snowflake" Bentley

We've all heard the adage "no two snowflakes are alike," and the most responsible for teaching us this fact is Wilson "Snowflake" Bentley. Bentley lived in rural Vermont, a farmer by trade with a deep fascination with snow. After much trial and error, he became the first person to successfully photograph a snowflake in 1885 by adapting a microscope to his bellows camera.¹ Bentley went on to photograph over 5,000 snowflakes and publish dozens of articles, including one book "Snow Crystals," published in 1931.¹ He died of pneumonia shortly after this book was published.

Some of his original photographs are shown in Figure 1. Because of his work, snowflakes could be observed in detail for the first time in history. His photographs taught us that nearly all snowflakes display six-sided symmetry with a wide variety of patterns and shapes. In all his photographs, he never found two identical snowflakes.¹

Bentley's work inspired many. People were captivated by the beauty captured

in his photographs, sparking the scientific community to better understand snowflakes. His life story, that of a man with no scientific training making ground-breaking discoveries, still inspires many today. His legacy lives on in all that we now know about snow.

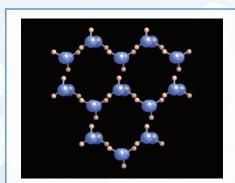


Figure 2. An ice crystal is formed when many water molecules (H20) are bonded together, forming a three-dimensional hexagonal shape. Image credit: www.snowcrystals.com/science/science.

Snow Crystal Formation

Technology has come a long way since Wilson Bentley's days, and with it has come a wealth of information. Snow, of course, is frozen water falling from clouds, but there is a lot more to it. The term "snowflake" can be vague, referring to one single crystal or more broadly to anything that falls from a winter cloud such as white "puffballs" of several crystals collided together.²

Snow forms when microscopic water molecules in clouds begin to freeze around a particle of dust or pollen, forming an ice crystal.³ As this crystal falls, more water molecules attach to it. The unique six-sided symmetry results from the atomic shape of a water molecule, which is made up of two

Needles

Dendrites

Dendrites

Dendrites

Dendrites

O.1 Plates

O.1 Plates

Solid plates

Solid plates

Plates

O -5 -10 -15 -20 -25 -30 -35

Temperature

Columns and Plates

Water saturation

Columns

Plates

For Temperature

Figure 3. The Snow Crystal Morphology Diagram shows how snow crystal shape changes with atmospheric temperature and humidity during formation. Image credit: www.snowcrystals.com/morphology/morphology.

hydrogen atoms and one oxygen atom (H²0) and has both a positive and negative pole. When multiple water molecules bond to one another, they form a hexagonal shape³ (Figure 2).

If ice crystals always form hexagonal shapes, why aren't all snowflakes identical? The answer is complex. The slightest changes in temperature, moisture, and other atmospheric conditions cause crystals to grow and branch in unique ways. Each individual crystal takes a different path through the air, which is why "no two snowflakes are alike;" however, each branch of the same crystal experiences the same conditions, resulting in near-perfect symmetry.³

Kenneth Libbrecht, a snow scientist

at the California Institute of Technology, has developed a Snow Crystal Morphology Diagram that illustrates how atmospheric conditions result in different shapes (Figure 3). Moderately cold temperatures, from -5°F to 15°F, produce the most complex shapes, while warmer and colder temperatures form simpler shapes.² Humidity plays an important role as well, with higher levels of moisture forming the most complex shapes.²

There are three basic processes that govern the growth of snow crystals: sharpening, faceting, and branching. Sharpening is the process that pushes the crystal into a flat plate, usually occurring around 5°F.² Faceting leads to "order," causing the hexagonal surface to appear on generally small, slow-growing cyrstals.² Branching leads to "chaos," causing complex structures to grow out of the exposed corners of the hexagon in large, fast-growing crystals.²

A snow crystal can take 15-40 minutes to form as it falls from a cloud², during which time conditions change and different processes are at work, resulting in a variety of shapes and sizes. While there is no one classification system for

snow crystals, there are a few commonly recognized shapes. Hexagonal Prisms, which can be wide and flat or tall and skinny, are the simplest forms and usually small in size. Columns may be solid or hollow, and sometimes form "caps", flat plates on either end, when the temperature drops dramatically.² Needles are particularly long and skinny columns, often appearing as white hairs.² The most famous crystals are Dendrites, which are relatively large with patterns visible to the naked eye; while we like to think of dendrites as being perfectly symmetrical, a close examination of photographs show branches and side branches vary slightly as a result of rapid growth.2 Some snowflakes come in unusual

shapes, such as triangles and twelvebranched crystals, when conditions are just right.²

Enjoy the Snow

Because snowflakes are so sensitive to conditions when they form, we are blessed with a seemingly endless variety of beautiful structures to captivate our imaginations. Consider passing the time until the next snowfall by making your own paper snowflakes. This simple childhood pastime requires only scissors and paper, yet produces an infinite variety of decorations. The trick to making a six-sided snowflake is to fold your paper into thirds before cutting (Figure 4). From there, you can create all sorts of unique shapes in anticipation of wintery days to come.

Want to study real-life snowflakes? That's easy, too! Simply head outside during a snowfall with a dark piece of paper or flat tray (be sure it's cold so the crystals won't melt on impact) and see what you can catch. Consider bringing a handheld magnifying lens to observe the details or challenge yourself to sketch what you find and see how many shapes you can "collect."

Winter is a time of reflection and resolution, and snow teaches us many important lessons: the best things often come in small packages; unique differences make us special and are worthy of celebration; there's plenty of beauty in the world if one chooses to look closely. So, strap on a pair boots, snowshoes, or skis and head out to enjoy the beauty and wonder of snow!

References: 1. Jericho Historical

- 1. Jericho Historical Society (n.d.). Snowflake Bentley: The Official Web Site of Wilson A. Bentley (1865-1931). Retrieved from www. snowflakebentley.com.
- 2. Libbrecht, Kenneth G. (n.d.) *Snow Crystals*. Retrieved from <u>www.snowcrystals.com</u>.
- 3. National Oceanic and Atmospheric Administration (2016, December 19). How Do Snowflakes Form? Get the Science Behind Snow. Retrieved from www.noaa.gov/stories/how-do-snowflakes-form-science-behind-snow.

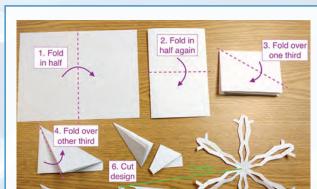


Figure 4. Starting with a regular 8.5x11 piece of paper, follow these steps to make your own six-sided snowflakes. Image credit: author.

Figure 1. Early photographs by Wilson Bentley show the variety of snowflake shape and size. Photo credit: www.snowflakebentley.com/WBsnowflakes.

TFT.info@TreesForTomorrow.com