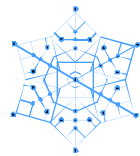
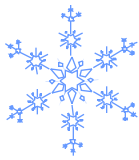
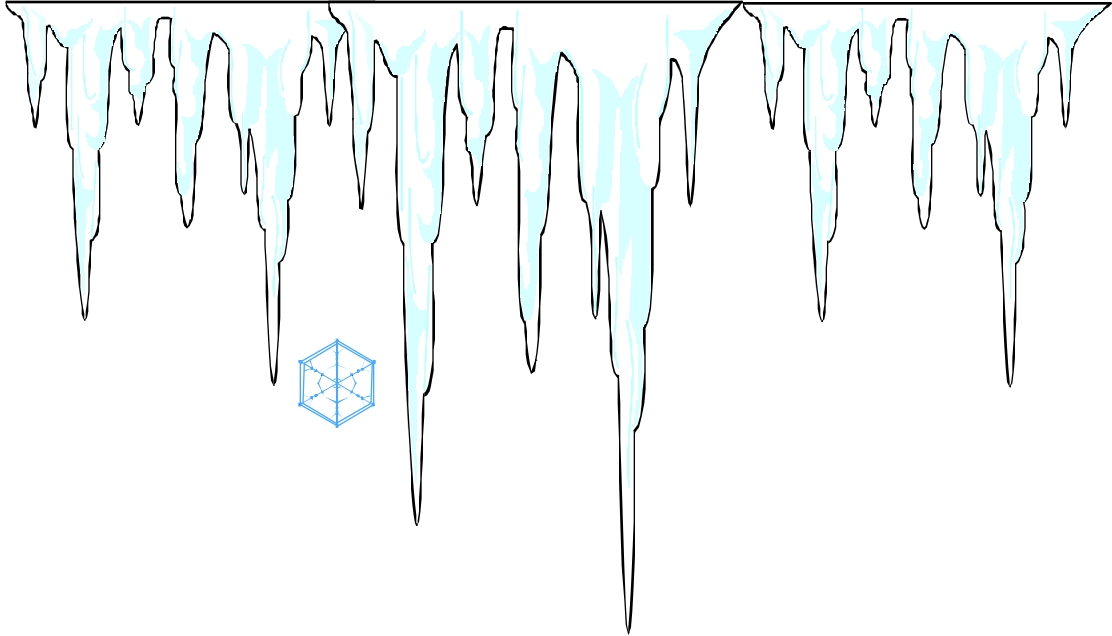
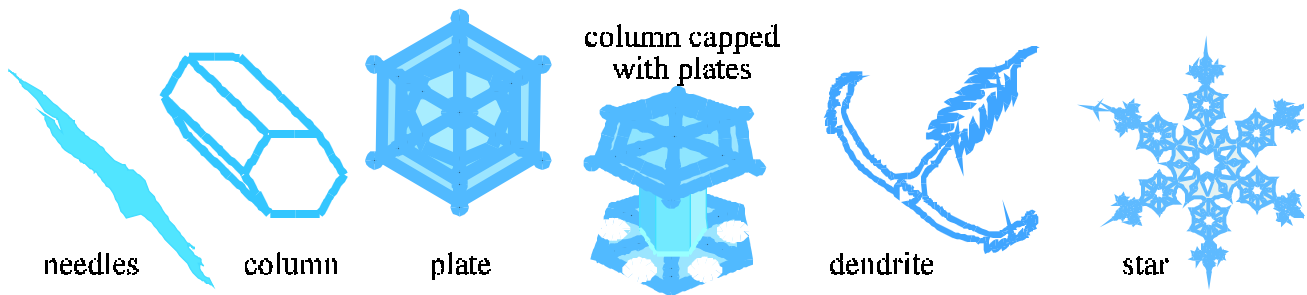


Snow and Ice



Snow Crystals

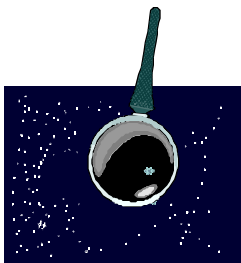
When cloud temperature is at freezing or below and the clouds are moisture filled, snow crystals form. The ice crystals form on dust particles as the water vapor condenses and partially melted crystals cling together to form snowflakes. It is said that no two snowflakes are the same, but they can be classified into types of crystals. All snow crystals have six sides. The six-sided shape of the ice crystal is because of the shape and bonding of the water molecules. Basically there are 6 different types of snow crystals: needles, columns, plates, columns capped with plates, dendrites and stars. The type of crystals depends on the amount of humidity and temperature present when they are forming. That's why when it's very cold and snowing, the flakes are small, and when it's closer to 32 F. the flakes are larger.



Catch Some Snowflakes

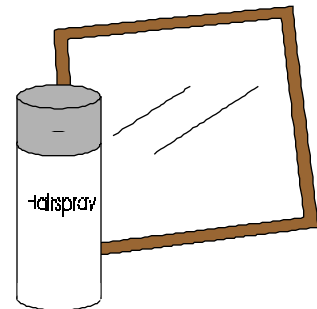
black velvet or black construction paper
Magnifying Glass

Since snowflakes melt so quickly you need to freeze your cloth or paper. Have it ready frozen and ready to go for the next snowfall, and go outside and let some snowflakes land on the dark surface. Quickly, before they melt, examine the flakes with a magnifying glass. Many snowflakes are "broken" and so you don't see the whole six-sided crystal, but with persistence you'll see some beautiful examples.

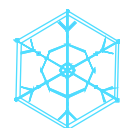


Keep Some Snowflakes

Piece of glass
Hairspray

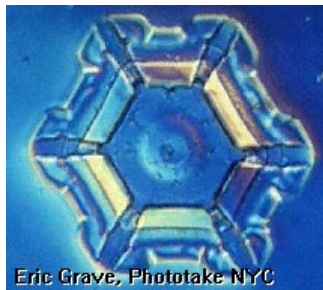


You can have a permanent record of your caught snowflakes if you freeze a piece of glass and the hairspray before the next snowfall. (Both may be stored in the freezer until you need them.) When your ready to collect some snowflakes, spray your chilled glass with the chilled hairspray and go outside and let some snowflakes settle on the glass. When you have enough flakes bring the glass indoors and allow it to thaw at room temperature for about 15 min. Now you have a permanent record of your snowflakes!



The Snowflake Man

Wilson Alwyn Bentley was born in 1865 in Mill Brook Valley, Vermont. He lived with his parents on their farm with his brother and sister and spent his summers helping his dad on the farm, fishing, and looking for birds and other wildlife. During the long Vermont winters, when the weather wasn't bad, he occasionally attended school with his sisters, and the rest of the time his mother taught him at home. He loved to catch and watch snowflakes on his mitten and when his mom bought him a microscope he discovered that he could see the beautiful crystalline patterns of the snowflake through it. When he was almost 20 he talked his father into buying him a camera which, through much ingenuity, he mounted onto his microscope and began his life long love of photographing snowflakes. Every snow storm gave him a new chance to photograph new and different crystals and he photographed a total of 4,500 different snowflakes during his lifetime! Because of his photographs and studies about snowflakes, he soon became known as "the snowflake" man. He wrote many articles and provided information to the American Meteorological Society. He got together with U.S. Weather Bureau scientist W. J. Humphreys to publish a book called Snow Crystals that had 2,500 illustrations of his snowflake photographs. (You can get this book from Dover Publications which reprints it.) When he first started photographing snowflakes he thought he might find some that were the same, but he never did, and he came to believe that no two snowflakes are ever alike.



Sparkle Snow Paint

1/2 cup flour
1/2 cup salt
1/2 cup water

Mix together and put in a squeeze bottle. Squeeze doughy paint out on to black construction paper. Make anything snowy, snowflakes, snowmen, - we made snow covered mountains with the moon and northern lights. Let dry thoroughly and it will sparkle. May also be painted (when dry) and allowed to dry again. This is a great 3 dimensional effect for snow.

Edible Glacier

Prepare a 6 oz. package blueberry flavored gelatin following package directions. Pour into dish. Put in refrigerator until solid (several hours). Crush about 1/2 package of chocolate wafers or chocolate sandwich cookies. Mix with 1 quart of Cool Whip. Spread over the set gelatin. The jello is the icy blue center of the glacier, and the Cool Whip & cookies are the silty snow on top.

Books for Kids

For younger children

The Snow Child, by Freya Littledale. Illustrated by Barbara Lavallee

Thomas' Snowsuit, by Robert Munsch

For elementary school age kids

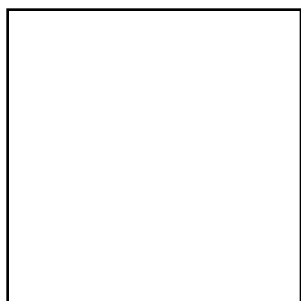
This Place is Cold, by Vicki Cobb

Treasures of the Snow, by Patricia M. St. John

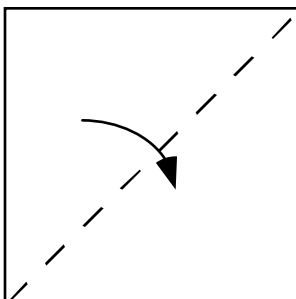
Whiter Than Snow, by Mrs. O.F. Walton



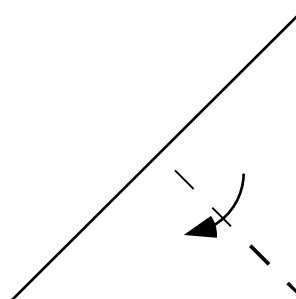
Best Ever Six Sided Snowflake



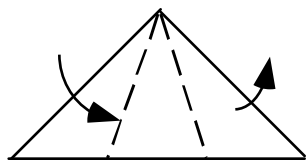
Start with square piece of paper



Fold in half



Fold in half again



Fold in thirds, one section to the front, one to the back.



You are now ready to cut.



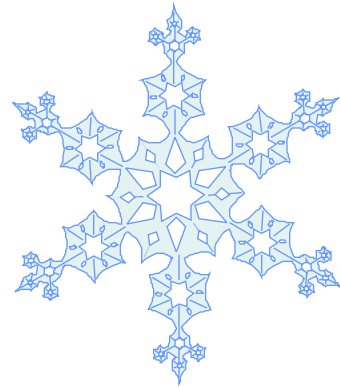
Enlarged view for cutting

cut off bottom to form another triangle, then cut whatever design you like!



Snow Scavenger Hunt

Living in the cold North makes a person become familiar with snow, that's why the Inuit have so many different words for snow. They have had to recognize and communicate about many different kinds of snow and features of their landscape. See how many of the different kinds of snow you can find. Here is a list of Inuit words for snow along with their meaning.



Inuit Words for Snow

<input type="checkbox"/>	anniu	falling snow
<input type="checkbox"/>	api	ground snow
<input type="checkbox"/>	qali	snow on the boughs of trees
<input type="checkbox"/>	qamaniq	bowl like depression under tree
<input type="checkbox"/>	siqoqtoaq	sun crust
<input type="checkbox"/>	siqoq	smoky (drifting snow)
<input type="checkbox"/>	anamana	space between drifts and obstruction
<input type="checkbox"/>	upsik	wind beaten snow
<input type="checkbox"/>	mapsuk	overhanging drift
<input type="checkbox"/>	kaioglaq	sharply etched wind eroded surface
<input type="checkbox"/>	tumarinyiq	ripple type drift
<input type="checkbox"/>	kalutoganiq	arrow shaped snow drift
<input type="checkbox"/>	kimoaqtruk	snow drift
<input type="checkbox"/>	pukak	bottom snow layer (depth hoar)
<input type="checkbox"/>	salumaroaq	smooth surface of fine particles
<input type="checkbox"/>	natatgonaq	rough surface of large particles
<input type="checkbox"/>	quinzhee	snow shelter

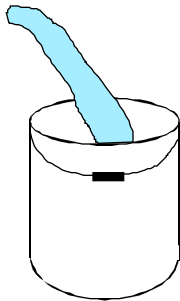
Check off the different kinds of snow you are able to find



Snow Scene in a Jar

- empty small jar
- hot glue gun
- epoxy glue
- small plastic toy animal
- (they have them in toy stores everywhere)
- white rocks, big pieces of gravel, plastic tree etc.
- glitter
- (some of the new iridescent ones are beautiful & available at hobby stores)
- water
- food coloring if desired

Use hot glue gun to glue rocks and animal to the bottom of jar. (have an adult help with the glue gun!) Fill with water and add food coloring if desired. Spoon in some glitter and use epoxy glue to glue lid onto jar. Be sure to have an adult help with the epoxy glue. Shake to make it snow!



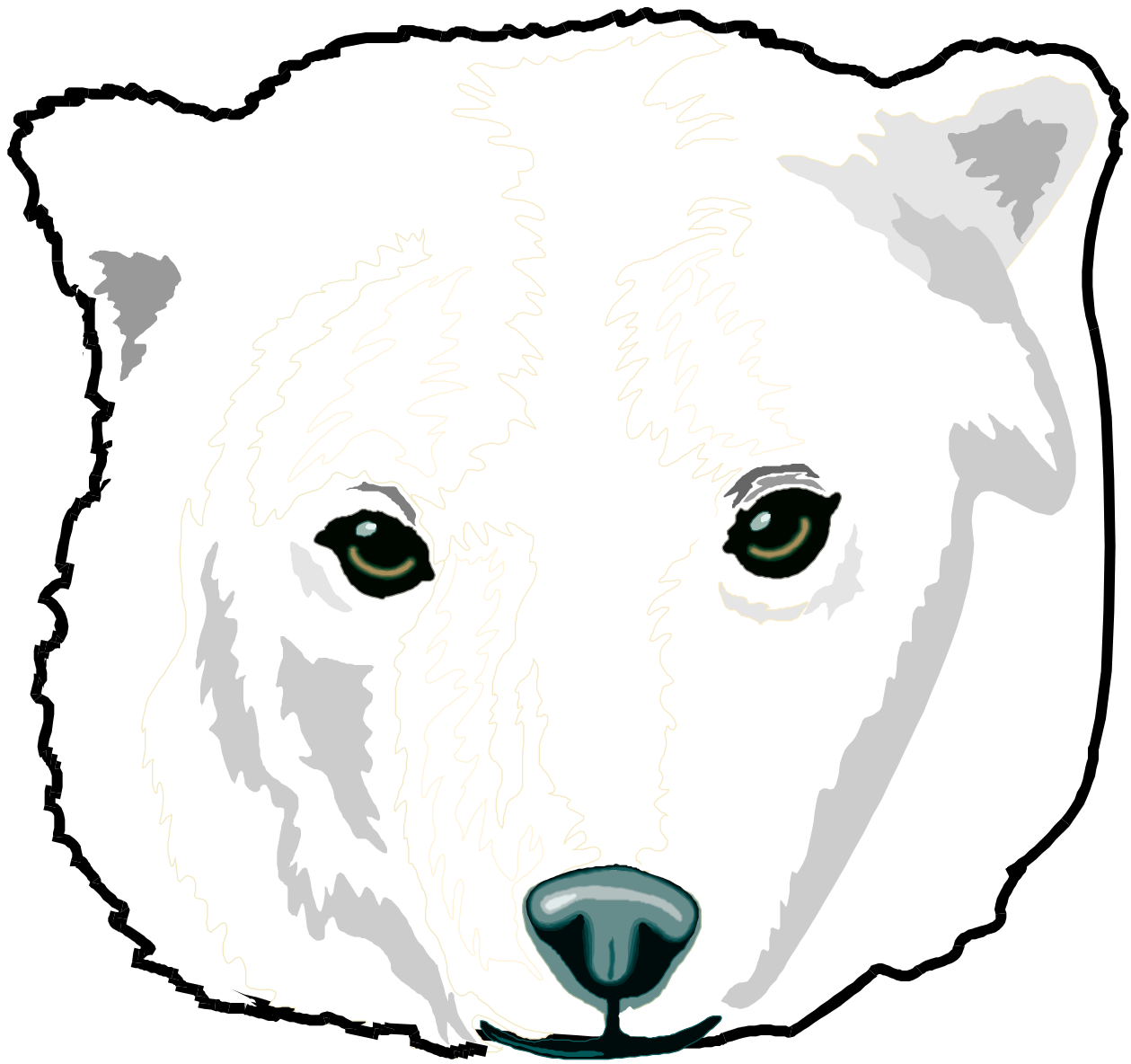
Ice Candle

- 5 gallon plastic bucket or pail
- nonstick cooking spray (optional)
- water
- candle



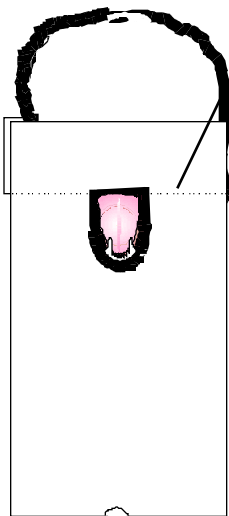
Spray the inside of the bucket with the no-stick spray or rub with a little oil. This helps if you have problems with the ice sticking to the bucket when it's time to remove. Fill the bucket three quarters of the way full and set outside to freeze. Leave overnight (depending on how cold it is!). In the morning remove the ice block from the bucket. On the bottom there should be an area that is still liquid. Drain out the liquid and slush and turn it over. Allow to freeze for at least for four more hours. The pocket where the water was now makes a great place to insert a candle. Light and place outside in your yard when it's dark for a beautiful ice "crystal" candle luminary!

Be sure to have an adult help you light the candle!



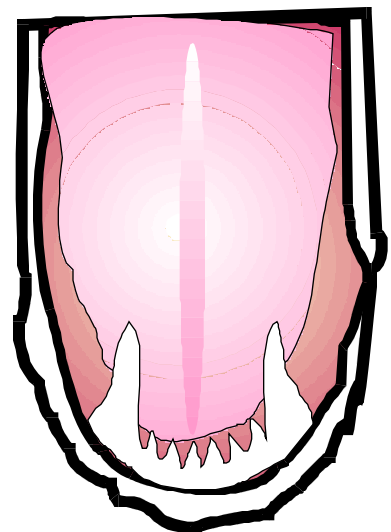
Binky

Alaska's most famous polar bear



(crease line)

Cut out Binky's face and jaw. Glue face to the bottom of a paper bag as shown. A white bag that ice cream comes in works best. To the inside of the flap (underneath face, glue Binky's jaw. Now you're ready to help Binky roar and bite by inserting your hand into the bag and working the flap open and shut!





Fun With Snow

•Build a snow cave.

Snow Caves For Fun and Survival - by Ernest Wilkinson is a great book for how to do this.

•Make snow angels in the snow.

•Make snow "slush cones".

Collect some freshly fallen snow and scoop it into bowls. Put a few spoonfuls of frozen juice concentrate on top, and you have your own slush snow cones. Or you can add some sugar, vanilla, and a little milk to the snow to make "snow ice-cream".

•Make a snow gauge.

Take an old clear plastic soda pop bottle and cut off the top half. Mark the outside in centimeters or inches with a permanent laundry marker and place it outside in a place where it can collect the falling snow.

•Look for animal tracks in the snow.

See if you can find the tracks of dogs, cats, birds, and other wildlife in the snow. Check out a book from your local library on animals and animal tracks and see how many different animal tracks you can identify.

•Measure how much melted snow it takes to make water.

Collect some snow in a container and record the level of snow on the container. Let the snow melt. how much water is there? Are you surprised at the difference?

•Make your own glacier.

Fill a bowl with snow and bring it inside to partially thaw, then add more snow on top. Keep doing this all winter long. You will then have the "layers" of ice and snow like a glacier.

•Try out some snow shoes.

Rent, borrow, or buy some snow shoes and see if you can master walking on deep snow. You can even try making your own out of a curved branch and heavy twine. The trick to snow shoes is to be sure and lift your toes up when you try and walk!

When It's Verrrry Cold

•Blow bubbles outside,

They won't pop when it's -30 to -40 degrees below zero outside.

•Brew some birch tree tea.

The birch tree grows in much of Alaska and you can make a warm winter time tea by collecting a few small birch tree twigs and gently steeping them in boiling water.

(Caution: the birch tree contains the natural form of Aspirin called salicylic acid, and prolonged boiling in a closed container could concentrate the salicylic acid to a level where those with a hypersensitivity to Aspirin may have a problem with it.)

•Write a poem about the snow and cold.

What does the cold feel like? Smell like? Sound like? Write your observations down in the form of a poem.

•Make peanut butter cookie cutter treats for the birds.

Take old bread slices and cut out shapes with cookie cutters. Let them dry and harden enough to spread with peanut butter. Cover the peanut buttered shapes with black sunflower seeds and hang outdoors on trees or anywhere birds might come! Use a bird book to identify the birds. *The Guide to the Birds of Alaska*, by Robert H. Armstrong is a good book for Alaska.

•See what happens to something plastic in the cold.

Take an old plastic soda pop bottle and leave it outside for at least an hour. Then squeeze and see what happens. Why do you think it might have done something different than if it was warm?

•Cozy up inside and read a book!

Here's a list of some books about Alaska and the cold.

Preschool age

The Eyes of Gray Wolf - Jonathan London

King Island Christmas, - Jean Rogers

Mama Do You Love Me? - Barabara Josse

On My Mother's Lap - Ann Herbert Scott

Grades 1 & 2

Bravest Dog Ever: The true Story Of Balto - Natalie Standiford

Danger, The Dog Yard Cat - Libby Riddles

Dogteam - Gary Paulsen

Eskimo Boy: Life In An Inupiaq Eskimo Village - Russ Kendall

Grades 3 & 4

Deneki: An Alaskan Moose - William Berry
Race Against Death: A True Story Of The Far North - Seymour Reit
Secret Moose - Jean Rogers
This Place Is Cold - Vicki Cobb
Wounded Wolf - Jean George

Grades 5 & 6

Aleutian Boy - Ethel Oliver
Goodbye, My Island - Jean Rogers
Home Is The North - Walt Morey
Julie Of The Wolves - Jean George
Kavik The Wolf Dog - Walt Morey
Race To Nome - Kenneth Ungermann
Scrub Dog Of Alaska - Walt Morey
Woodsong - Gary Paulson

Older Readers

Alaska Bear Tales - Larry Kanut (a bit gory but fun!)
Call Of The Wild - Jack London
Snow Caves For Fun and Survival - Ernest Wilkinson

General Alaskan Information

Alaska Sourdough - Ruth Allman (a cookbook)
Alaska Wildlife Portraits - Edward Bovy
Arctic Animals - Bobbie Kalman
Aurora Borealis The Amazing Northern Lights - S.I. Akasofu
The Aurora Watcher's Handbook - Neil Davis
Guide to the Birds of Alaska, Robert H. Armstrong

And more at your local library!