



Lesson 6 - Winter Precipitation

Winter Precipitation

Estimated Lesson Time: 20 minutes

Introduction

Winter storms are basically regular storms in a cold environment. Ingredients required to create a winter storm are moisture, instability, lift and a cold layer through which precipitation falls.

Snow forms when the atmospheric temperature is freezing and there is a minimum moisture level in the air. Snow reaches the ground if there are no warm air layers.

Snow is created when ice crystals form in the cloud and stick together, making snowflakes. It requires cold throughout the layers of the atmosphere during the storm. Each snowflake is a unique 6-sided ice crystal.

Sleet develops when there is a layer of warm air between the cloud and surface. Falling snow melts and then re-freezes before reaching the ground. It results in a combination of snow and ice pellets.

Freezing rain is created when there is a deeper warm layer in the atmosphere, and the snow melts completely. It falls into a shallow cold layer at the surface where it becomes supercooled, yet does not have time to re-freeze (like sleet). Instead, it freezes on contact with below-freezing surfaces (roads, trees, cars).

Thundersnow is a thunderstorm in cold air. It can occur with any of these types of frozen precipitation. It can easily be described as a snowstorm acting like a thunderstorm, so you can expect thunder, lightning, and snow.

In Oklahoma, average annual snowfall increases from less than two inches in the extreme southeast to nearly 30 inches in the western panhandle. The frequency of snow events also increases sharply along the same gradient. Locations in southeast Oklahoma have gone several years between events, while northwestern Oklahoma typically records several snow events each winter.

Fun Facts

- Based on National Climatic Data Center records, New York state is home to the snowiest cities in the United States: Syracuse averages 115 inches of snow per year, and Rochester averages 93 inches per year. However, several less populated areas around the country receive much more snow. For instance, Mount Washington, New Hampshire, has an average annual snowfall of 260 inches, and Valdez, Alaska, averages 326 inches annually.
- Each year an average of 105 snow-producing storms affect the continental United States. A typical storm will produce snow two to five days and will bring snow to portions of several states.
- Practically every location in the United States has seen snowfall. Even most portions of southern Florida and Texas have seen a few snow flurries.

Activity: Measuring snowfall

If one foot equals 12 inches, what is the following snowfall measurements, in feet.

1. 18 inches
2. 36 inches
3. 6 inches

Activity: Create a Snowflake

Materials:

Colored paper

Scissors per 4-H member

1. Cut any size circle from the paper.
2. Fold the circle in half.
3. Fold the circle in half again so you now have a $1/4$ circle.
4. Fold the $1/4$ circle once more to give you an $1/8$ circle.
5. Draw with the $1/8$ circle jagged edges. Start on one side and then down the other side.
6. Cut only these inside lines out.
7. Carefully open the circle and you have your own snowflake! If you want, iron the circle to make it flat.

Prepared by:

Stephanie Bowen, Extension Assistant,
Oklahoma Mesonet
Oklahoma State University

Reviewed by:

Cathy Allen, Assistant Extension Specialist,
4-H
Oklahoma State University

Answers to Measuring Snowfall:
1. 1.5 feet, 2. 3 feet, 3. 0.5 feet, half a foot

Oklahoma State University, U. S. Department of Agriculture, State and Local governments co-operating, Oklahoma State University in compliance with Title VI and VII of the Civil Rights Act of 1964, Executive Order 11246 as amended, Title IX of the Education Amendments of 1972, Americans with Disabilities Act of 1990, and other federal and state laws and regulations, does not discriminate on the basis of race, color, national origin, gender, age, religion, disability, or status as a veteran in any of its policies, practices, or procedures.

Activity: Winter Word Search

T	C	I	B	G	P	V	Q	M	I	S	D	W	J	D	A	L	I	F	T
X	H	W	C	Y	V	W	H	A	X	N	C	R	K	N	W	Y	W	F	Y
T	R	U	O	E	T	T	R	Y	V	O	E	H	I	Y	Q	K	W	L	L
L	P	A	N	W	U	T	E	C	L	W	Z	P	Q	F	P	I	K	T	T
U	T	Y	V	D	O	U	G	A	Z	F	F	N	C	P	T	E	I	P	T
H	L	V	R	R	E	F	B	J	S	L	Y	T	F	Y	Z	S	I	Q	Q
S	O	C	R	S	T	R	X	O	Z	A	X	D	N	E	F	C	G	L	C
V	E	D	T	J	I	U	S	G	O	K	S	R	E	D	L	E	S	D	K
C	T	I	A	A	H	P	F	N	Y	E	D	R	A	Z	Z	I	L	B	T
G	B	A	R	S	W	W	B	Z	O	S	F	M	R	O	T	S	E	N	Y
T	Q	E	J	R	D	U	K	P	Z	W	C	L	O	U	D	S	E	G	N
E	S	P	O	L	U	Y	X	Y	M	P	C	Z	S	G	G	P	T	Z	M
C	A	O	R	T	H	L	I	N	S	T	A	B	I	L	I	T	Y	O	D
D	H	I	R	K	M	U	F	C	P	N	V	V	M	F	V	O	I	L	F
L	B	J	N	F	R	K	H	Q	B	I	T	U	H	R	V	S	O	W	S
M	N	I	G	W	P	I	L	A	I	Z	I	Q	A	S	T	C	C	O	V
K	V	W	E	R	L	Q	H	V	Z	X	C	T	M	U	W	Z	W	N	E
B	U	Q	H	L	K	X	D	S	W	U	V	S	R	A	C	A	D	S	A
O	M	M	W	M	G	N	V	N	R	B	D	E	H	T	W	V	U	R	D
F	O	U	R	C	N	N	B	N	R	T	I	W	L	M	L	V	V	O	S

Word Bank:

BLIZZARD

CHILL

CLOUDS

COLD

DRIFTS

FLURRIES

FREEZE

FROST

ICE

INSTABILITY

LIFT

MOISTURE

SLEET

SNOW

SNOWFLAKES

STORM

THUNDERSNOW

WHITEOUT

Recipe: Snow Ice Cream

Ingredients:

Freshly fallen snow - 1 gallon

Half and half - 2 cups

Sugar - 1 cup

Hershey's chocolate syrup - 1/2 cup

Directions:

In a large bowl, stir half and half, sugar and chocolate syrup. Then add the snow and mix well. Add any syrups or toppings you desire. Snow ice cream is ready to eat!