

## **Activity I: Blowing Snow Tank**

**PowerPoint slides 5-8**

Step 1: Feel the two types of fake snow.  
How are they dissimilar?

Which type do you think is more likely to blow?

What type would make a better snowball?

Step 2: Use the fan and attempt to blow the snow in the buckets.  
Was your intuition correct? Why or why not?

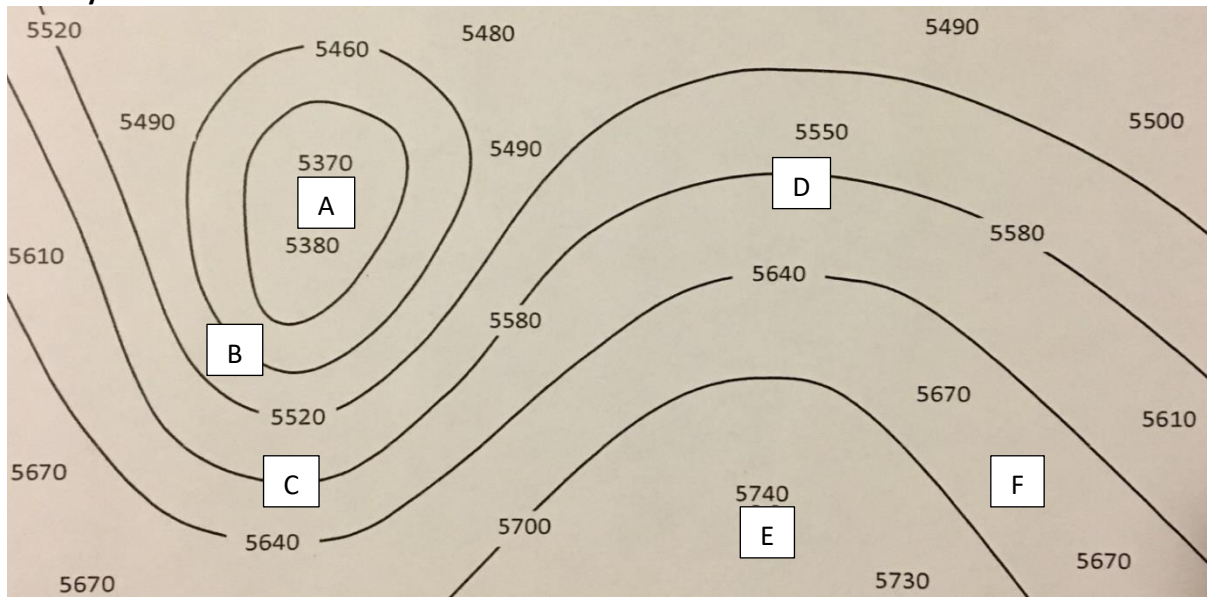
Step 3: Level the snow in the tank and place objects. Making sure the lid is in place, use the fan to blow the snow around. Once it has drifted, stop.

Step 4: Use a ruler and take a measurement of snowfall.  
What range in snowfall was observed? What is truth? (*Observations will be written on the board*)

## Activity II: Blizzards and Weather Patterns

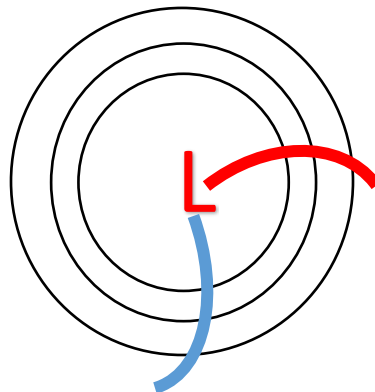
PowerPoint slides 10-20

### Activity 2 - Part 1 - Weather Basics:



- Locate these features on the chart above. Larger numbers indicate higher pressure.
 

High Pressure System	_____	Area of fastest Winds	_____
Low Pressure System	_____	Area of slowest Winds	_____
Trough	_____	Ridge	_____
- In the image above, what type of flow pattern is the jet stream: Meridional or zonal? \_\_\_\_\_



- Locate the cold and warm front in the above low pressure system. Shade where you would expect snowfall.



**Cultural Activity (PowerPoint Slide 21)**

Discuss weather stories or legends that you have heard while growing up. How do these relate to the discussed weather patterns?

**Activity 2 - Part 2 – Blizzard Identification**

**PowerPoint Slides 22-31**

Using the weather maps attached at the end of the worksheet, circle the type of blizzard for each case.

Case 1: Colorado Low, Arctic Front, Alberta Clipper

Case 2: Colorado Low, Arctic Front, Alberta Clipper

Case 3: Colorado Low, Arctic Front, Alberta Clipper

Which case most likely had the most snowfall associated with it?

\_\_\_\_\_

Which case may have occurred with blue skies overhead?

\_\_\_\_\_

Which type of event was the Children's Blizzard?

\_\_\_\_\_

**Winter Weather Safety (PowerPoint and discussion)**

**PowerPoint Slides 32-36**



## Activity III: Snowflakes and Optics

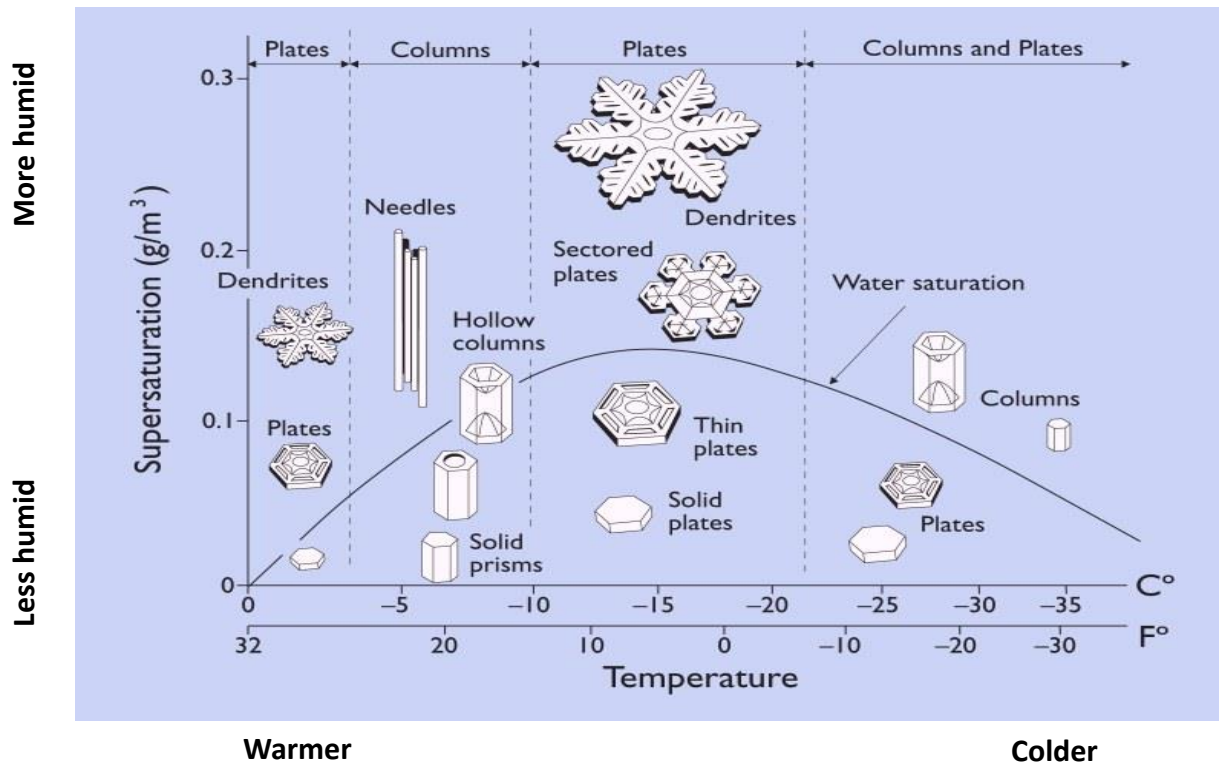
PowerPoint Slides 38-45

### Activity 3 - Part 1 – Crystal Matching

Step 1: Investigate the shapes of the 3-D printed ice crystals

Step 2: Match them to the appropriate type to the table below:

		
Simple Prisms	Solid Columns	Hexagonal Plates
		
Bullet Rosettes	Radiating Dendrites	Simple Needles
		
Stellar Dendrites	Crossed Plates	Isolated Bullets
		
Columns on Plates	Capped Columns	Irregulars



1. What snowflakes occur when it is less humid and around 20 F?
  - a. Are these snowflakes good for snowballs?
  - b. What type of blizzard may these snowflakes occur with?
2. What snowflakes occur when it is less humid and around -10 F?
  - a. Are these snowflakes good for snowballs?
  - b. What type of blizzard are these snowflakes in?
3. What snowflakes occur when it is more humid and around 0 F?
  - a. Are these snowflakes good for snowballs?
  - b. What type of blizzard are these snowflakes in?
4. What snowflakes are the most common?
5. What are the snowflakes called that stick together?

**Activity 3 - Part 2 – Winter Optics**

Use prisms and lights to create optics.

1. How does the angle of light impact the optical phenomenon?
2. How is color separated?

**Wrap-Up & Discussion:**

1. *How were the concepts of STEM used in today's activity?*
2. *What was the most successful idea you used in the activity?*
3. *What did you try in the activity that did not work?*
4. *Why do think it did not work?*