

Name: _____

Date: _____

Science: Section _____

Score: ____/30 points



SNOWFLAKE WEBQUEST

QUIZ GRADE: ____/14 points

SNOWFLAKE QUIZ : Let's start with a PRE-QUIZ. CIRCLE EACH ANSWER...

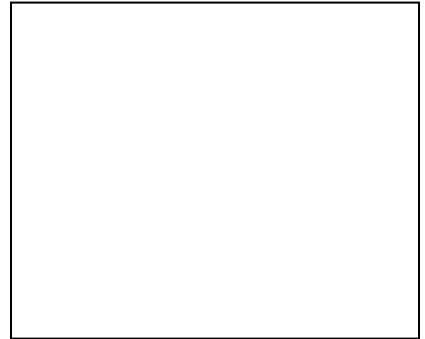
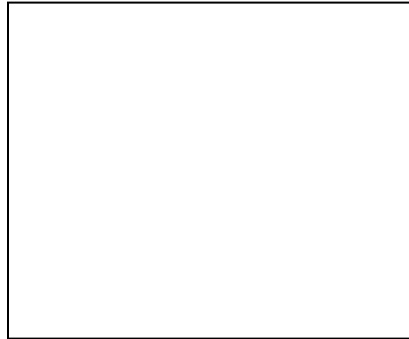
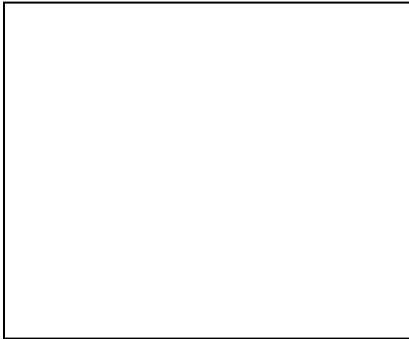
<p>1. What makes a snowflake?</p> <p>straw</p> <p>milk</p> <p>ice crystals</p> <p>sunlight</p>	<p>2. Every snowflake is a collection of</p> <p>drawings</p> <p>rain</p> <p>snow crystals</p> <p>white flakes</p>
<p>3. Snowflakes form when</p> <p>the temperature drops to 30 degrees.</p> <p>it is cloudy.</p> <p>the north wind blows.</p> <p>drops of water freeze into ice crystals.</p>	<p>4. Every snowflake starts as</p> <p>evaporation</p> <p>condensation</p> <p>conversation</p> <p>precipitation</p>
<p>5. Each snowflake is</p> <p>heavy</p> <p>funny</p> <p>different</p> <p>big</p>	<p>6. What makes each snowflake different?</p> <p>wind</p> <p>air</p> <p>humidity</p> <p>all of the above</p>
<p>7. What makes a snowflake white?</p> <p>scattered light freezing air</p> <p>cold water cold</p>	

Task #1: Go to this website and answer questions 8-14

<http://www.its.caltech.edu/~atomic/snowcrystals/class/class-old.htm>

8. Visit each of the photo galleries here. (The tabs are on the left.)

- In the spaces below, draw pictures of 3 types of snowflakes, emphasizing the differences among them.



9. Click on the tab labeled, “Guide to Snowflakes”. Find the answers to the next questions here.

- _____ are common snowflakes that are thin, plate-like crystals with six broad arms that form a star-like shape.
- Stellar dendrites are fairly large crystals, which are typically _____ in diameter, that are easily seen with the naked eye.
- _____ are the largest snow crystals, often falling to earth with diameters of 5 mm or more.
- On your sleeve these snowflakes, _____ look like small bits of white hair.
- Plates sometimes grow as truncated triangles when the temperature is near _____ and are called Triangular Crystals.
- Compare artificial snow to real snow crystals:

- The International Classification System states that there are _____ principal snow crystal types.

10. Now click the tab, “Snowflake Movies.” Click on any of the movies to watch a snowflake form!

While the first movie is only seconds long, how long did it take this snowflake to actually form? _____ minutes.

11. Go to the tab labeled "Guide to Frost."

- While snow crystals form on

_____, frost

crystals form near _____ -- on window panes, blades of grass, or just about any other solid surface.

- What type of frost looks like a "puff-ball of cotton candy"? _____

12. Go to the tab labeled "Snowflake Primer."

- Snowflakes are not frozen raindrops. Sometimes raindrops do freeze as they

fall, but this is called _____.

- The story of a snowflake begins with _____ in the air.

13. Go to the tab labeled "No two alike?"

- Is it really true that no two snowflakes are alike? Explain...

14. Go to the tab labeled "Snowflake Hotspots."

- List 3 of the locations that are mentioned in this section

- 1.
- 2.
- 3.

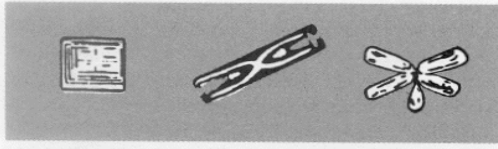

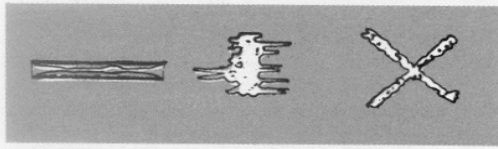

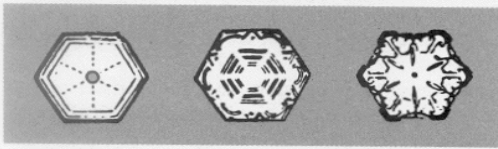

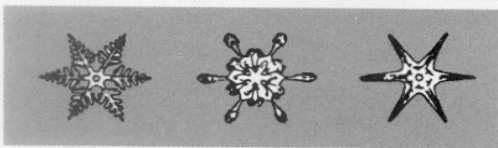



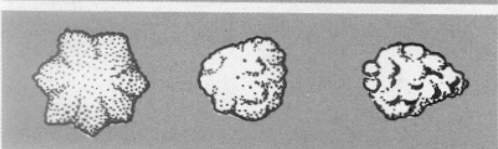





Task #2: Go to this website and answer questions 15-16.

<https://sgil.ba.ars.usda.gov/snowsite/magnification/magnification.html>

15. Check out some of the close up images of snow crystals.

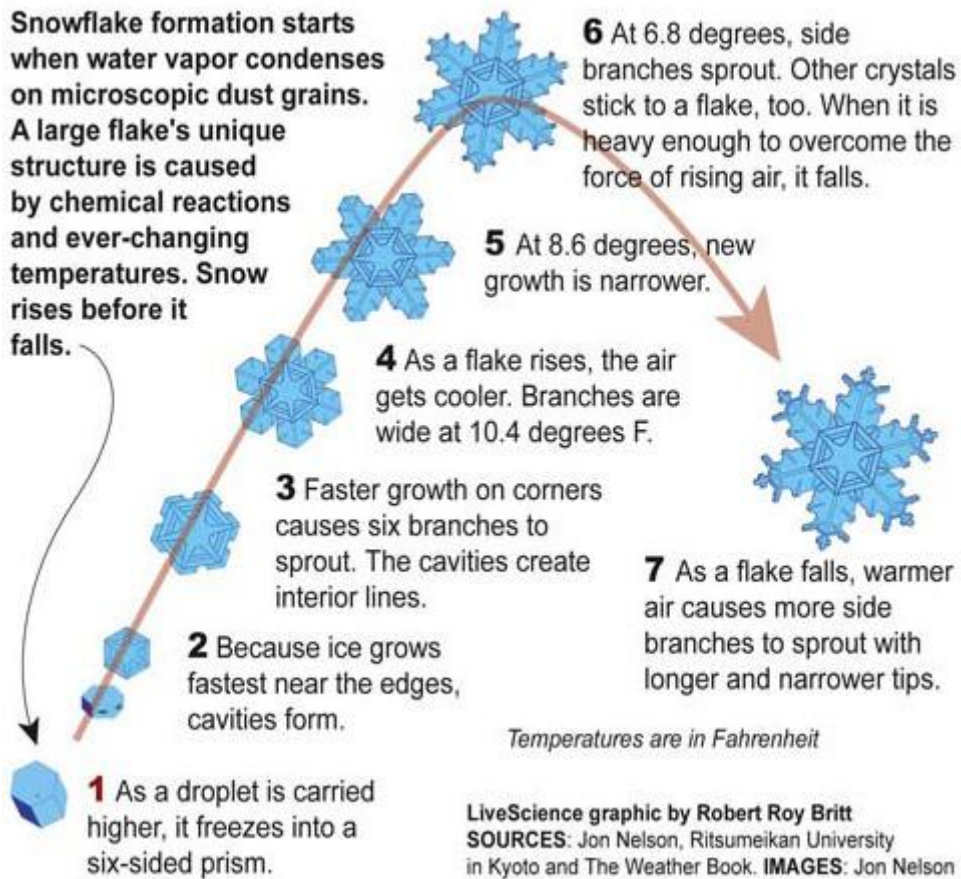
16. What tool was used to make these images? _____

Task #3: Read the chart below and answer questions 17-21.

	1a Columns 	Short prismatic crystal, solid or hollow	Growth at high supersaturation at -3° to -8°C and below -22°C
	1b Needles 	Needle-like, approx. cylindrical	Growth at high supersaturation at -3° to -5°C
	1c Plates 	Plate-like, mostly hexagonal	Growth at high supersaturation at 0° to -3°C and -8° to -25°C
	1d Stellar Crystals 	Six-fold star-like, planar or spatial	Growth at high supersaturation at temperatures between -12° to -16°C
	1e Irregular particles 	Clusters of very small crystals	Polycrystals growing at varying environmental conditions
	1f Graupel 	Heavily rimed particles	Heavy riming of particles by accretion of supercooled water
	1g Hail 	Laminar internal structure, translucent or milky, glazed surface	Growth by accretion of supercooled water
	1h Ice pellets 	Transparent, mostly small spheroids	Frozen rain

17. Circle the pictures of the snow crystals called plates.
18. What is the temperature range that forms stellar crystals? _____ to _____
19. What type of crystals form between -3° to -5°C ? _____
20. What type of crystal is described as a short prismatic (like a prism) crystal that can be solid or hollow? _____
21. Is hail the same as frozen rain? _____

Task #4: Read over the information below and answer questions 22-25. Please note that this is the formation of only ONE type of snow crystal.



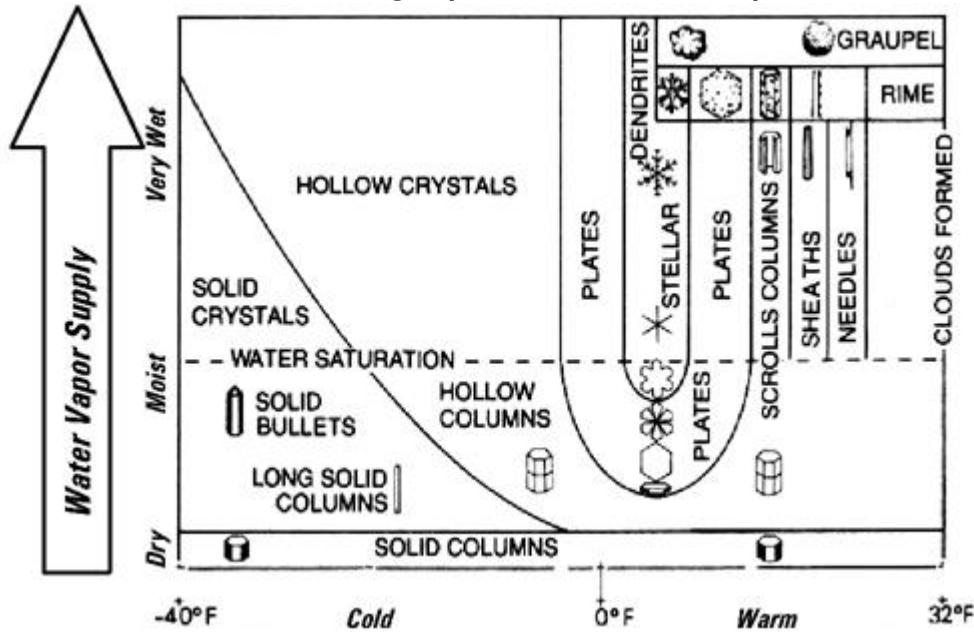
22. Snow rises before it falls. Why does it finally fall?

23. Look at the image by 7. What type of snow crystal would this be classified as?

25. What temperature are the branches wide? _____

26. Is the growth of the flake the same at each step? _____ Explain why or why not.

Task #5: Look over the graph and answer questions 26-36.



27. The x-axis is missing a label. What should it be? _____
28. What is the title of the y-axis? _____
29. "Cold" is labeled on the bottom. This indicates that the temperature range is _____ to _____.
30. "Warm" is labeled on the bottom also. This indicates that the temperature range is _____ to _____. (WHAT????!!! I don't consider that WARM!)
31. This type of crystal forms during very DRY conditions: _____
32. Name a crystal that forms when conditions are "cold" and "moist" conditions: _____
33. Name a crystal that forms when conditions are "warm" and "very wet" conditions: _____
34. Find "CLOUDS FORMED" on the graph. Write a sentence about where they are formed: _____
35. If the air temperature is 30°F and the air is very wet, what type of crystals will probably form? _____
36. If "solid bullets" form, what is the water vapor supply? _____
37. If "plates" form, what might the temperature be? _____

Task #6: Go back to the “Pre-Quiz” on the first page.

- a. See if you would change any answers, based on what you have learned.
 - b. Choose one question from the pre-quiz that you are still unsure of. Copy it below: (If you are confident in your Pre-Quiz answers, make up your own question about snow, that was not answered by completing this.)
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Now do a GOOGLE search to find the answer!
Write 2 sentences summarizing what you learned about the question above.

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BE SURE TO CORRECT ANY ANSWERS ON THE SNOWFLAKE QUIZ ON THE FIRST PAGE.
THIS WILL BE WORTH A 14 POINT QUIZ GRADE.