

SNOWFLAKE EXPLORATION

Objective:

Students will explore the intricacies of snowflakes through catching and observing snowflakes. You may choose to extend your discussion on snowflakes through further scientific exploration, a social studies extension likening the uniqueness of snowflakes to the uniqueness of students in your class, or an art extension where students may preserve a snowflake in glue to keep forever

Materials:

- Small piece of black paper for each student/group of students
- A piece of white paper for each student
- Magnifying glasses
- Writing Utensils

Social Studies Extension:

- Letter sized paper for each student
- Scissors
- Markers

Art Extension:

- Clear, liquid glue
- Paintbrushes
- Microscope slides or cut up clear plastic



Snowflake Exploration:

Cut black paper into smaller pieces and freeze it overnight

Give each student of group of students a black piece of paper. Have them go outdoors and collect some snowflakes. This works best if it is snowing!

While outdoors, have students observe their snowflakes with magnifying glasses. Guide them through some guiding questions about their snowflakes:

- What shape is your snowflake?
- How many points does it have?
- Can you see colours in your snowflake?
- What do you think this snowflake is made of?
- How do you think they are made?

Have them look at a neighbour's snowflake.

- How are your snowflakes different? how are they the same?
- Why do you think they are all different?



If it is not too cold, have your students try to draw their snowflake's pattern onto a small white piece of paper.

Once back indoors, speak to your students a little bit about how snowflakes form. You can find a good video [here!](#) And a good blog [here!](#)

The short answer is that snow crystals (what we commonly call snow flakes) form when water vapour condenses around tiny dust particles or pollen in the atmosphere and immediately freezes without turning to liquid first. As more water vapour condenses onto the crystal, it grows and develops patterns.

Each ice crystal will have six distinct points. This is because it mirrors the molecular structure of the inner core in which six water molecules are hydrogen bonded together in a circle.

Different temperatures and humidities will create differently shaped snow crystals. More elaborate crystals form in humidity while simple prisms form in low humidity. The largest snow crystals will form around -15 degrees C in the clouds

Social Studies Extension:

Snowflakes are all unique! They take different paths to the ground and travel through different temperatures and humidities, yet when they all lay together they make a beautiful blanket of snow!

In this activity, use the paper snowflake instructions here, to create a snowflake for each student. This specific blog shows how to make a snowflake that has 6 sides instead of the paper snowflakes that usually have the incorrect number of points.

After creating the snowflakes, have students think about something that makes them unique.

Have them consider things like:

- Where their family is from
- Cultural and religious views/foods/practices
- Things they love
- People in their lives that love them
- Activities they love to do
- Things about themselves that they like. Eg. I am kind, I care a lot about animals, I like to make new friends

You may want to take pictures of students to glue onto their snowflakes, or have them draw themselves.

With all your classroom snowflakes, have each student put theirs up on a board or wall and explain to their peers what they wrote.

The goal of this activity is to create a beautiful blanket of individual snowflakes that demonstrate how different, unique people, that come from different places and have different stories can all come together to create something beautiful. You can relate this to multi-culturalism in Canada and the importance of diversity of people, ideas, and worldviews.

Art Extension: Taken From: SnowCrystals.com

While outdoors, after collecting snowflakes, have students pick up a snowflake they like with a paintbrush and transfer it onto a glass microscope slide or cut up plastic. Anything clear and sturdy will work.

Have students drop a little bit of clear, liquid glue onto the snowflake and cover it with another piece of clear plastic/glass.

Let it dry either outdoors or in a freezer. This can take up to a week. When it dries, students should have a well-preserved snowflake that they can revisit over and over.

When indoors, you may want to get students to try drawing their snowflake pattern. This could easily transfer into teaching about symmetry in art and in nature!

Resources:

[Learn More about Snowcrystals!](http://SnowCrystals.com)