

## Let it Snow!

Educational activities for winter lesson planning

Winter getting you down? Do some fun science with snow and get excited about winter again.

### On snowy days, discover the science of snowflakes



Have your students create a snowflake diary and take them outside to catch snowflakes on their sleeve or a piece of coloured construction paper. What do they notice? If you have magnifying glasses to share, it's even more fun! Students can include pictures or diagrams of the snowflakes they catch and also track the temperature, wind speed and humidity using data from any local weather network. What patterns do they notice? Do they see particular types of snowflakes on particular days?

[Check out this field guide to snowflakes.](#)

[Take a look at this video that examines the idea that every snowflake is unique.](#)

### Engineering the perfect snowball



A lot of FUN science goes into making the perfect snowball: aerodynamics, chemistry, physics and more. Have your students set up some targets in the schoolyard. If you don't have targets, have them try to throw as far as they can and measure the distance thrown. This is not meant to be a competition but an engineering activity to see which snowball design works well for them. Have your students brainstorm the variables involved in designing and throwing the perfect snowball. Then head back outside to manipulate the variables and recheck their distances. Some possibilities are: size of

snowball, wearing mitts or bare hands, shape of snowball, lumpy or smooth surface, throwing underhand or overhand.

## How clean is snow?



Have your students collect snow from two locations - a well-travelled area like the school parking lot or sidewalk and a pristine part of the school yard where no-one has walked. Put each sample in a colander or sieve lined with a coffee filter and place over a container to collect the water. Once the snow has melted, allow each filter to dry and analyse it to see the number and type of particles collected along with the snow. If you have a magnifying glass you can take a really close look. Have students decide how clean their snow is.

## How do snow and rain compare?



If you get 10 cm of the fluffy stuff, how much rain would this be equivalent to? Snowfall is generally measured in centimetres and rainfall is measured in millimetres. Have your students fill a measuring cup with loosely packed snow and measure the height of the snow in centimeters. Set the cup aside to melt and measure the height of the resultant water. How do snow and rain compare? Discuss how many millimeters of rain the collected snow would be equivalent to. For an extension, try packing the snow into the cup, letting it melt and measuring the volume of water remaining. How does this compare to the loosely packed snow?

## How does the volume of ice and snow compare?



Have your students partially fill a small measuring cup with water and note the volume. Put the cup of water in the freezer or outside until it's frozen solid. Now observe the volume of ice. How do the two volumes compare? Fill an identical measuring cup with loosely packed snow to the same volume as the ice. Set each cup aside to melt and compare the final volume of water in each. How much water is left in each cup? For an extension, try packing the snow and have your students investigate if this makes a difference to the final volume of water.

## Sparkly Snow Paint

Combine  $\frac{1}{2}$  cup of flour,  $\frac{1}{2}$  cup of salt, and  $\frac{1}{2}$  cup of water. Mix well and pour into a squeeze bottle with a narrow opening. Have your students draw a snowy scene on a piece of black construction paper with their paint bottle. Set aside to dry. As the water evaporates, the flour/salt mixture will be left behind to create a 3-D image which sparkles. Have older students cut out a hexagonal shape from black construction paper and use their snow paint to create a symmetrical snowflake for a three way science, math and art project.