

How to measure snow



Snow pit kit

- ruler *(see below)
- sheets of A4 card or paper
- large bucket or plastic storage box
- trowel or shovel
- clipboard, pencil and paper
- watch or clock

Indoor measuring kit

- measuring jug - showing volume in millilitres (ml)
- or digital bathroom scales - showing mass in grams (g)
- clipboard, pencil and paper

*You will need a ruler with centimetre and millimetre marks on it.

Make sure that the zero mark on the ruler is at the very end of the ruler, so that there is no blank space at the end of the ruler, before the marks start.



This wooden one is a GOOD ruler because the zero mark is at the very end.



The blue ruler is a BAD ruler because there is a blank space between the end and the zero mark.

1. Choose carefully **where** to dig your snow pit.

You need to choose a place that is far away from walls, buildings, trees and where the ground underneath is level (not a hill). The snow should be undisturbed, with a smooth flat surface. Right in the middle of a field, playground or a big garden is a good place.

2. How to measure the **depth** of the snow.

a) Hold the ruler vertically, so it is pointing straight up and down. (Tip: A friend can help you check this) Push the ruler vertically into the snow, until you feel that it won't go any further, because it has reached the ground underneath. (Don't push so hard that you push the ruler into the ground!)



The photo on the left shows the ruler just resting on the surface of the snow.



On the right, it has been pushed all the way into the snow.

b)

EITHER Read the depth of the snow level against the ruler.

OR press your thumb against the ruler where the top of the snow ends and hold it there while you pull the ruler out - read the mark next to your thumb:



c) Write down the depth in millimetres.

If your ruler is marked in centimetres, remember that one centimetre = 10 millimetres.

Date		Time		Depth of snow	mm
------	--	------	--	---------------	----

3. Use your measurement of the snow depth in mm to work out the size of the snow pit you need to dig.

You will need some A4-sized sheets of paper or card to mark out the area of snow pit that you will dig to measure the mass of snow. The number of sheets that you will need depends on the depth of the snow. Use this table to work out how many sheets you will need:

Depth of snow in millimetres	Number of A4 sheets needed	X
less than 20mm?	use 8 sheets	
20mm to 50mm?	use 4 sheets	
50mm to 100mm?	use 2 sheets	
more than 100mm?	use 1 sheet	

4. Digging out the snow pit.

a) Lay out the correct number of sheets of A4 paper or card on the surface of the snow, touching one another to make a neat rectangle. This defines the area of the snow to be dug up. Make a note of the number of sheets that you actually use.



b) Mark the outline of the area covered by the sheets by drawing in the snow, or dribbling food dye, until the complete rectangular area is clearly marked. Once you have marked the outline you can take away the sheets of paper/card.



Blue dye was used here to make it easier to see where to dig.



c) Use a flat shovel to carefully dig out ALL the snow from the area you have marked right down to the ground and put it into an empty bucket. Make sure the sides of the pit that you dig in this way are neat and vertical.

5. Measuring the amount of snow

a) When you have dug out all the snow, take the bucket with the snow in it somewhere warm and wait till the snow has all melted.



Waiting for the snow to melt.



The water is a bit blue because of the paint that was used to mark out the snow for digging.

b) Then

EITHER

pour the water from the melted snow into a measuring cylinder (if you have one) or a kitchen measuring jug, and write down the total volume of water in **millilitres**.



There was more than 1000 millilitres (one litre) of water here, so the measuring cylinder had to be filled more than once.

Volume of melted snow	ml
------------------------------	-----------

OR

Use a balance to weigh the water melted from the snow, and write down the total mass in **grams**. DON'T FORGET TO subtract the weight of the bucket or container you used to collect the snow.



Left: the container with the melted water was quite heavy, so needed to be put on bathroom scales to weigh it. Right: weighing the empty container.

Mass of melted snow	g
----------------------------	----------

6. Last but not least - snowball making

Now try to make a snowball with the snow and make a note of the following things:

a) Could you make a decent snowball?	Yes or No
b) If you squeeze your snowball, does any water come out?	Yes or No

7. Please send us your measurements.

Now that you have recorded all your results you are ready to tell Snow Lab about them. Use the form on the website to send them to us. Thank you.