

Igloo STEM Challenge

You will need:

- A large plastic tub/box
 - A stick
 - A shovel

Use the stick to draw a circle in the snow (the bigger the circle, the more snow you will need).

Pack snow into the tub until it is full and stamp it down with your foot. Carefully tip this upside-down. This is your first 'brick'.

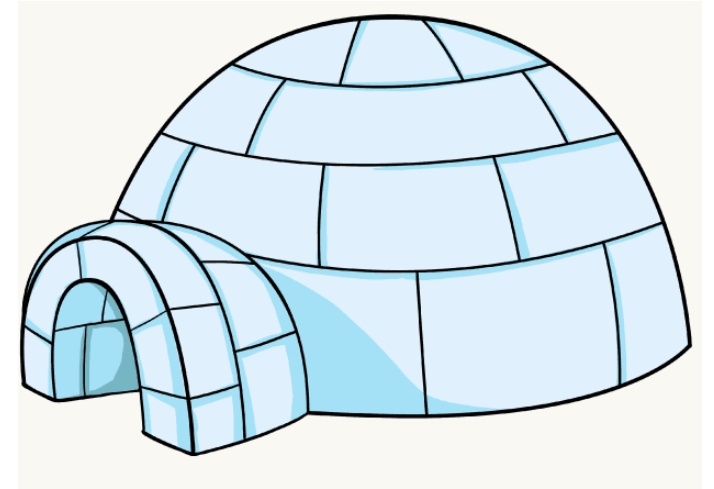
Next make a circle of bricks as the base of your igloo (leaving space for an entrance)

Build another layer of bricks on top of your base but have them slightly closer to the centre of the circle.

Repeat the above step until your igloo is nearly sealed at the top.

Place a brick on top to close your igloo.

Build an arch shape of bricks for an entrance.



Frozen Bubble Challenge

When the weather is very cold you can try to make frozen bubbles. You could use regular solution or make your own with water and washing up liquid. Use a straw to blow the bubble (be careful to blow and not suck to avoid getting bubbles in your mouth!).

What works best? More or less washing up liquid?

Bigger or smaller bubbles?



Blubber Glove Experiment

Arctic animals have blubber (body fat) to help them survive the sub-zero conditions...

You will need:

- Ice or snow
- Large bowl
- Ice cubes or snow
- Plastic food bag
- 'Blubber' to experiment with e.g., newspaper, cotton wool, flour etc.

1. Fill the bowl with water.
2. Add the ice cubes.
3. Wrap or cover your hand with your 'blubber'.
4. Place your hand and Blubber in the plastic bag.
5. Place your 'blubber glove' in the icy water.

What makes the best blubber and keeps your hand warmest?



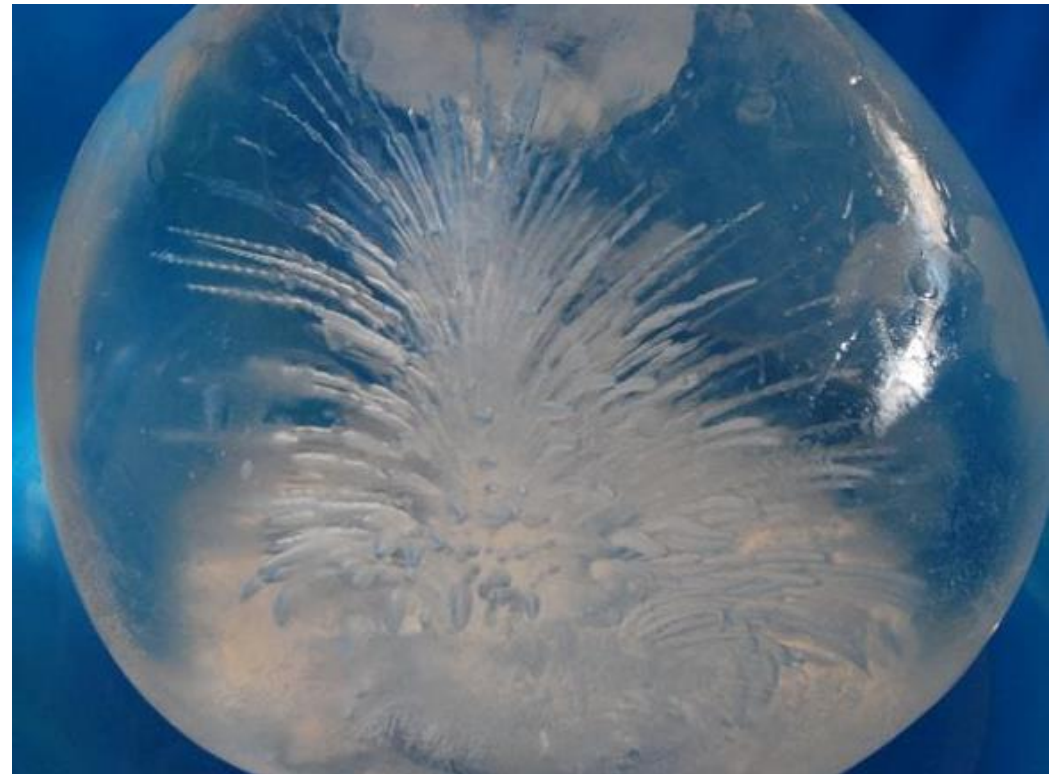
Frozen Balloons Experiment

Fill some balloons with water and leave in the freezer for two days (or outside if cold enough).

As water freezes (at 0°C and below) impurities come out as bubbles.

Bubbles scatter light and give a beautiful white opaque centre.

Opaque means see through but not transparent.



Frozen Balloons Experiment – Part 2

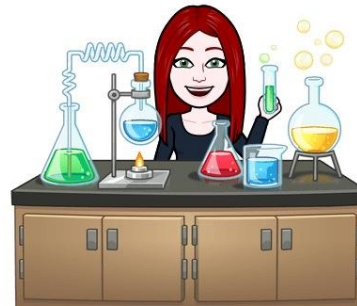
You Will Need:

- A frozen balloon
- Food colouring
- Salt

1. Take one of your frozen balloons. Sprinkle on some salt. Salt contains sodium and chlorine which dissolve ice.

2. Pour on some food colouring and watch it trickle down the watery paths made by the salt.

3. The coloured liquid will meander down the ice balloon like rivers do.



You will need:

- Large plastic cup
- Small plastic cup
- Tape
- Real or battery candle

Make an Ice Lantern



Put the small cup inside the large cup and tape it so the tops of the cups are flush with each other.

Carefully add water so that the water only goes into the large cup.

You will need to add stones or marbles to the small cup to stop the top popping up.

Fill with water until there is only a cm or two space at the top.

Put in freezer (or outside!) until Frozen solid.

Carefully remove the plastic cups (you may need scissors)

Place a candle in the lantern and enjoy! *Do NOT light a candle without a grown up present.*



Make an Ice Lantern – Part 2

To do more engineering and design, do the previous activity but experiment with materials you can include to make a design which will freeze in the water. What works well?

Why not try food colouring?

Or glitter?

