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Young Scientist
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SNOW & ICE

What's white, naturally-occurring, but not found in Singapore? If you guessed snow, you are right! Have you ever seen snow before?

How does snow form?

We know that as part of the water cycle, the top layer of water evaporates from oceans to form water vapour. The ocean is made up of saltwater. However, when saltwater evaporates, it leaves behind the salt, hence the water vapour is made of water without salt – freshwater.

When temperature is low, the water vapour forms tiny ice crystals. These ice crystals stick together and fall to the ground as snow. Hence, just like rain, snow is made of freshwater.



Think:

Why is the ocean salty?



What about icebergs?

If you have watched the movie Titanic, you will know what an iceberg is. Icebergs are large chunks of ice that are found near the North and South Poles. These blocks of ice broke off from glaciers. As glaciers are formed from many layers of packed snow, icebergs are therefore also made of freshwater, although they float in saltwater oceans.

Think:

Why does ice float on water?

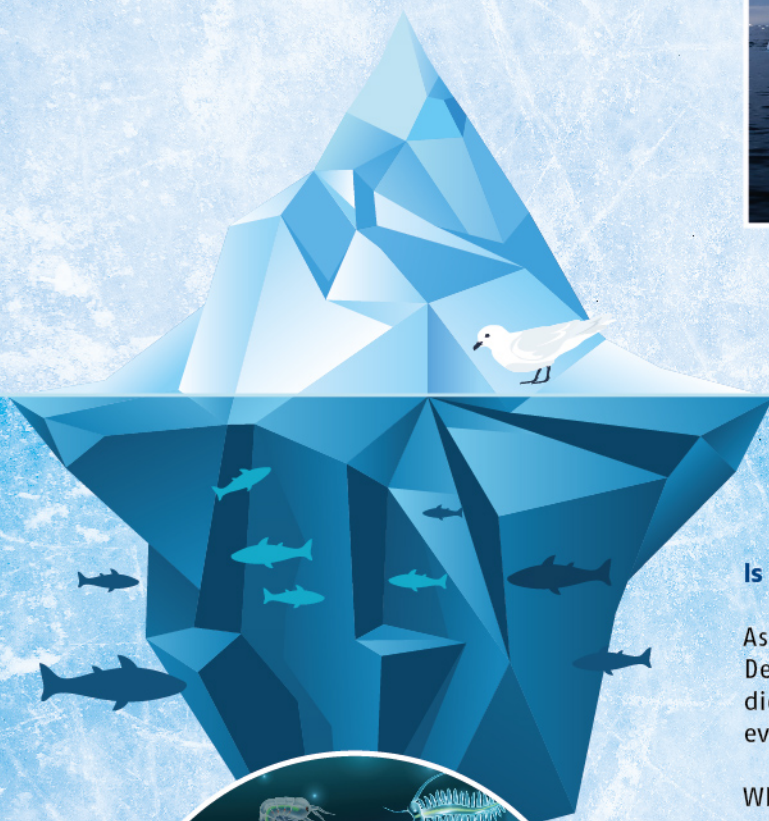


Is there life in icebergs?

As in the movie Titanic, icebergs can be very dangerous. Despite how scary they look, and how cold they seem, did you know that there are living things around, and even in, icebergs?

When the iceberg breaks off from the glacier, it carries nutrients within it. Nutrients are released into the water as the iceberg slowly melts into the ocean. Tiny living things in the ocean called plankton need these nutrients to grow, and thus are found near the melting iceberg. When many plankton gather near the iceberg, fish that eat these plankton are attracted toward the iceberg too. The young of some fish also hide in small holes in the icebergs, to hide from predators. Birds such as snow petrels land on icebergs to rest.

Even though they appear lifeless, icebergs can be quite dynamic, and abuzz with life!



Plankton

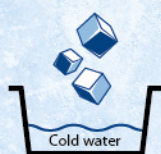


Ice and String Magic Trick

Try this cool trick at home and impress your family!

Materials needed:

- 1 plastic container
- Cold water
- 3 – 4 ice cubes
- A long piece of string, twine or yarn
- Salt



01

Fill the container with cold water and place the ice cubes in it.



02

Give the piece of string to your family members and ask them to use this string to lift the ice up, without touching the ice (they will find this quite impossible to do!).



03

Lay the string across the ice cubes and sprinkle some salt where the string touches the ice. Count to 10 slowly.



04

Lift one end of the string up – ta-dah! The ice cubes stay on the string!

Think:

How does this trick work?

We know that the melting point of ice is 0°C . Salt lowers this melting point. When salt was added, the parts of the ice that the salt touched melted faster than the rest of the ice.

As the ice bobbed up and down in the water, the salt got washed away, and the water re-froze around the string – this is why you were able to pick the ice up!

Think:

Will this trick work with sugar instead of salt? Try it out!