



HANDS-ON EXPERIMENTS

PRESSURE MELTING

Pressure Melting

When a rock falls and then rests on a glacier, its weight causes pressure to build up on the ice beneath it. This pressure causes the ice to melt, allowing the rock to sink into the glacier, with the melt water displaced up and around the rock.

As the pressure melting continues, the the rock slips further inside the ice. Above the rock, where there is no longer pressure being exerted, the melt water begins to refreeze, encompassing the rock entirely in ice.

This process of ice melting of ice due to pressure and then refreezing is called regelation.

1

A silicone loaf mould or similar
Water

Gloves to handle ice
2 weights (approximately 2kg each e.g. filled water bottles or bricks)

Thin metal wire
x1 baking sheet or tray to catch drips
Ice cubes
Stopwatch



2

INSTRUCTIONS

- Use the mould to make an ice block for each group of students and set it between two tables, bridging a small gap. Alternatively, make a scaffold using boxes and metre rulers.
- **Place the thin wire over the ice with a weight on each end so that they are dangling on either side of the block**
- Observe what happens to the wire and what happens to the ice. This begins to happen quickly, and after about 30 minutes you'll be able to lift the ice block using the wire.
- **Whilst the wire is passing through the block, try experimenting with the ice cubes by measuring melting times for them when left alone and when put under pressure.**

3

FURTHER INVESTIGATION

- What would happen if you attached heavier or lighter weights to the wire?
- **Try pressing two ice cubes together. What happens? Why?**
- What would happen if you put a weight directly on top of the ice?
- **Why did the ice block not break into 2 pieces?**



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VIDEOS FOR THIS RESOURCE AT:

INTRODUCTION:



Clickable Link:

<https://youtu.be/Ophn7kW-zEg>

CONCLUSION:



Clickable Link:

https://youtu.be/jgoe_FPHyek

