



# WHICH FROZEN LIQUID MELTS THE FASTEST?

## AIM

The aim of this investigation is to examine how long popular liquid types take to melt once frozen solid. We aim to find out how different liquids and their properties affect the time it takes for the frozen liquid to melt.

## HYPOTHESIS

We hypothesise that the water will melt the fastest. We know that certain properties such as dissolved sugar or salt raises the melting point because of the fat content. Therefore, we predict that the orange juice will melt the slowest due to the sugar found in oranges, and water will melt the quickest since there are no dissolved solids found in tap water.

## MATERIALS

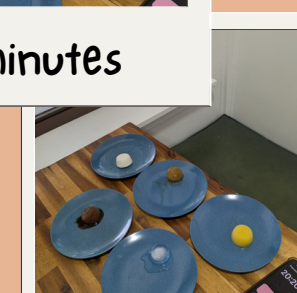
- Coca cola (classic)
- Orange juice (pulp free)
- Peppermint tea (cooled)
- Tap water
- Milk (full cream)
- Freezer
- Ice cube tray
- Plastic plates
- Timer

## METHOD

1. Pour 20mL of each liquid into the ice cube tray
2. Put ice cube tray in freezer and leave it in the freezer overnight to freeze
3. Once frozen, put all ice cubes on separate plates
4. Time how long it takes for all of the ice cubes to melt completely



45 minutes



20 minutes

## DISCUSSION

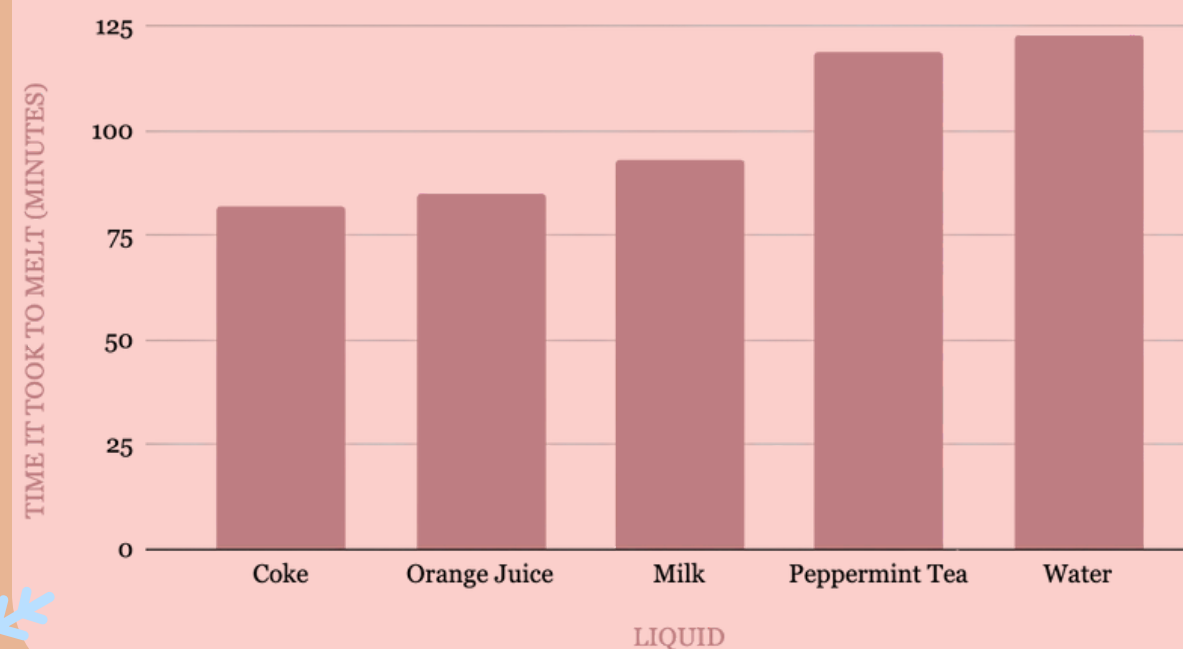
In the first hour, it looked like our hypothesis was going to be correct, but as the experiment progressed, the different liquids started to speed up and slow down the speed that they melted. The water melted at a slow, but steady rate over the whole experiment, taking the longest time of 2:03:30. Whereas we noticed other liquids such as the milk melted very slowly to begin with, but then rapidly sped up the process later. The melting was a long process, with a 40 minute range between the Coke and the water. In the end, it was very close between the water and the peppermint tea, and there were very few minutes between the Coke and the orange juice.

## CONCLUSION

From our experiment, we found that the water took the longest to melt. The different properties from the different liquids changed the speed that they melted, and we successfully found the liquid that melts the quickest. We think that the Coca Cola melted the fastest since it was carbonated, and the water melted the slowest because of the insulating boundary layer that we found out about after we had written our hypothesis.

Which Frozen Liquid Melts the Fastest?

## GRAPH



## LIMITATIONS

Some of our limitations were how long it took. We used plastic plates, but probably should have used metal plates to make the experiment go faster. Another limitation is how we found it difficult to make sure that all the ice cubes were out of the freezer for the same amount of time before we started timing.