Unit focus: Chocolate
Text focus: Science Experiment (690L)

STAGE 6

MELTING CHOCOLATE

Have you ever wondered what the different percentages mean on the bars of chocolate in the supermarket aisle? What exactly does 75% cocoa mean? Simply put, it tells you just how much cocoa is in the mixture and this affects the taste of the chocolate. The higher the amount of cocoa, the darker and more bitter the chocolate will be.

That might not be the only impact it has on the chocolate. This experiment is going to try to prove the following statement: Chocolate with more cocoa melts at a higher temperature than chocolate with less cocoa.

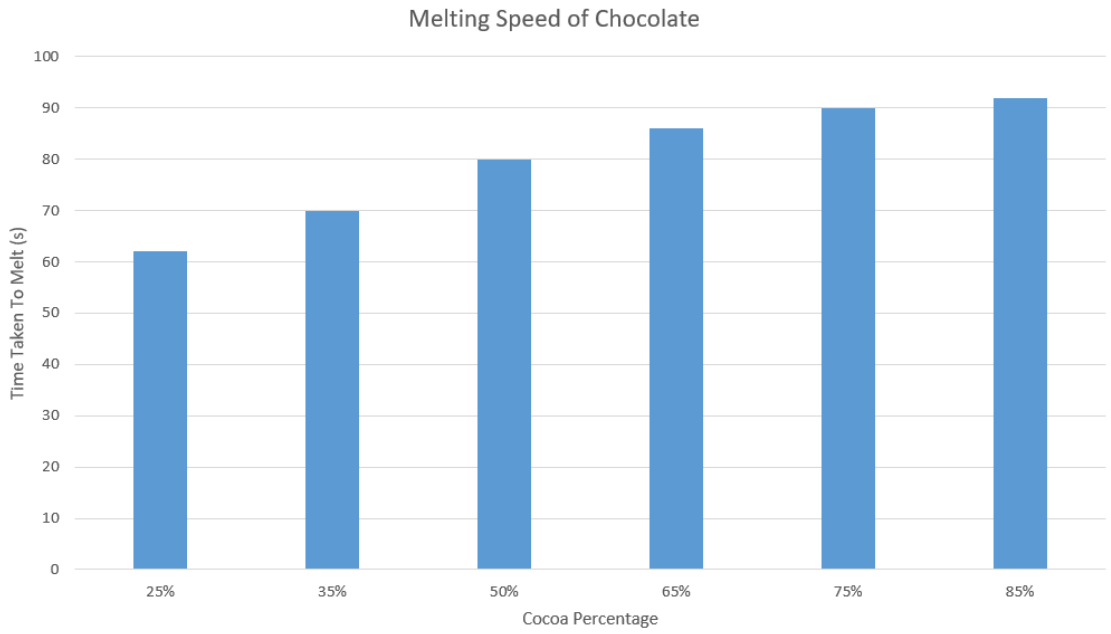
What you will need

- Bars of chocolate with different amounts of cocoa (milk chocolate is roughly 25% cocoa)
- A bowl of hot water (get an adult to help you with this)
- A smaller bowl that rests just inside the larger bowl
- A stopwatch
- A wooden spoon

Method

1. Place the smaller bowl onto the larger bowl. The hot water shouldn't be touching the bottom of the smaller bowl. (This is called a bain-marie)
2. Break each bar of chocolate into cubes and separate 15g of each type.
3. Place the cubes of the first type of chocolate into the small bowl. Start your stopwatch.
4. As the chocolate starts to melt, keep a close eye on any lumps. When you think all of the chocolate has melted, use the wooden spoon to double-check. Stop the stopwatch.
5. Reheat the water and repeat steps 3-4 with your other chocolates. Record the time for each one.

Results



Conclusion

As you can see from the graph, the chocolate with the higher cocoa content took longer to melt. This shows they have a higher melting point than chocolate with a lower percentage of cocoa. Use some of the extra chocolate to test this in other ways: you might find that darker chocolate only melts when you put it in your mouth, whereas milk chocolate melts in your hands.

RETRIEVAL FOCUS

1. What is the name given to two bowls that use water to heat the contents?
2. Which cocoa percentage took the second longest to melt?
3. What effect does more cocoa have on the taste of chocolate?
4. Milk chocolate has more cocoa than dark chocolate: true or false?
5. How much of each chocolate does the experiment need?

VIPERS QUESTIONS

V Find a word or phrase that means the same as “has an effect”.

I Why is it important to get an adult to help with hot water?

S What should you do once you think the chocolate has melted?

P Chocolate with less cocoa has more cocoa butter in it. What does this experiment tell you about cocoa butter’s melting temperature? Why?

Answers:

1. Bain marie
2. 75%
3. It makes it more bitter
4. False
5. 15g

V: Impact

I: It is dangerous

S: Check with the wooden spoon

P: Cocoa butter melts at a lower temperature than cocoa. We know this because the chocolate with more cocoa butter melted more quickly than chocolate with more cocoa