

Magic Chocolate

On SCOPE's More Scientists at Work episode, Julia made runny chocolate topping that turns rock hard on ice-cream! Here's how you can do it at home:



What you need:

100g cooking chocolate
 100g coconut butter (usually sold as Cophera at the supermarket)
 Ice-cream
 Two microwave-safe bowls
 A microwave
 A small bowl/container for mixing
 Some spoons

What to do:

1. Weigh out 100g of chocolate.
2. Break the chocolate into small pieces and place into a microwave-safe bowl.
3. Weigh out 100g of coconut butter and place into a microwave-safe bowl.
4. Melt the chocolate in the microwave for 15 seconds.
5. Stir the chocolate.
6. Repeat steps 4 and 5 until the chocolate is melted.
7. Melt the coconut butter in the microwave for 15 seconds.
8. Stir the coconut butter.
9. Repeat steps 7 and 8 until the coconut butter is melted.
10. Mix together the melted coconut butter and the melted chocolate.
11. Scoop out some ice-cream into a bowl.
12. Pour the chocolate topping over the ice-cream.



Watch as the chocolate topping, almost instantly, hardens on top of the ice-cream.

13. Try changing the ratios of ingredients and see how it affects the consistency and taste of the chocolate topping! E.g. instead of $\frac{1}{2}$ chocolate and $\frac{1}{2}$ coconut butter, try $\frac{3}{4}$ chocolate and $\frac{1}{4}$ coconut butter or $\frac{1}{4}$ chocolate and $\frac{3}{4}$ coconut butter.

What's happening?

The chocolate topping goes hard and crunchy because of the coconut butter – it changes the properties of the chocolate.

Coconut butter is not the sort of stuff that you spread on your toast – it is solid coconut oil. Coconut oil is squeezed out of the fleshy white part of a coconut. Coconut butter is made up of a mix of molecules called fatty acids and has a melting point between 22 and 26 degrees Celsius. This means it is a liquid at room temperature, and a solid at colder temperatures, like in the fridge.

Chocolate, on the other hand has a much higher melting point. This means it melts in your warm mouth but will stay a solid at room temperature.

When the coconut butter is mixed with the chocolate, the coconut butter changes the melting point of the chocolate. So the chocolate becomes a liquid at room temperature, and sets when it touches the ice-cream.

Yum!