BIG QUESTION: Does the shape of food influence taste?

EXPERIMENTAL PROCEDURE

1. Set the scene by telling the story.
2. Ask children if they have any ideas about how or why the chocolate might taste different since the shape of the chunks has been changed to give the rectangular shapes rounded edges. Gather responses and discuss possibilities.
3. Remind children about crossmodal responses - when one sense affects another sense. Refer to Module A3 - how colour can affect what we taste or Module D1 - how sound can affect mouthfeel.
4. ASK: Do you think that Champion Choc's problem could be linked to cross-modal response? If so, which senses could be affecting another sense?
5. In this activity, they are going to be research scientists and carry out their own crossmodal investigation into the effects of food shape on taste.
6. Select 2 different shaped chocolate moulds. Shape 1 should be smooth and round and Shape 2 should be angular (square, rectangle, triangle, star). The children should make their own chocolates by pouring melted chocolate into two different shaped moulds and leave to set.
7. In small groups children should set up their own comparative or fair tests to find out more about how the shape of the chocolate can affect variables such as taste, flavour or the speed of the chocolate melting in the mouth. They should taste the chocolates presented on matching, white plateware.
8. Each group will need to think carefully about what data they should collect and how best to record and present this. They could devise a numerical scale or short questionnaire to include or expand on the following questions:
9. ASK: How did each chocolate taste?
10. ASK:Which was your favourite taste?
11. ASK: Did the chocolates taste the same?
12. ASK: If the chocolates tasted different, how did they taste different?
13. ASK: Was one chocolate sweeter than the other? If so which one?
14. ASK: Which chocolate melted more quickly in your mouth?
15. It is important to state that there are no right or wrong answers in this activity. However, most people do make consistent matches between shape and their experience of taste and mouthfeel, associating roundness with 'melt in the mouth' and sweeter taste, compared with a slower melt rate and increased bitterness of angular shapes
16. Children should interpret the results from their own investigations and write a letter or email to the scientists at 'Champion Chocs,' advising them how to improve sales of their most popular chocolate bar again.

FLAVOUR SENSENATION SCIENCE:

Scientists have actually found significant differences among ten different chocolate shapes in terms of smoothness, aftertaste and how quickly they melt. They discovered that a round shape was one of the best for melting and smoothness but that the faster melting rate could mean that different flavour molecules are released more quickly in your mouth, affecting flavour perception. It does seem that, by changing only the shape of the chocolate, you can actually be affecting the taste. In addition to the melting rate, research suggests that we think that angular shapes taste more sour or bitter than round shapes which we perceive as sweeter. Remind children about the Kiki Bouba effect.

WHAT NEXT?

The generalisation that sweetness is a rounder shape while angular shapes are bitter or sour has now been documented across a range of food and drink products. Children could explore this further by investigating other foods and shapes, perhaps using cookie cutters to create different shaped biscuits or sandwiches. They might wish to produce a poster, advert or newspaper report to present their findings to an invited audience.

SAFETY

When melting chocolate, follow safety guidelines for heating and working with hot substances.
When taste testing is taking place, you must ensure you have up to date information relating to any food allergies children may have and take appropriate precautions.