

BIG QUESTION: What is Chemesthesis?

1. **Set the scene by telling the story.**
2. **ASK:** Have you ever eaten hot and spicy food?
3. **ASK:** How did it feel?
4. **ASK:** Why do you think it felt like that?
5. **ASK:** Did you like the sensation? If not, what did you do to stop it?
6. **Tell the children that they are going to take part in a taste activity to test their pain threshold, not with a hot chilli, but by sipping a fizzy drink!**
7. **Ask the children to sip some of the fizzy drink, but not to swallow it! Instead, they must hold the drink in their mouths, so that it covers the tips of their tongues, for as long as they can!**
8. **ASK:** How long do you think that you can keep the fizzy drink on your tongue?
9. **Allow children to try this activity and see how long it takes before the fizzy drink hurts their tongue.**
10. **ASK:** What other foods can you think of that are known to cause sensations such as tingling, stinging, burning, cooling and irritation?
11. **This is called “chemesthesis” caused by certain chemicals in foods.**
12. **The children could test other foods that cause a chemesthetic sensation such as menthol sweets, popping candy, raw onion, Tabasco. Tell them to describe the effect of each food, for example, does it tingle? Is it a cooling sensation or a burning sensation?**
13. **The sensation isn’t always felt on the tongue. We can sometimes react with running noses, eyes or a burning tongue. Eating chilli or slicing raw onions causes this reaction.**
14. **ASK:** How many of you have cried when chopping onions?
15. **Chemesthetic sensations can be felt in the mouth , nose, eyes and on the surface of our skin**

EXPERIMENTAL PROCEDURE

SAFETY

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. Children should be warned about the dangers of tasting very hot, spicy food and they should not attempt to break any hot food eating world records at home!

WORKING SCIENTIFICALLY

- Planning different types of enquiries to answer questions
- Taking measurements
- Recording data and results of increasing complexity
- Using test results to make predictions
- Reporting and presenting findings from enquiries
- Identifying scientific evidence that has been used to support or refute ideas or arguments

What Next?

Children could use secondary sources to research other well-known chemesthetic sensations. Why, for example, do we cry when we chop an onion? Perhaps they could explore different methods of avoiding the tears, some of which the children, in small groups, could try under supervision.

They could try cutting onions while:

- Getting someone to hold your nose
- Putting a slice of bread in your mouth so that it protrudes out further than your nose
 - Wearing swimming goggles
 - Cutting the onions under water
- Breathing through your mouth and sticking your tongue out

Which methods work and which don't?

The children may find that the methods that involve avoiding smelling the acid enzyme released into the air to be the most effective method of preventing tears