

Activity - are you a 'supertaster'?

What you'll need:

- blue food colouring
- a tongue
- cotton bud
- reinforcement rings for hole-punched paper
- a mirror or a friend

What to do:

Use the cotton bud to place a few drops of blue food colouring on your tongue

- Place the reinforcement ring on your tongue
- Count the pink dots inside the reinforcement ring

What you may notice:

Blue dye doesn't stick to fungiform papillae, those tiny red bumps on your tongue. If your tongue doesn't get very blue, you are probably a supertaster! On average, supertasters have over 30 papillae in that area!

The science behind it all:

Individual taste isn't simply about the number of papillae, it is also involves our taste buds' ability to detect different molecules.

Taste is the brain's response to chemical stimuli called tastants, dissolved molecules and ions from food. Humans detect taste with taste receptor cells, which are clustered into groups of 50-150 in taste buds. Each taste cell contains a receptor, which admits a tastant and sends signals to the brain that give rise to a sensory response (taste sensation). Taste buds are situated on fungiform papillae.

Generally, we have the ability to taste the five different tastes

(salt, sour, sweet, bitter and umami) but there are many different chemicals that elicit these tastes. For example, humans carry a range of 20-40 genes dedicated to bitter taste receptors. Contrary to diagrams which show individual taste sensations split up into separate regions of the tongue, the cells within a taste bud are representative of all five taste sensations.

The more papillae you have, the more taste buds you have, the more taste receptors you have and thus, the greater your sensitivity to tastants. As a result, things will taste more intense.

Beyond the science:

There is an evolutionary reason for this. Our ability to taste and smell has evolved as a system that provides information about the nutrient content and potential dangers of food. Sweet taste signals sugars (carbohydrates), a source of energy and major nutrient requirement. Bitter taste is a warning for something potentially poisonous, especially in plants, which often produce toxic compounds to protect themselves against being eaten by animals.

Nomadic groups would have come into contact with lots of different plants and over time, developed a variety of receptors. Different evolutionary pressures in different parts of the world would have dictated what receptors people developed. More women are thought to be supertasters than men, perhaps an evolutionary adaptation to protect a foetus from poisonous food during pregnancy.

