Sensory science

Using our senses

A range of senses are used when eating food:

- sight;
- smell;

taste:





touch. •

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A combination of these senses helps to evaluate a food.

Appearance The size, shape, colour, temperature and surface texture all play an important part in helping to determine first reactions to a food.	Taste There are five basic tastes: • bitter; • salt; • sour; • sweet; • umami.	
Smell (odour or aroma) The nose detects volatile aromas released from food. An odour may be described by association with a particular food, e.g. herby, cheesy, fishy,	Touch Food texture is the way food is felt by the fingertips, tongue, teeth and palate. When food is placed in the mouth, the	

surface of the tongue reacts to its surface known as mouthfeel.

Hearing (sound)

produce flavour.

The sounds of food being prepared, cooked, served and eaten all help to influence our preferences. The sound of eating food can alter our perception of how fresh a food is, e.g. crunchy carrots.

The intensity can also be

recorded. Odour and

taste work together to

Taste receptors

Our tongues are covered with taste buds, which are designed to sense chemicals in the mouth. Most taste buds are located in the top outer edges of the tongue, but there are also receptors at the back of the tongue as well as on the walls of the mouth and at the back of the throat. As we chew food, molecules mix with saliva, enter taste pores and interact with gustatory hairs, also known as taste receptors. This triggers nerve impulses that are transmitted to the brain.

	Tasting vocabulary (sensory			
	attributes)			
Sight	Bubbling	Flaky	Opaque	
	Caramelised	Firm	Smooth	
	Clear	Heavy	Solid	
	Coarse	lcy	Steaming	
	Crumbly	Juicy	Sticky	
	Dry	Moist	Thick	
Smell	Acidic	Fresh	Spicy	
	Aromatic	Meaty	Strong	
	Bland	Mild	Sweet	
	Citrus	Pungent	Tart	
	Earthy	Savoury	Weak	
	Fragrant	Smoky	Zesty	
-	Brittle	Crisp	Рор	
DUI	Crackle	Crunch	Sizzle	
ŝõ				
0)				
Taste	Bitter	Rich	Strong	
	Bland	Salty	Sweet	
	Floury	Savoury	Tangy	
	Hot	Smoky	lart	
	Mild	Sour	Umami	
	Piquant	Spicy	Zesty	
Touch	Brittle	Dry	Short	
	Bubbly	Gooey	Soft	
	Chewy	Granular	Solid	
	Close	Greasy	Tacky	
	Cloying	MOIST	lender	
•	Coarse	Open	waxy	

Sensory evaluation and tests

Sensory evaluation analyses and measures human responses to food and drink, e.g. appearance, touch, odour, texture, temperature and taste. In order to obtain reliable results, sensory evaluation tests should be set up in a controlled way to ensure fair testing, e.g. no distracting colours, noise or smells; same size portions; coded samples, and water to drink.

Preference tests - these types of tests supply information about people's likes and dislikes of a product. They are not intended to evaluate specific characteristics, such as crunchiness or smoothness. They are subjective tests and include hedonic, paired comparison and scoring.

Discrimination tests - these types of tests aim to evaluate specific attributes, i.e. characteristics of products (crunchiness). They are objective tests and include triangle, duo trio, ranking and paired comparison.



Olfactory system

This is the sensory system used for olfaction, or the sense of smell. As we breathe in, the olfactory receptor cells are stimulated by odours and the olfactory membrane sends neural messages up the olfactory nerve to the brain.



is and other sensitive skin texture. This sensation is



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Key terms

Fair testing: Ensuring that sensory tests obtain reliable results. Food texture: The way food is felt by the fingertips, tongue,

teeth and palate. Olfactory system: The sensory system used for olfaction, or the sense of smell.

Senses: Sight, smell, hearing, taste and touch are all used when eating food and drink.

Sensory attributes: Words used to describe the appearance. odour, taste and texture of a food product

Sensory evaluation: Analyses and measures human responses to food and drink.

Intensity

Foods may be described by association, e.g. meaty, minty or fruity.

The intensity (low, medium or high) can also be recorded, e.g. garlicky or salty.

Tasks

- 1. Write a guide to conducting sensory evaluation tests that are fair and reliable.
- 2. Research umami and make a dish that is rich in the taste of umami.

To find out more, go to: https://bit.ly/2Bzsqq5