Why are sweets so sweet?

From the sweeties.net wiki

Sweets are sweet for an obvious reason: most of them are made almost entirely of sugar. But the reason sugar tastes so good lies in our own bodies. We have receptors on our tongues built to detect sweetness, and we evolved to like what they find.

Mostly sugar

Many sweets are close to pure sugar. Most hard boiled sweets are nearly 100 per cent sugar by weight, with just a little flavour and colour. Jelly sweets are made mostly of sugar and glucose syrup, and chews and toffees are boiled sugar with fat: see how much sugar is in sweets?

How we taste sweetness

Sweetness is detected by receptors on the taste buds. Two kinds of sweet receptor, called T1R2 and T1R3, working together, account for all sweet sensing in humans and animals, and at least two different variants must be activated for the brain to register sweetness. Sugars fit these receptors, and so do many other substances that mimic sugar, which is how artificial sweeteners such as saccharin, sucralose and aspartame can taste sweet without being sugar.

Why we like it

Sweetness is usually felt as a pleasurable taste, and there is a good reason. Our sense of taste helps us judge what is good or bad to eat: sweetness helps identify energy rich foods, while bitterness warns of poisons. Sweet taste signals carbohydrates, which are packed with energy, and the human body evolved to seek out high calorie foods. Sweets deliver that signal in concentrated form.

Not all sugars are equally sweet

Scientists rate sweetness against sucrose, ordinary table sugar, which is given a score of 1.

- **Fructose**, the sugar in fruit, is the sweetest of all natural sugars, reported at 1.2 to 1.8 times as sweet as sucrose.
- **Dextrose**, or glucose, is about 80 per cent as sweet as sucrose: see what is dextrose in sweets?
- **Lactose**, milk sugar, has a sweetness index of about 0.3.
- **Glucose syrups** vary: a typical syrup is about half as sweet as sugar.

Sweet makers mix different sugars and syrups to control both sweetness and texture.

Beyond sugar

Some sweeteners are far sweeter than any sugar. Acesulfame potassium is about 200 times sweeter than sucrose, as sweet as aspartame, and only a tiny amount is needed. Sugar alcohols, used in sugar free sweets, are usually less sweet than sugar and are often mixed with intense sweeteners: see what are sugar free sweets made with?

Sweet and sour

Many sweets are not only sweet. Acids such as citric and malic acid are added to give a sharp flavour, and sour sweets can be coated in acid sugar. The contrast between sweet and sour is part of the fun: see why do sour sweets make your mouth pucker?