



## Does science have the answer?

*Voiced by Materials scientist Mark Miodownik*

Seventy years ago, the British author George Orwell wrote an essay called 'A Nice Cup of Tea'.

He famously listed 11 golden rules for tea-making, including what he considered "one of the most controversial points of all" ... when to add the milk!

Orwell argued for putting the milk in last, because if you put it in first you might add too much.

Case closed for George. But is it really that straightforward?

When it comes to making your tea in a teapot, the Royal Society of Chemistry disagrees. Its study concluded that milk should be added to the cup first.

It argued that when milk is poured into hot tea, the high temperature could affect its taste.

As droplets of milk fall down through the tea, their proteins degrade as they're heated above 75°C

This is similar to what happens in UHT milk and that's why it doesn't taste like the fresh stuff.

Is that case closed for the chemists? Nonsense says the Institute of Physics, which claims it has more to do with the cup.

Tea was supposed to be drunk from fine porcelain, which could withstand high temperatures. But as most people could only afford cheap china, they had to pour the milk in first to prevent their cups from cracking.

A victory for physics? Maybe... but hang on, what if you're skipping the teapot and brewing your tea straight into a mug, as most of us do?

Scientists at University College London suggest that, in this case, it's best to add the milk last, so you don't interfere with the brewing process.

Compounds that make black tea taste delicious need to be brewed at high temperatures, so you want to start with water that's just been boiled.

But if you add hot water to cold milk and a tea bag, this lowers the temperature considerably and stops those flavours from being released.

So milk first if using a teapot, but last if you're using a cup.

A small consolation, perhaps, for George Orwell.