

The Tallest Jelly Challenge



This challenge is loads of fun and incorporates subtle elements of physics, chemistry, food science and engineering, read on and get creating!

It is REALLY difficult to make a jelly more than 10cm tall due to the weak gel strength. Try it and see for yourself. To make it taller you either need to increase the gel strength (in this competition that's cheating) or give the jelly structure using edible materials such as fruit, vegetables, sponges or pasta. Let your imagination run wild!

Challenge Rules

1. The jelly must be made-up following the directions on the pack (e.g. diluted to the correct strength!)
2. The finished jelly must be free-standing.
3. Height should be measured 10 minutes after unmoulding
4. Everything used in construction **must be edible** and YOU should be prepared to eat any part of it!
5. No frozen jellies.



...notice how the jelly collapses after the mould is removed.

We would love to see proof of your achievements - post a picture of your jelly with a ruler beside it so we can see how tall it is on the Purplemash blog so everyone can see it. You could tell us what you used to give it some structure.


🍮 Wobbly Jelly facts 🍮


You are never too old to enjoy jelly. Half the fun lies in the spectacle: a gently wobbling pudding makes any table more exciting.

🍮 Jelly was first eaten by the Egyptians


🍮 The gelling agent used in most jellies is gelatin and is sourced from animals. Before leaf gelatine was invented shaved hart's (young deer's) horns and the swim bladders of fish called sturgeon were used to make jelly.

🍮 Jelly used to be a food that only the rich could afford. It was hard work to make, exotic fruit was expensive and there were no refrigerators.


 In the past savoury jellies were just as popular as sweet jellies. Apparently Bompas & Parr have even made zebra and crocodile jelly.

 Some fruits like pineapple won't set as jellies as they contain enzymes that break down the protein bonds. Others like blackberry and strawberry make wonderful jellies.

 Gelatin the main gelling agent for jelly was used as a blood plasma substitute during World War II.

 In 1997 the Army's Logistics Corp helped to make the world's biggest jelly at Blackpool Zoo. The jelly was almost one metre tall by seven metres wide and took about 12 hours to set with a blast chiller.

 If you eat too much jelly it can be a mild laxative!

 On March 17, 1993, technicians at St. Jerome hospital in Batavia tested a bowl of lime jelly with an EEG machine and confirmed the earlier testing by Dr. Adrian Upton that a bowl of wobbling jelly has brain waves identical to those of adult men and women.

 Jelly doesn't wobble underwater

Wobbly Science

What is jelly made of?

- Water - Jelly is mainly water
- Gelatin - comes from boiling animal bones and skin, which extracts an animal protein called collagen
- Sugar
- Flavours
- Colours
- Preservatives - citric acid, acidity regulator (sodium citrate), acetic acid

Why does jelly set?

The key to jelly setting is down to the protein collagen! About 25% of the protein in your body is collagen which is made of three protein fibres twisted round each other - triple helix.

Collagen in animal skin and bones is broken down by heat and treatment with acids and alkalis. Bonds between collagen molecules (intermolecular bonds), bonds in the molecules (intramolecular bonds) and hydrogen bonds are all broken down, making gelatin.

When protein loses its shape, it denatures. When the gelatin is heated and mixed with water the protein fibres come apart and unravel. As it cools, they coil up again and intertwine trapping the water molecules between them. This mixture of water molecules spread evenly in a collagen matrix is known as a hydrocolloid.

The concentration of gelatin needs to be about 1% to form jelly. The strength of a gelatin-based gel is its bloom strength and can be measured with a penetrometer or gelometer.

Jelly has a melting temperature below 35°C. Our body has a temperature around 37°C.

This means jelly has that perfect melt in the mouth sensation releasing the flavour trapped in the jelly.

- Gelatin has many uses apart from jelly - in confectionery, yoghurt and cheese, pharmaceuticals, cosmetics, lighting and photography
- Vegetarian gelatin is made from seaweed, pectin or konnyaku, and fish gelatin has been developed for Muslim and Jewish diets.
- Gelatin is used to stick the layers together in Liquorice Allsorts
- Gelatin was used to harden paper
- Blocks of gelatin are used to test firearms as a substitute for muscle
- Paintball pellets shells are made from gelatin
- Gelatin is used to bind the heads of matches together