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# Math that will help you as an adult: From baking a cake to asking for a raise

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The prime minister, Rishi Sunak, has proposed that school pupils should continue learning maths until 18 in order to obtain the numeracy skills needed in careers and everyday adult life. This proposal may be useful to current teenagers—but what about those of us who have already started grappling with adult life, and may feel anxious every time we encounter

numbers?

[Millions of adults](link) in the UK [struggle with basic arithmetic](link). Many suffer from a real phobia—[mathematics anxiety](link)—of numbers, calculations, and even the word "math".

Buy there are many times in our [daily life](link) where knowing some math can be helpful to make [good decisions](link). Here are just a few examples to get you started using math more confidently.

# 1. Use ratios to adapt a recipe

You've found a great recipe in a cookbook that you want to try—but the recipe serves four, and you're only cooking for three and don't want to use extra ingredients. Ratios can help you work it out. This means dividing something up into parts. Where the recipe calls for four parts of something, you only need three. Mathematically, you can say that what you need compared to the recipe is on a 3:4 ratio. Or, you could use the fraction ¾; the mathematics to solve it is the same.

If the recipe calls for 120g of flour, you know that that's to serve four. To find one part, divide 120 by four. Use a calculator—no problem. One part is 30g of flour. Then multiply by the three people you're cooking for. This gives you 90g of flour for your recipe.

If the recipe said six teaspoons of oil, how much oil would you need? Divide it by four, which gives you one and a half.

You then need three lots of one and a half teaspoons—that's four and a half teaspoons of oil for your [recipe](link).

## 2. Understand averages to see if you need raise

In 2021, the average yearly earnings of people working full time in the UK was £38,131. How do we make sense of this number?

There are different ways of working out an average. In this case, this figure is a type of average known as the mean. It was calculated by adding up all the earnings of all the people working full time, and then dividing that vast number by the number of people. But it doesn't actually tell us how common it is to earn this amount.

This number could be reached if most people earn around £38,131. But it could also be reached if just a few people earned huge amounts and the rest earned very little. The mean could be the same.

Another way of understanding averages is to use the median. This essentially means ordering all the people in a line from the one that earns the least to the one that earns most, and picking the one in the middle. Their earnings would be the median. This is more meaningful, because it means that just a few people earning much more than others don't skew the average. It is the notion used by the Office of National Statistics to talk about "average earnings".

The median earning for full-time workers in 2021 in the UK was £31,285. If you earn much less than the mean salary for your industry, this doesn't necessarily tell you a huge deal, because it could also include the earnings of CEOs. But if you earn a lot less than the median, it could be worth figuring out why.

## 3. Use mental division at a restaurant

Having calculators on our phones can make splitting the bill at a restaurant easy, and there's no shame in using one. But there may be times when your phone is lost at the bottom of a bag, or out of battery. Being able to do the maths in your head is a great skill to have.

The best way to do quick division is to develop your own methods to make it easier. This could involve rounding the figure up or down to a number that is easy to split by the number of people at your table.

Imagine you have to split a £92 bill between four people: 92 is nearly 100, and we know that 100 divided by four is 25. But 92 is eight less than 100, so we need to take that eight off the bill. £8 divided by four people is £2 each less per person. So the bill for each person is £25 minus £2—£23 each.

Someone else might prefer to round the £92 down to another number that is easy to divide by four: £80. This makes £20 each. There's then £12 left on the total to divide up between four. This means an extra £3 each, so £23 for each to pay.

## Work out a route for a hike

Perhaps you're planning a trip with some friends, and it involves a sightseeing walk through a city or a countryside hike. You want to plan a route that suits everybody and won't leave you stranded and far from your destination when it gets dark. Maths can help you.

More than a century ago, a Scottish mountaineer devised a formula called Naismith's rule. It says that when planning a route, allow one hour for each 5km (three miles) you will walk, and, if you're going uphill, add ten minutes for each 100m (300 feet) you climb. So if your planned route is a 15km hike with 600m of climbing, this would take you three hours plus one extra hour: four hours in total.

Once you've worked that out, another mathematical skill can come in useful: estimation. Perhaps your walk will be more of an amble—so add on a bit of time. You're going to stop for lunch, so an hour to eat. You might end up giving yourself about six hours to complete your walk, and

now can figure out what might be a good time to set off.

Mathematics is there to help you. With the right mindset, [everybody can learn mathematics](#).

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