DOWN FOR THE COUNT

TEACHING CHILDREN THE CONCRETE WORLD OF GEOGRAPHY MAY BE A BETTER WAY FOR THEM TO UNDERSTAND MATHEMATICS, SAYS **ALISTAIR MACLENAN**

Teaching children any subject that doesn't interest them is one of the hardest things in the world to do well. Brilliant teachers are brilliant because they are able to instil that crucial curiosity to know more that is the key to a student wanting to learn.

I had first-hand experience of the opposite reaction to this recently when I showed my 10-year-old how to solve a mathematical equation. We worked through adding and subtracting on both sides of the equality until x stood magnificently alone and we discovered that it equalled nine.

If you have never heard a child say 'wow' in a way that means he would preferred to have spent the last 10 minutes standing in the garden watching a tree branch growing, you really should try it. I believe the modern phrase is that it 'keeps you grounded'.

All abstract subjects are hard to grasp, mathematics especially so – the old joke of when a student was asked to 'find x', she replied with 'there it is', is old because it has no doubt happened time after time. 'Seeing' the answer is much simpler if it exists within our realm of understanding. It's very hard to imagine the result.

This is further exacerbated when mathematics moves from the three dimensions – length, width and depth – of our everyday experience into a realm that would require a very long lunch to understand. During my student days, I remember thinking Lagrange was a man I'd like to meet. And very possibly slap.

One of Europe 2020's goals is to reduce the share of early leavers of education and training to less than 10%. I'd have thought a key to achieving that goal is to engage young minds as soon as you can and show them how maths can be meaningful to them.

DATA – OR, MORE ACCURATELY, NUMBERS – IS THE LIFE-BLOOD OF GEOGRAPHY

Geography means something to everyone. 'Knowing where you are' is a simple phrase, but it hides a vast array of mathematical ideas and calculations. You can't be somewhere without that being relative to somewhere else. That introduces the idea of an origin and your distance from it in two – and if you're considering height – three dimensions. Wouldn't it be more fun to be in the playground trying to find Flora than x?

But what about moving beyond the three dimensions that apparently constrain geography? Well, they don't. One of the most impactful applications of geography is to be able to show the rate of change – a Newtonian concept – experienced by the planet. That may be deforestation, urban sprawl or the depletion of natural resources, to name a very few phenomena.

Location, transport, ecology, human movement and every other aspect of what would be grouped into 'geography' is a result of or can be described with mathematics. Starting with the real-world masks that and could keep more students interested for longer.

Data – or, more accurately, numbers – is the life-blood of geography. Processing, displaying and making people understand the results of that information are key to being a successful geographer. It may be that being a brilliant mathematician is an unintended consequence of that interest in the real world and one that we should use to build curiosity in more children.

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