CURRICULUM, PEDAGOGY AND BEYOND

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Untangling ‘maths’ and ‘calculating’

Dr Em Thompson

Mathematical knots

1. Take a piece of string
2. Tie a knot in it
3. Join the ends together

What does it mean for two knots to ‘be the same’?

- What do you *think* it should mean?
- What do you *want* it to mean?
- What *makes most sense* for it to mean?

How are we going to keep track of different knots?

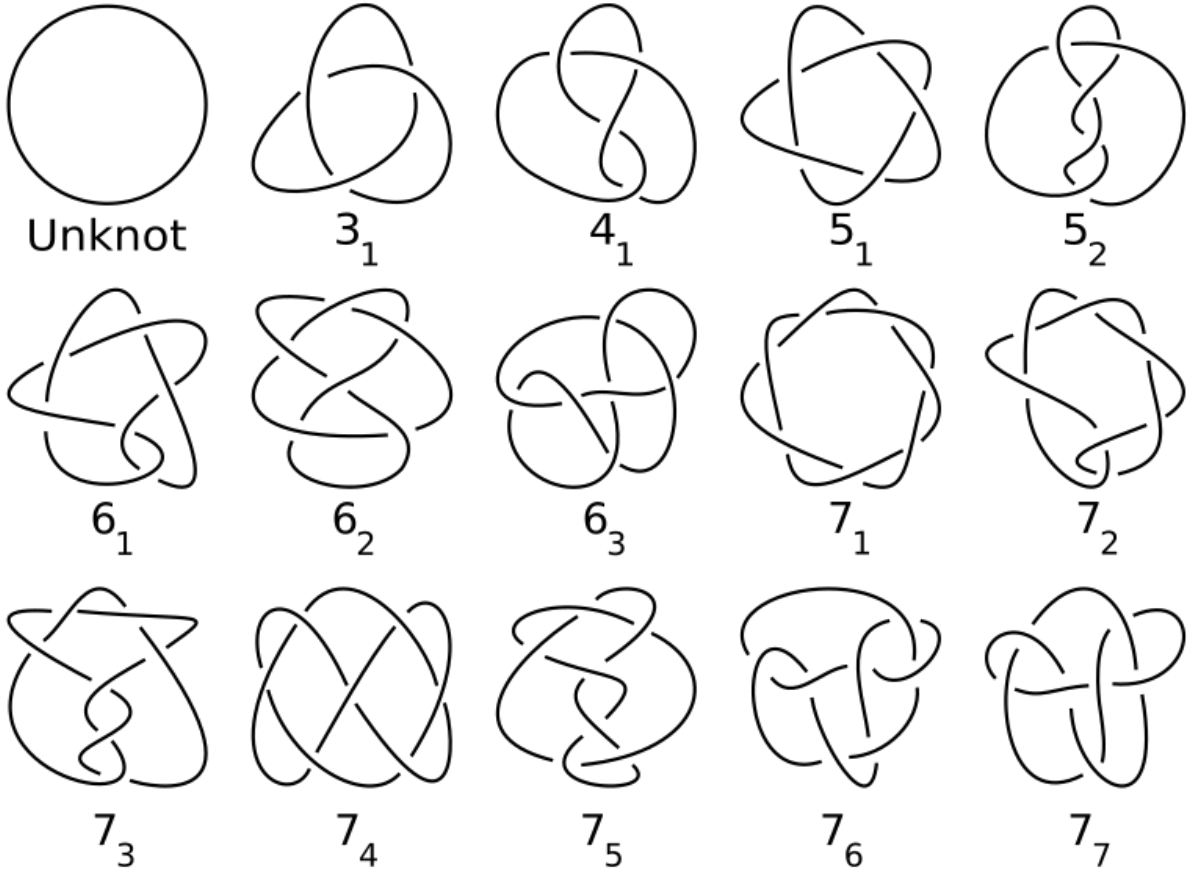
- Should we give them names?
- How might we organise them?
- Do we need to set any conventions?

SPOILERSPOILERSPOILERSPOILERS

Reidemeister moves

Crossing number

→ 352 152 252 prime knots with up to 19 crossings [B]



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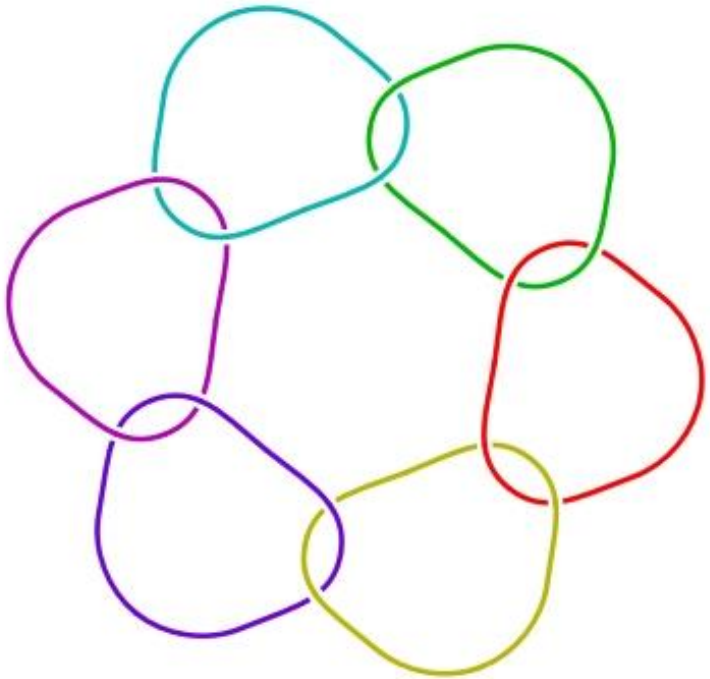
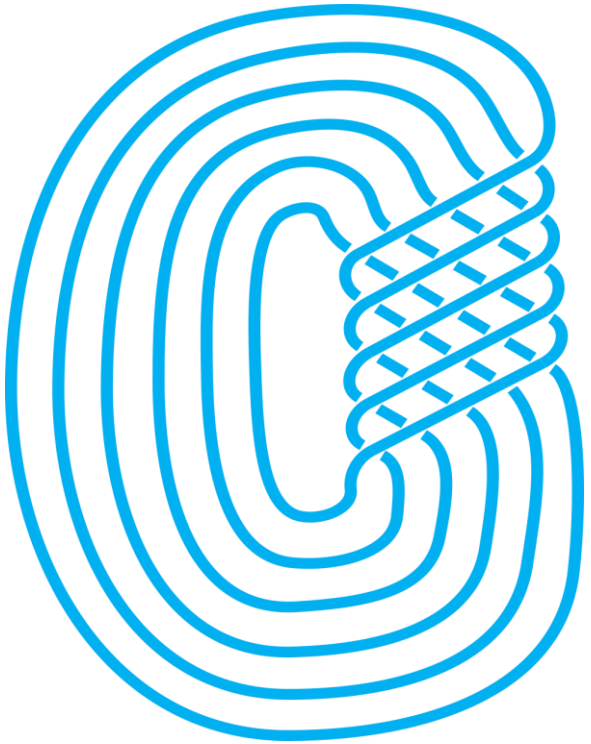
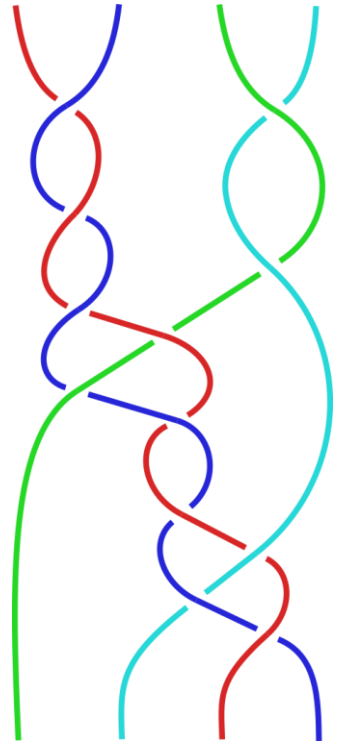
[B] Ben Burton (2020) 'The next 350 million knots' *36th International Symposium on Computational Geometry*

Links and Braids







When does a braid need more than one piece of string?

1. Draw a braid with as many vertical strands as you like (make sure there are the same number at the top and bottom)
2. Put in as many over-strands as you like (make sure they go the whole way across)
3. Starting at the top of one strand, follow it through until you get back to where you started
4. Make some observations, then try a different one!

maths ≠ numbers + symbols

There is space for creativity in maths.

It can be tactile, artistic, …

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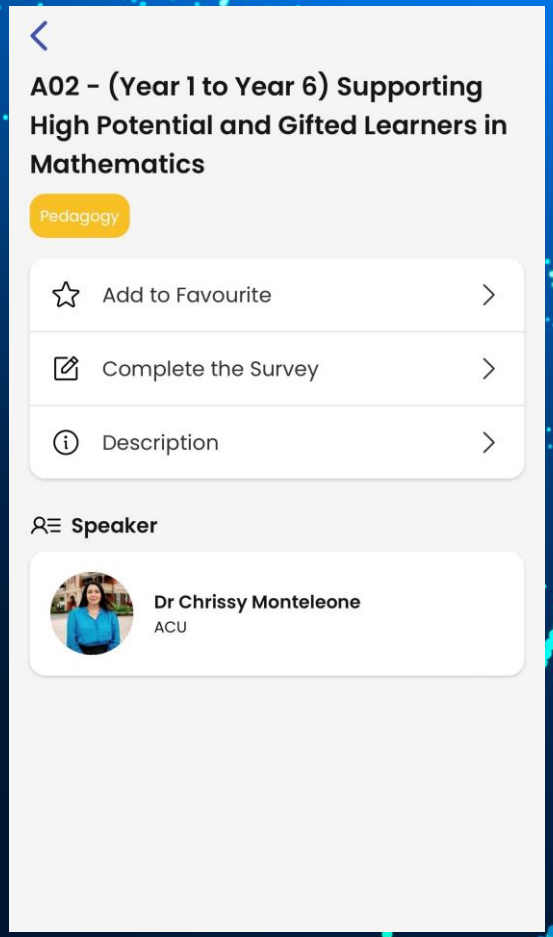
Be in it to WIN!