

Don't tie yourself in a knot

An activity by Johnny Ball

The following activity can be tackled by children of all ages and does not have to coincide with the maths curriculum.

This activity is also a great project for pair work.



"GOOD LUCK"
JOHNNY BALL

You'll need:

- 1.5 metres of string
- Ruler
- Pencil
- Paper

Activity instructions:

Having an evenly knotted piece of string is key to this project, so encourage pupils to take their time and try to be accurate. Talk them through these steps so they can create their knotted string.

1. Tie a simple knot at one end of the string.

As you tighten the string into a knot, hold it between finger and thumb while you pull tight with the other hand. This way, you can get each knot exactly where you want it. Try to get the first knot right at the end of the string, with the smallest end sticking out.

2. Holding the string on a ruler or tape measure, hold the first knot at 0 and make a second knot exactly 10 cm away.

As you tighten, keep checking you are forming the knot in the right place, until the knot is as tight as can be. If your tightened knot is in the wrong place, loosen it and try again.

3. When you have three knots, you can check they are the same distance apart by holding the middle knot and doubling the string so the other two knots lie side by side.

You can do this kind of check after every new knot.

4. From 1.5 metres of string, you should end up with 16 evenly spaced knots.

5. Now, by bringing the two end knots together, to make your string double, you can check how well each pair of knots coincide.

Once pupils have their knotted strings, there are lots of different things they could try out with them.

They could:

- Practice making arcs
- Make patterns with circles
- Make a 3, 4, 5 right-angled triangle
- Make chocolate bar shapes

Instructions for each of these activities will be on your pupils' activity sheets.