Helping your child with fluency in mathematics

Year 4

Aims of the National Curriculum

For children to become fluent in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils develop conceptual understanding and are able to recall and apply their knowledge rapidly and accurately.

What is fluency?

Fluency consists of three elements:

Efficiency is about not being bogged down with too many steps or losing sight of the logic of the strategy. An efficient strategy is one that a student can carry out easily, keeping track of sub-problems and make use of intermediate results to solve the problem.

Accuracy depends on several aspects of the problem-solving process, among them careful recording, knowledge of number facts and other important number relationships and double checking results.

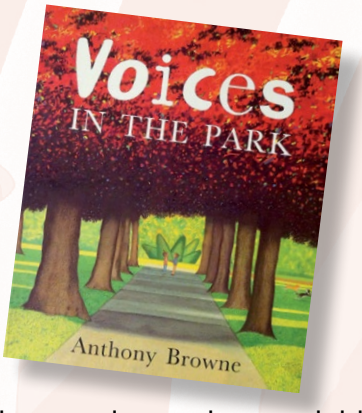
Flexibility requires knowledge of more than one approach to solving a particular kind of problem, such as two-digit multiplication. Students need to be flexible in order to choose an appropriate strategy for the numbers involved, and also to be able to use one method to solve a problem and another method to check the results.

So fluency demands more of pupils than memorising a single procedure – they need to understand why they are doing what they are doing and know when it is appropriate to use different methods. *(Russell 2000)*

How can you support your child in becoming fluent in mathematics?

Maths in Stories

When reading with your child look for opportunities to practise maths.



Voices in the Park by Anthony Browne

When reading with your child look for opportunities to practise maths. The questions and activities below are related to the book 'Voices in the Park' by Anthony Browne.

Can you find any examples of tessellations in the pictures? Can you find examples of parallel lines in the pictures? Estimate how many bricks are in the wall? What strategy could you use to find out how many? First voice – windows are two by two – explore square numbers. Can you find parallelograms, rhombus or a scalene triangle?

What's the time?

Throughout the day, ask your child how many minutes to…. Use 12 hour and 24 hour clocks. Ask your child to work out when the cake will come out of the oven.

Measuring

Use a tape measure that shows centimetres (cm). Take turns measuring lengths of different objects, e.g. the length of a sofa, the width of

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a table, the length of the bath, the height of a door. Record the measurement in centimetres, or metres and centimetres if it is more than a metre, e.g. if the bed is 160 cm long, you could say it is 1m 60cm (or 1.65m). Write all the measurements in order.

Tables

Practise their tables, say them forwards, backwards and ask your child questions like: What are seven eights? What is 56 divided by 7? What are six sevens? How many nines are there in eighteen? Find the product of six and three. Find factors of numbers.

Taking it further… Ask your child if they know 4 x 8 = 32 what else do they know? e.g. 40 x 8 = 320, 4 x 80 = 320, 40 x 80 = 3200, 32 ÷ 8 = 4 , 32 ÷ 4 = 8.

Games

- Dice – Roll a twelve sided die, and then ask your child to multiply it by the multiplication table that they are working on. How many of these can they do in one minute? Can they beat their score? Taking it further… use two twelve sided dice – multiply both together. Extending even further – can they all the associated facts e.g. 7 x 8 = 56, 8 x 7 = 56
- 56 ÷7=8, 56÷8=7
- Bingo – Each person writes down 6 numbers which are multiples of 6 and 9

  e.g. 6 12 27 36 42

  Roll either a twelve sided die or two six sided dice. If you choose two dice then add the numbers together first e.g. roll a 3 and a 4, add these to make 7.

  Multiply that number by 6 or 9.

  If the answer is on your paper cross it out.

  The first to cross out all six numbers of their number wins.
- Pairs to 100 (then extend to 1000)
  This is a game for two players. Each person draws 10 circles. Write a different two-digit number in each circle – but not a 'tens' number (10, 20, 30, 40…).

  In turn, choose one of the other player's numbers. The other player must then say what to add to that number to make 100, e.g. choose 64, add 36.

  If the other player is right, he/she crosses out the chosen number.

  The first to cross out 6 numbers wins. (When doing to 1000 write three digit numbers)

In the Kitchen

Ask your child to help you weigh things and measure out different quantities when baking and preparing dinner. Ask him/her to work out the recipes for different quantities.

Dad measures 250g of sugar from a kilogram bag of sugar to bake a cake. How much sugar is left in the bag? 750g. How do you know? Because 250g + 750g = 1000g and 1000g = 1kg.

This is some of the maths your child should be able to do by the end of Year 4.

Count in multiples of 6, 7, 9, 25 and 1000. Recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones). Order and compare numbers beyond 1000. Read Roman numerals to 100 (I to C). Recall multiplication and division facts for multiplication tables up to 12 × 12.
Count up and down in hundredths; recognise that hundredths arise when dividing an object by a hundred and dividing tenths by ten. Convert between different units of measure (e.g. kilometre to metre; hour to minute). Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres. Estimate, compare and calculate different measures, including money in pounds and pence. Read, write and convert time between analogue and digital 12 and 24-hour clocks.

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