Helping your child with fluency in mathematics

Year 6

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.



Dougal's Deep Sea Diary by Simon Bartram

When reading with your child look for opportunities to practise maths. The questions and activities below are related to the book 'Dougal's Deep Sea Diary' by Simon Bartram.

Convert time between digital and analogue, look at time duration. Look at diving under water – link to negative numbers. Count in negative numbers. Look at the temperature of different places you might go on holiday to. Calculate increase and decrease in temperature. Scale factor – get your child to build a submarine out of lego/boxes, working on different scale factors.

LONDON BOROUGH OF BEXLEY

Taking Times tables 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.

Time

Ask your child to keep a record of how long he/she watches TV each day for a week. Then ask him/her to work out the total watching time for the week. Work out the average watching time for a day (that is, the total time divided by 7).

Look at how long it takes to fly to different countries. Work out what time your child would arrive at these places if they left at different times. Read the time to the nearest minute in both 12 hour/24 hour clocks and digital time. Look the different times across the world and work out time differences.

Out shopping

If you see any items labelled, for example, '2 for £3.50', ask your child to work out the cost of 1 item for you, and to explain how he/she got the answer.

When you go shopping, or see a shop with a sale on, ask your child to work out what some items would cost with: 50% off; 25% off; 10% off or 5% off. Ask your child to explain how he/she worked it out.

Ordering a takeaway

Use a takeaway menu to order a pretend meal or one that you plan to have soon. Ask your child to work out the cost. Compare with a different take away menu.

In the Kitchen

Expose your child to as many weights and capacities measurements as you can. Does he/she know how much a pint is? Whether a litre is bigger or smaller? How many mls there are in a can of drink? Does he/she know what the weight of a 25g bag of crisps or a kilo bag of sugar feels like? Can your child read the scales on a measuring jug or on a set of scales? Cutting up food is a great way to show equivalent fractions, improper fractions and mixed numbers.

Games

A great app for your child's phone is 'Combine 4'. Your child will have to use all four numbers to make the number 24. You can also buy them as cards – '24 Game'. 'Brain Gym' also has lots of numeracy activities on it to develop fluency.

This is some of the maths your child should be able to do by the end of Year 6

Read, write, order and compare numbers up to 10 000 000 and determine the value of each digit. Round any whole number to a required degree of accuracy. Use negative numbers in context, and calculate intervals across zero.Perform mental calculations. Identify common factors, common multiples and prime numbers.Use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy. Use common factors to simplify fractions; use common multiples to express fractions in the same denomination.Solve problems involving the calculation of percentages (e.g. of measures) such as 15% of 360 and the use of percentages for comparison. Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate. Use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to three decimal places. Convert between miles and kilometres.

For further information visit www.bexleyeis.co.uk

If you would like the information in this document in a different format, please call 020 8303 7777 and ask for Communications/Graphics.
The reference to quote is: 605898/11.14

LONDON BOROUGH OF BEXLEY