

# Helping your child with fluency in mathematics

## 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.

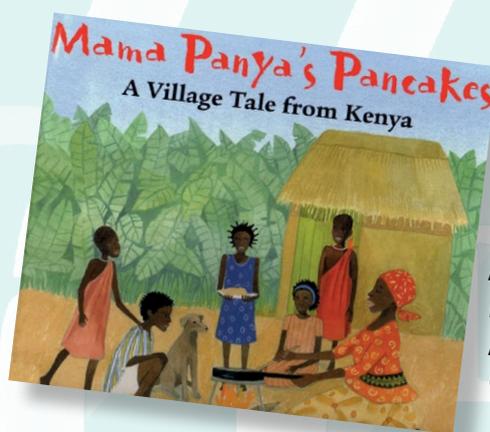
**Flexibility** requires knowledge of more than one approach to solving a particular kind of problem, such as two-digit multiplication. Students need to be flexible in order to choose an appropriate strategy for the numbers involved, and also to be able to use one method to solve a problem and another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



*Mama Panya's Pancakes by Mary and Richard Chamberlain*

When reading with your child look for opportunities to practise maths. The questions and activities below are related to the book 'Mama Panya's Pancakes' by Mary and Richard Chamberlain.

What is a cup of something? Look at different measurement systems from around the world and compare with what we use. Look at where Kenya is – money they use, the time difference. Look at a recipe for pancakes. Weigh the ingredients out. How much would you need to weigh out for 12 people?

### Taking Times tables further...

Ask your child if they know  $4 \times 8 = 32$  what else do they know? e.g.  $40 \times 8 = 320$ ,  $4 \times 80 = 320$ ,  $40 \times 80 = 3200$ ,  $32 \div 8 = 4$ ,  $32 \div 4 = 8$



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## Time

Look at time duration of TV programmes and films (including the cinema). Give your child the start times and end times – can they work out how long the film is on for?

## Out shopping

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

## In the Kitchen

Look at the capacity of jars, coke cans and bottles. Before your child looks at the quantity get him/her to predict which one has the smallest/largest capacity. Convert the units from milli-litres to litres and back again.

Look at the nets of old cereal boxes. Get your child to estimate the perimeter of each one to the nearest centimetre. Write the estimate on the back. Then ask them to measure each side and find out the perimeter. They could also find the area of each of the different sections.

**Perimeter = distance around the edge of a shape**

**Area of a rectangle = length x breadth (width)**

## Games

- Darts – start at 501 and start subtracting

- Target 1000

Roll a dice 6 times.

Use the six digits to make two three-digit numbers. Add the two numbers together.

How close to 1000 can you get? The winner is the person who gets the closest.

- Cards

A pack of cards, pick four cards, create two, two digit numbers and multiply them together. If you go over 1000 you lose.

- Three in a line – a game for two or more people.

You need a Snakes and Ladders board, counters or buttons and two dice.

Take turns to roll the two dice. Add the numbers. Repeat this, then multiply the two answers together.

Use a counter to cover this total number on the board.

The first person to finish a line of counters is the winner.

## This is some of the maths your child should be able to do by the end of Year 5

Read, write, order and compare numbers to at least 1,000,000 and determine the value of each digit. Round any number up to 1,000,000 to the nearest 10, 100, 1000, 10,000 and 100,000. Solve number problems and practical problems. Read Roman numerals to 1000 (M) and recognise years written in Roman numerals. Add and subtract numbers mentally with increasingly large numbers. Multiply and divide numbers mentally drawing upon known facts. Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000. Convert between different units of metric measure (e.g. kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre). Understand and use equivalences between metric units and common imperial units such as inches, pounds and pints. Measure and calculate the perimeter and area of squares and rectangles. Estimate volume (e.g. using 1 cm<sup>3</sup> blocks to build cubes and cuboids) and capacity (e.g. using water).

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