

A Pocket Guide to...



Problem Solving
and Calculation
in Year 1

Background

The intention of this booklet is to give some information about the ways that problem solving and calculation are taught in Year 1. The current curriculum aims for children to become fluent, to be able to reason mathematically and to be able to solve problems. Therefore, it is not enough for children to be able to simply follow a process, they need to be able to work flexibly to solve problems and apply their knowledge in different situations.

Problem-solving is essential to everyday life, critical to science, technology, engineering, financial literacy and most forms of employment. Learning rules and facts is of course important, but they are the tools with which we learn to do maths fluently, they aren't the maths itself.

What does problem-solving look like in Year 1?

Stage 1: Getting started

Stage 2: Working on the problem

Stage 3: Digging deeper

Stage 4: Concluding

Remember to encourage your child to explain their thinking using a full sentence and to develop their 'have a go' attitude.

This booklet explains how to help you support your child develop their problem solving and calculation understanding at home. Please ask if you have any questions or would like any more information.

Problem Solving and Calculation

Key Teaching Strategies

How we have moved on our Number sense :

- Adding, put the biggest number first
- Count on in 1's, 2's, 5's or 10's
- Find 1 more/1 less or 10 more/10 less
- Sniff out a pattern.....what is the same or different?
- Use number facts to 10 or to 20
- Partitioning and place value
- Doubling or halving
- Use a number line
- Use Numicon, counters, cubes or other objects
- Represent your thinking with picture
- Write a number sentence or find your own way to record your thinking
- Find the difference by saying, 'how many more?'
- Count on from a given number to work out the missing ('oops') number

Problem Solving and Calculation

Key Teaching Strategies

Here are some useful problem-solving skills:

Trial and improvement, working systemically, pattern spotting / pattern sniffing, working backwards, reasoning logically, visualising, conjecturing, generalising and proving.

Play to19 or 37



Aim of the game:

To be the player to add the final number to the 'running' total to make 19 or 37.

How to play: Decide who is going first. Player 1 chooses a number from one of the bags (1, 3, 5 or 7). Player 2 then chooses a number from one of the bags and adds this onto player 1's number to make a 'running' total. Player 1 has another go and then adds that number onto the 'running' total. Play continues like this with each player choosing a number and adding it to the 'running' total.

Things to think about: How many numbers did you use altogether in the game? Have another go. How many numbers did you use this time? What is the largest amount of numbers you could use to reach 19 or 37? What is the smallest amount of numbers you could use to reach 19 or 37? Can you find all the different amounts of numbers in between the largest and the smallest to reach 19 or 37? What do you notice? Can you explain this?

Can you find a way to always win the game? Compare your running totals. Is there a pattern to sniff out? What is the same about the starting numbers? How could you adapt the game?