Castlefield School- Maths

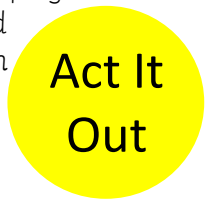
Year: Six | Theme: Problem Solving

Problem solving is a really important part of maths, but, sometimes, questions can be tricky and you might find you are stuck . Being stuck is a good thing, it means you are facing a challenge, and you will make progress because of this challenge. It is important to have strategies to help you when you do get stuck, these are 8 strategies that we will be using during the year.

Act it Out

A great way to start solving problems is to act out, make or draw what the problem shows.

Physically acting out the situation presented in a maths problem or creating a representation helps you to better understand what the problem is asking.



Trial and Error

Solve a problem by guessing the answer and then checking that the guess fits the conditions of the problem.

If it doesn't work, have a look at what you could change for your next guess.

Keep guessing and adjusting your thinking until you work it out.

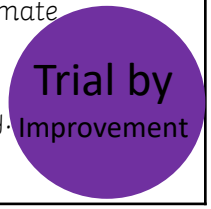
Trial by Improvement

This builds on Trial and Error.

Solve a problem by removing improbable answers until the correct answer remains.

Make an estimate, get a solution. Is it correct? Why not? How can we change our estimate to improve it?

Work systematically.



Looking for Patterns

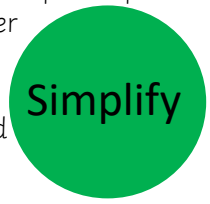
Many problems can be solved by identifying a repeating pattern in shapes or numbers and using that to predict what may happen in other situations.

Solve a problem by looking for these patterns, repetitions or sequences in the data.

Simplify

Sometimes problems can be quite intimidating, by making it simpler it becomes more accessible.

When a problem is too complex to be solved in one step, it often helps to split it into simpler problems. Then, these can be solved separately.



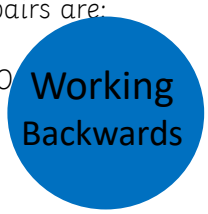
Working Backwards

Starting with the end in mind helps you develop a strategy that leads to the solution by going backwards through the process.

Start at the end and work back using reasoning and inverse operations.

The inverse operation pairs are:
+ and –
e.g. 10+2=12 so 12–2=10

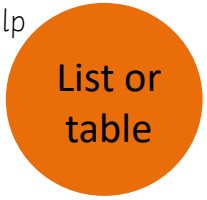
X and ÷
e.g. 4x8=32 so 32÷8=4



List or Table

Solve a problem by writing the information in a more organised way to discover relationships and patterns among the data.

Many problems can be tackled by making a list of potential solutions. You can also, turn your list into organised tables to help you solve trickier problems with lots of data involved.



Algebra

Equations or formulas can help to make the solution clearer.

Break questions down into manageable steps of learning using shapes, symbols and letters to represent unknown numbers.