

# PROBLEM SOLVING



# Why is problem solving so important?

The national curriculum for mathematics aims to ensure that all pupils: 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 the ability to recall and apply knowledge rapidly and accurately reason mathematically by following a line of enquiry, conjecturing relationships and generalisations, and **developing an argument, justification or proof using mathematical language** **can solve problems** by applying their mathematics to a variety of routine and non-routine problems **with increasing sophistication**, including breaking down problems into a series of simpler steps and **persevering in seeking solutions**

The 2016 maths results have been analysed and 15 'insights' have been released to help us target the areas where children need more support.

9 out of those 15 are related to problem solving skills.



Insight 1: Only 13 questions on each paper were based on Year 6 content so don't lose sight of your practice of previous years' work too



Insight 2: Problem solving is a key issue to address



Insight 3: The four most poorly answered problem solving questions require a child to be able to manipulate several key mathematical facts and strategies at a time



Insight 4: Another of the problem solving questions required children to give a written explanation, in other words to reason in writing



Insight 5: Children must have the ability to read and understand written questions in order to be able to answer them





Insight 6: We should ensure that children are confident in using measures fluently across the curriculum, and also introduce more context to Maths problems



Insight 8: Multi-step mental Maths problems are perplexing to many children



Insight 10: Pupils need stamina and practice to do their best in these assessments



# Insight 15: Stamina - again



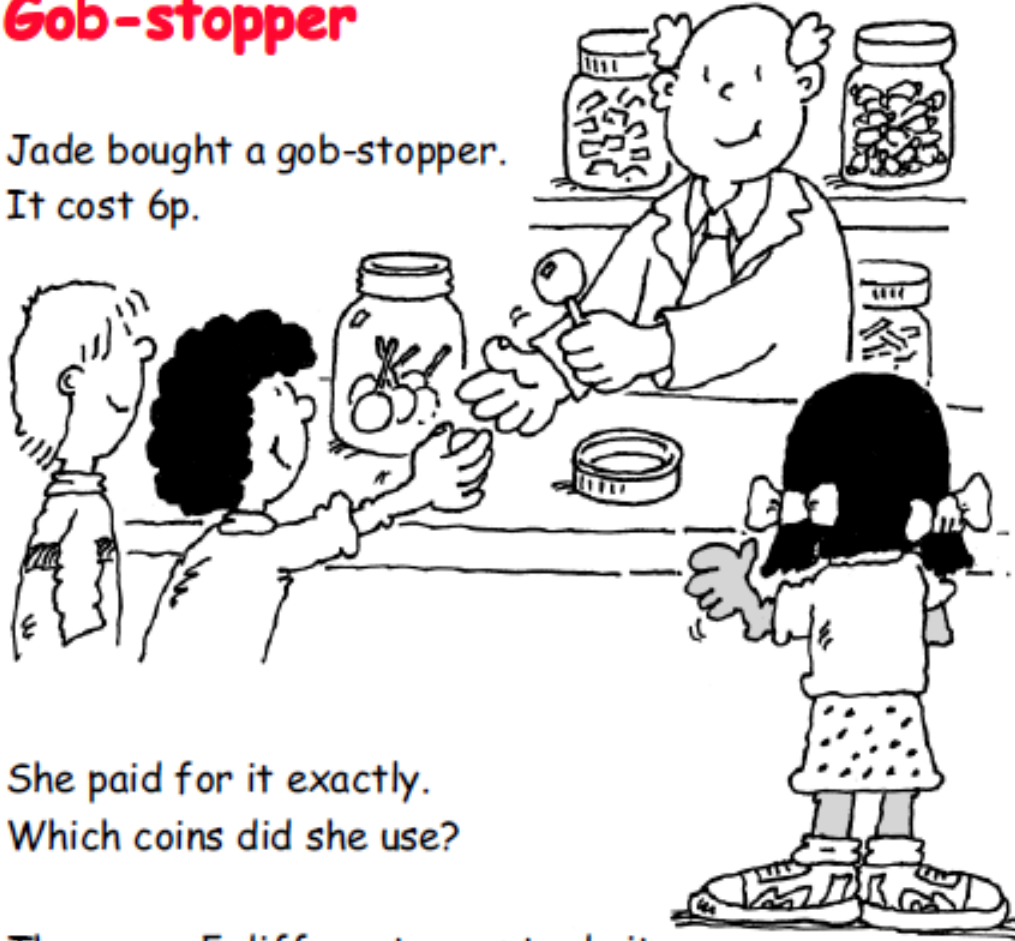
# How does a problem solving lesson work?



# A year 1 problem

## Gob-stopper

Jade bought a gob-stopper.  
It cost 6p.



She paid for it exactly.  
Which coins did she use?

There are 5 different ways to do it.  
Find as many as you can.

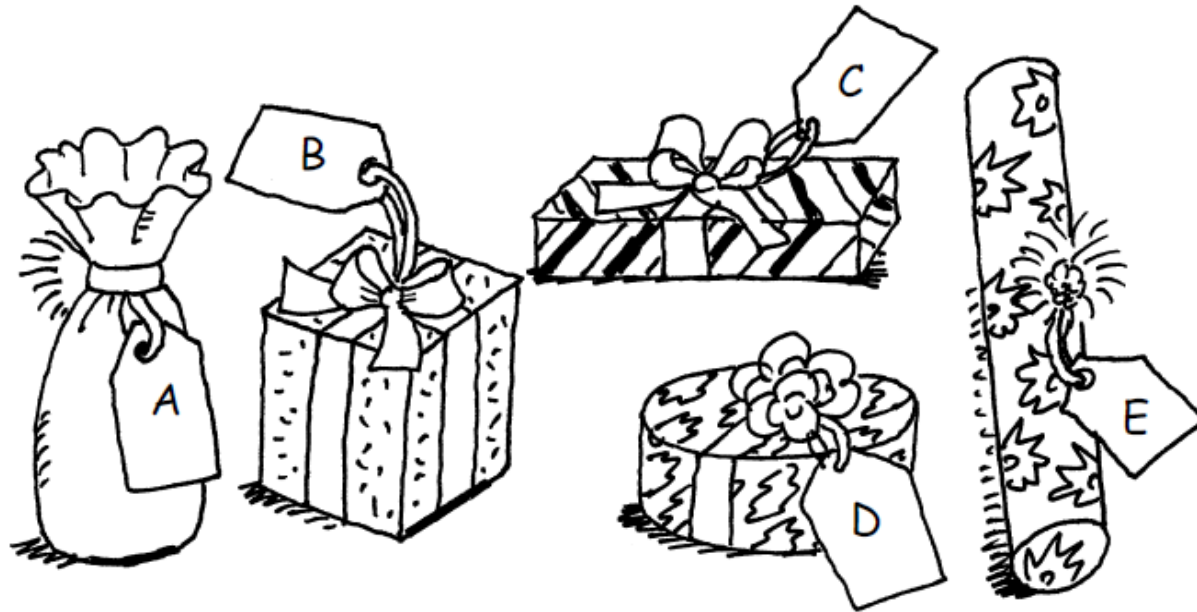
What if the gob-stopper cost 7p?



# A year 5/6 problem

## Presents

Gurmit paid £21 for five presents.



For A and B he paid a total of £6.

For B and C he paid a total of £10.

For C and D he paid a total of £7.

For D and E he paid a total of £9.

How much did Gurmit pay for each present?

