

Can I work out and record the information I need to use to solve a puzzle or problem?

Teaching guidance

Key vocabulary

problem, calculate, calculation, operation, answer, explain, add, subtract, sum, total, difference, plus, minus, number sentence, sign, operation, How many more...?, How many fewer...?, How much less...? How did you work it out?

Models and images, resources and equipment

Use role-play to act out the problem

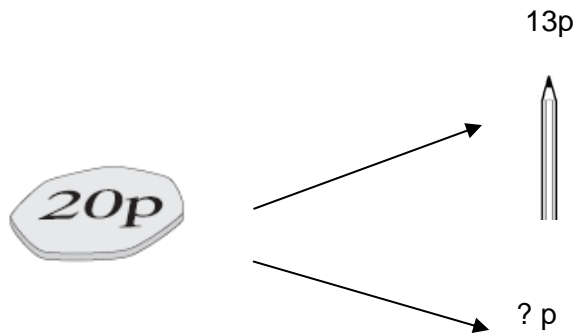
Help children to understand and visualise a problem set in a context by acting it.

Identify important words and numbers and retell the problem

Ella buys a 13p pencil. She pays with a 20p piece. How much change does she get?

Talk about some of the important words and numbers in the problem. Then ask children to tell the story of the problem in their own words.

Draw a sketch to show the problem that needs to be solved



Represent the problem using practical equipment



$$20 - 13 = 7$$

Teaching tips

- To help children visualise what is happening within a problem that is set in a context:
 - use role-play to act out the problem that you are going to solve;
 - show how you can use practical equipment to represent the problem;
 - model how you could use a drawing or sketch to help see the problem that needs to be solved and the associated number sentence that needs answering.
- Play calculation charades. Give a group of children a word problem and ask them to role-play/act out the problem using practical equipment. Can another pair/the class work out the mathematics and number sentence involved and solve the problem?
- Use strategies that help children to focus on the language used in a word problem:
 - encourage children to identify any words they are unfamiliar with and discuss other words that could have been used instead;
 - talk about which words and numbers might be the important ones to help solve the problem;
 - ask children to explain the problem in their own words in order to clarify their understanding and what they need to do to work out the solution.
- While identifying the key vocabulary in a word problem can give useful clues about the appropriate operation, this is not always straightforward, for example the phrases 'more than'/'less than' can occur in both addition and subtraction problems.
- Incorporate plenty of discussion time so that children have to explain to each other how they identified the appropriate operation. It is better to spend time unpicking and understanding one or two problems rather than rushing through many problems.
- Give children sets of mixed problems so that they have to think carefully about selecting the right mathematics to solve each problem. If you want children to practise a particular operation, ask them to solve only those problems that involve your chosen operation.
- Once children have reached an answer to a problem, ask them to give their solution as a whole sentence. Use this to help them reflect on whether their answer sounds about right. (Often, if they have chosen the wrong operation, the answer will be of an inappropriate size.)
- Reinforce children's understanding of problems set within a context by asking them to create their own word problems, for example ask them to write a problem that matches a particular image or calculation.