Can I record number sentences and explain what the signs and numbers mean?
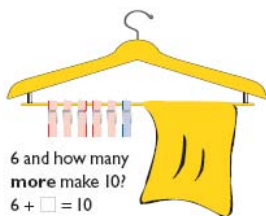
Teaching guidance

Key vocabulary

balance, equals, is the same as, number sentence, sign, operation, symbol, calculation, add, sum, total, altogether, subtract, take away, difference
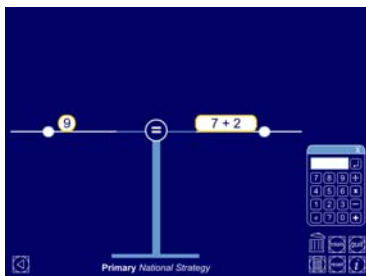
Models and images, resources and equipment

Use practical equipment, stories and pictures to generate and record number sentences

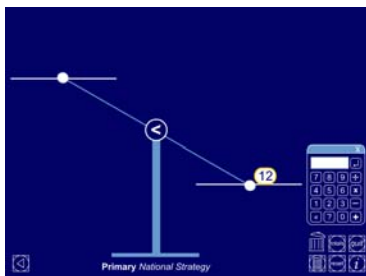6 and how many **more** make 10?

$6 + \square = 10$

Five frogs sit on lily pads. Some of them jump into the pond. If there are three left how many jumped into the pond?

$5 - \square = 3$

Number scales ITP

Remove '7 + 2' from the number scales and ask the children to suggest what else could replace it to make the number scales balance.

What could we put on the left-hand side of the number scales to make the two sides balance?

Slidey box cards

$34 = 30 + \square$

$20 - \square =$

Teaching tips

- Although children are not expected to use more formal pencil and paper procedures in Key Stage 1, it is still important that they can use recording to communicate their mathematics. One form of recording is using mathematical signs and symbols to construct number sentences that describe the mathematics they are engaged in.

- Mathematical signs and symbols can most easily be introduced when children have developed a good understanding via practical experience. It is much harder to start with a symbol and then try to explain it. When children are talking about and explaining the mathematics they have used, take the opportunity to scribe how this could be recorded using mathematical notation.

- It is important that children understand that the equals sign is used to indicate numerical equality. Discourage children from using the word 'makes' when referring to the equals sign as this only has meaning when the calculation to be done is at the beginning of the number sentence and the 'answer' is on the right. Instead use words such as 'equals', 'the same as' and 'balances'.

- Through practical experience help children appreciate that although the equals sign indicates numerical equality, the appearance of the quantities can look different (same value, different appearance). For example, two children may get 50p pocket money but one is given five 10p pieces and the other is given two 20p pieces and a 10p piece; two packets of sweets each contain 12 chews but one has 3 lemon, 4 orange and 5 strawberry and the other has 6 lemon, 3 orange and 3 strawberry.

- Make sure that children encounter number sentences with the equals sign in a variety of positions, e.g. 12 - 5 = 7 and 7 = 12 - 5.

- Write number sentences on a piece of card and then slide another piece of card along the sentence to show how an 'empty box' can appear in a variety of positions to represent a mystery number or a mystery symbol.

$$20 - \boxed{} = 15 \qquad \boxed{} - 5 = 15 \qquad 20 - 5 = \boxed{}$$

$$20 \boxed{} 5 = 15$$
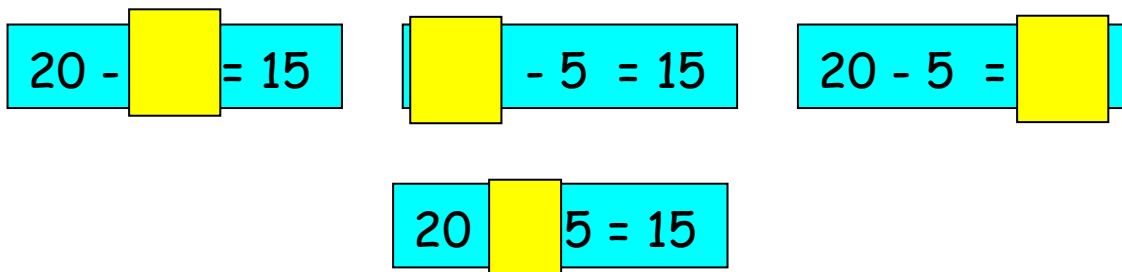
- Use visual images to help children understand what an empty box might represent. For example, show 8 pegs on the coat hanger, cover up the last 3 pegs with a cloth and ask what number sentence this could represent ($5 + \square = 8$; $8 - \square = 5$).

- Help children to see that in some cases there are several numbers that the 'empty box' might represent. To begin with, use number facts that they are familiar with to develop their understanding, e.g. $10 = \square + \square$. Ask them to work in pairs to come up with several solutions and then share these as a whole class/large group.

- Hold up a card showing part of a number sentence, for example

$$\boxed{= 6} \qquad \boxed{3 + 1 =} \qquad \boxed{6 + 2 =} \qquad \boxed{5 =}$$

Ask children to suggest how they could make the number sentence balance. Is there more than one solution for each example? Could you record 5 = 5?

- Ask children to read number sentences aloud. This will help you to assess the vocabulary they are confident with and the vocabulary you still need to reinforce.