

Takes and adders!

Learning objectives

(Y2) Count on or back in ones or tens, starting from any two-digit number.

(Y3) Count on or back in tens or hundreds, starting from any two- or three-digit number.

(Y4) Recognise and extend number sequences formed by counting from any number in steps of constant size, extending beyond zero when counting back: for example, count on in steps of 25 to 500, and then back to, say, 100.

Mental Starter

See the starter activity, 'Count up, count down' on page 10.

You will need

Photocopiable page 31 (one per child); three standard dice; a simple calculator (confirm that the calculator can add constantly by entering $10 + 10$ followed by repeated presses of the = key); 100 square (Whole class work only).

Moving on

- Roll three dice as before, but 'give' each child an additional 100 to create a relatively low three-digit number. Use this to repeatedly subtract ten (for example, $113 - 10 = 103$).
- Use three numeral dice and push them together to form a three-digit starting number. Proceed as earlier, this time adding/subtracting 10 or 100 each time.

Whole class work

- Focus on a large 100 square, explaining that you want to look at counting in tens from a small number. Begin by picking a number in the upper half of the grid. Ask the class how the grid can help find a number which is *10 more*. Repeat with other numbers to establish the fact that a vertical drop of one space represents 10 more.
- Select a number from the top row of the grid and invite individuals to say the sequence all the way down that column. Alternatively you could chant with the whole class in unison.
- When the final number is given for the sequence, ask what number would come next if the grid were to be extended. Then, select other numbers from the top line of the grid, proceeding as above.

Group work

- Look at a 100 square and, starting from any number in the top row, count on 10 each time by scanning down the appropriate column. Ask: *What do you notice about this column of numbers?*

Individual work

- This game will use a calculator to check the ability to add or subtract a number repeatedly to make a sequence. The sequence is recorded along the body of the snake. Remove the 100 square as a visual prompt.
- Ask each child to roll and total three dice in order to give a unique start number. If a total has already been created by another child, throw again to generate a different number.
- Demonstrate how to use the calculator for adding 10 to their start number, taking care not to cancel the display afterwards. Record this on a snake and encourage the children to predict what a further 10 would make. Test predictions by pressing the = key.
- Allow the children to proceed using mental calculation first, recording on the sheet and checking each step. The nine available spaces on each snake should allow the children to reach a number around 100. Add on a further one or two steps to ascertain whether they are secure with numbers crossing into the hundreds.

Plenary

- Collect the recorded work and refer to one snake from each sheet. Ask the appropriate child a question for them to answer blindly (with further prompts if necessary). For example: *I see one of your numbers is 34. What number came next on your sheet?* or: *What was your largest number less than 100?*

| Potential difficulties | Further support |
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| Some children may record incorrectly where one number sounds like another (such as 40 for 14). | Ensure that words are clearly audible and focus on word formation. |
| Crossing the boundary of 10/100 can be difficult in ascending or descending number sequences. | Refer back to the 100 square and consider extending with an extra couple of rows. |

Takes and adds!

