Crack the code

Record a 4 digit number (where no digits are repeated) on a piece of paper and keep this hidden from the class! Draw a simple place value table on the board with columns for Thousands, Hundreds, Tens and Ones. Ask a child to say a 4 digit number with no repeated digits – e.g. 7391 – and record this on the table. Then mark each number with either a tick for a correct digit in the correct place, a circle for a correct digit in the wrong place or a cross for a digit that does not appear in the number. Continue to ask for 4 digit numbers from the class with reminders to think about the information they can glean from the ticks, circles and crosses.

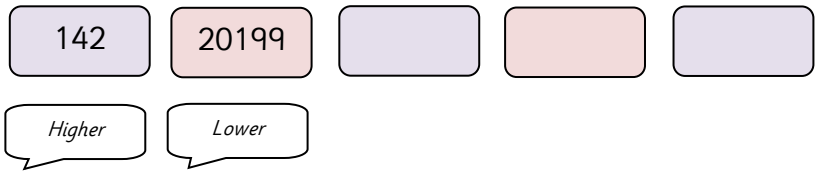
Teacher's hidden number: *3492*	TH	H	T	O
	7 ✗	3 ○	9 ✓	1 ✗
	6 ✗	4 ✓	9 ✓	3 ○

Beyond base 10

Set up a range of exchange tasks using different bases other than the decimal (base 10). For example 7 stones could be equivalent to a stick and 7 sticks equivalent to a conker. In the centre of the table have a 'bank' of stones, sticks and conkers. Provide a pile of stones to 'exchange' using the bank and come up with a figure for the amount in the pile e.g. 5 conkers, 2 sticks and 6 stones or 526. Then demonstrate how to work out this figure in our decimal or base 10 numbers i.e. (**5**x49) + (**2**x7) + **6** = 265. Use a variety of items for each exchange system and ask children to record their amounts.

Higher or lower than …?

Think about Bruce's classic game 'Play Your Cards Right' and split the class into two teams. Using a set of number cards including numbers between 0 and 100 000, tack two sets of five cards face down on the board. Turn the first card over and ask the first team to decide whether the next number will be higher or lower. If the team get it wrong the opposing team can continue with the cards until they win or get it wrong. The second team then have their turn with the other five cards.



"And change!"

Make 3 or 4 sets of A4 sheets with the digits 0 to 9. Hand them out to the class and call up 4 or 5 children to stand in any given order in front of the board. Write the place values above them or ask the children to wear place value hats! Call out an operation and amount e.g. add 30 and ask the class to calculate the new number and make the correct changes by swapping the digits.

Decompose and recompose

Hand out 3 number cards each from a set of cards from 11 to 99. These are target numbers which children should write in their book side by side leaving a space underneath each one. Modify a dice so that the sides have the following numbers on them 1, 2, 3, 5, 10, 20. Roll the dice and ask children to decide which number to put it under. The aim of the game is to write a collection of numbers under a target number which add up to that target.