

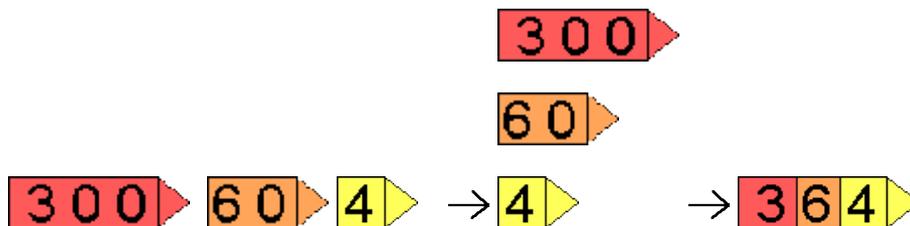
Teaching Place Value With Arrow Cards

What are arrow cards and what do you do with them?

We use place value cards in school to help build, reinforce, and extend place value concepts. Let's take a look at how to use and explore with arrow cards.

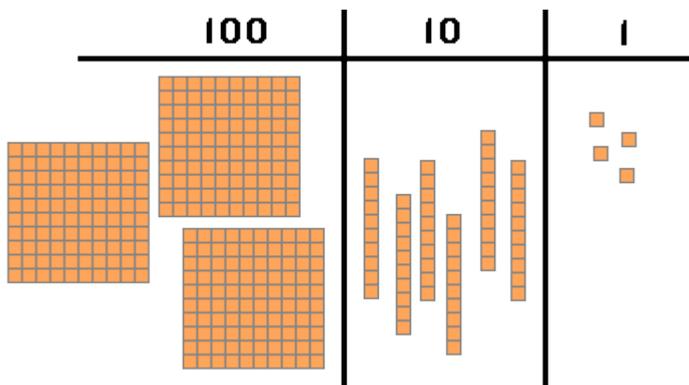
What Are Arrow Cards?

Arrow cards are a set of place value cards with an "arrow" or point on the right side. Children organize the cards horizontally or vertically to represent numbers in expanded notation. They can overlap cards and line up the arrows to form multi-digit numbers. The colours for the Hundreds, Tens and Ones can vary but will be consistent in your resource pack.



When arrow cards are colour-coded by place, they are easier to organize, and the colour helps reinforce the concept of place. A yellow "3" looks and feels different from an orange "30" and a red "300." Children in primary years can work with arrow cards up to the hundreds or thousands, while children in later year groups might benefit from using arrow cards up to 5, 6 and 7 digits.

Arrow cards form a useful transition between base ten blocks and written numerals. Base ten blocks are very concrete. They look exactly like their value. Using base ten blocks, 300 is represented with 3 hundred squares; each hundred square is the size of 10 tens or 100 ones.



An arrow card representing 300 is larger than arrow cards representing tens or ones, but not in proportion to their value; it is simultaneously concrete and abstract. It is a physical and numerical representation emphasizing both the place and the value of the 3.

Using Arrow Cards

Getting Started

Your child should sort the cards into groups according to place - ones, tens and hundreds and each group should be a different colour.

Work through a series of "show me" activities, in which your child at first holds up single arrow cards and then hold up numbers they've built.

"Show me 8. Show me 40...60.... How many tens are in 60? Show me 700..."

Build a few two-digit numbers. "Show me 11, 12... 46, 47..."

Remind your child that when they build 46, the 40 is still there. It's $40 + 6$. Forty is 4 tens; 46 is 4 tens plus 6.

Increase to 3 digit numbers and increase complexity by asking for a number between two numbers that is also a factor of 15.

Number Pairs

"Show me 35 and 53." Both numbers use a 3 and a 5. Discuss the difference in the value of 5 as it is used in each number. Break the numbers apart to look at their components.

Extend the idea. "Show me all the 3-digit numbers you can make with a 3, 5, and 7 in any place."

"Show me all the 2-digit and 3-digit numbers you can make using 3, 5, or 7 in any place."

Zero

After students show a few 3-digit numbers, ask them to show a number with zeroes. "Show me 104. Show me 608."

In the number 104, the 0 means an absence of tens. We don't need a "zero tens"

card to show this. We can show 104 with $100 + 4$; when we put them together, we will see a zero in the tens place, from the 100 card.

Add and Subtract

"Show me 10 more than 13...20 more than 13." If your child arranges the tens cards in sequence, they can pull away each ten to reveal the next, while the 3 remains stable in the ones place.

"Show me 10 less than 97...20 less...."

"Show me 100 more than...100 less than...1000 more than...1000 less than...."

You can transition to the language, "Build a number that is...."

"Build a number that is 40 more than 39....Build a number that is 300 less than 415...."

Regrouping

Discuss with your child, "How can we build a number that is 60 more than 278?". If they count by tens, what happens after 288, 298....? Your child should be able to see they will need to trade to the 300 arrow card in order to continue.

Building on that idea, what is $70 + 60$? (Is it easier to think in terms of $70 + 30 + 30$?). What is $270 + 60$? What is $278 + 60$? Your child should be able to use arrow cards and mental maths rather than paper and pencil calculations. Using this same strategy, but taking things step-by-step, what is $278 + 64$?

How can we build a number that is 50 less than 432? What is 30 less than 430? How can we adjust the number from there? What is 20 less than 400? What is 20 less than 402?

Good Questions Extend Thinking

Your child needs to be able to understand and apply place value skills and concepts to respond to most of the "show me" and "build a number" tasks. Stretch their thinking skills even more with questions having more than one response.

- Build a number whose digits add up to 21.
- Build a 3-digit number in which the tens digit is two less than the hundreds digit and the ones digit is two less than the tens digit. What is the highest number you can build? The lowest number?
- What numbers can you make smaller than 100 that have 7 in the tens place?
- Can you find several ways to build 436 as the sum of smaller numbers?" (For example: $200 + 230 + 6$...).
- I'm a number between 600 and 900 with one zero. What number could I be?