# Key Concepts in Mathematics – Place Value

*If these concepts are not fully developed, students will find it difficult to engage meaningfully with core aspects of the Number, Algebra and Functions strands in later years.*

**Place Value** provides a system of new units based on the idea that '10 of these is 1 of those' which can be used to work with and think about larger whole numbers in efficient and flexible ways.

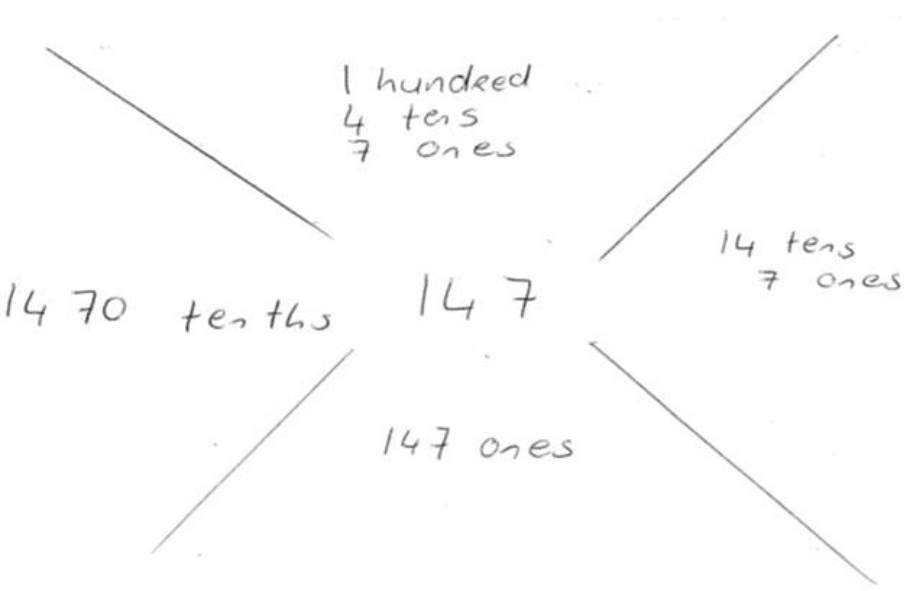
## How does the concept develop?

By about First Class children can count by ones to 100 and beyond, read and write numbers to 1000, orally skip-count by twos, fives and tens, and identify place-value parts (e.g., they can say that there are 3 hundreds 4 tens and 5 ones in 345). Being able to re-name numbers in this way does NOT mean that children understand place value; many children who can identify the hundreds, tens and ones, in a number still think about or ***imagine*** these numbers additively as being bunches of ones. That is they ***imagine*** 345 as 300 ones and 40 ones and 5 ones which is 345 ones. This additive ***mental image*** ignores the multiplicative nature of the base ten system which involves counts of different sized groups that are powers of 10.

Children need to move from being able to ***identify*** place-value parts to being able to ***rename*** numbers in terms of their place-value parts and work in place-value parts.

When children are given large collections to count they begin to develop an understanding that the numbers 2 to 10 can be used as countable units and this ability to efficiently count large collections is a sound basis for place value. In addition children also need a well-developed concept of part–part–whole relationships for numbers from 0–10 as well some ***sense*** of numbers beyond 10, e.g. 15 is 10 and 5 more. See the section on ***Subitising*** for more information.

A student's work displaying evidence of a well-developed concept of *Place Value*.




Read the ***case studies*** and ***tasks*** for ideas on how you can support and track your students' development of the concept of Place Value.

*Children need a deep understanding of the place-value pattern, 10 of these is 1 of those, to support more efficient ways of working with 2-digit numbers and beyond.*