



CARDINALITY AND COUNTING



In Acorn Class, pupils learn that the cardinal value of a number refers to the quantity, or 'howmanyness' of things it represents.

The cardinal value of a number refers to the quantity of things it represents, e.g. the numerosity, 'howmanyness', or 'threeness' of three. When children understand the cardinality of numbers, they know what the numbers mean in terms of knowing how many things they refer to. Counting is one way of establishing how many things are in a group, because the last number you say tells you how many there are. Children enjoy learning the sequence of counting numbers long before they understand the cardinal values of the numbers. Subitising is another way of recognising how many there are, without counting. In Acorn Class, pupils will count and subitise in a range of concrete, pictorial and abstract scenarios. Pupils will be taught how to count and subitise during

teacher directed sessions, as part of classroom routines and during periods of child-initiated learning.

In Acorn Class the progression of learning in this key concept is as follows:

- Counting, saying number words in sequence
- Counting, tagging each object with a number word
- Counting, knowing the last number counted gives you the total so far
- Subitising, recognising small quantities without needing to count them all
- Numeral meanings
- Conservation, knowing that a number does not change if the things are rearranged



COMPARISON



In Acorn Class, pupils learn to understanding that comparing numbers involves knowing which numbers are worth more or less than each other.

Comparing numbers involves knowing which numbers are worth more or less than each other. This depends both on understanding cardinal values of numbers and also knowing that the later counting numbers are worth more (because the next number is always one more). This understanding underpins the mental number line which children will develop later, which represents the relative value of numbers, i.e. how much bigger or smaller they are than each other. In Acorn Class, pupils will compare numbers, quantities and objects in a range of concrete, pictorial and abstract scenarios. Pupils will be taught how to compare during teacher directed sessions, as part of classroom routines and during periods of child-initiated learning.

In Acorn Class the progression of learning in this key concept is as follows:

- More than/less than
- Identifying groups with the same number of things
- Comparing numbers and reasoning
- Knowing 'one more/one less' relationship between counting numbers



COMPOSITION



In Acorn Class pupils learn to understanding that one number can be made up from (composed from) two or more smaller numbers

Knowing numbers are made up of two or more other smaller numbers involves 'part-whole' understanding. Learning to 'see' a whole number and its parts at the same time is a key development in children's number understanding. Partitioning numbers into other numbers and putting them back together again underpins understanding of addition and subtraction as inverse operations. In Acorn Class, pupils will compose and partition numbers, quantities and objects in a range of concrete, pictorial and abstract scenarios. Pupils will be taught how to compose and partition during teacher directed sessions, as part of classroom routines and during periods of child-initiated learning.

In Acorn Class the progression of learning in this key concept is as follows:

- Part-whole: identifying smaller numbers within a number (conceptual subitising – seeing groups and combining to a total)
- Inverse operations
- A number can be partitioned into different pairs of numbers
- A number can be partitioned into more than two numbers
- Number bonds, knowing which pairs make a given number



PATTERN



In Acorn Class, pupils are taught to Look for and find patterns. This helps them to notice and understand mathematical relationships. Pupils focus on repeating patterns, progressing from copying simple alternating AB patterns to identifying different structures in the 'unit of repeat', such as ABB or ABBC. In Acorn Class, patterns can be made with objects like coloured cubes, small toys, buttons and keys, and with outdoor materials like pine cones, leaves or large blocks, as well as with movements and sounds, linking with music, dance, phonics and rhymes and other real-world contexts.

In Acorn Class the progression of learning in this key concept is as follows:

- Copying and Continuing an AB pattern
- Make their own AB pattern
- Spotting an error in an AB pattern
- Identify the unit of repeat
- Continuing and ABC pattern
- Continuing a pattern that ends mid-unit
- Making their own ABB, ABBC patterns
- Spotting an error in an ABB pattern
- Symbolising the unit structure
- Generalising structures to another context or mode
- Making a pattern which repeats around a circle
- Making a pattern around a boarder with a fixed number of spaces
- Pattern spotting around us



SHAPE AND SPACE



In Acorn Class, pupils develop an understanding of what happens when shapes move or combine with other shapes. This in turn helps develop their wider mathematical thinking

Pupils focus on developing visualising skills and understanding relationships, such as the effects of movement and combining shapes together, rather than just knowing vocabulary. Spatial skills are important for understanding other areas of maths and Acorn pupils are provided with structured experiences to ensure they develop these. Pupils actively exploring spatial relations and the properties of shapes, in order to develop mathematical thinking (rather than on shape classification, which requires prior knowledge of properties). Acorn pupils develop the two aspects of spatial awareness and shape awareness, with some progression identified within each.

In Acorn Class the progression of learning in this key concept is as follows:

- Developing spatial awareness: expressing different viewpoints
- Developing spatial vocabulary
- Representing spatial relationships
- Shape awareness, developing shape awareness through construction
- Identifying similarities between shapes
- Showing awareness of the properties of shape
- Describing the properties of shape
- Developing an awareness of relationships between shapes



MEASURES



In Acorn Class pupils will compare different aspects of measurement such as length, weight and volume, as a preliminary to using units to compare later. Mathematically, measuring is based on the idea of using numbers of units in order to compare attributes, such as length or capacity. Although young children engage with using rulers and experience being measured in centimetres, kilos – and years! – the measuring units themselves are hard to understand. In Acorn Class pupils will learn gain practical experience of measurement and gain the foundational knowledge required to develop their understanding in KS1.

In Acorn Class the progression of learning in this key concept is as follows:

- Recognising attributes
- Comparing amounts of continuous quantities
- Showing awareness of comparison in estimating and predicting
- Comparing indirectly
- Recognising the relationship between the size and the number of units
- Beginning to use units to compare things
- Beginning to use time to sequence events
- Beginning to experience specific time durations