

Sets and operations

	Stage 1 (Junior & Senior Infants)	Stage 2 (1st & 2nd Class)	Stage 3 (3rd & 4th Class)	Stage 4 (5th & 6th Class)
<i>Through appropriately playful and engaging learning experiences, children should be able to</i>				
Learning Outcomes	recognise and understand what happens when quantities (sets) are partitioned and combined.	select, make use of and represent a range of addition and subtraction strategies.	understand and apply flexibly the four operations; and the relationships between operations.	build upon, select and make use of a range of operation strategies.
Mathematical concepts	Quantities (or sets) can be partitioned and combined.	Commutative, associative, additive identity and distributive are significant properties of addition.	Commutative, associative, identity and distributive properties apply to the operation of multiplication.	Estimation and rounding are useful to test the reasonableness of answers to more complex operations.
	Adding a natural number to a natural number makes the number (quantity) bigger. Subtracting a natural number from a natural number makes the number (quantity) smaller. This can be represented as a move on the number line or 100 square.	Numbers and symbols are used to construct and express number sentences. These can help to solve problems or are used to express contexts mathematically.	One definition of multiplication is having a certain number of groups of the same size. An early representation of multiplication is repeated addition.	For fractional and decimal computation, new and amended algorithms are needed as some meanings of whole number operations may be difficult to apply.
	A whole number does not change when adding or subtracting zero from that number.	When combining or partitioning numbers, we sometimes need to exchange tens to units, or hundreds to tens where necessary.	The principles used when performing operations on whole numbers are very similar for decimal numbers, with consideration needed on how to handle the decimal point.	A prime number has exactly two factors – itself and one, a composite number has three or more factors. The number one is neither prime nor composite.
	Addition and subtraction have an inverse relationship.	A number fact is a mental picture of the relationship between a number and the parts that combine to make it.	Division can be described as the splitting of a number into equal parts or groups, or the repeated subtraction of a number.	Factors are numbers that multiply together to give a product.
		Representations of subtraction can include reduction, complement and difference.	Multiplication and division have an inverse relationship.	Multiples are the result of multiplying a whole number by a whole number (or an integer by an integer).
			Use of a calculator can reduce computational focus allowing for increased focus on strategies.	