



Mathematical language

As a school, we aim to include mathematical talk in the majority of lessons.

There are 3 different types of language and our children will be encouraged to use all types:

- *Technical* – only have a mathematical meaning e.g. square centimetre;
- *Lexical* – the English and mathematical definition is similar e.g. remainder;
- *Every day* – the mathematical word has both a similar and different meaning to the English word e.g. change.

Why is there a need to talk in Maths?

Teachers use talk to sow seeds from which, in time, may **grow the understanding of their students**. Dialogue with teachers, and with each other, **enables students to consolidate and develop their understanding** over time, so that they can build new understanding upon the foundations of past experience.

(Mercer and Littlejohn, 2007)

Why talk?

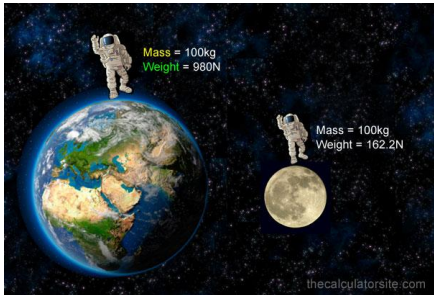
- Talk contributes to the development of connected conceptual understanding;
- Articulating current understanding exposes misconceptions and enables assessment for learning;
- Working with others can promote inclusion and reduce attainment gaps.

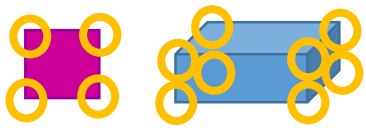
For further guidance on terms not explained in this document, please see:

<https://www.ncetm.org.uk/files/19226855/National+Curriculum+Glossary.pdf>

Glossary of terms

Concept	Name	Synonyms (when speaking)	Example/Diagram
=	equals	is equal to, the same as, balance	$2 + 3 = ?$ $? = 2 + 3$ $4 + 1 = 2 + 3$
+	add	total, sum, plus, addition, more, make, altogether, increase	See calculation policy NOTE: Take care with take away – this is only one method of subtraction.
-	subtract	minus, count back, take away, difference, fewer, less	
X	multiply	times, lots of, groups of, multiples of, array, column, repeated addition, double	
÷	divide	share, group, each, halve, equal groups, split.	
+/-/X/÷	operations	-	-
>	more than	greater than	$4 > 3$  
<	less than	fewer than	
14+3	expression	-	-
14+3 =	equation	number sentence, calculation	-
0	zero	-	-2, -1, 0, 1, 2 We say 'negative 2, negative 2, zero, one, two.' Zero as a place holder. 0.06 We say 'zero point zero six.'

Concept	Definition	Example / Diagram
Factor	Numbers that when multiplied together create a product.	Examples: 1, 2, 3, 4, 6 and 12 are all factors of 12 because $12 = 1 \times 12 = 2 \times 6 = 3 \times 4$ $(x - 1)$ and $(x + 4)$ are factors of $(x^2 + 3x - 4)$ because $(x - 1)(x + 4) = (x^2 + 3x - 4)$
Prime Number	A whole number greater than 1 that has exactly two factors, itself and 1.	Examples: 2 (factors 2, 1), 3 (factors 3, 1). 51 is not prime (factors 51, 17, 3, 1).
Even Number	An integer that is divisible by 2.	$8 \div 2 = 4$
Odd Number	An integer that has a remainder of 1 when divided by 2.	$7 \div 2 = 3 \text{ r } 1$
Volume	A measure of a three-dimensional space. Usually measured in cubic units.	cubic centimetres (cm ³) and cubic metres (m ³).
Capacity	The volume of a material (typically liquid or air held in a vessel or container.)	Note: the term 'volume' is used as a general measure of 3- dimensional space and cannot always be used as synonymously with capacity. e.g. the volume of a cup is the space taken up by the actual material of the cup (a metal cup melted down would have the same volume); whereas the capacity of the cup is the volume of the liquid or other substance that the cup can contain. A solid cube has a volume but no capacity. Units include litres, decilitres, millilitres; cubic centimetres (cm ³) and cubic metres (m ³). A litre is equivalent to 1000 cm ³
Weight	In everyday English, weight is often confused with mass. In mathematics, and physics, the weight of a body is the force exerted on the body by the gravity of the earth, or any other gravitational body.	
Mass	A characteristic of a body, relating to the amount of matter within it. Mass differs from weight, the force with which a body is attracted towards the earth's centre. Whereas, under certain conditions, a body can become weightless, mass is constant. In a constant gravitational field weight is proportional to mass.	
Vertex (Corner KS1, 2D only)	The point at which two or more lines intersect. Plural: vertices.	Both show vertices (corners 2D only) 

Edge (3D)	A line segment, joining two vertices of a figure. A line segment formed by the intersection of two plane surfaces.	Examples: a square has four edges; and a cuboid has twelve edges. 
Side (2D)	A line segment that forms part of the boundary of a figure	
Exchange	Change a number or expression for another of equal value. The process of exchange is used in some standard compact methods of calculation.	Examples: 'carrying figures' in addition, multiplication or division; and 'decomposition' in subtraction.
Partition	1. To separate a set into subsets. 2. To split a number into component parts.	Example: 15 $10 + 5$ $11 + 4$ $12 + 3$ etc  