

The Ultimate Maths Vocabulary Activity Guide

Maths Vocabulary Games,
Activities and Ideas

KS1 / KS2

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Why is developing Maths vocabulary so important?

Language is essential to the development of numeracy and Mathematical skills at KS1 and KS2. Without a firm grasp on the vocabulary surrounding the subject of Mathematics, things can quickly become disjointed and confusing to young minds.

What are the key skills in developing Maths vocabulary?

We can expect children's use of language to vary in its consistency, but it is worth paying attention to whether they are forming, using, and applying the following key features of language development as part of their Maths activities.

Types of talking pupils should be doing during Maths activities

- **Explaining** – giving a clear and detailed account
- **Describing** – putting observations and experiences into words
- **Categorising** – classifying according to common characteristics
- **Making connections** – between items or information
- **Interpreting** – perceiving the significance of connections
- **Predicting** – using available information to estimate outcomes
- **Comparing** – observing similarities and differences between items and relationships
- **Contrasting** – observing differences between items or relationships
- **Clarifying** – making clear their understanding
- **Justifying** – providing evidence to prove a point
- **Elaborating** – developing and extending ideas
- **Planning** – organising ideas, stating ways of proceeding
- **Raising new questions** – children ask their own questions and present issues
- **Investigating** – examining systematically in order to solve a problem
- **Evaluating** – judging and assessing
- **Arguing/conceding a case** – presenting opposing/supporting reasons to a statement
- **Reasoning** – drawing conclusions from facts and evidence
- **Hypothesising** – suggesting an explanation for a group of facts
- **Reciting** – reading or chanting aloud
- **Recounting** – sharing personal experience and findings
- **Retelling** – sharing information learned
- **Summarising** – providing a brief account of the main points

Maths vocabulary games to play in class

10 fun ways to develop KS1 & KS2 Maths vocabulary

- 1. Call My Bluff** - As in the old TV series, give the children Mathematical vocabulary with a choice of definitions. They then use dictionaries to find the correct definition.
- 2. Ready, Steady, Look** - Children race to find specific words in their dictionaries. This develops skills in the use of dictionaries at the same time as developing their awareness of Mathematical vocabulary.
- 3. Give us a Clue** - Guess the word from its definition then confirm whether you're right by checking in the dictionary.
- 4. Speechless** - Using pencil and paper, but without speaking or writing any words, define a word by drawing examples.
- 5. Crosswords** - Design and make crosswords using Mathematical vocabulary.
- 6. Countdown** - Give anagrams of a word, with its definition, and let the children race against the clock to solve the anagram.
- 7. Maths Attack** - Develop understanding of particular concepts and specialist vocabulary by asking children to develop the definitions and examples given in the dictionary. Produce a fact sheet or poster with as many examples as possible to define the word.
- 8. Maths Hangman** - Play the age-old game using only Maths vocabulary.
- 9. Maths Mastermind** - Challenge children to read maths dictionaries to try to find words others might not know. Play a Mastermind-type game with children taking turns in the hot seat.
- 10. The Yes/No game** - A child, or team of children, chooses a word and others have to ask questions in an attempt to define the word.

One of our favourite activities from the list above is a Maths version of the classic game Call My Bluff. Here is how you can adapt this fun game for your classroom.

Call My Bluff

This is a great way to combine creative literacy with Maths, and is a fun game to play for Maths vocabulary from A-Z.

Here's how it works. Children work in small groups to co-create the definition for a Maths word, then come to the front of the class and read them out. The class then has 30 seconds to select the one that they think fits the word best.

Here are some ideas of how you could make this work in your classroom:

WORD: VINCULUM

- A: A vinculum is a creature that lives in the reception sandpit and only comes out at night
- B: A vinculum is a tool for making straight lines out of circles
- C: A vinculum is a horizontal line that separates the numerator and denominator when writing fractions
- D: Vinculum is the fancy name for earwax

You could also get children to invent more Mathematical alternatives, restricting this to just three options (two incorrect and one true). Tell children to use a part of the word if possible and incorporate it into one of the false definitions. Here's an example.

WORD: PERIMETER

- A: A measuring device used to measure peri-peris (a unit or measurement smaller than a millimetre)
- B: The distance around the edge of something, sometimes known as circumference
- C: A fraction of a metre equal to one peri or 25cm

Playing this game will help children to work together, discuss their ideas, refine them and explain their thinking. It will also improve their dictionary skills and boost their Mathematical knowledge.

Graphic organisers: A method to improve word definition knowledge

Word definitions are a methodical way of stimulating children's understanding of Maths words.

Presented as a graphic organiser, word definition activities help children voice their thinking and express their understanding of words and their meanings. They help children think more deeply about Maths vocabulary, as defining a word collaboratively helps everyone to compare and discuss their ideas in order to reach a shared understanding.

The intelligibility, precision and complexity of the definitions give us a clear signal as to what children know, don't know and partly know. This provides valuable diagnostic feedback which we can build on to co-create better more accurate definitions.

Word definitions can be used across the Maths curriculum but it is helpful to focus on a specific theme or area.

They can help to illustrate children's own comprehension of the words that they will meet in Maths. Different learners will have diverse definitions and will express them in dissimilar ways.

Word definitions are primarily useful at the commencement and conclusion of a piece of work. This way children can note any changes to the definitions and can discuss how their understanding of the word has improved. Also, the precision, accuracy and density of the definitions give a good clue of the level of understanding.

Here's how it works

First, present the children with a partially completed word definition table (see below). If you want, you can add a couple of definitions, either accurate or not, to get children started.

If the children are certain they understand a word, then they can give it three stars but if they are uncertain they use only one star. Somewhere in between the two attracts two stars.

You can present the task as follows:

WORD	What we think it means.	How sure are we? *** = pretty sure ** = some bits are ok * = not very sure
Sum		
Difference		
Product		
Quotient		
Total		

You can also include other words to the above, such as terms, addend, minuend, subtrahend, multiplicand, multiplier, factor, multiple, dividend, divisor, etc.

An example of a more complex word definition graphic organiser

WORD	What we think it means.	How sure are we? *** = pretty sure ** = some bits are ok * = not very sure
Natural		
Prime		
Composite		
Triangular		
Square		
Pentagonal		
Consecutive		
Positive		
Negative		
Ordinal		
Cardinal		

“Language is central to learning Maths, and the better pupils are at using Maths vocabulary and terminology, the better they will be able to show their Maths knowledge.”

How to make your own Maths dictionary

Why not get your class to make their own Maths dictionary? Children are more likely to remember the meanings and terms of Mathematical words and phrases if they have constructed the pages for themselves.

Children can choose vocabulary which reflects their age range, and once made, the dictionary can be accessed and used during Maths activities.

To make a Maths dictionary think carefully about the sort of vocabulary you will include. Here's a list of some suggestions:

acute • addition • angle • area • bigger than • calculator • capacity • centimetres • circle • co-ordinates • cuboid • cylinders • data • decimal point • degrees • digit • division • edges • fraction • graphs • hexagon • horizontal • inches • kilograms • length • measure • metre • multiplication • obtuse • o'clock • octagon • parallel • patterns • perimeter • probability • protractor • rectangle • reflection • rhombus • right-angle • rotation • round • ruler • scales • shape • sides • smaller than • speed • square • subtraction • surfaces • symmetry • tessellation • time • triangle • vertical • volume, weight • x-axis • y-axis

Further Maths dictionary tips

Think about variations of these words, such as words with the same meaning and words which have more than one meaning. You will also need to think about the format and layout of the book, and you can discuss possible designs with your class. Next, think about which children will make which pages and what terms they are going to include. Once all children's efforts have been put together, the finished Maths dictionary will make a valuable classroom resource.

True Maths fluency only comes when each element of a problem is fully understood by a pupil, and this means that their vocabulary needs to be at a high level.

However, Maths dictionaries only have value in the classroom if children are guided to use them well! It would be so easy to invest time and money in the purchase or creation of Maths dictionaries for every classroom, and just as easy for those dictionaries to sit on a shelf gathering dust. So if you buy Maths dictionaries make sure that their use in the classroom is made explicit and planned for - at least until the children become familiar with their uses and applications.

Looking for inspiration for your class Maths dictionary?

If you are looking to create a Maths dictionary with your class but aren't sure where to begin, take a look at our Ultimate Maths Vocabulary List. It contains the 96 words every pupil needs to know by the end of Year 6, and it is a great base from which to build out your own Maths dictionary.

How to Use This Resource

An essential building block in pupil's understanding of maths is their knowledge of and correct use of the key words and terminology in Maths. On the following pages you'll find the 96 key words your pupils should be able to understand and explain.

To really embed their knowledge of maths terminology however, we recommend you actually encourage them to build their own maths vocabulary list. You can use our list or parts of our list as a prompt to get them started, or hand it out in full and encourage them to add to it.

Children are much more likely to remember the meanings and terms of mathematical words and phrases if they have constructed the pages for themselves. They can choose vocabulary which reflects their age range, and once made, the dictionary can be accessed and used frequently during maths activities.

Maths Vocabulary List

Use the following A-Z of key concepts to help you get started creating your own dictionary of terms:

A

Concept	Definition	My Notes
Acute	Describes angles between 0 and 90 degrees.	
Adjacent	Adjoining (as used to describe lines and angles).	
Alternate	Every other one in a sequence.	
Angle	The number of degrees rotated around a point.	
Area	The amount of space within a perimeter (expressed in square units).	
Ascending order	The arrangement of numbers from smallest to largest.	
Average	A number representing a set of numbers (obtained by dividing the total of the numbers by the numbers itself).	
Axis of symmetry	A line dividing a shape into two symmetrical parts.	

B

Concept	Definition	My Notes
Baker's dozen	The colloquial name given to the number 13.	
Base	The line or face on which a shape is standing.	
Base angles	Those angles adjacent to the base of a shape.	
Bisect	To divide into two equal parts.	
Breadth	Breadth is another name for width. It is the distance across from side to side.	

C

Concept	Definition	My Notes
Capacity	The amount of space in an object (the amount of liquid or air it contains).	
Cardinal number	A number that shows quantity but not order.	
Carroll Diagram	A problem-solving diagram used in classification activities.	
Circumference	The distance around a circle (its perimeter).	
Composite number	A number with more than two factors.	
Congruent	Congruent shapes are the same shape and size (equal).	
Consecutive	Consecutive numbers follow in order without interruption (e.g. 2,3,4,5).	
Coordinates	Numbers used to locate a point on a grid.	

D

Concept	Definition	My Notes
Denominator	The number below the line in a fraction.	
Descending order	The arrangement of numbers from the largest to smallest.	
Diagonal	A straight line connecting two non-adjacent vertices (corners) of a polygon.	
Difference	By how much a number is bigger or smaller than another.	
Digit	Any number from 0 to 9 (inclusive).	
Digital root	The digital root of 58 is 4 because $5 + 8 = 13$ and $1 + 3 = 4$	
Dimensions	The measurements of a shape (i.e. length, width, height).	
Dodecagon	A twelve sided polygon.	

E

Concept	Definition	My Notes
Edge	The intersection of two faces of a three-dimensional object.	
Equation	A statement of equality between two expressions (e.g. $3 \times 4 = 6 + 6$).	
Equilateral triangle	A triangle with congruent (equal) sides and angles.	
Even number	A positive or negative number exactly divisible by 2.	
Exterior	Outside.	

F

Concept	Definition	My Notes
Face	A plane surface of a three-dimensional object.	
Face value	The numeral itself despite its position in a number (e.g. the face value of 8 in 38,250 is 8).	
Factor	A number which will divide exactly into another number.	

G

Concept	Definition	My Notes
Greater than	An inequality between numbers. The symbol used to represent greater than is an arrow pointing towards the smallest number.	
Gross	The name given to the number 144.	

H

Concept	Definition	My Notes
Hendecagon	A two dimensional shape with eleven sides and eleven angles also called an undecagon.	
Heptagon	A two dimensional shape with seven sides and seven angles also called a septagon.	
Hexagon	A polygon with six sides.	
Horizontal	Describes a line or plane parallel to the earth's surface.	

I

Concept	Definition	My Notes
Improper fraction	A fraction whose numerator is equal to or greater than its denominator.	
Integer	A negative or positive whole number.	
Interior	Inside.	
Intersection	The point or line where two lines or two faces meet.	
Irregular shapes	Shapes which do not have all congruent sides and all congruent angles.	
Isosceles triangle	A triangle which has two equal sides of equal length.	

K

Concept	Definition	My Notes
Kite	A quadrilateral that has two adjacent pairs of sides that are equal in length, and at least one pair of opposite angles are equal.	

L

Concept	Definition	My Notes
Less than	An inequality between numbers. The symbol used to represent less than is an arrow pointing towards the smallest number.	
Line of symmetry	(See axis of symmetry).	
Lozenge	Another name for a rhombus.	

M

Concept	Definition	My Notes
Mean	The average of a set of numbers. The sum of the values in a set of data divided by the total number of items in that set.	
Median	The middle value of a set of ordered data.	
Mode	The value that occurs the most often in a set of data.	
Multiple	The product of a given number with another factor.	

N

Concept	Definition	My Notes
Numerator	The number above the line in a fraction.	

O

Concept	Definition	My Notes
Oblique	Oblique means sloping or slanting.	
Oblong	A shape with two pairs of straight, unequal sides and four right angles. Also known as a rectangle.	
Obtuse angle	An angle between 90 and 180 degrees.	
Octagon	A polygon with eight sides and eight angles.	
Odd number	A number that when divided by two leaves a remainder of one.	
Ordinal number	Describes a position in a number sequence.	

P

Concept	Definition	My Notes
Parallel lines	Lines with no common points and always the same distance apart.	
Parallelogram	A four-sided polygon with opposite sides equal and parallel and the opposite angles are equal in size.	
Perimeter	The length of the distance around the boundary of a shape.	
Perpendicular line	A line at right angles to another line or plane.	
Polyhedron	A three dimensional shape with plane faces.	
Place value	Indicates the position of a numeral (e.g. the place value of the 3 in 738 is 30)	
Prime number	A number with only two factors, 1 and itself (e.g. 2,3,5,7,11, 13, 17, 19, 23...)	
Product	The result when two or more numbers are multiplied.	

Q

Concept	Definition	My Notes
Quadrant	A quarter of the area of a circle which also contains a right angle.	
Quotient	The result when one number is divided by another number.	
Quindecagon	A polygon with fifteen sides and fifteen angles.	

R

Concept	Definition	My Notes
Rectangle	A quadrilateral with opposite sides equal and parallel and containing four right angles.	
Reflex angle	An angle greater than 180 degrees.	
Rhombus	A parallelogram with congruent sides. Opposite sides are parallel and opposite sides are equal in size.	
Roman numerals	Seven letters are used in combination to write numbers: I = 1 V = 5 X = 10 L = 50 C = 100 D = 500 M = 1000	
Rotational symmetry	A shape is said to have rotational symmetry if it looks the same in different positions when rotated about its centre.	
Rounding	An approximation used to express a number in a more convenient way.	

S

Concept	Definition	My Notes
Scalene triangle	A triangle that has three sides of different length and no equal angles.	
Score	The name given to the number 20.	
Squared	A number squared is a number multiplied by itself.	
Square number	A number whose units can be arranged into a square (e.g. 1,4,9,16,25,36,49,64...)	
Sum	The result when two or more numbers are added together.	
Symmetrical	A shape is symmetrical if it is identical on either side of a line dividing it into two parts.	

T

Concept	Definition	My Notes
Tally	A record of items using vertical and oblique lines to represent each item.	
Tetragon	A four sided shape.	
Tessellation	Shapes fitted together with a number of exact copies and with no overlaps or gaps.	
Translation	This takes place when a shape is moved from one place to another just by sliding it (without rotating, reflecting or enlarging).	
Trapezium	A quadrilateral with two parallel sides.	
Triangular number	A number whose units can be arranged into a triangle (e.g. 1, 3, 6, 10, 15, 21...)	
Trigon	A three sided shape.	

V

Concept	Definition	My Notes
Vertex	The point at which two or more line segments or two or more edges of a polyhedron meet.	
Vertical line	A line which is at right angles to a horizontal line.	

Summary

Teaching Maths vocabulary in KS1 and KS2 is crucial to ensure that pupils cement their knowledge of the terms and phrases they need to master the subject.

Games and quizzes are a fantastic way to improve Maths vocabulary across the board.

Conclusion

Whilst Maths vocabulary may seem like a daunting topic, if it is broken down and developed stage by stage then pupils knowledge around the subject will begin to increase very quickly. Pupils who have the widest Maths vocabulary go to schools which immerse them in the world of Maths words on a daily basis through games, quizzes and fun activities, and through these activity ideas you can do the same.

We hope that this guide has inspired you to create some fun activities for your class to help them improve their Maths vocabulary.