Yerbury Mathematical Language Guide

Mathematics is often referred to as a universal language, but it is anything but. At Yerbury, we understand that it is heavily influenced by cultural misconceptions and colloquialisms that can impede learning. A coordinated approach to the use of language is essential in improving the quality of teaching and learning in Maths.

Language is central to learning mathematics and the better pupils are at using Maths terminology by KS2, the better they will be able to show their maths knowledge. Being precise begins with stumbling, but with opportunities to use language accurately pupils will become better mathematicians in the long run.

Children should *always* be encouraged to speak in full sentences, using correct and appropriate mathematical language when talking about maths or answering questions.

We hope that the attached glossary will help parents and staff to ensure they are consistently using the correct language with children. Some key language is also included below with examples.

The language of the four operations

We must be careful that we call 1 + 1 a calculation (or an expression) and *not* a sum as this can create misconceptions. Therefore children may be asked to solve the calculations but not do 'do their sums'. **From KS1**, children should understand that each part of a calculation has a name and a function and they should be able to use these where appropriate. Children should learn to not always use 'answer' as a blanket term and instead be encouraged to use the language of sum, difference, product and quotient by in KS1 which should be embedded in KS2.
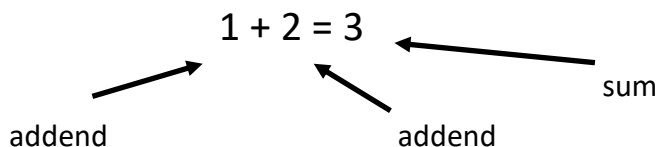
Additive language

From KS1, children should know that the answer to an addition calculation is the **sum** and the numbers we are adding are called **addends.** This language should be regularly modelled alongside other related terms such as 'plus' and 'add':

Teacher: "What is the sum of 1 and 1?"

Child: "The sum of 1 and 1 is 2".

Names of the parts of an addition calculation:

$$1 + 2 = 3$$

addend   addend   sum

Addend - The parts which are to be added together. May be referred to as 'the first' or 'the second' addend.

Sum - The total obtained by combining addends.

Subtraction Language

From year 2, children should learn the term and concept of **difference** in relation to subtraction alongside common words and structures such as 'take-away', 'minus, and 'subtract'. This should be regularly modelled with appropriate language and images such as part-whole models.
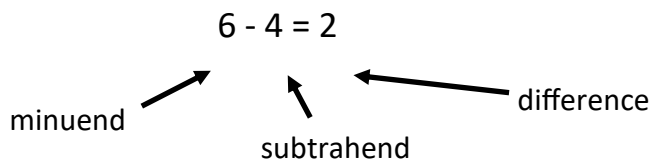
Teacher: What is 6 subtract 4?

Child: 6 subtract 4 is 2.

Teacher: So what is the *difference* between 6 and 4?

Child: The difference between 6 and 4 is 2.

Names for the parts of a subtraction calculation:

$$6 - 4 = 2$$

minuend

subtrahend

difference

Minuend - The number from which another number is to be subtracted.

Subtrahend - The number which is to be subtracted from the minuend.

Difference - The answer to a subtraction calculation. A key concept for children to understand.

Multiplicative language

Children should learn and begin to use the language of 'factor' and 'product' in KS2 alongside common terms such as 'lots of' and 'times'. Care should be taken to encourage the use of the word **multiplied** instead of 'timsed' (as in '4 timsed by 5' for example). Younger children should be initially introduced to the concept of 'five, four times' rather than 'four times five', as this is an important conceptual step linked to the use of manipulative equipment which aids understanding.
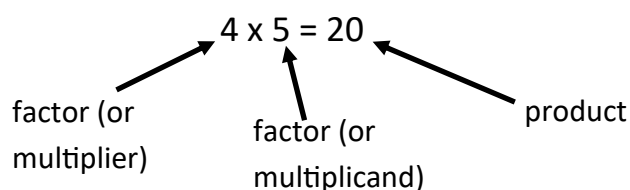
Teacher: "What is 4 multiplied by 5?"

Child: "4 multiplied by 5 is 20."

Teacher: "What is the product of 4 and 5?"

Child: "The product of 4 and 5 is 20".

Names of the parts of a multiplication calculation:

$$4 \times 5 = 20$$

factor (or multiplier)

factor (or multiplicand)

product

Factor - Numbers which can be multiplied together to make another number. It is also a number which divides exactly into another number without leaving a remainder.

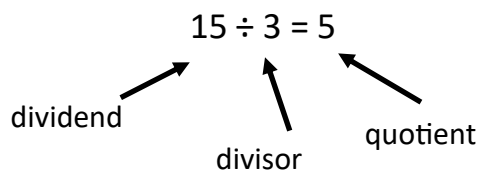**Product** - The result of two or more numbers being multiplied together.

The language of division

Division is taught alongside multiplication. Grouping and sharing are two different important concepts connected to division which must be understood by learners. As well as using the language of 'X divided by Y is Z', children should be encouraged to start using the word **'quotient'** to describe the answer to a division calculation and to find the **quotient** of two numbers in KS2.

Teacher: What is the quotient of 15 and 3?

Child: The quotient of 15 and 3 is 5.

Names for parts of a division calculation (only the quotient needs to be specifically emphasised but it is useful if children know and use the names of the other parts):

$$15 \div 3 = 5$$

dividend

divisor

quotient

Dividend - The number being divided (grouped or shared).

Divisor - The number which the dividend is being divided by.

Quotient - The quantity produced by a division of two numbers.