

Possible problem areas in Mathematical Language

In maths it is possible to use different language to describe the various operations. Below we have highlighted in bold print the language which is most commonly used. Sometimes a variety of language may be used.

Junior & Senior Infant Classes:

Symbols: note...these are **not** introduced until Senior Infants.

The *plus* symbol (+)

How do children 'read' $4+2$? What do they say?

"Four plus two .."

"Four and two"

"Four and two altogether ..."

The *equals* symbol (=).

What words aid real meaning to the child?

"equals" or "is equal to". "makes.."

"is.."

"is the same as"

"altogether makes.."

The numeral 0. How do children 'read' this? **Zero, Nought,**

Calling the vertex of a 3-D shape a corner at the junior classes – is this what you do?

[YES]

First & Second Classes:

1. The **minus** symbol (-). There are 3 different concepts involved in subtraction, each of which involve the use of different language. All three below are used.

a. **Deducting:** I had 10 sweets. I ate 3. How many have I left ?

b. **Complementing:** 6 eggs fill the carton. There are 3 eggs in the carton, how many more are needed to fill the box.

c. **Difference:** John has 10 sweets. Mary has 3 sweets. How many more has John than Mary?

2. The **algebraic frame** ([]). $3 + 5 = []$

"Three and five equals ?... **box / bracket**

3. **Place-value:** **units** not *ones*. The rationale for this was that children had difficulty with understanding *one ones*.

4. **Fractions** of a unit are introduced in First Class, the language developed here becomes the foundation for all fraction work in later classes,

e.g. **"if I divide something into two equal parts, each part is called a"**

"to give Tommy half of my orange, I need to".

The most important issue here is 'equal' shares when making fractions – many children still think you can have a 'big half and a small half'

5. Language of the **Subtraction Algorithm**

“Seven take away four”

“Four from seven”

Both are used

Third to Sixth Classes:

1. The **multiplication symbol** (\times). If children learn that this means a number gets bigger, it can cause problems later on.

6 x 3 can be ‘read’ by the child in many ways. The following three phrases are used.

- **6 threes or 3 sixes**
- **6 sets/groups of 3 or 3 sets/groups of 6**
- **6 times 3 or 3 times 6**

2. Language of the short-multiplication algorithm :
$$\begin{array}{r} 47 \\ \cdot \\ \hline \end{array} \times 3$$

This can be “operated on” by approaching it as 3 multiplied by 7 or or, starting from the top, 7 multiplied as 3. Both ways are used.

3. **The division symbol** (\div) Often at the end of Third Class, many children do not understand the division symbol. $6 \div 2 =$

Child may read as “6 divided by two” but this reveals little of what he/she understands.

Both of the following explanations are used.

Sets..... “how many sets of two can be made from a set of 6”

Share..... “share 6 sweets equally between two people” (and importance of linking this to the fraction concept, i.e. if I share 6 sweets equally between two children, each child will get a half.

Maths language across the Strands

Below is a summary of the math's language which can be used at each level. It is not an exhaustive list and may be added to as required.

Junior Infants	Senior Infants
Long/short, longer/shorter More than/less than/ same as First/last Over, under, up, down, on, beside, in Shape Square, circle, triangle, rectangle Roll/ do not roll Fit/ do not fit Round/not round, thick, thin Long/short, tall/short, wide/narrow, longer, shorter, wider than	As Junior Infants plus: Ordinal number – first, second, third, last Above, below, near, far, right, left Cube, cuboid, sphere, cylinder Edge, corner, face, straight, curved, round, flat, side, corner As long as/as wide as/longest/shortest Yesterday/today/tomorrow/seasons/soon/not yet/birthday Cost, price, cheap/expensive, change, too much/too little Cost, price, cheap/expensive, change, too much/too little
First	
As Senior Infants plus: Between, underneath, on top of, around, through, left, right Square, rectangle, triangle, circle, semicircle Half Cube, cuboid, cylinder, sphere Length, width, height, measure, nearly a metre, a bit more than/a bit less than a metre	As First class plus: Quarter Cone, oval Metre, centimetre Euro Symmetry Area Digital clock/time Block graph Corners

Third	Fourth
<p>As Second class plus:</p> <p>Regular/irregular shapes</p> <p>Sphere, triangular sphere, prism, pyramid</p> <p>Sides, angles, parallel and non-parallel lines</p> <p>Tessellate</p> <p>Nets</p> <p>Symmetry</p> <p>Vertical, horizontal and parallel lines</p> <p>Clockwise/anti-clockwise</p> <p>Gramme, kilogram</p>	<p>As Third class plus:</p> <p>Equilateral, isosceles, scalene triangle, parallelogram, rhombus, pentagon, octagon</p> <p>Diagonal</p> <p>Oblique, perpendicular lines</p> <p>Acute, obtuse and right angles</p> <p>Perimeter</p> <p>Hundredths</p> <p>Chance, likely, unlikely, never, definitely</p> <p>Bar line graph</p> <p>scale</p>
Fifth	Sixth Class
<p>As Fourth class plus:</p> <p>Thousandths</p> <p>Prime and composite numbers</p> <p>Square and rectangular numbers</p> <p>Factors, multiples</p> <p>Positive and negative numbers</p> <p>Equations</p> <p>Quadrilaterals</p> <p>Diameter, radius, chord, circumference, arc, sector, tangent</p> <p>Tetrahedron</p> <p>Vertices</p> <p>Reflex angle, degrees</p>	<p>As Fifth class plus:</p> <p>Square roots</p> <p>Quotients</p> <p>Octahedron</p> <p>Scale</p> <p>Ares/hectares</p> <p>Trend graph</p>