Math words: two ways to learn

Original mathematical definitions + verified Into Math wording in paraphrase.

PERIMETER

Created definition: The total length of the boundary of a two-dimensional figure. For a polygon, add the lengths of all its sides.

Into Math (paraphrased): The teacher edition describes measuring around every side of the rectangle. [TE, p.227D]

FORMULA

Created definition: A rule written with mathematical symbols that states a relationship between quantities.

Into Math (paraphrased): Symbols communicate how quantities are related or how a problem can be solved. [SE, p.43]

LENGTH AND WIDTH

Created definition: The two dimensions used to describe a rectangle, measured along adjacent, perpendicular sides. We label these l and w.

Into Math (paraphrased): The lesson uses l for the rectangle's length and w for its width. [SE, pp.43, 220]

AREA

Created definition: The measure of a two-dimensional region, expressed in square units. For a tiled region, count unit squares without gaps or overlaps.

Into Math (paraphrased): The area lesson connects counting unit squares with multiplying a rectangle's side measurements. [SE, p.220]

ESTIMATE

Created definition: An approximate value chosen to be reasonably close to an exact or measured value.

Into Math (paraphrased): The vocabulary explanation identifies an estimate as a nearby approximate number. [SE, p.24]

UNIT OF LENGTH

Created definition: A standard amount of distance used as a reference for measuring lengths.

Into Math (paraphrased): The program uses customary and metric length measures, including feet, yards, centimeters, and meters. [SE, pp.490–491, 516]

Recipe connection: Measurements are the ingredients. Operations are the directions. The calculated perimeter is the result. A recipe is our analogy; the mathematical definition explains what a formula actually is.

More precise words to keep handy

These definitions and classroom explanations were created for this lesson.

BOUNDARY

The edge separating a plane region from what lies outside it.

In our words: Trace the edge without crossing the middle.

RECTANGLE

A quadrilateral with four right angles. Its opposite sides have equal lengths.

In our words: A closed four-sided shape with four square corners.

SQUARE

A rectangle whose four sides all have the same length.

In our words: Every square is also a rectangle.

VARIABLE

A symbol, often a letter, that represents a number whose value may vary.

In our words: The value of l changes when we use a rectangle of a different length.

SCALE

A ratio comparing a distance in a drawing or map with the corresponding actual distance.

In our words: On yesterday's map, 1 cm represents 200 miles.

RIGHT ANGLE

An angle measuring 90 degrees.

In our words: A square corner, like the corner of this page.

Abbreviations: cm = centimeters; m = meters; in. = inches; ft. = feet; yd. = yards.
Formula key: P = perimeter; l = length; w = width; A = area.
Rectangle: P = l + w + l + w = 2 × l + 2 × w. Area: A = l × w.

Into Math sources: HMH, Into Math NM Grade 4, publicly available student and teacher editions. Page numbers above are printed book pages, not viewer numbers. The cited explanations are paraphrases; slides 1–2 show short verified excerpts. Additional terms on this page are original definitions, not unverified textbook quotations.

Student edition source | Teacher edition perimeter explanation