

## MATHEMATICAL THINKING GLOSSARY

**analyze** – to study and think of solutions for mathematical problems (e.g., The teacher asks a child to tell how many bears there are all together. The child counts the three green bears and the two red bears and discovers there are five bears.). When thinking about measurement, analyzing is often looking at two objects to compare and analyze (figure out) which is more or less, heavier or lighter, tall, taller, or tallest.

**angle** – two lines meeting together at one point.

**cardinal number** – a number to express quantity but not order.

**circle** – a round two-dimensional figure that resembles a ring.

**combining** – adding two sets of objects together (e.g., “There are five boys and two girls here. Let’s combine all of the children and see how many there are.”).

**comparative statements** – Statements children make comparing two items as the same or different that eventually help them draw conclusions (e.g., A child holds two sticks up and says, “This stick is long and this stick is short.” Eventually the child would say, “This stick is longer than this the other stick.”). A child must analyze a situation before they are able to make comparative statements like this.

**comparative terminology** – words that can be used to compare at least two things, including terms such as short, tall, heavy, heavier, bigger, biggest.

**cone** – a three-dimensional shape whose base is a circle and whose sides taper up to a point.

**cube** – a three-dimensional solid figure with six equal square faces and right angles; three-dimensional square.

**cylinder** – a three-dimensional shape that looks like a tube, with straight vertical sides that curve around the circular ends of equal size.

**decade** – a group, set or series of ten.

**distance words** – words that compare where an object is in relation to another object or in relation to a person (e.g., near, far, close to, far from, shortest/longest path).

**equivalent** – equal (e.g., a square has four equivalent sides).

**geometry** – an area of mathematics that involves shape, size, position, direction and movement.

**horizontal** – an orientation related to the horizon.

**flipping** – changing the orientation of a shape 180 degrees, from front to back.

**measurement vocabulary** – words that describe measurement, such as length, weight, height. Although the VPK Standards focus on non-standard measure, not standard measure, children often use standard measure vocabulary, such as cup, inch, foot, mile, minute, hour, year (as in, “I am four years old).

**movement words** – words that describe movement in a certain direction (up, down, forward, around, through, toward, away from, sideways, across, back and forth).

**non-standard measure** – also known as non-standard reference. Non-standard measures can vary, such as length of a person’s hand, but can still be used to measure and discuss differences among objects. Non-standard measure usually involves an object, but does not have numerals in the way that rulers do.

**number or number name** – the spoken name of a number, what is said aloud.

**number words** – words that are spelled out, such as: one, six, eighteen.

**numeral** – a symbol or set of symbols used to represent a number (e.g., the number *five* is represented by the symbol or numeral 5).

**one-to-one correspondence** – pairing or matching objects in a one-to-one relationship (e.g., giving one apple to each child at snack time).

**ordinal** – showing the relative position in a sequence of numbers (e.g., first, second, third).

**orientations** – the positions of a shape or figure (e.g., on top of, below, behind, in front of).

**oval** – a two-dimensional egg-shaped figure; an elongated ring.

**pattern** – a repeating series of units.

**pattern unit** – the repeating part of a pattern (e.g., red, blue would be the pattern unit in the pattern red, blue, red, blue, red, blue).

**position words** – words that describe where something is, in relation to other objects (on, off, on top of, over, under, in out, next to, beside, behind).

**predicts** – stating an idea (opinion), usually based on previous experiences with analyzing and discussing a topic.

**proportional** – two quantities having the same or similar measurements.

**pyramid** – a three-dimensional figure where the side faces are triangles united at a common point.

**rectangle** – a two-dimensional figure with two sets of parallel lines and four right angles.

**relative position from different perspectives** – concept of the same object being in different positions based on the observer’s, point of view (e.g., an upside down triangle and a right side up triangle; they are the same object but in different positions).

***rhombus*** – a two-dimensional figure with four equal length sides, but not right angles.

***remove from*** – taking objects from a set, subtracting (e.g., “We have ten friends here, but now Jonah is going home. How many friends will we have when one leaves?”).

***rotating*** – changing the orientation of a shape in either direction by turning it, without flipping it over.

***seriation*** – arrangement in rows or a series by an attribute.

***set*** – a group of objects.

***sides*** – the straight lines on the edge of a two-dimensional shape.

***sliding*** – moving a shape in any direction (left, right, up, down, to the side).

***spatial sense*** – the ability to build and manipulate mental representations of two- and three-dimensional objects and ideas.

***separating a set*** – dividing a set of objects (e.g., if there are four people that want a piece of pizza, the pizza is cut into 4 pieces.).

***sphere*** – a three-dimensional figure with a round body (e.g., a ball, marble, or globe).

***square*** – a two-dimensional figure with four equal sides and four right angles.

***standard measure*** – also known as standard reference. Standard measures are consistent and have been agreed upon. Rulers, scales, and clocks are ways in which we measure length or height, weight, or time in a standard way.

***symmetry*** – the property of having exactly similar parts on both sides of a central dividing line. The correspondence in the position of pairs of points of a geometric object that are equally positioned about a point, line, or plane that divides the object.

***trapezoid*** – a two dimensional figure with four sides. Two sides are parallel, and two sides are convergent (angled in).

***triangle*** – a two-dimensional figure with three sides and three angles.

***vertical*** – an orientation that is at a right angle to the horizontal.