

Academic Vocabulary

CONTENT BUILDER FOR THE PLC

MATH
GRADE 8

PLEASE NOTE: The words contained in **Academic Vocabulary** are words/concepts/terms essential for concept development; this list is not intended to be comprehensive. The “new to grade level” vocabulary suggestions are a starting point, and educators are encouraged to refer to their district curriculum resources for additional words/concepts/terms.

Real Number Relationships

8.2 Number and operations. The student applies mathematical process standards to represent and use real numbers in a variety of forms.

important words for concept development			
subcluster	standards	new to grade level	previously introduced
Representation	8.2(A), 8.2(C)	irrational number* real number* scientific notation* square root	π (pi) integer rational number* whole number*
Magnitude	8.2(B), 8.2(D)	$\sqrt{\quad}$ (square root)*	π (pi) > (greater than) < (less than)* = (equal to) greatest to least* least to greatest*

Proportional and Non-Proportional Reasoning

- 8.4 Proportionality.** The student applies mathematical process standards to explain proportional and non-proportional relationships involving slope.
- 8.5 Proportionality.** The student applies mathematical process standards to use proportional and non-proportional relationships to develop foundational concepts of functions.
- 8.9 Expressions, equations, and relationships.** The student applies mathematical process standards to use multiple representations to develop foundational concepts of simultaneous linear equations.

important words for concept development				
subcluster	standards	new to grade level		previously introduced
Slope	8.4(A), 8.4(B)	hypotenuse*		proportion*
		slope*, m		ratio*
				similar right triangle*
				unit rate*
Proportional Reasoning	8.5(A), 8.5(E)	direct variation/varies directly*		equation ($y = kx$)*
				proportional situation
Non-Proportional Reasoning	8.4(C), 8.5(B), 8.5(I), 8.9(A)	function*	x-intercept	constant rate of change
		intersecting lines	$y = mx + b$	non-proportional situation
		point of intersection	y-intercept*	rate of change*
		slope*, m		
Proportional and Non-Proportional Recognition	8.5(F), 8.5(H)			non-proportional*
				proportional*
Function Identification	8.5(G)	function*		
		y as a function of x *		

Equations and Inequalities

- 8.8 Expressions, equations, and relationships.** The student applies mathematical process standards to use one-variable equations or inequalities in problem situations.

important words for concept development				
subcluster	standards	new to grade level		previously introduced
Representation and Solutions	8.8(A), 8.8(B), 8.8(C)			coefficient constant equation* greater than or equal to greater than/more than inequality
				less than or equal to less than*/fewer than* maximum/at most; met or exceed minimum*/at least variable

Geometry and Measurement – Two-Dimensional

8.3 Proportionality. The student applies mathematical process standards to use proportional relationships to describe dilations.

8.10 Two-dimensional shapes. The student applies mathematical process standards to develop transformational geometry concepts.

important words for concept development				
subcluster	standards	new to grade level		previously introduced
Triangles and Transversals	8.8(D)	exterior angle interior angle transversal vertical angle		adjacent angle complementary*/supplementary* angles congruent* parallel*
Dilations	8.3(A), 8.3(B), 8.3(C), 8.10(D)	center of dilation* dilation*/dilated* prime notation/rule*		area* corresponding side length origin* proportion* ratio scale factor* similar*
Transformations	8.10(A), 8.10(B), 8.10(C)	center of rotation* clockwise*/ counter-clockwise reflection* rotation* (90°)*, (180°)*	rotation (270°, 360°) transformation* translation*	congruence* corresponding side length*/angle* origin* x-axis* y-axis*

Geometry and Measurement – Pythagorean Theorem

- 8.6 Expressions, equations, and relationships.** The student applies mathematical process standards to develop mathematical relationships and make connections to geometric formulas.
- 8.7 Expressions, equations, and relationships.** The student applies mathematical process standards to use geometry to solve problems.

important words for concept development			
subcluster	standards	new to grade level	previously introduced
Pythagorean Theorem	8.6(C), 8.7(C), 8.7(D)	converse of the Pythagorean theorem endpoint* hypotenuse leg Pythagorean theorem square root	right triangle*

Geometry and Measurement – Three-Dimensional

- 8.6 Expressions, equations, and relationships.** The student applies mathematical process standards to develop mathematical relationships and make connections to geometric formulas.
- 8.7 Expressions, equations, and relationships.** The student applies mathematical process standards to use geometry to solve problems.

important words for concept development			
subcluster	standards	new to grade level	previously introduced
Volume	8.6(A), 8.6(B), 8.7(A)	formula (cone volume): $V = 1/3Bh$ formula (cylinder volume): $V = Bh^*$ formula (sphere volume): $V = 4/3\pi r^3^*$	π (pi) formula (prism volume): $V = Bh$ formula (pyramid volume): $V = 1/3Bh$ area of the base* diameter* height* radius* volume (cylinder)*
Surface Area	8.7(B)	formulas (lateral surface area): • $S = Ph$ • $S = 2\pi rh$ formulas (total surface area): • $S = Ph + 2B$ • $S = 2\pi rh + 2\pi r^2$ perimeter of the base	circumference* lateral surface area* total surface area*

Data Analysis

- 8.5 Proportionality.** The student applies mathematical process standards to use proportional and non-proportional relationships to develop foundational concepts of functions.
- 8.11 Measurement and data.** The student applies mathematical process standards to use statistical procedures to describe data.

important words for concept development			
subcluster	standards	new to grade level	previously introduced
Representation	8.11(A), 8.11(C)		random sample scatterplot*
Interpretation	8.5(C), 8.5(D), 8.11(A), 8.11(B)	correlation*/trend mean absolute deviation* negative linear association* no association* non-linear association*/relationship* positive linear association* trend* line	linear relationship*

Personal Financial Literacy

8.12 Personal financial literacy. The student applies mathematical process standards to develop an economic way of thinking and problem solving useful in one's life as a knowledgeable consumer and investor.

important words for concept development			
subcluster	standards	new to grade level	
Calculations	8.12(A), 8.12(B), 8.12(C), 8.12(D), 8.12(G)	formulas:	
		• $I = Prt$ • $A = P(1 + r)^t$	
Analysis	8.12(E), 8.12(F)	compound interest	loan*
		interest* rate	principal
			simple interest*
			time