

Buffalo Public Schools Extended Learning Time Programs

In order for extended learning time to support the developmental instruction that is occurring daily in classrooms we recommended that extended learning time focus on the following:

FLUENCY - see attached list of suggested activities (Attachment A – page 2)

Required Fluencies in the Common Core State Standards for Mathematics

Grade	Required Fluency	Standard
K	Add/subtract within 5	K.OA.5 – Module 4
1	Add/subtract within 10	1.OA.6 – Module 1 and 2
2	Add/subtract within 20	2.OA.2 – Module 1
2	Add/subtract within 100 (pencil and paper)	2.NBT.5 – Module 1, 3 and 7
3	Multiply/divide within 100	3.OA.7 – Module 1 and 3
3	Add/subtract within 1000	3.NBT.2 – Module 2
4	Add/subtract within 1,000,000	4.NBT.4 – Module 1
5	Multi-digit multiplication	5.NBT.5 – Module 2
6	Multi-digit division	6.NS.2 – Module 2
6	Multi-digit decimal operations	6.NS.3 – Module 2
7	Solve $px + q = r$, $p(x + q) = r$	
8	Solve simple 2x2 systems by inspection	

Fluent in the Standards means “fast and accurate.” It might also help to think of fluency as meaning the same thing as when we say that somebody is fluent in a foreign language: when you’re fluent, you flow. Fluent isn’t halting, stumbling, or reversing oneself. Assessing fluency requires attending to issues of time (and even perhaps rhythm, which could be achieved with technology).

Pre-, Mid-, and End- of year assessments to document growth in these specific areas have been created in Illuminate. The assessments are to be used to inform the afterschool teachers of students’ progress and to determine the need for more intense focus on the skills.

VOCABULARY - see attached lists and activities (Attachment B – page 4)

ADDITIONAL RESOURCE - see attached program description (Attachment C – page 28)

SUGGESTED PLANNING GUIDE – page 29

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Attachment A
SUGGESTED FLUENCY ACTIVITIES

<i>Grade</i>	<i>Required Fluency</i>	<i>Standard</i>
K	Add/subtract within 5	K.OA.5 – Module 4
1	Add/subtract within 10	1.OA.6 – Module 1 and 2
		4 Player Mancala TB20898T \$28.50 I Have Who Has? - Number Sense One More FMS-534615 \$8.95 I Have Who Has? - Number Sense One Less FMS-534616 \$8.95 Ten Frame Match Games FMS-503675 \$29.95
2	Add/subtract within 20	2.OA.2 – Module 1
		7 ate 9 Card Game TB24789T \$8.95 Smath TB11520T \$14.75
2	Add/subtract within 100 (pencil and paper)	2.NBT.5 – Module 1, 3 and 7
		Numeracy Building Whole Number Fluency TB23658T 19.95
3	Multiply/divide within 100	3.OA.7 – Module 1 and 3
		Double Sided 12-Number Shut the Box TB23006T 19.75 Sumoku FMS-503829 14.95 24-game Multiply/Divide Primer FMS-520067 18.79 I Have Who Has? - Division: Facts up to 12 FMS-534627 8.95 I Have Who Has? - Multiplication: Facts up to 16 FMS-534628 8.95
3	Add/subtract within 1000	3.NBT.2 – Module 2
		Numeracy Building Integer Fluency TB23659T 19.95 Place Value Match Games FMS-503877 29.95 Math Match - place value

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		FMS-534876 7.95 Math Match - place value: decimals FMS-534877 7.95
4	Add/subtract within 1,000,000	4.NBT4 – Module 1
5	Multi-digit multiplication	5.NBT.5 – Module 2
6	Multi-digit division	6.NS.2 – Module 2
6	Multi-digit decimal operations	6.NS.3 – Module 2
7	Solve $px + q = r$, $p(x + q) = r$	
8	Solve simple 2x2 systems by inspection	

Source - NASCO or EAI

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Attachment B
VOCABULARY LISTS AND ACTIVITIES

Activity	Item Number	Cost	Grade(s)
I Have Who Has? - Vocabulary	FMS-534639	8.95	5-6
Quizmo Math Vocabulary	TB23026T	14.25	2-6
Math Diction Game	TB24301T	22.50	2-4
WordMath	TB20938T	24.95	5-8
Jingo: Intermediate	502401	15.95	3-6
Math Vocabulary Flash Cards	532752	12.50	2-7
Triple Play: Intermediate	502397	5.49	K-4
I Have Who Has? Vocabulary	534639	6.95	5-6
Math Diction	534317	22.95	2-4
Hot Dots Laugh It Up! Math Vocabulary Cards	TB26172T	14.75	1-3
Hot Dots Laugh It Up! Math Vocabulary Cards	TB26173T	14.75	4-6
Getting to the Root of Mathematics Vocabulary	503953	18.49	Teacher of grades 6-8

Source - NASCO or EAI

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Grade K Vocabulary

Grade	Module	Terminology	Definition
K	1	Exactly the same, not exactly the same, and the same, but...	ways to analyze objects to match or sort
K	1	Match	group items that are the same or that have the same given attribute
K	1	Sort	group objects according to a particular attribute
K	1	How many?	with reference to counting quantities or sets
K	1	Hidden partners	embedded numbers
K	1	Counting path	with reference to order of count
K	1	Number story	stories with <i>add to</i> or <i>take from</i> situations
K	1	Zero	understand the meaning of, write, and recognize
K	1	Number sentence	$3 = 2 + 1$
K	1	5-group	pictured right
K	1	Rows and columns	linear configuration types
K	1	Number path	
K	1	1 more	e.g., 4. 1 more is 5.
K	1	1 less	e.g., 4. 1 less is 3.
K	2	Above, below, beside, in front of, next to, behind	position words
K	2	Circle	
K	2	Cone	solid shape
K	2	Cube	solid shape
K	2	Cylinder	solid shape
K	2	Face	flat side of a solid ³
K	2	Flat	two-dimensional shape
K	2	Hexagon	flat figure enclosed by six straight sides
K	2	Rectangle	flat figure enclosed by four straight sides
K	2	Solid	three-dimensional shape
K	2	Sphere	solid shape
K	2	Square	flat figure enclosed by four straight, equal sides
K	2	Triangle	flat figure enclosed by three straight sides
K	3	Balance scale	tool for weight measurement
K	3	Capacity	with reference to volume
K	3	Compare	specifically using direct comparison

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K	3	Endpoint	with reference to alignment for direct comparison
K	3	Enough/not enough	comparative term
K	3	Heavier than/lighter than	weight comparison
K	3	Height	vertical distance measurement from bottom to top
K	3	Length	distance measurement from end to end; in a rectangular shape, length can be used to describe any of the four sides
K	3	Longer than/shorter than	length comparison
K	3	More than/fewer than	discrete quantity comparison
K	3	More than/less than	volume, area, and number comparisons
K	3	Taller than/shorter than	height comparison
K	3	The same as	comparative term
K	3	Weight	heaviness measurement
K	4	Addition	specifically using <i>add to with result unknown, put together with total unknown, put together with both addends unknown</i>
K	4	Addition and subtraction sentences	equations
K	4	Make 10	combine two numbers from 1 to 9 that add up to 10
K	4	Minus	–
K	4	Number bond	mathematical model
K	4	Number pairs or partners	embedded numbers
K	4	Part	addend or embedded number
K	4	Put together	add
K	4	Subtraction	specifically using <i>take from with result unknown</i>
K	4	Take apart	decompose
K	4	Take away	subtract
K	4	Whole	total
K	5	10 and __	
K	5	10 ones and some ones	
K	5	10 plus	
K	5	Hide Zero cards	called Place Value cards in later grades, pictured to the right
K	5	Regular counting by ones from 11 to 20	e.g., eleven, twelve, thirteen, etc.

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K	5	Regular counting by tens to 100	e.g., ten, twenty, thirty, forty, fifty, sixty, seventy, eighty, ninety, one hundred
K	5	Say Ten counting by tens to 100	e.g., 1 ten, 2 tens, 3 tens, 4 tens, 5 tens, 6 tens, 7 tens, 8 tens, 9 tens, 10 tens
K	5	Teen numbers	
K	6	Above, below, beside, in front of, next to, behind	position words
K	6	Circle	
K	6	Cube	three-dimensional shape
K	6	Cylinder	three-dimensional shape
K	6	Face	two-dimensional side of a shape
K	6	Flat	two-dimensional shape
K	6	Hexagon	flat figure enclosed by six straight sides
K	6	Rectangle	flat figure enclosed by four straight sides
K	6	Solid	three-dimensional shape
K	6	Cone	three-dimensional shape
K	6	Sphere	three-dimensional shape
K	6	Square	flat figure enclosed by four straight, equal sides
K	6	Triangle	flat figure enclosed by three straight sides

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Grade 1 Vocabulary

Grade	Module	Terminology	Definition
1	1	Count on	count up from one addend to the total
1	1	Track	use different objects to track the count on from one addend to the total
1	1	Expression	e.g., $2 + 1$ or $5 - 3$
1	1	Addend	one of the numbers being added
1	1	Doubles	e.g., $3 + 3$ or $4 + 4$
1	1	Doubles plus 1	e.g., $3 + 4$ or $4 + 5$
1	2	A ten	a group, or unit, consisting of 10 items
1	2	Ones	individual units, 10 of which become a ten
1	3	Centimeter	standard length unit within the metric system
1	3	Centimeter cube	pictured right, also used as a length unit in this module
1	3	Centimeter ruler	measurement tool using length units of centimeters
1	3	Data	collected information
1	3	Endpoint	the end of an object, referenced when aligning for measurement purposes
1	3	Height	measurement of vertical distance of an object
1	3	Length unit	measuring the length of an object with equal-sized units
1	3	Poll	survey
1	3	Table or graph	organized charts visually representing data
1	4	>	greater than
1	4	<	less than
1	4	Place value	quantity represented by a digit in a particular place within a number
1	5	Attributes	characteristics of an object such as color or number of sides
1	5	Composite shapes	shapes composed of two or more shapes
1	5	Digital clock	
1	5	Fourth of shapes	
1	5	Fourths	1 out of 4 equal parts
1	5	Half-hour	interval of time lasting 30 minutes
1	5	Half of, halves	1 out of 2 equal parts
1	5	Half past	expression for 30 minutes past a given hour
1	5	Hour	unit for measuring time, equivalent to 60 minutes or $\frac{1}{24}$ of a day
1	5	Hour hand	component on clock tracking hours
1	5	Minute	unit for measuring time, equivalent to 60 seconds or $\frac{1}{60}$ of an hour
1	5	Minute hand	component on clock tracking minutes

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1	5	O'clock	used to indicate time to a precise hour, with no additional minutes
1	5	Quarter of shapes	1 out of 4 equal parts
1	5	Three-dimensional shapes	
1	5	Cone	
1	5	Rectangular prism	
1	5	Two-dimensional shapes	
1	5	Half-circle	
1	5	Quarter-circle	
1	5	Rhombus	flat figure enclosed by four straight sides of the same length wherein two pairs of opposite sides are parallel
1	5	Trapezoid	a quadrilateral in which at least one pair of opposite sides is parallel
1	6	Comparison problem type	
1	6	Dime	
1	6	Nickel	
1	6	Penny	
1	6	Quarter	

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Grade 2 Vocabulary

Grade	Module	Terminology	Definition
2	2	Benchmark	e.g., “round” numbers like multiples of 10
2	2	Endpoint	point where something begins or ends
2	2	Estimate	an approximation of a quantity or number
2	2	Hash mark	marks on a ruler or other measurement tool
2	2	Meter	standard unit of length in the metric system
2	2	Meter stick or strip	tool used to measure length
2	2	Number line	
2	2	Overlap	extend over, or cover partly
2	2	Ruler	tool used to measure length
2	3	Base ten numerals	e.g., a thousand is 10 hundreds, a hundred is 10 tens, starting in Grade 3 a one is 10 tenths, etc.
2	3	Expanded form	e.g., $500 + 70 + 6$
2	3	Hundreds place	e.g., the 5 in 576 is in the hundreds place
2	3	One thousand	1,000
2	3	Place value or number disk	pictured in Module 3 overview
2	3	Standard form	e.g., 576
2	3	Unit form	e.g., 5 hundreds 7 tens 6 ones
2	3	Word form	e.g., five hundred seventy-six
2	4	Algorithm	a step-by-step procedure to solve a particular type of problem
2	4	Compose	e.g., to make 1 larger unit from 10 smaller units
2	4	Decompose	e.g., to break 1 larger unit into 10 smaller units
2	4	Equation	two expressions with an equal sign between them; that is, an equation is a statement that two expressions are equal; however, there is no guarantee that the statement is true
2	4	New groups below	show newly composed units on the line below the appropriate place in the addition algorithm, pictured in Module 4 overview
2	4	Simplifying strategy	e.g., to solve $299 + 6$, think $299 + 1 + 5 = 300 + 5 = 305$
2	4	Totals below	pictured above on page iv in Module overview
2	5	Compensation	simplifying strategy where students add or subtract the same amount to or from both numbers to create an equivalent, but simpler, problem

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2	6	Array	an arrangement of objects in rows and columns
2	6	Columns	the vertical groups in a rectangular array
2	6	Even number	a whole number whose last digit is 0, 2, 4, 6, or 8
2	6	Odd number	any number that is not even
2	6	Repeated addition	e.g., $2 + 2 + 2$
2	6	Rows	the horizontal groups in a rectangular array
2	6	Tessellation	tiling of a plane using one or more geometric shapes with no overlaps and no gaps
2	6	Whole number	e.g., 0, 1, 2, 3...
2	7	Bar graph	pictured to the right
2	7	Category	group of people or things sharing a common characteristic, e.g., bananas are in the fruit category
2	7	Data	a set of facts or pieces of information
2	7	Degree	used to measure temperature, e.g., degrees Fahrenheit
2	7	Foot	ft, unit of length equal to 12 inches
2	7	Inch	in, unit of length
2	7	Legend	notation on a graph explaining what symbols represent
2	7	Line plot	graphical representation of data—pictured to the right
2	7	Picture graph	representation of data like a bar graph, using pictures instead of bars—pictured in Module 7 overview
2	7	Scale	a number line used to indicate the various quantities represented in a bar graph—pictured in Module 7 overview
2	7	Survey	collecting data by asking a question and recording responses
2	7	Symbol	picture that represents something else
2	7	Table	representation of data using rows and columns
2	7	Thermometer	tool used to measure temperature
2	7	Yard	yd, unit of length equal to 36 inches or 3 feet
2	8	a.m./p.m.	
2	8	Analog clock	
2	8	Angle	e.g., figure formed by the corner of a polygon
2	8	Digital clock	

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2	8	Parallel	two lines on the same plane are parallel if they do not intersect
2	8	Parallelogram	quadrilateral with both pairs of opposite sides parallel
2	8	Polygon	closed figure with three or more straight sides, e.g., triangle, quadrilateral, pentagon, hexagon
2	8	Quadrilateral	four-sided polygon, e.g., square, rhombus, rectangle, parallelogram, trapezoid
2	8	Quarter past, quarter to	
2	8	Right angle	e.g., a square corner
2	8	Second	unit for measuring time
2	8	Third of	shapes, thirds
2	8	three equal shares	
2	8	Whole	
2	8	2 halves	
2	8	3 thirds	
2	8	4 fourths	

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Grade 3 Vocabulary

Grade	Module	Terminology	Definition
3	1	Array ⁶	arrangement of objects in rows and columns
3	1	Commutative property/commutative	e.g., rotate a rectangular array 90 degrees to demonstrate that factors in a multiplication sentence can switch places
3	1	Equal groups	with reference to multiplication and division; one factor is the number of objects in a group and the other is a multiplier that indicates the number of groups
3	1	Distribute	with reference to the distributive property, e.g., in $12 \times 3 = (10 \times 3) + (2 \times 3)$ the 3 is the multiplier for each part of the decomposition
3	1	Divide/division	partitioning a total into equal groups to show how many equal groups add up to a specific number, e.g., $15 \div 5 = 3$
3	1	Factors	numbers that are multiplied to obtain a product
3	1	Multiplication/multiply	an operation showing how many times a number is added to itself, e.g., $5 \times 3 = 15$
3	1	Number of groups	factor in a multiplication problem that refers to the total equal groups
3	1	Parentheses	symbols () used around an expression or numbers within an equation
3	1	Quotient	the answer when one number is divided by another
3	1	Rotate	turn, used with reference to turning arrays 90 degrees
3	1	Row/column ⁷	in reference to rectangular arrays
3	1	Size of groups	factor in a multiplication problem that refers to how many in a group
3	1	Unit	one segment of a partitioned tape diagram
3	1	Unknown	the missing factor or quantity in multiplication or division
3	2	About	with reference to rounding and estimation, an answer that is not precise
3	2	Addend	the numbers that are added together in an addition equation, e.g., in $4 + 5$, the numbers 4 and 5 are the addends
3	2	Capacity	the amount of liquid that a particular container can hold

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3	2	Continuous	with reference to time as a continuous measurement
3	2	Endpoint ²	used with rounding on the number line; the numbers that mark the beginning and end of a given interval
3	2	Gram	g, unit of measure for weight
3	2	Interval	time passed or a segment on the number line
3	2	Halfway	with reference to a number line, the midpoint between two numbers, e.g., 5 is halfway between 0 and 10
3	2	Kilogram	kg, unit of measure for mass
3	2	Liquid volume	the space a liquid takes up
3	2	Liter	L, unit of measure for liquid volume
3	2	Milliliter	mL, unit of measure for liquid volume
3	2	Plot	locate and label a point on a number line
3	2	Point	a specific location on the number line
3	2	Reasonable	with reference to how plausible an answer is, e.g., “Is your answer reasonable?”
3	2	Round ³	estimate a number to the nearest 10 or 100 using place value
3	2	Second	a unit of time
3	2	Standard algorithm	for addition and subtraction
3	2	≈	symbol used to show that an answer is approximate
3	3	Multiple	specifically with reference to naming multiples of 9 and 10, e.g., 20, 30, 40, etc.
3	3	Product	the quantity resulting from multiplying two or more numbers together
3	4	Area	the amount of two-dimensional space in a bounded region
3	4	Area model	a model for multiplication that relates rectangular arrays to area -pictured in Module 4 overview
3	4	Square unit	a unit of area—specifically square centimeters, inches, feet, and meters
3	4	Tile	to cover a region without gaps or overlaps
3	4	Unit square	e.g., given a length unit, it is a 1 unit by 1 unit square
3	4	Whole number	an integer, i.e., a number without fractions
3	5	Copies	refers to the number of unit fractions in 1 whole

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3	5	Equivalent fractions	fractions that name the same size or the same point on the number line
3	5	Fractional unit	half, third, fourth, etc.
3	5	Non-unit fraction	fraction with numerator other than 1
3	5	Unit fraction	fraction with numerator 1
3	5	Unit interval	the interval from 0 to 1, measured by length
3	6	Frequent	most common measurement on a line plot
3	6	Key	notation on a graph explaining the value of a unit
3	6	Measurement data	e.g., length measurements of a collection of pencils
3	6	Scaled graphs	bar or picture graph in which the scale uses units with a value greater than 1
3	7	Attribute	any characteristic of a shape, including properties and other defining characteristics, e.g., straight sides, and non-defining characteristics, e.g., blue
3	7	Diagonal	e.g., the line drawn between opposite corners of a quadrilateral
3	7	Perimeter	boundary or length of the boundary of a two-dimensional shape
3	7	Property	e.g., having all sides equal in length
3	7	Regular polygon	polygon whose side lengths and interior angles are all equal
3	7	Tessellate	to tile a plane without gaps or overlaps
3	7	Tetrominoes	four squares arranged to form a shape so that every square shares at least one side with another square

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Grade 4 Vocabulary

Grade	Module	Terminology	Definition
4	1	Ten thousands, hundred thousands	as places on the place value chart
4	1	Millions, ten millions, hundred millions	as places on the place value chart
4	1	Variable	letters that stand for numbers and can be added, subtracted, multiplied, and divided as numbers are
4	2	Convert	express a measurement in a different unit; rename units
4	2	Kilometer	km, a unit of measure for length
4	2	Mass	the measure of the amount of matter in an object
4	2	Milliliter	mL, a unit of measure for liquid volume
4	2	Mixed units	e.g., 3 m 43 cm
4	3	Associative property	e.g., $96 = 3 \times (4 \times 8) = (3 \times 4) \times 8$
4	3	Composite number	positive integer having three or more whole number factors
4	3	Distributive property	e.g., $64 \times 27 = (60 \times 20) + (60 \times 7) + (4 \times 20) + (4 \times 7)$
4	3	Divisible	
4	3	Divisor	the number by which another number is divided
4	3	Formula	a mathematical rule expressed as an equation with numbers and/or variables
4	3	Long division	process of dividing a large dividend using several recorded steps
4	3	Partial product	e.g., $24 \times 6 = (20 \times 6) + (4 \times 6) = 120 + 24$
4	3	Prime number	positive integer greater than 1 having whole number factors of only 1 and itself
4	3	Remainder	the number left over when one integer is divided by another
4	4	Acute angle	angle with a measure of less than 90°
4	4	Acute triangle	triangle with all interior angles measuring less than 90°
4	4	Adjacent angle	Two angles $\angle AOC$ and $\angle COB$, with a common side, ray OC , are adjacent angles if C is in the interior of $\angle AOB$.
4	4	Angle	union of two different rays sharing a common vertex, e.g., $\angle ABC$
4	4	Arc	connected portion of a circle

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4	4	Collinear	Three or more points are <i>collinear</i> if there is a line containing all of the points; otherwise, the points are <i>non-collinear</i> .	
4	4	Complementary angles	two angles with a sum of 90°	
4	4	Degree, degree measure of an angle	Subdivide the length around a circle into 360 arcs of equal length. A central angle for any of these arcs is called a <i>one-degree angle</i> and is said to have an angle measure of 1°	
4	4	Diagonal	straight lines joining two opposite corners of a straight-sided shape	
4	4	Equilateral triangle	triangle with three equal sides	
4	4	Figure	set of points in the plane	
4	4	Interior of an angle	the convex ¹ region defined by the angle	
4	4	Intersecting lines	lines that contain at least one point in common	
4	4	Isosceles triangle	triangle with at least two equal sides	
4	4	Length of an arc	circular distance around the arc	
4	4	Line	straight path with no thickness that extends in both directions without end	
4	4	Line of symmetry	line through a figure such that when the figure is folded along the line, two halves are created that match up exactly	
4	4	Line segment	two points, A and B, together with the set of points on the line AB between A and B, e.g., line segment AB	
4	4	Obtuse angle	angle with a measure greater than 90° , but less than 180°	
4	4	Obtuse triangle	triangle with an interior obtuse angle	
4	4	Parallel	two lines in a plane that do not intersect, e.g., line AB \parallel line CD	
4	4	Perpendicular	Two lines are <i>perpendicular</i> if they intersect, and any of the angles formed between the lines is a 90° angle, e.g., line segment EF \perp line segment GH	
4	4	Point	precise location in the plane	
4	4	Protractor	instrument used in measuring or sketching angles	
4	4	Ray	The <i>ray OA</i> is the point O and the set of all points on the line OA that are on the same side of O as the point A.	
4	4	Right angle	angle formed by perpendicular lines, measuring 90°	
4	4	Right triangle	triangle that contains one 90° angle	

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4	4	Scalene triangle	triangle with no sides or angles equal	
4	4	Straight angle	angle that measures 180°	
4	4	Supplementary angles	two angles with a sum of 180°	
4	4	Triangle	A <i>triangle</i> consists of three non-collinear points and the three line segments between them. The three segments are called the <i>sides</i> of the triangle, and the three points are called the <i>vertices</i> .	
4	4	Vertex	a point, often used to refer to the point where two lines meet, such as in an angle or the corner of a triangle	
4	4	Vertical angles	When two lines intersect, any two non-adjacent angles formed by those lines are called <i>vertical angles</i> or <i>vertically opposite angles</i>	
4	5	Benchmark	standard or reference point by which something is measured	
4	5	Common denominator	when two or more fractions have the same denominator	
4	5	Denominator	e.g., the 5 in $3/5$ names the fractional unit as fifths	
4	5	Fraction greater than 1	a fraction with a numerator that is greater than the denominator	
4	5	Line plot	display of data on a number line, using an x or another mark to show frequency	
4	5	Mixed number	number made up of a whole number and a fraction	
4	5	Numerator	e.g., the 3 in $3/5$ indicates 3 fractional units are selected	
4	6	Decimal expanded form	e.g., $(2 \times 10) + (4 \times 1) + (5 \times 0.1) + (9 \times 0.01) = 24.59$	
4	6	Decimal fraction	fraction with a denominator of 10, 100, 1,000, etc.	
4	6	Decimal number	number written using place value units that are powers of 10	
4	6	Decimal point	period used to separate the whole number part from the fractional part of a decimal number	
4	6	Fraction expanded form	e.g., $(2 \times 10) + (4 \times 1) + (5 \times (1/10)) + (9 \times (1/100)) = 24 \frac{59}{100}$	
4	6	Hundredth	place value unit such that 100 hundredths equals 1 one	
4	6	Tenth	place value unit such that 10 tenths equals 1 one	

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4	7	Customary system of measurement	measurement system commonly used in the United States that includes such units as yards, pounds, and gallons	
4	7	Customary unit	e.g., foot, ounce, quart	
4	7	Cup (c)	customary unit of measure for liquid volume	
4	7	Gallon (gal)	customary unit of measure for liquid volume	
4	7	Metric system of measurement	base ten system of measurement used internationally that includes such units as meters, kilograms, and liters	
4	7	Metric unit	e.g., kilometer, gram, milliliter	
4	7	Ounce (oz)	customary unit of measure for weight	
4	7	Pint (pt)	customary unit of measure for liquid volume	
4	7	Pound (lb)	customary unit of measure for weight	
4	7	Quart (qt)	customary unit of measure for liquid volume	

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Grade 5 Vocabulary

Grade	Module	Terminology	Definition
5	1	Exponent	how many times a number is to be used in a multiplication sentence
5	1	Millimeter	a metric unit of length equal to one-thousandth of a meter
5	1	Thousandths	related to place value
5	2	Conversion factor	the factor in a multiplication sentence that renames one measurement unit as another equivalent unit, e.g., $14 \times (1 \text{ in}) = 14 \times (1/12 \text{ ft})$; 1 in and $1/12 \text{ ft}$ are the conversion factors.
5	2	Decimal Fraction	a proper fraction whose denominator is a power of 10
5	2	Multiplier	a quantity by which a given number—a multiplicand—is to be multiplied
5	2	Parentheses	the symbols used to relate order of operations
5	3	Benchmark fraction	e.g., $1/2$ is a benchmark fraction when comparing $1/3$ and $3/5$
5	3	Like denominators	e.g., $1/8$ and $5/8$
5	3	Unlike denominators	e.g., $1/8$ and $1/7$
5	4	Decimal divisor	the number that divides the whole and has units of tenths, hundredths, thousandths, etc.
5	4	Simplify	using the largest fractional unit possible to express an equivalent fraction
5	5	Base	one face of a three-dimensional solid—often thought of as the surface on which the solid rests
5	5	Bisect	divide into two equal parts
5	5	Cubic units	cubes of the same size used for measuring volume
5	5	Height	adjacent layers of the base that form a rectangular prism
5	5	Hierarchy	series of ordered groupings of shapes
5	5	Unit cube	cube whose sides all measure 1 unit; cubes of the same size used for measuring volume
5	5	Volume of a solid	measurement of space or capacity
5	6	Axis	fixed reference line for the measurement of coordinates
5	6	Coordinate	number that identifies a point on a plane
5	6	Coordinate pair	two numbers that are used to identify a point on a plane; written (x, y) where x represents a distance from 0 on the x -axis and y represents a distance from 0 on the y -axis

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5	6	Coordinate plane	plane spanned by the x-axis and y-axis in which the coordinates of a point are distances from the two perpendicular axes
5	6	Ordered pair	two quantities written in a given fixed order, usually written as (x, y)
5	6	Origin	fixed point from which coordinates are measured; the point at which the x-axis and y-axis intersect, labeled $(0, 0)$ on the coordinate plane
5	6	Quadrant	any of the four equal areas created by dividing a plane by an x-axis and y-axis

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Grade 6 Vocabulary

Grade	Module	Terminology	Definition
6	1	Ratio	A pair of nonnegative numbers, A:B, where both are not zero, and that are used to indicate that there is a relationship between two quantities such that when there are A units of one quantity, there are B units of the second quantity.
6	1	Rate	A rate indicates, for a proportional relationship between two quantities, how many units of one quantity there are for every 1 unit of the second quantity. For a ratio of A:B between two quantities, the rate is A/B units of the first quantity per unit of the second quantity.
6	1	Unit Rate	The numeric value of the rate, e.g., in the rate 2.5 mph, the unit rate is 2.5.
6	1	Value of a Ratio	For the ratio A:B, the value of the ratio is the quotient A/B.
6	1	Equivalent Ratios	Ratios that have the same value.
6	1	Percent	Percent of a quantity is a rate per 100.
6	1	Associated Ratios	e.g., if a popular shade of purple is made by mixing 2 cups of blue paint for every 3 cups of red paint, not only can we say that the ratio of blue paint to red paint in the mixture is 2:3, but we can discuss associated ratios such as the ratio of cups of red paint to cups of blue paint, the ratio of cups of blue paint to total cups of purple paint, the ratio of cups of red paint to total cups of purple paint, etc.
6	1	Double Number Line	See example under Suggested Tools and Representations.
6	1	Ratio Table	A table listing pairs of numbers that form equivalent ratios; see example under Suggested Tools and Representations.
6	2	Greatest Common Factor	The largest positive integer that divides into two or more integers without a remainder; the GCF of 24 and 36 is 12 because when all of the factors of 24 and 36 are listed, the largest factor they share is 12.
6	2	Least Common Multiple	(The smallest positive integer that is divisible by two or more given integers without a remainder; the LCM of 4 and 6 is 12 because when the multiples of 4 and 6 are listed, the smallest or first multiple they share is 12.

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6	2	Multiplicative Inverses	Two numbers whose product is 1 are multiplicative inverses of one another. For example, $\frac{3}{4}$ and $\frac{4}{3}$ are multiplicative inverses of one another because $\frac{3}{4} \times \frac{4}{3} = \frac{4}{3} \times \frac{3}{4} = 1$. Multiplicative inverses do not always have to be the reciprocal. For example $\frac{1}{5}$ and $\frac{10}{2}$ both have a product of 1, which makes them multiplicative inverses.
6	3	Absolute Value	The absolute value of a number is the distance between the number and zero on the number line. For example, $ 3 =3$, $ -4 =4$, etc.)
6	3	Charge	A <i>charge</i> is the amount of money a person must pay, as in a charge to an account, or a fee charged.
6	3	Credit	A <i>credit</i> is a decrease in an expense, as in money <i>credited</i> to an account. For instance, when a deposit is made into a checking account, the money is <i>credited</i> to the account. A credit is the opposite of a debit.
6	3	Debit	A <i>debit</i> is an increase in an expense or money paid out of an account. For instance, using a debit card to make a purchase will result in an expense, and money will be deducted from the related bank account.
6	3	Deposit	A <i>deposit</i> is the act of putting money into a bank account.
6	3	Elevation	<i>Elevation</i> is the height of a person, place, or thing above a certain reference level.
6	3	Integers	The numbers ... , -3, -2, -1, 0, 1, 2, 3, ... are integers on the number line.
6	3	Magnitude	The <i>magnitude</i> is the absolute value of a measurement, given the measurement of a positive or negative quantity.
6	3	Negative Number	A <i>negative number</i> is a number less than zero.
6	3	Opposite	In a position on the other side; for example, negative numbers are the <i>opposite</i> direction from zero as positive numbers.
6	3	Positive Number	A <i>positive number</i> is a number greater than zero.
6	3	Quadrants	The four sections of the coordinate plane formed by the intersection of the axes are called <i>quadrants</i> .

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6	3	Rational Number	A <i>rational number</i> is a fraction or the opposite of a fraction on the number line.
6	3	Withdraw	To <i>withdraw</i> is to take away; for example, to take money out of a bank account.
6	3	Withdrawal	A <i>withdrawal</i> is the act of taking money out of a bank account.
6	4	Equation	An <i>equation</i> is a statement of equality between two expressions.
6	4	Equivalent Expressions	Two simple expressions are <i>equivalent</i> if both evaluate to the same number for every substitution of numbers into all the letters in both expressions.
6	4	Exponential Notation for Whole Number Exponents	Let m be a non-zero whole number. For any number a , we define a^m to be the product of m factors of a , i.e. $a^m = a \cdot a \cdot a \cdot a \cdot \dots \cdot a$ (m times). The number a is called the base, and m is called the exponent, or power of a .
6	4	Linear Expression	A <i>linear expression</i> is a product of two simple expressions where only one of the simple expressions has letters and only one letter in each term of that expression or sums and/or differences of such products.
6	4	Simple Expression	A <i>simple expression</i> is a number, a letter that represents a number, a product whose factors are either numbers or letters involving whole number exponents, or sums and/or differences of such products. Each product in a simple expression is called a <i>term</i> , and the evaluation of the numbers in the product is called the <i>coefficient of the term</i> .
6	4	Truth Values of a Number Sentence	A number sentence is said to be <i>true</i> if both numerical expressions are equivalent; it is said to be <i>false</i> otherwise. <i>True</i> and <i>false</i> are called <i>truth values</i> .

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6	5	Altitude and Base of a Triangle	An <i>altitude</i> of a triangle is a perpendicular segment from a vertex of a triangle to the line containing the opposite side. The opposite side is called the <i>base</i> . For every triangle, there are three choices for the altitude, and hence there are three base-altitude pairs. The <i>height</i> of a triangle is the length of the altitude. The length of the base is called either the <i>base length</i> or, more commonly, the <i>base</i> . Usually, context makes it clear whether the <i>base</i> refers to a number or a segment. These terms can mislead students: <i>base</i> suggests the bottom, while <i>height</i> usually refers to vertical distances. Do not reinforce these impressions by consistently displaying all triangles with horizontal bases.
6	5	Cube	A <i>cube</i> is a right rectangular prism all of whose edges are of equal length.
6	5	Hexagon	Given 6 different points A, B, C, D, E, and F in the plane, a 6-sided polygon, or hexagon, is the union of 6 segments AB, BC, CD, DE, EF, and FA such that (1) the segments intersect only at their endpoints, and (2) no two adjacent segments are collinear. For both pentagons and hexagons, the segments are called the sides, and their endpoints are called the vertices. Like quadrilaterals, pentagons and hexagons can be denoted by the order of vertices defining the segments. For example, the pentagon ABCDE has vertices A, B, C, D, and E that define the 5 segments in the definition above. Similar to quadrilaterals, pentagons and hexagons also have interiors, which can be described using pictures in elementary school.
6	5	Line Perpendicular to a Plane	A line L intersecting a plane E at a point P is said to be perpendicular to the plane E if L is perpendicular to every line that (1) lies in E and (2) passes through the point P. A segment is said to be perpendicular to a plane if the line that contains the segment is perpendicular to the plane. In Grade 6, a line perpendicular to a plane can be described using a picture.
6	5	Parallel Planes	Two planes are <i>parallel</i> if they do not intersect. In Euclidean geometry, a useful test for checking whether two planes are parallel is if the planes are different and if there is a line that is perpendicular to both planes.

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6	5	Pentagon	(Given 5 different points A, B, C, D, and E in the plane, a 5-sided polygon, or pentagon, is the union of 5 segments \overline{AB} , \overline{BC} , \overline{CD} , \overline{DE} , and \overline{EA} such that (1) the segments intersect only at their endpoints, and (2) no two adjacent segments are collinear.
6	5	Right Rectangular Prism	Let E and E' be two parallel planes. Let B be a rectangular region in the plane E. At each point P of B, consider the segment $\overline{PP'}$ perpendicular to E, joining P to a point P' of the plane E'. The union of all these segments is called a right rectangular prism. It can be shown that the region B' in E' corresponding to the region B is also a rectangular region whose sides are equal in length to the corresponding sides of B. The regions B and B' are called the base faces (or just bases) of the prism. It can also be shown that the planar region between two corresponding sides of the bases is also a rectangular region called the lateral face of the prism. In all, the boundary of a right rectangular prism has 6 faces: the 2 base faces and 4 lateral faces. All adjacent faces intersect along segments called edges—base edges and lateral edges.
6	5	Surface of a Prism	The <i>surface of a prism</i> is the union of all of its faces—the base faces and lateral faces.
6	5	Triangular Region	A <i>triangular region</i> is the union of the triangle and its interior.
6	6	Statistical Question	A question that anticipates variability in the data that would be collected in order to answer the question.
6	6	Median	A measure of center appropriate for skewed data distributions. It is the middle value when the data are ordered from smallest to largest if there are an odd number of observations and half way between the middle two observations if the number of observations is even.

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6	6	Mean	A measure of center appropriate for data distributions that are approximately symmetric. It is the average of the values in the data set. Two common interpretations of the mean are as a “fair share” and as the balance point of the data distribution.
6	6	Dot Plot	A plot of numerical data along a number line.
6	6	Histogram	A graphical representation of a numerical data set that has been grouped into intervals. Each interval is represented by a bar drawn above that interval that has a height corresponding to the number of observations in that interval.
6	6	Box Plot	A graph of five numerical summary measures: the minimum, lower quartile, median, upper quartile, and the maximum. It conveys information about center and variability in a data set.
6	6	Variability	Variability in a data set occurs when the observations in the data set are not all the same.
6	6	Deviations from the Mean	The differences calculated by subtracting the mean from the observations in a data set.
6	6	Mean Absolute Deviation (MAD)	A measure of variability appropriate for data distributions that are approximately symmetric. It is the average of the absolute value of the deviations from the mean.
6	6	Interquartile Range (IQR)	A measure of variability appropriate for data distributions that are skewed. It is the difference between the upper quartile and the lower quartile of a data set and describes how spread out the middle 50% of the data are.

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Attachment C

ADDITIONAL RESOURCE - description

Trackers Non-Fiction Math Book Series - Increase math skills with this nonfiction series that links literacy to math. This series has been uniquely designed with embedded features that scaffold students through real-life applications of basic math skills and vocabulary. The short pieces of text and close picture-to-text match make it a great fit for struggling students either independently or during small-group instruction. The stories are designed to help students develop proficiency with word problems, deduce content using key math vocabulary, improve comprehension, and apply specific math skills and literacy in real-life situations.

The Common Core Mathematics Collection - This carefully selected collection is based on correlations to grade-level Common Core State Standards for Mathematics. Books feature a specific mathematics concept, a problem-solving activity, Let's Explore Math sidebars, engaging nonfiction text, supporting graphics, and key vocabulary. Aligns to Reading Informational Text Standards 5, 9, and 10; Language Standard 6; Mathematics Content Standards; and Mathematical Practices.

Activity	Item Number	Cost	Grade(s)
Trackers Non-Fiction Math Book Series – Grade 3	TB25767T	84.50	3-5
Trackers Non-Fiction Math Book Series – Grade 2	TB25766T	88.75	2-4
Common Core Mathematics Collection – Grade K	TB25889T	66.95	K
Common Core Mathematics Collection – Grade 1	TB25890T	66.95	1
Common Core Mathematics Collection – Grade 2	TB25891B	66.95	2
Common Core Mathematics Collection – Grade 3	TB25892T	66.95	3
Common Core Mathematics Collection – Grade 4	TB25893T	66.95	4
Common Core Mathematics Collection – Grade 5	TB25894B	66.95	5
Common Core Mathematics Collection – Grade 6	TB25895T	66.95	6

Source - NASCO or EAI

The *Ready New York CCLS Mathematics* program helps address the emphasis on conceptual understanding through reasoning, modeling, and discussion that explore the structure of mathematics, while also developing students' procedural fluency. The lessons use a research-based, proven-effective, gradual-release instructional model with a balance of conceptual understanding and procedural fluency.

Curriculum Associates New York - Workbook	Item Number	Cost	Grade(s)
Ready NY CCLS Mathematics – Grade 2	978-0-7609-9223-4	9.00 each	2
Ready NY CCLS Mathematics – Grade 3	978-0-7609-9224-1	9.00 each	3
Ready NY CCLS Mathematics – Grade 4	978-0-7609-9225-8	9.00 each	4
Ready NY CCLS Mathematics – Grade 5	978-0-7609-9226-5	9.00 each	5
Ready NY CCLS Mathematics – Grade 6	978-1-4957-0483-3	9.00 each	6
Ready NY CCLS Mathematics – Grade 7	978-1-4957-0484-0	9.00 each	7
Ready NY CCLS Mathematics – Grade 8	978-1-4957-0485-7	9.00 each	8

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Suggested Planning Guide

September

- ❖ Fluencies pre-test
- ❖ Review and reinforce previous grade level fluency(s) AND all previous vocabulary
- ❖ Work with each student to design/develop/determine a structure for daily homework completion

October

- ❖ Based on pre-test results, plan for reinforcing fluency to acquire proficiency
- ❖ Plan vocabulary activities that will reinforce September and October vocabulary
- ❖ Select activities to practice reading comprehension and question answering (question that require students to explain)

November and December

- ❖ Reinforce fluencies
- ❖ Vocabulary activities
- ❖ Practice reading comprehension and question answering (question that require students to explain)

January

- ❖ Fluencies mid-test
- ❖ Vocabulary project to cover September through January vocabulary

February through March

- ❖ Reinforce fluencies
- ❖ Vocabulary activities
- ❖ Practice reading comprehension and question answering (question that require students to explain)
- ❖ Reinforce test taking skills

April and May

- ❖ Reinforce fluencies
- ❖ Vocabulary activities
- ❖ Practice reading comprehension and question answering (question that require students to explain)

June

- ❖ Fluencies post-test
- ❖ Vocabulary assessment activity