

Cologne Academy



Mathematics Department Grade 1 Math

(Aligned Text: Primary Mathematics - Standards Ed. 1A & Core Knowledge Teacher Handbook)

Core Knowledge Curriculum – 100% Aligned

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Highlighted items indicate overlap of MN State Standards and the Core Knowledge Sequence.

Boxed items indicate content to be introduced post-MCAs.

Math Department Lesson Plan Essentials

Topic: Title of lesson.

*Objective: Academic goal for students to achieve by end of lesson.

*Benchmark Reference: MN State Standard or Core Knowledge Sequence reference.

Vocabulary: Essential vocabulary related to objective.

Agenda: Sequence of instruction and activities

Closure: Brief summary/overview of lesson. May include formative assessment.

Homework: Continued practice of lesson. May be used as formative assessment.

*Indicates required components.

Note: The text has been as closely aligned with MN State Standards but additional resources may be required to include all skills (including within the Core Knowledge Sequence). Resources may be located on the s:drive under Mathematics Resources and by grade level or on the Cologne Academy intranet. Further research/exploration may be required to locate additional resources.

Strand: Number & Operation, Algebra

Unit 1: Review and Basic Addition and Subtraction Facts to 12

Approximate Duration of Study: 7 FULL Weeks of Instruction

Calendar Topics and Standards

- Place Value
- Patterns
- Identifying Shapes (2D & 3D)
- Money (Representations and relative value)
- 1.1.1.2: Read, Write and represent whole numbers up to 50
- 1.1.1.3: Count with and without objects, from any given number up to 50.
- Orientation and Relative Position
 - o Identify left and right hand; top, bottom and middle.

- Know and use terms of orientation and relative position: see Essential Vocabulary.
- Skip Counting (2s, 5s, 10s)
- Counting Forwards/Backwards
- Tally Marks
- Weather Graphing
- Ordinal Position: 1st 10th
- Days of the Week, Months of the Year
 - Know in order and out of sequence
- Seasons

MNSS	Knowledge	Skills
	Pre-Test	
Review	Students will know that: Representations may include numerals, pictures, real objects and picture graphs, spoken words, and manipulatives such as connecting cubes.	Student will be able to: Read, write, and represent whole numbers from 0 to at least 31.
	 The <u>sum</u> of any number is composed of two or more parts. A group of 10 can be composed of 7 and 3 objects or 8 and 2 or 5 and 5, etc. 	 Distinguish between addends and sums. Add number to 10.

	 Addition of numbers can be applied to real-world situations. Patterns are found in letters, numbers, sounds, pictures, movements, etc. Patterns are create from repeating letters, numbers, sounds, pictures, movements, etc. in a specific sequence. 2-D shapes are composed of one <u>face</u>. 3-D figures are composed of 2-D figures. 	 Tell a story given a <u>number bond</u>. Given a number bond for 3, 2, and 5: Three ducks were swimming, two gray ducks joined them, now there are 5 ducks swimming. Recognize, create and extend patterns. ABA, ABBA, ABC, ABB, etc. Identify simple <u>2-D</u> and <u>3-D</u> shapes.
Add/Subtract 1.1.2.1 (Introduction) 1.1.2.2 1.2.2.4	Students will know that: • A <u>sum</u> is an answer to an addition problem. • The <u>"+"</u> (addition) sign indicates addition (combine two or more numbers to get a sum).	Student will be able to:
1.2.2.2 1.2.2.1 1.2.2.3 1.1.2.1 (Finish)	Models and strategies can be used to represent and solve addition and subtraction problems.	Use pictures, objects, length-based models (connecting cubes), numerals and number lines to model and solve addition and subtraction problems.
T.L.Z.Z (Fillish)	 The sum of any number is composed of two or more parts. A number can be decomposed into its parts. The sum of 0 and any number is that number. 	 Add numbers to 12 including 0. Complete addition facts to 10 + 10. Identify partners of 10. 2 and 8, 1 and 9, 5 and 5, etc.
	 The solution to a subtraction is called the <u>difference</u>. The <u>"-" (minus)</u> sign indicates subtraction; taking away the value of one or more numbers from another number. 	<u>Subtract</u> numbers to 12.
	 Basic addition and subtraction facts can be represented by number sentences. Number sentences can be written horizontally and/or vertically. 	 Create number sentences to represent addition and subtraction facts to 12. 5 + 3 = 8 could be used to represent a situation in which 5 red balloons are combined with 3 blue balloons to make 8 total balloons. Write a number sentence horizontally or vertically.
	 Changing the position of addends in a problem will not change the sum. 	 Add in any order. Add a set of three numbers. 3 + 2 + 4 = 9 also 2 + 4 + 3 = 9 also 2 + 3 + 4 = 9

•	There is a relationship between addition and subtraction facts.
	o Given 5, 3 and 8: $5 + 3 = 8$, $3 + 5 = 8$, $8 - 5 = 3$, $8 - 3 = 5$

Equations have a specific value.

- Equations are true if the same value is on both sides of the equal sign.

 Unit 1
- Write addition and subtraction <u>fact families</u> given three related numbers.
- Determine if equations involving addition and subtraction are true.
 - Determine if the following number sentences are true or false.

$$7 = 7$$

 $7 = 8 - 1$
 $5 + 2 = 2 + 5$
 $4 + 1 \neq 5 + 2$

- Number sentences involving addition and subtraction basic facts can be used to represent and solve real-world and mathematical problems.
- Represent real-world situations involving addition and subtraction basic facts, using objects and number sentences.
 - One way to represent the number of toys that a child has left after giving away 4 of 6 toys is to begin with a stack of 6 connecting cubes and then break off 4 cubes.
 - \circ Written as a number sentence 6 4 = 2.
- Models of addition and subtraction, such as objects and number lines, can be used to identify the missing number in an equation.
- Identify the missing number in an equation.

$$\begin{array}{ccc} \circ & 2+4= & \\ \circ & 3+ & = 7 \\ \circ & 5= & -3 \end{array}$$

- Models and strategies can be used to represent and solve addition and subtraction problems.
- Solve and explain addition and subtraction problems.
 - Part-part-total, adding to, taking away from and comparing situations.
 - o Includes: multi-step problems.

Essential Vocabulary: Parts, Whole, Sum, Number Bond, Number Line, Two-Dimensional, Three-Dimensional, Face, Square, Rectangle, Triangle, Circle, Trapezoid, Hexagon, Cube, Cone, Rectangular Prism, Sphere, Cylinder, Pattern, Horizontal, Vertical, Subtract (-), Difference, Minus, Add (+), Sum, Fact Family, Number Sentence, Equal (=), Not Equal To (≠), Graph, Tally, Penny, Nickel, Dime, Quarter, Tens Frame, Cents (¢), First to Tenth, Calendar Orientation and Relative Position Vocabulary: Closed, Open, On, Under, Over, In Front, In Back (Behind), Between, In The Middle Of, Next To, Beside, Inside, Outside, Around, Far From, Near, Above, Below, To The Right Of, To The Left Of, Here, There.

Interim 1

Pacing Chart

Unit 1: Review and Basic Addition and Subtraction Facts to 12

Time Frame	Topic	Suggested Activities/Assessments	Resources & Text Alignment
Week 1		Pre-Test	
Week 2	Review	Projects, websites, etc.	Need Resources
Week 3 – Week 8	Add/Subtract	Fact Family Smart Board Lesson S:MathematicsResources:Grade 1	PM Text Unit 2 – Number Bonds Unit 3 – Addition Unit 4 – Subtraction Unit 5 – Position Unit 6 – Numbers to 20 Unit 13 (Chapter 4) – Adding 3 Numbers CK Handbook Computation (Pgs. 284 – 286) Computation (Pgs. 288 - 292) Fact Families - S:MathematicsResources:Grade 1
Week 9	Review		
Week 10	Interim 1 Assessment		

Strand: Number & Operation, Algebra

Unit 2: Patterns, Place Value and Data Representation

Approximate Duration of Study: 8 FULL Weeks of Instruction

Calendar Topics and Standards

- All Unit 1 Calendar Topics and Standards
- Count by 10s from a given number
- Identify 1 more/less and 10 more/less
- 1.1.1.2: Read, Write and represent whole numbers up to 75
- 1.1.1.3: Count with and without objects, from any given number up to 75.
- Identify more/less than a given number
- Counting more/less than a given number
- Counting how many more/how many less than a given number
- <,>,=

MNSS	Knowledge	Skills
	3 rd – 8 th Math OLPAs	
Patterns 1.2.1.1	 Students will know that: Patterns may be repeating, growing, or shrinking. Describe the rules that can be used to extend the pattern 2, 4, 6, 8, □, □, and complete the pattern 33, 43, □, 63, □, 83 or 20, □, 17. Calculators can be used to create and explore patterns. 	 Student will be able to: Create simple patterns. Objects, pictures, numbers, <u>rules</u>, sounds and movement. Identify rules. Recognize, complete or extend patterns. Use the "<u>Now/Next</u>" method to extend patterns with a calculator. Identify pattern position and order. Between, middle of, right, left, next to, beside, above, below, here, there.
Core Knowledge Patterns and Classification	Objects can be classified and sorted according to their attributes.	 Student will be able to: Identify likeness and difference according to various attributes. Size, shape, color, amount, function, etc. Define a set by the common property of its elements. Determine which item does not belong in a set of items.

	Students will know that:	Student will be able to:
Skip Counting 1.1.2.3	 There is a relationship between counting, addition and subtraction. Patterns can be found in numerical sequences. Patterns can be used to extend numerical sequences. 	• Skip count by 2s, 5s, and 10s.
	Students will know that:	Student will be able to:
Place Value	• Place value can be used to describe whole number between 10	 Recognize place value: ones, tens.
1.1.1.1	and 100, in terms of 10s and 1s.	 Compose and decompose numbers into 10s and 1s.
1.1.1.4		 Find a number that is 1 more or 1 less than a given
		<mark>number.</mark>
		 Find a number that is 10 more or 10 less than a given
		number.
		 Mentally subtract 10 from a two-digit number.
	Students will know that:	Student will be able to:
Numbers to	Numbers have a relative position and <u>value</u> .	 Compare and order whole numbers up to 100.
100	 Using <u>hundreds chart</u>, number line, etc. 	• Compare quantities using $\underline{"<",">"_{\cdot}}$ and $\underline{"="}$.
	Inequality symbols and words are used to compare the value of	 Use words to describe the relative size of numbers.
1.1.1.5 (Introduction	one number to another.	 Equal to, not equal to, more than, less than,
1.1.1.6		fewer than, is about, is nearly to.

Essential Vocabulary: Rules, Now/Next. Rule, Hundred Chart, Place Value, Tens Place, Ones Place, <, >, =, Value, Digit.

Interim 2

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Pacing Chart Unit 2: Patterns, Place Value and Data Representation

Time Frame	Topic	Suggested Activities/Assessments	Resources & Text Alignment
Week 11 - Week 12	Patterns	Projects, websites, etc.	PM Text Unit 5 – Position
Week 13 – Week 14	Core Knowledge		CK Handbook Unit 1: Patterns and Classification (Pgs. 262 – 267)
	Patterns and Classification		
Week 15 – Week 16	Skip Counting		PM Text Unit 12 (Lesson 3) – Counting by 5s Unit 13 (Chapter 5) – Counting by 2s
Week 17	Winter Break 2016 - 2017		
Week 18 - Week 19	Place Value Ph Text Unit 13 (Chapter 2) – Tens and Ones		
Week 20	Numbers to 100		PM Text Unit 11 – Comparing Numbers Unit 13 (Chapter 1) – Compare and Order Unit 18 (Chapters 1 – 4) – Numbers to 100
Week 21	Review		
Week 22	Interim 2 Assessment		

Strand: Geometry & Measurement

Unit 3: Geometry and Measurement

Approximate Duration of Study: 7 FULL Weeks of Instruction

Calendar Topics and Standards All Unit 1 and Unit 2 Calendar Topics and Standards 1.1.1.2: Read, Write and represent whole numbers up to 100 1.1.1.3: Count with and without objects, from any given number up to 100. Temperature Identify a thermometer. Associate degrees in Fahrenheit with weather. Recognize Place Value: Hundreds

MNSS	Knowledge	Skills	
	3 rd – 8 th Math OLPAs		
Data 1.1.1.7	Students will know that: • Data can be represented by: • Bar Graph • Tally Charts	Student will be able to: Create and analyze bar graphs, tally charts, and one-to-one picture graph. Make a bar graph of students/ birthday months	
	o <u>One-to-One Picture Graph</u>	and count to compare the number in each month.	
	Students will know that:	Student will be able to:	
Shapes	• 2-D and 3-D shapes are composed of <u>lines</u> and <u>vertices</u> and <u>faces</u> .	Compose (build) and decompose (take apart) 2-D and 3-D figures.	
1.3.1.2 1.3.1.1		 Decompose a regular hexagon into 6 equilateral triangles; build prisms by stacking layers of cubes; compose an ice cream cone by combining a cone and half of a sphere. 	
		 Describe characteristics of 2-D and 3-D objects. Triangles have three sides and cubes have eight vertices (corners). 	
		 Describe square, rectangle, triangle according to number of sides. 	
		 Identify and draw basic plane figures. 	
		Square, rectangle, triangle, circle.	

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	Congruent figures are identical in shape, size, and design.	 Identify basic solid figures: sphere, cube, and cone. Create congruent shapes and designs. 	
	2-D and 3-D figures can be found in common objects in the real world.	 Identify basic shapes in a variety of common objects. Balls, Soda Can, Books, Window, Tissue Box, Car, etc. 	
	Students will know that:	Student will be able to:	
Core Knowledge	Fractions represent a part of a whole.	• Identify $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$	
Fractions	A given amount of objects can be identified by different names.	• Identify <u>dozen</u> , <u>half-dozen</u> and <u>pair</u> .	
	Students will know that:	Student will be able to:	
Measurement 1.3.2.1	 Objects can be measured by length, weight and capacity. Non-standard units can be used to measure length, weight and capacity. 	 Measure the length of an object in terms of multiple copies of another object. Paper clips, connecting cubes, etc. Measure a table by placing paper clips end-to-end and counting. 	
	 A ruler is used to measure length. Special unit names are used to indicate the length of an object. 	 Identify a <u>ruler</u>. Measure length of an object in <u>inches</u>, <u>centimeters</u> and <u>feet</u>. Measure and draw line segments in inches and centimeters. 	
	 A scale is used to measure weight. Special unit names are used to indicate the weight of an object. Non-standard units can be used to measure weight. 	 Identify a scale. Compare weights of objects. Compare weights of objects using a balance scale. Measure weight in non-standard units and pounds. 	
	Special unit names are used to indicate the capacity of an object.	 Estimate and measure <u>capacity</u> in <u>cups</u>. Identify <u>quart</u> and <u>gallon</u>. 	

Essential Vocabulary: Bar Graph, Tally Chart, One-to-One Picture Graph, Compose, Decompose, Line, Vertex, Face, Congruent, Ruler, Fraction, $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, Part, Whole, Dozen, Half-Dozen, Pair, Regrouping, measure, Inches, Centimeter, Feet, Length, Weight, Pound, Capacity, Cup, Quart, Gallon, Scale, Ruler, Temperature, Thermometer, Degrees, Fahrenheit.

Interim 3

Pacing Chart Unit 3: Geometry and Measurement

Time Frame	Topic	Suggested Activities/Assessments	Resources & Text Alignment
Week 23		3 rd – 8 th Math OLPAs	
Week 23 – Week 24	Data		PM Text Unit 12 – Graphs CK Handbook Pictorial and Bar Graphs: (Pgs. 274 – 275)
	Shapes	Projects, websites, etc.	PM Text Unit 7 – Shapes
Week 25 – Week 26			CK Handbook Geometry (Pgs. 302 – 308)
Week 27	Core Knowledge Fractions		PM Text Unit 18 (Chapter 5 - 6) – Numbers to 100
	Measurement		PM Text Unit 8 – Length Unit 9 – Weight
Week 28			Unit 10 – Capacity CK Handbook Measurement (Pg. 295 – 300)
Week 29	Review		
Week 30	Interim 3 Assessment		

Strand: Geometry & Measurement

Unit 4: Time, Money, Numbers to 125

Approximate Duration of Study: 5 FULL Weeks of Instruction

Calendar Topics and Standards		
 All Unit 1, Unit 2 and Unit 3 Calendar Topics and Standards 1.1.1.2: Read, Write and represent whole numbers up to 125 	• Time	
• 1.1.1.3: Count with and without objects, from any given number up to 125.		

MNSS	Knowledge	Skills
Time 1.3.2.2	Students will know that: • Time can be measured.	Student will be able to: Read a clock face and tell time to five minutes, to the hour and half-hour. Compare duration of events. Which takes more or less time? Sequence events. Before and after; first, next, last. Recognize orientation in time. Morning, noon, afternoon, evening, midnight, yesterday, today, tomorrow, this morning vs yesterday morning, etc.
Money 1.3.2.3	Students will know that: Coins and bills have specific values.	 Student will be able to: Identify and recognize relative values of pennies, nickels, dimes and quarters. Recognize and use dollars (\$) and cents (\$) signs. Find the value of a group of coins up to \$1.00. Show how different combinations of coins can equal the same amount of money.

Unit 4 Page | 13

	Students will know that:	Student will be able to:
Complete to Numbers 125 1.1.1.5	 Numbers have a relative position and value. Using tens chart, number line, etc. 	Compare and order whole numbers up to 125.
Core Knowledge Regrouping	Place value is used to add and subtract two-digit numbers.	Solve two-digit addition and subtraction problem with and without regrouping.

Essential Vocabulary: Time, Clock Face, Analog, Digital, Hour, Half-Hour, O'Clock, Half-Past, Hour Hand, Minute Hand, Just Before, Just After, First, Next, Last, Almost.

Interim 4

Pacing Chart Unit 4: Money, Numbers to 125 & Regrouping

Time Frame	Topic	Suggested Activities/Assessments	Resources & Text Alignment
Week 31 – Week 32	Time	Projects, websites, etc.	PM Text Unit 17 – Time
Week 31 – Week 32	Money		PM Text Unit 19 – Money
Week 31 – Week 32	Complete Numbers to 125		PM Text CK Handbook Numbers to 120 – s:MathematicsResources:Grade 1
Week 33	Spring Break		
Week 34	Core Knowledge Fractions		PM Text Unit 18 (Chapter 5 - 6) – Numbers to 100
Week 35 – Week 36	Core Knowledge Regrouping		CK Handbook Two-Digit Addition (Pgs. 286 – 289) Two-Digit Subtraction (Pgs. 289 – 291)
Week 37	Review & review for mastery		
Week 38	Interim 4 Assessment		