Pacing Guide For Math Curriculum

Grade 3

Topic	**Marking Period**	**Number of Days**
Operations and Algebraic Thinking	MP1	12 weeks
Number and Operations in Base Ten	MP 1	12 weeks
Number and Operations- Fractions	MP 2	4 weeks
Measurement	MP 3	6 weeks
Data Literacy	MP 4	6 weeks
Geometry	MP 4	6 weeks

Alpha Public School
Math Curriculum Map

Grade: 3rd grade

Unit: Operations and Algebraic Thinking	**Content Topic:** Represent and solve problems involving multiplication and division

Standard	**Disciplinary Core Ideas / Essential Statement / Objective**
3.OA.A.1	Interpret products of whole numbers, e.g., interpret 5 X 7 as the total number of objects in 5 groups of 7 objects each. For example, describe and / or represent a context in which a total number of objects can be expressed as 5 X 7.
3.OA.A.2	Interpret whole-number quotients of whole numbers, e.g., interpret 56 ÷ 8 as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each. For example, describe and / or represent a context in which a number of shares or a number of groups can be expressed as 56 ÷ 8.
3.OA.A.3	Use multiplication and division within 144 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.
3.OA.A.4	Determine the unknown whole number in a multiplication or division equation relating three whole numbers. For example, determine the unknown number that makes the equation true in each of the equations 8 x ? = 48, 5 = ? ÷ 3, 6x6=?

Practices / Skills & Lesson / Learning Activities

- Represent and solve problems using multiplication and division
- Use arrays, number groupings and picture models to understand multiplication properties
- Solve and write simple multiplication and division stories using equal groups
- Use a multiplication fact table and fact families to learn and memorize multiplication facts to 12
- Write and solve simple number sentences and word problems involving multiplication and division.
- Multiply and divide within 144
- Use a division fact table and fact families to learn and memorize multiplication and division facts up to and including 12 as a factor / divisor.

Whole group-

- Introduction video starting objective
- Review / Intro vocabulary (discuss real world connections)
- Review previous knowledge (background topics)
- Going in depth with new topic using multi sensory techniques (I do, we do, you do)

Individual-

- Center based independent practice
- Math fact practice
- Technology (if available)
- Review lower level topics not yet mastered

Small groups-

- Mini lesson
- Partner work

Formative, Summative and Alternative Assessments	**Benchmark Assessments**	**Core Instructional and Supplemental Materials (including various texts at**

		each grade level)
• Quizzes • Classwork • Homework • Teacher observation / anecdotal notes • IXL modules • Fluency work Summative- • Unit Test • IXL quizzes Alternative- • Choice board • Conferencing • Journaling • projects	• Unit assessments • Beginning of Year / Mid year / End of year assessments • IXL Diagnostic	• Manipulatives • Technology devices • Games • Prodigy • IXL • Anchor charts • Math journals • Number line • Multiplication chart

Unit: Operations and Algebraic Thinking	**Content Topic:** Understand properties of multiplication and division and the relationship between multiplication and division

Standard	**Disciplinary Core Ideas / Essential Statement / Objective**
3.OA.B.5	Apply properties of operations as strategies to multiply and divide. Examples if 6 x 4 = 24 is known, then 4 x 6 = is also known. (Commutative property of multiplication) 3 x 5 x 2 can be found by 3 x 5 = 15, then 15 x 2 = 30, or by 5 x 2 = 10, then 3 x 10 = 30. (Associative property of multiplication). Knowing that 8 x 5 = 40 and 8 x 2 = 16, one can find 8 x 7 as 8 x(5+2)= (8x5) + (8x2)= 40 + 16 =56 (Distributive property) (Clarification: Students need not use formal terms for these properties).
3.OA.B.6	Understand division as an unknown factor problem. For example 32 ÷ 8 by finding the number that makes 32 when multiplied by 8.

Practices / Skills & Lesson / Learning Activities
• Represent and solve problems using multiplication and division • Use arrays, number groupings and picture models to understand multiplication properties • Solve and write simple multiplication and division stories using equal groups • Use a multiplication fact table and fact families to learn and memorize multiplication facts to 12 • Write and solve simple number sentences and word problems involving multiplication and division. • Multiply and divide within 144 • Use a division fact table and fact families to learn and memorize multiplication and division facts up to and including 12 as a factor / divisor. • Understand properties of multiplication and the relationship between multiplication and division Whole group-

- Introduction video starting objective
- Review / Intro vocabulary (discuss real world connections)
- Review previous knowledge (background topics)
- Going in depth with new topic using multi sensory techniques (I do, we do, you do)

Individual-

- Center based independent practice
- Math fact practice
- Technology (if available)
- Review lower level topics not yet mastered

Small groups-

- Mini lesson
- Partner work

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Unit: Operations and Algebraic Thinking	**Content Topic:** Multiply and divide within 144

Standard	Disciplinary Core Ideas / Essential Statement / Objective	Practices / Skills & Lesson
3.OA.C.7	With accuracy and efficiency, multiply and divide within 144, using strategies such as the relationship between multiplication and division (e.g., knowing that 8 x 5 = 40, one knows 40 ÷5 = 8) or properties of operations. By the end of grade 3, know from memory all products of two one-digit numbers.	● Represent and solve problems using multiplication and division ● Use arrays, number groupings and picture models to understand multiplication properties ● Solve and write simple multiplication and division stories using equal groups ● Use a multiplication fact table and fact families to learn and memorize multiplication facts to 12

		● Write and solve simple number sentences and word problems involving multiplication and division. ● Multiply and divide within 144 ● Use a division fact table and fact families to learn and memorize multiplication and division facts up to and including 12 as a factor / divisor. Whole group- ● Introduction video starting objective ● Review / Intro vocabulary (discuss real world connections) ● Review previous knowledge (background topics) ● Going in depth with new topic using multi sensory techniques (I do, we do, you do) Individual- ● Center based independent practice ● Math fact practice ● Technology (if available) ● Review lower level topics not yet mastered Small groups- ● Mini lesson ● Partner work

Formative, Summative and Alternative Assessments	**Benchmark Assessments**	**Core Instructional and Supplemental Materials (including various texts at each grade level)**
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Unit: Operations and Algebraic Thinking	**Content Topic:** Solve problems involving the four operations, and identify and explain patterns in arithmetic

Standard	**Disciplinary Core Ideas / Essential Statement / Objective**

3.OA.D.8	Solve two-step word problems, including problems involving money, using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding. (Clarification: This standard is limited to problems posed with whole numbers and having whole number answers; students should know how to perform operations in the conventional order when there are no parentheses to specify a particular order) (Order of Operations)
3.OA.D.9	Identify arithmetic patterns (including patterns in the addition table or multiplication table) and explain them using properties of operations. For example, observe that 4 times a number is always even, and explain why 4 times a number can be decomposed into two equal addends.

Practices / Skills & Lesson / Learning Activities
● Mini-lesson- review the four operations and their roles in solving problems. Introduce the concept of representing unknown quantities with variables in equations. Present a few example problems on the whiteboard. Such as "Mary has $20. She spends $6 on a toy and then saves $8. How much money does she have left?" Discuss strategies for setting up equations to represent these problems. Emphasize the importance of identifying the unknown quantity and assigning it a variable. Work through the examples together as a class,solving each problem step by step using the four operations and equations. Encourage students to check the reasonableness of their answers by mentally estimating and rounding. ● Independent Practice- distribute printed worksheets with word problems involving money. Instruct students to solve the problems independently, using the strategies discussed during the guided practice. Review answers in class, discussing the reasoning behind each solution. ● Collaboration- Set up a classroom store using play money. Have students work in pairs to create and solve their own two-step money word problems using the play money to represent the transaction. ● Mini lesson #2- Discuss what patterns are and why they are important in mathematics. Review basic addition and multiplication concepts, including the addition table and multiplication table. Introduce the concept of identifying arithmetic patterns within these tables and explain how understanding these patterns can help with mathematical reasoning. ● Guided Practice- present examples of arithmetic patterns on the whiteboard such as Multiples of 2: 2,4,6,..., Adding by 5: 5,10,15,... , Doubles: 2+2=4, 3+3+6… Discuss the properties of operations that explain these patterns. For example: Multiples of 2 are always even because every even number can be decomposed into 2 equal addends (2 times a number can be decomposed into two equal addends). Adding by 5 means counting by 5s each time, which results in numbers that end in 0 or 5. Doubles occur when you add a number to itself, resulting in a product that is twice the original number. Encourage students to explain the patterns to each other. ● Independent Practice- distribute printed worksheets with addition and multiplication tables to each student. Instruct students to identify and explain arithmetic patterns within the tables, writing down their observations. Provide manipulatives or number cards for students to manipulate and create patterns visually. Summarize the lesson by reviewing the arithmetic patterns identified by students and explain the properties of operations behind these patterns. ● Collaboration- provide students with a set of number cards and challenge them to create their own arithmetic patterns. Arrange cards in a sequence that follows a specific pattern, such as multiples of 3 or numbers that increase by 10

Formative, Summative and Alternative Assessments	**Benchmark Assessments**	**Core Instructional and Supplemental Materials (including various texts at each grade level)**
● Quizzes	● Unit assessments	● Manipulatives

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Technology	**Crosscutting Concepts / Interdisciplinary Connections across grade levels and content areas (at least 1 must be in ELA)**
8.1.5.IC.1- Identify computing technologies that have impacted how individuals live and work and describe the factors that influenced the changes. 8.1.5.IC.2- Identify possible ways to improve the accessibility and usability of computing technologies to address the diverse needs and wants of users. 8.1.5.DA.3- Organize and present collected data visually to communicate insights gained from different views of the data 8.1.5.DA.4- Organize and present data visually to highlight relationships or support a claim 8.1.5.DA.5- Propose cause and effect relationships, predict outcomes, or communicate ideas using data 8.1.5.AP.4- Break down problems into smaller, manageable sub-problems to facilitate program development.	ELA-RI.MF.3.6-Use information gained from text features, (e.g., illustrations, maps, photographs) and the words in a text to demonstrate understanding of the text (e.g., where, when, why, and how key events occur) ELA-W.IW.3.3.E-Provide a conclusion related to the information or explanation presented ELA-SL.PE.3.1.A-Explicitly draw on previously read text or material and other information known about a topic to explore ideas under discussion. Science-***3-5-ETS1-3***--different solutions need to be tested in order to determine which of them best solves the problem, given the criteria, and the constraints (ETS1.C)

Differentiation (IEPs / 504s)	**Differentiation (ELL)**	**Differentiation (G &T)**
• Refer to IEPS for more specific accommodations and modifications for special education students • Refer to 504 plans for more	• Allow students to correct errors (looking for understanding) • Teaching key aspects of a topic, eliminate nonessential	• Alternative formatives and summative assessments • Choice boards • Games and tournaments • Group investigations

specific accommodations and modifications ● Printed copy of board work / notes provided ● Additional time for skill mastery ● Assistive technology ● Center-based instruction ● Check work frequently for understanding ● Computer or electronic divide utilization ● Extended time on tests / quizzes ● Have student repeat directions to check for understanding ● Modified assignment format ● Modified test format ● Modified test length ● Multiple test sessions ● Multi-sensory presentation ● Preferential seating ● Preview of content, concepts, and vocabulary ● Reduced / shortened written assignments ● Secure attention before giving ● Instruction / directions ● Shortened assignments ● Student working with an assigned partner ● Teacher initiated weekly assignment sheet ● Choice of activities ● Exploration by interest ● Flexible grouping ● Goal setting with students ● Mini-workshops to reteach or extend skills ● Open ended activities ● Think-pair-share ● Varied supplemental materials ● Allowing students to correct errors (looking for understanding) ● Teaching key aspects of a topic eliminate nonessential information allowing products (projects, timelines, demonstrations, models, drawings, diorama, poster boards, charts, graphs, slideshows, videos, etc). To demonstrate students learning	information using videos, illustrations, pictures, and drawings to explain or clarify ● Allowing products (projects, timelines, demonstrations, models, drawings, dioramas, poster boards, charts, graphs, slideshows, videos, etc) to demonstrate students learning ● Decreasing the amount of work presented or required ● Modifying tests to reflect selected objectives ● Reducing the number of answer choices on a multiple choice test ● Tutoring by peers ● Using true / false, matching, or fill in the blank tests in lieu of essay tests	● Independent research and projects interest groups ● Learning contracts ● Leveled rubrics ● Multiple intelligence options ● Personal agendas ● Project-based learning ● Problem-based learning ● Stations / centers ● Think-tac-toes ● Tiered activities / assignments ● Tiered products ● Varying organizers for instructions

● Collaborating (general education teacher and specialist) to modify vocabulary, omit or modify items to reflect objectives for the student, eliminate sections of the test, and determine how the grade will be determined prior to giving the test ● decreasing the amount of work presented or required		

Unit: Number and Operation in Base Ten	**Content Topic:** Use place value understanding and properties of operations to perform multi-digit arithmetic

Standard	Disciplinary Core Ideas / Essential Statement / Objective
3.NBT.A.1	Use place value understanding to round whole numbers to the nearest 10 or 100.
3.NBT.A.2	With accuracy and efficiency, add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and / or the relationship between addition and subtraction
3.NBT.A.3	Multiply one digit whole numbers by multiples of 10 in the range 10-90 (e.g., 9x80, 5 x 60) using strategies based on place value and properties of operations.

Practices / Skills & Lesson / Learning Activities

- Understand place value and properties of operations to perform multi digit arithmetic
- Determine the place value of digits in a number within the 1,000's place
- Read, write, compare and order numbers within the 1,000's place
- Add and subtract within the 1,000's place
- Solve two step word problems using the four operations
- Write and solve simple number sentences
- Estimate and round numbers (using mental math when appropriate) within the 1,000's place
- Identify and apply patterns within numbers to solve number problems

Whole Group-

- Introduction video stating objective
- Review / intro vocabulary (discuss real world connections)
- Review previous knowledge (background topics)
- Going in depth with new topic using multi sensory techniques (I do, we do, you do)

Individual-

- Center based independent practice
- Math fact practice
- Technology
- Review lower level topics not yet mastered

Small Group-

- Mini lesson
- Partner work

Alpha Public School
Math Curriculum Map

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Unit: Number and Operations-Fractions	**Content Topic:** Develop understanding of fractions as numbers

Standard	Disciplinary Core Ideas / Essential Statement / Objective
3.NF.A.1	Understand a fraction $\frac{1}{b}$ as the quantity formed by 1 part when a whole is partitioned into *b* equal parts; understand a fraction $\frac{a}{b}$ as the quantity formed by *a* parts of size $\frac{1}{b}$. For example: If a rectangle (i.e. the whole) is partitioned into 3 equal parts, each part is 1⁄3. Two of those parts would be 2⁄3.
3.NF.A.2.a	Understand a fraction as a number on the number line; represent fractions on a number line diagram. Represent a fraction $\frac{1}{b}$ on a number line diagram by defining the interval from 0 to 1 as the whole and partitioning it into *b* equal parts. Recognize that each part has size $\frac{1}{b}$ and that the endpoint of the part based at 0 locates the number $\frac{1}{b}$ on the number line. For example, partition the number line from 0 to 1 into 3 equal parts, represent 1⁄3 on the number line and show that each part has a size 1⁄3
3.NF.A.2.b	Understand a fraction as a number on the number line; represent fractions on a number line diagram. Represent a fraction *a*⁄*b* on a number line diagram by marking off *a* lengths $\frac{1}{b}$ from 0. Recognize that the resulting interval has size $\frac{a}{b}$ and that its endpoint locates the number $\frac{a}{b}$ on the number line.
3.NF.A.3.a	Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size. Understand two fractions are equivalent (equal) if they are the same size. Understand two fractions as equivalent if they are located at the same point on a number line.
3.NF.A.3.b	Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size. Recognize and generate simple equivalent fractions by reasoning about their size. (e.g., $\frac{1}{2} = \frac{2}{4}$, $\frac{4}{6} = \frac{2}{3}$

	). Explain why the fractions are equivalent with the support of a visual fraction model.
3.NF.A.3.c	Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size. Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. Examples: Express 3 in the form 3 = $\frac{3}{1}$; recognize that $\frac{6}{1}$ = 6; locate $\frac{4}{4}$ and 1 at the same point on a number line diagram.
3.NF.3.d	Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions with the support of a visual fraction model.

Practices / Skills & Lesson / Learning Activities
● Develop an understanding for fractions as numbers ● Reason with shapes and their attributes ● Explore and identify equal parts of a whole ● Divide models to make equal shares ● Use a fraction to name one part of a whole that is divided into equal parts ● Model read and write fractional parts of a group ● Find fractional parts of a group ● Use a number line diagram to locate and compare fractions ● Measure length to the nearest half inch, quarter inch Whole group- ● Introduction video stating objective ● Review / intro vocabulary (discuss real world connections) ● Review previous knowledge (background topics) ● Going in depth with new topic using multi sensory techniques (I do, we do, you do) Individual- ● Center based independent practice ● Math fact practice ● Technology ● Review lower level topics not yet mastered Small groups- ● Mini lesson ● Partner work

Formative, Summative and Alternative Assessments	**Benchmark Assessments**	**Core Instructional and Supplemental Materials (including various texts at each grade level)**
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● Unit Test ● IXL quizzes Alternative- ● Choice board ● Conferencing ● Journaling ● projects		

Technology	Crosscutting Concepts / Interdisciplinary Connections across grade levels and content areas (at least 1 must be in ELA)
8.1.5.IC.1- Identify computing technologies that have impacted how individuals live and work and describe the factors that influenced the changes. 8.1.5.IC.2- Identify possible ways to improve the accessibility and usability of computing technologies to address the diverse needs and wants of users. 8.1.5.DA.3- Organize and present collected data visually to communicate insights gained from different views of the data 8.1.5.DA.4- Organize and present data visually to highlight relationships or support a claim 8.1.5.DA.5- Propose cause and effect relationships, predict outcomes, or communicate ideas using data 8.1.5.AP.4- Break down problems into smaller, manageable sub-problems to facilitate program development.	ELA-RI.MF.3.6-Use information gained from text features, (e.g., illustrations, maps, photographs) and the words in a text to demonstrate understanding of the text (e.g., where, when, why, and how key events occur) ELA-W.IW.3.3.E-Provide a conclusion related to the information or explanation presented ELA-SL.PE.3.1.A-Explicitly draw on previously read text or material and other information known about a topic to explore ideas under discussion. Science-***3-5-ETS1-3***--different solutions need to be tested in order to determine which of them best solves the problem, given the criteria, and the constraints (ETS1.C)

Differentiation (IEPs / 504s)	Differentiation (ELL)	Differentiation (G &T)
● Refer to IEPS for more specific accommodations and modifications for special education students ● Refer to 504 plans for more specific accommodations and modifications ● Printed copy of board work / notes provided ● Additional time for skill mastery ● Assistive technology ● Center-based instruction	● Allow students to correct errors (looking for understanding) ● Teaching key aspects of a topic, eliminate nonessential information using videos, illustrations, pictures, and drawings to explain or clarify ● Allowing products (projects, timelines, demonstrations, models, drawings, dioramas, poster boards, charts,	● Alternative formatives and summative assessments ● Choice boards ● Games and tournaments ● Group investigations ● Independent research and projects interest groups ● Learning contracts ● Leveled rubrics ● Multiple intelligence options ● Personal agendas ● Project-based learning

● Check work frequently for understanding ● Computer or electronic divide utilization ● Extended time on tests / quizzes ● Have student repeat directions to check for understanding ● Modified assignment format ● Modified test format ● Modified test length ● Multiple test sessions ● Multi-sensory presentation ● Preferential seating ● Preview of content, concepts, and vocabulary ● Reduced / shortened written assignments ● Secure attention before giving ● Instruction / directions ● Shortened assignments ● Student working with an assigned partner ● Teacher initiated weekly assignment sheet ● Choice of activities ● Exploration by interest ● Flexible grouping ● Goal setting with students ● Mini-workshops to reteach or extend skills ● Open ended activities ● Think-pair-share ● Varied supplemental materials ● Allowing students to correct errors (looking for understanding) ● Teaching key aspects of a topic eliminate nonessential information allowing products (projects, timelines, demonstrations, models, drawings, diorama, poster boards, charts, graphs, slideshows, videos, etc). To demonstrate students learning ● Collaborating (general education teacher and specialist) to modify vocabulary, omit or modify items to reflect objectives for the student, eliminate sections of the test, and determine how the grade	graphs, slideshows, videos, etc) to demonstrate students learning ● Decreasing the amount of work presented or required ● Modifying tests to reflect selected objectives ● Reducing the number of answer choices on a multiple choice test ● Tutoring by peers ● Using true / false, matching, or fill in the blank tests in lieu of essay tests	● Problem-based learning ● Stations / centers ● Think-tac-toes ● Tiered activities / assignments ● Tiered products ● Varying organizers for instructions

will be determined prior to giving the test ● decreasing the amount of work presented or required ● Making students' correct and acceptable work, not the mistakes		

Unit: Measurement	**Content Topic:** Solve problems involving measurement and estimation of intervals of time, liquid volumes and masses of objects

Standard	Disciplinary Core Ideas / Essential Statement / Objective
3.M.A.1	Tell and write time to the nearest minute and measure time intervals in minutes. Solve word problems involving addition and subtraction of time intervals in minutes, e.g.,by representing the problem on a number line diagram.
3.M.A.2	Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l). Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same units, e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem. (Clarification: "Measure and estimate liquid volumes and masses" excludes compound units such as cm3 and finding the geometric volume of a container. "Multiplying to solve one-step word problems" excludes multiplicative comparison problems (problems involving "times as much")

Practices / Skills & Lesson / Learning Activities

- Solve problems using measurements and estimations of intervals of time, liquid volumes, and masses of objects
- Read, write, and tell time on analog and digital clocks to the nearest hour, half hour and quarter hour. Students will divide models to make equal shares
- Read, write and tell time on analog and digital clocks to the nearest 5 minute and nearest minute
- Decide when to use A.M and P.M. with time
- Use a number line or an analog clock to find elapsed time
- Estimate and measure capacity in customary units
- Change a measure of capacity in customary units from larger to smaller units or from smaller units to larger mixed units
- Estimate and measure weight in ounces and pounds
- Change measures of weight in customary units from larger to smaller units or from smaller units to larger mixed units
- Estimate and measure capacity and mass in metric units

Whole Group-

- Introduction video stating objective
- Review / intro vocabulary (discuss real world connections)
- Review previous knowledge (background topics)
- Going in depth with new topic using multi sensory techniques (I do, you do, we do)

Individual-

- Center based independent practice
- Math fact practice
- Technology
- Review lower level topics not yet mastered

Small group-

- Mini lesson
- Partner work

Formative, Summative and Alternative Assessments	Benchmark Assessments	Core Instructional and Supplemental Materials (including various texts at each grade level)
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Unit: Measurement	**Content Topic:** Geometric measurement; understand concepts of area and relate area to multiplication and to addition

Standard	Disciplinary Core Ideas / Essential Statement / Objective
3.M.B.3.a	Recognize area as an attribute of plane figures and understand concepts of area measurements. A square with side length 1 unit, called “a unit square” is said to have “one square unit” of area, and can be used to measure area
3.M.B.3.b	Recognize area as an attribute of plane figures and understand concepts of area measurements. A plane figure which can be covered without gaps or overlaps by *n* unit squares is said to have an area of *n* square units.
3.M.B.4	Measure areas by counting unit squares (square cm, square m, square in, square ft, and non-standard units)
3.M.B.5.a	Relate area to the operations of multiplication and addition. Find the area of a rectangle with whole-number side lengths by tiling it and show that the area is the same as would be found by multiplying the side lengths.

3.M.B.5.b	Relate area to the operations of multiplication and division. Multiple side lengths to find areas of rectangles with whole number side lengths in the context of solving real world and mathematical problems, and represent whole-number products as rectangular areas in mathematical reasoning.
3.M.B.5.c	Relate area to the operations of multiplication and division. Use tiling to show in a concrete case that the area of a rectangle with whole-number side lengths a and $b + c$ is the sum of $a \times b$ and $a \times c$. Use are models to represent distributive property in mathematical reasoning.
3.M.B.5.d	Relate area to the operations of multiplication and division. Recognize area as additive. Find areas of rectilinear figures by decomposing them into non-overlapping rectangles and adding the area of the non-overlapping parts, applying this technique to solve real world problems.

Practices / Skills & Lesson / Learning Activities
● Reason with shapes and their attributes ● Distinguish between lines, rays and line segments ● Identify different types of angles ● Draw and recognize parallel and intersecting lines ● Understand the characteristics of polygons and quadrilaterals ● Solve real world problems using properties of perimeter and polygons Whole Group- ● Introduction video stating objective ● Review / intro vocabulary (discuss real world connections) ● Review previous knowledge (background topics) ● Going in depth with new topic using multi sensory techniques (I do, we do, you do) Individual- ● Center based independent practice ● Math fact practice ● Technology ● Review lower level topics not yet mastered Small group- ● Mini lesson ● Partner work

Formative, Summative and Alternative Assessments	**Benchmark Assessments**	**Core Instructional and Supplemental Materials (including various texts at each grade level)**
● Quizzes ● Classwork ● Homework ● Teacher observation / anecdotal notes ● IXL modules ● Fluency work Summative- ● Unit Test ● IXL quizzes	● Unit assessments ● Beginning of Year / Mid year / End of year assessments ● IXL Diagnostic	● Manipulatives ● Technology devices ● Games ● Prodigy ● IXL ● Anchor charts ● Math journals ● Number line ● Multiplication chart

Alternative- ● Choice board ● Conferencing ● Journaling ● projects		

Unit: Measurement	**Content Topic:** Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures

Standard	Disciplinary Core Ideas / Essential Statement / Objective	Practices / Skills & Lesson
3.M.C.6	Solve real world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length, and exhibiting rectangles with the same perimeter and different areas or with the same area and different perimeters	● Recognize perimeter as an attribute of plane figures and distinguish between linear and area measures ● Compute the area and perimeter of quadrilaterals ● Reason with shapes and their attributes ● Distinguish between lines, rays and line segments ● Identify different types of angles ● Draw and recognize parallel and intersecting lines ● Understand the characteristics of polygons and quadrilaterals ● Solve real world problems using properties of perimeter and polygons Whole Group- ● Introduction video stating objective ● Review / intro vocabulary (discuss real world connections) ● Review previous knowledge (background topics) ● Going in depth with new topic using multi sensory techniques (I do, we do, you do) Individual- ● Center based independent practice ● Math fact practice ● Technology ● Review lower level topics not yet mastered Small group- ● Mini lesson ● Partner work

Formative, Summative and Alternative Assessments	Benchmark Assessments	Core Instructional and Supplemental Materials (including various texts at each grade level)
● Quizzes ● Classwork	● Unit assessments ● Beginning of Year / Mid	● Manipulatives ● Technology devices

● Homework ● Teacher observation / anecdotal notes ● IXL modules ● Fluency work Summative- ● Unit Test ● IXL quizzes Alternative- ● Choice board ● Conferencing ● Journaling ● projects	year / End of year assessments ● IXL Diagnostic	● Games ● Prodigy ● IXL ● Anchor charts ● Math journals ● Number line ● Multiplication chart

Technology	**Crosscutting Concepts / Interdisciplinary Connections across grade levels and content areas (at least 1 must be in ELA)**
8.1.5.IC.1- Identify computing technologies that have impacted how individuals live and work and describe the factors that influenced the changes. 8.1.5.IC.2- Identify possible ways to improve the accessibility and usability of computing technologies to address the diverse needs and wants of users. 8.1.5.DA.3- Organize and present collected data visually to communicate insights gained from different views of the data 8.1.5.DA.4- Organize and present data visually to highlight relationships or support a claim 8.1.5.DA.5- Propose cause and effect relationships, predict outcomes, or communicate ideas using data 8.1.5.AP.4- Break down problems into smaller, manageable sub-problems to facilitate program development.	ELA-RI.MF.3.6-Use information gained from text features, (e.g., illustrations, maps, photographs) and the words in a text to demonstrate understanding of the text (e.g., where, when, why, and how key events occur) ELA-W.IW.3.3.E-Provide a conclusion related to the information or explanation presented ELA-SL.PE.3.1.A-Explicitly draw on previously read text or material and other information known about a topic to explore ideas under discussion. Science-***3-5-ETS1-3***--different solutions need to be tested in order to determine which of them best solves the problem, given the criteria, and the constraints (ETS1.C)

Differentiation (IEPs / 504s)	**Differentiation (ELL)**	**Differentiation (G &T)**
● Refer to IEPS for more specific accommodations and modifications for special education students ● Refer to 504 plans for more specific accommodations	● Allow students to correct errors (looking for understanding) ● Teaching key aspects of a topic, eliminate nonessential information using videos,	● Alternative formatives and summative assessments ● Choice boards ● Games and tournaments ● Group investigations ● Independent research and

and modifications ● Printed copy of board work / notes provided ● Additional time for skill mastery ● Assistive technology ● Center-based instruction ● Check work frequently for understanding ● Computer or electronic divide utilization ● Extended time on tests / quizzes ● Have student repeat directions to check for understanding ● Modified assignment format ● Modified test format ● Modified test length ● Multiple test sessions ● Multi-sensory presentation ● Preferential seating ● Preview of content, concepts, and vocabulary ● Reduced / shortened written assignments ● Secure attention before giving ● Instruction / directions ● Shortened assignments ● Student working with an assigned partner ● Teacher initiated weekly assignment sheet ● Choice of activities ● Exploration by interest ● Flexible grouping ● Goal setting with students ● Mini-workshops to reteach or extend skills ● Open ended activities ● Think-pair-share ● Varied supplemental materials ● Allowing students to correct errors (looking for understanding) ● Teaching key aspects of a topic eliminate nonessential information allowing products (projects, timelines, demonstrations, models, drawings, diorama, poster boards, charts, graphs, slideshows, videos, etc). To demonstrate students learning ● Collaborating (general	illustrations, pictures, and drawings to explain or clarify ● Allowing products (projects, timelines, demonstrations, models, drawings, dioramas, poster boards, charts, graphs, slideshows, videos, etc) to demonstrate students learning ● Decreasing the amount of work presented or required ● Modifying tests to reflect selected objectives ● Reducing the number of answer choices on a multiple choice test ● Tutoring by peers ● Using true / false, matching, or fill in the blank tests in lieu of essay tests	projects interest groups ● Learning contracts ● Leveled rubrics ● Multiple intelligence options ● Personal agendas ● Project-based learning ● Problem-based learning ● Stations / centers ● Think-tac-toes ● Tiered activities / assignments ● Tiered products ● Varying organizers for instructions

education teacher and specialist) to modify vocabulary, omit or modify items to reflect objectives for the student, eliminate sections of the test, and determine how the grade will be determined prior to giving the test ● decreasing the amount of work presented or required ● Making students' correct and acceptable work, not the mistakes		

Unit: Data Literacy	**Content Topic:** Understand data-based questions and data collection

Standard	Disciplinary Core Ideas / Essential Statement / Objective
3.DL.A.1	Develop data-based questions and decide what data will answer the question. (e.g., "What size shoe does a 3rd grader wear?", "How many books does a 3rd grader read?")
3.DL.A.2	Collect student-centered data (e.g., collect data on students' favorite ice cream flavor) or use existing data to answer data-based questions

Practices / Skills & Lesson / Learning Activities

- Collect and record data in tally tables and frequency tables
- Solve problems by using the strategy make a table
- Read and interpret data in a pictograph
- Make a pictograph to show data in a table
- Read and interpret data on a bar graph
- Make a bar graph to show data in a table or pictograph
- Use data represented in bar graphs and pictographs to solve problems
- Read and interpret data in a line plot

Whole Group-

- Introduction video stating objective
- Review intro vocabulary (discuss real world connections)
- Review previous knowledge (background topics)
- Going in depth with new topic using multi sensory techniques (I do, we do, you do)

Individual-

- Center based independent practice
- Math fact practice
- Technology
- Review lower level not yet mastered

Small Groups-

- Mini lesson
- Partner work

Alpha Public School
Math Curriculum Map

Formative, Summative and Alternative Assessments	Benchmark Assessments	Core Instructional and Supplemental Materials (including various texts at each grade level)
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Unit: Data Literacy	**Content Topic:** Represent and interpret data

Standard	Disciplinary Core Ideas / Essential Statement / Objective
3.DL.B.3	Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step “how many more” and “how many less” problems using information presented in scaled bar graphs. For example, draw a bar graph in which each square in the bar might represent 5 pets.
3.DL.B.4	Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units- whole numbers, halves, or quarters.

Practices / Skills & Lesson / Learning Activities
● Collect and record data in tally tables and frequency tables ● Solve problems by using the strategy make a table ● Read and interpret data in a pictograph ● Make a pictograph to show data in a table ● Read and interpret data on a bar graph ● Make a bar graph to show data in a table or pictograph ● Use data represented in bar graphs and pictographs to solve problems ● Read and interpret data in a line plot Whole Group- ● Introduction video stating objective

- Review intro vocabulary (discuss real world connections)
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Technology	Crosscutting Concepts / Interdisciplinary Connections across grade levels and content areas (at least 1 must be in ELA)
8.1.5.IC.1- Identify computing technologies that have impacted how individuals live and work and describe the factors that influenced the changes. 8.1.5.IC.2- Identify possible ways to improve the accessibility and usability of computing technologies to address the diverse needs and wants of users. 8.1.5.DA.3- Organize and present collected data visually to communicate insights gained from different views of the data 8.1.5.DA.4- Organize and present data	ELA-RI.MF.3.6-Use information gained from text features, (e.g., illustrations, maps, photographs) and the words in a text to demonstrate understanding of the text (e.g., where, when, why, and how key events occur) ELA-W.IW.3.3.E-Provide a conclusion related to the information or explanation presented ELA-SL.PE.3.1.A-Explicitly draw on previously read text or material and other information known about a topic to explore ideas under discussion. Science-***3-5-ETS1-3***--different solutions need to be tested in order to determine which of them best solves the problem, given the criteria, and the constraints (ETS1.C)

visually to highlight relationships or support a claim 8.1.5.DA.5- Propose cause and effect relationships, predict outcomes, or communicate ideas using data 8.1.5.AP.4- Break down problems into smaller, manageable sub-problems to facilitate program development.	

Differentiation (IEPs / 504s)	Differentiation (ELL)	Differentiation (G &T)
● Refer to IEPS for more specific accommodations and modifications for special education students ● Refer to 504 plans for more specific accommodations and modifications ● Printed copy of board work / notes provided ● Additional time for skill mastery ● Assistive technology ● Center-based instruction ● Check work frequently for understanding ● Computer or electronic divide utilization ● Extended time on tests / quizzes ● Have student repeat directions to check for understanding ● Modified assignment format ● Modified test format ● Modified test length ● Multiple test sessions ● Multi-sensory presentation ● Preferential seating ● Preview of content, concepts, and vocabulary ● Reduced / shortened written assignments ● Secure attention before giving ● Instruction / directions ● Shortened assignments ● Student working with an assigned partner ● Teacher initiated weekly assignment sheet ● Choice of activities ● Exploration by interest ● Flexible grouping	● Allow students to correct errors (looking for understanding) ● Teaching key aspects of a topic, eliminate nonessential information using videos, illustrations, pictures, and drawings to explain or clarify ● Allowing products (projects, timelines, demonstrations, models, drawings, dioramas, poster boards, charts, graphs, slideshows, videos, etc) to demonstrate students learning ● Decreasing the amount of work presented or required ● Modifying tests to reflect selected objectives ● Reducing the number of answer choices on a multiple choice test ● Tutoring by peers ● Using true / false, matching, or fill in the blank tests in lieu of essay tests	● Alternative formatives and summative assessments ● Choice boards ● Games and tournaments ● Group investigations ● Independent research and projects interest groups ● Learning contracts ● Leveled rubrics ● Multiple intelligence options ● Personal agendas ● Project-based learning ● Problem-based learning ● Stations / centers ● Think-tac-toes ● Tiered activities / assignments ● Tiered products ● Varying organizers for instructions

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Unit: Geometry	**Content Topic:** Reason with shapes and their attributes

Standard	Disciplinary Core Ideas / Essential Statement / Objective
3.G.A.1	Understand that shapes in different categories (e.g., rhombuses, rectangles, and others) may share attributes (e.g., having four sides), and that the shared attributes can define a larger category (e.g., quadrilaterals). Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories.
3.G.A.2	Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole. For example, partition a shape into 4 parts with equal areas, and describe the area of each part as $\frac{1}{4}$ of the area of the shape.

Practices / Skills & Lesson / Learning Activities

- Reason with shapes and their attributes
- Distinguish between lines, rays and line segments
- Identify different types of angles
- Draw and recognize parallel and intersecting lines
- Understand the characteristics of polygons and quadrilaterals
- Solve real world problems using properties of perimeter and polygons

Whole Group-
- Introduction video stating objective
- Review / intro vocabulary (discuss real world connections)
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For all Math units:

21st Century Education (NJSLS Standard 9)	**Career Education**
<u>THEMES:</u> Global Awareness Financial, Economic, Business and Entrepreneurial Literacy Critical Thinking Problem Solving Communication Collaboration	-Business Management & Administration -Education & Training -Finance -Information Technology -Manufacturing -Marketing -Science, Technology, Engineering & Mathematics (STEM) -Transportation, Distribution & Logistics

Information Literacy ICT (Information, Communication and Technology) Literacy <u>SKILLS:</u> CRP2. Apply appropriate academic and technical skills CRP3. Attend to personal health and financial well-being CRP4. Communicate clearly and effectively with reason CRP7. Employ valid and reliable research strategies CRP8. Utilize critical thinking to make sense of problems and persevere in solving them. CRP9. Model integrity, ethical leadership and effective management. CRP11. Use technology to enhance productivity CRP12. Work productively in teams while using cultural global competence	