Pacing Guide For Math Curriculum

Grade 7

Topic	Marking Period	Number of Days
Ratio and Proportional Relationships	MP1	12 weeks
The Number System	MP 1	12 weeks
Expressions and Equations	MP 2	4 weeks
Geometry	MP 3	6 weeks
Statistics and Probability	MP 4	6 weeks

Alpha Public School
Math Curriculum Map

Grade: 7th grade

Unit: Ratios and Proportional Relationships	**Content Topic:** Analyze proportional relationships and use them to solve real-world and mathematical problems

Standard	**Disciplinary Core Ideas / Essential Statement / Objective**
7.RP.A.1	Compute unit rates associated with ratios of fractions, including ratios of lengths, areas, and other quantities measured in like or different units. For example, if a person walks $\frac{1}{2}$ mile in each $\frac{1}{4}$ hour, compute the unit rate as the complex fraction $(\frac{1}{2})$ / $(\frac{1}{4})$ miles per hour, equivalently 2 miles per hour.
7.RP.A.2.a	Recognize and represent proportional relationships between quantities. Decide whether two quantities are in a proportional relationship, e.g, by testing for equivalent ratios in a table or graphing on a coordinate plane and observing whether the graph is a straight line through the origin.
7.RP.A.2.b	Recognize and represent proportional relationships between quantities. Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.
7.RP.A.2.c	Recognize and represent proportional relationships between quantities. Represent proportional relationships by equations. For example, if total cost t is proportional to the number n of items purchased at a constant price p, the relationship between the total cost and the number of items can be expressed as $t = pn$.
7.RP.A.2.d	Recognize and represent proportional relationships between quantities. Explain what a point (x,y) on the graph of a proportional relationship means in terms of the situation, with special attention to the points (0,0), and (1, r) where r is the unit rate.
7.RP.A.3	Use proportional relationships to solve multistep ratio and percent problems. Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error.

Practices / Skills & Lesson / Learning Activities
● Analyze proportional relationships and use them to solve real-world and mathematical problems ● Determine if ratios are equivalent as well as how to determine an unknown in an equivalent ratio ● Calculate unit rates to solve word problems ● Use proportions to solve problems ● Use proportions to determine the relationship in a table and graph, determine the constant of proportionality, write equations and understand graphs or proportions ● Use proportions to solve problems involving scale drawings and similar figures Whole group- ● Introduction to check for previous understanding ● Class discussion ● Structured notes and examples Individual-

- Provide opportunity for individual practice
- Tiered level questions

Small groups-

- Partner work
- Mini lesson
- Use of manipulatives
- Centers
- investigations

Formative, Summative and Alternative Assessments	Benchmark Assessments	Core Instructional and Supplemental Materials (including various texts at each grade level)
● Quizzes ● Homework / classwork ● Question and answer ● IXL Summative- ● Chapter test Alternative- ● Choice boards- projects ● Skits ● Demonstration ● Self-assessment ● Conferencing	● Module / Unit assessment ● Final / midterms ● IXL Diagnostic	● IXL ● Teacher created materials and assessments ● Khan academy ● Calculators ● National

Technology	Crosscutting Concepts / Interdisciplinary Connections across grade levels and content areas (at least 1 must be in ELA)
8.1.8.DA.1- Organize and transform data collected using computational tools to make it usable for a specific purpose 8.1.8.DA.4- transform data to remove errors and improve the accuracy of the data for analysis 8.1.8.AP.2- Create clearly named variables that represent different data types and perform operations on their values 8.1.8.AP.6- Refine a solution that meets users' needs by incorporating feedback from team members and users	ELA-L.KL.7.2.A-Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases ELA-RI.AA.7.7-Trace and evaluate the argument and specific claims in a text, assessing whether the reasoning is sound and the evidence is relevant and sufficient to support the claims ELA-W.AW.7.1.B-Support claim(s) with logical reasoning and relevant, accurate data and evidence, that demonstrate an understanding of the topic or text, using credible sources ELA-W.SE.7.6-Gather relevant information from multiple print and digital sources; using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation Science-***MS-ETS1-3-***Sometimes parts of different solutions can be combined to create a solution that is better than any of its predecessors (ETS1.B)

Differentiation (IEPs / 504s)	Differentiation (ELL)	Differentiation (G &T)
● Printed copy of board work /	● Allow students to correct	● Alternative formatives and

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 content ● 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 eliminates 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	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	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

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: The Number System	**Content Topic:** Apply and extend previous understandings of operations with fractions to add, subtract, multiply and divide rational numbers

Standard	Disciplinary Core Ideas / Essential Statement / Objective
7.NS.A.1.a	Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram. Describe situations in which opposite quantities combine to make 0. For example, in the first round of the game, Maria scored 20 points. In the second round of the same game, she lost 20 points. What is her score at the end of the second round?
7.NS.A.1.b	Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram. Understand $p + q$ as the number located a distance $\|q\|$ from p, in the positive or negative direction depending on whether q is positive or negative. Show that a number and its opposite have a sum of 0 (are additive inverses). Interpret sums of rational numbers by describing real-world contexts.
7.NS.A.1.c	Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram. Understand subtraction of rational numbers as adding the additive inverse, $p-q = p + (-q)$. Show that the distance between two rational numbers on the number line is the absolute value of their difference, and apply this principle in real-world contexts.
7.NS.A.1.d	Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram. Apply properties of operations as strategies to add and subtract rational numbers.
7.NS.A.2.a	Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers. Understand that multiplication is extended from fractions to rational numbers by requiring that operations continue to satisfy the properties of operations, particularly the distributive property, leading to products such as (-1)(-1) = 1 and the rules for multiplying signed numbers. Interpret products of rational numbers by describing real-world contexts.
7.NS.A.2.b	Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers. Understand that integers can be divided, provided that the divisor is not zero,

	and every quotient of integers (with non-zero divisor) is a rational number. If q and q are integers, then -($\frac{p}{q}$) = $\frac{(-p)}{q} = \frac{p}{(-q)}$. Interpret quotients of rational numbers by describing real world contexts.
7.NS.A.2.c	Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers. Apply properties of operations as strategies to multiply and divide rational numbers
7.NS.A.2.d	Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers. Convert a rational number to a decimal using long division; know that the decimal form of a rational number terminates in 0s or eventually repeats.
7.NS.A.3	Solve real-world and mathematical problems involving the four operations with rational numbers. (Clarification: Computations with rational numbers extend the rules for manipulating fractions to complex fractions)

Practices / Skills & Lesson / Learning Activities

- Apply and extend previous understandings of operations of fractions to add, subtract, multiply, and divide rational number
- Applying their prior knowledge of the number system to problems involving rational numbers
- Add, subtract, multiply and divide rational numbers
- Transform rational numbers into decimals
- Solve real-world problems using rational numbers

Whole group-
- Introduction to check for previous understanding
- Class discussion
- Structured notes and examples

Individual-
- Provide opportunity for individual practice
- Tiered level questions

Small groups-
- Partner work
- Mini lesson
- Use of manipulatives
- Centers
- Investigations

Formative, Summative and Alternative Assessments	Benchmark Assessments	Core Instructional and Supplemental Materials (including various texts at each grade level)
● Quizzes ● Homework / classwork ● Question and answer ● IXL Summative- ● Module test Alternative- ● Choice boards- projects ● Skits ● Demonstration	● Module / Unit assessment ● Final / midterms ● IXL Diagnostic	● IXL ● Teacher created materials and assessments ● Khan academy ● Calculators ● National Library of Virtual Manipulatives ● Desmos

• Self-assessment • Conferencing		

Technology	Crosscutting Concepts / Interdisciplinary Connections across grade levels and content areas (at least 1 must be in ELA)
8.1.8.DA.1- Organize and transform data collected using computational tools to make it usable for a specific purpose 8.1.8.DA.4- transform data to remove errors and improve the accuracy of the data for analysis 8.1.8.AP.2- Create clearly named variables that represent different data types and perform operations on their values 8.1.8.AP.6- Refine a solution that meets users' needs by incorporating feedback from team members and users	ELA-L.KL.7.2.A-Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases ELA-RI.AA.7.7-Trace and evaluate the argument and specific claims in a text, assessing whether the reasoning is sound and the evidence is relevant and sufficient to support the claims ELA-W.AW.7.1.B-Support claim(s) with logical reasoning and relevant, accurate data and evidence, that demonstrate an understanding of the topic or text, using credible sources ELA-W.SE.7.6-Gather relevant information from multiple print and digital sources; using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation Science-***MS-ETS1-3-***Sometimes parts of different solutions can be combined to create a solution that is better than any of its predecessors (ETS1.B)

Differentiation (IEPs / 504s)	Differentiation (ELL)	Differentiation (G &T)
• 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 content • 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	• 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

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 eliminates 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 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: Expressions and Equations	**Content Topic:** Use properties of operations to generate equivalent expressions

Standard	Disciplinary Core Ideas / Essential Statement / Objective
7.EE.A.1	Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with

	rational coefficients.
7.EE.A.2	Understand that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related. For example $a + 0.05a = 1.05a$ means that "increase by 5%" is the same as "multiply by 1.05"

Practices / Skills & Lesson / Learning Activities
● Apply and extend previous understandings of operations with fractions ● Use properties of operations to generate equivalent expressions ● Solve real-life and mathematical problems using numerical and algebraic expressions Whole group- ● Introduction to check for previous understanding ● Class discussion ● Structured notes and examples Individual- ● Provide opportunity for individual practice ● Tiered level questions Small groups- ● Partner work ● Mini lesson ● Use of manipulatives ● Centers ● Investigations

Formative, Summative and Alternative Assessments	**Benchmark Assessments**	**Core Instructional and Supplemental Materials (including various texts at each grade level)**
● Quizzes ● Homework / classwork ● Question and answer ● IXL Summative- ● Module test Alternative- ● Choice boards- projects ● Skits ● Demonstration ● Self-assessment ● Conferencing	● Module / Unit assessment ● Final / midterms ● IXL Diagnostic	● IXL ● Teacher created materials and assessments ● Khan academy ● Calculators ● National Library of Virtual Manipulatives ● Desmos

Unit: Expressions and Equations	**Content Topic:** Solve real-life and mathematical problems using numerical and algebraic expressions and equations

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

7.EE.B.3	Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies. For example: If a woman making $25 an hour gets a 10% raise, she will make an additional $\frac{1}{10}$ of her salary an hour, or $2.50, for a new salary of $27.50. If you want to place a towel bar $9\frac{3}{4}$ inches long in the center of a door that is $27\frac{1}{2}$inches wide, you will need to place the bar about 9 inches from each edge; this estimate can be used as a check on the exact computation.
7.EE.B.4.a	Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities. Solve word problems leading to equations of the form $px + q = r$ and $p(x + q) = r$, where p, q, and r are specific rational numbers. Solve equations of these forms with accuracy and efficiency. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach. For example the perimeter of a rectangle is 54 cm. Its length is 6 cm. What is its width?
7.EE.B.4.b	Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities. Solve word problems leading to inequalities of the form $px + q > r$ or $px + q < r$, where p,q, and r are specific rational numbers. Graph the solution set of the inequality and interpret it in the context of the problem. For example: As a salesperson, you are paid $50 per week plus $3 per sale. This week you want your pay to be at least $100. Write an inequality for the number of sales you need to make, and describe the solutions.

Practices / Skills & Lesson / Learning Activities

- Identify constants, coefficients, and variables in an algebraic expression
- Evaluate a numerical expression using the correct order of operations
- Use the distributive property to simplify algebraic expressions
- Learn to simplify algebraic expressions by combining like terms
- Translate verbal phrases into mathematical algebraic expressions
- Evaluate algebraic expressions when each variable is assigned a value using substitution and the order of operations
- Use properties of operations to generate equivalent expressions
- Solve real-life and mathematical problems using numerical and algebraic expressions and equations
- Examine commutative and associative properties of different equations
- Combine like terms within an equation and learn to use the distributive property to solve equations
- Solve multi-step equations involving different techniques
- Graph and solve inequalities involving addition, subtraction, multiplication and division

Whole group-
- Introduction to check for previous understanding
- Class discussion
- Structured notes and examples

Individual-
- Provide opportunity for individual practice
- Tiered level questions

Small groups-
- Partner work
- Mini lesson
- Use of manipulatives
- Centers

● Investigations

Formative, Summative and Alternative Assessments	Benchmark Assessments	Core Instructional and Supplemental Materials (including various texts at each grade level)
● Quizzes ● Homework / classwork ● Question and answer ● IXL Summative- ● Module test Alternative- ● Choice boards- projects ● Skits ● Demonstration ● Self-assessment ● Conferencing	● Module / Unit assessment ● Final / midterms ● IXL Diagnostic	● IXL ● Teacher created materials and assessments ● Khan academy ● Calculators ● National Library of Virtual Manipulatives ● Demos

Technology	Crosscutting Concepts / Interdisciplinary Connections across grade levels and content areas (at least 1 must be in ELA)
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Differentiation (IEPs / 504s)	Differentiation (ELL)	Differentiation (G &T)
● Printed copy of board work / notes provided ● Additional time for skill mastery ● Assistive technology ● Center-based instruction ● Check work frequently for understanding	● 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	● Alternative formatives and summative assessments ● Choice boards ● Games and tournaments ● Group investigations ● Independent research and projects interest groups ● Learning contracts

● Computer or electronic divide utilization ● Extended time on tests / quizzes ● Have student repeat directions to check for understanding ● Modified assignment format ● Modified test content ● 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 eliminates 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 will be determined prior to	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	● 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

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

Unit: Geometry	**Content Topic:** Draw, construct, and describe geometrical figures and describe the relationships between them

Standard	Disciplinary Core Ideas / Essential Statement / Objective
7.G.A.1	Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale.
7.G.A.2	Draw (with technology, with ruler and protractor, as well as freehand) geometric shapes with given conditions. Focus on constructing triangles from three measures of angles or sides, noticing when the conditions determine a unique triangle, more than one triangle, or no triangle.
7.G.A.3	Describe the two-dimensional figures that result from slicing three-dimensional figures, as in plane sections of right rectangular prisms and right rectangular pyramids.

Practices / Skills & Lesson / Learning Activities

- Draw, construct, and describe geometrical figures and describe the relationships between them.
- Solve real-life and mathematical problems involving angle measure, area, surface area, and volume
- Solve real-life and mathematical problems using numerical and algebraic expressions and equations
- Introduced to 3D solids and cross sections of 3D figures
- Determine is a triangle is possible
- Draw triangles freehand, with ruler and protractor and with technology

Whole group-

- Introduction to check for previous understanding
- Class discussion
- Structured notes and examples

Individual-

- Provide opportunity for individual practice
- Tiered level questions

Small group-

- Partner work
- Mini lesson
- Use of manipulatives
- Centers
- Investigations

Formative, Summative and Alternative Assessments	Benchmark Assessments	Core Instructional and Supplemental Materials (including various texts at each grade level)
● Quizzes	● Module / Unit assessment	● IXL

● Homework / classwork ● Question and answer ● IXL Summative- ● Module test Alternative- ● Choice boards- projects ● Skits ● Demonstration ● Self-assessment ● Conferencing	● Final / midterms ● IXL Diagnostic	● Teacher created materials and assessments ● Khan academy ● Calculators ● National Library of Virtual Manipulatives

Unit: Geometry	**Content Topic:** Solve real-life and mathematical problems involving angle measure, area, surface area, and volume

Standard	Disciplinary Core Ideas / Essential Statement / Objective
7.G.B.4	Know the formulas for the area and the circumference of a circle and use them to solve problems; give an informal derivation of the relationship between the circumference and area of a circle
7.G.B.5	Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure
7.G.B.6	Solve real-world and mathematical problems involving area, volume and surface area of two- and three- dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms

Practices / Skills & Lesson / Learning Activities

- Solve real-life and mathematical problems, involving angle measure, area, surface area, and volume
- Solve real-life and mathematical problems using numerical and algebraic expressions and equations
- Calculate the perimeter of different 2D geometrical figures
- Calculate the circumference and area of different circles
- Determine whether a triangle is possible or not
- Discover special pairs of triangles and the relationships they yield
- Calculate the area of rectangles, parallelograms, triangles, and trapezoids
- Use previous knowledge of area formulas to calculate the area of irregular and shaded figures
- Learn how to compute the volume of different 3D figures
- Compute surface area of different 3D figures

Whole group-
- Introduction to check for previous understanding
- Class discussion
- Structured notes and examples

Individual-
- Provide opportunity for individual practice
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Small groups-
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Formative, Summative and Alternative Assessments	Benchmark Assessments	Core Instructional and Supplemental Materials (including various texts at each grade level)
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Technology	Crosscutting Concepts / Interdisciplinary Connections across grade levels and content areas (at least 1 must be in ELA)
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Differentiation (IEPs / 504s)	Differentiation (ELL)	Differentiation (G &T)
● 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	● 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,	● Alternative formatives and summative assessments ● Choice boards ● Games and tournaments ● Group investigations ● Independent research and projects interest groups ● Learning contracts ● Leveled rubrics ● Multiple intelligence

● Extended time on tests / quizzes ● Have student repeat directions to check for understanding ● Modified assignment format ● Modified test content ● 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 eliminates 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 will be determined prior to giving the test ● decreasing the amount of	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	options ● Personal agendas ● Project-based learning ● Problem-based learning ● Stations / centers ● Think-tac-toes ● Tiered activities / assignments ● Tiered products ● Varying organizers for instructions

work presented or required ● Making students' correct and acceptable work, not the mistakes		

Unit: Statistics and Probability	**Content Topic:** Use random sampling to draw inferences about a population

Standard	Disciplinary Core Ideas / Essential Statement / Objective
7.SP.A.1	Understand that statistics can be used to gain information about a population by examining a sample of the population; generalizations about a population from a sample are valid only if the sample is representative of that population. Understand that random sampling tends to produce representative samples and support valid inferences.
7.SP.A.2	Use data from a random sample to draw inferences about a population with an unknown characteristic of interest. Generate multiple samples (or simulated samples) of the same size to gauge the variation in estimates or predictions. For example, estimate the mean word length in a book by randomly sampling words from the book; predict the winner of a school election based on randomly sampled survey data. Gauge how far off the estimate or prediction might be.

Practices / Skills & Lesson / Learning Activities

- Use random sampling to draw inferences about a population
- Draw informal comparative inferences about two populations
- Investigate chance processes and develop, use and evaluate probability models
- Draw inferences about a population based off a sample
- Compare two populations and solve real world application problems with them
- Measure the difference between the centers by expressing it as a multiple of a measure of variability
- Understand that the probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring
- Use experimental and theoretical probability to determine the likelihood of the event occurring
- Use the fundamental counting principles to solve problems.
- Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation

Whole group-
- Introduction to check for previous understanding
- Class discussion
- Structured notes and examples

Individual-
- Provide opportunity for individual practice
- Tiered level questions

Small groups-
- Partner work
- Mini lesson
- Use of manipulatives
- Centers
- Investigations

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)
● Quizzes ● Homework / classwork ● Question and answer ● IXL Summative- ● Module test Alternative- ● Choice boards- projects ● Skits ● Demonstration ● Self-assessment ● conferencing	● Module / Unit assessment ● Final / midterms ● IXL Diagnostic	● IXL ● Teacher created materials and assessments ● Khan academy ● Calculators ● National Library of Virtual Manipulatives ● Desmos

Unit: Statistics and Probability	**Content Topic:** Draw informal comparative inferences about two populations

Standard	Disciplinary Core Ideas / Essential Statement / Objective
7.SP.B.3	Informally assess the degree of visual overlap of two numerical data distributions with similar variabilities, measuring the difference between the centers by expressing it as a multiple of a measure of variability. For example, the mean height of players on the basketball team is 10 cm greater than the mean height of players on the soccer team, about twice the variability (mean absolute deviation) on either team; on a dot plot, the separation between the two distributions of heights is noticeable.
7.SP.B.4	Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations. For example, decide whether the words in a chapter of a seventh-grade science book are generally longer than the words in a chapter of a fourth-grade science book.

Practices / Skills & Lesson / Learning Activities
● Use random sampling to draw inferences about a population ● Draw informal comparative inferences about two populations ● Investigate chance processes and develop, use and evaluate probability models ● Draw inferences about a population based off a sample ● Compare two populations and solve real world application problems with them ● Measure the difference between the centers by expressing it as a multiple of a measure of variability ● Understand that the probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring ● Use experimental and theoretical probability to determine the likelihood of the event occurring ● Use the fundamental counting principles to solve problems. ● Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation Whole group- ● Introduction to check for previous understanding

- Class discussion
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Formative, Summative and Alternative Assessments	Benchmark Assessments	Core Instructional and Supplemental Materials (including various texts at each grade level)
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Unit: Statistics and Probability	**Content Topic:** Investigate chance processes and develop, use, & evaluate probability models.

Standard	Disciplinary Core Ideas / Essential Statement / Objective
7.SP.C.5	Understand that the probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring. Larger numbers indicate greater likelihood. A probability near 0 indicates an unlikely event, a probability around $\frac{1}{2}$ indicates an event that is neither unlikely nor likely, and a probability near 1 indicates a likely event.
7.SP.C.6	Approximate the probability of a chance event by collecting data on the chance process that produces it and observing its long-run relative frequency, and predict the approximate relative frequency given the probability. For example, when rolling a number cube 600 times, predict that a 3 or a 6 would be rolled roughly 200 times, but probably not exactly 200 times.
7.SP.C.7.a	Develop a probability model and use it to find probabilities of events. Compare probabilities from a model to observed frequencies; if the agreement is not good, explain possible sources of the discrepancy. Develop a uniform probability model by assigning equal probability to all outcomes and use the model to determine probabilities of events. For example, if a student is selected at random from a class, find the probability that Jane will be selected and the probability that a girl will be selected.

7.SP.C.7.b	Develop a probability model and use it to find probabilities of events. Compare probabilities from a model to observed frequencies; if the agreement is not good, explain possible sources of the discrepancy. Develop a probability model (which may not be uniform) by observing frequencies in data generated from a chance process. For example, find the approximate probability that a spinning penny will land heads up or that a tossed paper cup will land open-end down. Do the outcomes for the spinning penny appear to be equally likely based on the observed frequencies?
7.SP.C.8.a	Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation. Understand that, just as with simple events, the probability of a compound event is the fraction of the outcomes in the sample space for which the compound event occurs.
7.SP.C.8.b	Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation. Represent sample spaces for compound events using methods such as organized lists, tables and tree diagrams. For an event described in everyday language (e.g., "rolling double sixes"), identify the outcomes in the sample space which compose the event.
7.SP.C.8.c	Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation. Design and use a simulation to generate frequencies for compound events. For example, use random digits as a simulation tool to approximate the answer to the question. If 40% of donor have type A blood, what is the probability that it will take at least 4 donors to find one with type A blood?

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Formative, Summative and Alternative Assessments	Benchmark Assessments	Core Instructional and Supplemental Materials (including various texts at each grade level)

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Technology	**Crosscutting Concepts / Interdisciplinary Connections across grade levels and content areas (at least 1 must be in ELA)**
8.1.8.DA.1- Organize and transform data collected using computational tools to make it usable for a specific purpose 8.1.8.DA.4- transform data to remove errors and improve the accuracy of the data for analysis 8.1.8.AP.2- Create clearly named variables that represent different data types and perform operations on their values 8.1.8.AP.6- Refine a solution that meets users' needs by incorporating feedback from team members and users	ELA-L.KL.7.2.A-Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases ELA-RI.AA.7.7-Trace and evaluate the argument and specific claims in a text, assessing whether the reasoning is sound and the evidence is relevant and sufficient to support the claims ELA-W.AW.7.1.B-Support claim(s) with logical reasoning and relevant, accurate data and evidence, that demonstrate an understanding of the topic or text, using credible sources ELA-W.SE.7.6-Gather relevant information from multiple print and digital sources; using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation Science-***MS-ETS1-3-***Sometimes parts of different solutions can be combined to create a solution that is better than any of its predecessors (ETS1.B)

Differentiation (IEPs / 504s)	**Differentiation (ELL)**	**Differentiation (G &T)**
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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 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	-Business Management & Administration -Education & Training -Finance -Information Technology -Manufacturing -Marketing -Science, Technology, Engineering & Mathematics (STEM) -Transportation, Distribution & Logistics