

ALIGNMENT OF CONTENT WITH COMMON CORE STANDARDS

Developing Roots is engaging and the greatest strength of the curriculum is in its ability to create long-lasting mathematical behaviors and attitudes. The lessons provide opportunities for students to connect the math with the real world, experiencing it's usefulness and finding true relevance that create learners who interact with their world with curiosity and new confidence.

As we begin the second half of the year, take time to reflect on how the standards set forth by the National Council of Teachers of Mathematics (NCTM) provide a framework for organizing learning outcomes. Be cognizant to connect concepts with the daily routines and the environment of the child.

Throughout the second half of the year, it is important to reflect back with students in looking at their think!Pads. How have they grown in communicating their thinking? How are students connecting concepts?

BOOK A

Number	Number and Operation	Geometry and Spatial Awareness	Measurement	Patterns and Relationships	Data Description, Representations, and Analysis
Counting Sequence	<ul style="list-style-type: none"> Recognize how numbers are used in the environment Compare two numbers between 1 and 10 presented as written numerals 	<ul style="list-style-type: none"> Use and interpret visual models such as number lines and number paths 	<ul style="list-style-type: none"> Use and interpret visual models such as number lines and number paths 	<ul style="list-style-type: none"> Verbal counting Writing numerals Count forward beginning from a given number within the known sequence (instead of having to begin at 1) 	<ul style="list-style-type: none"> Explain number is an extension of more basic ideas about relationships between quantities Use and interpret visual models such as number lines and number paths
Sorting	<ul style="list-style-type: none"> Directly compare two objects with a measurable attribute in common to determine which object has "more of"/"less of" the attribute and describe the difference 	<ul style="list-style-type: none"> Directly compare two objects with a measurable attribute in common to determine which object has "more of"/"less of" the attribute and describe the difference 	<ul style="list-style-type: none"> Directly compare two objects with a measurable attribute in common to determine which object has "more of"/"less of" the attribute and describe the difference 	<ul style="list-style-type: none"> Directly compare two objects with a measurable attribute in common to determine which object has "more of"/"less of" the attribute and describe the difference 	<ul style="list-style-type: none"> Create sets based on attributes using a Venn Diagram

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Number	Number and Operation	Geometry and Spatial Awareness	Measurement	Patterns and Relationships	Data Description, Representations, and Analysis
Numbers to 10	<ul style="list-style-type: none"> Count to answer "how many?" questions about as many as 20 things arranged in a line, a rectangular array, or a circle, or as many as 10 things in a scattered configuration; given a number from 1-20, count out that many objects Compare two numbers between 1 and 10 presented as written numerals Match different representations of a number to a quantity Estimate, count, and compare quantities using multiple representations 	<ul style="list-style-type: none"> Count number of sides, vertices, and edges 	<ul style="list-style-type: none"> Understand that each successive number name refers to a quantity that is one larger Counts units as a method of comparison 	<ul style="list-style-type: none"> When counting objects, say the number names in the standard order, pairing each object with one, and only one, number name and each number name with one, and only one, object Understand that the last number name said tells the number of objects counted. The number of objects is the same regardless of their arrangement or the order in which they were counted Understands that each successive number name refers to a quantity that is one larger 	<ul style="list-style-type: none"> Represent units as a "set" to indicate a quantity Classify objects into given categories; count the number of objects in each category and sort the categories by count
Ordinal Numbers	<ul style="list-style-type: none"> Identify and name the position in a line 	<ul style="list-style-type: none"> Describe objects in the environment using names of shapes, and describe the relative positions of these objects using terms such as "above," "below," "beside," "in front of," "behind," and "next to" 	<ul style="list-style-type: none"> Order of events over time 		

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Number	Number and Operation	Geometry and Spatial Awareness	Measurement	Patterns and Relationships	Data Description, Representations, and Analysis
Numbers to 20 (and beyond)	<ul style="list-style-type: none"> • Build and name teen numbers • Associate numerals with the quantities 1-20 • Count to answer "how many?" questions about as many as 20 things arranged in a line, a rectangular array, or as many as 10 things in a scattered configuration; given a number from 1-20, count out that many objects 		<ul style="list-style-type: none"> • Counts units as a method of comparison 	<ul style="list-style-type: none"> • Build teen numbers using 10 as a benchmark • Use patterns in numbers to build numbers to 100 • Compose and decompose numbers beyond 20 using ten as benchmarks • Recognize patterns from teen numbers and extend to numbers beyond 20 	<ul style="list-style-type: none"> • Use benchmarks of 5 and 10 to record and read data
Measurement	Number and Operation	Geometry and Spatial Awareness	Measurement	Patterns and Relationships	Data Description, Representations, and Analysis
Length	<ul style="list-style-type: none"> • Describe length by quantifying nonstandard units • Explain the parts that make up the whole path • Estimate length and compare actual length using nonstandard units 	<ul style="list-style-type: none"> • Directly compare the length of two objects in order to see which object is longer or shorter • Determine and justify which path is shorter/longer: spatial reasoning • Justify which path is longer 	<ul style="list-style-type: none"> • Use vocabulary to more-specifically describe big and small • Identify the measurable attributes of objects, such as length • Describe measurable attributes, such as length • Directly compare the length of two objects in order to see which object is longer or shorter • Order the height of objects and discuss the difference between long and tall • Choose the best unit to measure and compare lengths of objects 	<ul style="list-style-type: none"> • Compare the size of the unit and the quantity • Chose appropriate unit of measure • Predict the quantity needed to measure • Estimate and compare quantities 	<ul style="list-style-type: none"> • Indirectly compare the length and width of objects by using a third object • Create and interpret a bar graph

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Measurement	Number and Operation	Geometry and Spatial Awareness	Measurement	Patterns and Relationships	Data Description, Representations, and Analysis
Weight		<ul style="list-style-type: none"> • Explain the size of an object does not define its weight • Justify that same boxes may not weigh the same 	<ul style="list-style-type: none"> • Describe measurable attributes of objects, such as weight • Directly compare two objects to determine which is heavier/lighter • Order objects by their weight 	<ul style="list-style-type: none"> • Explain how pushing/pulling an object allows for comparison in weight • Justify why weight can't be measured visually • Use a tool to compare the weight of two objects 	<ul style="list-style-type: none"> • Decide what weighs more/less • Estimate and compare quantities
Capacity	<ul style="list-style-type: none"> • Use nonstandard units to compare capacities 	<ul style="list-style-type: none"> • Compare the shape of the container and the amount it can hold 	<ul style="list-style-type: none"> • Use vocabulary to more specifically describe capacity in terms of full and empty • Observe and describe the same volume in different containers 	<ul style="list-style-type: none"> • Directly compare two objects with a measurable attribute in common to see which object has "more of"/"less of" the attribute, and describe the difference 	<ul style="list-style-type: none"> • Decide what holds more/less • Estimate and compare quantities

Content adapted from Sheffielddt (2005 92), National Council of Teachers of Mathematics (NCTM, 2000), and the Common Core State Standards (CCSS).

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BOOK B

Geometry	Number and Operation	Geometry and Spatial Awareness	Measurement	Patterns and Relationships	Data Description, Representations, and Analysis
Spatial Relationships	<ul style="list-style-type: none"> Use nonstandard measures to relate distances between objects 	<ul style="list-style-type: none"> Describe, name, and interpret relative position of objects in space using positional language Describe position using language of right and left Visualize familiar areas to create a mental map, then organize and plan the arrangement of objects in the space using landmarks 	<ul style="list-style-type: none"> Use spatial reasoning and apply a unit of measure to correctly position objects in creating maps 	<ul style="list-style-type: none"> Illustrate objects together in creating maps 	<ul style="list-style-type: none"> Create and interpret maps
Shapes and Geometric Attributes	<ul style="list-style-type: none"> Count and compare the number of sides, vertices, and edges 	<ul style="list-style-type: none"> Name shapes Identify geometric attributes that define shapes 	<ul style="list-style-type: none"> Use longer/shorter to compare side lengths 	<ul style="list-style-type: none"> Compare 2D shapes to 3D objects Create and analyze shape sorts Relate the part to the whole in composing and decomposing shapes 	<ul style="list-style-type: none"> Categorize shapes Define shapes based on shared attributes
Composing and Decomposing Shapes	<ul style="list-style-type: none"> Identify the parts that make up the whole 	<ul style="list-style-type: none"> Visualize shapes within shapes Use prior knowledge to create an image 		<ul style="list-style-type: none"> Combine shapes to create objects that "look like" images in my environment 	
Extensions		<ul style="list-style-type: none"> Explore changes in a shape's position Use 2D shapes to make 3D objects 		<ul style="list-style-type: none"> Explain that shapes remain congruent when applying transformations Create symmetry 	<ul style="list-style-type: none"> Compare transformations of shapes

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Operations	Number and Operation	Geometry and Spatial Awareness	Measurement	Patterns and Relationships	Data Description, Representations, and Analysis
Visualizing Numbers in Sets	<ul style="list-style-type: none"> • Group dots to count • Explain the part whole relationship 	<ul style="list-style-type: none"> • Explain how the organization of images aids in counting and comparing quantities 		<ul style="list-style-type: none"> • Organize dots/ objects in sets to count and compare 	<ul style="list-style-type: none"> • Group dots to count • Collect, represent, and read data
Addition and Subtraction Structures	<ul style="list-style-type: none"> • Use language to describe joining and separating problems • Read, model, and interpret action stories in multiple ways • Create a number sentence to represent an action story 	<ul style="list-style-type: none"> • Illustrate part-whole structures with bar models 	<ul style="list-style-type: none"> • Use bar models to compare parts and wholes 	<ul style="list-style-type: none"> • Explain an action story in multiple ways • Identify equivalent representations • Decompose numbers in multiple ways 	<ul style="list-style-type: none"> • Identify the correct symbolic representation for the situation • Compare expressions • Categorize structures
Developing Fluency within Addition and Subtraction	<ul style="list-style-type: none"> • Use “count on,” “count back,” and “count up” to strategies to compute • Use doubles to compute • Use 5 and 10 as a benchmark to compute 	<ul style="list-style-type: none"> • Use a number line to count • Visualize numbers as doubles • Use ten frames to communicate the part-whole relationship in term of ten 	<ul style="list-style-type: none"> • Use the number line to see the difference between numbers 	<ul style="list-style-type: none"> • Categorize facts based on strategies 	<ul style="list-style-type: none"> • Identify the most efficient strategy given the expression • Compare strategies in solving problems

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