

First Grade Mathematics Focus: Whole number relationships and place value

Develop understanding of addition, subtraction, and strategies for addition and subtraction within 20; grouping in tens and ones; linear measurement; shapes

Numbers and Operations in Base 10

Common Core State Standards

- 1.NBT.A.1 Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral.
- 1.NBT.B.2 Understand that the two digits of a two-digit number represent amounts of tens and ones. Understand the following as special cases:
 - 1.NBT.B.2.A 10 can be thought of as a bundle of ten ones — called a "ten."
 - 1.NBT.B.2.B The numbers from 11 to 19 are composed of a ten and one, two, three, four, five, six, seven, eight, or nine ones.
 - 1.NBT.B.2.C The numbers 10, 20, 30, 40, 50, 60, 70, 80, 90 refer to one, two, three, four, five, six, seven, eight, or nine tens (and 0 ones).
- 1.NBT.B.3 Compare two two-digit numbers based on meanings of the tens and ones digits, recording the results of comparisons with the symbols $>$, $=$, and $<$.
- 1.NBT.C.4 Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10.
- 1.NBT.C.5 Given a two-digit number, mentally find 10 more or 10 less than the number, without having to count; explain the reasoning used.
- 1.NBT.C.6 Subtract multiples of 10 in the range 10-90 from multiples of 10 in the range 10-90 (positive or zero differences), using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.

<p>Unit Name:</p>	<p>Enduring Understanding</p> <ul style="list-style-type: none"> ● Place value is the meaning of a position of a number ● Operations with numbers can be understood through the commutative and associative properties ● 10 is a bundle of ten ones 	<p>Essential Questions</p> <ul style="list-style-type: none"> ● Why are numbers important? ● What do two digit numbers represent? ● What is place value? ● How are the properties of operations used in addition and subtraction? ● How can we represent problems in multiple ways?
<p>Knows:</p> <ul style="list-style-type: none"> ● How to extend the counting sequence ● Place Value ● Properties of operations to add and subtract. 	<p>Understands:</p> <ul style="list-style-type: none"> ● In adding two-digit numbers, one adds tens and tens, ones and ones, and sometimes it is necessary to compose a ten. 	<p>Does:</p> <ul style="list-style-type: none"> ● Compose and decompose numbers 11 to 19 ● Use concrete models, or drawing and the following strategies to add within 100: place value, properties of operations and the relationship between adding and subtracting. ● Identify numerals to 120. ● Write numerals to 120. ● Count to 120 from a given number in tens or ones. ● Count to numerals past 100 by 10s.

		<ul style="list-style-type: none"> • Compare 2-digit numbers, use greater than and less than symbols. • Identify ordinal numbers (1st, 2nd, 3rd...). • Recite days of the week in order. • Recite months of the year in order.
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Operations in Algebraic Thinking

Common Core State Standards

- 1.OA.A.1 Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.
- 1.OA.A.2 Solve word problems that call for addition of three whole numbers whose sum is less than or equal to 20, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.
- 1.OA.B.3 Apply properties of operations as strategies to add and subtract.
- 1.OA.B.4 Understand subtraction as an unknown-addend problem. For example, subtract $10 - 8$ by finding the number that makes 10 when added to 8.
- 1.OA.C.5 Relate counting to addition and subtraction (e.g., by counting on 2 to add 2).
- 1.OA.C.6 Add and subtract within 20, demonstrating fluency for addition and subtraction within 10.
- 1.OA.D.7 Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false.
- 1.OA.D.8 Determine the unknown whole number in an addition or subtraction equation relating three whole numbers. For example, determine the unknown number that makes the equation true in each of the equations $8 + ? = 11$, $5 = _ - 3$, $6 + 6 = _$.

Unit Name:	Enduring Understanding <ul style="list-style-type: none"> • An equation is a mathematical statement that shows equality using an equal sign • Subtraction is an unknown addend • Counting is related to addition and subtraction 	Essential Questions <ul style="list-style-type: none"> • How can I solve word problems? • How is subtraction connected to addition? • What is an equal sign and what purpose does it have? • How can I use properties of operations? • What is an equation?
Knows: <ul style="list-style-type: none"> • Strategies to add and subtract within 20 • Properties of operations to solve, representation and reason about equations 	Understands: <ul style="list-style-type: none"> • Addition determines the whole in terms of the parts • Subtraction determines a missing part • Adding or subtracting 0 does not change the original quantity. (Additive Identity) • Understands the meaning and function of the equal sign 	Does: <ul style="list-style-type: none"> • Add and subtract single digit numbers within a sum of 20 • Determine unknown whole numbers in addition/subtraction problems • Find 10 more and 10 less than a given 2-digit number • Solve 1-step word problems involving addition and subtraction • Determine whether addition/subtraction problems are true • Solve for unknowns within 20 by adding to, taking from, putting

		<p>together, taking apart and comparing</p> <ul style="list-style-type: none"> • Use commutative and associative properties as a strategy to add or subtract • Use strategies such as counting on; making ten (e.g., $8 + 6 = 8 + 2 + 4 = 10 + 4 = 14$); decomposing a number leading to a ten (e.g., $13 - 4 = 13 - 3 - 1 = 10 - 1 = 9$); using the relationship between addition and subtraction (e.g., knowing that $8 + 4 = 12$, one knows $12 - 8 = 4$); and creating equivalent but easier or known sums (e.g., adding $6 + 7$ by creating the known equivalent $6 + 6 + 1 = 12 + 1 = 13$)
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Geometry

Common Core State Standards

- 1.G.A.1 Distinguish between defining attributes (e.g., triangles are closed and three-sided) versus non-defining attributes (e.g., color, orientation, overall size); build and draw shapes to possess defining attributes.
- 1.G.A.2 Compose two-dimensional shapes (rectangles, squares, trapezoids, triangles, half-circles, and quarter-circles) or three-dimensional shapes (cubes, right rectangular prisms, right circular cones, and right circular cylinders) to create a composite shape, and compose new shapes from the composite shape.
- 1.G.A.3 Partition circles and rectangles into two and four equal shares, describe the shares using the words halves, fourths, and quarters, and use the phrases half of, fourth of, and quarter of. Describe the whole as two of, or four of the shares. Understand for these examples that decomposing into more equal shares creates smaller shares.

<p>Unit Name:</p>	<p>Enduring Understanding</p> <ul style="list-style-type: none"> • Shapes are all around our world and can be put together or taken apart to form other shapes • Objects can be sorted, described or built based on certain attributes • A non defining attribute involves size, color or orientation • Circles and rectangles can be partitioned in halves, fourths and quarters, which creates smaller shares of the whole 	<p>Essential Questions</p> <ul style="list-style-type: none"> • How can I describe a shape? • How can we tell one shape from another? • How can I make shapes from other shapes? • What two-dimensional and three dimensional shapes can we find around us?
<p>Knows:</p> <ul style="list-style-type: none"> • How to name 2D and 3D shapes. • How to describe and compare the 	<p>Understands:</p> <ul style="list-style-type: none"> • Shapes are defined by their attributes • A whole is made of parts • Composites are formed by combining shapes 	<p>Does:</p> <ul style="list-style-type: none"> • Reason with shapes and their attributes • Identify and compose composite shapes

<p>attributes of shapes</p> <ul style="list-style-type: none"> • How to compose shapes from other shapes • How to partition shapes into equal shares 	<ul style="list-style-type: none"> • A shape can be decomposed by partitioning • Fractional shares are equal • Decomposing shapes into more equal shares creates smaller shares 	<ul style="list-style-type: none"> • Identify the attributes of those shapes and partition circles and rectangles • Identify 2-dimensional shapes (circle, square, rectangle, triangle, hexagon, trapezoid) • Identify 3-dimensional shapes (cone, sphere, cube, cylinder, pyramid, prism) • Describe attributes (faces, vertices/corners, sides, edges) • Draw 2D and 3D shapes • Compose shapes to create a composite shape (ie: 6 triangles make a hexagon) • Split 2D shapes into equal shares (halves and quarters)
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Measurement and Data

Common Core State Standards

- 1.MD.A.1 Order three objects by length; compare the lengths of two objects indirectly by using a third object.
- 1.MD.A.2 Express the length of an object as a whole number of length units, by laying multiple copies of a shorter object (the length unit) end to end; understand that the length measurement of an object is the number of same-size length units that span it with no gaps or overlaps. Limit to contexts where the object being measured is spanned by a whole number of length units with no gaps or overlaps.
- 1.MD.B.3 Tell and write time in hours and half-hours using analog and digital clocks.
- 1.MD.C.4 Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.

<p>Unit Name: Measurement and Data</p>	<p>Enduring Understanding</p> <ul style="list-style-type: none"> • The lengths of two objects can be measured by using a third object • The length of an object is measured by smaller same size units • Time is measured in hours and minutes with both an analog and digital clock • Data is factual information that is organized to help me analyze or make decisions 	<p>Essential Questions</p> <ul style="list-style-type: none"> • How is time measured? • How can clocks and schedules be read and used? • What is data? • How can I organize data? • How can use one object to measure the lengths of other objects?
<p>Knows:</p> <ul style="list-style-type: none"> • Ways to measure objects • Coins by name and value • Time and ways to tell and write 	<p>Understands:</p> <ul style="list-style-type: none"> • The hour hand tells the hour, and the minute hand tells the number of minutes after the hour • Time is told most commonly by hours or half hours • Data can be organized into categories 	<p>Does:</p> <ul style="list-style-type: none"> • Compare length, height, and weight of objects (longer/shorter, taller/shorter, heavier/lighter) • Classify and compare objects in a category (alike/different, size, shape, color, quantity)

<ul style="list-style-type: none">• How to represent and interpret data	<ul style="list-style-type: none">• Those categories can be used to answer questions or solve problems	<ul style="list-style-type: none">• Solve word problems involving comparisons of 3 lengths• Order objects by length• Identify coins by name and value• Tell time to the hour and half hour• Determine the length of an object using a standard unit of measure.• Organize, analyze, and interpret data (tallies, pictograms, simple charts)
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