

Crook County School District # 1 Curriculum Guide

Grade 2 Math

2011-2012

| MATHEMATICS COMMON CORE STATE STANDARDS 2 nd Grade Operations and Algebraic Thinking Know | | | |
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| CC STANDARD | Declarative Knowledge Procedural knowledge | Level of Rigor | Academic Vocabulary |
| 2.OA.1 Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem | <p>Students will add and subtract numbers within 100 within one and two step word problems. Students should have ample experiences working on various types of problems that have unknowns in all positions</p> <p>Students will solve one- and two-step problems using drawings, objects and equations. Students can use place value blocks or hundreds charts, or create drawings of place value blocks or number lines to support their work</p> <p>Example: In the morning there are 25 students in the cafeteria. 18 more students come in. After a few minutes, some students leave. If there are 14 students still in the cafeteria, how many students left the cafeteria? Write an equation for your problem.</p> | Level One (Recall) Level Two (Skill/Concept) | adding to, taking from, putting together, taking apart, and comparing, with unknowns |

| MATHEMATICS COMMON CORE STATE STANDARDS 2 nd Grade Operations and Algebraic Thinking Add and Subtract Within 20 | | | |
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| CC STANDARD | Declarative Knowledge Procedural knowledge | Level of Rigor | Academic Vocabulary |
| 2.OA.2 Fluently add and subtract within 20 using mental strategies. By end of Grade 2, know from memory all sums of two one-digit numbers. | Fluency means accuracy (correct answer), efficiency (within 4-5 seconds), and flexibility (using strategies such as making 10 or breaking apart numbers). | Level One (Recall) Level Two (Skill/Concept) | Add, subtract, sum |

| MATHEMATICS COMMON CORE STATE STANDARDS 2 nd Grade Operations and Algebraic Thinking Work with equal groups of objects to gain foundations for multiplication. | | | |
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| CC STANDARD | Declarative Knowledge Procedural knowledge | Level of Rigor | Academic Vocabulary |
| 2.OA.3 Determine whether a group of objects (up to 20) has an odd or even number of members, e.g., by pairing objects or counting them by 2s; write an equation to express an even number as a sum of two equal addends. | Students are to apply their work with doubles addition facts to the concept of odd or even numbers. Students should explore this concept with concrete objects (e.g., counters, place value cubes, etc.) before moving towards pictorial representations such as circles or arrays. | Level Two (Skill/Concept) | Odd Even |
| 2.OA.4 Use addition to find the total number of objects arranged in rectangular arrays with up to 5 rows and up to 5 columns ; write an equation to express the total as a sum of equal addends | Students will use rectangular arrays to work with repeated addition. Students should explore this concept with concrete objects (e.g., counters, bears, square tiles, etc.) as well as pictorial representations on grid paper or other drawings. Based on the commutative property of addition, students can add either the rows or the columns and still arrive at the same solution. | Level One (Skill) | Array Addend Commutative Property |

| MATHEMATICS COMMON CORE STATE STANDARDS 2 nd Grade Mathematics Numbers and Operation in Base 10 Understanding Place Value | | | |
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| CC STANDARD | Declarative Knowledge Procedural knowledge | Level of Rigor | Academic Vocabulary |
| <p>2.NBT.1 Understand that the three digits of a three-digit number represent amounts of hundreds, tens, and ones; e.g., 706 equals 7 hundreds, 0 tens, and 6 ones. Understand the following as special cases:</p> <p>a. 100 can be thought of as a bundle of ten tens — called a —hundred. </p> <p>b. The numbers 100, 200, 300, 400, 500, 600, 700, 800, 900 refer to one, two, three, four, five, six, seven, eight, or nine hundreds (and 0 tens and 0 ones).</p> | <p>Students will work on decomposing numbers by place. Students should know that all numbers between 00 and 999 can be decomposed into hundreds, tens, and ones.</p> <p>Students will know that a hundred is a unit (or bundle) of ten tens.</p> <p>Students should explore the idea that numbers such as 100, 200, 300, etc., are groups of hundreds that have no tens or ones. Students can represent this with place value (base 10) blocks</p> | Level One (Skill) | Decompose Represent |
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| MATHEMATICS COMMON CORE STATE STANDARDS 2 nd Grade Mathematics Numbers and Operation in Base 10 Understanding Place Value | | | |
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| CC STANDARD | Declarative Knowledge Procedural knowledge | Level of Rigor | Academic Vocabulary |
| 2.NBT.2 Count within 1000; skip-count by 5s, 10s, and 100s. | Students count within 1,000. This means that students are expected to —count on from any number and say the next few numbers that come afterwards. Understand that counting by 2s, 5s and 10s is counting groups of items by that amount. Example: What are the next 3 numbers after 498? <i>499, 500, 501.</i> When you count back from 201, what are the first 3 numbers that you say? <i>200, 199, 198.</i> Students will also skip count by 5s and 100s. | Level One (Recall) | Expanded Form Skip Count |
| 2.NBT.3 Read and write numbers to 1000 using base-ten numerals, number names, and expanded form. | Students will read, write and represent a number of objects with a written numeral (number form or standard form). Teachers should know that the word AND should not be used. Example: 235 is written as two hundred thirty-five. | Level One (Recall) | |

| MATHEMATICS COMMON CORE STATE STANDARDS 2 nd Grade Mathematics Numbers and Operation in Base 10 Understanding Place Value | | | |
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| CC STANDARD | Declarative Knowledge Procedural knowledge | Level of Rigor | Academic Vocabulary |
| 2.NBT.4 Compare two three-digit numbers based on meanings of the hundreds, tens, and ones digits, using >, =, and < symbols to record the results of comparisons. | Students compare two numbers by examining the amount of hundreds, tens and ones in each number. Students will use the symbols greater than (>), less than (<) and equal to. Students should have ample experiences communicating their comparisons in words before using only symbols in this standard. Example: 452 __ 455 | Level Two (Skill/Concept) | Greater Than Less Than Digits Equal To |
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MATHEMATICS COMMON CORE STATE STANDARDS

Mathematics

Numbers and Operation in Base 10

Use place value understanding and properties of operations to add and subtract.

| CC STANDARD | Declarative Knowledge Procedural knowledge | Level of Rigor | Academic Vocabulary |
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| <p>2.NBT.5 Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.</p> | <p>This standard calls for students to use pictorial representations or strategies to find the solution. Students who are struggling may benefit from further work with concrete objects (e.g., place value blocks).</p> <p>Example: $67 + 25 = \underline{\quad}$</p> | <p>Level Two (Skill/Concept)</p> | <p>Pictorial Representation Hundred Chart Number Line Digit Place Value</p> |
| <p>2.NBT.6 Add up to four two-digit numbers using strategies based on place value and properties of operations.</p> | <p>Students will add a string of two-digit numbers (up to four numbers) by applying place value strategies and properties of operations.</p> <p>Example: $43 + 34 + 57 + 24 = \underline{\quad}$</p> | <p>Level One (Recall)</p> | |
| <p>2.NBT.7 Add and subtract within 1000 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. Understand that in adding or subtracting three-digit numbers, one adds or subtracts hundreds and hundreds, tens and tens, ones and ones; and sometimes it is necessary to compose or decompose tens or hundreds.</p> | <p>Students should have ample experiences to use concrete materials (place value blocks) and pictorial representations to support their work. This standard also references composing and decomposing a ten. This work should include strategies such as making a 10, making a 100, breaking apart a 10, or creating an easier problem. While the standard algorithm could be used here, students' experiences should extend beyond only working with the algorithm.</p> | <p>Level Three (Strategic Thinking)</p> | <p>compose or decompose</p> |



| MATHEMATICS COMMON CORE STATE STANDARDS 2 nd Grade Mathematics Numbers and Operation in Base 10 Use place value understanding and properties of operations to add and subtract | | | |
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| CC STANDARD | Declarative Knowledge Procedural knowledge | Level of Rigor | Academic Vocabulary |
| 2.NBT.8 Mentally add 10 or 100 to a given number 100–900, and mentally subtract 10 or 100 from a given number 100–900. | Students will mentally add or subtract multiples of 10 or 100 to any number between 100 and 900. Example: $273 + 60 = 333$. | Level One (Recall) | Number Words Strategy |
| 2.NBT.9 Explain why addition and subtraction strategies work, using place value and the properties of operations | Students will use concrete objects, pictures and words (oral or written) to explain why addition or subtraction strategies work. Students should have the opportunity to solve problems and then explain why their strategies work. Example: There are 36 birds in the park. 25 more birds arrive. How many birds are there? Solve the problem and show your work. | Level Two (Skill/Concept) | |

| MATHEMATICS COMMON CORE STATE STANDARDS 2 nd Grade Mathematics Measurement and Data Measure and estimate lengths in standard units. | | | |
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| CC STANDARD | Declarative Knowledge Procedural knowledge | Level of Rigor | Academic Vocabulary |
| 2.MD.1 Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes. | Students will measure the length of objects in both customary (inches and feet) and metric (centimeters and meters). Students will identify the appropriate tool and unit, and then measuring the object | Level One (Recall) | Length Feet Inches Yard Stick Centimeters Meters Measuring Sticks Units |
| 2.MD.2 Measure the length of an object twice, using length units of different lengths for the two measurements; describe how the two measurements relate to the size of the unit chosen. | Students will measure an object using two units of different lengths. Example: A student measures the length of their desk and finds that it is 3 feet and 36 inches. Students should explore the idea that the length of the desk is larger in inches than in feet, since inches are smaller units than feet.. | Level Two (Skill/Concept) | |

| MATHEMATICS COMMON CORE STATE STANDARDS 2 nd Grade Mathematics Measurement and Data Measure and estimate lengths in standard units. | | | |
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| CC STANDARD | Declarative Knowledge Procedural knowledge | Level of Rigor | Academic Vocabulary |
| 2.MD.3 Estimate lengths using units of inches, feet, centimeters, and meters. | Students estimate the lengths of objects using inches, feet, centimeters, and meters. Students should make estimates after seeing a benchmark unit, such as the length of one inch, before making their estimate. Example: Look at your ruler to see how long one inch is. Now, estimate the length of this paper in inches. | Level Two (Skill/Concept) | inches, feet, centimeters, and meters. Benchmark Estimate |
| 2.MD.4 Measure to determine how much longer one object is than another, expressing the length difference in terms of a standard length unit. | Students will determine the difference in length between two objects. Students should choose objects, identify appropriate tools and units, measure both objects, and then determine the differences in lengths. | Level Two (Skill/Concept) | |

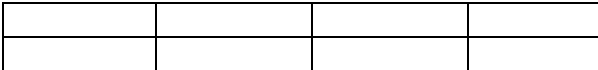
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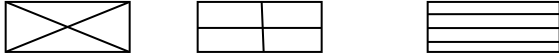
| MATHEMATICS COMMON CORE STATE STANDARDS 2 nd Grade Mathematics Measurement and Data Relate addition and subtraction to length. . | | | |
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| CC STANDARD | Declarative Knowledge Procedural knowledge | Level of Rigor | Academic Vocabulary |
| 2.MD.5 Use addition and subtraction within 100 to solve word problems involving lengths that are given in the same units, e.g., by using drawings (such as drawings of rulers) and equations with a symbol for the unknown number to represent the problem | Students will apply the concept of length to solve addition and subtraction word problems with numbers within 100. Students should use the same unit in these problems. Example: In P.E. class Kate jumped 14 inches. Mary jumped 23 inches. How much farther did Mary jump than Kate? Write an equation and then solve the problem. | Level Two (Skill/Concept) | <i>above, below, beside, in front of, behind, and next to.</i> |
| 2.MD.6 Represent whole numbers as lengths from 0 on a number line diagram with equally spaced points corresponding to the numbers 0, 1, 2, ..., and represent whole-number sums and differences within 100 on a number line diagram | Students will create number lines using numbers within 100 to solve addition and subtraction problems. Students should create the number line with evenly spaced points corresponding to the numbers. | Level One (Recall) | |
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| MATHEMATICS COMMON CORE STATE STANDARDS 2 nd Grade Mathematics Measurement and Data Work with Time and Money | | | |
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| CC STANDARD | Declarative Knowledge Procedural knowledge | Level of Rigor | Academic Vocabulary |
| 2.MD.7 Tell and write time from analog and digital clocks to the nearest five minutes , using a.m. and p.m. | Students will (orally and in writing) tell and write time after reading analog and digital clocks. Time should be to 5 minute intervals, and students should also use the terms a.m. and p.m.  | Level Two (Skill/Concept) | Analog Digital Interval Minutes Half Past Quarter Past |
| 2.MD.8 Solve word problems involving dollar bills, quarters, dimes, nickels, and pennies, using \$ and ¢ symbols appropriately. <i>Example: If you have 2 dimes and 3 pennies, how many cents do you have?</i> | Students will solve word problems involving either dollars or cents. Since students have not been introduced to decimals, problems should either have only dollars or only cents. Example: What are some possible combinations of coins (pennies, nickels, dimes, and quarters) that equal 41 cents?  | Level Two (Skill/Concept) | Nickel Quarter Dime Penny |
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| MATHEMATICS COMMON CORE STATE STANDARDS 2 nd Grade Mathematics Measurement and Data Represent and Interpret Data | | | | | | | | | | | |
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| CC STANDARD | Declarative Knowledge Procedural knowledge | Level of Rigor | Academic Vocabulary | | | | | | | | |
| 2.MD.9 Generate measurement data by measuring lengths of several objects to the nearest whole unit, or by making repeated measurements of the same object. Show the measurements by making a line plot , where the horizontal scale is marked off in whole-number units. | Students will be able to represent the length of several objects by making a line plot. Students should round their lengths to the nearest whole unit. Example: Measure objects in your desk to the nearest inch, display data collected on a line plot. How many objects measured 2 inches? 3 inches? Which length had the most number of objects? How do you know? | Level Two (Skill/Concept) | Line Plot Data | | | | | | | | |
| 2.MD.10 Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems 4 using information presented in a bar graph. | Students will work with categorical data by organizing, representing and interpreting data. Students should have experiences posing a question with 4 possible responses and then work with the data that they collect. Example: Students pose a question and the 4 possible responses. Which is your favorite flavor of ice cream? Chocolate, vanilla, strawberry, or cherry? Students collect their data by using tallies or another way of keeping track. Students organize their data by totaling each category in a chart or table. Picture and bar graphs are introduced in Second Grade <table border="1" data-bbox="583 1109 1178 1252"> <tr> <td colspan="2">What is your favorite flavor of ice cream?</td> </tr> <tr> <td>Chocolate</td> <td>12</td> </tr> <tr> <td>Vanilla</td> <td>5</td> </tr> <tr> <td>Strawberry</td> <td>6</td> </tr> </table> Students display their data using a picture graph or bar graph using a single unit scale. Students answer simple problems related to addition and subtraction that ask them to put together, take apart, and compare numbers. | What is your favorite flavor of ice cream? | | Chocolate | 12 | Vanilla | 5 | Strawberry | 6 | Level Two (Skill/Concept) | Pictograph Bar Graph Tally Chart |
| What is your favorite flavor of ice cream? | | | | | | | | | | | |
| Chocolate | 12 | | | | | | | | | | |
| Vanilla | 5 | | | | | | | | | | |
| Strawberry | 6 | | | | | | | | | | |

| MATHEMATICS COMMON CORE STATE STANDARDS 2 nd Grade Mathematics Geometry Reason with shapes and their attributes. | | | |
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| CC STANDARD | Declarative Knowledge Procedural knowledge | Level of Rigor | Academic Vocabulary |
| 2.G.1 Recognize and draw shapes having specified attributes, such as a given number of angles or a given number of equal faces . Identify triangles, quadrilaterals, pentagons, hexagons, and cubes . | Students will identify (recognize) and draw shapes based on a given set of attributes. These include triangles, quadrilaterals (squares, rectangles, and trapezoids), pentagons, hexagons and cubes. Example: Draw a closed shape that has five sides. What is the name of the shape? | Level One (Recall) | triangles, quadrilaterals, pentagons, hexagons, and cubes, face side vertex Vertices Edges |
| 2.G.2 Partition a rectangle into rows and columns of same-size squares and count to find the total number of them. | Students will partition a rectangle into squares (or square-like regions) and then determine the total number of squares. They will build an array of rows and columns. Example: Split the rectangle into 2 rows and 4 columns. How many small squares did you make?  | Level Two (Skill/Concept) | Array Columns Rows |

| MATHEMATICS COMMON CORE STATE STANDARDS 2 nd Grade Mathematics Geometry Reason with shapes and their attributes. | | | |
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| CC STANDARD | Declarative Knowledge Procedural knowledge | Level of Rigor | Academic Vocabulary |
| 2.G.3 Partition circles and rectangles into two, three, or four equal shares , describe the shares using the words halves, thirds, half of, a third of , etc., and describe the whole as two halves, three thirds, four fourths . Recognize that equal shares of identical wholes need not have the same shape. | <p>Students will partition (split) circles and rectangles into 2, 3 or 4 equal shares (regions). Students should be given ample experiences to explore this concept with paper strips and pictorial representations. Teachers should help them to make the connection that a —whole is composed of two halves, three thirds, or four fourths. This standard also addresses the idea that equal shares of identical wholes may not have the same shape.</p> <p>Example: Divide each rectangle into fourths a different way.</p>  | Level Two (Skill/Concept) | halves, thirds, half of, third of, and fourth quarter of equal |
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Common Core Student Math Vocabulary

2012-2013 Version

| Kindergarten | 1 st Grade | 2 nd Grade | 3 rd Grade | 4 th Grade | 5 th Grade | 6 th Grade |
|---|---|---|--|---|---|---|
| Zero One Hundred Greater More Less fewer equal same amount join add separate subtract and same amount as equal less more number words left over length weight heavy long more of less of longer taller shorter color words descriptive words | adding to taking from putting together taking apart comparing unknowns addition equal shares <i>halves</i> <i>fourths</i> <i>quarters</i> <i>half of</i> <i>fourth of</i> <i>quarter of</i> | Standard units of measurement Inch centimeter number of angles number of equal faces triangles quadrilaterals pentagons hexagons cubes columns trapezoid | products groups of quotients partitioned equally multiplication division equal groups arrays equations unknown operation multiply divide factor product quotient strategies properties mental computation addend sum place value partition(ed) equal parts fraction equal distance (intervals), equivalent equivalence reasonable denominator | factor pairs factor multiple prime composite convert/conversion relative size liquid volume mass length distance kilometer (km) meter (m) centimeter (cm) kilogram (kg) gram (g), liter (L), milliliter (mL) inch (in), foot (ft), yard (yd), mile (mi), ounce (oz), pound (lb), cup (c), pint (pt), quart (qt), gallon (gal) line plot graph ray angle circle fraction intersect | parentheses brackets braces numerical expressions numerical patterns rules ordered pairs coordinate plane right rectangular prism unit cube cubic units (cubic cm, cubic in. cubic ft) coordinate system coordinate plane first quadrant points lines axis/axes, x-axis, y-axis horizontal vertical intersection of lines, origin ordered pairs coordinates x-coordinate y-coordinate | one-variable equations inequalities dependent and independent variables statistical variability histogram box plot |

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|---|--|--|--|---|---|--|
| <p>squares circles triangles rectangles hexagons cubes cones cylinders spheres analyze compare create compose</p> | | | <p>numerator comparison compare justify greater than > less than < estimate time time intervals minute hour elapsed time measure liquid volume mass standard units metric gram (g) kilogram (kg) liter (L) scale scaled picture graph scaled bar graph line plot data attribute area square unit plane figure gap overlap square cm square m square in., square ft, nonstandard units tiling side length decomposing perimeter</p> | <p>one-degree angle protractor vertex/vertices right angle acute obtuse perpendicular parallel right triangle isosceles triangle equilateral triangle scalene triangle line of symmetry symmetric figures</p> | <p>attribute category subcategory hierarchy</p> | |
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| | | | plane figure linear area polygon quadrilateral open figure closed figure three sided 2-dimensional 3-dimensional rhombi | | | |
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