



Mathematics 2
Diocese of Greensburg Curriculum

Unit	Standards	Content	Skills
<p>Addition Concepts</p>	<p>CCSS: Mathematics CCSS: Grade 2</p> <hr/> <p>Operations & Algebraic Thinking 2.OA.A. Represent and solve problems involving addition and subtraction.</p> <p>2.OA.A.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> <p>2.OA.B. Add and subtract within 20.</p> <p>2.OA.B.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.</p> <p>2.OA.C. Work with equal groups of objects to gain foundations for multiplication.</p> <p>2.OA.C.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.</p> <p>Number & Operations in Base Ten 2.NBT.A. Understand place value.</p> <p>2.NBT.A.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>2.NBT.B. Use place value understanding and properties of operations to add and subtract.</p>	<ul style="list-style-type: none">• Addition of basic facts• Numbers may be grouped in any order to obtain the sum: $(A+B)+C=A+(B+C)$ (Associative property)• Number may be added in any order to obtain the sum: $A+B=B+A$ (Commutative property)• Any number plus zero equals itself: $A+0=A$ (Identity property)• Equations - Solve for missing number	<p>The students will be able to:</p> <ul style="list-style-type: none">• Add using strategies based on place value and properties of operations• Count on to find sums• Make 10 to add• Add using doubles and doubles plus one• Related addition facts• Compute accurately• Fluently add within 20

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	<p>2.NBT.B.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>2.NBT.B.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>2.NBT.B.9. Explain why addition and subtraction strategies work, using place value and the properties of operations.</p> <p>NCTM: Mathematics NCTM: Pre-K - 2</p> <hr/> <p>Number & Operations Understand meanings of operations and how they relate to one another</p> <p>understand various meanings of addition and subtraction of whole numbers and the relationship between the two operations;</p> <p>Compute fluently and make reasonable estimates</p> <p>develop and use strategies for whole-number computations, with a focus on addition and subtraction;</p> <p>© Copyright 2010. National Governors Association Center for Best Practices and Council of Chief State School Officers. All rights reserved.</p>		
<p>Subtraction</p>	<p>CCSS: Mathematics</p>	<ul style="list-style-type: none"> • Subtraction facts • Strategies for subtraction 	<p>Students will be able to</p>

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	<p>CCSS: Grade 2</p> <hr/> <p>Operations & Algebraic Thinking 2.OA.A. Represent and solve problems involving addition and subtraction.</p> <p>2.OA.A.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> <p>Number & Operations in Base Ten 2.NBT.B. Use place value understanding and properties of operations to add and subtract.</p> <p>2.NBT.B.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>2.NBT.B.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>2.NBT.B.9. Explain why addition and subtraction strategies work, using place value and the properties of operations.</p> <hr/> <p>NCTM: Mathematics NCTM: Pre-K - 2</p> <hr/> <p>Number & Operations Understand meanings of operations and how they relate to one another</p>	<ul style="list-style-type: none"> • Fact families • Difference • Relationship between addition and subtraction 	<ul style="list-style-type: none"> • Subtract accurately • Use a number line to count forward and backwards • Related Subtraction Facts • Understand how addition and subtraction relate to each other • Fluently subtract within 20

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	<p>understand various meanings of addition and subtraction of whole numbers and the relationship between the two operations;</p> <p>Compute fluently and make reasonable estimates</p> <p>develop and use strategies for whole-number computations, with a focus on addition and subtraction;</p> <p>develop fluency with basic number combinations for addition and subtraction;</p> <p>© Copyright 2010. National Governors Association Center for Best Practices and Council of Chief State School Officers. All rights reserved.</p>		
<p>Place Value and Number Patterns</p>	<p>CCSS: Mathematics CCSS: Grade 2</p> <hr/> <p>Operations & Algebraic Thinking 2.OA.C. Work with equal groups of objects to gain foundations for multiplication.</p> <p>2.OA.C.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.</p> <p>Number & Operations in Base Ten 2.NBT.A. Understand place value.</p> <p>2.NBT.A.1a. 100 can be thought of as a bundle of ten tens — called a “hundred.”</p> <p>2.NBT.A.2. Count within 1000; skip-count by 5s, 10s, and 100s.</p> <p>2.NBT.B. Use place value understanding and properties of operations to add and subtract.</p> <p>2.NBT.B.5. Fluently add and subtract within 100 using strategies based on place value, properties of</p>	<ul style="list-style-type: none"> • Place Value (ones, tens, hundreds) • Expanded Form • Number words from 0-100 • Ordinal Numbers • Compare Numbers • Even and Odd Numbers • Number Patterns • Equal groups • Repeated addition • Skip count • Order number on a number line • Round numbers • Estimate amounts 	<p>Place Value</p> <p>The students will be able to:</p> <ul style="list-style-type: none"> • count and group ones into tens to identify the number of tens i.e. 20 ones is the same as 2 tens • model and identify ones, tens, and hundreds • use place value to describe the value of digits in numbers • use place value to understand the meaning of the digits in numbers • understand different ways to read and write numbers • understand that numbers can be modeled in different ways

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	<p>operations, and/or the relationship between addition and subtraction.</p> <p>NCTM: Mathematics NCTM: Pre-K - 2</p> <hr/> <p>Number & Operations Understand numbers, ways of representing numbers, relationships among numbers, and number systems</p> <p>count with understanding and recognize "how many" in sets of objects;</p> <p>use multiple models to develop initial understandings of place value and the base-ten number system;</p> <p>develop understanding of the relative position and magnitude of whole numbers and of ordinal and cardinal numbers and their connections;</p> <p>© Copyright 2010. National Governors Association Center for Best Practices and Council of Chief State School Officers. All rights reserved.</p>		<ul style="list-style-type: none"> • solve problems by using the skill make reasonable estimates <p>Number Concepts and Patterns</p> <p>The students will:</p> <ul style="list-style-type: none"> • use ordinal numbers to identify positions • compare 2-digit numbers using $>$, $<$, or $=$ • order 2-digit numbers • round numbers to the nearest ten and hundred • model even and odd numbers to recognize patterns • identify patterns on a hundred chart • solve problems by using the strategy find a pattern • skip-count by twos, fives, tens, and hundreds starting from different numbers • identify the number words from 0 to 100
<p>Multiple Digit Addition and Subtraction</p>	<p>CCSS: Mathematics CCSS: Grade 2</p> <hr/> <p>Number & Operations in Base Ten 2.NBT.B. Use place value understanding and properties of operations to add and subtract.</p> <p>2.NBT.B.5. Fluently add and subtract within 100 using strategies based on place value, properties of</p>	<ul style="list-style-type: none"> • 2-Digit Addition with/without Regrouping • 2-Digit Subtraction with/without Regrouping • 3-Digit Addition with/without Regrouping • 3-Digit Subtraction with/without Regrouping • Mental Math strategies 	<p>2-Digit and 3 digit Addition</p> <p>The students will be able to:</p> <ul style="list-style-type: none"> • Count on by tens to add multiples of ten • Model 2-digit/3 digit addition with and without regrouping

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	<p>operations, and/or the relationship between addition and subtraction.</p> <p>2.NBT.B.6. Add up to four two-digit numbers using strategies based on place value and properties of operations.</p> <p>2.NBT.B.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>2.NBT.B.8. Mentally add 10 or 100 to a given number 100–900, and mentally subtract 10 or 100 from a given number 100–900.</p> <p>2.NBT.B.9. Explain why addition and subtraction strategies work, using place value and the properties of operations.</p> <p>NCTM: Mathematics NCTM: Pre-K - 2</p> <hr/> <p>Number & Operations Understand meanings of operations and how they relate to one another</p> <p>understand the effects of adding and subtracting whole numbers;</p> <p>Compute fluently and make reasonable estimates</p> <p>develop and use strategies for whole-number computations, with a focus on addition and subtraction;</p> <p>develop fluency with basic number combinations for addition and subtraction;</p>		<ul style="list-style-type: none"> • Model 2-digit/3 digit addition to find sums • Solve problems by using the strategy to make a model • Record sums for models of 2-digit addition/3 digit • Add 2-digit/3 digit numbers with and without regrouping • Rewrite addition exercises from horizontal to vertical formats • Use rounding to estimate the sums of 2-digit numbers • Use mental math to find sums <p>2-Digit /3 digit Subtraction</p> <p>The students will be able to:</p> <ul style="list-style-type: none"> • Count back by tens to subtract multiples of ten • Model subtracting 1-digit numbers from 2-digit numbers • Model subtracting 2-digit numbers from 2-digit numbers • Solve problems by using the strategy make a model • Model and record subtraction of 1-digit numbers from 2-digit numbers • Model and record subtraction of 2-digit numbers from 2-digit numbers

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	<p>use a variety of methods and tools to compute, including objects, mental computation, estimation, paper and pencil, and calculators.</p> <p>© Copyright 2010. National Governors Association Center for Best Practices and Council of Chief State School Officers. All rights reserved.</p>		<ul style="list-style-type: none"> • Record differences in 2-digit subtraction with and without regrouping • Rewrite subtraction problems from horizontal to vertical formats • Practice 2-digit subtraction with and without regrouping • Check differences by using the inverse operation of addition • Use rounding to estimate differences in 2-digit subtraction • Solve problems by using the skill: <i>Choose a Method</i> • Use mental math to find differences • Practice 2-digit addition and subtraction
<p>Time</p>	<p>CCSS: Mathematics CCSS: Grade 2</p> <hr/> <p>Measurement & Data 2.MD.C. Work with time and money.</p> <p>2.MD.C.7. Tell and write time from analog and digital clocks to the nearest five minutes, using a.m. and p.m.</p> <p>NCTM: Mathematics NCTM: Pre-K - 2</p> <hr/> <p>Measurement Understand measurable attributes of objects and the units, systems, and processes of measurement</p> <p>recognize the attributes of length, volume, weight, area, and time;</p>	<ul style="list-style-type: none"> • Terms - Minutes, Hours, Half Hour, half past, quarter till, quarter after, etc. • Time to 15 Minutes • Time to 5 Minutes • AM and PM • Elapsed Time by the hour • Days, Weeks, Months, and Years • Analog clock • Digital clock 	<p>The students will be able to:</p> <ul style="list-style-type: none"> • Read an analog clock in 15 minute intervals and 5 minute intervals • Manipulate a clock to show the time • Determine elapsed time to the hour and half hour • Read a calendar to identify month and date • Show the difference between a minute hand and hour hand • Distinguish between a.m. and p.m.

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<p>Money</p>	<p>CCSS: Mathematics CCSS: Grade 2</p> <hr/> <p>Measurement & Data 2.MD.C. Work with time and money.</p> <p>2.MD.C.8. Solve word problems involving dollar bills, quarters, dimes, nickels, and pennies, using \$ and ¢ symbols appropriately. Example: If you have 2 dimes and 3 pennies, how many cents do you have?</p> <p>© Copyright 2010. National Governors Association Center for Best Practices and Council of Chief State School Officers. All rights reserved.</p>	<ul style="list-style-type: none"> Denominations of coins <ul style="list-style-type: none"> Penny, Nickel, Dime, Quarter, Half Dollar, Dollar Recognition of equal amounts of money Recognition of cent and dollar sign 	<p>The students will be able to :</p> <ul style="list-style-type: none"> Identify and count coins Show different ways to make equal amounts Compare amounts of money Add and subtract money Make change to \$1.00 Write dollar amounts using \$, decimal point, and cent symbol
<p>Measurement</p>	<p>CCSS: Mathematics CCSS: Grade 2</p> <hr/> <p>Measurement & Data 2.MD.A. Measure and estimate lengths in standard units.</p> <p>2.MD.A.1. Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes.</p> <p>2.MD.A.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.</p> <p>2.MD.A.3. Estimate lengths using units of inches, feet, centimeters, and meters.</p>	<ul style="list-style-type: none"> Customary units <ul style="list-style-type: none"> Length: inch, foot, yard Volume: cup, pint, quart, gallon Weight: ounce, pound Metric units <ul style="list-style-type: none"> Length: centimeter, meter Volume: liter Weight: grams, kilograms, Perimeter Area Temperature Estimation of lengths/quantities Ruler 	<p>The students will be able to:</p> <ul style="list-style-type: none"> Measure length with nonstandard units Compare lengths Make reasonable estimates of weight and length of objects Choose the appropriate tools and units to measure an object Use a ruler to measure inch, foot, and yard <ul style="list-style-type: none"> Measure to the nearest inch Recognize the difference between units of measurement for length, volume, and mass Read a thermometer

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	<p>2.MD.A.4. Measure to determine how much longer one object is than another, expressing the length difference in terms of a standard length unit.</p> <p>NCTM: Mathematics NCTM: Pre-K - 2</p> <hr/> <p>Measurement Understand measurable attributes of objects and the units, systems, and processes of measurement</p> <p>recognize the attributes of length, volume, weight, area, and time;</p> <p>compare and order objects according to these attributes;</p> <p>understand how to measure using nonstandard and standard units;</p> <p>select an appropriate unit and tool for the attribute being measured.</p> <p>Apply appropriate techniques, tools, and formulas to determine measurements</p> <p>measure with multiple copies of units of the same size, such as paper clips laid end to end;</p> <p>use repetition of a single unit to measure something larger than the unit, for instance, measuring the length of a room with a single meterstick;</p> <p>use tools to measure;</p> <p>© Copyright 2010. National Governors Association Center for Best Practices and Council of Chief State School Officers. All rights reserved.</p>	<ul style="list-style-type: none"> • Meter Stick 	<ul style="list-style-type: none"> • Use centimeter and meter rulers <ul style="list-style-type: none"> ○ Measure to the nearest centimeter • Find the area of a plane figure
<p>Fractions</p>	<p>CCSS: Mathematics CCSS: Grade 2</p> <hr/> <p>Geometry 2.G.A. Reason with shapes and their attributes.</p>	<ul style="list-style-type: none"> • Unit Fractions • Compare Unit Fractions • Model Fractions • Fractions Equal to 1 • Fractions of a Group 	<p>The students will be able to:</p> <ul style="list-style-type: none"> • Identify the fraction by halves, thirds, and fourths • Partition shapes into equal parts

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	<p>2.G.A.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> <p>NCTM: Mathematics NCTM: Pre-K - 2</p> <hr/> <p>Number & Operations Understand numbers, ways of representing numbers, relationships among numbers, and number systems</p> <p>understand and represent commonly used fractions, such as $\frac{1}{4}$, $\frac{1}{3}$, and $\frac{1}{2}$.</p> <p>© Copyright 2010. National Governors Association Center for Best Practices and Council of Chief State School Officers. All rights reserved.</p>	<ul style="list-style-type: none"> • Fraction terms - halves, thirds, and fourths 	<ul style="list-style-type: none"> • Draw lines to partition a figure into fractional parts • Show equal parts in a different way • Color shapes as described • Match a fraction to the appropriate figure
<p>Data and Graphs, Probability</p>	<p>CCSS: Mathematics CCSS: Grade 2</p> <hr/> <p>Measurement & Data 2.MD.D. Represent and interpret data.</p> <p>2.MD.D.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 problems¹ using information presented in a bar graph.</p> <p>NCTM: Mathematics NCTM: Pre-K - 2</p> <hr/> <p>Data Analysis & Probability Formulate questions that can be addressed with data and collect, organize, and display relevant data to answer them</p> <p>pose questions and gather data about themselves and their surroundings;</p>	<ul style="list-style-type: none"> • Collection of Data • Survey • Table • Bar Graph • Pictographs • Line Plot • Outcomes of an event • Prediction of an event • Circle Graphs • Venn Diagrams 	<p>The students will be able to:</p> <ul style="list-style-type: none"> • Take a survey • Record the data • Use tally marks • Design a picture graph, line plots, bar graph, and circle graph • Interpret information on a bar, line, and circle graph • Use information from a table to solve problems • Discuss events as likely or unlikely to occur (probability) • Interpret information from a Venn Diagram

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	<p>sort and classify objects according to their attributes and organize data about the objects;</p> <p>represent data using concrete objects, pictures, and graphs.</p> <p>Develop and evaluate inferences and predictions that are based on data</p> <p>discuss events related to students' experiences as likely or unlikely.</p> <p>© Copyright 2010. National Governors Association Center for Best Practices and Council of Chief State School Officers. All rights reserved.</p>		
<p>Geometry</p>	<p>CCSS: Mathematics CCSS: Grade 2</p> <hr/> <p>Geometry 2.G.A. Reason with shapes and their attributes.</p> <p>2.G.A.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.</p> <p>2.G.A.2 Partition a rectangle into rows and columns of same-size squares and count to find the total number of them.</p> <p>2.G.A.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> <p>NCTM: Mathematics NCTM: Pre-K - 2</p> <hr/> <p>Geometry</p>	<ul style="list-style-type: none"> • Key Terms: edges, vertex/vertices, faces, plane figure, solid figure • 2 dimensional objects • 3 dimensional objects • Movement of objects • Congruent Figures • Symmetry • Angles • Area of an object • Points on a Grid • Transformations: slide, flip, turn 	<p>The students will be able to :</p> <ul style="list-style-type: none"> • Identify and name two dimensional shapes • Sort two dimensional shapes • Combine two dimensional shapes • Identify angles in a two dimensional figure • Use Logical Reasoning • Identify and name three dimensional shapes • Sort three dimensional shapes • Compare and Contrast Solid Figures • Combine three dimensional shapes • Identify a line of symmetry in a two dimensional shape • Demonstrate an understanding of the area of an object

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	<p>Analyze characteristics and properties of two- and three-dimensional geometric shapes and develop mathematical arguments about geometric relationships</p> <p>recognize, name, build, draw, compare, and sort two- and three-dimensional shapes;</p> <p>describe attributes and parts of two- and three-dimensional shapes;</p> <p>investigate and predict the results of putting together and taking apart two- and three-dimensional shapes.</p> <p>Specify locations and describe spatial relationships using coordinate geometry and other representational systems</p> <p>find and name locations with simple relationships such as "near to" and in coordinate systems such as maps.</p> <p>© Copyright 2010. National Governors Association Center for Best Practices and Council of Chief State School Officers. All rights reserved.</p>		
<p>Problem Solving</p>	<p>CCSS: Mathematics CCSS: Grade 2</p> <hr/> <p>Operations & Algebraic Thinking 2.OA.A. Represent and solve problems involving addition and subtraction.</p> <p>2.OA.A.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> <p>Mathematical Practice MP.The Standards for Mathematical Practice describe varieties of expertise that mathematics</p>	<ul style="list-style-type: none"> • Problem Solving Strategies • Identify key words. For example; <ul style="list-style-type: none"> ○ How many more ○ Difference ○ Altogether • Eliminate unnecessary information 	<p>The students will be able to:</p> <ul style="list-style-type: none"> • Demonstrate strategies to solve problems • Generate multi-steps to achieve answers • Use the 4 step plan to solve <ul style="list-style-type: none"> ○ Read the problem ○ Plan -- what strategy to use ○ Solve ○ Check - is answer reasonable

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	<p>educators at all levels should seek to develop in their students.</p> <p>MP.1. Make sense of problems and persevere in solving them.</p> <p>NCTM: Mathematics NCTM: Pre-K - 2</p> <hr/> <p>Process Standards Problem Solving</p> <p>Build new mathematical knowledge through problem solving</p> <p>Apply and adapt a variety of appropriate strategies to solve problems</p> <p>© Copyright 2010. National Governors Association Center for Best Practices and Council of Chief State School Officers. All rights reserved.</p>		