

Mathematics, Grade 2

Time on Task: 4.5-5.5 hours per week

Course Philosophy

Mathematics demonstrates God’s order even in an abstract world, gradually building a base of knowledge and skills beginning with the simplest concepts to the more complex. In mathematics, the student will see the order and truth that God created. Just as the Bible says, “precept upon precept, line upon line....” (Isaiah 23:10) The sequential mastery of mathematical concepts is the primary objective.

Course Description

Within a well-balanced mathematics curriculum, the primary focal points at Grade 2 are developing an understanding of the base-ten place value system, comparing and ordering whole numbers, applying addition and subtraction, and using measurement processes.

Goals and Objectives Texas Essential Knowledge and Skills (TEKS)	Scope and Sequence <u>Mathematics Grade Two</u>	Spiritual Goals God’s intended purpose for
<p>§111.14. Mathematics, Grade 2.</p> <p>(a) Introduction.</p> <p>(1) Within a well-balanced mathematics curriculum, the primary focal points at Grade 2 are developing an understanding of the base-ten place value system, comparing and ordering whole numbers, applying addition and subtraction, and using measurement processes.</p> <p>(2) Throughout mathematics in Kindergarten-Grade 2, students build a foundation of basic understandings in number, operation, and quantitative reasoning; patterns, relationships, and algebraic thinking; geometry and spatial reasoning; measurement; and probability and statistics. Students use numbers in ordering, labeling, and expressing quantities and relationships to solve problems and translate informal language into mathematical language and symbols. Students use objects to create and identify patterns and use those patterns to express relationships, make predictions, and solve problems as they build an understanding of number, operation, shape, and space. Students progress from informal to formal language to describe two- and three-dimensional geometric figures and likenesses in the physical world. Students begin to develop measurement concepts</p>	<ul style="list-style-type: none">• Addition• Subtraction• Multiplication• Division• Patterns• Number Theory• Place Value• Fractions and Decimals• Measurement• Time• Money• Geometry• Algebra• Probability and Statistics• Technology	<p>mathematics:</p> <ol style="list-style-type: none">1. To teach the child that there is logic and order in arithmetic and that there is logic and order in God’s plan.2. To teach that God cares for numbers and has recorded many for our information.3. To teach that God commanded men to count, measure, and record information.4. To teach the child that God is concerned that we be accurate and orderly in our use of weights, measure, and numbers.5. To teach the child not to place too much confidence in the size.6. To teach the child the concept of measurement to express men’s failure and His plans for man.7. To develop skills in reasoning which reveal truth.8. To understand that God has given

<p>as they identify and compare attributes of objects and situations. Students collect, organize, and display data and use information from graphs to answer questions, make summary statements, and make informal predictions based on their experiences.</p> <p>(3) Throughout mathematics in Kindergarten-Grade 2, students develop numerical fluency with conceptual understanding and computational accuracy. Students in Kindergarten-Grade 2 use basic number sense to compose and decompose numbers in order to solve problems requiring precision, estimation, and reasonableness. By the end of Grade 2, students know basic addition and subtraction facts and are using them to work flexibly, efficiently, and accurately with numbers during addition and subtraction computation.</p> <p>(4) Problem solving, language and communication, connections within and outside mathematics, and formal and informal reasoning underlie all content areas in mathematics. Throughout mathematics in Kindergarten-Grade 2, students use these processes together with technology and other mathematical tools such as manipulative materials to develop conceptual understanding and solve meaningful problems as they do mathematics.</p> <p>(b) Knowledge and skills.</p> <p>(2.1) Number, operation, and quantitative reasoning. The student understands how place value is used to represent whole numbers.</p> <p><i>The student is expected to:</i></p> <p>(A) use concrete models of hundreds, tens, and ones to represent a given whole number (up to 999) in various ways;</p> <p>(B) use place value to read, write, and describe the value of whole numbers to 999; and</p>	<p style="text-align: center;">Correlation with TEKS <u>Mathematics Grade Two</u> Purposeful Design/ACSI Student ISBN 781583311820 Teacher ISBN 1-58331-183-1</p> <p>Lessons 140-147, 79, 105, 106-109, 11, 48, 54, 57, 135-136, 46, 165, 52, 80, 123, 124, 12, 47, 79, 138, 165, 13, 3, 111, 47-56, 83, 84, 121, 152</p> <p>Lessons 140-147, 79, 105, 106-109, 11, 48, 54, 57, 135-136, 46, 165, 52, 80, 123, 124, 12, 47, 79, 138, 165, 13, 3, 111, 47-56, 83, 84, 121, 152</p>	<p>man the ability to observe reality.</p> <ol style="list-style-type: none"> 9. To understand that God has given man the ability to explore and to formulate relationships. 10. To understand that human reasoning is a reflection of the divine. 11. To appreciate the structure, form, and beauty of God’s creation. 12. To appreciate the complexity and precision of God’s creation 13. To improve the student’s reasoning skills to help hi think less like the world and more like God. 14. To cultivate preciseness in Calculations and reasoning powers. 15. To develop an appreciation for correctness of procedure and accuracy in dealing with facts. 16. To make him aware of his own limitations and need to depend upon the Lord for understanding. 17. To develop skills in thrift and good stewardship to prepare him for successful living in the world. <p>Biblical Integration Truth Statements</p> <ol style="list-style-type: none"> 1. <i>What is prime reality, the really real?</i> God exists and is the ultimate reality. (Psalm 90:2, Revelation 22:13) <ol style="list-style-type: none"> a. God designed, created, and sustains His creation. (Genesis 1:1-31) b. God is good, holy, and loving. (Luke 18:19, 1 John 4:16, 1 Peter 1:16, Psalm 145:12)
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<p>(C) use place value to compare and order whole numbers to 999 and record the comparisons using numbers and symbols (<, =, >).</p>	<p>Lessons 140-147, 79, 105, 106-109, 11, 48, 54, 57, 135-136, 46, 165, 52, 80, 123, 124, 12, 47, 79, 138, 165, 13, 3, 111, 47-56, 83, 84, 121, 152</p>	<p>c. God is omniscient – all knowing. (Romans 11:33-36, Psalm 147:5)</p> <p>d. God is sovereign – nothing is beyond His ultimate interest, control, and authority. (Daniel 4:25)</p> <p>e. God is personal and also triune- He is coequally and coeternally God the Father, God the Son, Jesus, and God the Holy Spirit. (Hebrews 1:3)</p>
<p>(2.2) Number, operation, and quantitative reasoning. The student describes how fractions are used to name parts of whole objects or sets of objects.</p>		
<p><i>The student is expected to:</i></p>		
<p>(A) use concrete models to represent and name fractional parts of a whole object (with denominators of 12 or less);</p>	<p>Lessons 90-97, 168, 62, 98</p>	<p>2. <i>What is the nature of external reality, that is, the world around us?</i></p> <p>a. God is the source of everything and created the universe out of nothing. (Genesis 1:1)</p>
<p>(B) use concrete models to represent and name fractional parts of a set of objects (with denominators of 12 or less); and</p>	<p>Lessons 90-97, 168, 62, 98</p>	<p>b. The universe was created by God to be orderly. (Isaiah 45:18, Psalm 147:4)</p>
<p>(C) use concrete models to determine if a fractional part of a whole is closer to 0, $\frac{1}{2}$, or 1.</p>	<p>Lessons 90-97, 168, 62, 98</p>	<p>c. God is constantly involved in the unfolding pattern of the ongoing operation of the universe. (Psalm 24:1-2, Psalm 32:13-15)</p>
<p>(2.3) Number, operation, and quantitative reasoning. The student adds and subtracts whole numbers to solve problems.</p>		<p>d. The universe reflects His glory. (Psalm 8:1, Psalm 19:1)</p>
<p><i>The student is expected to:</i></p>		<p>3. <i>What is a human being?</i></p>
<p>(A) recall and apply basic addition and subtraction facts (to 18);</p>	<p>Lessons 18, 19, 21, 23, 24, 26, 53, 75, 77, 82, 81, 126</p>	<p>a. God created humans to know Him intimately and to have a loving relationship with Him. (Psalm 100:3)</p>
<p>(B) model addition and subtraction of two-digit numbers with objects, pictures, words, and numbers;</p>	<p>Lessons 79, 82, 86, 87, 89, 105-110, 113, 169, 122-128, 80</p>	<p>b. Human beings are created in the image of God with the capacity to choose. (Genesis 1:27, Proverbs 8:10)</p>
<p>(C) select addition or subtraction to solve problems using two-digit numbers, whether or not regrouping is necessary;</p>	<p>Lessons 79, 82, 86, 87, 89, 105-110, 113, 169, 122-128, 80</p>	<p>c. Adam and Eve chose disobedience and brought death to themselves and sin entered the</p>
<p>(D) determine the value of a collection of coins up to one dollar; and</p>	<p>Lessons 88, 114, 166, 7, 10, 68-73, 165, 92, 130, 88, 171</p>	
<p>(E) describe how the cent symbol, dollar symbol, and the decimal point are used to name the value of a collection of coins.</p>	<p>Lessons 88, 114, 166, 7, 10, 68-73, 165, 92, 130, 88, 171</p>	
<p>(2.4) Number, operation, and quantitative reasoning. The student models multiplication and division.</p>		
<p><i>The student is expected to:</i></p>		
<p>(A) model, create, and describe multiplication situations in</p>	<p>Lesson 151</p>	

<p>which equivalent sets of concrete objects are joined; and (B) model, create, and describe division situations in which a set of concrete objects is separated into equivalent sets.</p> <p>(2.5) Patterns, relationships, and algebraic thinking. The student uses patterns in numbers and operations. <i>The student is expected to:</i> (A) find patterns in numbers such as in a 100s chart; (B) use patterns in place value to compare and order whole numbers through 999; and (C) use patterns and relationships to develop strategies to remember basic addition and subtraction facts. Determine patterns in related addition and subtraction number sentences (including fact families) such as $8 + 9 = 17$, $9 + 8 = 17$, $17 - 8 = 9$, and $17 - 9 = 8$.</p> <p>(2.6) Patterns, relationships, and algebraic thinking. The student uses patterns to describe relationships and make predictions. <i>The student is expected to:</i> (A) generate a list of paired numbers based on a real-life situation such as number of tricycles related to number of wheels; (B) identify patterns in a list of related number pairs based on a real-life situation and extend the list; and (C) identify, describe, and extend repeating and additive patterns to make predictions and solve problems.</p> <p>(2.7) Geometry and spatial reasoning. The student uses attributes to identify two- and three- dimensional geometric figures. The student compares and contrasts two- and three-dimensional geometric figures or both. <i>The student is expected to:</i> (A) describe attributes (the number of vertices, faces, edges, sides) of two- and three-dimensional geometric figures such as circles, polygons, spheres, cones, cylinders, prisms, and pyramids, etc.; (B) use attributes to describe how 2 two-dimensional figures or 2 three-dimensional geometric figures are alike or</p>	<p>Lessons 158, 175</p> <p>Lessons 1-3, 8, 10, 24, 76, 77, 164 Lessons 47-56</p> <p>Lessons 21, 23, 53, 82</p> <p>Lessons 2, 4, 6</p> <p>Lessons 2, 4, 6</p> <p>Lessons 2, 4, 6</p> <p>Lessons 31, 38, 34, 35, 37, 90</p> <p>Lessons 31, 38, 34, 35, 37, 90</p>	<p>world. (Romans 5:12)</p> <p>d. All human beings have a choice and all have chosen sin that brings separation from God. (Romans 3:23)</p> <p>e. Sin is rebellion against God’s wishes and ways and this destroys our relationship with God. (Romans 8:7-8)</p> <p>f. God provides a way back to Himself through the death of His son Jesus (the second person of the Trinity), on the cross. (John 3:16, Romans 6:23)</p> <p>g. Human beings must respond to God with repentance of our sins, receiving forgiveness, and accepting Jesus as our Savior. (Romans 10:9-10)</p> <p>4. What happens to a person at death?</p> <p>a. For each person death is either the gate to life with God and His people or the gate to eternal separation from God. (1 Corinthians 50:52)</p> <p>b. After death, your soul will continue to exist in an eternal way and there is a final judgment by God. (Revelation 20:12)</p> <p>c. Everyone chooses to honor and love Him by accepting Jesus as our Lord and Savior or makes a choice to reject Jesus and grasp for self-fulfillment and personal glory. (Romans 6:23)</p> <p>d. Those who received Jesus as Savior will spend eternity in Heaven with God.</p>
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<p>different; and (C) cut two-dimensional geometric figures apart and identify the new geometric figures formed.</p> <p>(2.8) Geometry and spatial reasoning. The student recognizes that a line can be used to represent a set of numbers and its properties. <i>The student is expected to</i> use whole numbers to locate and name points on a number line.</p> <p>(2.9) Measurement. The student directly compares the attributes of length, area, weight/mass, and capacity, and uses comparative language to solve problems and answer questions. The student selects and uses nonstandard units to describe length, area, capacity, and weight/mass. The student recognizes and uses models that approximate standard units (from both SI, also known as metric, and customary systems) of length, weight/mass, capacity, and time. <i>The student is expected to:</i></p> <p>(A) identify concrete models that approximate standard units of length and use them to measure length;</p> <p>(B) select a non-standard unit of measure such as square tiles to determine the area of a two-dimensional surface;</p> <p>(C) select a non-standard unit of measure such as a bathroom cup or a jar to determine the capacity of a given container; and</p> <p>(D) select a non-standard unit of measure such as beans or marbles to determine the weight/mass of a given object.</p> <p>(2.10) Measurement. The student uses standard tools to estimate and measure time and temperature (in degrees Fahrenheit). <i>The student is expected to:</i></p> <p>(A) read a thermometer to gather data;</p> <p>(B) read and write times shown on analog and digital clocks using five-minute increments; and</p> <p>(C) describe activities that take approximately one second, one minute, and one hour.</p> <p>(2.11) Probability and statistics. The student organizes data to make it useful for interpreting information. <i>The student is expected to:</i></p> <p>(A) construct picture graphs and bar-type graphs;</p>	<p>Lesson 90</p> <p>Lessons 16, 9-10, 23, 28, 111</p> <p>Lessons 103, 44, 39-43, 101, 102, 65, 173, 44 Lesson 42</p> <p>Lessons 39-44</p> <p>Lessons 39-44</p> <p>Lessons 65, 100, 103 Lessons 60-63, 67</p> <p>Lessons 60-63, 66, 67, 166</p> <p>Lessons 5, 31, 118, 133, 139, 162</p>	<p>(Philippians 4:10-21)</p> <p>e. Those who rejected Jesus as Savior will spend eternity in Hell without God. (Hebrews 10:26-27)</p> <p>5. <i>Why is it possible to know anything at all?</i></p> <p>a. Human beings can both know the world around them and God Himself because God has built within them the capacity to do so and because He takes an active role in communicating with them. (John 16:13)</p> <p>b. God’s own intelligence is the basis of human intelligence. Knowledge is possible because there is something to be known (God and His creation) and someone to know (God and human beings made in His image). (Genesis 1:27)</p> <p>c. God reveals, Himself to us in two basic ways: by general revelation and by special revelation. (Exodus 3:2, Psalm 19:1-4)</p> <p>d. In general revelation, God speaks through the creation of the universe and through His word, the Bible. (2 Samuel 22:31, Psalm 19:1)</p> <ul style="list-style-type: none"> ➤ The Bible is internally consistent and unified in its principles and claims. ➤ There is tremendous coherence across the many authors and centuries during
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<p>(B) draw conclusions and answer questions based on picture graphs and bar-type graphs; and</p> <p>(C) use data to describe events as more likely or less likely such as drawing a certain color crayon from a bag of seven red crayons and three green crayons.</p> <p>(2.12) Underlying processes and mathematical tools. The student applies Grade 2 mathematics to solve problems connected to everyday experiences and activities in and outside of school. <i>The student is expected to:</i></p> <p>(A) identify the mathematics in everyday situations;</p> <p>(B) solve problems with guidance that incorporates the processes of understanding the problem, making a plan, carrying out the plan, and evaluating the solution for reasonableness;</p> <p>(C) select or develop an appropriate problem-solving plan or strategy including drawing a picture, looking for a pattern, systematic guessing and checking, or acting it out in order to solve a problem; and</p> <p>(D) use tools such as real objects, manipulatives, and technology to solve problems.</p> <p>(2.13) Underlying processes and mathematical tools. The student communicates about Grade 2 mathematics using informal language. <i>The student is expected to:</i></p> <p>(A) explain and record observations using objects, words, pictures, numbers, and technology; and</p> <p>(B) relate informal language to mathematical language and symbols.</p> <p>(2.14) Underlying processes and mathematical tools. The student uses logical reasoning. <i>The student is expected to justify his or her thinking using objects, words, pictures, numbers, and technology.</i></p>	<p>Lessons 5, 31, 118, 133, 139, 162 Lessons 42, 56, 55</p> <p>All Lessons Lessons 14, 148</p> <p>Lessons 14, 148, 33, 5, 10, 14, 15, 18, 22, 25, 26, 29, 55, 87, 117, 118, 133, 139, 157</p> <p>Lessons 14, 148, 33, 5, 10, 14, 15, 18, 22, 25, 26, 29, 55, 87, 117, 118, 133, 139, 157</p> <p>Lessons 14, 148, 33, 5, 10, 14, 15, 18, 22, 25, 26, 29, 55, 87, 117, 118, 133, 139, 157 All Lessons</p> <p>Lessons 14, 148, 33, 5, 10, 14, 15, 18, 22, 25, 26, 29, 55, 87, 117, 118, 133, 139, 157</p> <p>Student Activities Role Play</p>	<p>which the various books were written and in which its stories unfold.</p> <p>➤ It is relevant to all the cultures of the world</p> <p>e. Special revelation is God revealing Himself through supernatural ways. Jesus Christ is the ultimate special revelation. He showed us what God is like more fully than any other form of revelation can. Because Jesus was also completely human, he spoke more clearly to us than any other form of revelation can. (John 14:7)</p> <p>6. How do we know what is right and wrong?</p> <p>a. Ethics or the knowledge of right and wrong is based on the character of God as good (holy and loving). (Psalm 33:4)</p> <p>b. There is an absolute standard by which all moral judgments are measured and God Himself – His character of goodness (holiness and love) – is the standard. (1 Samuel 2:3)</p> <p>c. As a result of sin, morally, we have become less able to discern good and evil and less able to know God as He truly is. (Proverbs 1:7)</p> <p>d. God has revealed His standard in the various laws and principles expressed in the Bible. (Psalm 111:10)</p>
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	<p>Games/Puzzles Stories Songs Projects Cooperative Learning Journaling Graphic Organizers Small Groups Drawing Manipulatives Writer’s Workshop Portfolio Written Practice Oral Discussion/Oral Practice</p> <p>Teaching Strategies Direct Instruction Open-ended Questions Discussion Demonstration Brainstorming Problem Solving Read Aloud Facilitating Cooperative Learning Games Songs Manipulatives Modeling</p> <p>Evaluation Procedures Observation Class Participation Quizzes/Tests Projects Reports</p>	<ul style="list-style-type: none"> ➤ He has dictated absolute moral truth to us. ➤ Every truth must conform to Biblical principles. ➤ Every choice must reflect God’s moral truth. ➤ We must promote, defend, and teach these truths to others. <p>7. <i>What is the meaning of human history?</i></p> <ol style="list-style-type: none"> a. History is a meaningful sequence of events leading to the fulfillment of God’s purposes for humanity. (Psalm 22:27-28, Psalm 47:3) b. History is going somewhere, directed toward a known end. (Matthew 25:34) c. History is a form of revelation, not only does God reveal Himself in history, but the very sequence of events is revelation. (Psalm 33:13-14, Psalm 47:9) d. History has meaning because God is behind all events, not only sustaining all things by His powerful word but also in all things working for the good of those who love Him. (Psalm 40:5, Romans 8:28) <p><i>What should our response be to God? What were we made for?</i></p> <p>We were made to Love – Matthew 22:37, Worship – Romans 12:1, Obey – 2 John 6, and Give Glory – Psalm 96:3.</p>
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