

Mathematics, Grade 4

Time on Task: 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 4 are comparing and ordering fractions and decimals, applying multiplication and division, and developing ideas related to congruence and symmetry.

Goals and Objectives Texas Essential Knowledge and Skills (TEKS)	Scope and Sequence Mathematics Grade Four	Spiritual Goals God’s intended purpose for mathematics:
<p>111.16. Mathematics, Grade 4.</p> <p>(a) Introduction.</p> <p>(1) Within a well-balanced mathematics curriculum, the primary focal points at Grade 4 are comparing and ordering fractions and decimals, applying multiplication and division, and developing ideas related to congruence and symmetry.</p> <p>(2) Throughout mathematics in Grades 3-5, 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 algorithms for addition, subtraction, multiplication, and division as generalizations connected to concrete experiences; and they concretely develop basic concepts of fractions and decimals. Students use appropriate language and organizational structures such as tables and charts to represent and communicate relationships, make predictions, and solve problems. Students select and use formal language to describe their reasoning as they identify, compare, and classify two- or three-dimensional geometric figures; and they use numbers, standard units, and measurement tools to describe and compare objects, make estimates, and</p>	<ul style="list-style-type: none">• Patterns• Number Theory• Place Value• Statistics• Addition• Subtraction• Multiplication• Division• Fractions• Decimals• Algebra• Geometry• Problem Solving• Probability• Technology• Measurement• Time• Money• Ratio, Proportion, and Percent	<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>solve application problems. Students organize data, choose an appropriate method to display the data, and interpret the data to make decisions and predictions and solve problems.</p> <p>(3) Throughout mathematics in Grades 3-5, students develop numerical fluency with conceptual understanding and computational accuracy. Students in Grades 3-5 use knowledge of the base-ten place value system to compose and decompose numbers in order to solve problems requiring precision, estimation, and reasonableness. By the end of Grade 5, students know basic addition, subtraction, multiplication, and division facts and are using them to work flexibly, efficiently, and accurately with numbers during addition, subtraction, multiplication, and division 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 Grades 3-5, 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>(4.1) Number, operation, and quantitative reasoning. The student uses place value to represent whole numbers and decimals. <i>The student is expected to:</i></p> <p>(A) use place value to read, write, compare, and order whole numbers through 999,999,999; and</p> <p>(B) use place value to read, write, compare, and order decimals involving tenths and hundredths, including money, using concrete objects and pictorial models.</p> <p>(4.2) Number, operation, and quantitative reasoning. The student describes and compares fractional parts of whole objects or sets of objects. <i>The student is expected to:</i></p> <p>(A) use concrete objects and pictorial models to generate equivalent fractions;</p> <p>(B) model fraction quantities greater than one using concrete objects and pictorial models;</p>	<p>Correlation with TEKS <u>Mathematics Grade Four</u> Purposeful Design/ACSI Student ISBN 978-1-58331-186-6 Teacher ISBN 1-58331-187-4</p> <p>Lesson 1</p> <p>Lesson 129</p> <p>Lesson 108</p> <p>Lesson 108</p>	<p>man the ability to observe reality.</p> <p>9. To understand that God has given man the ability to explore and to formulate relationships.</p> <p>10. To understand that human reasoning is a reflection of the divine.</p> <p>11. To appreciate the structure, form, and beauty of God’s creation.</p> <p>12. To appreciate the complexity and precision of God’s creation</p> <p>13. To improve the student’s reasoning skills to help hi think less like the world and more like God.</p> <p>14. To cultivate preciseness in Calculations and reasoning powers.</p> <p>15. To develop an appreciation for correctness of procedure and accuracy in dealing with facts.</p> <p>16. To make him aware of his own limitations and need to depend upon the Lord for understanding.</p> <p>17. To develop skills in thrift and good stewardship to prepare him for successful living in the world.</p> <p>Biblical Integration Truth Statements</p> <p>1. <i>What is prime reality, the really real?</i></p> <p>God exists and is the ultimate reality. (Psalm 90:2, Revelation 22:13)</p> <p>a. God designed, created, and sustains His creation. (Genesis 1:1-31)</p> <p>b. God is good, holy, and loving. (Luke 18:19, 1 John 4:16, 1 Peter 1:16, Psalm 145:12)</p> <p>c. God is omniscient – all knowing.</p>
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<p>(C) compare and order fractions using concrete objects and pictorial models; and</p> <p>(D) relate decimals to fractions that name tenths and hundredths using concrete objects and pictorial models.</p> <p>(4.3) Number, operation, and quantitative reasoning. The student adds and subtracts to solve meaningful problems involving whole numbers and decimals. <i>The student is expected to:</i></p> <p>(A) use addition and subtraction to solve problems involving whole numbers; and</p> <p>(B) add and subtract decimals to the hundredths place using concrete objects and pictorial models.</p> <p>(4.4) Number, operation, and quantitative reasoning. The student multiplies and divides to solve meaningful problems involving whole numbers. <i>The student is expected to:</i></p> <p>(A) model factors and products using arrays and area models;</p> <p>(B) represent multiplication and division situations in picture, word, and number form;</p> <p>(C) recall and apply multiplication facts through 12 x 12;</p> <p>(D) use multiplication to solve problems (no more than two digits times two digits without technology); and</p> <p>(E) use division to solve problems (no more than one-digit divisors and three-digit dividends without technology).</p> <p>(4.5) Number, operation, and quantitative reasoning. The student estimates to determine reasonable results. <i>The student is expected to:</i></p> <p>(A) round whole numbers to the nearest ten, hundred, or thousand to approximate reasonable results in problem situations; and</p> <p>(B) use strategies including rounding and compatible numbers to estimate solutions to multiplication and division problems.</p> <p>(4.6) Patterns, relationships, and algebraic thinking. The student uses patterns in multiplication and division. <i>The student is expected to:</i></p> <p>(A) use patterns and relationships to develop strategies to</p>	<p>Lesson 109</p> <p>Lesson 136</p> <p>Lessons 17, 26</p> <p>Lesson 133</p> <p>Lesson 43</p> <p>Lesson 43</p> <p>Teacher add Lesson 49</p> <p>Lesson 95</p> <p>Lesson 106</p> <p>Lesson 4</p> <p>Lesson 134</p> <p>Lesson 44</p>	<p>(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. What is the nature of external reality, that is, the world around us?</p> <p>a. God is the source of everything and created the universe out of nothing. (Genesis 1:1)</p> <p>b. The universe was created by God to be orderly. (Isaiah 45:18, Psalm 147:4)</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>d. The universe reflects His glory. (Psalm 8:1, Psalm 19:1)</p> <p>3. What is a human being?</p> <p>a. God created humans to know Him intimately and to have a loving relationship with Him. (Psalm 100:3)</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. Adam and Eve chose disobedience and brought death to themselves and sin entered the world. (Romans 5:12)</p>
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<p>remember basic multiplication and division facts (such as the patterns in related multiplication and division number sentences (fact families) such as $9 \times 9 = 81$ and $81 \div 9 = 9$); and</p> <p>(B) use patterns to multiply by 10 and 100.</p> <p>(4.7) Patterns, relationships, and algebraic thinking. The student uses organizational structures to analyze and describe patterns and relationships. <i>The student is expected to describe the relationship between two sets of related data such as ordered pairs in a table.</i></p> <p>(4.8) Geometry and spatial reasoning. The student identifies and describes attributes of geometric figures using formal geometric language. <i>The student is expected to:</i></p> <p>(A) identify and describe right, acute, and obtuse angles;</p> <p>(B) identify and describe parallel and intersecting (including perpendicular) lines using concrete objects and pictorial models; and</p> <p>(C) use essential attributes to define two- and three-dimensional geometric figures.</p> <p>(4.9) Geometry and spatial reasoning. The student connects transformations to congruence and symmetry. <i>The student is expected to:</i></p> <p>(A) demonstrate translations, reflections, and rotations using concrete models;</p> <p>(B) use translations, reflections, and rotations to verify that two shapes are congruent; and</p> <p>(C) use reflections to verify that a shape has symmetry.</p> <p>(4.10) Geometry and spatial reasoning. The student recognizes the connection between numbers and their properties and points on a line. <i>The student is expected to locate and name points on a number line using whole numbers, fractions such as halves and fourths, and decimals such as tenths.</i></p> <p>(4.11) Measurement. The student applies measurement concepts. <i>The student is expected to estimate and measure to solve problems involving length (including perimeter) and area. The student uses measurement tools to measure capacity/volume and weight/mass.</i></p>	<p>Lesson 91</p> <p>Lesson 176</p> <p>Lesson 73 Lessons 72, 74</p> <p>Lesson 85</p> <p>Lesson 84</p> <p>Lesson 84</p> <p>Lesson 84</p> <p>Lessons 109, 129, 132</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. (Philippians 4:10-21)</p>
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<p><i>The student is expected to:</i></p> <p>(A) estimate and use measurement tools to determine length (including perimeter), area, capacity and weight/mass using standard units SI (metric) and customary;</p> <p>(B) perform simple conversions between different units of length, between different units of capacity, and between different units of weight within the customary measurement system;</p> <p>(C) use concrete models of standard cubic units to measure volume;</p> <p>(D) estimate volume in cubic units; and</p> <p>(E) explain the difference between weight and mass.</p> <p>(4.12) Measurement. The student applies measurement concepts. The student measures time and temperature (in degrees Fahrenheit and Celsius).</p> <p><i>The student is expected to:</i></p> <p>(A) use a thermometer to measure temperature and changes in temperature; and</p> <p>(B) use tools such as a clock with gears or a stopwatch to solve problems involving elapsed time.</p> <p>(4.13) Probability and statistics. The student solves problems by collecting, organizing, displaying, and interpreting sets of data.</p> <p><i>The student is expected to:</i></p> <p>(A) use concrete objects or pictures to make generalizations about determining all possible combinations of a given set of data or of objects in a problem situation; and</p> <p>(B) interpret bar graphs.</p> <p>(4.14) Underlying processes and mathematical tools. The student applies Grade 4 mathematics to solve problems connected to everyday experiences and activities in and outside of school.</p> <p><i>The student is expected to:</i></p> <p>(A) identify the mathematics in everyday situations;</p> <p>(B) solve problems that incorporate 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</p>	<p>Lessons 82, 147, 149</p> <p>Lessons 144, 147, 149, 157</p> <p>Lesson 86</p> <p>Lesson 86</p> <p>Lessons 148-149</p> <p>Lesson 151</p> <p>Lesson 154</p> <p>Lesson 42</p> <p>Lesson 38</p> <p>Lesson 1 to end of book</p> <p>Lessons 56, 57, 67</p> <p>Lesson 57</p>	<p>e. Those who rejected Jesus as Savior will spend eternity in Hell without God. (Hebrews 10:26-27)</p> <p>5. Why is it possible to know anything at all?</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 which the various books
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<p>strategy, including drawing a picture, looking for a pattern, systematic guessing and checking, acting it out, making a table, working a simpler problem, or working backwards to solve a problem; and</p> <p>(D) use tools such as real objects, manipulatives, and technology to solve problems.</p> <p>(4.15) Underlying processes and mathematical tools. The student communicates about Grade 4 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>(4.16) Underlying processes and mathematical tools. The student uses logical reasoning. The student is expected to:</p> <p>(A) make generalizations from patterns or sets of examples and nonexamples; and</p> <p>(B) justify why an answer is reasonable and explain the solution process.</p>	<p>Lesson 1 to end of book</p> <p>Lesson 1 to end of book</p> <p>Lesson 1 to end of book</p> <p>Lesson 94</p> <p>Lesson 56</p> <p>Student Activities Role Play Games/Puzzles Stories Songs Projects Cooperative Learning Journaling Graphic Organizers Small Groups Drawing Manipulatives Writer’s Workshop Portfolio</p>	<p>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> <p>➤ He has dictated absolute</p>
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	<p>Teaching Strategies Direct Instruction Open-ended Questions Discussion Demonstration Brainstorming Problem Solving Read Aloud Facilitating Cooperative Learning</p> <p>Evaluation Procedures Observation Class Participation Quizzes/Tests Projects Reports Survey (oral/written) Portfolio</p> <p>Other Resources and Bibliography None</p>	<p>moral truth to us.</p> <ul style="list-style-type: none"> ➤ 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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