

# Mathematics, Kindergarten

**Time on Task:** 3 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 Kindergarten are developing whole-number concepts and using patterns and sorting to explore number, data, and shape.

<p><b>Goals and Objectives</b>  <b>Texas Essential Knowledge and Skills (TEKS)</b></p> <p><b>111.12. Mathematics, Kindergarten</b>  <b>(a) Introduction</b></p> <p>(1) Within a well-balanced mathematics curriculum, the primary focal points at Kindergarten are developing whole-number concepts and using patterns and sorting to explore number, data, and shape.</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 as they identify and compare attributes of objects and situations.</p>	<p><b>Scope and Sequence</b>  <u><b>Kindergarten Mathematics</b></u></p> <ul style="list-style-type: none"> <li>• Patterns</li> <li>• Number Theory</li> <li>• Place Value</li> <li>• Statistics</li> <li>• Addition</li> <li>• Subtraction</li> <li>• Fractions</li> <li>• Algebra</li> <li>• Geometry</li> <li>• Problem Solving</li> <li>• Probability</li> <li>• Measurement</li> <li>• Time</li> <li>• Money</li> <li>• Ratio, Proportion, and Percent</li> </ul>	<p><b>Spiritual Goals</b>  <b>God’s intended purpose for mathematics:</b></p> <ol style="list-style-type: none"> <li>1. To teach the child that there is logic and order in arithmetic and that there is logic and order in God’s plan.</li> <li>2. To teach that God cares for numbers and has recorded many for our information.</li> <li>3. To teach that God commanded men to count, measure, and record information.</li> <li>4. To teach the child that God is concerned that we be accurate and orderly in our use of weights, measure, and numbers.</li> <li>5. To teach the child not to place too much confidence in the size.</li> <li>6. To teach the child the concept of measurement to express men’s failure and His plans for man.</li> <li>7. To develop skills in reasoning which reveal truth.</li> </ol>
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<p>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>(b) Knowledge and skills.</b></p> <p><b>(K.1) Number, operation, and quantitative reasoning.</b> The student uses numbers to name quantities. <i>The student is expected to:</i></p> <p>(A) use one-to-one correspondence and language such as more than, same number as, or two less than to describe relative sizes of sets of concrete objects;</p> <p>(B) use sets of concrete objects to represent quantities given in verbal or written form (through 20); and</p> <p>(C) use numbers to describe how many objects are in a set (through 20) using verbal and symbolic descriptions.</p> <p><b>(K.2) Number, operation, and quantitative reasoning.</b> The student describes order of events or objects. <i>The student is expected to:</i></p> <p>(A) use language such as before or after to describe relative position in a sequence of events or objects; and</p> <p>(B) name the ordinal positions in a sequence such as first, second, third, etc.</p>	<p><b>Correlation with TEKS Kindergarten Mathematics</b></p> <p>Purposeful Design/ACSI Student Item Code 7208 Teacher Item Code 7209</p> <p>Lessons 23-26</p> <p>Lessons 28, 35-58, 73-75</p> <p>Lessons 28, 35-58</p> <p>Lessons 1-11</p> <p>Calendar, Lessons 98-99, 102</p>	<p>8. To understand that God has given 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><b>Biblical Integration Truth Statements</b></p> <p><b>1. <i>What is prime reality, the really real?</i></b> 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>
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<p><b>(K.3) Number, operation, and quantitative reasoning.</b> The student recognizes that there are quantities less than a whole. <i>The student is expected to:</i> (A) share a whole by separating it into two equal parts; and (B) explain why a given part is half of the whole.</p> <p><b>(K.4) Number, operation, and quantitative reasoning.</b> The student models addition (joining) and subtraction (separating). <i>The student is expected to</i> model and create addition and subtraction problems in real situations with concrete objects.</p> <p><b>(K.5) Patterns, relationships, and algebraic thinking.</b> The student identifies, extends, and creates patterns. <i>The student is expected to</i> identify, extend, and create patterns of sounds, physical movement, and concrete objects.</p> <p><b>(K.6) Patterns, relationships, and algebraic thinking.</b> The student uses patterns to make predictions. <i>The student is expected to:</i> (A) use patterns to predict what comes next, including cause-and-effect relationships; and (B) count by ones to 100.</p> <p><b>(K.7) Geometry and spatial reasoning.</b> The student describes the relative positions of objects. <i>The student is expected to:</i> (A) describe one object in relation to another using informal language such as over, under, above, and below; and (B) place an object in a specified position.</p> <p><b>(K.8) Geometry and spatial reasoning.</b> The student uses attributes to determine how objects are alike and different. <i>The student is expected to:</i> (A) describe and identify an object by its attributes using informal language; (B) compare two objects based on their attributes; and (C) sort a variety of objects including two- and three-dimensional geometric figures according to their attributes and describe how the objects are sorted.</p>	<p>Lessons 67-70, 134 Lessons 67-70, 134</p> <p>Lessons 108-129</p> <p>Lessons 12-22</p> <p>Lessons 12-22</p> <p>Lessons 28, 35-58, 73-9</p> <p>Lessons 1-11, 20-22</p> <p>Lessons 1-11, 20-22</p> <p>Lessons 6-10, 51-71</p> <p>Lessons 6-10, 51-71 Lessons 6-10, 51-71</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. (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><b>2. <i>What is the nature of external reality, that is, the world around us?</i></b></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><b>3. <i>What is a human being?</i></b></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,</p>
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<p><b>(K.9) Geometry and spatial reasoning.</b> The student recognizes attributes of two- and three-dimensional geometric figures. <i>The student is expected to:</i></p> <p>(A) describe and compare the attributes of real-life objects such as balls, boxes, cans, and cones or models of three-dimensional geometric figures;</p> <p>(B) recognize shapes in real-life three-dimensional geometric figures or models of three-dimensional geometric figures; and</p> <p>(C) describe, identify, and compare circles, triangles, rectangles, and squares (a special type of rectangle).</p> <p><b>(K.10) Measurement.</b> The student directly compares the attributes of length, area, weight/mass, capacity, and/or relative temperature. The student uses comparative language to solve problems and answer questions. <i>The student is expected to:</i></p> <p>(A) compare and order two or three concrete objects according to length (longer/shorter than, or the same);</p> <p>(B) compare the areas of two flat surfaces of two-dimensional figures (covers more, covers less, or covers the same);</p> <p>(C) compare two containers according to capacity (holds more, holds less, or holds the same);</p> <p>(D) compare two objects according to weight/mass (heavier than, lighter than or equal to); and</p> <p>(E) compare situations or objects according to relative temperature (hotter/colder than, or the same as).</p> <p><b>(K.11) Measurement.</b> The student uses time to describe, compare, and order events and situations. <i>The student is expected to:</i></p> <p>(A) compare events according to duration such as more time than or less time than;</p> <p>(B) sequence events (up to three); and</p> <p>(C) read a calendar using days, weeks, and months.</p> <p><b>(K.12) Probability and statistics.</b> The student constructs and uses graphs of real objects or pictures to answer questions.</p>	<p>Lessons 6-10, 51-71</p> <p>Lessons 6-10, 51-71</p> <p>Lessons 6-10, 51-71</p> <p>Lessons 130-141</p> <p>Lessons 130-141</p> <p>Lessons 130-141</p> <p>Lessons 130-141</p> <p>Lessons 130-141</p> <p>Lessons 96-107</p> <p>Lesson 97</p> <p>Lesson 102</p>	<p>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> <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><b>4. <i>What happens to a person at death?</i></b></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</p>
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<p><i>The student is expected to:</i></p> <p>(A) construct graphs using real objects or pictures in order to answer questions; and</p> <p>(B) use information from a graph of real objects or pictures in order to answer questions.</p> <p><b>(K.13) Underlying processes and mathematical tools.</b> The student applies Kindergarten 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 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 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><b>(K.14) Underlying processes and mathematical tools.</b> The student communicates about Kindergarten mathematics using informal language.</p> <p><i>The student is expected to:</i></p> <p>(A) communicate mathematical ideas using objects, words, pictures, numbers, and technology; and</p> <p>(B) relate everyday language to mathematical language and symbols.</p> <p><b>(K.15) Underlying processes and mathematical tools.</b> 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 32, 56-57</p> <p>Lessons 32, 56-57</p> <p>Lessons 1-141</p> <p>Lessons 5, 15, 27, 39, 551, 62, 70, 78, 92, 104, 113, 125, 134</p> <p>Lessons 5, 15, 27, 39, 551, 62, 70, 78, 92, 104, 113, 125, 134</p> <p>Lessons 5, 15, 27, 39, 551, 62, 70, 78, 92, 104, 113, 125, 134</p> <p>Lessons 1-141</p> <p>Lessons 1-141</p> <p>Lessons 1-141</p> <p><b>Student Activities</b></p> <p>Role Play</p>	<p>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> <p>e. Those who rejected Jesus as Savior will spend eternity in Hell without God. (Hebrews 10:26-27)</p> <p><b>5. <i>Why is it possible to know anything at all?</i></b></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</p>
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	<p>Games/Puzzles          Stories          Songs          Projects          Cooperative Learning          Journaling          Graphic Organizers          Small Groups          Drawing          Manipulatives          Writer’s Workshop          Portfolio</p> <p><b>Teaching Strategies</b>          Direct Instruction          Open-ended Questions          Discussion          Demonstration          Brainstorming          Problem Solving          Read Aloud          Facilitating          Cooperative Learning</p> <p><b>Evaluation Procedures</b>          Observation          Class Participation          Quizzes/Tests          Projects          Reports          Survey (oral/written)          Portfolio</p> <p><b>Other Resources and Bibliography</b>          None</p>	<p>22:31, Psalm 19:1)          ➤ 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 were written and in which its stories unfold.          ➤ 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. <b><i>How do we know what is right and wrong?</i></b></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>
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		<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> <ul style="list-style-type: none"> <li>➤ He has dictated absolute moral truth to us.</li> <li>➤ Every truth must conform to Biblical principles.</li> <li>➤ Every choice must reflect God's moral truth.</li> <li>➤ We must promote, defend, and teach these truths to others.</li> </ul> <p>7. <b><i>What is the meaning of human history?</i></b></p> <p>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)</p> <p>b. History is going somewhere, directed toward a known end. (Matthew 25:34)</p> <p>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)</p> <p>d. History has meaning because God is behind all events, not only sustaining all things by His powerful word but also in all</p>
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		<p>things working for the good of those who love Him. (Psalm 40:5, Romans 8:28)</p> <p><b><i>What should our response be to God?</i></b> <b><i>What were we made for?</i></b></p> <p><b>We were made to</b> <b>Love</b> – Matthew 22:37, <b>Worship</b> – Romans 12:1, <b>Obey</b> – 2 John 6, and <b>Give Glory</b> – Psalm 96:3.</p>
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