

## Northpoint Horizons

### **CAVS™ (Content Academic Vocabulary System) Math – 3-5 Correlated to the Texas State Mathematics Standards for Texas Essential Knowledge and Skills**

Grade 5

This document provides a correlation to the extensive math directives offered throughout the *CAVS* program that meet the Texas Mathematics Standards for TEKS. The n/a signifies the standards that are not directly met for this grade level.

Math Content Standard	CAVS Math Grades 3-5 Teacher’s Guide Lessons
<b>Knowledge and Skills</b>	
<b>5.1 Number, operation, and quantitative reasoning. The student uses place value to represent whole numbers and decimals.</b>	
a. use place value to read, write, compare, and order whole numbers through the 999,999,999,999	Students have opportunities to read and write whole numbers in <i>CAVS</i> lessons. They study place value to hundred thousands in: Lesson 1 – TG pp. 1-6 <i>How can you put numbers in order?</i>
b. use place value to read, write, compare, and order decimals through the thousandths place	Students use the math vocabulary words: <i>decimal, percent, and equivalent</i> to identify and write decimals; to identify and write percents; to interpret decimals and percents from a picture; to convert percents into decimals; and to convert decimals into percents (tenths, hundredths, thousandths): Lesson 6- TG pp. 31-36 <i>How else can you show less than one whole?</i>
<b>5.2 Number, operation, and quantitative reasoning. The student uses fractions in problem-solving situations.</b>	
a. generate a fraction equivalent to a given fraction such as $\frac{1}{2}$ and $\frac{3}{6}$ or $\frac{4}{12}$ and $\frac{1}{3}$	Students are introduced to fractions by using the math vocabulary words: <i>fraction, numerator, denominator, improper fraction, and mixed number</i> to identify a fraction and its numerator and denominator; to understand that an improper fraction is a value greater than one; and to know that a mixed number consists of a whole number and a fraction: Lesson 5 – TG pp. 25-30 <i>How do you show that a number is not a whole?</i>
b. generate a mixed number equivalent to a given improper fraction or generate an improper fraction equivalent to a given mixed number	
c. compare two fractional quantities in problem-solving situations using a variety of methods, including common denominators	
d. use models to relate decimals to fractions that name tenths, hundredths, and thousandths	

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	percents; to interpret decimals and percents from a picture; to convert percents into decimals; and to convert decimals into percents (tenths, hundredths, thousandths): Lesson 6- TG pp. 31-36 <i>How else can you show less than one whole?</i>
<b>5.3 Number, operation, and quantitative reasoning. The student adds, subtracts, multiplies, and divides to solve meaningful problems.</b>	
a. use addition and subtraction to solve problems involving whole numbers and decimals	Students are introduced to addition by using the math vocabulary words: <i>addends, sum, number sentence,</i> and <i>equation</i> to calculate the sum of two whole numbers; to identify the addends in an equation; to understand that an equation is made up of numbers, an operation sign, and an equal sign; and to know that another name for a number sentence is an equation: Lesson 2 – TG pp.7-12 <i>How do numbers tell a story?</i>  Students are introduced to the math vocabulary word: <i>decimal</i> to identify and write decimals in: Lesson 6- TG pp. 31-36 <i>How else can you show less than one whole?</i>
b. use multiplication to solve problems involving whole numbers (no more than three digits times two digits without technology)	Students are introduced to multiplication by using the math vocabulary words: <i>multiplication, factor, product, array, prime number,</i> and <i>multiples</i> to define and understand multiplication; to determine the factors and the product of an equation; to understand and define multiples of a number; to define and recognize prime numbers; and to understand, read, and draw arrays: Lesson 3 – TG pp. 13-18 <i>How do we count large amounts?</i>
c. use division to solve problems involving whole numbers (no more than two-digit divisors and three-digit dividends without technology), including interpreting the remainder within a given context	Students are introduced to division by using the math vocabulary words: <i>division, dividend, divisor, quotient,</i> and <i>remainder</i> to divide whole numbers with and without a remainder; to understand the meaning of division; to identify and label the divisor, dividend, quotient, and remainder; and to describe examples of division in: Lesson 4 – TG pp. 19-24

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	<i>How do we make equal groups?</i>
d. identify common factors of a set of whole numbers	Students use the math vocabulary words: <i>multiplication, factor, product, array, prime number, and multiples</i> to define and understand multiplication; to determine the factors and the product of an equation; to understand and define multiples of a number; to define and recognize prime numbers; and to understand, read, and draw arrays: Lesson 3 – TG pp. 13-18 <i>How do we count large amounts?</i>
e. model situations using addition and/or subtraction involving fractions with like denominators using concrete objects, pictures, words, and numbers	Students use the math vocabulary words: <i>fraction, numerator, denominator, improper fraction, and mixed number</i> to identify a fraction and its numerator and denominator; to understand that an improper fraction is a value greater than one; and to know that a mixed number consists of a whole number and a fraction: Lesson 5 – TG pp. 25-30 <i>How do you show that a number is not a whole?</i>
<b>5.4 Number, operation, and quantitative reasoning. The student estimates to determine reasonable results.</b>	
a. use strategies, including rounding and compatible numbers to estimate solutions to addition, subtraction, multiplication, and division problems	Students use the math vocabulary words: <i>place value, round, even number, odd number, positive number, and negative number</i> to identify the place value of numbers; to round numbers; to recognize and use positive and negative numbers; and to recognize and use even and odd numbers: Lesson 1 – TG pp. 1-6 <i>How can you put numbers in order?</i>  Students learn estimation skills: Unit 24 – TG pp. 139-144 <i>How can you solve problems?</i>
<b>5.5 Patterns, relationships, and algebraic thinking. The student makes generalizations based on observed patterns and relationships.</b>	
a. describe the relationship between sets of data in graphic organizers such as lists, tables, charts, and diagrams	Students use the math vocabulary words: <i>repeating pattern</i> and <i>extend</i> to identify a repeating pattern; to extend patterns; and to explore number patterns; and to find the rule for a given pattern: Lesson 7 – TG pp. 37-42 <i>What is a pattern?</i>

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	Lesson 22 – TG pp. 127-132 <i>How do you compare facts and information?</i>
b. identify prime and composite numbers using concrete objects, pictorial models, and patterns in factor pairs	n/a
<b>5.6 Patterns, relationships, and algebraic thinking. The student describes relationships mathematically.</b>	
a. select from and use diagrams and equations such as $y = 5 + 3$ to represent meaningful problem situations	n/a
<b>5.7 Geometry and spatial reasoning. The student generates geometric definitions using critical attributes.</b>	
a. identify essential attributes including parallel, perpendicular, and congruent parts of two- and three-dimensional geometric figures.	Lesson 16 - TG pp. 91-96 <i>How do we describe shapes with straight sides?</i>  Lesson 18 – TG pp. 103-108 <i>How do we draw different shapes?</i>  Lesson 19 - TG pp. 109-114 <i>What attributes do solid shapes share?</i>
<b>5.8 Geometry and spatial reasoning. The student models transformations.</b>	
a. sketch the results of translations, rotations, and reflections on a Quadrant I coordinate grid	Students use the math vocabulary words: <i>slide</i> , <i>flip (reflection)</i> , and <i>turn (rotation)</i> to predict and describe the results of sliding, flipping, and turning 2-dimensional shapes: Lesson 20 – TG pp. 115-120 <i>How can you change shapes?</i>
b. identify the transformation that generates one figure from the other when given two congruent figures on a Quadrant I coordinate grid	Students use the math vocabulary words: <i>attribute</i> , <i>congruent</i> , <i>similar</i> , and <i>symmetry</i> to identify and compare attributes of 2-dimensional shapes; to explore and describe congruence and similarity; and to identify and describe line symmetry in 2-dimensional shapes and designs: Lesson 18 – TG pp. 103-108 <i>How do we draw different shapes?</i>  Students use the math vocabulary words: <i>slide</i> , <i>flip (reflection)</i> , and <i>turn (rotation)</i> to predict and describe the results of sliding, flipping, and turning 2-dimensional shapes: Lesson 20 – TG pp. 115-120 <i>How can you change shapes?</i>
<b>5.9 Geometry and spatial reasoning. The student recognizes the connection between ordered pairs of numbers and locations of points on a plane.</b>	

<b>Math Content Standard</b>	<b>CAVS Math Grades 3-5 Teacher's Guide Lessons</b>
a. locate and name points on a coordinate grid using ordered pairs of whole numbers	Students use the math vocabulary words: <i>grid</i> , <i>x-axis</i> , <i>y-axis</i> , <i>coordinate</i> , and <i>ordered pair</i> to identify and interpret a grid; to distinguish between the <i>x-axis</i> and <i>y-axis</i> ; and to identify a location on a grid by using coordinates: Unit 8 – TG pp. 43-48 <i>How can you use models?</i>
<b>5.10 Measurement. The student applies measurement concepts involving length (including perimeter), area, capacity/volume, and weight/mass to solve problems.</b>	
a. perform simple conversions within the same measurement system (SI (metric) or customary)	Lesson 11 - TG pp. 61-66 <i>How do you measure?</i>  Lesson 14 - TG pp. 79-84 <i>What are units of measurement?</i>
b. connect models for perimeter, area, and volume with their respective formulas	Lesson 12 - TG pp. 67-72 <i>How do you measure flat shapes</i>  Lesson 13 - TG pp. 73-78 <i>How do you measure solid shapes?</i>
c. select and use appropriate units and formulas to measure length, perimeter, area, and volume	Lesson 10 - TG pp. 55-60 <i>What do you use to measure things?</i>  Lesson 11 - TG pp. 61-66 <i>How do you measure?</i>  Lesson 12 - TG pp. 67-72 <i>How do you measure flat shapes</i>  Lesson 13 - TG pp. 73-78 <i>How do you measure solid shapes?</i>  Lesson 14 - TG pp. 79-84 <i>What are units of measurement?</i>
<b>5.11 Measurement. The student applies measurement concepts. The student measures time and temperature (in degrees Fahrenheit and Celsius).</b>	
a. solve problems involving changes in temperature	Students study the weather report in the newspaper or from a web site in: Lesson 1 – TG pp. 1-6

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	<i>How can you put numbers in order?</i> (Activity Placemat 1)
b. solve problems involving elapsed time	Students use the math vocabulary word: <i>elapsed time</i> to define elapsed time; to give examples of elapsed time; and to tell time, using elapsed time: Lesson 15 - TG pp. 85-90 <i>How long does it take?</i>
<b>5.12 Probability and statistics. The student describes and predicts the results of a probability experiment.</b>	
a. use fractions to describe the results of an experiment	Students are introduced to "probability" in math problems by using the math vocabulary words: <i>probability, certain, impossible, likely, and improbable</i> to understand and to apply the basic principles of probability and to predict the probability outcomes: Lesson 23 – TG pp. 133-138 <i>Do you think it will happen?</i>
b. use experimental results to make predictions	Lesson 23 – TG pp. 133-138 <i>Do you think it will happen?</i>
c. list all possible outcomes of a probability experiment such as tossing a coin	Lesson 23 – TG pp. 133-138 <i>Do you think it will happen?</i>
<b>4.13 Probability and statistics. The student solves problems by collecting, organizing, displaying, and interpreting sets of data.</b>	
a. use tables of related number pairs to make line graphs	Lesson 21 – TG pp. 121-126 <i>Why do you need information?</i>
b. describe characteristics of data presented in tables and graphs including median, mode, and range	Lesson 21 – TG pp. 121-126 <i>Why do you need information?</i>  Lesson 22 – TG pp. 127-132 <i>How do you compare facts and information?</i>
c. graph a given set of data using an appropriate graphical representation such as a picture or line graph	Lesson 21 – TG pp. 121-126 <i>Why do you need information?</i>
<b>5.14 Underlying processes and mathematical tools. The student applies Grade 5 mathematics to solve problems connected to everyday experiences and activities in and outside of school.</b>	
a. identify the mathematics in everyday situations.	In the <i>CAVS</i> program there are many examples of using mathematics for everyday situations to help students apply their math skills and solve problems. Some examples: Lesson 2 – TG pp. 7-12 <i>How do numbers tell a story?</i>

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	<p>Lesson 7 – TG pp. 37-42 <i>What is a pattern?</i></p> <p>Lesson 10 – TG pp. 55-60 <i>What do you use to measure things?</i></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>During each CAVS Math Lesson, the teacher helps students determine the approach, materials, and strategies to be used to solve problems using the 5-E Instructional Approach while highlighting math content academic vocabulary. The 5-E Approach:</p> <p><i>Engage:</i> Concept Posters and Math Vocabulary Cards are used to introduce the math concept and vocabulary as a whole group activity.</p> <p><i>Explore and Learn:</i> Students use hands-on Activity Placemats with manipulatives as a small group inquiry activity. Students complete the Record Sheet and then discuss the activity and compare observations with classmates.</p> <p><i>Explain Concepts and Vocabulary:</i> Teacher and students read and discuss the academic vocabulary words in context on the Reader Cards. Reader Card A is targeted to the reading levels of Beginning/Emerging English language learners. Reader Card B is targeted to the reading levels of the Intermediate/Expanding English language learners and native English speakers.</p> <p><i>Elaborate:</i> Students apply newly learned concepts when working with a partner to complete the Concept Webs. As a small group activity, students practice listening to, reading, writing, and speaking each academic vocabulary word with the Radius Audio System™.</p> <p><i>Evaluate:</i> Teachers review the lesson's academic vocabulary words through Interactive Transparencies (whole group activity) and assess each lesson through the Lesson Review sheets (individual activity). Some examples:</p> <p>Lesson 6 – TG pp. 31-36 <i>How else can you show less than one whole?</i></p> <p>Lesson 11 - TG pp. 61-66</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, acting it out, making a table, working a simpler problem, or working backwards to solve a problem</p>	

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	<p><i>How do you measure?</i></p> <p>Lesson 24 – TG pp. 139-144</p> <p><i>How can you solve problems?</i></p>
<p>d. use tools such as real objects, manipulatives, and technology to solve problems</p>	<p>In the <i>CAVS</i> Math program, students use real objects, manipulatives, and technology in each lesson. During the <i>Explore and Learn</i> section of each lesson, children use real objects and manipulatives such as newspapers, computers, interlocking blocks, chairs, maps, coins, measuring cups, rulers, straws, etc. in hands-on, small group, inquiry activities.</p> <p>During the <i>Elaborate</i> section of each lesson, students practice listening to, reading, writing, and speaking each academic vocabulary word with the Radius Audio System™. Children then complete one or more of the small group activities in their Math Journals using the lesson's math vocabulary. Some examples:</p> <p>Lesson 1 – TG pp. 1-6</p> <p><i>How can you put numbers in order?</i></p> <p>Lesson 4 – TG pp. 19-24</p> <p><i>How do we make equal groups?</i></p> <p>Lesson 9 – TG pp. 49-54</p> <p><i>How can math rules help you solve equations?</i></p>
<p><b>5.15 Underlying processes and mathematical tools. The student communicates about Grade 5 mathematics using informal language.</b></p>	
<p>a. explain and record observations using objects, words, pictures, numbers, and technology</p>	<p>Students explain and record observations in each <i>CAVS</i> lesson. They have opportunities to communicate in whole group, small group, and individual/teacher activities. Each section of the lesson includes the following materials:</p> <p><i>Engage</i>: Concept Posters and Math Vocabulary Cards.</p> <p><i>Explore and Learn</i>: Activity Placemats with manipulatives, Record Sheet (Students complete the Record Sheet – many times by drawing pictures or completing charts to record their observations and then discuss the activity and compare observations with classmates).</p> <p><i>Explain</i> Concepts and Vocabulary: Reader Cards and Math</p>
<p>b. relate informal language to mathematical language and symbols</p>	

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	<p>Content Picture Dictionary  <i>Elaborate:</i> Concept Webs, Radius Audio System™ and Math Journals  <i>Evaluate:</i> Interactive Transparencies and Lesson Review sheets            Some examples:            Lesson 3 – TG pp. 13-18  <i>How do we count large amounts?</i></p> <p>Lesson 12 - TG pp. 67-72  <i>How do you measure flat shapes?</i></p> <p>Lesson 21 – TG pp. 121-126  <i>Why do you need information?</i></p>
<b>5.16 Underlying processes and mathematical tools. The student uses logical reasoning.</b>	
<p>a. make generalizations from patterns or sets of examples and nonexamples</p>	<p>Some examples:            Lesson 7 – TG pp. 37-42  <i>What is a pattern?</i></p> <p>Lesson 9 – TG pp. 49-54  <i>How can math rules help you solve equations?</i></p> <p>Lesson 24 – TG pp. 139-144  <i>How can you solve problems?</i></p>
<p>b. justify why an answer is reasonable and explain the solution process</p>	<p>Some examples:            Lesson 22 – TG pp. 127-132  <i>How do you compare facts and information?</i></p> <p>Lesson 23 – TG pp. 133-138  <i>Do you think it will happen?</i></p> <p>Lesson 24 – TG pp. 139-144  <i>How can you solve problems?</i></p>