

Northpoint Horizons

**CAVS (Content Academic Vocabulary System)
Correlated to the
New York State Math Assessment Standards**

Grade 2

This document provides a sampling of the extensive math directives offered throughout the *CAVS* program that meet the New York State Math Assessment Standards.

New York State Math Assessment Standards	CAVS Math Elementary K-2 Teacher's Guide Examples/Lessons
Problem Solving Strand	
Students will build new mathematical knowledge through problem solving.	
2.PS.1 Explore, examine, and make observations about a social problem or mathematical situation	Each <i>CAVS</i> math lesson is developed around 5 Easy Steps: Engage, Explore, Explain, Elaborate, and Evaluate . For each lesson, an Activity Placemat engages students to explore, examine, and make observations for many mathematical situations.
2.PS.2 Interpret information correctly, identify the problem, and generate possible solutions	<i>How much space does it take up?</i> Lesson 13 – TG p. 73
Students will solve problems that arise in mathematics and in other contexts.	
2.PS.3 Act out or model with manipulatives activities involving mathematical content from literature and/or story telling	Any of the Concept Posters (1 through 7) will generate discussions involving mathematical content from story telling. Activities from the Activity Placemats (especially Lessons 3, 5, and 7) encourage students to act out and model mathematical content.
2.PS.4 Formulate problems and solutions from everyday situations (e.g., counting the number of children in the class, using the calendar to teach counting).	<i>When is your birthday?</i> Lesson 10 – TG p. 55 Concept Poster 1
Students will apply and adapt a variety of appropriate strategies to solve problems.	
2.PS.5 Use informal counting strategies to find solutions	<i>How do you count?</i> Lesson 1 – TG p. 1
2.PS.6 Experience teacher-directed questioning process to understand problems	The Engage section of Lessons 1 through 24 in the Teacher's Guide (part of the 5 Easy Steps) provides for teacher-directed questioning for all students.

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2.PS.7 Compare and discuss ideas for solving a problem with teacher and/or students to justify their thinking	The Discuss the Activity section of Lessons 1 through 24 in the Teacher's Guide invites students to discuss activities (Activity Placemats 1 – 24) used in individual/group problem solving. The students are asked to compare their observations.
2.PS.8 Use manipulatives (e.g., tiles, blocks) to model the action in problems	<i>How do you count?</i> Lesson 1 – TG p. 1 <i>How do numbers work together?</i> Lesson 3 – TG p. 13 <i>How are objects the same?</i> Lesson 6 – TG p. 31 <i>How much space does it take up?</i> Lesson 13 – TG p. 73 Activity placemats: 6,13,14,19, 20
2.PS.9 Use drawings/pictures to model the action in problems	Make a Bear Parade - Activity placemat 2 Greater Than/Less Than Game - Activity placemat 3 Dot the Dominos - Activity placemat 4 Make a Sorting Chart - Activity placemat 6
Students will monitor and reflect on the process of mathematical problem solving.	
2.PS.10 Explain to others how a problem was solved, giving strategies and justifications	The Record and Share section of the Record Sheets used in conjunction with each Activity Placemat (1 through 24) allows all students to explain their strategies for problem solving in order to share with others, including their parents.
Reasoning and Proof Strand	
Students will recognize reasoning and proof as fundamental aspects of mathematics.	
2.RP.1 Understand that mathematical statements can be true or false	<i>How are objects the same?</i> Lesson 6 – TG p. 31
2.RP.2 Recognize that mathematical ideas need to be supported by evidence	The Concept Web activity provided for each lesson, 1 through 24, allows for mathematical ideas to be supported through the reinforcement of vocabulary, pictures and discussion. Shape Riddle – Activity Placemat 20
Students will make and investigate mathematical conjectures.	
2.RP.3 Investigate the use of knowledgeable guessing as a mathematical tool	Draw a Cube From the Bag - Activity Placemat 23 Bears in a Bag - Activity Placemat 24 Flip Chart - Lesson 23
2.RP.4 Explore guesses, using a variety of objects and manipulatives	Draw a Cube From the Bag - Activity Placemat 23 Bears in a Bag - Activity Placemat 24
Students will develop and evaluate mathematical arguments and proofs.	
2.RP.5 Justify general claims, using manipulatives	Trade Coins to Make 25 Cents – Activity Placemat 8 Make a Clock – Activity Placemat 9

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2.RP.6 Develop and explain an argument verbally or with objects	The Record and Share activity provided for each lesson encourages students to explain their findings from the accompanying activities verbally as well as with pictures.
2.RP.7 Listen to and discuss claims other students make	In the Teacher's Guide for Lessons 1 – 24, the Discuss the Activity section invites students to discuss the activity and compare observations with guided questions.
Students will select and use various types of reasoning and methods of proof.	
2.RP.8 Use trial and error strategies to verify claims	Compare the Weights of Objects – Activity Placemat 14
Communication Strand	
Students will organize and consolidate their mathematical thinking through communication.	
2.CM.1 Understand how to organize their thought processes with teacher guidance	The Engage section of Lessons 1 through 24, in the Teacher's Guide, provides for whole group discussion with teacher guidance.
2.CM.2 Verbally support their reasoning and answer	Draw and Sort Clothes by the Weather – Activity Placemat 15
Students will communicate their mathematical thinking coherently and clearly to peers, teachers, and others.	
2.CM.3 Share mathematical ideas through the manipulation of objects, drawings, pictures, and verbal explanations	Every Activity Placemat (1 – 24) allows students to Record and Share their findings and observations with partners and classmates.
Students will analyze and evaluate the mathematical thinking and strategies of others.	
2.CM.4 Listen to solutions shared by other students	In the Teacher's Guide for Lessons 1 – 24, the Discuss the Activity section invites students to discuss the activity and compare observations with guided questions.
2.CM.5 Formulate mathematically relevant questions	The Build Background section in the Teacher's Guide for Lessons 1 – 24 supplies various questions for teachers to pose in order to have students formulate their own questions. The Concept Posters and Flip Chart that coincide with these lessons provide additional support.
Students will use the language of mathematics to express mathematical ideas precisely.	
2.CM.6 Use appropriate mathematical terms, vocabulary, and language	Content Academic Vocabulary System (CAVS) stresses vocabulary throughout every lesson with the use of Vocabulary Cards , the Picture Dictionary , the highlighted words on the Flip Chart , and the Concept Web pages provide for vocabulary reinforcement with each lesson. Vocabulary words, appropriate for a Word Wall , are also provided with each lesson in the Teacher's Guide.
Connections Strand	

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Students will recognize and use connections among mathematical ideas.	
2.CN.1 Recognize the connections of patterns in their everyday experiences to mathematical ideas	<i>What makes a pattern?</i> Lesson 7 – TG p. 37
2.CN.2 Understand and use the connections between numbers and the quantities they represent to solve problems	<i>How do you use money?</i> Lesson 8 – TG p. 43
2.CN.3 Compare the similarities and differences of mathematical ideas	<i>How are objects the same?</i> Lesson 6 – TG p. 31
Students will understand how mathematical ideas interconnect and build on one another to produce a coherent whole.	
2.CN.4 Understand how models of situations involving objects, pictures, and symbols relate to mathematical ideas	<i>How much space does it take up?</i> Lesson 13 – TG p. 73 Investigating Space – Activity Placemat 13
2.CN.5 Understand meanings of operations and how they relate to one another	<i>Why do you add numbers?</i> Lesson 4 – TG p. 19 Flip Book – Lesson 4 <i>Why do you subtract numbers?</i> Lesson 5 – TG p. 25 Flip Book – Lesson 5
2.CN.6 Understand how mathematical models represent quantitative relationships	Dot the Dominos – Activity Placemat 4 Compare the Weights of Objects – Activity Placemat 14
Students will recognize and apply mathematics in contexts outside of mathematics.	
2.CN.7 Recognize the presence of mathematics in their daily lives	The Concept Posters (1 through 8) model everyday situations that are recognizable to students involving all aspects of mathematics
2.CN.8 Recognize and apply mathematics to solve problems	<i>How do you use money?</i> Lesson 8 – TG p. 43 <i>How far? How long?</i> Lesson 11 – TG p. 61
2.CN.9 Recognize and apply mathematics to objects, pictures, and symbols	<i>How do you use money?</i> Lesson 8 – TG p. 43 <i>How do you tell how far or how long?</i> Lesson 12 – TG p. 67
Representation Strand	

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Students will create and use representations to organize, record, and communicate mathematical ideas.	
2.R.1 Use multiple representations including verbal and written language, acting out or modeling a situation, drawings, and/or symbols as representations	Dot the Dominos – Activity Placemat 4 Beanbag Subtraction – Activity Placemat 5 Make a Sorting Chart – Activity Placemat 6 Make an Action Pattern – Activity Placemat 7
2.R.2 Share mental images of mathematical ideas and understandings	Students share mental images of mathematical ideas and understanding by completing the Activity Record Sheets that are provided for all lessons (1 through 24).
2.R.3 Use standard and nonstandard representations	<i>How can you show facts?</i> Lesson 22 – TG p. 127
Students will select, apply, and translate among mathematical representations to solve problems.	
2.R.4 Connect mathematical representations with problem solving	<i>How do numbers work together?</i> Lesson 3 – TG p. 13
Students will use representations to model and interpret physical, social, and mathematical phenomena.	
2.R.5 Use mathematics to show and understand physical phenomena (e.g., estimate and represent the number of apples in a tree)	<i>How do we Solve Problems?</i> Lesson 24 – TG p. 139 Bears in a Bag – Activity Placemat 24
2.R.6 Use mathematics to show and understand social phenomena (e.g., count and represent sharing cookies between friends)	<i>How do you count?</i> Lesson 1 – TG p. 1 <i>How do numbers work together?</i> Lesson 3 – TG p. 13 Concept Poster 1
2.R.7 Use mathematics to show and understand mathematical phenomena (e.g., draw pictures to show a story problem, show number value using fingers on your hand)	<i>Why do you add numbers?</i> Flip Book – Lesson 4 <i>Why do you subtract numbers?</i> Flip Book – Lesson 5
Number Sense and Operations Strand	
Students will understand numbers, multiple ways of representing numbers, relationships among numbers, and number systems.	
2.N.1 Skip count to 100 by 2's, 5's, 10's	<i>How can you put numbers in order?</i> CAVS 3 – 5 Lesson 1 – TG p. 1
2.N.2 Count back from 100 by 1's, 5's, 10's using a number chart	<i>How do we count large amounts?</i> CAVS 3 – 5 Lesson 3 – TG p. 13
2.N.3 Skip count by 3's to 36 for multiplication readiness	<i>How do we count large amounts?</i> CAVS 3 – 5 Lesson 3 – TG p. 13
2.N.4 Skip count by 4's to 48 for multiplication	<i>How do we count large amounts?</i> CAVS 3 – 5

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readiness	Lesson 3 – TG p. 13
2.N.5 Compare and order numbers to 100	<i>How can you put numbers in order?</i> CAVS 3 – 5 Lesson 1 – TG p. 1 <i>How do we count large amounts?</i> CAVS 3 – 5 Lesson 3 – TG p. 13
2.N.6 Develop an understanding of the base ten system: 10 ones = 1 ten 10 tens = 1 hundred 10 hundreds = 1 thousand	<i>How can you put numbers in order?</i> CAVS 3 – 5 Lesson 1- TG p. 1 Concept Poster 1
2.N.7 Use a variety of strategies to compose and decompose two-digit numbers	Weather Report – Activity Placemat 1 CAVS 3 – 5 Concept Poster 1 CAVS 3 – 5
2.N.8 Understand and use the commutative property of addition	<i>How can math rules help you solve equations?</i> CAVS 3 – 5 Lesson 9 – TG p. 49
2.N.9 Name the number before and the number after a given number, and name the number(s) between two given numbers up to 100 (with and without the use of a number line or a hundreds chart)	<i>How can you put numbers in order?</i> CAVS 3 – 5 Lesson 1 – TG p. 1
2.N.10 Use and understand verbal ordinal terms	<i>What are some kinds of numbers?</i> Lesson 2 – TG p. 7
2.N.11 Read written ordinal terms (first through ninth) and use them to represent ordinal relations	Make a Bear Parade – Activity Placemat 2 Concept Web 2 “Now Try This” TG p. 11
2.N.12 Use zero as the identity element for addition	<i>How can you put numbers in order?</i> CAVS 3 – 5 Lesson 1- TG p. 1 Concept Web 1 – TG p. 5 Concept Poster 1
2.N.13 Recognize the meaning of zero in the place value system (0-100)	<i>How can you put numbers in order?</i> CAVS 3 – 5 Lesson 1- TG p. 1 Concept Poster 1
2.N.14 Use concrete materials to justify a number as odd or even	Weather Report – Activity Placemat 1 (Record Sheet 1) CAVS 3 - 5 Concept Poster 1 CAVS 3 - 5 Math Vocabulary Cards 3 – 5 CAVS 3 – 5
Students will understand meanings of operations and procedures, and how they relate to one another.	

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2.N.15 Determine sums and differences of number sentences by various means (e.g., families, related facts, inverse operations, addition doubles, and doubles plus one)	<i>How can you put numbers in order?</i> CAVS 3 – 5 Lesson 1- TG p. 1 <i>How do numbers tell a story?</i> CAVS 3 – 5 Lesson 2 – TG p. 7 Concept Web 2 – TG p. 11
2.N.16 Use a variety of strategies to solve addition and subtraction problems using one- and two-digit numbers with and without regrouping	<i>How can you put numbers in order?</i> CAVS 3 – 5 Lesson 1- TG p. 1 <i>How do numbers tell a story?</i> CAVS 3 – 5 Lesson 2 – TG p. 7 Concept Web 2 – TG p. 11
2.N.17 Demonstrate fluency and apply addition and subtraction facts up to and including 18	<i>How can you put numbers in order?</i> CAVS 3 – 5 Lesson 1- TG p. 1
2.N.18 Use doubling to add 2-digit numbers	<i>How do numbers tell a story?</i> CAVS 3 – 5 Lesson 2 – TG p. 7
2.N.19 Use compensation to add 2-digit numbers	<i>How do numbers tell a story?</i> CAVS 3 – 5 Lesson 2 – TG p. 7
2.N.20 Develop readiness for multiplication by using repeated addition	<i>Why do you add numbers?</i> Lesson 4 – TG p. 19
2.N.21 Develop readiness for division by using repeated subtraction, dividing objects into groups (fair share)	<i>Why do you subtract numbers?</i> Lesson 5 – TG p. 25
Students will compute accurately and make reasonable estimates.	
2.N.22 Estimate the number in a collection to 100 and then compare by counting the actual items in the collection	Colorful Creations – Activity Placemat 6 CAVS 3 – 5 Concept Poster 1 CAVS 3 – 5
Algebra Strand	
Students will perform algebraic procedures accurately.	
2.A.1 Use the symbols $<$, $>$, $=$ (with and without the use of a number line) to compare whole numbers up to 100	<i>How do numbers work together?</i> Lesson 3 – TG p. 13
Students will recognize, use, and represent algebraically patterns, relations, and functions.	
2.A.2 Describe and extend increasing or decreasing (+, -) sequences and patterns (numbers or objects up to 100)	<i>What makes a pattern?</i> Lesson 7 – TG p. 37
Geometry Strand	

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Students will use visualization and spatial reasoning to analyze characteristics and properties of geometric shapes.	
2.G.1 Experiment with slides, flips, and turns to compare two-dimensional shapes	<i>How can you change shapes?</i> Lesson 21 – TG p. 121
2.G.2. Identify and appropriately name two-dimensional shapes: circle, square, rectangle, and triangle (both regular and irregular)	<i>What are some common shapes?</i> Lesson 19 – TG p. 109 Flip Book - Lesson 19 and 20
2.G.3 Compose (put together) and decompose (break apart) two-dimensional shapes	<i>How can you describe shapes?</i> Lesson 20 – TG p. 115 Create a Creature – Activity Placemat 19 Flip Book – Lesson 19
Students will identify and justify geometric relationships, formally and informally.	
2.G.4 Group objects by like properties	Make a Sorting Chart – Activity Placemat 6 Concept Poster 3
Students will apply transformations and symmetry to analyze problem solving situations.	
2.G.5 Explore and predict the outcome of slides, flips, and turns of two dimensional shapes	<i>How can you change shapes?</i> Lesson 21 – TG p. 121 Flip Book – Lesson 21
2.G.6 Explore line symmetry	<i>How do we draw different shapes?</i> CAVS 3 – 5 Lesson 18 – TG p. 103
Measurement Strand	
Students will determine what can be measured and how, using appropriate methods and formulas.	
2.M.1 Use non-standard and standard units to measure both vertical and horizontal lengths	Make an Inch Book and a Foot Book – Activity Placemat 12 Make a Maze – Activity Placemat 18
2.M.2 Use a ruler to measure standard units (including whole inches and whole feet)	<i>How do you tell how far or how long?</i> Lesson 12 – TG p. 67 Make an Inch Book and a Foot Book – Activity Placemat 12
2.M.3 Compare and order objects according to the attribute of length	<i>How do you tell how far or how long?</i> Lesson 12 – TG p. 67
2.M.4 Recognize mass as a qualitative measure (e.g., Which is heavier? Which is lighter?)	<i>How much does it weigh?</i> Lesson 14 – TG p. 79 Compare the Weights of Objects – Activity Placemat 14 Flip Chart - Lesson 14

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2.M.5 Compare and order objects, using lighter than and heavier than	Compare the Weights of Objects – Activity Placemat 14 Flip Chart - Lesson 14
Students will use units to give meaning to measurements.	
2.M.6 Know and recognize coins (penny, nickel, dime, quarter) and bills (\$1, \$5, \$10, and \$20)	<i>How do you use money?</i> Lesson 8 – TG p. 43 Flip Chart – Lesson 8
2.M.7 Recognize the whole dollar notation as \$1, etc.	Flip Chart – Lesson 8
2.M.8 Identify equivalent combinations to make one dollar	Comparing Coins – Activity Placemat 5 CAVS 3 - 5
2.M.9 Tell time to the half hour and five minutes using both digital and analog clocks	<i>How do you tell time?</i> Lesson 9 – TG p. 49 Make a Clock – Activity Placemat – Lesson 9
Students will develop strategies for estimating measurements.	
2.M.10 Select and use standard (customary) and non-standard units to estimate measurements	<i>How far? How long?</i> Lesson 11 – TG p. 61 Wrap and Compare Boxes – Activity Placemat 11
Statistics and Probability Strand	
Students will collect, organize, display, and analyze data.	
2.S.1 Formulate questions about themselves and their surroundings	Any of the Concept Posters (especially 4, 5, 6, and 8) will generate discussions allowing students to formulate questions about themselves and their surroundings.
2.S.2 Collect and record data (using tallies) related to the question	Draw a Cube from the Bag – Activity Placemat – 23 <i>Why do you need information?</i> CAVS 3 - 5 Lesson 21 – TG p. 121
2.S.3 Display data in pictographs and bar graphs using concrete objects or a representation of the object	<i>How can you show facts?</i> Lesson 22 – TG p. 127
2.S.4 Compare and interpret data in terms of describing quantity (similarity or differences)	Make a Sorting Chart – Activity Placemat 6
Students will make predictions that are based upon data analysis.	
2.S.5 Discuss conclusions and make predictions from graphs	<i>What do you think will happen?</i> Lesson 23 – TG p. 133