

Northpoint Horizons
CAVS (Content Academic Vocabulary System)
Correlated to the
New York State Mathematic Assessment Standards

Grade 3

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 Grade 3-5 Teacher's Guide Examples/Lessons
Problem Solving Strand	
Students will build new mathematical knowledge through problem solving.	
3.PS.1 Explore, examine, and make observations about a social problem or mathematical situation	The CAVS 3 – 5 Concept Posters (1 through 8) allow for whole group discussions pertaining to different mathematical situations. These posters serve as visuals to help the teacher engage the students. They are encouraged to explore, examine, and make observation about each scene.
3.PS.2 Understand that some ways of representing a problem are more helpful than others	<i>How can you solve problems?</i> Lesson 24 – TG p. 139
3.PS.3 Interpret information correctly, identify the problem, and generate possible solutions	<i>How can you solve problems?</i> Lesson 24 – TG p. 139
Students will solve problems that arise in mathematics and in other contexts.	
3.PS.4 Act out or model with manipulatives activities involving mathematical content from literature	The Activity Placemats (1- 24) and Reader Cards (B) (1 – 24) provide for activities with and without manipulatives that engage students and encourage them to explore and learn. Any of these activities could be tied to literature.
3.PS.5 Formulate problems and solutions from everyday situations	Weather Report – Activity Placemat 1 Sorting Circles – Activity Placemat 21 City Populations – Activity Placemat 22
3.PS.6 Translate from a picture/diagram to a numeric expression	Pick a Counter – Activity Placemat 2 Arranging Chairs – Activity Placemat 3

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3.PS.7 Represent problem situations in oral, written, concrete, pictorial, and graphical forms	All Activity Placemats , lessons 1 – 24, allow for students to Observe, Record, and Share their findings. Record and Share Sheets are available for every lesson and found in the teacher's guide.
3.PS.8 Select an appropriate representation of a problem	<i>Why do you need information?</i> Lesson 21 – TG p. 121
Students will apply and adapt a variety of appropriate strategies to solve problems.	
3.PS.9 Use trial and error to solve problems	<i>How can you solve problems?</i> Lesson 24 – TG p. 139
3.PS.10 Use process of elimination to solve problems	<i>How can you solve problems?</i> Lesson 24 – TG p. 139 see Lesson Review p. 144
3.PS.11 Make pictures/diagrams of problems	<i>Why do you need information?</i> Lesson 21 – TG p. 121
3.PS.12 Use physical objects to model problems	Making 4-Sided Shapes - Activity Placemat 16 Straw Triangles - Activity Placemat 17 Sorting Circles - Activity Placemat 21
3.PS.13 Work in collaboration with others to solve problems	All Activity Placemats allow students to work with a partner or in a small group for purposes of collaboration.
3.PS.14 Make organized lists to solve numerical problems	Vacation Plans - Activity Placemat 4 What's the Same? - Activity Placemat 18
3.PS.15 Make charts to solve numerical problems	Comparing Coins - Activity Placemat 5 Colorful Creations - Activity Placemat 6
3.PS.16 Analyze problems by identifying relationships	Quick Thinking - Activity Placemat 9 Measuring Space - Activity Placemat 12 Measuring Volume - Activity Placemat 13
3.PS.17 Analyze problems by identifying relevant versus irrelevant information	Is It Relevant? - Activity Placemat 24
3.PS.18 Analyze problems by observing patterns	<i>What is a pattern?</i> Lesson 7 – TG p. 37 Class Quilt - Activity Placemat 7
3.PS.19 State a problem in their own words	<i>How do numbers tell a story?</i> Lesson 2 – TG p. 7
Students will monitor and reflect on the process of mathematical problem solving.	
3.PS.20 Determine what information is needed to solve a problem	<i>How can you solve problems?</i> Lesson 24 – TG p. 139 See Concept Web 24

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3.PS.21 Discuss with peers to understand a problem situation	<i>How can you solve problems?</i> Lesson 24 – TG p. 139 See Record Sheet 24
3.PS.22 Discuss the efficiency of different representations of a problem	<i>Why do you need information?</i> Lesson 21 – TG p. 121
3.PS.23 Verify results of a problem	<i>How can you solve problems?</i> Lesson 24 – TG p. 139 See Lesson Review 24
3.PS.24 Recognize invalid approaches	<i>How can you solve problems?</i> Lesson 24 – TG p. 139
3.PS.25 Determine whether a solution is reasonable in the context of the original problem	<i>How can you solve problems?</i> Lesson 24 – TG p. 139
Reasoning and Proof Strand	
Students will recognize reasoning and proof as fundamental aspects of mathematics.	
3.RP.1 Use representations to support mathematical ideas	<i>How do numbers tell a story?</i> Lesson 2 – TG p. 7 Pick a Counter – Activity Placemat 2 Arranging Chairs - Activity Placemat 3
3.RP.2 Determine whether a mathematical statement is true or false and explain why	<i>Do you think it will happen?</i> Lesson 23 – TG p. 133
Students will make and investigate mathematical conjectures.	
3.RP.3 Investigate the use of knowledgeable guessing by generalizing mathematical ideas	<i>How can you solve problems?</i> Lesson 24 – TG p. 139
3.RP.4 Make conjectures from a variety of representations	<i>How can you solve problems?</i> Lesson 24 – TG p. 139
Students will develop and evaluate mathematical arguments and proofs.	
3.RP.5 Justify general claims or conjectures, using manipulatives, models, and expressions	Guess and Measure – Activity Placemat 14
3.RP.6 Develop and explain an argument using oral, written, concrete, pictorial, and/or graphical forms	<i>How do you compare facts and information?</i> Lesson 22 – TG p. 127
3.RP.7 Discuss, listen, and make comments that support or reject claims made by other students	Making Predictions – Activity Placemat 23 (see Share section)
Students will select and use various types of reasoning and methods of proof.	
3.RP.8 Support an argument by trying many cases	<i>How do you compare facts and information?</i> Lesson 22 – TG p. 127

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Communication Strand	
Students will organize and consolidate their mathematical thinking through communication.	
3.CM.1 Understand and explain how to organize their thought process	<i>Why do you need information?</i> Lesson 21 – TG p. 121
3.CM.2 Verbally explain their rationale for strategy selection	<i>How can you solve problems?</i> Lesson 24 – TG p. 139
3.CM.3 Provide reasoning both in written and verbal form	The Activity Placemats , lessons 1 through 24, provide for students to express their mathematical reasoning in both written (Journal and Record) and verbal (Share) forms.
Students will communicate their mathematical thinking coherently and clearly to peers, teachers, and others.	
3.CM.4 Organize and accurately label work	Sorting Circles – Activity Placemat 21
3.CM.5 Share organized mathematical ideas through the manipulation of objects, drawings, pictures, charts, graphs, tables, diagrams, models, symbols, and expressions in written and verbal form	<i>Why do you need information?</i> Lesson 21 – TG p. 121
3.CM.6 Answer clarifying questions from others	Under Explore and Learn (TG) there is Discuss the Activity for every lesson. Students can pose questions related to their own questions or to those of others and also reflect upon the answers.
Students will analyze and evaluate the mathematical thinking and strategies of others.	
3.CM.7 Listen for understanding of mathematical solutions shared by other students	Under Explore and Learn (TG) there is Discuss the Activity for every lesson. Students can pose questions related to their own questions or to those of others and also reflect upon the answers.
3.CM.8 Consider strategies used and solutions found in relation to their own work	<i>How can you solve problems?</i> Lesson 24 – TG p. 139
Students will use the language of mathematics to express mathematical ideas precisely.	
3.CM.9 Increase their use of mathematical vocabulary and language when communicating with others	Content Academic Vocabulary System (CAVS) stresses vocabulary throughout every lesson with the use of Vocabulary Cards , the Picture Dictionary , the Reader Cards Level B , 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.
3.CM.10 Describe objects, relationships, solutions and rationale using appropriate vocabulary	Reader Cards Level B – Lessons 1 – 24 Vocabulary Cards – Lessons 1 – 24 Concept Webs (TG) – Lessons 1 - 24

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3.CM.11 Decode and comprehend mathematical visuals and symbols to construct meaning	<i>How do numbers tell a story?</i> Lesson 2 – TG p. 7
Connections Strand	
Students will recognize and use connections among mathematical ideas.	
3.CN.1 Recognize, understand, and make connections in their everyday experiences to mathematical ideas	Weather Report - Activity Placemat 1 Arranging Chairs - Activity Placemat 3 Vacation Plans - Activity Placemat 4
3.CN.2 Compare and contrast mathematical ideas	What's the Same? - Activity Placemat 18 What Am I? - Activity Placemat 19
3.CN.3 Connect and apply mathematical information to solve problems	The Reader Cards Level B for lessons 1 through 24 allow students to connect and apply mathematical information when they reflect in their journals to question posed in the Make Connections section.
Students will understand how mathematical ideas interconnect and build on one another to produce a coherent whole.	
3.CN.4 Understand multiple representations and how they are related	Sorting Circles – Activity Placemat 21
3.CN.5 Model situations with objects and representations and be able to make observations	Arranging Chairs - Activity Placemat 3
Students will recognize and apply mathematics in contexts outside of mathematics.	
3.CN.6 Recognize the presence of mathematics in their daily lives	Weather Report - Activity Placemat 1 Arranging Chairs - Activity Placemat 3 Vacation Plans - Activity Placemat 4
3.CN.7 Apply mathematics to solve problems that develop outside of mathematics	Making Predictions - Activity Placemat 23
3.CN.8 Recognize and apply mathematics to other disciplines	Vacation Plans - Activity Placemat 4 Passing Time - Activity Placemat 15
Representation Strand	
Students will create and use representations to organize, record, and communicate mathematical ideas.	
3.R.1 Use verbal and written language, physical models, drawing charts, graphs, tables, symbols, and equations as representations	<i>How do numbers tell a story?</i> Lesson 2 – TG p. 7 Pick a Counter - Activity Placemat 2
3.R.2 Share mental images of mathematical ideas and	Every activity, corresponding to the Activity Placemats 1

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understandings	through 24, encourages the students to Share (section 5) their findings with others. Lesson plans in the Teacher's Guide for lessons 1 through 24 have specific questions in the Discuss the Activity section.
3.R.3 Recognize and use external mathematical representations	Weather Report - Activity Placemat 1
3.R.4 Use standard and nonstandard representations with accuracy and detail	Pick a Counter - Activity Placemat 2
Students will select, apply, and translate among mathematical representations to solve problems.	
3.R.5 Understand similarities and differences in representations	Pick a Counter - Activity Placemat 2 Comparing Coins - Activity Placemat 5
3.R.6 Connect mathematical representations with problem solving	<i>How do numbers tell a story?</i> Lesson 2 – TG p. 7
3.R.7 Construct effective representations to solve problems	<i>How do numbers tell a story?</i> Lesson 2 – TG p. 7
Students will use representations to model and interpret physical, social, and mathematical phenomena.	
3.R.8 Use mathematics to show and understand physical phenomena (e.g., estimate and represent the number of apples in a tree)	<i>How can you put numbers in order?</i> Lesson 1 – TG p. 1 Concept Posters 1,2,3
3.R.9 Use mathematics to show and understand social phenomena (e.g., determine the number of buses required for a field trip)	<i>How do we make equal groups?</i> Lesson 4 – TG p. 19 Concept Posters 1,2,3
3.R.10 Use mathematics to show and understand mathematical phenomena (e.g., use a multiplication grid to solve odd and even number problems)	<i>How do we count large amounts?</i> Lesson 3 – TG p. 13
Number Sense and Operations Strand	
Students will understand numbers, multiple ways of representing numbers, relationships among numbers, and number systems.	
3.N.1 Skip count by 25's, 50's, 100's to 1,000	<i>How can you put numbers in order?</i> Lesson 1 – TG p. 1 Concept Posters 1,2,3
3.N.2 Read and write whole numbers to 1,000	<i>How can you put numbers in order?</i> Lesson 1 – TG p. 1 Concept Posters 1,2,3
3.N.3 Compare and order numbers to 1,000	<i>How can you put numbers in order?</i>

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	Lesson 1 – TG p. 1 City Populations – Activity Placemat 22 Concept Posters 1,2,3
3.N.4 Understand the place value structure of the base ten number system: 10 ones = 1 ten, 10 tens = 1 hundred, 10 hundreds = 1 thousand	<i>How can you put numbers in order?</i> Lesson 1 – TG p. 1 City Populations – Activity Placemat 22 Reader Card – Lesson 1 Concept Posters 1,2,3
3.N.5 Use a variety of strategies to compose and decompose three-digit numbers	<i>How do numbers tell a story?</i> Lesson 2 – TG p. 7
3.N.6 Use and explain the commutative property of addition and multiplication	<i>How can math rules help you solve equations?</i> Lesson 9 – TG p. 49
3.N.7 Use 1 as the identity element for multiplication	<i>How can math rules help you solve equations?</i> Lesson 9 – TG p. 49
3.N.8 Use the zero property of multiplication	<i>How can math rules help you solve equations?</i> Lesson 9 – TG p. 49
3.N.9 Understand and use the associative property of addition	<i>How can math rules help you solve equations?</i> Lesson 9 – TG p. 49
3.N.10 Develop an understanding of fractions as part of a whole unit and as parts of a collection	<i>How do you show that a number is not a whole?</i> Lesson 5 – TG p. 25 Concept Web – Lesson 5
3.N.11 Use manipulatives, visual models, and illustrations to name and represent unit fractions $\frac{1}{2}, \frac{1}{3}, \frac{1}{4}, \frac{1}{5}, \frac{1}{6}$, and $\frac{1}{10}$ as part of a whole or a set of objects	<i>How do you show that a number is not a whole?</i> Lesson 5 – TG p. 25 Concept Web – Lesson 5 Reader Card 5 – Lesson 5 Math Vocabulary Cards 22 - 26
3.N.12 Understand and recognize the meaning of numerator and denominator in the symbolic form of a fraction	<i>How do you show that a number is not a whole?</i> Lesson 5 – TG p. 25 Concept Web – Lesson 5 Reader Card – Lesson 5 Math Vocabulary Cards 22 – 26 Concept Poster 2
3.N.13 Recognize fractional numbers as equal parts of a	<i>How do you show that a number is not a whole?</i>

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whole	Lesson 5 – TG p. 25 Concept Web – Lesson 5 Reader Card – Lesson 5 Math Vocabulary Cards 22 - 26 Reader Cards – Lesson 5 and 6
3.N.14 Explore equivalent fractions ($\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$)	<i>How do you show that a number is not a whole?</i> Lesson 5 – TG p. 25 Concept Web – Lesson 5 Reader Card – Lesson 5 Math Vocabulary Cards 22 - 26 Reader Cards – Lesson 5 and 6
3.N.15 Compare and order unit fractions ($\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$) and find their approximate locations on a number line	<i>How else can you show less than one whole?</i> Lesson 6 – TG p. 31 Reader Card – Lesson 5
3.N.16 Identify odd and even numbers	<i>How can you put numbers in order?</i> Lesson 1 – TG p. 1 Concept Web 1 Reader Card – Lesson 1 Concept Posters 1,2,3
3.N.17 Develop an understanding of the properties of odd/even numbers as a result of addition or subtraction	<i>How do numbers tell a story?</i> Lesson 2 – TG p. 7 Reader Card – Lesson 1
Students will understand meanings of operations and procedures, and how they relate to one another.	
3.N.18 Use a variety of strategies to add and subtract 3-digit numbers (with and without regrouping)	<i>How do numbers tell a story?</i> Lesson 2 – TG p. 7 Vacation Plans - Activity Placemat 4
3.N.19 Develop fluency with single-digit multiplication facts	<i>How do we count large amounts?</i> Lesson 3 – TG p. 13 Concept Poster 3
3.N.20 Use a variety of strategies to solve multiplication problems with factors up to 12 x 12	<i>How do we count large amounts?</i> Lesson 3 – TG p. 13 Arranging Chairs - Activity Placemat 3 Concept Poster 3
3.N.21 Use the area model, tables, patterns, arrays, and doubling to provide meaning for multiplication	Arranging Chairs - Activity Placemat 3 Quick Thinking – Activity Placemat 9
3.N.22 Demonstrate fluency and apply single-digit	<i>How do we make equal groups?</i>

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division facts	Lesson 4 TG – p. 19 Reader Card – Lesson 4
3.N.23 Use tables, patterns, halving, and manipulatives to provide meaning for division	<i>How do we make equal groups?</i> Lesson 4 TG – p. 19 Reader Card – Lesson 4
3.N.24 Develop strategies for selecting the appropriate computational and operational method in problem solving situations	<i>How can you solve problems?</i> Lesson 24 – TG p. 139 Math Vocabulary Cards 114 - 117
Students will compute accurately and make reasonable estimates.	
3.N.25 Estimate numbers up to 500	<i>How can you put numbers in order?</i> Lesson 1 – TG p. 1 Concept Poster 1
3.N.26 Recognize real world situations in which an estimate (rounding) is more appropriate	Concept Poster 1
3.N.27 Check reasonableness of an answer by using estimation	<i>How can you put numbers in order?</i> Lesson 1 – TG p. 1
Algebra Strand	
Students will perform algebraic procedures accurately.	
3.A.1 Use the symbols $<$, $>$, $=$ (with and without the use of a number line) to compare whole numbers and unit fractions $\left(\frac{1}{2}, \frac{1}{3}, \frac{1}{4}, \frac{1}{5}, \frac{1}{6}, \text{ and } \frac{1}{10} \right)$	<i>How do you show that a number is not a whole?</i> Lesson 5 – TG p. 25 Concept Web – Lesson 5 Reader Card – Lesson 5 <i>How else can you show less than one whole?</i> Lesson 6 – TG p. 31 Math Vocabulary Cards 22 - 26
Students will recognize, use, and represent algebraically patterns, relations, and functions.	
3.A.2 Describe and extend numeric (+, -) and geometric patterns	<i>What is a pattern?</i> Lesson 7 – TG p. 37 Class Quilt - Activity Placemat 7
Geometry Strand	
Students will use visualization and spatial reasoning to analyze characteristics and properties of geometric shapes.	
3.G.1 Define and use correct terminology when referring to shapes (circle, triangle, square, rectangle, rhombus, trapezoid, and hexagon)	<i>How do we describe shapes with straight sides?</i> Lesson 16 – TG p. 91 <i>How do we describe shapes with three sides?</i> Lesson 17 – TG p. 97

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	Straw Triangles – Activity Placemat 17 Reader Cards – Lesson 16, 17 Concept Poster 5
3.G.2 Identify congruent and similar figures	<i>How do we draw different shapes?</i> Lesson 18 – TG p. 103 What's the Same? - Activity Placemat 18
3.G.3 Name, describe, compare, and sort three-dimensional shapes: cube, cylinder, sphere, prism, and cone	<i>What attributes do solid shapes share?</i> Lesson 19 – TG p. 109 What am I? – Activity Placemat 19 Concept Poster 6
3.G.4 Identify the faces on a three-dimensional shape as two-dimensional shapes	<i>What attributes do solid shapes share?</i> Lesson 19 – TG p. 109 Reader Card – Lesson 19
Students will apply transformations and symmetry to analyze problem solving situations.	
3.G.5 Identify and construct lines of symmetry	<i>How do we draw different shapes?</i> Lesson 18 – TG p. 103 Lesson Review (TG) 18 Reader Card – Lesson 18
Measurement Strand	
Students will determine what can be measured and how, using appropriate methods and formulas.	
3.M.1 Select tools and units (customary) appropriate for the length measured	<i>What do you use to measure things?</i> Lesson 10 – TG p. 55
3.M.2 Use a ruler/yardstick to measure to the nearest standard unit (whole and ½ inches, whole feet, and whole yards)	<i>How do you measure flat shapes?</i> Lesson 12 – TG p. 67 Measuring Space – Activity Placemat 12
3.M.3 Measure objects, using ounces and pounds	Concept Poster 4 Reader Card – Lesson 10
3.M.4 Recognize capacity as an attribute that can be measured	Measuring Volume – Activity Placemat 13
3.M.5 Compare capacities (e.g., Which contains more? Which contains less?)	Measuring Volume – Activity Placemat 13
3.M.6 Measure capacity, using cups, pints, quarts, and gallons	Concept Poster 4 Reader Card – Lesson 10
Students will use units to give meaning to measurements.	

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3.M.7 Count and represent combined coins and dollars, using currency symbols (\$0.00)	Comparing Coins – Activity Placemat 5
3.M.8 Relate unit fractions to the face of the clock: Whole = 60 minutes, $\frac{1}{2}$ = 30 minutes, $\frac{1}{4}$ = 15 minutes	Reader Card – Lesson 15
Students will develop strategies for estimating measurements.	
3.M.9 Tell time to the minute, using digital and analog clocks	<i>How long does it take?</i> Lesson 15 – TG p. 85 Passing Time – Activity Placemat 15 Reader Card – Lesson 15 Concept Poster 4
3.M.10 Select and use standard (customary) and non-standard units to estimate measurements	<i>What do you use to measure things?</i> Lesson 10 – TG p. 55 Measure a Jump – Activity Placemat 10
Statistics and Probability Strand	
Students will collect, organize, display, and analyze data.	
3.S.1 Formulate questions about themselves and their surroundings	<i>Why do you need information?</i> Lesson 21 – TG p. 121 Reader Card – Lesson 22
3.S.2 Collect data using observation and surveys, and record appropriately	<i>Why do you need information?</i> Lesson 21 – TG p. 121 Reader Card – Lesson 22
3.S.3 Construct a frequency table to represent a collection of data	
3.S.4 Identify the parts of pictographs and bar graphs	<i>Why do you need information?</i> Lesson 21 – TG p. 121 Transparency 21 Reader Card – Lesson 22
3.S.5 Display data in pictographs and bar graphs	<i>Why do you need information?</i> Lesson 21 – TG p. 121 Reader Card – Lesson 22
3.S.6 State the relationships between pictographs and bar graphs	<i>Why do you need information?</i> Lesson 21 – TG p. 121 Reader Card – Lesson 22 Math Vocabulary Cards 97 – 105
3.S.7 Read and interpret data in bar graphs and pictographs	Concept Poster 7

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Students will make predictions that are based upon data analysis.	
3.S.8 Formulate conclusions and make predictions from graphs	Concept Poster 7