

Alternate Academic Achievement Standards for Mathematics – Kindergarten

The West Virginia Alternate Academic Achievement Standards for Mathematics are written for students with significant cognitive disabilities with the understanding that the student’s IEP will determine appropriate accommodations and modifications. In addition to the accommodations and modifications listed on the student’s IEP, teacher selected scaffolding, guidance, and support are appropriate to best meet the individual student needs with increasing challenge as the learning progresses.

All West Virginia teachers are responsible for classroom instruction that integrates content standards, mathematical habits of mind, learning skills, and technology tools. The following chart represents the concepts that will be developed in mathematics in kindergarten:

Counting and Cardinality	Operations and Algebraic Thinking
<ul style="list-style-type: none"> Count objects to tell how many there are by ones and by tens. Compare two groups of objects to tell which group, if either, has more; compare two written numbers to tell which is greater. Group pennies. 	<ul style="list-style-type: none"> Understand addition as putting together and adding to. Understand subtraction as taking apart and taking from. Add and subtract very small numbers quickly and accurately (e.g., $3 + 1$).
Measurement and Data	Geometry
<ul style="list-style-type: none"> Describe and compare objects as longer, shorter, larger, smaller, etc. Classify objects and count the number of objects in each category. 	<ul style="list-style-type: none"> Recognize shapes Name shapes correctly regardless of orientation or size.

Counting and Cardinality

Cluster	Know number names and the count sequence.
A.M.K.1	Starting with one, count to ten by ones using concrete objects.
A.M.K.2	Using five objects, count forward beginning from a given number within the known sequence.
A.M.K.3	Recognize or trace numbers from 1 to 5. Represent a number of objects with a written numeral 0-5 (with 0 representing a count of no objects).

Cluster	Count to tell the number of objects.
A.M.K.4	Demonstrate one-to-one correspondence (one number for each item) by counting each of up to five items only once.
A.M.K.5	Count and tag/label up to five items from a larger set.

Cluster	Compare numbers.
A.M.K.6	When presented two groups of objects, identify whether the number of up to five objects is more than, less than, or equal to the number of objects in another

	group.
A.M.K.7	Compare two numbers between 1 and 5 presented as written numerals.

Operations and Algebraic Thinking

Cluster	Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.
A.M.K.8	Solve addition and subtraction word problems and add and subtract within 5 by using objects or drawings to represent the problem.
A.M.K.9	Decompose numbers less than or equal to 5 into pairs in more than one way by using objects or drawings.
A.M.K.10	For any number from 1 to 4, find the number that makes 5 when added to the given number by using objects or drawings, and record the answer with an object or drawing.
A.M.K.11	Add and subtract within 5 using objects or drawings.

Measurement and Data

Cluster	Describe and compare measurable attributes.
A.M.K.12	Demonstrate an understanding of attributes of objects (big/small, heavy/light).
A.M.K.13	Compare two objects according to attributes (big/small, heavy/light).

Cluster	Classify objects and count the number of objects in each category.
A.M.K.14	Sort objects according to attributes (big/small, heavy/light).

Geometry

Cluster	Identify and describe shapes (squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, and spheres).
A.M.K.15	Using manipulatives, sort shapes by color, shape, and/or size.
A.M.K.16	Match shapes of same size and orientation (circle, square, rectangle, triangle).
A.M.K.17	Given choices from a selection, identify shapes found in real-life objects (circle, square, rectangle, and triangle).

Cluster	Analyze, compare, create and compose shapes.
A.M.K.18	With scaffolding and support, model shapes in the world by building shapes from components (e.g., sticks and clay balls) or drawing shapes.

Alternate Academic Achievement Standards for Mathematics – Grade 1

The West Virginia Alternate Academic Achievement Standards for Mathematics are written for students with significant cognitive disabilities with the understanding that the student’s IEP will determine appropriate accommodations and modifications. In addition to the accommodations and modifications listed on the student’s IEP, teacher selected scaffolding, guidance, and support are appropriate to best meet the individual student needs with increasing challenge as the learning progresses.

All West Virginia teachers are responsible for classroom instruction that integrates content standards, mathematical habits of mind, learning skills, and technology tools. The following chart represents the concepts that will be developed in mathematics in first grade:

Operations and Algebraic Thinking	Number and Operations in Base Ten
<ul style="list-style-type: none"> Solve addition and subtraction word problems in situations of adding to, taking from, putting together, taking apart, and comparing (e.g., a taking from situation would be: “Five apples were on the table. I ate some apples. Then there were three apples. How many apples did I eat?”). Add fluently with a sum of 5 or less, and accurately subtract from a number 5 or less (e.g., $2 + 5$, $7 - 5$). Understanding the relationship between addition and subtraction. 	<ul style="list-style-type: none"> Understand what the digits mean in two-digit numbers (place value). Use understanding of place value and properties of operations to add and subtract. Organize data.
Measurement and Data	Geometry
<ul style="list-style-type: none"> Measure lengths of objects by using a shorter object as a unit of length. Tell and write time. 	<ul style="list-style-type: none"> Make composite shapes by joining shapes together, and dividing circles and rectangles into halves.

Operations and Algebraic Thinking

Cluster	Represent and solve problems involving addition and subtraction.
A.M.1.1	Use manipulatives to add and/or subtract within ten.
A.M.1.2	Solve word problems involving situations of adding to, taking from, putting together, taking apart and/or comparing.

Cluster	Understand and apply properties of operations and the relationship between addition and subtraction.
A.M.1.3	Understand the Commutative Property of Addition using manipulatives (e.g., two objects put together with three objects is equivalent to three objects put together with two objects).

A.M.1.4	Using manipulatives, from a given number of objects, determine the number of objects needed to make five objects.
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Cluster	Add and subtract within 20.
A.M.1.5	Use manipulatives or visual representations to indicate the number that results when adding one more. Apply knowledge of “one less” to subtract one from a number.
A.M.1.6	Add or subtract within five, demonstrating fluency for addition or subtraction within five and using strategies such as <ul style="list-style-type: none"> • counting on; • making five (e.g., $1 + 4 = 3 + 2 = 2 + 3$ or $4 + 1 = 5 + 0 = 0 + 5 = 5$); • decomposing a number leading to a five.

Cluster	Work with addition and subtraction equations.
A.M.1.7	Understand the concept of equivalence (e.g., two objects put together with three objects is equivalent to four object put together with one object).

Number and Operations in Base Ten

Cluster	Extend the counting sequence.
A.M.1.8	Starting with one, count to fifteen by ones using concrete objects. Recognize or trace numbers from 1 to 15. Represent a number of objects with a written numeral 0-15 (with 0 representing a count of no objects).

Cluster	Understand place value.
A.M.1.9	Create sets of ten.
A.M.1.10	When presented two groups of objects, identify whether the number of up to ten objects is more than, less than, or equal to the number of objects in another group.

Cluster	Use place value understanding and properties of operations to add and subtract.
A.M.1.11	Add within 10, using concrete models or drawings.
A.M.1.12	Using manipulatives to add and/or subtract within ten.

Measurement and Data

Cluster	Measure lengths indirectly and by iterating length units.
A.M.1.13	Order three objects by length.
A.M.1.14	Compare lengths to identify which is longer/shorter, taller/shorter.

Cluster	Tell and write time.
A.M.1.15	Determine multiple measures of time. <ul style="list-style-type: none"> • Demonstrate an understanding of the terms tomorrow, yesterday, and today. • Demonstrate an understanding of the terms morning, afternoon, day, and night.

	<ul style="list-style-type: none"> • Identify activities that come before, next, and after. • Demonstrate an understanding that certain activities (lunch, recess, etc.) occur at the same time daily.
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Cluster	Represent and interpret data.
A.M.1.16	Organize data into categories by sorting.

Geometry

Cluster	Reason with shapes and their attributes.
A.M.1.17	Sort shapes based on attributes.
A.M.1.18	Put together shapes to make a different shape.
A.M.1.19	Decompose a shape (circle and square) into 2 equal parts.

Alternate Academic Achievement Standards for Mathematics – Grade 2

The West Virginia Alternate Academic Achievement Standards for Mathematics are written for students with significant cognitive disabilities with the understanding that the student's IEP will determine appropriate accommodations and modifications. In addition to the accommodations and modifications listed on the student's IEP, teacher selected scaffolding, guidance, and support are appropriate to best meet the individual student needs with increasing challenge as the learning progresses.

All West Virginia teachers are responsible for classroom instruction that integrates content standards, mathematical habits of mind, learning skills, and technology tools. The following chart represents the concepts that will be developed in mathematics in second grade:

Operations and Algebraic Thinking	Numbers and Operations in Base Ten
<ul style="list-style-type: none"> Solve addition and subtraction word problems within ten. Fluently add with a sum of 10 or less and know all sums of one-digit numbers from memory by the end of the year. Work with equal groups of objects to gain foundations for multiplication. Understand the concept of even and odd numbers as having equal and unequal sets. 	<ul style="list-style-type: none"> Count orally within 20 using objects to represent tens and ones. Skip count numbers by 5s and 10s up to 30. Write numbers up to 30. Use objects and numbers to add and subtract within 20.
Measurement and Data	Geometry
<ul style="list-style-type: none"> Measure objects with non-standard units of measurement. Choose appropriate measurement tools. Work with time and money Organize data with graphs. 	<ul style="list-style-type: none"> Build, draw, and analyze 2-D and 3-D shapes to develop foundations for area, volume, and geometry in later grades. Divide shapes into equal shares to build the foundations for fractions in later grades.

Operations and Algebraic Thinking

Cluster	Represent and solve problems involving addition and subtraction.
A.M.2.1	Using manipulatives, use addition and /or subtraction within ten to solve problems involving adding to, taking from, putting together, taking apart, and/or comparing.
Cluster	Add and subtract within 20.
A.M.2.2	Using manipulatives to add and/or subtract within ten.
Cluster	Work with equal groups of objects to gain foundations for multiplication.
A.M.2.3	Use manipulatives to determine whether a group of objects up to ten has an odd

	or even number of members by pairing objects.
A.M.2.4	Use manipulatives to arrange up to ten objects in evenly distributed rows or columns.

Number and Operations in Base Ten

Cluster	Understand place value.
A.M.2.5	Represent numbers up to 20 with sets of tens and ones using manipulatives.
A.M.2.6	Use manipulatives to count within 30. Introduce skip counting by 2s up to 10, then 5s up to 20, then tens up to 30.
A.M.2.7	Recognize or trace numbers from 1 to 30. Represent a number of objects with a written numeral 0-30 (with 0 representing a count of no objects).
A.M.2.8	When presented two groups of objects, identify whether the number of up to twenty objects is more than, less than, or equal to the number of objects in another group.

Cluster	Use place value understanding and properties of operations to add and subtract.
A.M.2.9	Using manipulatives, demonstrate adding to, taking from, putting together, taking apart, and/or comparing within twenty.
A.M.2.10	Use objects and numbers (0-20) to add and subtract including symbolic representation (e.g., $2 + 3 = 5$).
A.M.2.11	Demonstrate the concept of equivalence (e.g., two objects put together with three objects is equivalent to four objects put together with one object) using symbolic representation (e.g., $2 + 3 = 4 + 1$).
A.M.2.12	Demonstrate skip counting by tens up to 50.
A.M.2.13	Using manipulatives as a support, add/or subtract within 20.

Measurement and Data

Cluster	Measure and estimate lengths in standard units.
A.M.2.14	Measure the length of objects using non-standard units.
A.M.2.15	Measure the length of an object using multiple non-standard units.
A.M.2.16	Recognize standard tools of measurement. Choose the appropriate tools to measure objects of various lengths.
A.M.2.17	With guidance and support, order various objects by length and measure the length of objects using standard length units.

Cluster	Relate addition and subtraction to length.
A.M.2.18	Use addition and subtraction within 20 to solve word problems involving lengths that are given in the same units.
A.M.2.19	Use the number line to add one more unit of length.

Cluster	Work with time and money.
A.M.2.20	Identify the hour numbers on a digital clock that match a routine activity.
A.M.2.21	Recognize coins (penny, nickel, dime, and quarter) by appearance and value.

Cluster	Represent and interpret data.
A.M.2.22	Recognize a line plot. (e.g., line plot versus a bar graph).
A.M.2.23	Create a bar and/or picture graph to represent a data set with up to two categories. Interpret the data represented on the bar and/or picture graph. (e.g., how many in each column/row, more, less).

Geometry

Cluster	Reason with shapes and their attributes
A.M.2.24	Identify common two-dimensional shapes: square, triangle, circle, and rhombus.
A.M.2.25	Partition a rectangle into rows and columns of same-size squares and count to find the total number of them.
A.M.2.26	Partition circles and rectangles into two, three, or four equal shares. Describe the shares using words halves, thirds, fourths, etc. Recognize that equal shares of identical wholes need not have the same shape.

Alternate Academic Achievement Standards for Mathematics – Grade 3

The West Virginia Alternate Academic Achievement Standards for Mathematics are written for students with significant cognitive disabilities with the understanding that the student’s IEP will determine appropriate accommodations and modifications. In addition to the accommodations and modifications listed on the student’s IEP, teacher selected scaffolding, guidance, and support are appropriate to best meet the individual student needs with increasing challenge as the learning progresses.

All West Virginia teachers are responsible for classroom instruction that integrates content standards, mathematical habits of mind, learning skills, and technology tools. The following chart represents the concepts that will be developed in mathematics in third grade:

<p>Operations and Algebraic Thinking</p> <ul style="list-style-type: none"> • Use arrays to solve simple multiplication problems. • Use objects to make equal groups. • Understand that multiplication is repeated addition. • Understand the commutative property as it relates to addition and multiplication (e.g. $4+5$ is the same as $5+4$ and 2×3 is the same as 3×2) • Solve real world problems involving addition, subtraction and simple multiplication. 	<p>Number and Operations in Base Ten</p> <ul style="list-style-type: none"> • Count to 50 by tens. • Add and subtract within 30 using place value strategies.
<p>Number and Operations- Fractions</p> <ul style="list-style-type: none"> • Recognize that a whole is greater than a half. • Recognize that $\frac{1}{2}$ is two equal parts of a whole. 	<p>Measurement and Data</p> <ul style="list-style-type: none"> • Use an analog and/or digital clock tell time to the $\frac{1}{2}$ hour. • Measure liquids and mass. • Interpret data on a graph. • Determine the shape of an irregular polygon based on the number of angles in the shape.
<p>Geometry</p> <ul style="list-style-type: none"> • Reason about shapes • Understand the connection between equal parts of a shape being a unit of the whole. 	

Operations and Algebraic Thinking

Cluster	Represent and solve problems involving multiplication and division.
A.M.3.1	Use manipulatives to demonstrate that multiplication is repeated addition.
A.M.3.2	Use manipulatives to demonstrate an understanding of equal shares (e.g. six apples equally shared with three students is two apples each).
A.M.3.3	Use an array to solve multiplication problems within 20.

A.M.3.4	Use addition to find the total number of objects arranged in rectangular arrays with up to 5 rows and 5 columns.
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Cluster	Understand properties of multiplication and the relationship between multiplication and division.
A.M.3.5	Use manipulatives to demonstrate the commutative property of multiplication by grouping objects within twenty objects (e.g. three groups of two is the same as two groups of three).

Cluster	Multiply and divide within 100.
A.M.3.6	Demonstrate an understanding of the multiplication table and its use.

Cluster	Solve problems involving the four operations, and identify and explain patterns in arithmetic.
A.M.3.7	Solve one-step, real-world problems using addition or subtraction within thirty.
A.M.3.8	Demonstrate an understanding of skip-counting by twos, fives, and tens.

Number and Operations in Base Ten

Cluster	Use place value understanding and properties of operations to perform multi-digit arithmetic.
A.M.3.9	Identify multiples of ten on a number line, (e.g. “friendly numbers” such as ten, twenty, thirty, etc.)
A.M.3.10	Add and subtract within 30 using strategies based on place value.
A.M.3.11	Group objects together to form a ten. Count by tens up to 50 using models.

Number and Operations- Fractions

Cluster	Develop understanding of fractions as numbers.
A.M.3.12	Demonstrate fractional understanding by demonstrating that a half is part of a whole and two-halves makes a whole.
A.M.3.13	Demonstrate that one whole is bigger than one-half.

Measurement and Data

Cluster	Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.
A.M.3.14	Use an analog and/or digital clock to identify time to the hour and/or half-hour.
A.M.3.15	Determine the volume of liquid using varying sizes of containers. Identify the container that holds more, and the container that holds less. Compare masses of objects by identifying which object is heavier or lighter.

Cluster	Represent and interpret data.
A.M.3.16	Use picture or bar graph data to interpret the data.
A.M.3.17	Generate measurement data by measuring the length of objects to the nearest

	whole number using standard tools, such as rulers, yardsticks, and/or meter sticks. Show the data on a line plot.
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Cluster	Geometric measurement: understand concepts of area and relate area to multiplication and to addition.
A.M.3.18	Given a plane figure printed/drawn on graph paper, identify and color "one unit" of the figure.
A.M.3.19	Given a plane figure printed/drawn on graph paper, introduce concepts of area by coloring more than one unit of the figure and counting the colored units.
A.M.3.20	Using graph paper, color an array of up to five rows and five columns and count the number of units.

Cluster	Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures.
A.M.3.21	Distinguish sides from angles on regular and irregular polygons. Count the number of units to find the perimeter.

Geometry

Cluster	Reason with shapes and their attributes.
A.M.3.22	Describe attributes of two-dimensional shapes.
A.M.3.23	Recognize that shapes can be partitioned into equal areas.

Alternate Academic Achievement Standards for Mathematics – Grade 4

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All West Virginia teachers are responsible for classroom instruction that integrates content standards, mathematical habits of mind, learning skills, and technology tools. The following chart represents the concepts that will be developed in mathematics in fourth grade:

Operations and Algebraic Thinking	Number and Operations in Base Ten
<ul style="list-style-type: none"> • Use whole-number arithmetic to solve word problems. • Add and subtract whole numbers. • Multiply and divide numbers in simple cases. • Generate and analyze patterns. 	<ul style="list-style-type: none"> • Generalize place value understanding for multi-digit whole numbers. • Use place value understanding and properties of operations to perform multi-digit arithmetic.
Number and Operations- Fractions	Measurement and Data
<ul style="list-style-type: none"> • Use equivalent fractions to understand and order fractions. • Identify the differences between whole numbers and fractions. • Make real world connections with fractions. 	<ul style="list-style-type: none"> • Represent and interpret data. • Geometric measurement: understand concepts of angle and measure angles. • Tell time using a digital clock • Tell time to the nearest half-hour using an analog clock. • Measure mass or volume using standard tools. • Use standard measurement to compare lengths of objects. • Identify coins (penny, nickel, dime, quarter) and their values.
Geometry	
<ul style="list-style-type: none"> • Draw and identify lines and angles, and classify shapes by properties of their lines and angles. • Measure angles and find unknown angles in a diagram. 	

Operations and Algebraic Thinking

Cluster	Use the four operations with whole numbers to solve problems.
A.M.4.1	Represent verbal statements using manipulatives of multiplicative comparisons as multiplication equations.
A.M.4.2	Use manipulatives and/or a multiplication table to multiply to solve word problems involving multiplicative comparison.
A.M.4.3	Solve one-step real world problems using repeated addition or multiplication.

Cluster	Gain familiarity with factors and multiples.
A.M.4.4	Given a multiplication table, find all factor pairs (fact families) for a whole number in the range 1-20.

Cluster	Generate and analyze patterns.
A.M.4.5	Demonstrate an understanding of patterns by predicting “what comes next?” in a sequence of items of at least three objects.

Number and Operations in Base Ten

Cluster	Generalize place value understanding for multi-digit whole numbers.
A.M.4.6	Recognize the ones, tens, and hundreds place in a three-digit number.
A.M.4.7	Use manipulatives to identify place value of numbers matching the number to the number name.
A.M.4.8	Use a number line within 50 to demonstrate rounding to the nearest ten.

Cluster	Use place value understanding and properties of operations to perform multi-digit arithmetic.
A.M.4.9	Use manipulatives to add and subtract within 99.
A.M.4.10	Use number cubes or similar manipulatives to create an array, and with guidance count the manipulatives to demonstrate an understanding of multiplication.

Number and Operations- Fractions

Cluster	Extend understanding of fraction equivalence and ordering.
A.M.4.11	Use manipulatives to demonstrate the equivalence of 1 whole equaling 2 halves and four fourths.
A.M.4.12	Use manipulatives to compare fraction parts and identify the difference between larger and smaller fractions.

Cluster	Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers.
A.M.4.13	Use manipulatives to demonstrate the difference between one whole, one-half, and one-fourth.
A.M.4.14	Identify the differences between whole numbers and fractions.

Cluster	Understand decimal notation for fractions, and compare decimal fractions.
A.M.4.15	Use manipulatives to demonstrate an understanding of the denominator signifying the total parts of the whole (e.g. $\frac{1}{2}$ = 2 parts in the whole).
A.M.4.16	Use a number line up to 30 to demonstrate the value of coins (e.g. 30 pennies, 6 nickels, 3 dimes) as parts of a whole having value.
A.M.4.17	Compare the value of a dime to a nickel. Demonstrate understanding that the dime has more value than a nickel.

Measurement and Data

Cluster	Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.
A.M.4.18	Identify the smaller measurement unit that comprises a larger unit within a measurement system (e.g. inches/foot, centimeter/meter, minute/hour)
A.M.4.19	Determine multiple forms of measurement. <ul style="list-style-type: none">• Tell time using a digital clock• Tell time to the nearest half-hour using an analog clock.• Measure mass or volume using standard tools.• Use standard measurement to compare lengths of objects.• Identify coins (penny, nickel, dime, quarter) and their values.
A.M.4.20	Determine the area of a square by counting units of measure.

Cluster	Represent and interpret data.
A.M.4.21	Represent data on a picture or bar graph given a model and graph to complete. Interpret data from a picture or bar graph and line plots.

Cluster	Geometric measurement: understand concepts of angle and measure angles.
A.M.4.22	Identify the angles in geometric shapes of both two-dimensional and three-dimensional objects (e.g., highlight the angles in a given shape).
A.M.4.23	Use a straight edge to draw shapes and count the number of vertices.

Geometry

Cluster	Draw and identify lines and angles and classify shapes by properties of their lines and angles.
A.M.4.24	Identify and draw parallel lines and intersecting lines.
A.M.4.25	Determine the given two-dimensional shape by the number of vertices (e.g. 4 vertices= rectangle, 3 vertices = triangle, 0 vertices= circle.)
A.M.4.26	Determine symmetry of a shape by folding the shape into equal portions.

Alternate Academic Achievement Standards for Mathematics – Grade 5

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Operations and Algebraic Thinking <ul style="list-style-type: none"> Write and interpret numerical expressions. Analyze mathematical patterns and relationships. 	Number and Operations in Base Ten <ul style="list-style-type: none"> Understand the place value system. Generalize the place-value system Multiply whole numbers
Number and Operations- Fractions <ul style="list-style-type: none"> Identify fractions. Understand the denominator is the equal division of parts in a whole. 	Measurement and Data <ul style="list-style-type: none"> Recognize like measurement units within a given measurement system. Make a line plot to display a data set Geometric measurement: Understand the concept of volume
Geometry <ul style="list-style-type: none"> Graph points on the coordinate plane to solve real-world and mathematical problems. Classify two-dimensional figures into categories based on their properties. 	

Operations and Algebraic Thinking

Cluster	Create numerical expressions.
A.M.5.1	Use manipulatives and standard numbers to create numerical expressions (e.g. $1 + 2 = 3$).

Cluster	Analyze patterns and relationships.
A.M.5.2	Identify and extend numerical patterns.

Number and Operations in Base Ten

Cluster	Understand the place value system.
A.M.5.3	Identify hundreds place and read orally numbers with digits in hundreds, tens and ones places.
A.M.5.4	Identify the tens column in a 100’s chart and color the numbers representations of

	10, 20, 30, etc.
A.M.5.5	Compare whole numbers up to 100 identifying greater and less than.
A.M.5.6	Round two-digit whole numbers to the nearest 10 from 0-100.

Cluster	Perform operations with multi-digit whole numbers.
A.M.5.7	Multiply whole numbers up to 5×5 .
A.M.5.8	Using manipulatives, identify the concept of division of whole numbers using equal shares.
A.M.5.9	Using manipulatives, identify the concept of division of whole numbers using equal shares.

Number and Operations - Fractions

Cluster	Identify fractions of halves and fourths.
A.M.5.10	Use models to add halves and/or fourths. Identify models of thirds and tenths.

Cluster	Recognize the denominator as the equal parts of a fraction.
A.M.5.11	Determine the number of equal parts as the denominator in a fraction.

Measurement and Data

Cluster	Convert like measurement units within a given measurement system.
A.M.5.12	Identify centimeters and meters as units of measure.

Cluster	Represent and interpret data.
A.M.5.13	Use a number line with only whole numbers indicated to identify where $\frac{1}{2}$ s and $\frac{1}{4}$ s are located.

Cluster	Geometric measurement: understand concepts of volume.
A.M.5.14	Sort common three-dimensional shapes such as cube, cone, and sphere.
A.M.5.15	Measure volume by counting unit cubes.

Geometry

Cluster	Identify points on the coordinate plane to solve real-world and mathematical problems.
A.M.5.16	Identify locations of objects placed on a coordinate plane.

Cluster	Classify two-dimensional figures into categories based on the number of angles.
A.M.5.17	Understand that all two-dimensional shapes have names based on the number angles.
A.M.5.18	Sort two-dimensional figures and identify the attributes they have in common.

Alternate Academic Achievement Standards for Mathematics – Grade 6

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All West Virginia teachers are responsible for classroom instruction that integrates content standards, mathematical habits of mind, learning skills, and technology tools. Students in sixth grade will continue enhancing skills in a developmentally appropriate progression of standards. Following the skill progressions from fifth grade, the following chart represents the concepts that will be developed in mathematics in sixth grade:

Ratios and Proportional Reasoning	The Number System
<ul style="list-style-type: none"> Understand ratios and rates, and solve problems involving proportional relationships (e.g., a pair of gloves or a pair of shoes for each person; nine baseball players on one team, etc.) 	<ul style="list-style-type: none"> Determine how much chocolate will each person get if 3 people share $\frac{1}{2}$ lb of chocolate equally. Understand that positive and negative numbers are used together to describe quantities having opposite directions or values (e.g., temperature above/below zero).
Expressions and Equations	Geometry
<ul style="list-style-type: none"> Apply the properties of addition to identify equivalent expressions. (e.g., $3 + y = 5 + 3$). Recognize that “Jane has 6 apples and receives some more apples. She now has 8 apples. How many apples did she receive?” is equivalent to $6 + A = 8$. 	<ul style="list-style-type: none"> Determine the area of a rectangle by counting unit squares. Symbolically represent this situation. (e.g., given two rows of five square units, write $2 \times 5 = 10$). Using manipulatives, solve real-world and mathematical problems about volume. (e.g., compare the amount of beans/water/rice in two different containers).
Statistics and Probability	
<ul style="list-style-type: none"> Given a graph of student heights, determine the tallest student). 	

Ratios and Proportional Relationships

Cluster	Understand ratio concepts and use ratio reasoning to solve problems.
A.M.6.1	Use manipulatives to demonstrate ratios, such as two-to-one correspondence (e.g., a pair of gloves or a pair of shoes for each person; nine baseball players on one team).
A.M.6.2	Identify ratios, such as two-to-one correspondence (e.g., a pair of gloves or a pair of shoes for each person; nine baseball players on one team).
A.M.6.3	Using measurement tools, determine what fractional parts make a whole (e.g., four $\frac{1}{4}$

	cups make 1 cup; two $\frac{1}{2}$ cups make 1 cup).
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The Number System

Cluster	Apply and extend previous understandings of multiplication and division to fractions.
A.M.6.4	Use visual fraction models to compare unit fractions with denominators of 2, 3, 4, and 10. Given a story context, a whole number, and a unit fraction, the student will be able to use division (e.g., How much chocolate will each person get if 3 people share $\frac{1}{2}$ lb. of chocolate equally?)

Cluster	Compute with multi-digit numbers and find common multiples.
A.M.6.5	Add, subtract, multiply, and divide whole numbers to 100 and simple decimal problems using a calculator (e.g., $0.2 + 0.3 = 0.5$ The focus is on correctly entering decimal amounts into a calculator – understanding that the decimal is significant.).
A.M.6.6	Using multiple strategies, create or provide a list of multiples for 2, 3, 4, 5, & 10, and then identify the least common multiple.

Cluster	Apply and extend previous understandings of numbers to integers
A.M.6.7	Use a number line with only integers indicated to identify a given positive or negative integer.
A.M.6.8	Recognize that negative integers are smaller than positive integers. Use integers to describe real-world situations (e.g., $-\$5$ indicates that five dollars is owed).
A.M.6.9	Solve real-world and mathematical problems by graphing points in Quadrant I of the coordinate plane (e.g., Identify how to locate a point, give coordinates, and then graph the point.).

Expressions and Equations

Cluster	Apply and extend previous understandings of arithmetic to algebraic expressions.
A.M.6.10	Write, read, and evaluate expressions with and without an unknown (e.g., $3 + y$; e.g., $2 + 3 + x$).
A.M.6.11	Apply the properties of addition to identify equivalent expression (e.g., $3 + y = 5 + 3$).

Cluster	Reason about and solve one-variable equations.
A.M.6.12	Match an equation to a real-world problem in which unknowns are used to represent numbers (e.g., Jane has 6 apples and receives some more apples. She now has 8 apples. How many apples did she receive? is equivalent to $6 + \square = 8$).
A.M.6.13	Match an equation to a real-world problem in which a variable is used to represent an unknown number (e.g., Jane has 6 apples and receives some more apples. She now has 8 apples. How many apples did she receive? is equivalent to $6 + A = 8$).
A.M.6.14	Solve an equation to a real-world problem in which unknowns which could be a symbol or a variable are used to represent numbers (e.g., John has 12 blocks and receives some more blocks. He now has 20 blocks. How many apples did she receive? is equivalent to $12 + \square = 20$).

Geometry

Cluster	Solve real-world and mathematical problems involving area, surface area, and volume.
A.M.6.15	Determine the area of a rectangle by counting unit squares. Symbolically represent this situation. (e.g., given two rows of five square units, write $2 \times 5 = 10$). Using manipulatives, solve real-world and mathematical problems about area using unit squares.
A.M.6.16	Use manipulatives to solve real-world and mathematical problems about volume (e.g., compare the amount of beans/water/rice in two different containers).
A.M.6.17	Given a rectangle, triangle, or square drawn in quadrant one, identify the length of a horizontal or vertical side by counting boxes.
A.M.6.18	Given nets of a cube and rectangular prism, create and identify the solid, count squares to count the surface area.

Statistics and Probability

Cluster	Develop understanding of statistical variability.
A.M.6.19	Interpret data from a graph or table that shows variability in the data (e.g., given a graph of student heights, determine the tallest student).

Cluster	Summarize and describe distributions.
A.M.6.20	Display data on a graph and/or table that shows variability in the data (e.g., create a table and/or graph of daily high temperature for a week).
A.M.6.21	Given data displayed in a graph or table, determine the mean of the data. Instructional Note: Limit to 3 to 5 items.

Alternate Academic Achievement Standards for Mathematics – Grade 7

The West Virginia Alternate Academic Achievement Standards for Mathematics are written for students with significant cognitive disabilities with the understanding that the student’s IEP will determine appropriate accommodations and modifications. In addition to the accommodations and modifications listed on the student’s IEP, teacher selected scaffolding, guidance, and support are appropriate to best meet the individual student needs with increasing challenge as the learning progresses.

All West Virginia teachers are responsible for classroom instruction that integrates content standards, mathematical habits of mind, learning skills, and technology tools. Students in seventh grade will continue enhancing skills in a developmentally appropriate progression of standards. Following the skill progressions from sixth grade, the following chart represents the concepts that will be developed in mathematics in seventh grade:

<p>Ratios and Proportional Reasoning</p> <ul style="list-style-type: none"> Given that one bag of pretzels cost two quarters or \$.50, determine the cost of three bags of pretzels). 	<p>The Number System</p> <ul style="list-style-type: none"> Given a sequence such as 2, 5, 8, 11, ..., determine the next number and/or describe the pattern). Represent symbolically and solve real-world problems involving either addition, subtraction, multiplication, or division problems of whole numbers, decimals, and fractions with like denominators (halves, thirds, fourths, and tenths) using concrete objects and/or a calculator.
<p>Expressions and Equations</p> <ul style="list-style-type: none"> Represent and solve one-step real-life and mathematical problems that involve combining positive and negative integers (e.g., $\\$20 + -\\$5 = \\$15$ represents that if Jane had \$20 and spent \$5, she now has \$15). 	<p>Geometry</p> <ul style="list-style-type: none"> Match two similar geometric shapes in the same orientation. Write and simplify expressions to find the perimeter of rectangles (e.g., given a rectangle with dimensions identified, find the perimeter by writing and simplifying $3 + 5 + 3 + 5 = 16$ inches). Use the area formula to determine the area of a rectangle and solve real-world and mathematical problems using concrete items or calculator.
<p>Statistics and Probability</p> <ul style="list-style-type: none"> Given a weather forecast, determine if it is likely to rain. Compare two sets of data within a single data display such as a picture graph, line plot, or bar graph. (Identify more, less, equal, minimum and maximum). Gather, organize, and display data on a graph, table, or chart and make predictions from the data. 	

Ratios and Proportional Relationships

Cluster	Analyze proportional relationships and use them to solve real-world and mathematical problems.
A.M.7.1	Use a ratio to model a relationship.
A.M.7.2	Using manipulatives or real-world object, decide whether two quantities are in a proportional relationship (e.g., two red blocks and one yellow block is proportional to 4 red blocks and two yellow blocks).
A.M.7.3	Use proportional relationships to solve real-world problems (e.g., given one bag of pretzels cost two quarters or \$.50, determine the cost of three bags of pretzels).

The Number System

Cluster	Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.
A.M.7.4	Apply an understanding of rational numbers. <ul style="list-style-type: none">Using visual and/or symbolic representations, add fractions with like denominators (halves, thirds, fourths, and tenths) with sums less than or equal to one.Using manipulatives and visual and/or symbolic representations (a horizontal or vertical number line diagram), combine integers. Instructional Note: Limit integers to -5 to 5 (e.g., If money spent is represented by negative numbers, spending \$2 and then spending \$3 means that \$5 has been spent and recognizing that this can be written as $-2 + -3 = -5$).Recognize patterns in arithmetic sequences of whole numbers (e.g., Given a sequence such as 2, 5, 8, 11, ..., determine the next number and/or describe the pattern).
A.M.7.5	Solve addition, subtraction, multiplication, and division problems involving whole numbers, decimals, and fractions with like denominators (halves, thirds, fourths, and tenths) using concrete objects and/or a calculator.
A.M.7.6	Represent symbolically and solve real-world problems involving either addition, subtraction, multiplication, or division problems of whole numbers, decimals, and fractions with like denominators (halves, thirds, fourths, and tenths) using concrete objects and/or a calculator.

Expressions and Equations

Cluster	Use properties of operations to generate equivalent expressions.
A.M.7.7	Apply the properties of addition or multiplication to identify equivalent expressions (e.g., $10 + 4 = 4 + 10$, or $2 + 3 + 4 = 3 + 2 + 4$ or $3 \times 7 = 7 \times 3$).
A.M.7.8	Understand that equivalent expressions can be written in different forms (e.g., $9 + 7 = 10 + 6$).
Cluster	Solve real-life and mathematical problems using numerical and algebraic expressions and equations.

A.M.7.9	Represent and solve one-step real-life and mathematical problems that involve combining positive and negative integers (e.g., $\$20 + -\$5 = \$15$ represents that if Jane had $\$20$ and spent $\$5$, she now has $\$15$).
A.M.7.10	Write, read, and/or solve one-step addition, subtraction, and multiplication equations for an unknown whole number, with a variable standing for the unknown. (e.g., $3 + c = 5$)

Geometry

Cluster	Draw, construct and describe geometrical figures and describe the relationships between them.
A.M.7.11	Understand and describe geometrical figures and the relationship between them. <ul style="list-style-type: none"> Match two similar geometric shapes in the same orientation. Write and simplify expressions to find the perimeter of rectangles (e.g., given a rectangle with dimensions identified, find the perimeter by writing and simplifying $3 + 5 + 3 + 5 = 16$ inches).
A.M.7.12	Draw (freehand, with ruler and protractor, and with technology) a triangle, square, or rectangle with given conditions (e.g., draw a square with side length 3 in. and height 5 in.). Given a shape (triangle, square, or rectangle), identify the dimensions.
A.M.7.13	Using appropriate modeling or technology, identify the two-dimensional figures that result from slicing three-dimensional figures, as in plane sections of right rectangular prisms and a triangular prism.

Cluster	Solve real-life and mathematical problems involving area and volume.
A.M.7.14	Use the area formula to determine the area of a rectangle and solve real-world and mathematical problems using concrete items or calculator.
A.M.7.15	Use manipulatives, decompose right rectangular prisms into unit cubes to determine its volume (e.g., given a $2 \times 3 \times 3$ rectangular prism composed of unit cubes, determine that it is composed of 18 unit cubes).

Statistics and Probability

Cluster	Use random sampling to draw inferences about a population.
A.M.7.16	Given data displayed in a graph or table, determine the median and the mean of the data. Instructional Note: Limit data set to 3 or 5 items.
A.M.7.17	Interpret the collected data from an experiment, given a model of data, or from data collected by the student.

Cluster	Draw informal comparative inferences about two populations.
A.M.7.18	Summarize numerical data sets in relation to their context, such as by: <ol style="list-style-type: none"> Reporting the number of observations. Identifying the minimum value, the maximum value, and the median. Instructional Note: Data sets should consist of 3 or 5 items. Identifying the nature of the attribute under investigation, including how it

	was measured and its units of measurement.
A.M.7.19	Recognize that two numerical data distributions with similar variabilities can be represented on the same picture graph, line plot, or bar graph.
A.M.7.20	Compare two sets of data within a single data display such as a picture graph, line plot, or bar graph (e.g., identify more, less, equal, minimum and maximum).

Cluster	Investigate chance processes and develop, use, and evaluate probability models.
A.M.7.21	Describe the probability of events occurring as likely or unlikely.
A.M.7.22	Approximate the likelihood of an event based on its probability (e.g., given a weather forecast, determine if it is likely to rain).
A.M.7.23	Compare experimental and theoretical probabilities: <ul style="list-style-type: none"> a. Determine the probability of simple events (e.g., rolling a die; flipping a coin) b. Approximate the probability of a chance event by collecting data on the chance process that produces it and observing the outcomes (i.e. flipping a coin - Do the outcomes for the flipping a coin appear to be equally likely based on the observed outcome?).
A.M.7.24	Gather, organize, and display data on a graph, table, or chart and make predictions from the data.

Alternate Academic Achievement Standards for Mathematics – Grade 8

The West Virginia Alternate Academic Achievement Standards for Mathematics are written for students with significant cognitive disabilities with the understanding that the student’s IEP will determine appropriate accommodations and modifications. In addition to the accommodations and modifications listed on the student’s IEP, teacher selected scaffolding, guidance, and support are appropriate to best meet the individual student needs with increasing challenge as the learning progresses.

All West Virginia teachers are responsible for classroom instruction that integrates content standards, mathematical habits of mind, learning skills, and technology tools. Students in eighth grade will continue enhancing skills in a developmentally appropriate progression of standards. Following the skill progressions from seventh grade, the following chart represents the concepts that will be developed in mathematics in eighth grade:

The Number System	Expressions and Equations
<ul style="list-style-type: none"> Express a fraction with a denominator of 100 as a decimal. Compare quantities represented as decimals in real-world examples to hundredths. 	<ul style="list-style-type: none"> Determine the amount of money that John and Mary have together if John has \$0.25 and Mary has \$0.30. Given a table of values depicting a proportional relationship or an arithmetic sequence, determine missing values.
Functions	Geometry
<ul style="list-style-type: none"> Given the initial number 2 and the rule “add 3,” generate 2, 5, 8, 11... Given a table or function rule and the input value, determine the output. Given a linear function represented by a table, answer questions (e.g., given a table, find the cost of 3 shirts.) 	<ul style="list-style-type: none"> Recognize translations, rotations, and reflections of shapes.
Statistics and Probability	
<ul style="list-style-type: none"> Compare and contrast two different tables or graphs (e.g., menus, student schedules, price charts, temperature charts). 	

Number System

Cluster	Understand the relationship between fractions and decimals.
A.M.8.1	Demonstrate an understanding of the relationship between fractions and decimals. <ul style="list-style-type: none"> Express a fraction with a denominator of 100 as a decimal. Compare quantities represented as decimals in real-world examples to hundredths.

	Express unit fractions as decimals ($\frac{1}{2}$, $\frac{1}{4}$, and $\frac{1}{10}$)
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Expressions and Equations

Cluster	Work with exponents and decimals.
A.M.8.2	Identify the meaning of an exponent (e.g., 4^2 means 4×4). Instructional Note: Limit to exponents of 2 and 3.
A.M.8.3	Generate equivalent numerical expressions to determine the value of numerical expressions consisting of the square or cube of a whole number less than or equal to 10. (e.g., $5^2 = 5 \times 5 = 25$).
A.M.8.4	Compose, decompose, and make observations of whole numbers up to 999 (e.g., $345=300+40+5$; 25 is more than 20 but less than 30; use manipulatives to show that 5 is made up of five single units).
A.M.8.5	Perform operations with numbers involving decimals and in context (e.g., John has \$0.25 and Mary has \$0.30, how much money do they have altogether?). Use decimal notation to compare amounts to determine very large or very small quantities (e.g., identify that \$25.00 is very large and \$2.50 is very small and \$0.25 is smallest) and that the unit of measurement is the same.

Cluster	Understand the connections between proportional relationships and lines.
A.M.8.6	Recognize and represent proportional relationships between quantities on graphs. In real world problem situations, decide whether two quantities are in a proportional relationship (e.g. If Dan walks one block each morning, how many blocks does he walk in one week?).
A.M.8.7	Given a table of values depicting a proportional relationship or an arithmetic sequence, determine missing values.

Cluster	Analyze and solve linear equations.
A.M.8.8	Use linear equations in problem solving. <ul style="list-style-type: none"> Given a real-world problem situation, write, read, and/or solve one-step addition and subtraction equations for an unknown whole number and/or decimal money amounts, with a variable standing for the unknown (e.g., $\\$20 - c = \\13 How much did I spend?). Instructional Note: Focus on money. Given a one-step addition or subtraction equation with two unknowns, create true statements (e.g., given $x + y = 7$, create statements such as $2 + 5 = 7$ and $3 + 4 = 7$). Instructional Note: Limit to whole numbers. Solve simple one-step word problems involving multiplication that have whole numbers or fractional remainders and understand what the fractional remainder means (e.g., Molly and her friend have 13 cookies and want to equally distribute the cookies between them, how much would each person get and how many are left over?). Match two-step word problems posed with whole numbers and having whole-number answers using the four operations with the correct symbolic representation (e.g., two times a number plus one equals five matches $2 \times b + 1 =$

	5).
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Functions

Cluster	Define, evaluate, and compare functions.
A.M.8.9	Generate an arithmetic sequence given a rule (e.g., given the initial number 2 and the rule “add 3,” generate 2, 5, 8, 11...). Given a table or function rule and the input value, determine the output.
A.M.8.10	Given graphical representations, determine if the graph is a straight line or not a straight line (staying within Quadrant I).

Cluster	Use functions to model relationships between quantities										
A.M.8.11	Given a linear function represented by a table, answer questions (e.g., Given a table, find the cost of 3 shirts.) <table border="1" data-bbox="636 659 829 842"> <tr> <th>Shirts</th> <th>Cost</th> </tr> <tr> <td>1</td> <td>\$6</td> </tr> <tr> <td>2</td> <td>\$12</td> </tr> <tr> <td>3</td> <td>\$18</td> </tr> <tr> <td>4</td> <td>\$24</td> </tr> </table>	Shirts	Cost	1	\$6	2	\$12	3	\$18	4	\$24
Shirts	Cost										
1	\$6										
2	\$12										
3	\$18										
4	\$24										
A.M.8.12	Demonstrate an understanding of an increase or decrease on a graph.										

Geometry

Cluster	Understand congruence and similarity using physical models, transparencies, or geometry software.
A.M.8.13	Recognize translations, rotations, and reflections of shapes.
A.M.8.14	Identify shapes that are congruent. Instructional Note: Shapes are not required to be in the same orientation.
A.M.8.15	Identify shapes that are similar. Instructional Note: Shapes are not required to be in the same orientation.

Cluster	Solve real-world and mathematical problems involving cylinders, cones, and spheres.
A.M.8.16	Identify attributes of and/or real-world situations involving cones, cylinders, and spheres.

Statistics and Probability

Cluster	Investigate patterns of association in bivariate data.
A.M.8.17	Compare and contrast two different tables or graphs (e.g., menus, student schedules, price charts, temperature charts).

Alternate Academic Achievement Standards for Mathematics – High School Mathematics

At the high school level, the standards are organized by conceptual category (number and quantity, algebra, functions, geometry, modeling and probability and statistics), showing the body of knowledge students should learn in each category. There are two distinct course sequence pathways of the high school standards for the mathematics progression in grades 9-11:

- The Integrated Pathway with a course sequence of Math I, Math II, and Math III, each of which includes number, algebra, geometry, probability and statistics; and
- The Traditional Pathway with a course sequence of Algebra I, Geometry, and Algebra II, with some data, probability and statistics included in each course.

Each pathway organizes the identical standards into courses. As a result, the mathematics standards identified in Math I, Math II and Math III are identical to the standards identified in Algebra I, Geometry and Algebra II. The content is simply grouped differently among the three years. Local Education Agencies (LEA) must choose to implement either the Integrated or Traditional Pathway. Regardless of the pathway chosen for grades 9-11, the fourth course options for all students are the same.

INTEGRATED PATHWAY

Alternate Academic Achievement Standards for Mathematics – High School Mathematics I

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All West Virginia teachers are responsible for classroom instruction that integrates content standards, mathematical habits of mind, learning skills, and technology tools. Students will continue enhancing skills in a developmentally appropriate progression of standards. Following the skill progressions from previous courses, the following chart represents the concepts that will be developed in mathematics:

<p>Relationships between Quantities</p> <ul style="list-style-type: none"> • Measure a pencil to the nearest inch). • Identify an algebraic expression involving at least one arithmetic operation to represent a real-world problem. • Demonstrate an understanding of terms such as “at least” and “fewer than” in solving real-world problems. 	<p>Linear Relationships</p> <ul style="list-style-type: none"> • Interpret the meaning of the intersection of the two graphs. • Given a \$10 off coupon, use Sales Price = Original Price – Discount to find the Sales Price).
<p>Reasoning with Equations</p>	<p>Descriptive Statistics</p>

<ul style="list-style-type: none"> Demonstrate each step in solving a one or two-step equation. 	<ul style="list-style-type: none"> After surveying students, regarding their favorite ice cream flavor, answer related questions). In real world situations, distinguish between the cause and the effect.
Transformations	Coordinates and Measurement
<ul style="list-style-type: none"> Know the attributes of perpendicular lines, parallel lines, and line segments; angles; and circles. Using manipulatives, translate, rotate, and/or reflect a geometric figure. 	<ul style="list-style-type: none"> Given coordinates, identify the geometric shapes using proper terminology.

Relationships between Quantities

Cluster	Reason quantitatively and use units to solve problems.
A.M.1HS.1	Express quantities to the appropriate precision of measurement (e.g., measure a pencil to the nearest inch).
A.M.1HS.2	Define appropriate quantities for the purpose of descriptive modeling.
A.M.1HS.3	Choose the appropriate unit of measurement (e.g., determine when to use feet/inches/meter, cups/gallons/liter, ounces/pounds/gram, etc.).

Cluster	Interpret the structure of expressions.
A.M.1HS.4	Identify an algebraic expression involving at least one arithmetic operation to represent a real-world problem.

Cluster	Create equations that describe numbers or relationships.
A.M.1HS.5	Given a real-world problem situation, write, read, and/or solve one-step addition and subtraction equations for an unknown number with a variable standing for the unknown (e.g., $\$8.50 + c = \12).
A.M.1HS.6	Determine solutions to equations that model real-world problem situations with two unknowns (e.g., given a set of options, find solutions for $x + y = \$6.25$).
A.M.1HS.7	Demonstrate an understanding of terms such as “at least” and “fewer than” in solving real-world problems.
A.M.1HS.8	Solve two-step word problems, represent these problems using formulas with a letter standing for the unknown quantity.

Linear Relationships

Cluster	Represent and solve equations and inequalities graphically.
A.M.1HS.9	Interpret the meaning of a point on the graph of a linear function (e.g., on a graph of pizza purchases, trace the graph to a point and tell the number of pizzas purchased and the total cost of the pizzas).
A.M.1HS.10	Interpret the meaning of the intersection of the two graphs.
A.M.1HS.11	With the assistance of a graphing calculator and visual cue cards as needed,

	graph the solutions to a linear inequality in two variables as a half-plane (excluding the boundary in the case of a strict inequality) and graph the solution set to a system of linear inequalities in two variables as the intersection of the corresponding half-planes.
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Cluster	Understand the concept of a function.
A.M.1HS.12	Using a calculator and a visual cue card of function rules that describe proportional relationships, solve real-world problems (e.g., Unit Cost x Number of Items = Total Cost).
A.M.1HS.13	Using a calculator and a visual cue card of function rules, solve real-world problems (e.g., given a \$10 off coupon, use Sales Price = Original Price – Discount to find the Sales Price).
A.M.1HS.14	Determine the missing values in arithmetic sequences. Instructional Note: Limit the common ratio in arithmetic sequences to integers (e.g., 20, 18, 16, ____, 12, 8, ... or 3, 7, 11, 15, ____, 23, ...).

Cluster	Interpret functions that arise in applications in terms of a context.										
A.M.1HS.15	Interpret data from graphs that represent linear functions with different rates of change and interpret which has the greater rate of change. Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative.										
A.M.1HS.16	Given real-world measures, demonstrate an understanding of domains (e.g., there are seven days in a week; twelve months in a year; twelve inches in a foot).										
A.M.1HS.17	Calculate and interpret the rate of change of a function presented as a table (e.g., the following table has a rate of change of -2). <table border="1" data-bbox="678 1077 1175 1291" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Items Bought</th> <th>Money Remaining</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>\$20</td> </tr> <tr> <td>1</td> <td>\$18</td> </tr> <tr> <td>2</td> <td>\$16</td> </tr> <tr> <td>3</td> <td>\$14</td> </tr> </tbody> </table>	Items Bought	Money Remaining	0	\$20	1	\$18	2	\$16	3	\$14
Items Bought	Money Remaining										
0	\$20										
1	\$18										
2	\$16										
3	\$14										

Cluster	Analyze functions using different representations.
A.M.1HS.18	With the assistance of a graphing calculator and visual cue cards as needed, graph functions expressed symbolically and show key features of the graph. Instructional Note: Focus on linear functions.
A.M.1HS.19	Identify information for two functions represented in different tables (e.g., Store A's Discount Table and Store B's Discount Table).

Cluster	Build a function that models a relationship between two quantities.						
A.M.1HS.20	Given a linear function represented by a table, determine the rate of change and add additional values to extend the table. <table border="1" data-bbox="711 1688 1143 1795" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Items Bought</th> <th>Cost</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>\$0.00</td> </tr> <tr> <td>1</td> <td>\$0.50</td> </tr> </tbody> </table>	Items Bought	Cost	0	\$0.00	1	\$0.50
Items Bought	Cost						
0	\$0.00						
1	\$0.50						

		2	\$1.00	
		3	\$1.50	
		4	\$2.00	
A.M.1HS.21	Determine the common ratio in arithmetic sequences (e.g., recognize that “down 2” would describe the common ratio for a sequence such as 20, 18, 16, 14, 12,... and write it as -2).			

Cluster	Compare linear and exponential models and solve problems.
A.M.1HS.22	Given a graph, distinguish between linear functions and exponential functions.
A.M.1HS.23	From a given list recognize linear and exponential functions, including arithmetic sequences, given a graph, a description of a relationship, or two input-output pairs (include reading these from a table).
A.M.1HS.24	Given two tables representing linear real-world function, determine which is increasing at a greater rate.

Cluster	Interpret expressions for functions in terms of the situation they model.
A.M.1HS.25	Interpret the parameters in a linear function in terms of a context. Instructional Note: Limit to linear functions.

Reasoning with Equations

Cluster	Understand solving equations as a process of reasoning and explain the reasoning.
A.M.1HS.26	Demonstrate each step in solving a one or two step equation.

Descriptive Statistics

Cluster	Summarize, represent, and interpret data on a single count or measurement variable.
A.M.1HS.27	Represent data with dot plots on a number line.
A.M.1HS.28	Given a dot plot, identify the maximum value, the minimum value, and the mode.
A.M.1HS.29	Interpret differences in graphs of data sets.

Cluster	Summarize, represent, and interpret data on two categorical and quantitative variables.
A.M.1HS.30	Sort data or objects according to characteristics, similarities, and/or associations. Interpret frequencies in the context of the data (e.g., after surveying students, regarding their favorite ice cream flavor, answer related questions).
A.M.1HS.31	Represent data of frequency using tally charts in real world situations.

Cluster	Distinguish between cause and effect.
A.M.1HS.32	In real world situations, distinguish between the cause and the effect.

Transformations

Cluster	Experiment with transformations in the plane.
A.M.1HS.33	Know the attributes of perpendicular lines, parallel lines, and line segments; angles; and circles.
A.M.1HS.34	Using manipulatives, translate, rotate, and/or reflect a geometric figure.
A.M.1HS.35	Given a rectangle, parallelogram, trapezoid, or regular polygon manipulative, recognize the rotations and reflections that carry it onto itself.
A.M.1HS.36	Recognize that a geometric shape and its translated/rotated/reflected shape are congruent.
A.M.1HS.37	Trace a given geometric shape to demonstrate translation, rotation, and/or reflection.

Cluster	Solve real-world problem situations involving parallel line segments, perpendicular line segments, angles, and circles.
A.M.1HS.38	From a list of examples, identify perpendicular line segments, parallel line segments, angles, and circles. Introduce real world situations involving perpendicular line segments, parallel line segments, angles, and circles (e.g., intersecting or parallel streets).

Coordinates and Measurement

Cluster	Use coordinates and determine area and perimeter.
A.M.1HS.39	Given coordinates, identify the geometric shapes using proper terminology.
A.M.1HS.40	Find perimeters and areas of squares and rectangles to solve real-world problems.

Alternate Academic Achievement Standards for Mathematics – High School Mathematics II

The West Virginia Alternate Academic Achievement Standards for Mathematics are written for students with significant cognitive disabilities with the understanding that the student’s IEP will determine appropriate accommodations and modifications. In addition to the accommodations and modifications listed on the student’s IEP, teacher selected scaffolding, guidance, and support are appropriate to best meet the individual student needs with increasing challenge as the learning progresses.

All West Virginia teachers are responsible for classroom instruction that integrates content standards, mathematical habits of mind, learning skills, and technology tools. Students will continue enhancing skills in a developmentally appropriate progression of standards. Following the skill progressions from previous courses, the following chart represents the concepts that will be developed in mathematics:

<p>Extending the Number System</p> <ul style="list-style-type: none"> Solve addition, subtraction, multiplication, and division real-world problems involving whole numbers and decimals (i.e., money) using visuals and/or a calculator. 	<p>Linear Functions and Modeling</p> <ul style="list-style-type: none"> Given a real-world situation, complete a given table.
<p>Expressions and Equations</p> <ul style="list-style-type: none"> Given a real world problem and a choice of two algebraic expressions involving arithmetic operations, identify the algebraic expression that models the situation. Given that Jan has \$10 and buys a loaf of bread for \$2 and a gallon of milk, if she now has \$5, determine the cost of the milk. 	<p>Applications of Probability</p> <ul style="list-style-type: none"> Make predictions involving real world cause-and-effect situations.
<p>Similarity, Parallel Lines, and Coordinates</p> <ul style="list-style-type: none"> Given two figures, decide if they are similar. 	<p>Measurement and Volume</p> <ul style="list-style-type: none"> Measure quantities accurately (e.g., follow a recipe). Given a list of volume formulas for cylinders, pyramids, cones and spheres identify the correct formula to solve real-world problems.

Relationships between Quantities

Cluster	Apply operations of rational numbers to solve problems.
A.M.2HS.1	Solve addition, subtraction, multiplication, and division real-world problems involving whole numbers and decimals (i.e., money) using visuals and/or a calculator.

Linear Functions and Modeling

Cluster	Interpret functions that arise in applications in terms of a context.	
A.M.2HS.2	Given a linear function represented by a table, determine the rate of change and find missing value. For example:	
	Items Bought	Cost
	1	\$5
	2	\$7
	3	
	4	\$11
		\$13
	6	
A.M.2HS.3	Given a real-world function, find the possible values of the domain (e.g., Could you work 10 days a week? How many days a week can you work?).	

Cluster	Analyze representation of functions.
A.M.2HS.4	Compare two functions represented in different tables (e.g., Store A's Discount Table and Store B's Discount Table) to answer questions.

Cluster	Build a function that models a relationship between two quantities.	
A.M.2HS.5	Given a real-world situation, complete a given table. For example:	
	Items Bought	Cost

Cluster	Construct and compare linear models and solve problems.
A.M.2HS.6	Given two tables representing linear real-world function, determine which is increasing at a greater rate.

Expressions and Equations

Cluster	Interpret the structure of expressions.
A.M.2HS.7	Given a real-world problem and a choice of two algebraic expressions involving arithmetic operations, identify the algebraic expression that models the situation.

Cluster	Write expressions in equivalent forms to solve problems.
A.M.2HS.8	Solve an algebraic expression involving arithmetic operations to represent a real-world problem (e.g., Jan has \$10. She buys a loaf of bread for \$2 and a gallon of milk. She now has \$5. What is the cost of the milk?)

Cluster	Create equations that describe numbers or relationships.
A.M.2HS.9	Determine solutions to equations that model real-world problem situations with two unknowns (e.g., given a set of options, find solutions for $x + y + \$2 = \6.25).
A.M.2HS.10	Solve multi-step word problems, represent these problems using formulas with a letter standing for the unknown quantity. Assess the reasonableness of answers.

Cluster	Solve equations in one variable.
A.M.2HS.11	Given choices and use of a calculator, solve quadratic equations in one variable by inspection (e.g., for $x^2 = 49$).

Applications of Probability

Cluster	Make predictions.
A.M.2HS.12	Make predictions involving real world cause-and-effect situations.
A.M.2HS.13	Recognize that two events A and B are independent.

Cluster	Use probability to evaluate outcomes of decisions.
A.M.2HS.14	Use probabilities to make fair decisions in real world situations (e.g., drawing by lots or using a random number generator).

Similarity, Parallel Lines, and Coordinates

Cluster	Understand similarity in terms of similarity transformations.
A.M.2HS.15	Given two figures, decide if they are similar.

Cluster	Identify congruent angles.
A.M.2HS.16	Given parallel lines cut by a transversal, identify congruent angles.

Cluster	Use coordinates to partition line segments.
A.M.2HS.17	From a list of several examples of points on a directed line segment between two given points, determine which one partitions the segment in a given ratio. Limit to halves and thirds.

Measurement and Volume

Cluster	Use measurement and volume formulas to solve problems.
A.M.2HS.18	Measure quantities accurately (e.g., follow a recipe).
A.M.2HS.19	Given a list of volume formulas for cylinders, pyramids, cones, and spheres identify the correct formula to solve real-world problems.

Alternate Academic Achievement Standards for Mathematics – High School Mathematics III

The West Virginia Alternate Academic Achievement Standards for Mathematics are written for students with significant cognitive disabilities with the understanding that the student’s IEP will determine appropriate accommodations and modifications. In addition to the accommodations and modifications listed on the student’s IEP, teacher selected scaffolding, guidance, and support are appropriate to best meet the individual student needs with increasing challenge as the learning progresses.

All West Virginia teachers are responsible for classroom instruction that integrates content standards, mathematical habits of mind, learning skills, and technology tools. Students will continue enhancing skills in a developmentally appropriate progression of standards. Following the skill progressions from previous courses, the following chart represents the concepts that will be developed in mathematics:

Inferences and Conclusions from Data	Linear and Polynomial Relationships
<ul style="list-style-type: none"> • Test predictions involving real-world events (e.g., experimental probability). • Given a weather forecast, determine if it is likely to rain and make appropriate real-world choices. 	<ul style="list-style-type: none"> • Identify an algebraic expression involving arithmetic operations to represent a real-world problem.
Mathematical Modeling	
<ul style="list-style-type: none"> • Compare and contrast Store A’s Discount Table and Store B’s Discount Table to answer questions. • Given a real-world situation, complete a given table to answer questions. • Interpret a scale model (e.g., locate specific rooms on a diagram of the school). 	

Inferences and Conclusions from Data

Cluster	Summarize, represent, and interpret data on a single count or measurement variable.
A.M.3HS.1	Test predictions involving real-world events (e.g., experimental probability).
Cluster	Understand and evaluate random processes underlying statistical experiments.
A.M.3HS.2	Approximate the likelihood of an event based on its probability (e.g., given a weather forecast, determine if it is likely to rain) and make appropriate real-world choices.
A.M.3HS.3	Revise original predictions if necessary when predicting real-world events.
Cluster	Make inferences and justify conclusions from sample surveys, experiments, and

	observational studies.
A.M.3HS.4	Draw conclusions from a given representation of data in real world situations.
A.M.3HS.5	Use data from a survey to make assumptions about a larger population (e.g., from a survey about favorite color given to a small number of students in a school, assume that the results hold for the school).
A.M.3HS.6	Use data from a randomized experiment to make real world predictions.

Cluster	Use probability to evaluate outcomes of decisions.
A.M.3HS.7	Use probabilities to make fair decisions.
A.M.3HS.8	Analyze decisions and outcomes based on probability concepts.

Linear and Polynomial Relationships

Cluster	Interpret the structure of expressions.
A.M.3HS.9	Identify an algebraic expression involving arithmetic operations to represent a real-world problem.

Cluster	Apply rational expressions.
A.M.3HS.10	In real world problem situations, combine mixed numbers (i.e., recipes). Instructional Note: Limit to halves.

Cluster	Represent and solve equations graphically.
A.M.3HS.11	Interpret the meaning of the intersection of the two graphs. Instructional Note: Include linear and polynomial functions.

Mathematical Modeling

Cluster	Create equations that describe numbers or relationships.
A.M.3HS.12	Create linear equations and inequalities in one variable and use them to solve problems.
A.M.3HS.13	Create linear equations in two variables to represent relationships between quantities and graph equations on coordinate axes with labels and scales.

Cluster	Interpret functions that arise in applications in terms of a context.
A.M.3HS.14	Given real-world measures, demonstrate an understanding of domains and list possible values of domains.

Cluster	Analyze functions using different representations.
A.M.3HS.15	Compare and contrast two functions represented in different tables or graphs (e.g., Store A's Discount Table and Store B's Discount Table) to answer questions.

Cluster	Build a function that models a relationship between two quantities.													
A.M.3HS.16	Given a real-world situation, complete a given table to answer questions. For example: <table border="1" data-bbox="732 298 1110 552" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Items Bought</th> <th>Cost</th> </tr> </thead> <tbody> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> </tbody> </table>		Items Bought	Cost										
Items Bought	Cost													

Cluster	Visualize relationships between two dimensional and three-dimensional objects.
A.M.3HS.17	Identify the shapes of two-dimensional cross-sections of three-dimensional objects.

Cluster	Apply geometric concepts in modeling situations.
A.M.3HS.18	Use properties of geometric shapes to describe real world objects.
A.M.3HS.19	<ul style="list-style-type: none"> • Sketch a scale model using graph paper as needed (e.g., the layout of their house). • Interpret a scale model (e.g., locate specific rooms on a diagram of the school).

TRADITIONAL PATHWAY

Alternate Academic Achievement Standards for Mathematics – High School Algebra I

The West Virginia Alternate Academic Achievement Standards for Mathematics are written for students with significant cognitive disabilities with the understanding that the student’s IEP will determine appropriate accommodations and modifications. In addition to the accommodations and modifications listed on the student’s IEP, teacher selected scaffolding, guidance, and support are appropriate to best meet the individual student needs with increasing challenge as the learning progresses.

All West Virginia teachers are responsible for classroom instruction that integrates content standards, mathematical habits of mind, learning skills, and technology tools. Students will continue enhancing skills in a developmentally appropriate progression of standards. Following the skill progressions from previous courses, the following chart represents the concepts that will be developed in mathematics:

<p>Relationships between Quantities and Reasoning with Equations</p>	<p>Linear and Exponential Relationships</p>
<ul style="list-style-type: none"> • Measure a pencil to the nearest inch. • Identify an algebraic expression involving at least one arithmetic operation to represent a real-world problem. • Demonstrate an understanding of terms such as “at least” and “fewer than” in solving real-world problems. 	<ul style="list-style-type: none"> • Interpret the meaning of the intersection of the two graphs. • Given a \$10 off coupon, use Sales Price = Original Price – Discount to find the Sales Price).
<p>Descriptive Statistics</p>	<p>Expressions and Equations</p>
<ul style="list-style-type: none"> • After surveying students regarding their favorite ice cream flavor, answer related questions). • In real world situations, distinguish between the cause and the effect. 	<ul style="list-style-type: none"> • Given a real-world problem and a choice of two algebraic expressions involving arithmetic operations, identify the algebraic expression that models the situation.
<p>Linear Functions and Modeling</p>	
<ul style="list-style-type: none"> • Solve addition, subtraction, multiplication, and division real-world problems involving whole numbers and decimals (i.e., money) using visuals and/or a calculator. • Compare Store A’s Discount Table and Store B’s Discount Table to answer questions. 	<ul style="list-style-type: none"> • Given that Jan has \$10 and buys a loaf of bread for \$2 and a gallon of milk, if she now has \$5, determine the cost of the milk.

Relationships between Quantities and Reasoning with Equations

Cluster	Reason quantitatively and use units to solve problems.
A.M.A1HS.1	Express quantities to the appropriate precision of measurement (e.g., measure a pencil to the nearest inch).
A.M.A1HS.3	Choose the appropriate unit of measurement (e.g., determine when to use feet/inches/meter, cups/gallons/liter, ounces/pounds/gram, etc.).

Cluster	Interpret the structure of expressions.
A.M.A1HS.4	Identify an algebraic expression involving at least one arithmetic operation to represent a real-world problem.

Cluster	Create equations that describe numbers or relationships.
A.M.A1HS.5	Given a real-world problem situation, write, read, and/or solve one-step addition and subtraction equations for an unknown number, with a variable standing for the unknown (e.g., $\$8.50 + c = \12).
A.M.A1HS.6	Determine solutions to equations that model real-world problem situations with two unknowns (e.g., given a set of options, find solutions for $x + y = \$6.25$).
A.M.A1HS.7	Demonstrate an understanding of terms such as “at least” and “fewer than” in solving real-world problems.
A.M.A1HS.8	Solve two-step word problems, represent these problems using formulas with a letter standing for the unknown quantity.

Cluster	Understand solving equations as a process of reasoning and explain the reasoning.
A.M.A1HS.9	Demonstrate each step in solving a one or two-step equation.

Linear and Exponential Relationships

Cluster	Represent and solve equations and inequalities graphically.
A.M.A1HS.10	Interpret the meaning of a point on the graph of a linear function (e.g., on a graph of pizza purchases, trace the graph to a point and tell the number of pizzas purchased and the total cost of the pizzas).
A.M.A1HS.11	Interpret the meaning of the intersection of the two graphs.
A.M.A1HS.12	With the assistance of a graphing calculator and visual cue cards as needed, graph the solutions to a linear inequality in two variables as a half-plane (excluding the boundary in the case of a strict inequality) and graph the solution set to a system of linear inequalities in two variables as the intersection of the corresponding half-planes.

Cluster	Understand the concept of a function.
A.M.A1HS.13	Using a calculator and a visual cue card of function rules that describe proportional relationships, solve real-world problems (e.g., Unit Cost x Number of Items = Total Cost).

A.M.A1HS.14	Using a calculator and a visual cue card of function rules, solve real-world problems (e.g., given a \$10 off coupon, use Sales Price = Original Price – Discount to find the Sales Price).
A.M.A1HS.15	Determine the missing values in arithmetic sequences. Instructional Note: Limit the common ratio in arithmetic sequences to integers (e.g., 20, 18, 16, ____, 12, 8, ... or 3, 7, 11, 15, ____, 23, ...).

Cluster	Interpret functions that arise in applications in terms of a context.	
A.M.A1HS.16	Interpret data from graphs that represent linear functions with different rates of change and interpret which has the greater rate of change. Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative.	
A.M.A1HS.17	Given real-world measures, demonstrate an understanding of domains (e.g., there are seven days in a week; twelve months in a year; twelve inches in a foot).	
A.M.A1HS.18	Calculate and interpret the rate of change of a function presented as a table (e.g., the following table has a rate of change of -2).	
	Items Bought	Money Remaining
	0	\$20
	1	\$18
	2	\$16
	3	\$14

Cluster	Analyze representations of functions.
A.M.A1HS.19	With the assistance of a graphing calculator and visual cue cards as needed, graph functions expressed symbolically and show key features of the graph. Instructional Note: Focus on linear functions.
A.M.A1HS.20	Identify information for two functions represented in different tables (e.g., Store A's Discount Table and Store B's Discount Table).

Cluster	Build a function that models a relationship between two quantities.	
A.M.A1HS.21	Given a linear function represented by a table, determine the rate of change and add additional values to extend the table.	
	Items Bought	Cost
	0	\$0.00
	1	\$0.50
	2	\$1.00
	3	\$1.50
	4	\$2.00
A.M.A1HS.22	Determine the common ratio in arithmetic sequences (e.g., recognize that "down 2" would describe the common ratio for a sequence such as 20, 18, 16, 14, 12,... and write it as -2.)	

Cluster	Construct and compare linear models and solve problems.
A.M.A1HS.23	Given a graph, distinguish between linear functions and exponential functions.
A.M.A1HS.24	From a given list recognize linear and exponential functions, including arithmetic sequences, given a graph, a description of a relationship, or two input-output pairs (include reading these from a table).
A.M.A1HS.25	Given two tables representing linear real-world function, determine which is increasing at a greater rate.

Cluster	Interpret expressions for functions in terms of the situation they model.
A.M.A1HS.26	Interpret the parameters in a linear function in terms of a context. Instructional Note: Limit to linear functions.

Descriptive Statistics

Cluster	Summarize, represent, and interpret data on a single count or measurement variable.
A.M.A1HS.27	Represent data with dot plots on a number line.
A.M.A1HS.28	Given a dot plot, identify the maximum value, the minimum value, and the mode.
A.M.A1HS.29	Interpret differences in graphs of data sets.

Cluster	Summarize, represent, and interpret data on two categorical and quantitative variables.
A.M.A1HS.30	Sort data or objects according to characteristics, similarities, and/or associations. Interpret frequencies in the context of the data (e.g., after surveying students, regarding their favorite ice cream flavor, answer related questions).
A.M.A1HS.31	Represent data of frequency using tally charts in real world situations.

Cluster	Distinguish between cause and effect.
A.M.A1HS.32	In real world situations, distinguish between the cause and the effect.

Expressions and Equations

Cluster	Interpret the structure of equations.
A.M.A1HS.33	Given a real world problem and a choice of two algebraic expressions involving arithmetic operations, identify the algebraic expression that models the situation.

Cluster	Write expressions in equivalent forms to solve problems.
A.M.A1HS.34	Solve an algebraic expression involving arithmetic operations to represent a real-world problem (e.g., Jan has \$10. She buys a loaf of bread for \$2 and a gallon of milk. She now has \$5. What is the cost of the milk?)

Cluster	Create equations that describe numbers or relationships.
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A.M.A1HS.35	Determine solutions to equations that model real-world problem situations with two unknowns (e.g., given a set of options, find solutions for $x + y = \$6.25$).
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Cluster	Solve equations in one variable.
A.M.A1HS.36	Given choices and use of a calculator, solve quadratic equations in one variable by inspection (e.g., for $x^2 = 49$).

Linear Functions and Modeling

Cluster	Use properties of rational and irrational numbers.
A.M.A1HS.37	Solve addition, subtraction, multiplication, and division real-world problems involving whole numbers and decimals (i.e., money) using visuals and/or a calculator.

Cluster	Interpret functions that arise in applications in terms of a context.
A.M.A1HS.38	Given a real-world function, find the possible values of the domain (e.g., Could you work 10 days a week? How many days a week can you work?).

Cluster	Analyze representations of functions.
A.M.A1HS.39	Compare two functions represented in different tables (e.g., Store A's Discount Table and Store B's Discount Table) to answer questions.

Alternate Academic Achievement Standards for Mathematics - High School Geometry

The West Virginia Alternate Academic Achievement Standards for Mathematics are written for students with significant cognitive disabilities with the understanding that the student's IEP will determine appropriate accommodations and modifications. In addition to the accommodations and modifications listed on the student's IEP, teacher selected scaffolding, guidance, and support are appropriate to best meet the individual student needs with increasing challenge as the learning progresses.

All West Virginia teachers are responsible for classroom instruction that integrates content standards, mathematical habits of mind, learning skills, and technology tools. Students will continue enhancing skills in a developmentally appropriate progression of standards. Following the skill progressions from previous courses, the following chart represents the concepts that will be developed in mathematics:

Congruence, Proof, and Constructions	Similarity
<ul style="list-style-type: none"> Know the attributes of perpendicular lines, parallel lines, and line segments; angles; and circles. Using manipulatives, translate, rotate, and/or reflect a geometric figure. 	<ul style="list-style-type: none"> Given two figures, decide if they are similar.
Extending to Three Dimensions	Coordinates, Area, and Perimeter
<ul style="list-style-type: none"> Given a list of volume formulas for cylinders, pyramids, cones and spheres identify the correct formula to solve real-world problems. 	<ul style="list-style-type: none"> Given coordinates, identify the geometric shapes using proper terminology.
Applications of Probability	Modeling with Geometry
<ul style="list-style-type: none"> Use probabilities to make fair decisions in real world situations (e.g., drawing by lots or using a random number generator). Make predictions involving real world cause-and-effect situations. 	<ul style="list-style-type: none"> Sketch a scale model using graph paper as needed (e.g., the layout of their house). Interpret a scale model (e.g., locate specific rooms on a diagram of the school).

Congruence and Constructions

Cluster	Experiment with transformations in the plane.
A.M.GHS.1	Know the attributes of perpendicular lines, parallel lines, and line segments; angles; and circles.
A.M.GHS.2	Using manipulatives, translate, rotate, and/or reflect a geometric figure.
A.M.GHS.3	Given a rectangle, parallelogram, trapezoid, or regular polygon manipulative, recognize the rotations and reflections that carry it onto itself.
A.M.GHS.4	Recognize that a geometric shape and its translated/rotated/reflected shape are congruent.

A.M.GHS.5	Trace a given geometric shape to demonstrate translation, rotation, and/or reflection.
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Cluster	Identify congruent angles.
A.M.GHS.6	Given parallel lines cut by a transversal, identify congruent angles.

Cluster	Identify geometric figures.
A.M.GHS.7	From a list of examples, identify perpendicular line segments, parallel line segments, angles, and circles. Introduce real world situations involving perpendicular line segments, parallel line segments, angles, and circles (e.g., intersecting or parallel streets).

Similarity

Cluster	Understand similarity in terms of similarity transformations.
A.M.GHS.8	Given two figures, decide if they are similar.

Extending to Three Dimensions

Cluster	Use measurement and volume formulas to solve problems.
A.M.GHS.9	Measure quantities accurately (e.g., follow a recipe).
A.M.GHS.10	Given a list of volume formulas for cylinders, pyramids, cones and spheres identify the correct formula to solve real-world problems.

Cluster	Visualize the relation between two dimensional and three-dimensional objects.
A.M.GHS.11	Identify the shapes of two-dimensional cross-sections of three-dimensional objects.

Cluster	Apply geometric concepts in modeling situations.
A.M.GHS.12	Use properties of geometric shapes to describe real world objects.

Coordinates, Area, and Perimeter

Cluster	Use coordinates and determine area and perimeter.
A.M.GHS.13	Given coordinates, identify the geometric shapes using proper terminology.
A.M.GHS.14	From a list of several examples of points on a directed line segment between two given points, determine which one partitions the segment in a given ratio. Instructional Note: Limit to halves and thirds.
A.M.GHS.15	Find perimeters and areas of squares and rectangles to solve real-world problems.

Applications of Probability

Cluster	Make predictions.
A.M.GHS.16	Make predictions involving real world cause-and-effect situations.
A.M.GHS.17	Recognize that two events A and B are independent.

Cluster	Use probability to evaluate outcomes of decisions.
A.M.GHS.18	Use probabilities to make fair decisions in real world situations (e.g., drawing by lots or using a random number generator).

Modeling with Geometry

Cluster	Visualize relationships between two dimensional and three-dimensional objects and apply geometric concepts in modeling situations.
A.M.GHS.19	<ul style="list-style-type: none">• Sketch a scale model using graph paper as needed (e.g., the layout of their house).• Interpret a scale model (e.g., locate specific rooms on a diagram of the school).

Alternate Academic Achievement Standards for Mathematics - High School Algebra II

The West Virginia Alternate Academic Achievement Standards for Mathematics are written for students with significant cognitive disabilities with the understanding that the student's IEP will determine appropriate accommodations and modifications. In addition to the accommodations and modifications listed on the student's IEP, teacher selected scaffolding, guidance, and support are appropriate to best meet the individual student needs with increasing challenge as the learning progresses.

All West Virginia teachers are responsible for classroom instruction that integrates content standards, mathematical habits of mind, learning skills, and technology tools. Students will continue enhancing skills in a developmentally appropriate progression of standards. Following the skill progressions from previous courses, the following chart represents the concepts that will be developed in mathematics:

Polynomial Relationships	Inferences and Conclusions from Data
<ul style="list-style-type: none"> Identify an algebraic expression involving arithmetic operations to represent a real-world problem. 	<ul style="list-style-type: none"> Test predictions involving real-world events (e.g., experimental probability). Given a weather forecast, determine if it is likely to rain and make appropriate real-world choices.
<p>Modeling with Functions</p> <ul style="list-style-type: none"> Solve multi-step word problems, represent these problems using formulas with a letter standing for the unknown quantity. Assess the reasonableness of answers. Compare and contrast Store A's Discount Table and Store B's Discount Table to answer questions. 	

Polynomial Relationships

Cluster	Interpret the structure of expressions.
A.M.A2HS.1	Identify an algebraic expression involving arithmetic operations to represent a real-world problem.
Cluster	Rewrite rational expressions.
AM.A2HS.2	In real world problem situations, combine mixed numbers (i.e., recipes). Instructional Note: Limit to halves.
Cluster	Represent and solve equations and inequalities graphically.
A.M.A2HS.3	Interpret the meaning of the intersection of the two graphs. Instructional Note: Include linear and polynomial functions.

Modeling with Functions

Cluster	Create equations that describe numbers or relationships.
A.M.A2HS.4	Create linear equations and inequalities in one variable and use them to solve problems.
A.M.A2HS.5	Create linear equations in two variables to represent relationships between quantities and graph equations on coordinate axes with labels and scales.
A.M.A2HS.6	Solve multi-step word problems, represent these problems using formulas with a letter standing for the unknown quantity. Assess the reasonableness of answers.

Cluster	Interpret functions that arise in applications in terms of a context.														
A.M.A2HS.7	<p>Given a linear function represented by a table, determine the rate of change and find missing value. For example:</p> <table border="1" data-bbox="766 688 1118 942"> <thead> <tr> <th>Items Bought</th> <th>Cost</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>\$5</td> </tr> <tr> <td>2</td> <td>\$7</td> </tr> <tr> <td>3</td> <td></td> </tr> <tr> <td>4</td> <td>\$11</td> </tr> <tr> <td></td> <td>\$13</td> </tr> <tr> <td>6</td> <td></td> </tr> </tbody> </table>	Items Bought	Cost	1	\$5	2	\$7	3		4	\$11		\$13	6	
Items Bought	Cost														
1	\$5														
2	\$7														
3															
4	\$11														
	\$13														
6															
A.M.A2HS.8	Given real-world measures, demonstrate an understanding of domains and list possible values of domains.														

Cluster	Analyze functions using different representations.
A.M.A2HS.9	Compare and contrast two functions represented in different tables (e.g., Store A's Discount Table and Store B's Discount Table) to answer questions.

Cluster	Build a function that models a relationship between two quantities.												
A.M.A2HS.10	<p>Given a real-world situation, complete a given table to answer questions. For example:</p> <table border="1" data-bbox="628 1310 972 1562"> <thead> <tr> <th>Items Bought</th> <th>Cost</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> </tr> <tr> <td></td> <td></td> </tr> <tr> <td></td> <td></td> </tr> <tr> <td></td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </tbody> </table>	Items Bought	Cost										
Items Bought	Cost												

Inferences and Conclusions from Data

Cluster	Summarize, represent, and interpret data on a single count or measurement variable.
A.M.A2HS.11	Test predictions involving real-world events (e.g., experimental probability).

Cluster	Understand and evaluate random processes underlying statistical experiments.
A.M.A2HS.12	Approximate the likelihood of an event based on its probability (e.g., given a weather forecast, determine if it is likely to rain) and make appropriate real-world choices.
A.M.A2HS.13	Revise original predictions if necessary when predicting real-world events.

Cluster	Make inferences and justify conclusions from sample surveys, experiments, and observational studies.
A.M.A2HS.14	Draw conclusions from a given representation of data in real world situations.
A.M.A2HS.15	Use data from a survey to make assumptions about a larger population (e.g., from a survey about favorite color given to a small number of students in a school, assume that the results hold for the school).
A.M.A2HS.16	Use data from a randomized experiment to make real world predictions.

Cluster	Use probability to evaluate outcomes of decisions.
AM.A2HS.17	Use probabilities to make fair decisions.
AM.A2HS.18	Analyze decisions and outcomes based on probability concepts.

Alternate Academic Achievement Standards for Mathematics – Transition Mathematics for Seniors

The West Virginia Alternate Academic Achievement Standards for Mathematics are written for students with significant cognitive disabilities with the understanding that the student’s IEP will determine appropriate accommodations and modifications. In addition to the accommodations and modifications listed on the student’s IEP, teacher selected scaffolding, guidance, and support are appropriate to best meet the individual student needs with increasing challenge as the learning progresses.

All West Virginia teachers are responsible for classroom instruction that integrates content standards, mathematical habits of mind, learning skills, and technology tools. Students will continue enhancing skills in a developmentally appropriate progression of standards. Following the skill progressions from previous courses, the following chart represents the concepts that will be developed in mathematics:

<p>Number and Quantity: The Real Number System</p>	<p>Algebra: Seeing Structure in Expressions Creating Equations Reasoning with Equations and Inequalities</p>
<ul style="list-style-type: none"> • Measure a pencil to the nearest inch). 	<ul style="list-style-type: none"> • Given that Jan has \$10 and buys a loaf of bread for \$2 and a gallon of milk, if she now has \$5, determine the cost of the milk. • Demonstrate an understanding of terms such as “at least” and “fewer than” in solving real-world problems.
<p>Functions: Interpreting Functions Building Functions</p>	<p>Geometry: Geometric Measuring and Dimension Expressing Geometric Properties with Equations Modeling with Geometry</p>
<ul style="list-style-type: none"> • Solve real-world problems. (e.g., Unit Cost x Number of Items = Total Cost). • Recognize that “down 2” would describe the common ratio for a sequence such as 20, 18, 16, 14, 12,... and write it as -2. • Compare and contrast Store A’s Discount Table and Store B’s Discount Table to answer questions. • Given a real-world situation, complete a given table to answer questions. 	<ul style="list-style-type: none"> • Measure quantities accurately (e.g., follow a recipe). • Given coordinates, identify the geometric shapes using proper terminology. • Interpret a scale model (e.g., locate specific rooms on a diagram of the school).
<p>Statistics and Probability: Interpreting Categorical and Quantitative Data Making Inferences and Justifying Conclusions</p>	

<ul style="list-style-type: none"> • In real world situations, distinguish between the cause and the effect. • Given a weather forecast, determine if it is likely to rain and make appropriate real-world choices. 	
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Number and Quantity – The Real Number System

Cluster	Extend the properties of exponents to rational exponents.
A.M.TMS.1	Express quantities to the appropriate precision of measurement (e.g., measure a pencil to the nearest inch).
A.M.TMS.2	Choose the appropriate unit of measurement (e.g., determine when to use feet/inches/meter, cups/gallons/liter, ounces/pounds/gram).

Algebra – Seeing Structure in Expressions

Cluster	Write expressions in equivalent forms to solve problems.
A.M.TMS.3	Solve an algebraic expression involving arithmetic operations to represent a real-world problem (e.g., Jan has \$10. She buys a loaf of bread for \$2 and a gallon of milk. She now has \$5. What is the cost of the milk?)

Cluster	Understand the connections between proportional relationship, lines, and linear equations.
A.M.TMS.4	Recognize and represent proportional relationships between quantities on graphs. In real world problem situations, decide whether two quantities are in a proportional relationship (e.g. If Dan walks one block each morning, how many blocks does he walk in one week?).
A.M.TMS.5	Given a table of values depicting a proportional relationship or an arithmetic sequence, determine missing values.
A.M.MTS.6	<ul style="list-style-type: none"> • Given a real world problem situation, write, read, and/or solve one-step addition and subtraction equations for an unknown whole number and/or decimal money amounts, with a variable standing for the unknown (e.g., \$20- c = \$13 How much did I spend?). (Focus on money) • Given a one-step addition or subtraction equation with two unknowns, create true statements. (e.g., given $x + y = 7$, create statements such as $2 + 5 = 7$ and $3 + 4 = 7$) Instructional Note: Limit to whole numbers. • Solve simple one-step word problems involving multiplication that have whole numbers or fractional remainders and understand what the fractional remainder means (e.g., Molly and her friend have 13 cookies and want to equally distribute the cookies between them, how much would each person get and how many are left over?). • Match two-step word problems posed with whole numbers and having whole-number answers using the four operations with the correct symbolic representation (e.g., two times a number plus one equals five matches $2x + 1 = 5$)

	+ 1 = 5).
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Algebra – Creating Equations

Cluster	Create equations that describe numbers or relationships.
A.M.TMS.7	<ul style="list-style-type: none"> Given a real-world problem situation, write, read, and/or solve one-step addition and subtraction equations for an unknown number, with a variable standing for the unknown (e.g., $\\$8.50 + c = \\12). Create linear equations and inequalities in one variable and use them to solve problems.
A.M.TMS.8	Create linear equations in two variables to represent relationships between quantities and graph equations on coordinate axes with labels and scales.
A.M.TMS.9	Demonstrate an understanding of terms such as “at least” and “fewer than” in solving real-world problems.
A.M.TMS.10	Solve multi-step word problems, represent these problems using formulas with a letter standing for the unknown quantity. Assess the reasonableness of answers.

Algebra – Reasoning with Equations and Inequalities

Cluster	Solve equations in one variable.
A.M.TMS.11	Demonstrate each step in solving a one or two-step equation.
A.M.TMS.12	Given choices and use of a calculator, solve quadratic equations in one variable by inspection (e.g., for $x^2 = 49$).

Cluster	Solve systems of equations.
A.M.TMS.13	Interpret the meaning of the intersection of the two graphs. Instructional Note: Include linear and polynomial functions.

Cluster	Represent and solve equations and inequalities graphically.
A.M.TMS.14	With the assistance of a graphing calculator and visual cue cards as needed, graph the solutions to a linear inequality in two variables as a half-plane (excluding the boundary in the case of a strict inequality) and graph the solution set to a system of linear inequalities in two variables as the intersection of the corresponding half-planes.

Functions – Interpreting Functions

Cluster	Understand the concept of a function.
A.M.TMS.15	Using a calculator and a visual cue card of function rules that describe proportional relationships, solve real-world problems (e.g., Unit Cost x Number of Items = Total Cost).

Cluster	Interpret functions that arise in applications in terms of the context.
A.M.TMS.16	Determine the common ratio in arithmetic sequences (e.g., recognize that

	“down 2” would describe the common ratio for a sequence such as 20, 18, 16, 14, 12,... and write it as -2.)														
A.M.TMS.17	Interpret the parameters in a linear function in terms of a context. Instructional Note: Limit to linear functions.														
A.M.TMS.18	Given a linear function represented by a table, determine the rate of change and find missing value (e.g., <table border="1" data-bbox="716 403 1149 695"> <thead> <tr> <th>Items Bought</th> <th>Cost</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>\$5</td> </tr> <tr> <td>2</td> <td>\$7</td> </tr> <tr> <td>3</td> <td></td> </tr> <tr> <td>4</td> <td>\$11</td> </tr> <tr> <td></td> <td>\$13</td> </tr> <tr> <td>6</td> <td></td> </tr> </tbody> </table>	Items Bought	Cost	1	\$5	2	\$7	3		4	\$11		\$13	6	
Items Bought	Cost														
1	\$5														
2	\$7														
3															
4	\$11														
	\$13														
6															
A.M.TMS.19	Given a graph, distinguish between linear functions and exponential functions.														

Cluster	Analyze representations of functions.
A.M.TMS.20	<ul style="list-style-type: none"> Given a function rule and the input value, determine the output. Given graphical representations determine if the graph is a straight line or not a straight line. (Staying within Quadrant I.)
A.M.TMS.21	Demonstrate an understanding of an increase or decrease on a graph.
A.M.TMS.22	With the assistance of a graphing calculator and visual cue cards as needed, graph functions expressed symbolically and show key features of the graph. Instructional Note: Focus on linear functions.
A.M.TMS.23	Given two tables representing linear real-world function, determine which is increasing at a greater rate.
A.M.TMS.24	Compare and contrast two functions represented in different tables or graphs (e.g., Store A’s Discount Table and Store B’s Discount Table) to answer questions.

Functions - Building Functions

Cluster	Build a function that models a relationship between two quantities.												
A.M.TMS.25	From a given list recognize linear and exponential functions, including arithmetic sequences, given a graph, a description of a relationship, or two input-output pairs (include reading these from a table).												
A.M.TMS.26	Given a real-world situation, complete a given table to answer questions. For example: <table border="1" data-bbox="742 1551 1122 1808"> <thead> <tr> <th>Items Bought</th> <th>Cost</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> </tr> <tr> <td></td> <td></td> </tr> <tr> <td></td> <td></td> </tr> <tr> <td></td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </tbody> </table>	Items Bought	Cost										
Items Bought	Cost												

Geometry – Geometric Measuring and Dimension

Cluster	Explain volume formulas and use them to solve problems.
A.M.TMS.27	Measure quantities accurately (e.g., follow a recipe).

Geometry – Expressing Geometric Properties with Equations

Cluster	Use measurement to solve problems.
A.M.TMS.28	Given coordinates, identify the geometric shapes using proper terminology.
A.M.TMS.29	Find perimeters and areas of squares and rectangles to solve real-world problems.

Geometry – Modeling with Geometry

Cluster	Use coordinates and determine area and perimeter.
A.M.TMS.30	Use scale models to demonstrate an understanding of geometric concepts. <ul style="list-style-type: none">• Sketch a scale model using graph paper as needed (e.g., the layout of their house).• Interpret a scale model (e.g., locate specific rooms on a diagram of the school).

Statistics and Probability - Interpreting Categorical & Quantitative Data

Cluster	Summarize, represent, and interpret data on two categorical and quantitative variables.
A.M.TMS.31	Represent data of frequency using tally charts in real world situations.
A.M.TMS.32	Sort data or objects according to characteristics, similarities, and/or associations. Interpret frequencies in the context of the data (e.g., after surveying students, regarding their favorite ice cream flavor, answer related questions).
Cluster	Summarize, represent, and interpret data on a single count or measurement variable.
A.M.TMS.33	Represent data with dot plots on a number line.
A.M.TMS.34	Given a dot plot, identify the maximum value, the minimum value, and the mode.
A.M.TMS.35	Interpret differences in graphs of data sets.
A.M.TMS.36	In real world situations, distinguish between the cause and the effect.

Statistics and Probability - Interpreting Categorical & Quantitative Data

Cluster	Understand and evaluate random processes underlying statistical experiments
A.M.TMS.37	Approximate the likelihood of an event based on its probability (e.g., given a weather forecast, determine if it is likely to rain) and make appropriate real-world choices.