



## CAMI Education linked to CAPS: Mathematics Grade 8

Grade 8 CAPS curriculum		
TERM 1		
TOPIC	CONTENT	CAMI Keys
1.1 Whole numbers	<p><b>Mental calculations</b> Revise:</p> <ul style="list-style-type: none"><li>• Multiplication of whole numbers to at least <math>12 \times 12</math></li></ul> <p><b>Ordering and comparing whole numbers</b> Revise prime numbers to at least 100</p> <p><b>Properties of whole numbers</b> Revise:</p> <ul style="list-style-type: none"><li>• The commutative, associative and distributive properties of whole numbers</li><li>• 0 in terms of its additive property (identity element for multiplication)</li><li>• 1 in terms of its multiplicative property (identity element for multiplication)</li><li>• Recognize the division property of 0, where any number divided by 0 is undefined.</li></ul> <p><b>Calculations using whole numbers</b> Revise:</p> <ul style="list-style-type: none"><li>• Calculations using all four operations on whole numbers, estimating and using calculators where appropriate</li></ul> <p><b>Calculation techniques</b></p> <ul style="list-style-type: none"><li>• Use a range of strategies to perform and check written and mental calculations with whole numbers including:<ul style="list-style-type: none"><li>❖ Estimation</li><li>❖ Adding, subtracting and multiplying in columns</li></ul></li></ul>	<p>4.4.1.1 4.4.1.2</p> <p>1.7.5.4 1.7.5.6 1.7.5.8</p> <p>1.7.1.7</p>



## CAMI Education linked to CAPS: Mathematics Grade 8

	<ul style="list-style-type: none"> <li>❖ Long division</li> <li>❖ Rounding off and compensating</li> <li>❖ Using a calculator</li> </ul> <p><b>Multiples and factors</b> Revise:</p> <ul style="list-style-type: none"> <li>• Prime factors of numbers to at least 3-digit whole numbers</li> <li>• LCM and HCF of numbers to at least 3 digit whole numbers, by inspection or factorization</li> </ul> <p><b>Solving problems</b></p> <ul style="list-style-type: none"> <li>• Solve problems involving whole numbers, including:               <ul style="list-style-type: none"> <li>❖ Comparing two or more quantities of the same kind (ratio)</li> <li>❖ Comparing two quantities of different kinds (rate)</li> <li>❖ Sharing in a given ratio where the whole is given</li> <li>❖ Increasing or decreasing of a number in a given ratio</li> </ul> </li> <li>• Solve problems that involve whole numbers, percentages and decimal fractions in financial contexts such as:               <ul style="list-style-type: none"> <li>❖ Profit, loss, discount and VAT</li> <li>❖ Budgets</li> <li>❖ Accounts</li> <li>❖ Loans</li> <li>❖ Simple interest</li> <li>❖ Hire purchase</li> <li>❖ Exchange rate</li> </ul> </li> </ul>	<p><b>1.8.1.2</b> <b>1.8.1.4</b> <b>1.8.1.5</b> <b>1.8.1.6</b> <b>1.8.1.7</b> <b>1.8.1.8</b> <b>1.8.2.4</b> <b>1.8.2.5</b></p> <p><b>4.7.1.3</b> <b>4.7.2.1</b> <b>4.7.2.2</b> <b>4.7.2.3</b> <b>9.7.2</b></p> <p><b>2.6.1.1</b> <b>2.6.1.2</b> <b>2.6.1.3</b> <b>2.6.1.4</b> <b>2.6.1.5</b></p> <p><b>10.7.1.1</b> <b>10.7.1.2</b> <b>10.6.2.5</b></p>
<b>1.3 Integers</b>	<p><b>Counting, ordering and comparing integers</b> Revise:</p>	<p><b>2.2.2.4</b> <b>2.2.2.5</b> <b>2.2.2.6</b></p>



## CAMI Education linked to CAPS: Mathematics Grade 8

	<ul style="list-style-type: none"><li>❖ Counting backwards and forwards in integers for any interval</li><li>❖ Recognizing, ordering and comparing integers</li></ul>	2.2.2.7 2.2.2.8 2.5.1.1 2.5.1.2 2.5.1.3
	<b>Calculations with integers</b>	2.5.1.4
	<ul style="list-style-type: none"><li>❖ Revise addition and subtraction with integers</li><li>❖ Multiply and divide with integers</li><li>❖ Perform calculations involving all four operations with integers</li><li>❖ Perform calculations involving all four operations with numbers that involve the squares, cubes, square roots and cube roots of integers</li></ul>	2.5.1.5 2.5.1.6 2.5.2.1 2.5.2.2 2.5.2.3 2.5.2.4 2.5.3.1 2.5.3.2 2.5.3.3 2.5.3.4 2.5.3.5
	<b>Properties of integers</b>	
	<ul style="list-style-type: none"><li>• Recognize and use commutative, associative and distributive properties of addition and multiplication for integers</li><li>• Recognize and use additive and multiplicative inverses for integers</li></ul>	2.2.3.5 2.2.3.7 2.2.3.10 2.2.4.1 2.2.4.2 2.2.4.3 2.2.4.4
	<b>Solving problems</b>	2.2.4.4
	<ul style="list-style-type: none"><li>• Solve problems in contexts involving multiple operations with integers</li></ul>	2.2.5.10 2.2.5.5 2.2.5.6 2.5.5.1 2.5.5.2 2.2.5.7 2.2.5.8 2.2.5.9 2.2.6.1 2.2.6.2 2.2.6.3 2.2.6.4 2.2.6.5 2.2.6.6 3.8.1.10 2.5.4.3



## CAMI Education linked to CAPS: Mathematics Grade 8

		<b>2.5.4.4</b>
<b>1.2 Exponents</b>	<p><b>Mental calculations</b></p> <p><b>Revise:</b></p> <ul style="list-style-type: none"> <li>• Squares to at least <math>12^2</math> and their square roots</li> <li>• Cubes to at least <math>6^3</math> and their cube roots</li> </ul> <p><b>Comparing and representing numbers in exponential form</b></p> <p><b>Revise:</b></p> <ul style="list-style-type: none"> <li>• Compare and represent whole numbers in exponential form</li> <li>• Compare and represent integers in exponential form</li> <li>• Compare and represent numbers in scientific notation, limited to positive exponents</li> </ul> <p><b>Calculations using numbers in exponential form</b></p> <ul style="list-style-type: none"> <li>• Establish general laws of exponents limited to Natural exponents:             <ul style="list-style-type: none"> <li>❖ <math>a^m \times a^n = a^{m+n}</math></li> <li>❖ <math>a^m \div a^n = a^{m-n}; m &gt; n</math></li> <li>❖ <math>(a^m)^n = a^{mn}</math></li> <li>❖ <math>(a \times t)^n = a^n \times t^n</math></li> <li>❖ <math>a^0 = 1</math></li> </ul> </li> <li>• Recognize and use the appropriate laws of operations using numbers involving exponents and square and cube roots</li> <li>• Perform calculations involving all four operations with numbers that involve squares, cubes, square roots and cube roots of integers</li> <li>• Calculate the squares, cubes, square roots and cube roots of rational numbers</li> </ul>	<p><b>1.8.5.1</b></p> <p><b>1.8.5.2</b></p> <p><b>1.8.5.3</b></p> <p><b>1.8.5.4</b></p> <p><b>1.8.5.6</b></p> <p><b>1.8.5.7</b></p> <p><b>1.8.4.1</b></p> <p><b>4.3.1.1</b></p> <p><b>4.3.1.2</b></p> <p><b>4.3.1.3</b></p> <p><b>4.3.1.4</b></p> <p><b>4.3.1.5</b></p> <p><b>4.3.1.6</b></p> <p><b>4.3.1.7</b></p> <p><b>4.4.2.1</b></p> <p><b>4.4.2.2</b></p> <p><b>1.8.3.1</b></p> <p><b>1.8.3.2</b></p> <p><b>1.8.3.3</b></p> <p><b>1.8.3.4</b></p> <p><b>1.8.3.5</b></p>



## CAMI Education linked to CAPS: Mathematics Grade 8

	<b>Solving problems</b> <ul style="list-style-type: none"><li>• Solve problems in contexts involving numbers in exponential form</li></ul>	
<b>2.1 Numeric and geometric patterns</b>	<b>Investigate and extend patterns</b> <ul style="list-style-type: none"><li>• Investigate and extend numeric and geometric patterns looking for relationships between numbers, including patterns:<ul style="list-style-type: none"><li>❖ Represented in physical or diagram form</li><li>❖ Not limited to sequences involving a constant difference or ratio</li><li>❖ Of learner's own creation</li><li>❖ Represented in tables</li><li>❖ Represented algebraically</li></ul></li><li>• Describe and justify the general rules for observed relationships between numbers in own words or in algebraic language</li></ul>	<b>4.1.2.10 4.1.2.8 4.1.2.9 4.1.4.4</b>
<b>2.2 Functions and relationships</b>	<b>Input and output values</b> <ul style="list-style-type: none"><li>• Determine input values, output values or rules for patterns and relationships using:<ul style="list-style-type: none"><li>❖ Flow diagrams</li><li>❖ Tables</li><li>❖ Formulae</li><li>❖ Equations</li></ul></li></ul> <b>Equivalent forms</b> <ul style="list-style-type: none"><li>• Determine, interpret and justify equivalence of different descriptions of the same relationship or rule presented:<ul style="list-style-type: none"><li>❖ Verbally</li><li>❖ In flow diagrams</li><li>❖ In tables</li><li>❖ By formulae</li></ul></li></ul>	<b>3.2.6.4 3.2.6.5 3.2.6.6 4.1.3.5</b>



## CAMI Education linked to CAPS: Mathematics Grade 8

	❖ By equations	
<b>2.3 Algebraic expressions</b>	<p><b>Algebraic language</b></p> <ul style="list-style-type: none"> <li>• Revise the following done in Grade 7:               <ul style="list-style-type: none"> <li>❖ Recognize and interpret rules or relationships represented in symbolic form</li> <li>❖ Identify variables and constants in given formulae and equations</li> </ul> </li> <li>• Recognize and identify conventions for writing algebraic expressions</li> <li>• Identify and classify like and unlike terms in algebraic expressions</li> <li>• Recognize and identify coefficients and exponents in algebraic expressions</li> </ul> <p><b>Expand and simplify algebraic expressions</b> Use commutative, associative and distributive laws for rational numbers and laws of exponents to:</p> <ul style="list-style-type: none"> <li>• Add and subtract like terms in algebraic expressions</li> <li>• Determine the squares, cubes, square roots and cube roots of single algebraic terms or like algebraic terms</li> <li>• Determine the numerical value of algebraic expressions by substitution</li> </ul>	<p><b>3.2.7.1</b> <b>3.2.7.2</b> <b>3.2.7.3</b> <b>3.2.7.4</b> <b>4.1.2.4</b> <b>4.1.3.1</b> <b>4.1.3.2</b> <b>4.1.3.3</b> <b>4.1.3.4</b> <b>4.1.3.6</b> <b>4.1.3.7</b> <b>4.1.8.5</b> <b>4.1.3.4</b> <b>4.1.8.1</b> <b>4.1.8.2</b> <b>4.1.8.3</b> <b>4.1.8.4</b> <b>4.1.8.5</b> <b>4.1.8.6</b> <b>4.1.8.7</b> <b>4.1.8.8</b> <b>4.1.9.1</b> <b>4.1.9.2</b> <b>4.1.9.6</b> <b>4.1.9.7</b> <b>4.1.10.1</b> <b>4.1.10.2</b> <b>4.1.10.4</b> <b>4.1.10.5</b> <b>4.4.3.1</b> <b>4.4.3.2</b> <b>4.4.3.3</b> <b>4.6.5.1</b> <b>4.6.5.2</b> <b>4.6.6.1</b> <b>4.6.6.2</b></p>
<b>2.4</b>	<b>Equations</b>	



## CAMI Education linked to CAPS: Mathematics Grade 8

<p><b>Algebraic equations</b></p>	<ul style="list-style-type: none"> <li>• Revise the following done in Grade 7:             <ul style="list-style-type: none"> <li>❖ Set up equations to describe problem situations</li> <li>❖ Analyze and interpret equations that describe a given situation</li> <li>❖ Solve equations by inspection</li> <li>❖ Determine the numerical value of an expression by substitution</li> <li>❖ Identify variables and constants in given equations</li> </ul> </li> <li>• Extend solving equations to include:             <ul style="list-style-type: none"> <li>❖ Using additive and multiplicative inverses</li> <li>❖ Using laws of exponents</li> </ul> </li> <li>• Use substitution in equations to generate tables of ordered pairs</li> </ul>	<p><b>3.5.7.2</b> <b>3.8.1.10</b> <b>4.2.1.1</b> <b>4.2.1.2</b> <b>4.2.2.1</b> <b>4.2.2.2</b></p>
<b>TERM 2</b>		
<p><b>2.3</b> <b>Algebraic expressions</b></p>	<p><b>Algebraic language</b></p> <ul style="list-style-type: none"> <li>• Revise the following done in Grade 7:             <ul style="list-style-type: none"> <li>❖ Recognize and interpret rules or relationships represented in symbolic form</li> <li>❖ Identify variables and constants in given formulae and equations</li> </ul> </li> <li>• Recognize and identify conventions for writing algebraic expressions</li> <li>• Identify and classify like and unlike terms in algebraic expressions</li> <li>• Recognize and identify coefficients and exponents in algebraic expressions</li> </ul> <p><b>Expand and simplify algebraic expressions</b> Use commutative, associative and</p>	<p><b>3.2.7.1</b> <b>3.2.7.2</b> <b>3.2.7.3</b> <b>3.2.7.4</b> <b>4.1.2.4</b> <b>4.1.3.1</b> <b>4.1.3.2</b> <b>4.1.3.3</b> <b>4.1.3.4</b> <b>4.1.3.6</b> <b>4.1.3.7</b> <b>4.1.8.1</b> <b>4.1.8.2</b></p>



## CAMI Education linked to CAPS: Mathematics Grade 8

	<p>distributive laws for rational numbers and laws of exponents to:</p> <ul style="list-style-type: none"> <li>• Add and subtract like terms in algebraic expressions</li> <li>• Multiply integers and monomials by:             <ul style="list-style-type: none"> <li>❖ Monomials</li> <li>❖ Binomials</li> <li>❖ Trinomials</li> </ul> </li> <li>• Divide the following by integers or monomials:             <ul style="list-style-type: none"> <li>❖ Monomials</li> <li>❖ Binomials</li> <li>❖ Trinomials</li> </ul> </li> <li>• Simplify algebraic expressions involving the above operations</li> <li>• Determine the squares, cubes, square roots and cube roots of single algebraic terms or like algebraic terms</li> <li>• Determine the numerical value of algebraic expressions by substitution</li> </ul>	<p>4.1.8.3 4.1.8.4 4.1.8.5 4.1.8.6 4.1.8.7 4.1.8.8 4.1.9.1 4.1.9.2 4.1.9.6 4.1.9.7 4.1.10.1 4.1.10.2 4.1.10.4 4.1.10.5 4.4.3.1 4.4.3.2 4.4.3.3 4.6.5.1 4.6.5.2 4.6.6.1 4.6.6.2</p>
<p style="text-align: center;"><b>2.4</b> <b>Algebraic equations</b></p>	<p><b>Equations</b></p> <ul style="list-style-type: none"> <li>• Revise the following done in Grade 7:             <ul style="list-style-type: none"> <li>❖ Set up equations to describe problem situations</li> <li>❖ Analyze and interpret equations that describe a given situation</li> <li>❖ Solve equations by inspection</li> <li>❖ Determine the numerical value of an expression by substitution</li> <li>❖ Identify variables and constants in given equations</li> </ul> </li> <li>• Extend solving equations to include:</li> </ul>	<p>3.5.7.2 3.8.1.10 4.2.1.1 4.2.1.2 4.2.2.1 4.2.2.2</p>





## CAMI Education linked to CAPS: Mathematics Grade 8

	<ul style="list-style-type: none"> <li>❖ Using additive and multiplicative inverses</li> <li>❖ Using laws of exponents</li> <li>• Use substitution in equations to generate tables of ordered pairs</li> </ul>	
<p><b>3.5</b> <b>Construction of geometric figures</b></p>	<p><b>Constructions</b></p> <ul style="list-style-type: none"> <li>• Accurately construct geometric figures appropriately using a compass, ruler and protractor, including:             <ul style="list-style-type: none"> <li>❖ Bisecting lines and angles</li> <li>❖ Perpendicular lines at a given point or from a given point</li> <li>❖ Triangles</li> <li>❖ Quadrilaterals</li> </ul> </li> <li>• Construct angles of <math>30^\circ</math>, <math>45^\circ</math> and <math>60^\circ</math> and their multiples without using a protractor</li> </ul> <p><b>Investigate properties of geometric figures</b></p> <ul style="list-style-type: none"> <li>• By construction, investigate the angles in a triangle, focusing on:             <ul style="list-style-type: none"> <li>❖ The sum of the interior angles of triangles</li> <li>❖ The size of angles in an equilateral triangle</li> <li>❖ The sides and base angles of an isosceles triangle</li> </ul> </li> <li>• By construction, investigate sides and angles in quadrilaterals, focusing on:             <ul style="list-style-type: none"> <li>❖ The sum of the interior angles of quadrilaterals</li> <li>❖ The sides and opposite angles of parallelograms</li> </ul> </li> </ul>	<p><b>8.1.6.1</b> <b>8.1.6.2</b> <b>8.1.6.3</b> <b>8.1.6.4</b></p>
<p><b>3.1</b> <b>Geometry of 2D shapes</b></p>	<p><b>Classifying 2D shapes</b></p> <ul style="list-style-type: none"> <li>• Identify and write clear definitions of triangles in terms of their sides and angles, distinguishing between:</li> </ul>	<p><b>8.3.1.1</b> <b>8.3.1.2</b></p>



## CAMI Education linked to CAPS: Mathematics Grade 8

	<ul style="list-style-type: none"> <li>❖ Equilateral triangles</li> <li>❖ Isosceles triangles</li> <li>❖ Right-angled triangles</li> <li>• Identify and write clear definitions of quadrilaterals in terms of their sides and angles, distinguishing between:             <ul style="list-style-type: none"> <li>❖ Parallelogram</li> <li>❖ Rectangle</li> <li>❖ Square</li> <li>❖ Rhombus</li> <li>❖ Trapezium</li> <li>❖ Kite</li> </ul> </li> </ul> <p><b>Similar and congruent 2D shapes</b></p> <ul style="list-style-type: none"> <li>• Identify and describe the properties of congruent shapes</li> <li>• Identify and describe the properties of similar shapes</li> </ul> <p><b>Solving problems</b></p> <ul style="list-style-type: none"> <li>• Solve geometric problems involving unknown sides and angles in triangles and quadrilaterals, using known properties and definitions</li> </ul>	<p>8.3.1.3 8.3.2.1 8.3.2.2 8.3.3.1 8.3.3.2 8.3.4.1 8.3.4.2 8.4.1.1 8.4.1.2 8.4.2.1 8.4.3.1</p> <p>8.3.7.1 8.3.5.2</p>
<p><b>3.3</b> <b>Geometry of straight lines</b></p>	<p><b>Angle relationships</b> Recognize and describe pairs of angles formed by:</p> <ul style="list-style-type: none"> <li>• Perpendicular lines</li> <li>• Intersecting lines</li> <li>• Parallel lines cut by a transversal</li> </ul> <p><b>Solving problems</b> Solve geometric problems using the relationships between pairs of angles described above.</p>	<p>8.2.1.1 8.2.1.2 8.2.2.1 8.2.2.2 8.2.3.1 8.2.3.2 8.2.4.1 8.2.4.2 8.2.5.1 8.2.5.2 8.10.2.4</p>
<b>TERM 3</b>		
<b>1.4</b>	<b>Calculations using fractions</b>	



## CAMI Education linked to CAPS: Mathematics Grade 8

<p><b>Common fractions</b></p>	<ul style="list-style-type: none"><li>• Revise:<ul style="list-style-type: none"><li>❖ Addition and subtraction of common fractions, including mixed numbers</li><li>❖ Finding fractions of whole numbers</li><li>❖ Multiplication of common fractions, including mixed numbers</li></ul></li><li>• Divide whole numbers and common fractions by common fractions</li><li>• Calculate the squares, cubes, square roots and cube roots of common fractions</li></ul> <p><b>Calculation techniques</b></p> <ul style="list-style-type: none"><li>• Revise:<ul style="list-style-type: none"><li>❖ Convert mixed numbers to common fractions in order to perform calculations with them</li><li>❖ Use knowledge of multiples and factors to write fractions in the simplest form before or after calculations</li><li>❖ Use knowledge of equivalent fractions to add and subtract common fractions</li></ul></li><li>• Use knowledge of reciprocal relationships to divide common fractions</li></ul> <p><b>Solving problems</b></p> <p>Solve problems in context involving common fractions and mixed numbers, including grouping, sharing and finding fractions of whole numbers.</p> <p><b>Percentages</b></p>	<p><b>4.8.1.1</b> <b>4.8.1.2</b> <b>4.8.1.3</b> <b>4.8.4.1</b> <b>4.8.4.2</b> <b>4.8.4.3</b> <b>4.8.4.4</b></p> <p><b>2.4.5.1</b> <b>2.4.5.2</b> <b>2.4.6.2</b> <b>3.8.5.4</b></p>
--------------------------------	--	--



## CAMI Education linked to CAPS: Mathematics Grade 8

	<ul style="list-style-type: none"> <li>• Revise:             <ul style="list-style-type: none"> <li>❖ Finding percentages of whole numbers</li> <li>❖ Calculating the percentages of part of a whole</li> <li>❖ Calculating percentages increase or decrease</li> </ul> </li> <li>• Calculate amounts if given percentage increase or decrease</li> <li>• Solve problems in contexts involving percentages</li> </ul> <p><b>Equivalent forms</b> Revise equivalent forms between:</p> <ul style="list-style-type: none"> <li>• Common fractions (fractions where one denominator is a multiple of the other)</li> <li>• Common fraction and decimal fraction forms of the same number</li> <li>• Common fraction, decimal fraction and percentage forms of the same number</li> </ul>	<p style="text-align: right;"><b>2.4.6.1</b></p> <p style="text-align: right;"><b>2.1.4.10</b></p>
<p style="text-align: center;"><b>1.5</b> <b>Decimal fractions</b></p>	<p><b>Ordering and comparing decimal fractions</b> Revise:</p> <ul style="list-style-type: none"> <li>• Ordering, comparing and place value of decimal fractions to at least 3 decimal p places</li> <li>• Rounding off decimal fractions to at least 2 decimal places</li> </ul> <p><b>Calculations with decimal fractions</b></p> <ul style="list-style-type: none"> <li>• Revise:             <ul style="list-style-type: none"> <li>❖ Addition, subtraction and multiplication of decimal</li> </ul> </li> </ul>	<p style="text-align: right;"><b>2.3.1.3</b> <b>2.3.1.6</b> <b>2.3.2.3</b> <b>2.3.2.5</b> <b>2.3.3.1</b> <b>2.3.4.3</b> <b>2.3.4.4</b> <b>2.3.4.8</b> <b>2.3.4.9</b> <b>2.3.5.6</b> <b>2.3.6.5</b></p>



## CAMI Education linked to CAPS: Mathematics Grade 8

	<p>fractions to at least 3 decimal places</p> <ul style="list-style-type: none"> <li>❖ Division of decimal fractions by whole numbers</li> <li>• Extend multiplication to 'multiplication by decimal fractions' not limited to one decimal place</li> <li>• Extend division to 'division of decimal fractions by decimal fractions'</li> <li>• Calculate the squares, cubes, square roots and cube roots of decimal fractions</li> </ul> <p><b>Calculation techniques</b></p> <ul style="list-style-type: none"> <li>• Use knowledge of place value to estimate the number of decimal places in the result before performing calculations</li> <li>• Use rounding off and a calculator to check results where appropriate</li> </ul> <p><b>Solving problems</b> Solve problems in context involving decimal fractions</p> <p><b>Equivalent forms</b> Revise equivalent forms between:</p> <ul style="list-style-type: none"> <li>• Common fractions and decimal fraction forms of the same number</li> <li>• Common fraction, decimal fraction and percentage forms of the same number</li> </ul>	<p>2.3.6.8 2.3.7.1 2.3.7.2 2.3.6.2 2.3.7.5 2.3.9.2 2.3.9.3 2.3.9.6 3.8.5.3</p>
<p><b>4.3</b> <b>The theorem of Pythagoras</b></p>	<p><b>Develop and use the Theorem of Pythagoras</b></p> <ul style="list-style-type: none"> <li>• Investigate the relationship between the lengths of the sides of a right-angled triangle to develop the Theorem of Pythagoras</li> </ul>	<p>7.1.1.1 7.1.1.2 7.1.1.3 7.1.1.4 7.1.1.5</p>



## CAMI Education linked to CAPS: Mathematics Grade 8

	<ul style="list-style-type: none"> <li>Determine whether a triangle is a right-angled triangle or not if the length of the three sides of the triangle are known</li> <li>Use the Theorem of Pythagoras to calculate a missing length in a right-angled triangle, leaving irrational answers in surd form</li> </ul>	<p><b>7.1.1.6</b></p>
<p><b>4.1</b> Area and perimeter of 2D shapes</p>	<p><b>Area and perimeter</b></p> <ul style="list-style-type: none"> <li>Use appropriate formulae to calculate perimeter and area of:             <ul style="list-style-type: none"> <li>❖ Squares</li> <li>❖ Rectangles</li> <li>❖ Triangles</li> <li>❖ Circles</li> </ul> </li> <li>Calculate the areas of polygons, to at least 2 decimal places, by decomposing them into rectangles and/or triangles</li> <li>Use and describe the relationship between the radius, diameter and circumference of a circle in calculations</li> <li>Use and describe the relationship between the radius and the area of a circle in calculations</li> </ul> <p><b>Calculations and solving problems</b></p> <ul style="list-style-type: none"> <li>Solve problems, with or without a calculator, involving perimeter and area of polygons and circles</li> <li>Calculate to at least 2 decimal places</li> <li>Use and describe the meaning of the irrational number Pi (<math>\pi</math>) in calculations involving circles</li> <li>Use and convert between appropriate SI units including: <math>mm^2 \leftrightarrow cm^2 \leftrightarrow m^2 \leftrightarrow km^2</math></li> </ul>	<p><b>9.3.2.7</b> <b>9.3.3.2</b> <b>9.3.3.4</b> <b>9.3.4.1</b> <b>9.3.4.2</b> <b>9.3.4.3</b> <b>9.3.4.4</b> <b>9.3.4.5</b> <b>9.3.4.6</b> <b>9.3.5.1</b> <b>9.3.5.2</b></p> <p><b>9.1.3.8</b></p>



## CAMI Education linked to CAPS: Mathematics Grade 8

<p><b>4.2</b> <b>Surface area and volume of 3D objects</b></p>	<p><b>Surface area and volume</b></p> <ul style="list-style-type: none"><li>• Use appropriate formulae to calculate the surface area, volume and capacity of:<ul style="list-style-type: none"><li>❖ Cubes</li><li>❖ Rectangular prisms</li><li>❖ Triangular prisms</li></ul></li><li>• Describe the interrelationship between surface area and volume of the objects mentioned above</li></ul> <p><b>Calculations and solving problems</b></p> <ul style="list-style-type: none"><li>• Solve problems, with or without a calculator, involving surface area, volume and capacity</li><li>• Use and convert between appropriate SI units, including:</li></ul> <p><math>mm^2 \leftrightarrow cm^2 \leftrightarrow m^2 \leftrightarrow km^2</math></p> <p><math>mm^3 \leftrightarrow cm^3 \leftrightarrow m^3</math></p> <p><math>ml(cm^3) \leftrightarrow l \leftrightarrow kl</math></p>	<p><b>9.5.2.1</b> <b>9.5.2.2</b> <b>9.5.2.3</b> <b>9.1.3.9</b> <b>9.4.1</b></p>
<p><b>5.1</b> <b>Collect, organize and summarize data</b></p>	<p><b>Collect data</b></p> <ul style="list-style-type: none"><li>• Pose questions relating to social, economic and environmental issues</li><li>• Select appropriate sources for the collection of data (including peers, family, newspapers, books, magazines)</li><li>• Distinguish between samples and populations, and suggest appropriate samples for investigation</li><li>• Design and use simple questionnaires to answer questions with multiple choice responses</li></ul> <p><b>Organize and summarize data</b></p> <ul style="list-style-type: none"><li>• Organize (including grouping</li></ul>	



## CAMI Education linked to CAPS: Mathematics Grade 8

	<p>where appropriate) and record data using</p> <ul style="list-style-type: none"> <li>❖ Tally marks</li> <li>❖ Tables</li> <li>❖ Stem-and-leaf displays</li> </ul> <ul style="list-style-type: none"> <li>• Group data into intervals</li> <li>• Summarize data using measures of central tendency, including:               <ul style="list-style-type: none"> <li>❖ Mean</li> <li>❖ Median</li> <li>❖ Mode</li> </ul> </li> <li>• Summarize data using measures of dispersion, including:               <ul style="list-style-type: none"> <li>❖ Range</li> <li>❖ Extremes</li> </ul> </li> </ul>	<p>10.1.5.1</p> <p>10.3.1.3</p> <p>10.3.1.4</p>
<p><b>5.2</b> <b>Represent data</b></p>	<p><b>Represent data</b></p> <ul style="list-style-type: none"> <li>• Draw a variety of graphs by hand / technology to display and interpret data including:           <ul style="list-style-type: none"> <li>❖ Bar graphs and double bar graphs</li> <li>❖ Histograms with given and own intervals</li> <li>❖ Pie charts</li> <li>❖ Broken-line graphs</li> </ul> </li> </ul>	<p>10.1.4.2</p> <p>10.1.3.1</p> <p>10.3.2.1</p> <p>10.3.2.2</p> <p>10.3.2.3</p> <p>10.1.2.6</p>
<p><b>5.3</b> <b>Interpret, analyze and report data</b></p>	<p><b>Interpret data</b></p> <ul style="list-style-type: none"> <li>• Critically read and interpret data represented in:           <ul style="list-style-type: none"> <li>❖ Words</li> <li>❖ Bar graphs</li> <li>❖ Double bar graphs</li> <li>❖ Pie charts</li> <li>❖ Histograms</li> <li>❖ Broken-line graphs</li> </ul> </li> </ul> <p><b>Analyze data</b></p> <ul style="list-style-type: none"> <li>• Critically analyze data by answering questions related to:           <ul style="list-style-type: none"> <li>❖ Data categories, including data</li> </ul> </li> </ul>	<p>10.3.2.1</p> <p>10.3.2.2</p> <p>10.3.2.3</p>





## CAMI Education linked to CAPS: Mathematics Grade 8

	<p>intervals</p> <ul style="list-style-type: none"> <li>❖ Data sources and contexts</li> <li>❖ Central tendencies – mean, median and mode</li> <li>❖ Scales used on graphs</li> <li>❖ Samples and populations</li> <li>❖ Dispersion of data</li> <li>❖ Error and bias in the data</li> </ul> <p><b>Report data</b></p> <ul style="list-style-type: none"> <li>• Summarize data in short paragraphs that include             <ul style="list-style-type: none"> <li>❖ Drawing conclusions about the data</li> <li>❖ Making predictions based on the data</li> <li>❖ Identifying sources of error and bias in the data</li> <li>❖ Choosing appropriate summary statistics for the data (mean, median, mode)</li> <li>❖ The role of extremes in the data</li> </ul> </li> </ul>	
<b>TERM 4</b>		
<p><b>2.2</b> <b>Functions and relationships</b></p>	<p><b>Input and output values</b></p> <ul style="list-style-type: none"> <li>• Determine input values, output values or rules for patterns and relationships using:             <ul style="list-style-type: none"> <li>❖ Flow diagrams</li> <li>❖ Tables</li> <li>❖ Formulae</li> <li>❖ Equations</li> </ul> </li> </ul> <p><b>Equivalent forms</b></p> <ul style="list-style-type: none"> <li>• Determine, interpret and justify equivalence of different descriptions of the same relationship or rule presented:             <ul style="list-style-type: none"> <li>❖ Verbally</li> <li>❖ In flow diagrams</li> <li>❖ In tables</li> </ul> </li> </ul>	<p><b>3.2.6.4</b> <b>3.2.6.5</b> <b>3.2.6.6</b> <b>4.1.3.5</b></p>



## CAMI Education linked to CAPS: Mathematics Grade 8

	<ul style="list-style-type: none"><li>❖ By formulae</li><li>❖ By equations</li></ul>	
<b>2.4</b> <b>Algebraic equations</b>	<b>Equations</b> <ul style="list-style-type: none"><li>• Revise the following done in Grade 7:<ul style="list-style-type: none"><li>❖ Set up equations to describe problem situations</li><li>❖ Analyze and interpret equations that describe a given situation</li><li>❖ Solve equations by inspection</li><li>❖ Determine the numerical value of an expression by substitution</li><li>❖ Identify variables and constants in given formulae or equations</li></ul></li><li>• Extend solving equations to include:<ul style="list-style-type: none"><li>❖ Using additive and multiplicative inverses</li><li>❖ Using laws of exponents</li></ul></li><li>• Use substitution in equations to generate tables of ordered pairs</li></ul>	<b>3.5.7.2</b> <b>3.8.1.10</b> <b>4.2.1.1</b> <b>4.2.1.2</b> <b>4.2.2.1</b> <b>4.2.2.2</b>
<b>2.5</b> <b>Graphs</b>	<b>Interpreting graphs</b> <ul style="list-style-type: none"><li>• Revise the following done in Grade 7:<ul style="list-style-type: none"><li>❖ Analyze and interpret global graphs of problem situations, with a special focus on the following trends and features:<ul style="list-style-type: none"><li>- Linear or non-linear</li><li>- Constant, increasing or decreasing</li></ul></li></ul></li><li>• Extend the focus on features of graphs to include:<ul style="list-style-type: none"><li>❖ Maximum or minimum</li><li>❖ Discrete or continuous</li></ul></li></ul> <b>Drawing graphs</b> <ul style="list-style-type: none"><li>• Draw global graphs from given</li></ul>	<b>6.1.1</b>



## CAMI Education linked to CAPS: Mathematics Grade 8

	<p>descriptions of a problem situation, identifying features listed above</p> <ul style="list-style-type: none"> <li>• Use table of ordered pairs to plot points and draw graphs on the Cartesian Plane</li> </ul>	<p><b>6.1.2.1</b> <b>6.1.2.2</b> <b>6.1.2.3</b> <b>6.1.5</b> <b>6.1.6</b></p>
<p style="text-align: center;"><b>3.4</b> <b>Transformation</b> <b>Geometry</b></p>	<p><b>Transformations</b></p> <ul style="list-style-type: none"> <li>• Recognize, describe and perform transformations with points on a coordinate plane, focusing on:             <ul style="list-style-type: none"> <li>❖ Reflecting a point in the Y-axis or X-axis</li> <li>❖ Translating a point within and across quadrants</li> </ul> </li> <li>• Recognize, describe and perform transformations with triangles on a co-ordinate plane, focusing on the co-ordinates of the vertices when:             <ul style="list-style-type: none"> <li>❖ Reflecting a triangle in the X-axis or Y-axis</li> <li>❖ Translating a triangle around the origin</li> </ul> </li> </ul> <p><b>Enlargements and reductions</b> Use proportion to describe the effect of enlargement or reduction on area and perimeter of geometric figures</p>	<p><b>8.10.2.4</b> <b>8.10.4.1</b> <b>8.10.4.2</b></p>
<p style="text-align: center;"><b>3.2</b> <b>Geometry of</b> <b>3D objects</b></p>	<p><b>Classifying 3D objects</b></p> <ul style="list-style-type: none"> <li>• Describe, name and compare the 5 Platonic solids in terms of the shape and number of faces, the number of vertices and the number of edges</li> </ul> <p><b>Building 3D models</b></p> <ul style="list-style-type: none"> <li>• Revise using nets to make models of geometric solids, including:             <ul style="list-style-type: none"> <li>❖ Cubes</li> <li>❖ Prisms</li> <li>❖ Pyramids</li> </ul> </li> </ul>	<p><b>Class activity</b></p>



## CAMI Education linked to CAPS: Mathematics Grade 8

<p><b>5.4 Probability</b></p>	<p><b>Probability</b></p> <ul style="list-style-type: none"><li>• Consider a simple situation (with equally likely outcomes) that can be described using probability and:<ul style="list-style-type: none"><li>❖ List all the possible outcomes</li><li>❖ Determine the probability of each possible outcomes using the definition of probability</li><li>❖ Predict, with reasons, the relative frequency of the possible outcomes for a series of trials based on probability</li><li>❖ Compare relative frequency with probability and explain possible differences</li></ul></li></ul>	
-----------------------------------	---	--