



CAMI Mathematics Literacy CAPS

GRADE 10 CAPS Literacy		
Numbers and calculations with numbers		
Interpreting answers	<ul style="list-style-type: none">• Check the appropriateness of a solution by comparing it to the estimated solution.• Modify the solution as required by the context of the problem.• Round numbers up, down or off depending on the requirements of the context.• Determine the most appropriate units in which to express the answer.• Rework a problem if the initial conditions change.• Recognize that an error in measurement or a small change in rounding can make a large difference to an answer.	
Communication	<ul style="list-style-type: none">• Communicate solutions using appropriate terminology, symbols and units.• Clearly state workings and methods used for solving a problem.• Justify comparisons and opinions with calculations or with information provided in the context.	
Number formats and conversions	Number formats: <ul style="list-style-type: none">• Decimal comma, thousands separator, positive and negative numbers as directional indicators: numbers in word format.• Number conventions (e.g. different numbering conventions used in cricket or in flat numbering systems).	
Operations using numbers and calculator skills	<ul style="list-style-type: none">• Estimate anticipated solutions to calculations.• Addition, subtraction, multiplication and division of whole numbers and decimals.• Multiplication and division by 10, 100	1.1.1.1 tot 1.1.1.4 1.1.2.1 tot 1.1.2.3 1.1.3.1 tot 1.1.3.3 1.1.4



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	<p>and 1 000 without the use of a calculator.</p> <ul style="list-style-type: none">• Order of operations (BODMAS) and brackets.• Addition and multiplication facts (distributive and associative properties).• Squaring, cubing, square rooting.• Operations using fractions.• Know and use the different functions on a basic calculator.	<p>1.1.5 1.1.6 1.1.7.1 1.1.7.2 1.1.7.3 1.1.8.1 1.1.9</p>
Rounding	<p>Round values in the following way:</p> <ul style="list-style-type: none">• Off (to a specific number)• Off to the nearest 5• Up• Down	<p>1.2</p>
Ratios	<p>Perform the following calculations involving ratios:</p> <ul style="list-style-type: none">• Convert between different forms of ratio.• Determine missing numbers in a ratio.• Divide or share an amount in a given ratio. <p>Perform calculations with an understanding of:</p> <ul style="list-style-type: none">• Different formats for expressing ratios.• Why no units are included in a ratio.• Equivalent ratios.• How to write in unit form. <p>Make sense of situations and calculations involving:</p> <ul style="list-style-type: none">• Mixing quantities• Proportion• Rates• Percentage calculations• Conversions• Scale• Expressions of probability	<p>1.3.1 1.3.2 1.3.3</p>
Proportion	<p>Perform calculations involving:</p> <ul style="list-style-type: none">• Direct proportion• Indirect proportion	<p>1.4.1 to 1.4.5</p>



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Rates	<p>Calculate the following types of rates:</p> <ul style="list-style-type: none">• Cost rates.• Consumption rates.• Distance, time and speed rates.• More complex rates. <p>Awareness of:</p> <ul style="list-style-type: none">• The meaning of “/” as “per” and the relevance of the term in relation to the values in the rate.• The difference between constant and average rates.• How to write rates in unit form.• How to simplify and compare rates. <p>Make sense of situations and calculations involving:</p> <ul style="list-style-type: none">• Costs• Tariffs• Consumption• Calculations of estimated travelling times, distances and speed using maps.• Conversions	1.5.1 to 1.5.5
Percentages	<p>Perform the following percentage calculations:</p> <ul style="list-style-type: none">• Calculate a percentage of a value.• Increase value by a percentage.• Decrease a value by a percentage.• Express a part of a whole as a percentage.• Determine percentage increase and/or decrease.• Determine the original value when given a value to which a percentage has been added or subtracted. <p>An understanding of:</p> <ul style="list-style-type: none">• The equivalence of the different forms.• How to move interchangeably from fractions to percentage.• How to convert from percentages to decimals with the use of a calculator.	1.6.1 to 1.6.7
Patterns, relationships and representations		
Making sense of graphs that tell a story	<p>Content and/or contexts limited to those that include:</p> <ul style="list-style-type: none">• Constant (fixed) linear and inverse	2.2



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Patterns and relationships	proportion relationships. <ul style="list-style-type: none">• Single relationships.• No estimation required in determining values in tables and graphs.	
Representations of relationships in tables, equations and graphs	Understand the following relationships: <ul style="list-style-type: none">• Tables, formulae and graphs can be used for different representation of the same relationship.• How to move between representations of relationships including:<ul style="list-style-type: none">- completing a table of value from a graph,- plotting a graph from the values in a table,- using a given formula and/or description of a relationship to construct a table of values,- matching formulae/equations to graph and/or tables of values of the relationship based on features and/or trends.• Identify and distinguish between:<ul style="list-style-type: none">- the dependent and independent variables,- discrete and/or continuous variables.• Identify:<ul style="list-style-type: none">- dependent variable values for given independent variable values,- independent variable values for given dependent variable values.• Identify independent variable values associated with the critical points of the dependent variable value including:<ul style="list-style-type: none">- zero values- maximum/minimum values• Determine formulae and/or equations to describe relationships represented in tables and/or graphs:<ul style="list-style-type: none">- constant (fixed) relationships- linear relationships- inverse proportion relationships In working with equations of relationships:	2.1 2.3



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	<ul style="list-style-type: none"> • Substitution. • Solving by means of: <ul style="list-style-type: none"> - trial and improvement - simple algebraic manipulation <p>In working with graphs of relationships:</p> <ul style="list-style-type: none"> • Drawing graphs: <ul style="list-style-type: none"> - plotting points from a table constructed from a given equation - constructing axes with appropriate scale chosen for both vertical and horizontal - labeling the vertical and horizontal axes and the chart appropriately • Interpret graphs 	2.1 2.4.1 2.4.2
Finance		
Financial documents	<p>Work with the following financial documents:</p> <ul style="list-style-type: none"> • Documents relating to personal and/or household finance, including: <ul style="list-style-type: none"> - household bills (e.g. electricity, water, telephone, cell phones) - shopping documents (e.g. till slips, account statements) - banking documents (e.g. bank statements and fee structures) - household budgets 	3.1.1.2 3.1.1.1 3.2.4
Tariff system	<p>Work with the following tariff system:</p> <ul style="list-style-type: none"> • Municipal tariffs (e.g. electricity, water, sewage). • Telephone tariffs (e.g. cell phone and fixed line). • Transport tariffs (e.g. bus, taxi and train tariffs). • Bank fees. 	3.1.2.1 3.1.2.2
Income, expenditure, profit/loss, income-and-expenditure statements and budgets	<p>Personal income:</p> <ul style="list-style-type: none"> • Salaries, wages and commission • Gifts and pocket money • Bursaries and loans • Savings • Interest • inheritance 	3.2.1 3.2.2 3.2.3 3.2.4



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Interest	Work with various banking and other financial documents. Distinguish between: <ul style="list-style-type: none">- interest rate- values- interest values Investigate through calculations how interest values are calculated using interest rate values. Perform calculations involving simple and compound interest. Investigate the following: <ul style="list-style-type: none">• Loan agreements between family members where repayments are made only once.• Investments in fixed deposit accounts where the money is deposited and withdrawn from one account only once.• Bank accounts with a changing balance.	3.4.1 3.4.2
Banking, loans and investments (banking)	Investigate the following types of bank accounts: <ul style="list-style-type: none">• saving accounts• cheque / current accounts• fixed deposit account• credit account (with a credit card) and debit account (with a debit card)	
Taxation	Work with VAT (Grade 10) in the context of shop purchases, till slips and bills.	3.5.1 #4417
Measurement		
	Measurement concepts are limited primarily to scenarios involving planning and completing simple tasks in the family context of household. Examples of simple tasks in the household: <ul style="list-style-type: none">• household cooking/baking/catering projects• household sewing projects (e.g. tablecloth)• recording and managing personal	



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	<p>weight</p> <ul style="list-style-type: none"> • small household maintenance tasks (e.g. painting/varnishing household furniture) 	
<p>Calculating perimeter, area and volume</p>	<ul style="list-style-type: none"> • Designing a small vegetable garden. • Determining the quantity of fertilizer and/or pesticide needed for a small garden. • Determining the quantity of fencing and poles needed to fence an animal enclosure. • Designing a sandpit or children’s play area. • Investigating the quantity of materials needed to build a concrete platform and drain (run-off space) beneath a tap. • Interpreting television, bus or train timetables. 	<p>4.1.1 4.2.1.1 tot 4.2.1.5 4.2.2.1 tot 4.2.2.5 4.3.1 tot 4.3.4 4.4.1 4.4.4 4.4.5.1 tot 4.4.5.3 4.5.1.1 4.5.1.2</p>
<p>Conversions</p>	<p>For all calculations involving measurement:</p> <ul style="list-style-type: none"> • Convert units of measuring from memory for: <ul style="list-style-type: none"> - the metric system: mm – cm – m – km ml – l g – kg – ton - time: sec – min – hours – days • Convert units of measurement using given conversion factors and/or tables: <ul style="list-style-type: none"> - for cooking conversions: Spoons – ml Cups – ml 	<p>4.6 4.4.5.1 4.4.1</p>
<p>Measuring length and distance</p>	<p>Estimate lengths and/or measure lengths of objects accurately. Calculate:</p> <ul style="list-style-type: none"> • Cost of products • Values using a formula involving length • Perimeter, area and volume 	




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Measuring mass (weight)	Measure out quantities to complete a task. Monitor and manage mass (weight).	4.4.4
Measuring volume	Calculate: <ul style="list-style-type: none"> • The cost of a certain volume of a product. • Measure out quantities to complete a task. 	4.3.1 4.3.2 4.3.3 4.3.4
Measuring temperature	Measure, monitor and interpret temperature: <ul style="list-style-type: none"> • Thermometer • Temperature dials and indicators • Weather reports 	Class activity
Calculating perimeter, area and volume	Calculate / measure the perimeter and area: <ul style="list-style-type: none"> • Direct measurement • Calculation for each of the following: <ul style="list-style-type: none"> - Rectangles, triangles and circles. 	4.2.1 to 4.2.5
Time	Read, record and perform calculations involving time values, including: <ul style="list-style-type: none"> • Time value expressed and/or recorded on clocks, watches and stopwatches. • Time values expressed in the following formats: <ul style="list-style-type: none"> - time of day formats - time recording formats • Converting between different units of time: <ul style="list-style-type: none"> - seconds – minutes – hours - days – weeks – months • Calculating elapsed time involving different time formats. • Calendars showing days, weeks and months. • Time tables including: <ul style="list-style-type: none"> - study time tables and television time tables <p>Context:</p> <ul style="list-style-type: none"> • simple tasks in the familiar context of the household 	4.4.5.2 4.4.5.3
Maps, plans and other representations of the physical world		
Scale	<ul style="list-style-type: none"> • Number scales expressed in the form 	4.5.1



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	<p>1:500.</p> <ul style="list-style-type: none">• Bar scales expressed in the form:  0m 10m 20m• Understand the advantages and disadvantages of each scale.• Calculate actual length and distance when map and/or plan measurements are known.	4.5.2
Maps	<p>Work with the following maps:</p> <ul style="list-style-type: none">• Map showing the seating plan and/or layout of a classroom.• Map showing the layout of the buildings and/or sports fields at the school.• Map showing the layout of the stores in a shopping centre.• Seating plans for cinemas and a sport stadium.	
Plans (instruction/ assembly diagrams)	<p>Use instruction/assembly diagrams:</p> <ul style="list-style-type: none">• Plugs• Plastic models• Unassembled wooden furniture units• Cell-phones• Electrical appliances• Children's toys including Lego-type kits	Class activity
Plans (floor, elevation and design plans)	<ul style="list-style-type: none">• Understand the symbols and notation used on plans.• Describe what is being represented on the plans.• Analyze the layout of the structure shown on the plan.• Determine actual lengths of objects shown on plans.• Determine quantities of materials needed by using the plans.	
Models	<p>Investigate packaging arrangements using actual cans and a range of actual boxes.</p>	Class activity



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Data handling		
	<p>In Grade 10, the type of data dealt with is limited primarily (but not exclusively) to data including:</p> <ul style="list-style-type: none">• Single sets of data containing multiple categories (e.g. working with different test scores categorized into mark categories for an entire class, but not sorted according to gender).• Values that can be read directly from graphs and/or tables without the need for estimation.• Data relating to the personal lives of learners and/or to issues that are familiar to the learners, e.g.:<ul style="list-style-type: none">- test and exam results- school sports results- height and weight data of learners in a class- school statistics (e.g. number of learners in each grade; number of male and female learners)- data about the type and amount of litter in a school- data about electricity consumption of various appliances in a households- data on telephone call time and duration- pocket money data	
Developing questions.	<ul style="list-style-type: none">• Develop a question or set of questions that requires the collection of a single set of data.• Recognize that the ways questions are phrased can impact on the findings of the investigation.	Class activity
Collecting data	<p>Form/instrument for collecting a single set of data:</p> <ul style="list-style-type: none">• Observation• Interview• Questionnaire or survey	



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Classifying and organizing data	<p>Classify collected data as:</p> <ul style="list-style-type: none">• Categorical data (e.g. male / female).• Numerical data, further classified as discrete data. <p>Sort numerical data according to one category.</p> <p>Organize collected data using:</p> <ul style="list-style-type: none">• Tallies• Frequency tables	6.1.1 6.1.2 6.2.1
Summarizing data	<ul style="list-style-type: none">• Mean• Median• Mode• Range	6.3.1 6.3.2
Representing data	<ul style="list-style-type: none">• Pie charts• Histograms• Single bar graph• Line and broken line graphs	6.6.1 6.6.2 6.6.3 6.6.4
Interpreting and analyzing data	<p>Read and select data from representations (that is, tables and graphs). Identify and describe trends/patterns in data presented in tables/graphs. Investigation:</p> <ul style="list-style-type: none">• Use percentages to represent data values in a table or graph• Use actual values to represent data values in a table or graph. <p>Ask question on:</p> <ul style="list-style-type: none">• Sample size• Representative of the sample• Methods used for collecting data• The neutrality of the data collection process• Whether the data collected was fact or opinion• The way in which data was sorted and/or grouped• The sizes of the groups used in grouping the data• Type of measure used to determine the	



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	average of the data <ul style="list-style-type: none">• The spread(range) of the data and what the spread suggests about the data	
Probability		
Expressions of probability Predictions	Explore probability in scenarios involving: <ul style="list-style-type: none">• Games using coins and dice• Weather predictions	7.1.1 7.1.2 7.1.3 7.1.4
Representations for determining possible outcomes	Identify possible outcomes using: <ul style="list-style-type: none">• Tree diagrams• Two-way tables	7.1.5