CROSS-CURRICULAR NUMERACY LEARNING PROGRESSIONS – GRADE LEVEL PROFICIENCY DESCRIPTORS							
ASPECT	**SUB-ASPECT**	**K**	**1**	**2**	**3**	**4**	**5**
Interprets *Accesses and identifies relevant information in order to understand the real-world problem to be solved*	**Understands the real-world problem** *Makes connections to a problem to aid understanding*	Makes a personal connection with one aspect of the problem ***personal connection:*** *experiences and prior knowledge*	Makes personal connections with aspects of the problem	Makes personal connections to explore the problem	Makes personal connections to explore the problem	Makes general connections to understand the problem in context ***general connection:*** *personal, or to similar problems*	Makes general connections to understand the problem in context
	Extracts relevant information *Extracts key information, data, facts in order to solve a problem*	Identifies a significant fact about the problem	Identifies a significant fact and gathers other information from the problem	Identifies and gathers most of the significant information from the presented problem to assist in solving it	Identifies and gathers most of the significant information from the presented problem to assist in solving it	Gathers relevant information from the presented problem to assist in solving it	Gathers relevant information from the presented problem to assist in solving it
	Identifies parameters and limitations *Recognizes reasonable factors, conditions, limitations that define the problem*	Understands that problems have parameters ***parameters:*** *factors and conditions that define the problem*	Identifies a clearly defined parameter needed to solve the problem	Identifies some of the clearly defined parameters needed to solve the problem	Identifies most of the clearly defined parameters needed to solve the problem	Identifies all clearly defined parameters needed to solve the problem	Identifies all clearly defined parameters needed to solve the problem

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ASPECT	**SUB-ASPECT**	**K**	**1**	**2**	**3**	**4**	**5**
Applies *Applies mathematical vocabulary, tools, and symbols and develops a plan of approach to solve the problem*	**Translates the scenario into a mathematical problem (mathematizes)** *Translate a scenario into a problem using mathematical vocabulary*	Recognizes the mathematical competencies and content needed to solve the problem ***content:*** *refer to Math curriculum*	Recognizes the mathematical competencies and content needed to solve the problem ***content:*** *refer to Math curriculum*	Identifies the mathematical competencies and content needed to solve the problem ***content:*** *refer to Math curriculum*	Identifies the mathematical competencies and content needed to solve the problem ***content:*** *refer to Math curriculum*	Applies the mathematical understanding needed to partially translate a familiar scenario into a mathematical problem ***mathematical understanding:*** *refer to Math curriculum*	Applies the mathematical understanding needed to partially translate a familiar scenario into a mathematical problem ***mathematical understanding:*** *refer to Math curriculum*
	Represents the mathematical problem (visualizes) *Visually represents a problem with mathematical tools, visual representations, or mathematical symbols*	Represents the mathematical problem, using concrete materials and/or pictures	Represents the mathematical problem, using concrete materials and diagrams	Represents the mathematical problem, using concrete materials and diagrams	Represents the mathematical problem, using concrete materials, diagrams, and/or some familiar equations ***familiar:*** *previously seen or modelled*	Represents the mathematical problem, using concrete materials, diagrams, and/or some familiar equations	Represents the mathematical problem, using concrete materials, diagrams, and/or equations
	Develops a plan of approach *Thinks of and outlines various approaches to solve a mathematical problem*	Experiments with problem solving using prior knowledge	Develops a straightforward plan of approach, using prior knowledge and mathematical tools and strategies	Develops a basic plan of approach, using familiar mathematical tools and/or strategies ***basic:*** *could be one step* ***familiar:*** *previously seen or modelled*	Develops a basic plan of approach, using familiar mathematical tools and/or strategies	Develops a sequence of steps that applies familiar mathematical tools and/or strategies	Develops a logical sequence of steps that applies familiar mathematical tools and/or strategies

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Solves *Implements a plan to solve the mathematical problem and checks their solution*	**Estimates reasonably in context** *Uses the information provided to support a best guess solution*	Estimates the scope of the answer ***scope:*** *e.g., range, size, shape, time*	Estimates the scope of the answer	Estimates reasonably within known parameters, using benchmarks ***benchmarks:*** *e.g., 25, 50, 100, distance, colour, rhythm, pattern*	Estimates reasonably within identified parameters, using benchmarks and information from the scenario ***benchmarks:*** *e.g., up to 1000, distance, colour, rhythm, pattern*	Estimates reasonably within identified parameters, using benchmarks and relevant information from the scenario ***benchmarks:*** *e.g., up to 10 000, fractions, decimals, distance, colour, rhythm, pattern*	Estimates reasonably within identified parameters, using benchmarks and relevant information from the scenario ***benchmarks:*** *e.g., up to 1 000 000, fractions, decimals, distance, colour, rhythm, pattern*
	Solves the mathematical problem *Uses various approaches to find a solution to the problem*	Finds a solution, using play, concrete materials, or models	Finds a solution, using play, concrete materials, or models	Finds a solution, using mathematical tools and/or strategies ***strategies:*** *e.g., play, concrete materials, models*	Finds a solution by applying familiar mathematical tools and/or strategies	Finds a solution by applying familiar mathematical tools and/or strategies ***strategies:*** *e.g., equations, play, concrete materials, models*	Finds a solution by applying familiar mathematical tools and/or strategies
	Verifies accuracy of the mathematical solution *Checks their solution based on similar problems, others' solutions, or their estimate*	Compares their solution with those of their teacher and/or peers	Compares their solution with those of their teacher and/or peers	Verifies the accuracy of their solution by comparing it with a variety of proofs/checks, including estimation	Verifies the accuracy of their solution, using familiar mathematical strategies and/or by comparing with their estimate ***familiar:*** *previously seen or modelled*	Verifies the accuracy of their solution, using reasonable estimates and other familiar mathematical strategies	Verifies the accuracy of their solution, using reasonable estimates and other familiar mathematical strategies

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Analyzes *Reflects on the reasonableness of their solution; evaluates alternative approaches and solutions, and revises approach*	**Reflects on the reasonableness of the solution in context** *Looks back on the reasonableness of the solution within the context of the problem (Does this make sense?)*	Identifies a reasonable solution in relation to the original problem/scenario	Identifies a reasonable solution in relation to the original problem/scenario	Reflects on the reasonableness of a solution in relation to the original problem/scenario	Reflects on the reasonableness of a solution in relation to the original problem/scenario	Reflects on the reasonableness of their solution in relation to the original problem/scenario	Reflects on the reasonableness of their solution in relation to the original problem/scenario
	Evaluates alternative approaches *Checks on the reasonableness of others' approaches to solve the problem*	Identifies an alternative approach ***approach:*** *own approach, peer- or teacher-driven approach*	Identifies an alternative approach	Explores an alternative approach	Explores alternative approaches	Compares and contrasts alternative approaches	Compares and contrasts alternative approaches
	Revises approach as needed *Revises their approach based on checking with others' solution and/or approach*	Experiments with a recommended alternative approach to solve the problem	Experiments with a recommended alternative approach to solve the problem	Selects an alternative approach to solve the problem	Selects an alternative approach to solve the problem	Identifies and experiments with an alternative approach to solve the problem	Identifies and experiments with an alternative approach to solve the problem

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ASPECT	**SUB-ASPECT**	**K**	**1**	**2**	**3**	**4**	**5**
Communicates *Represents, explains, and defends their approach and solution within the problem's scenario*	**Represents processes and solution** *Effectively communicates the thinking and/or understanding in their approach and/or solution using visual representations or mathematical symbols*	Represents the problem-solving process, using numbers, pictures, and/or manipulatives	Represents the problem-solving process, using words, numbers, pictures, symbols, and/or manipulatives	Represents the problem-solving process, using familiar tools ***familiar tools:*** *e.g., manipulatives, symbols, graphic organizers, charts*	Represents processes and solution by selecting and using reasonable tools ***reasonable tools:*** *e.g., table, manipulative, graphic organizer, array, model*	Represents processes and solution by selecting and using reasonable tools ***reasonable tools:*** *e.g., model, chart, map, table, graph, array*	Represents processes and solution by selecting and using reasonable tools
	Explains the approach taken *Clearly explains their problem-solving approach and solution with mathematical vocabulary*	Identifies one step of their problem-solving approach	Outlines their problem-solving approach	Outlines their problem-solving approach, using familiar mathematical language ***familiar:*** *previously seen or modelled* ***mathematical language:*** *refer to Math curriculum*	Describes their problem-solving approach, using familiar mathematical language ***mathematical language:*** *refer to Math curriculum*	Describes their problem-solving approach, using familiar mathematical language ***mathematical language:*** *refer to Math curriculum*	Describes their problem-solving approach, using familiar mathematical language ***mathematical language:*** *refer to Math curriculum*
	Defends decisions and assumptions *Clearly justifies and defends the decisions and assumptions made in their approach and/or solution*	Identifies one problem-solving decision	Outlines one problem- solving decision	Describes one problem-solving decision and a supporting reason	Describes their problem-solving decisions and supporting reasons	Explains their problem-solving decisions and supporting reasons	Explains their problem-solving decisions and supporting reasons