



NUMERACY LEARNING PROGRESSIONS – KINDERGARTEN PROFICIENCY DESCRIPTORS						
Aspect	Interprets – The student accesses and identifies releva	Interprets – The student accesses and identifies relevant information in order to understand the real-world problem to be solved				
Sub-Aspect	Understands the real-world problem Makes connections to a problem to aid understanding	Extracts relevant information Extracts key information, data, facts in order to solve a problem	Identifies parameters and limitations Recognizes reasonable factors, conditions, limitations that define the problem			
Descriptor	Makes a personal connection with one aspect of the problem	Identifies a significant fact about the problem	Understands that problems have parameters			
	personal connection: experiences and prior knowledge		parameters: factors and conditions that define the problem			
Aspect	Applies – The student applies mathematical vocabulary	γ, tools, and symbols and develops a plan of approach to solve the	e problem			
Sub-Aspect	Translates the scenario into a mathematical problem (mathematizes) Translate a scenario into a problem using mathematical vocabulary	Represents the mathematical problem (visualizes) Visually represents a problem with mathematical tools, visual representations, or mathematical symbols	Develops a plan of approach Thinks of and outlines various approaches to solve a mathematical problem			
Descriptor	Recognizes the mathematical competencies and content needed to solve the problem	Represents the mathematical problem, using concrete materials and/or pictures	Experiments with problem solving using prior knowledge			
	content: refer to <u>Math curriculum</u>					
Aspect	Solves – The student implements a plan to solve the mo	athematical problem and checks their solution				
Sub-Aspect	Estimates reasonably in context Uses the information provided to support a best guess solution	Solves the mathematical problem Uses various approaches to find a solution to the problem	Verifies accuracy of the mathematical solution Checks their solution based on similar problems, others' solutions, or their estimate			
Descriptor	Estimates the scope of the answer	Finds a solution, using play, concrete materials, or models	Compares their solution with those of their teacher and/or peers			
	scope: range, size, shape, time					
Aspect	Analyzes – The student reflects on the reasonableness	of their solution; evaluates alternative approaches and solutions,	and revises approach			
Sub-Aspect	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?)	Evaluates alternative approaches Checks on the reasonableness of others' approaches to solve the problem	Revises approach as needed Revises their approach based on checking with others' solution and/or approach			
Descriptor	Identifies a reasonable solution in relation to the original problem/scenario	Identifies an alternative approach	Experiments with a recommended alternative approach to solve the problem			
Aspect	Communicates – The student represents, explains, and defends their approach and solution within the problem's scenario					
Sub-Aspect	Represents processes and solution Effectively communicates the thinking and/or understanding in their approach and/or solution using visual representations or mathematical symbols	Explains the approach taken Clearly explains their problem-solving approach and solution with mathematical vocabulary	Defends decisions and assumptions Clearly justifies and defends the decisions and assumptions made in their approach and/or solution			
Descriptor	Represents the problem-solving process, using numbers, pictures, and/or manipulatives	Identifies one step of their problem-solving approach	Identifies one problem-solving decision			



Descriptor – defines what a proficient understanding or display of the skill looks like at that grade level.





Descriptor – defines what a proficient understanding or display of the skill looks like at that grade level.

	NUMERACY LEAF	RNING PROGRESSIONS – GRADE 1 PROFICIENCY DE	SCRIPTORS	
Aspect	Interprets – The student accesses and identifies releva	Interprets – The student accesses and identifies relevant information in order to understand the real-world problem to be solved		
Sub-Aspect	Understands the real-world problem Makes connections to a problem to aid understanding	Extracts relevant information Extracts key information, data, facts in order to solve a problem	Ide Recognizes reason	
Descriptor	Makes personal connections with aspects of the problem	Identifies a significant fact and gathers other information from the problem	Identifies a clearly problem	
	personal connections: experiences and prior knowledge		parameter: factors	
Aspect	Applies – The student applies mathematical vocabulary	ν, tools, and symbols and develops a plan of approach to solve th	the problem	
Sub-Aspect	Translates the scenario into a mathematical problem (mathematizes) Translate a scenario into a problem using mathematical vocabulary	Represents the mathematical problem (visualizes) Visually represents a problem with mathematical tools, visual representations, or mathematical symbols	Thinks of and outl	
Descriptor	Recognizes the mathematical competencies and content needed to solve the problem	Represents the mathematical problem, using concrete materials and diagrams	Develops a straigl knowledge and m	
	content: refer to <u>Math</u> curriculum			
Aspect	Solves – The student implements a plan to solve the mo	thematical problem and checks their solution		
Sub-Aspect	Estimates reasonably in context Uses the information provided to support a best guess solution	Solves the mathematical problem Uses various approaches to find a solution to the problem	Verifies Checks their solution	
Descriptor	Estimates the scope of the answer	Finds a solution, using play, concrete materials, or models	Compares their se	
Descriptor	scope : e.g., range, size, shape, time			
Aspect	Analyzes – The student reflects on the reasonableness	of their solution; evaluates alternative approaches and solutions,	and revises approc	
Sub-Aspect	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?)	Evaluates alternative approaches Checks on the reasonableness of others' approaches to solve the problem	Revises their approa	
_	Identifies a reasonable solution in relation to the	Identifies an alternative approach	Experiments with	
Descriptor	original problem/scenario	approach: own approach, peer- or teacher-driven approach	the problem	
Aspect	Communicates – The student represents, explains, and	d defends their approach and solution within the problem's scena	rio	
Sub-Aspect	Represents processes and solution Effectively communicates the thinking and/or understanding in their approach and/or solution using visual representations or mathematical symbols	Explains the approach taken Clearly explains their problem-solving approach and solution with mathematical vocabulary	D Clearly justifies and d	
Descriptor	Represents the problem-solving process, using words, numbers, pictures, symbols, and/or manipulatives	Outlines their problem-solving approach	Outlines one prol	



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rs and conditions that define the problem

Develops a plan of approach *tlines various approaches to solve a mathematical problem*

ghtforward plan of approach, using prior mathematical tools and strategies

es accuracy of the mathematical solution n based on similar problems, others' solutions, or their estimate

solution with those of their teacher and/or peers

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Revises approach as needed ach based on checking with others' solution and/or approach

h a recommended alternative approach to solve

Defends decisions and assumptions defends the decisions and assumptions made in their approach and/or solution

blem- solving decision





NUMERACY LEARNING PROGRESSIONS – GRADE 2 PROFICIENCY DESCRIPTORS			
Aspect	Interprets – The student accesses and identifies releva	nt information in order to understand the real-world problem to	be solved
Sub-Aspect	Understands the real-world problem Makes connections to a problem to aid understanding	Extracts relevant information Extracts key information, data, facts in order to solve a problem	Ide Recognizes reason
Descriptor	Makes personal connections to explore the problem personal connection: experiences and prior knowledge	Identifies and gathers most of the significant information from the presented problem to assist in solving it	Identifies some of solve the problem parameters: factor
Aspect	Applies – The student applies mathematical vocabulary	y, tools, and symbols and develops a plan of approach to solve th	e problem
Sub-Aspect	Translates the scenario into a mathematical problem (mathematizes) Translate a scenario into a problem using mathematical vocabulary	Represents the mathematical problem (visualizes) Visually represents a problem with mathematical tools, visual representations, or mathematical symbols	Thinks of and outli
Descriptor	Identifies the mathematical competencies and content needed to solve the problem	Represents the mathematical problem, using concrete materials and diagrams	Develops a basic tools and/or strate
	content: refer to <u>Math</u> <u>curriculum</u>		basic: could be one familiar: previously
Aspect	Solves – The student implements a plan to solve the mo	athematical problem and checks their solution	
Sub-Aspect	Estimates reasonably in context Uses the information provided to support a best guess solution	Solves the mathematical problem Uses various approaches to find a solution to the problem	Verifies Checks their solution
Descriptor	Estimates reasonably within known parameters, using benchmarks benchmarks : e.g., 25, 50, 100, distance, rhythm, pattern	Finds a solution, using mathematical tools and/or strategies	Verifies the accur variety of proofs/
Aspect	Analyzes – The student reflects on the reasonableness	of their solution; evaluates alternative approaches and solutions,	and revises approc
Sub-Aspect	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?)	Evaluates alternative approaches Checks on the reasonableness of others' approaches to solve the problem	Revises their approa
Descriptor	Reflects on the reasonableness of a solution in relation to the original problem/scenario	Explores an alternative approach approach: own approach, peer- or teacher-driven approach	Selects an alterna
Aspect	Communicates – The student represents, explains, and	d defends their approach and solution within the problem's scenc	irio
Sub-Aspect	Represents processes and solution Effectively communicates the thinking and/or understanding in their approach and/or solution using visual representations or mathematical symbols	Explains the approach taken Clearly explains their problem-solving approach and solution with mathematical vocabulary	D Clearly justifies and d
Descriptor	Represents the problem-solving process, using familiar tools familiar tools: e.g., manipulatives, symbols, graphic organizers, charts	Outlines their problem-solving approach, using familiar mathematical language mathematical language: refer to <u>Math curriculum</u>	Describes one pro



Descriptor – defines what a proficient understanding or display of the skill looks like at that grade level.

entifies parameters and limitations

able factors, conditions, limitations that define the problem

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Develops a plan of approach lines various approaches to solve a mathematical problem

plan of approach, using **familiar** mathematical egies

step seen or modelled such as using base-10 blocks

accuracy of the mathematical solution based on similar problems, others' solutions, or their estimate

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Revises approach as needed ich based on checking with others' solution and/or approach

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oblem-solving decision and a supporting reason





	NUMERACY LEAP	RNING PROGRESSIONS – GRADE 3 PROFICIENCY DE	SCRIPTORS
Aspect	Interprets – The student accesses and identifies relevant information in order to understand the real-world problem to be solv		
Sub-Aspect	Understands the real-world problem Makes connections to a problem to aid understanding	Extracts relevant information Extracts key information, data, facts in order to solve a problem	Ide Recognizes reasona
Descriptor	Makes personal connections to explore the problem personal connections: experiences and prior knowledge	Identifies and gathers most of the significant information from the presented problem to assist in solving it	Identifies most of solve the problem parameters: factors
Aspect	Applies – The student applies mathematical vocabulary	y, tools, and symbols and develops a plan of approach to solve th	e problem
Sub-Aspect	Translates the scenario into a mathematical problem (mathematizes) Translate a scenario into a problem using mathematical vocabulary	Represents the mathematical problem (visualizes) Visually represents a problem with mathematical tools, visual representations, or mathematical symbols	Thinks of and outli
Descriptor	Identifies the mathematical competencies and content needed to solve the problem	Represents the mathematical problem, using concrete materials, diagrams, and/or some familiar equations	Develops a basic p tools and/or strate
	content: refer to <u>Math</u> <u>curriculum</u>	familiar equations: previously seen or modelled e.g., 2 digit addition	basic: could be one
Aspect	Solves – The student implements a plan to solve the mo	athematical problem and checks their solution	
Sub-Aspect	Estimates reasonably in context Uses the information provided to support a best guess solution	Solves the mathematical problem Uses various approaches to find a solution to the problem	Verifies Checks their solution l
Descriptor	Estimates reasonably within identified parameters, using benchmarks and information from the scenario	Finds a solution by applying familiar mathematical tools and/or strategies	Verifies the accura strategies and/or
	benchmarks: e.g., up to 1000, distance, rhythm, pattern	strategies: e.g., play, concrete materials, models	
Aspect	Analyzes – The student reflects on the reasonableness	of their solution; evaluates alternative approaches and solutions,	and revises approa
Sub-Aspect	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?)	Evaluates alternative approaches Checks on the reasonableness of others' approaches to solve the problem	Revises their approac
Descriptor	Reflects on the reasonableness of a solution in relation to the original problem/scenario	Explores alternative approaches approach: own approach, peer- or teacher-driven approach	Selects an alterna
Aspect	Communicates – The student represents, explains, and	d defends their approach and solution within the problem's scena	rio
Sub-Aspect	Represents processes and solution Effectively communicates the thinking and/or understanding in their approach and/or solution using visual representations or mathematical symbols	Explains the approach taken Clearly explains their problem-solving approach and solution with mathematical vocabulary	De Clearly justifies and de
Descriptor	Represents processes and solution by selecting and using reasonable tools tools: e.g., table, manipulative, graphic organizer, array, model	Describes their problem-solving approach, using familiar mathematical language	Describes their pr reasons



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Sub-Aspect – the skills that support the development of the Aspect

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	NUMERACY LEAF	RNING PROGRESSIONS – GRADE 4 PROFICIENCY DE	SCRIPTORS
Aspect	Interprets – The student accesses and identifies relevant information in order to understand the real-world problem to be solved		
Sub-Aspect	Understands the real-world problem Makes connections to a problem to aid understanding	Extracts relevant information Extracts key information, data, facts in order to solve a problem	Ide Recognizes reasond
Descriptor	Makes general connections to understand the problem in context general connection: personal, or to similar problems	Gathers relevant information from the presented problem to assist in solving it	Identifies all clear problem parameters: factor
Aspect	Applies – The student applies mathematical vocabulary	ν, tools, and symbols and develops a plan of approach to solve th	e problem
Sub-Aspect	Translates the scenario into a mathematical problem (mathematizes) Translate a scenario into a problem using mathematical vocabulary	Represents the mathematical problem (visualizes) Visually represents a problem with mathematical tools, visual representations, or mathematical symbols	Thinks of and outli
Descriptor	Applies the mathematical understanding needed to partially translate a familiar scenario into a mathematical problem	Represents the mathematical problem, using concrete materials, diagrams, and/or some familiar equations	Develops a sequer tools and/or strate
Aspect	Solves – The student implements a plan to solve the mo	athematical problem and checks their solution	
Sub-Aspect	Estimates reasonably in context Uses the information provided to support a best guess solution	Solves the mathematical problem Uses various approaches to find a solution to the problem	Verifies Checks their solution b
Descriptor	Estimates reasonably within identified parameters, using benchmarks and relevant information from the scenario benchmarks: up to 10 000, fractions, decimals, distance, colour, rhythm, pattern	Finds a solution by applying familiar mathematical tools and/or strategies strategies: e.g., equations, play, concrete materials, models	Verifies the accura and other familiar
Aspect	Analyzes – The student reflects on the reasonableness	of their solution; evaluates alternative approaches and solutions,	and revises approa
Sub-Aspect	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?)	Evaluates alternative approaches Checks on the reasonableness of others' approaches to solve the problem	Revises their approac
Descriptor	Reflects on the reasonableness of a solution in relation to the original problem/scenario	Compares and contrasts alternative approaches approaches: own approach, peer- or teacher-driven approach	Identifies and exp the problem
Aspect	Communicates – The student represents, explains, and	d defends their approach and solution within the problem's scene	ario
Sub-Aspect	Represents processes and solution Effectively communicates the thinking and/or understanding in their approach and/or solution using visual representations or mathematical symbols	Explains the approach taken Clearly explains their problem-solving approach and solution with mathematical vocabulary	De Clearly justifies and de
Descriptor	Represents processes and solution by selecting and using reasonable tools tools: e.g., model, chart, map, table, graph, array	Describes their problem-solving approach, using familiar mathematical language mathematical language: refer to <u>Math curriculum</u>	Explains their pro



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Revises approach as needed oach based on checking with others' solution and/or approach

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Defends decisions and assumptions

defends the decisions and assumptions made in their approach and/or solution

oblem-solving decisions and supporting reasons





Descriptor – defines what a proficient understanding or display of the skill looks like at that grade level.

	NUMERACY LEAF	RNING PROGRESSIONS – GRADE 5 PROFICIENCY DE	SCRIPTORS
Aspect	Interprets – The student accesses and identifies relevant information in order to understand the real-world problem to be solved		
Sub-Aspect	Understands the real-world problem Makes connections to a problem to aid understanding	Extracts relevant information Extracts key information, data, facts in order to solve a problem	Ide Recognizes reasona
Descriptor	Makes general connections to understand the problem in context general connections: personal, or to similar problems	Gathers relevant information from the presented problem to assist in solving it	Identifies all clear problem parameters: factor
Aspect	Applies – The student applies mathematical vocabulary	، tools, and symbols and develops a plan of approach to solve th	e problem
Sub-Aspect	Translates the scenario into a mathematical problem (mathematizes) Translate a scenario into a problem using mathematical vocabulary	Represents the mathematical problem (visualizes) Visually represents a problem with mathematical tools, visual representations, or mathematical symbols	Thinks of and outli
Descriptor	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, using concrete materials, diagrams, and/or equations	Develops a logical mathematical tool familiar: previously
Aspect	Solves – The student implements a plan to solve the ma	athematical problem and checks their solution	
Sub-Aspect	Estimates reasonably in context Uses the information provided to support a best guess solution	Solves the mathematical problem Uses various approaches to find a solution to the problem	Verifies Checks their solution b
Descriptor	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	Finds a solution by applying familiar mathematical tools and/or strategies strategies: e.g., equations, play, concrete materials, models	Verifies the accura and other familiar
Aspect	Analyzes – The student reflects on the reasonableness	of their solution; evaluates alternative approaches and solutions,	and revises approa
Sub-Aspect	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?)	Evaluates alternative approaches Checks on the reasonableness of others' approaches to solve the problem	Revises their approac
Descriptor	Reflects on the reasonableness of a solution in relation to the original problem/scenario	Compares and contrasts alternative approaches approaches: own approach, peer- or teacher-driven approach	Identifies and exp the problem
Aspect	Communicates – The student represents, explains, and	d defends their approach and solution within the problem's scena	rio
Sub-Aspect	Represents processes and solution Effectively communicates the thinking and/or understanding in their approach and/or solution using visual representations or mathematical symbols	Explains the approach taken Clearly explains their problem-solving approach and solution with mathematical vocabulary	De Clearly justifies and de
Descriptor	Represents processes and solution by selecting and using reasonable tools reasonable tools: e.g., model, map, table, graph, array	Describes their problem-solving approach, using familiar mathematical language mathematical language: refer to <u>Math curriculum</u>	Explains their pro



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Develops a plan of approach *tlines various approaches to solve a mathematical problem*

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es accuracy of the mathematical solution n based on similar problems, others' solutions, or their estimate

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Revises approach as needed bach based on checking with others' solution and/or approach

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Defends decisions and assumptions

defends the decisions and assumptions made in their approach and/or solution

oblem-solving decisions and supporting reasons





Descriptor – defines what a proficient understanding or display of the skill looks like at that grade level.

NUMERACY LEARNING PROGRESSIONS – GRADE 6 PROFICIENCY DESCRIPTORS				
Aspect	Interprets – The student accesses and identifies releva	Interprets – The student accesses and identifies relevant information in order to understand the real-world problem to be solved		
Sub-Aspect	Understands the real-world problem Makes connections to a problem to aid understanding	Extracts relevant information Extracts key information, data, facts in order to solve a problem	Ide Recognizes reason	
Descriptor	Makes relevant connections to understand a real-world problem	Extracts relevant information from the presented problem as needed to solve it	Identifies only rel the problem	
Descriptor	real-world problem: contextual, relevant, related to current learning, personally/locally/globally meaningful		parameters: facto	
Aspect	Applies – The student applies mathematical vocabulary	y, tools, and symbols and develops a plan of approach to solve the	e problem	
Sub-Aspect	Translates the scenario into a mathematical problem (mathematizes) Translate a scenario into a problem using mathematical vocabulary	Represents the mathematical problem (visualizes) Visually represents a problem with mathematical tools, visual representations, or mathematical symbols	Thinks of and outl	
Descriptor	Applies the mathematical understanding needed to translate a familiar scenario into a mathematical problem	Accurately represents the mathematical problem, using a variety of models	Develops an orga applies appropria	
	mathematical understanding: refer to Math curriculum	models: e.g., concrete materials, diagrams, equations	appropriate: refer	
Aspect	Solves – The student implements a plan to solve the mo	athematical problem and checks their solution		
Sub-Aspect	Estimates reasonably in context Uses the information provided to support a best guess solution	Solves the mathematical problem Uses various approaches to find a solution to the problem	Verifies Checks their solution	
Descriptor	Estimates reasonably within the context and parameters of the scenario, using benchmarks	Finds a solution, using appropriate strategies	Verifies the accur reasonable estim	
	benchmarks: e.g., thousandths to billions, fractions, decimals, area, rhythm, pattern	strategies: e.g., using a tool (calculator), picture, graph, equations, concrete materials, and/or models	familiar strategie calculator	
Aspect	Analyzes – The student reflects on the reasonableness	of their solution; evaluates alternative approaches and solutions,	and revises approc	
Sub-Aspect	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?)	Evaluates alternative approaches Checks on the reasonableness of others' approaches to solve the problem	Revises their approa	
	Reflects on the reasonableness of their solution within the context of the problem	Describes the benefits and limitations of alternative approaches	Refines approacl alternative appro	
Descriptor	reasonableness: rationality, practicality context of the problem: e.g., Social Studies/Science: evidence from text; Arts: soliciting feedback	approaches: own approach, peer- or teacher-driven approach	refines: improves t	



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Develops a plan of approach *tlines various approaches to solve a mathematical problem*

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es accuracy of the mathematical solution n based on similar problems, others' solutions, or their estimate

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Revises approach as needed ach based on checking with others' solution and/or approach

ch, using the benefits and limitations of oaches to solving the problem

through small changes



Aspect	Communicates – The student represents, explains, and defends their approach and solution within the problem's scenario		
Sub-Aspect	Represents processes and solution Effectively communicates the thinking and/or understanding in their approach and/or solution using visual representations or mathematical symbols	Explains the approach taken Clearly explains their problem-solving approach and solution with mathematical vocabulary	Clearly justifies and
Descriptor	Represents the complete process and solution by selecting and using appropriate tools	Accurately explains their problem-solving approach	Presents a ration assumptions
	appropriate tools: e.g., model, chart, map, table, graph, array	approach: e.g., process: making a model; tool: manipulatives; strategy: using an equation	



Descriptor – defines what a proficient understanding or display of the skill looks like at that grade level.

Defends decisions and assumptions

defends the decisions and assumptions made in their approach and/or solution

nale for their problem- solving decisions and





Descriptor – defines what a proficient understanding or display of the skill looks like at that grade level.

	NUMERACY LEAF	RNING PROGRESSIONS – GRADE 7 PROFICIENCY DE	SCRIPTORS
Aspect	Interprets – The student accesses and identifies releva	nt information in order to understand the real-world problem to l	be solved
Sub-Aspect	Understands the real-world problem Makes connections to a problem to aid understanding	Extracts relevant information Extracts key information, data, facts in order to solve a problem	Ide Recognizes reason
Descriptor	Makes relevant connections to understand a real-world problem	Extracts relevant information from the presented problem as needed to solve it	Identifies only rel the problem
	real-world problem: contextual, relevant, related to current learning, personally/locally/globally meaningful		parameters: factor
Aspect	Applies – The student applies mathematical vocabulary	y, tools, and symbols and develops a plan of approach to solve the	e problem
Sub-Aspect	Translates the scenario into a mathematical problem (mathematizes) Translate a scenario into a problem using mathematical vocabulary	Represents the mathematical problem (visualizes) Visually represents a problem with mathematical tools, visual representations, or mathematical symbols	Thinks of and outl
Descriptor	Applies the mathematical understanding needed to translate a familiar scenario into a mathematical problem	Accurately represents the mathematical problem, using a variety of models	Develops a logica mathematical too
	mathematical understanding: refer to Math curriculum	models: e.g., concrete materials, diagrams, equations	appropriate: refer strategies: e.g., usi
Aspect	Solves – The student implements a plan to solve the mo	athematical problem and checks their solution	
Sub-Aspect	Estimates reasonably in context Uses the information provided to support a best guess solution	Solves the mathematical problem Uses various approaches to find a solution to the problem	Verifies Checks their solution
Descriptor	Estimates reasonably within the context and parameters of the scenario, using benchmarks	Finds a solution, using appropriate strategies	Verifies the accur reasonable estim
	benchmarks: e.g., thousandths to billions, fractions, decimals, area, rhythm, pattern	strategies: e.g., using a tool (calculator), picture, graph, equations, concrete materials, and/or models	familiar: previously alternate algorithm
Aspect	Analyzes – The student reflects on the reasonableness	of their solution; evaluates alternative approaches and solutions,	and revises approc
Sub-Aspect	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?)	Evaluates alternative approaches Checks on the reasonableness of others' approaches to solve the problem	Revises their approa
	Reflects on the reasonableness of their solution within the context of the problem	Describes the benefits and limitations of alternative approaches	Refines approach alternative appro
Descriptor	reasonableness: rationality, practicality context of the problem: e.g., Social Studies/Science: evidence from text; Arts: soliciting feedback	approaches: own approach, peer- or teacher-driven approach	refines: improves t



dentifies parameters and limitations mable factors, conditions, limitations that define the problem

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Develops a plan of approach *tlines various approaches to solve a mathematical problem*

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es accuracy of the mathematical solution n based on similar problems, others' solutions, or their estimate

rracy of their results and/or solution, using nates and other **familiar strategies**

sly seen or modelled e.g., using a tool [calculator], m, picture, graph

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Revises approach as needed ach based on checking with others' solution and/or approach

ch, using the benefits and limitations of oaches to solving the problem

through small changes





Sub-Aspect – the skills that support the development of the Aspect

Descriptor – defines what a proficient understanding or display of the skill looks like at that grade level.

Aspect	Communicates – The student represents, explains, and defends their approach and solution within the problem's scenario		
Sub-Aspect	Represents processes and solution Effectively communicates the thinking and/or understanding in their approach and/or solution using visual representations or mathematical symbols	Explains the approach taken Clearly explains their problem-solving approach and solution with mathematical vocabulary	l Clearly justifies and
Descriptor	Represents the complete process and solution by selecting and using appropriate tools	Accurately explains their problem-solving approach	Presents a ration assumptions
-	appropriate tools: model, chart, map, table, graph, array, equation	approach: e.g. process: making a model; tool: calculator; strategy: using an equation	



Defends decisions and assumptions

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Sub-Aspect – the skills that support the development of the Aspect

Descriptor – defines what a proficient understanding or display of the skill looks like at that grade level.

	NUMERACY LEAF	RNING PROGRESSIONS – GRADE 8 PROFICIENCY DI	SCRIPTORS
Aspect	Interprets – The student accesses and identifies releva	nt information in order to understand the real-world problem to	be solved
Sub-Aspect	Understands the real-world problem Makes connections to a problem to aid understanding	Extracts relevant information Extracts key information, data, facts in order to solve a problem	Ide Recognizes reason
	Makes relevant connections to fully understand the real- world problem in context	Extracts relevant information from the presented problem and other resources as needed to solve the problem	Identifies relevan needed to solve t
Descriptor	real-world problem: contextual, relevant, related to current learning, personally/locally/globally meaningful		parameters: factor limitations: reasor context
Aspect	Applies – The student applies mathematical vocabulary	γ, tools, and symbols and develops a plan of approach to solve th	ne problem
Sub-Aspect	Translates the scenario into a mathematical problem (mathematizes) Translate a scenario into a problem using mathematical vocabulary	Represents the mathematical problem (visualizes) Visually represents a problem with mathematical tools, visual representations, or mathematical symbols	Thinks of and outl
Descriptor	Applies the mathematical understanding needed to translate an unfamiliar scenario into a mathematical problem	Clearly represents the mathematical problem by choosing an appropriate model(s)	Uses mathematica plan that applies a strategies
	mathematical understanding: refer to <u>Math curriculum</u> unfamiliar scenario: previously unseen or unmodelled	appropriate: refer to <u>Math curriculum</u> models: e.g., concrete materials, diagrams, equations	appropriate: refer strategies: e.g., usi
Aspect	Solves – The student implements a plan to solve the mo	athematical problem and checks their solution	
Sub-Aspect	Estimates reasonably in context Uses the information provided to support a best guess solution	Solves the mathematical problem Uses various approaches to find a solution to the problem	Verifies Checks their solution
Descriptor	Estimates reasonably within the context and parameters of the scenario, using appropriate benchmarks	Solves the mathematical problem, using effective strategies as needed	Verifies the accur reasonable estim factors that could
Descriptor	benchmarks: e.g., perfect squares, volume; Arts: rhythm, pattern; Science: trend, frequency; Language Arts: pattern; ADST: area, volume, materials needed	strategies: e.g., using a tool (calculator), picture, graph, equations, concrete materials, and/or models	familiar strategies [calculator], alterna



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Descriptor – defines what a proficient understanding or display of the skill looks like at that grade level.

Aspect	Analyzes – The student reflects on the reasonableness	of their solution; evaluates alternative approaches and solutions,	and revises appro
Sub-Aspect	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?)	Evaluates alternative approaches Checks on the reasonableness of others' approaches to solve the problem	Revises their appro
	Reflects on the validity of their solution within the context of the problem	Evaluates the benefits and limitations of alternative approaches	Revises approad alternative appro
Descriptor	validity: accuracy in context context of the problem: e.g., Social Studies/Science: evidence from text; Arts: soliciting feedback	approaches: own approach, peer- or teacher-driven approach	revises: reflects a
Aspect	Communicates – The student represents, explains, an	d defends their approach and solution within the problem's scena	rio
Sub-Aspect	Represents processes and solution Effectively communicates the thinking and/or understanding in their approach and/or solution using visual representations or mathematical symbols	Explains the approach taken Clearly explains their problem-solving approach and solution with mathematical vocabulary	Clearly justifies and a and/or solution
Descriptor	Effectively represents the complete process and solution, using appropriate presentations	Accurately explains their problem-solving approach , identifying its limitations and assumptions	Presents a logica assumptions
Descriptor	appropriate presentations: e.g., bulleted explanation, equation, graph, model, map, table, array	approach: e.g., process: making a diagram; tool: calculator; strategy: using an equation	



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Revises approach as needed

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Sub-Aspect – the skills that support the development of the Aspect

Descriptor – defines what a proficient understanding or display of the skill looks like at that grade level.

	NUMERACY LEAF	RNING PROGRESSIONS – GRADE 9 PROFICIENCY DE	SCRIPTORS
Aspect	Interprets – The student accesses and identifies relevant information in order to understand the real-world problem to be solved		
Sub-Aspect	Understands the real-world problem Makes connections to a problem to aid understanding	Extracts relevant information Extracts key information, data, facts in order to solve a problem	Ide Recognizes reason
	Makes relevant connections to fully understand the real- world problem in context	Extracts relevant information from the presented problem and other resources as needed to solve the problem	Identifies relevan needed to solve t
Descriptor	real-world problem: contextual, relevant, related to current learning, personally/locally/globally meaningful		parameters: factor limitations: reasor context
Aspect	Applies – The student applies mathematical vocabulary	γ, tools, and symbols and develops a plan of approach to solve th	ne problem
Sub-Aspect	Translates the scenario into a mathematical problem (mathematizes) Translate a scenario into a problem using mathematical vocabulary	Represents the mathematical problem (visualizes) Visually represents a problem with mathematical tools, visual representations, or mathematical symbols	Thinks of and outl
Descriptor	Applies the mathematical understanding needed to translate an unfamiliar scenario into a mathematical problem	Clearly represents the mathematical problem by choosing an appropriate model(s)	Uses mathematica plan that applies a strategies
	mathematical understanding: refer to Math curriculum unfamiliar scenario: previously unseen or unmodelled	appropriate: refer to <u>Math curriculum</u> models: e.g., concrete materials, diagrams, equations	appropriate: refer strategies: e.g., usi
Aspect	Solves – The student implements a plan to solve the mo	athematical problem and checks their solution	
Sub-Aspect	Estimates reasonably in context Uses the information provided to support a best guess solution	Solves the mathematical problem Uses various approaches to find a solution to the problem	Verifies Checks their solution
Docarintor	Estimates reasonably within the context and parameters of the scenario, using appropriate benchmarks	Solves the mathematical problem, using effective strategies as needed	Verifies the accur reasonable estim factors that could
Descriptor	benchmarks: e.g., perfect squares, volume; Arts: rhythm, pattern; Science: trend, frequency; Language Arts: pattern; ADST: area, volume, materials needed	strategies: e.g., using a tool (calculator), picture, graph, equations, concrete materials, and/or models	familiar strategie s [calculator], alterna



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Descriptor – defines what a proficient understanding or display of the skill looks like at that grade level.

Aspect	Analyzes – The student reflects on the reasonableness of their solution; evaluates alternative approaches and solutions, and revises appro		
Sub-Aspect	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?)	Evaluates alternative approaches Checks on the reasonableness of others' approaches to solve the problem	Revises their approc
Descriptor	Reflects on the validity of their solution within the context of the problem	Evaluates the benefits and limitations of alternative approaches	Revises approac approaches to so
	validity: accuracy in context context of the problem: e.g., Social Studies/Science: evidence from text; Arts: soliciting feedback	approaches: own approach, peer- or teacher-driven approach, comparison with research- based approaches	revises: reflects ar
Aspect	Communicates – The student represents, explains, an	d defends their approach and solution within the problem's scena	rio
Sub-Aspect	Represents processes and solution Effectively communicates the thinking and/or understanding in their approach and/or solution using visual representations or mathematical symbols	Explains the approach taken Clearly explains their problem-solving approach and solution with mathematical vocabulary	ם Clearly justifies and d and/or solution
Descriptor	Effectively represents the complete process and solution, using appropriate presentations	Accurately explains their problem-solving approach , identifying its limitations and assumptions	Presents a logica assumptions
	appropriate presentations: e.g., bulleted explanation, equation, graph, model, map, table, array	approach: e.g., process: making a diagram; tool: calculator; strategy: using an equation	



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Sub-Aspect – the skills that support the development of the Aspect

Descriptor – defines what a proficient understanding or display of the skill looks like at that grade level.

	NUMERACY LEAR	NING PROGRESSIONS – GRADE 10 PROFICIENCY D	ESCRIPTORS
Aspect	Interprets – The student accesses and identifies relevant information in order to understand the real-world problem to be solved		
Sub-Aspect	Understands the real-world problem Makes connections to a problem to aid understanding	Extracts relevant information Extracts key information, data, facts in order to solve a problem	Id Recognizes reason
-	Makes connections necessary to understand the context and implications of the real-world problem	Extracts and organizes relevant information from the presented problem and a variety of other external resources to solve the problem	Identifies relevar limitations need
Descriptor	real-world problem: contextual, relevant, related to current learning, personally/locally/globally meaningful		parameters: facto limitations: reaso context
Aspect	Applies – The student applies mathematical vocabular	y, tools, and symbols and develops a plan of approach to solve th	e problem
Sub-Aspect	Translates the scenario into a mathematical problem (mathematizes) Translate a scenario into a problem using mathematical vocabulary	Represents the mathematical problem (visualizes) Visually represents a problem with mathematical tools, visual representations, or mathematical symbols	Thinks of and out
Description	Applies the mathematical understanding needed to translate an unfamiliar scenario into a mathematical problem	Clearly and accurately represents the problem by strategically choosing an effective model(s)	Uses mathematic effective plan tha and/or strategie
Descriptor	mathematical understanding: refer to <u>Math curriculum</u> unfamiliar scenario: previously unseen or unmodelled	models: e.g., concrete materials, diagrams, equations	appropriate math strategies: e.g., us Social Studies/Scier
Aspect	Solves – The student implements a plan to solve the mo	athematical problem and checks their solution	
Sub-Aspect	Estimates reasonably in context Uses the information provided to support a best guess solution	Solves the mathematical problem Uses various approaches to find a solution to the problem	Verifies Checks their solution
	Estimates reasonably in context, within parameters, and considering limitations	Solves the mathematical problem by following a logical plan and using efficient strategies as needed	Verifies the accur reasonable estim
Descriptor		strategies: e.g., using a tool (calculator), algorithm, picture, graph; Social Studies/Science: evidence from text	familiar strategie [calculator], altern



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Descriptor – defines what a proficient understanding or display of the skill looks like at that grade level.

Aspect	Analyzes – The student reflects on the reasonableness	of their solution; evaluates alternative approaches and solutions,	and revises appro
Sub-Aspect	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?)	Evaluates alternative approaches Checks on the reasonableness of others' approaches to solve the problem	Revises their approc
	Reflects on the validity of their solution , identifying contextual factors that may affect their answer	Evaluates the efficiency and effectiveness of alternative approaches	Revises approact alternative appropries of the second se
Descriptor	validity: accuracy in context solution: e.g., lab results, map, product, model contextual factors: e.g., Social Studies/Science: evidence from text; Arts: soliciting feedback	approaches: own approach, peer- or teacher-driven approach, comparison with research- based approaches	revises: reflects an
Aspect	Communicates – The student represents, explains, an	nd defends their approach and solution within the problem's scene	ario
Sub-Aspect	Represents processes and solution Effectively communicates the thinking and/or understanding in their approach and/or solution using visual representations or mathematical symbols	Explains the approach taken Clearly explains their problem-solving approach and solution with mathematical vocabulary	C Clearly justifies and d and/or solution
Descriptor	Represents complex processes and solutions, using a variety of presentations in a manner that is suitable to the context	Explains their problem-solving approach , describing any limitations and assumptions	Presents a valid, the selected app of these choices
	presentations: e.g., bulleted explanation, equation, graph, model, map, table, diagram	approach: e.g., process: making a flowchart; tool: calculator; strategy: using a familiar algorithm or evidence from text	



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Descriptor – defines what a proficient understanding or display of the skill looks like at that grade level.

	NUMERACY LEAR	NING PROGRESSIONS – GRADE 11 PROFICIENCY D	ESCRIPTORS	
Aspect	Interprets – The student accesses and identifies releva	Interprets – The student accesses and identifies relevant information in order to understand the real-world problem to be solved		
Sub-Aspect	Understands the real-world problem Makes connections to a problem to aid understanding	Extracts relevant information Extracts key information, data, facts in order to solve a problem	Id Recognizes reason	
Descriptor	Makes connections necessary to investigate and understand new contexts and implications of real-world problems	Extracts and organizes relevant information from the presented problem and a variety of other external resources to solve the problem	Identifies explicit needed to solve t	
	real-world problem: contextual, relevant, related to current learning, personally/locally/globally meaningful		parameters: facto limitations: reaso context	
Aspect	Applies – The student applies mathematical vocabulary	ary, tools, and symbols and develops a plan of approach to solve the problem		
Sub-Aspect	Translates the scenario into a mathematical problem (mathematizes) Translate a scenario into a problem using mathematical vocabulary	Represents the mathematical problem (visualizes) Visually represents a problem with mathematical tools, visual representations, or mathematical symbols	Thinks of and out	
Descriptor	Applies the mathematical understanding needed to translate a complex, unfamiliar scenario into a mathematical problem	Clearly and accurately represents the problem in context by strategically choosing an effective model(s)	Uses mathematic effective multi-ste tools and/or stra	
	mathematical understanding: refer to <u>Math curriculum</u> unfamiliar scenario: previously unseen or unmodelled	models: e.g., concrete materials, diagrams, equations	appropriate math strategies: e.g., us Social Studies/Scier	
Aspect	Solves – The student implements a plan to solve the mo	athematical problem and checks their solution		
Sub-Aspect	Estimates reasonably in context Uses the information provided to support a best guess solution	Solves the mathematical problem Uses various approaches to find a solution to the problem	Verifie Checks their solution	
Descriptor	Estimates reasonably in context, within parameters, and considering limitations; explains reasoning for estimate	Solves the mathematical problem by following a logical, multi- step plan and using efficient strategies as needed	Verifies the accur reasonable estim and evaluates hc	
Descriptor		strategies: e.g., using a tool (calculator), algorithm, picture, graph; Social Studies/Science: evidence from text	familiar strategie [calculator], altern	



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Descriptor – defines what a proficient understanding or display of the skill looks like at that grade level.

Aspect	Analyzes – The student reflects on the reasonableness	of their solution; evaluates alternative approaches and solutions,	and revises appro
Sub-Aspect	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?)	Evaluates alternative approaches Checks on the reasonableness of others' approaches to solve the problem	Revises their approc
	Reflects on the validity and reliability of their processes and solutions and describes how contextual factors may affect their answer	Evaluates the efficiency and effectiveness of alternative approaches and possible improvements	Redesigns appro of solution to the
Descriptor	validity: accuracy in context reliability: reproducibility of results contextual factors: e.g., Social Studies/Science: evidence from text; Arts: soliciting feedback	approaches: own approach, peer- or teacher-driven approach, comparison with research- based approaches	redesigns: iterativ
Aspect	Communicates – The student represents, explains, an	d defends their approach and solution within the problem's scene	ario
Sub-Aspect	Represents processes and solution Effectively communicates the thinking and/or understanding in their approach and/or solution using visual representations or mathematical symbols	Explains the approach taken Clearly explains their problem-solving approach and solution with mathematical vocabulary	L Clearly justifies and d and/or solution
	Represents complex processes and solutions; chooses a presentation that suits the purpose, context, and audience	Explains their problem-solving approach accurately and in detail, evaluating the effect of any assumptions or limitations	Presents a valid, the selected app their choices
Descriptor	presentation: e.g., proof, model, equation, graph, model, map, table, diagram	approach: e.g., process: making a flowchart; tool: calculator; strategy: using an algorithm or evidence from text evaluating: assessing the implications	evaluating: asses



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Descriptor – defines what a proficient understanding or display of the skill looks like at that grade level.

	NUMERACY LEAR	NING PROGRESSIONS – GRADE 12 PROFICIENCY D	ESCRIPTORS	
Aspect	Interprets – The student accesses and identifies releva	Interprets – The student accesses and identifies relevant information in order to understand the real-world problem to be solved		
Sub-Aspect	Understands the real-world problem Makes connections to a problem to aid understanding	Extracts relevant information Extracts key information, data, facts in order to solve a problem	Id Recognizes reasor	
Descriptor	Makes connections necessary to investigate and understand new contexts and implications of real-world problems	Extracts and organizes relevant information from the presented problem and a variety of other external resources to solve the problem	Identifies explicit needed to solve t	
	real-world problem: contextual, relevant, related to current learning, personally/locally/globally meaningful		parameters: facto limitations: reaso context	
Aspect	Applies – The student applies mathematical vocabulary, tools, and symbols and develops a plan of approach to solve the problem			
Sub-Aspect	Translates the scenario into a mathematical problem (mathematizes) Translate a scenario into a problem using mathematical vocabulary	Represents the mathematical problem (visualizes) Visually represents a problem with mathematical tools, visual representations, or mathematical symbols	Thinks of and out	
Descriptor	Applies the mathematical understanding needed to translate a complex, unfamiliar scenario into a mathematical problem	Clearly and accurately represents the problem in context by strategically choosing an effective model(s)	Uses mathematic effective multi-ste tools and/or stra	
	mathematical understanding: refer to <u>Math curriculum</u> unfamiliar scenario: previously unseen or unmodelled	models: e.g., concrete materials, diagrams, equations	appropriate math strategies: e.g., us Social Studies/Scier	
Aspect	Solves – The student implements a plan to solve the mo	athematical problem and checks their solution		
Sub-Aspect	Estimates reasonably in context Uses the information provided to support a best guess solution	Solves the mathematical problem Uses various approaches to find a solution to the problem	Verifie Checks their solution	
Docarintor	Estimates reasonably in context, within parameters, and considering limitations; explains reasoning for estimate	Solves the mathematical problem by following a logical, multi- step plan and using efficient strategies as needed	Verifies the accur reasonable estim and evaluates ho	
Descriptor		strategies: e.g., using a tool (calculator), algorithm, picture, graph; Social Studies/Science: evidence from text	familiar strategie [calculator], altern	



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Descriptor – defines what a proficient understanding or display of the skill looks like at that grade level.

Aspect	Analyzes – The student reflects on the reasonableness	of their solution; evaluates alternative approaches and solutions,	and revises appro
Sub-Aspect	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?)	Evaluates alternative approaches Checks on the reasonableness of others' approaches to solve the problem	Revises their approc
Descriptor	Reflects on the validity and reliability of their processes and solutions and describes how contextual factors may affect their answer	Evaluates the efficiency and effectiveness of alternative approaches and possible improvements	Redesigns appro of solution to the
	validity: accuracy in context reliability: reproducibility of results contextual factors: e.g., Social Studies/Science: evidence from text; Arts: soliciting feedback	approaches: own approach, peer- or teacher-driven approach, comparison with research- based approaches	redesigns: iterativ
Aspect	Communicates – The student represents, explains, and defends their approach and solution within the problem's scenario		
Sub-Aspect	Represents processes and solution Effectively communicates the thinking and/or understanding in their approach and/or solution using visual representations or mathematical symbols	Explains the approach taken Clearly explains their problem-solving approach and solution with mathematical vocabulary	ם Clearly justifies and d and/or solution
	Represents complex processes and solutions; chooses a presentation that suits the purpose, context, and audience	Explains their problem-solving approach accurately and in detail, evaluating the effect of any assumptions or limitations	Presents a valid, the selected app their choices
Descriptor	presentation: e.g., proof, model, equation, graph, model, map, table, diagram	approach: e.g., process: making a flowchart; tool: calculator; strategy: using an algorithm or evidence from text evaluating: assessing the implications	evaluating: assess



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