

NUMERACY

KINDERGARTEN

INTERPRETS

Makes a personal connection (experiences and prior knowledge) with one aspect of the problem

Identifies a significant fact about the problem

Understands that problems have parameters (factors and conditions that define the problem)

COMMUNICATES

Represents the problem-solving process, using numbers, pictures, and/or manipulatives

Identifies one step of their problem-solving approach

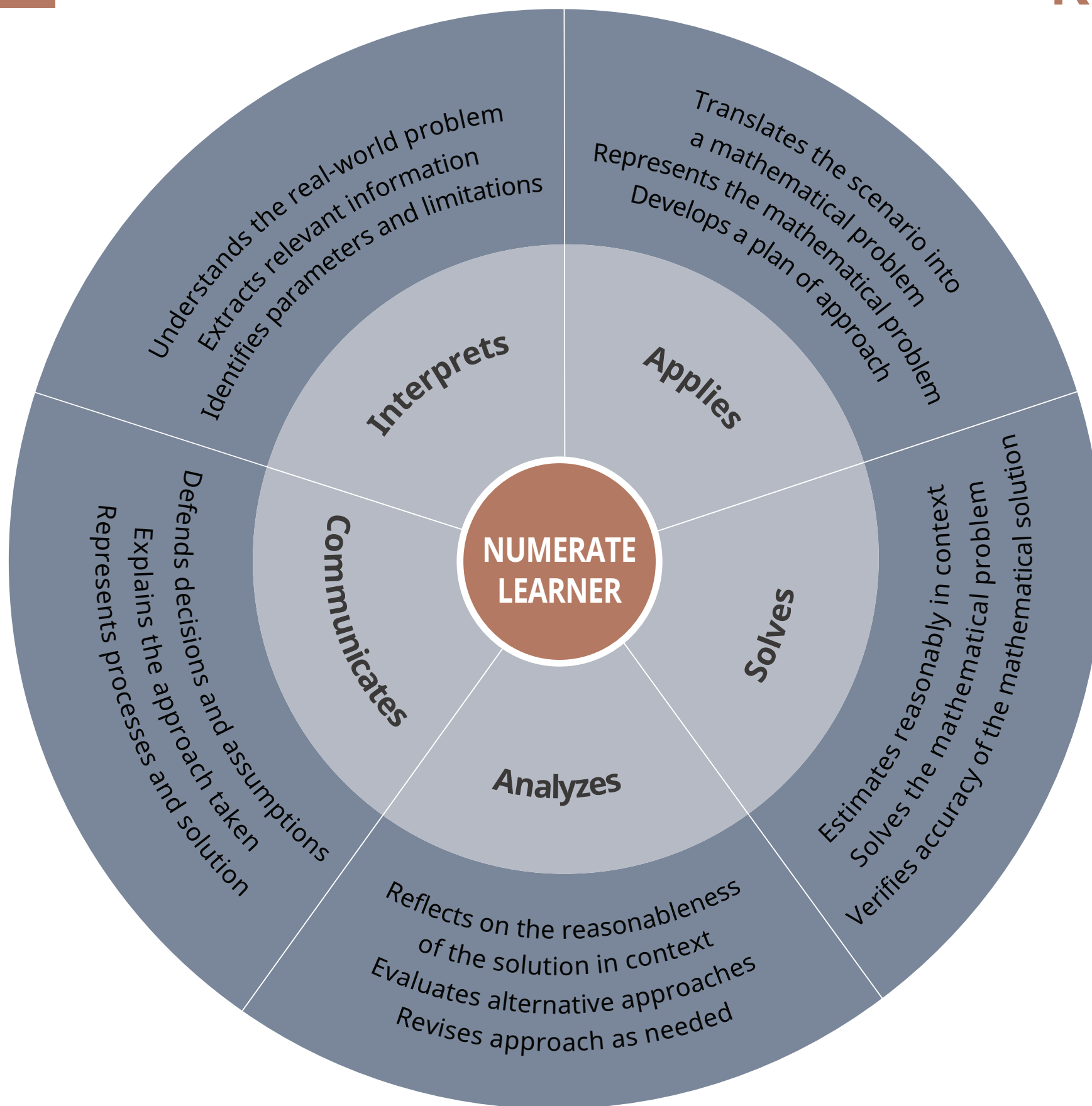
Identifies one problem-solving decision

ANALYZES

Identifies a reasonable solution in relation to the original problem/scenario

Identifies an alternative approach (own approach, peer- or teacher-driven approach)

Experiments with a recommended alternative approach to solve the problem



APPLIES

Recognizes the mathematical competencies and content (refer to Math curriculum) needed to solve the problem

Represents the mathematical problem, using concrete materials and/or pictures

Experiments with problem solving using prior knowledge

SOLVES

Estimates the scope (e.g., range, size, shape, time) of the answer

Finds a solution, using play, concrete materials, or models

Compares their solution with those of their teacher and/or peers

NUMERACY

GRADE 1

INTERPRETS

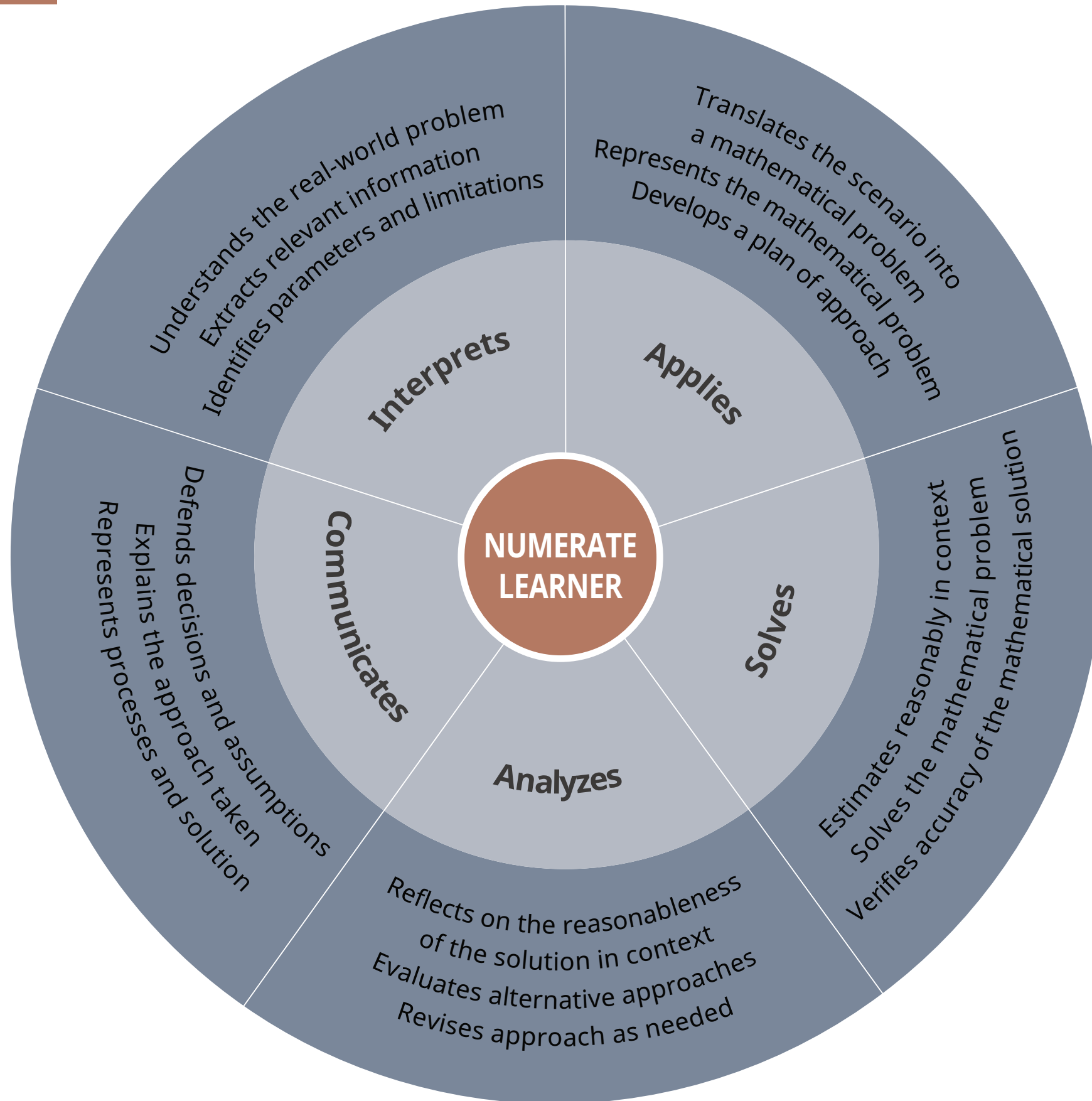
- Makes personal connections (experiences and prior knowledge) with aspects of the problem
- Identifies a significant fact and gathers other information from the problem
- Identifies a clearly defined parameter (factors and conditions that define the problem) needed to solve the problem

COMMUNICATES

- Represents the problem-solving process, using words, numbers, pictures, symbols, and/or manipulatives
- Outlines their problem-solving approach
- Outlines one problem-solving decision

ANALYZES

- Identifies a reasonable solution in relation to the original problem/scenario
- Identifies an alternative approach (own approach, peer- or teacher-driven approach)
- Experiments with a recommended alternative approach to solve the problem



APPLIES

- Recognizes the mathematical competencies and content (refer to Math curriculum) needed to solve the problem
- Represents the mathematical problem, using concrete materials and diagrams
- Develops a straightforward plan of approach, using prior knowledge and mathematical tools and strategies

SOLVES

- Estimates the scope (e.g. range, size, shape, time) of the answer
- Finds a solution, using play, concrete materials, or models
- Compares their solution with those of their teacher and/or peers

NUMERACY

GRADE 2

INTERPRETS

Makes personal connections (experiences and prior knowledge) to explore the problem

Identifies and gathers most of the significant information from the presented problem to assist in solving it

Identifies some of the clearly defined parameters (factors and conditions that define the problem) needed to solve the problem

COMMUNICATES

Represents the problem-solving process, using familiar tools (e.g., manipulatives, symbols, graphic organizers, charts)

Outlines their problem-solving approach, using familiar (previously seen or modelled) mathematical language (refer to Math curriculum)

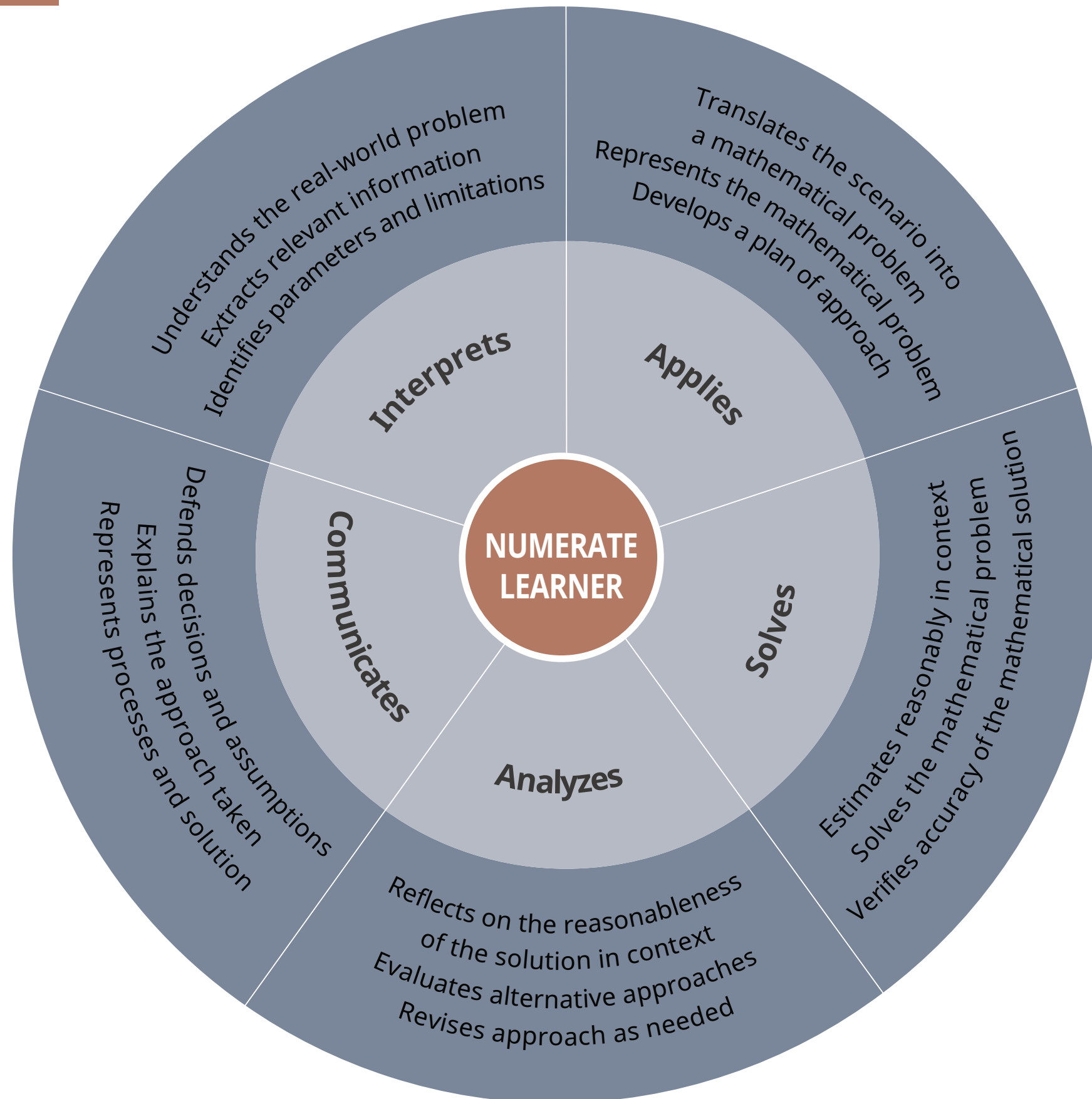
Describes one problem-solving decision and a supporting reason

ANALYZES

Reflects on the reasonableness of a solution in relation to the original problem/scenario

Explores an alternative approach (own approach, peer- or teacher-driven approach)

Selects an alternative approach to solve the problem



APPLIES

Identifies the mathematical competencies and content (refer to Math curriculum) needed to solve the problem

Represents the mathematical problem, using concrete materials and diagrams

Develops a basic (could be one step) plan of approach, using familiar (previously seen or modelled) mathematical tools and/or strategies

SOLVES

Estimates reasonably within known parameters, using benchmarks (e.g., 25, 50, 100, distance, colour, rhythm, pattern)

Finds a solution, using mathematical tools and/or strategies (e.g., play, concrete materials, models)

Verifies the accuracy of their solution by comparing it with a variety of proofs/checks, including estimation

NUMERACY

GRADE 3

INTERPRETS

Makes personal connections (experiences and prior knowledge) to explore the problem

Identifies and gathers most of the significant information from the presented problem to assist in solving it

Identifies most of the clearly defined parameters (factors and conditions that define the problem) needed to solve the problem

COMMUNICATES

Represents processes and solution by selecting and using reasonable tools (e.g., table, manipulative, graphic organizer, array, model)

Describes their problem-solving approach, using familiar (previously seen or modelled) mathematical language (refer to Math curriculum)

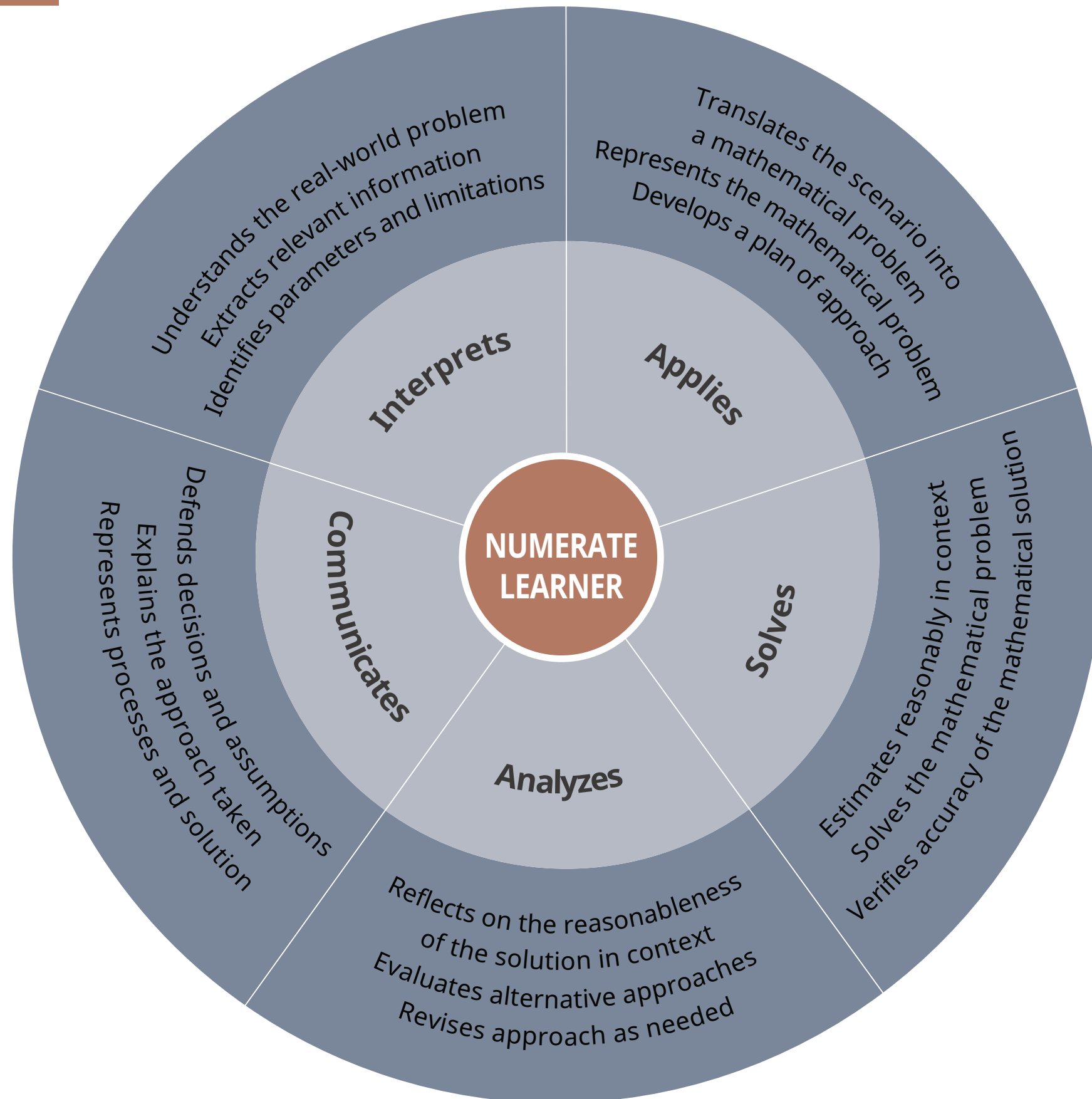
Describes their problem-solving decisions and supporting reasons

ANALYZES

Reflects on the reasonableness of a solution in relation to the original problem/scenario

Explores alternative approaches (own approach, peer- or teacher-driven approach)

Selects an alternative approach to solve the problem



APPLIES

Identifies the mathematical competencies and content (refer to Math curriculum) needed to solve the problem

Represents the mathematical problem, using concrete materials, diagrams, and/or some familiar (previously seen or modelled) equations

Develops a basic (could be one step) plan of approach, using familiar (previously seen or modelled) mathematical tools and/or strategies

SOLVES

Estimates reasonably within identified parameters, using benchmarks (e.g., up to 1000, distance, colour, rhythm, pattern) and information from the scenario

Finds a solution by applying familiar mathematical tools and/or strategies (e.g., play, concrete materials, models)

Verifies the accuracy of their solution, using familiar (previously seen or modelled) mathematical strategies and/or by comparing with their estimate

NUMERACY

GRADE 4

INTERPRETS

Makes general connections (personal, or to similar problems) to understand the problem in context

Gathers relevant information from the presented problem to assist in solving it

Identifies all clearly defined parameters (factors and conditions that define the problem) needed to solve the problem

COMMUNICATES

Represents processes and solution by selecting and using reasonable tools (e.g., model, chart, map, table, graph, chart, array)

Describes their problem-solving approach, using familiar (previously seen or modelled) mathematical language (refer to Math curriculum)

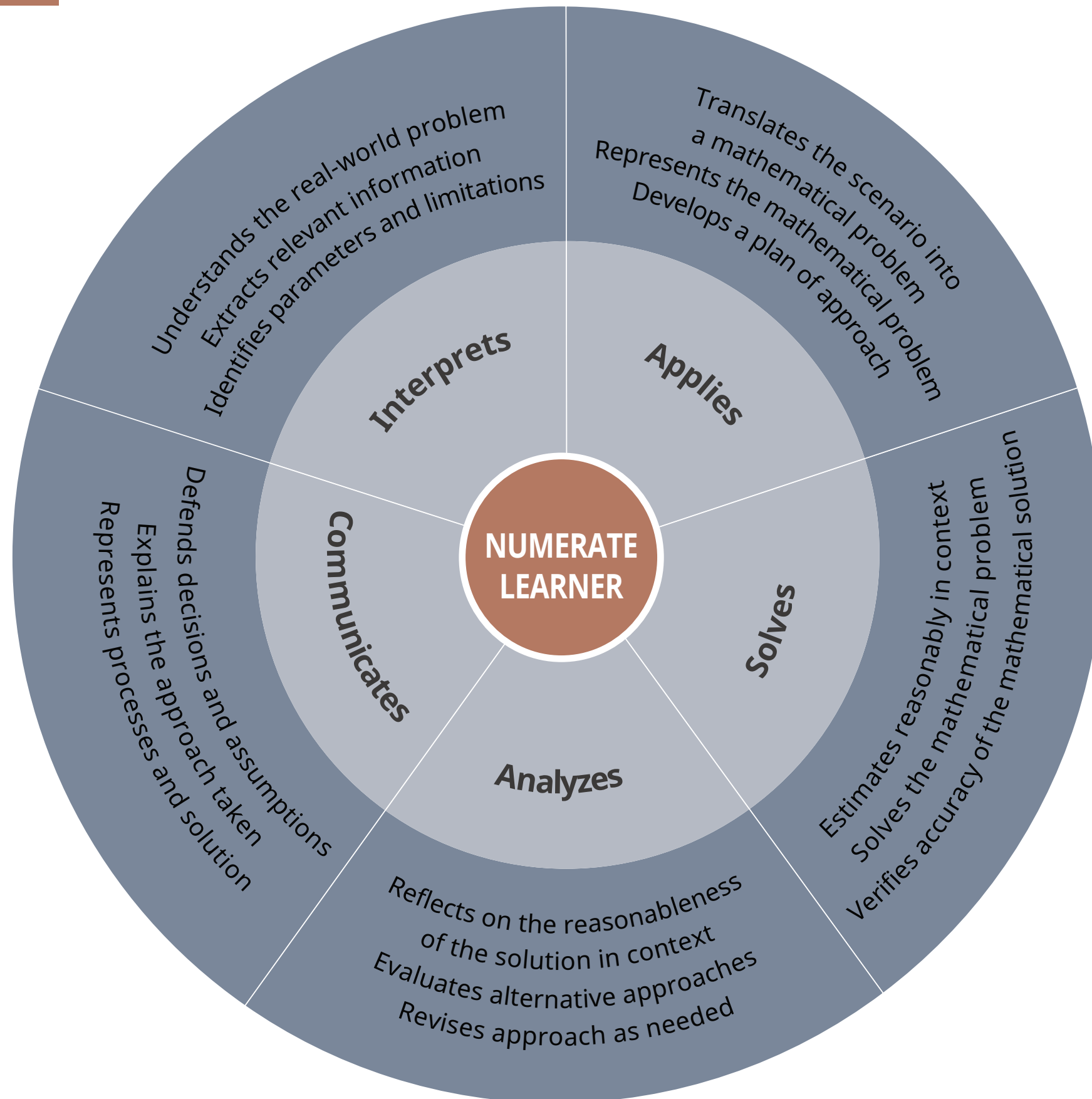
Explains their problem-solving decisions and supporting reasons

ANALYZES

Reflects on the reasonableness of a solution in relation to the original problem/scenario

Compares and contrasts alternative approaches (own approach, peer- or teacher-driven approach)

Identifies and experiments with an alternative approach to solve the problem



APPLIES

Applies the mathematical understanding (refer to Math curriculum) needed to partially translate a familiar scenario into a mathematical problem

Represents the mathematical problem, using concrete materials, diagrams, and/or some familiar (previously seen or modelled) equations

Develops a sequence of steps that applies familiar (previously seen or modelled) mathematical tools and/or strategies

SOLVES

Estimates reasonably within identified parameters, using benchmarks (e.g., up to 10 000, fractions, decimals, distance, colour, rhythm, pattern) and information from the scenario

Finds a solution by applying familiar mathematical tools and/or strategies (e.g., equations, play, concrete materials, models)

Verifies the accuracy of their solution, using reasonable estimates and other familiar (previously seen or modelled) mathematical strategies

INTERPRETS

Makes general connections (personal, or to similar problems) to understand the problem in context

Gathers relevant information from the presented problem to assist in solving it

Identifies all clearly defined parameters (factors and conditions that define the problem) needed to solve the problem

COMMUNICATES

Represents processes and solution by selecting and using reasonable tools (e.g., model, chart, map, table, graph, chart, array)

Describes their problem-solving approach, using familiar (previously seen or modelled) mathematical language (refer to Math curriculum)

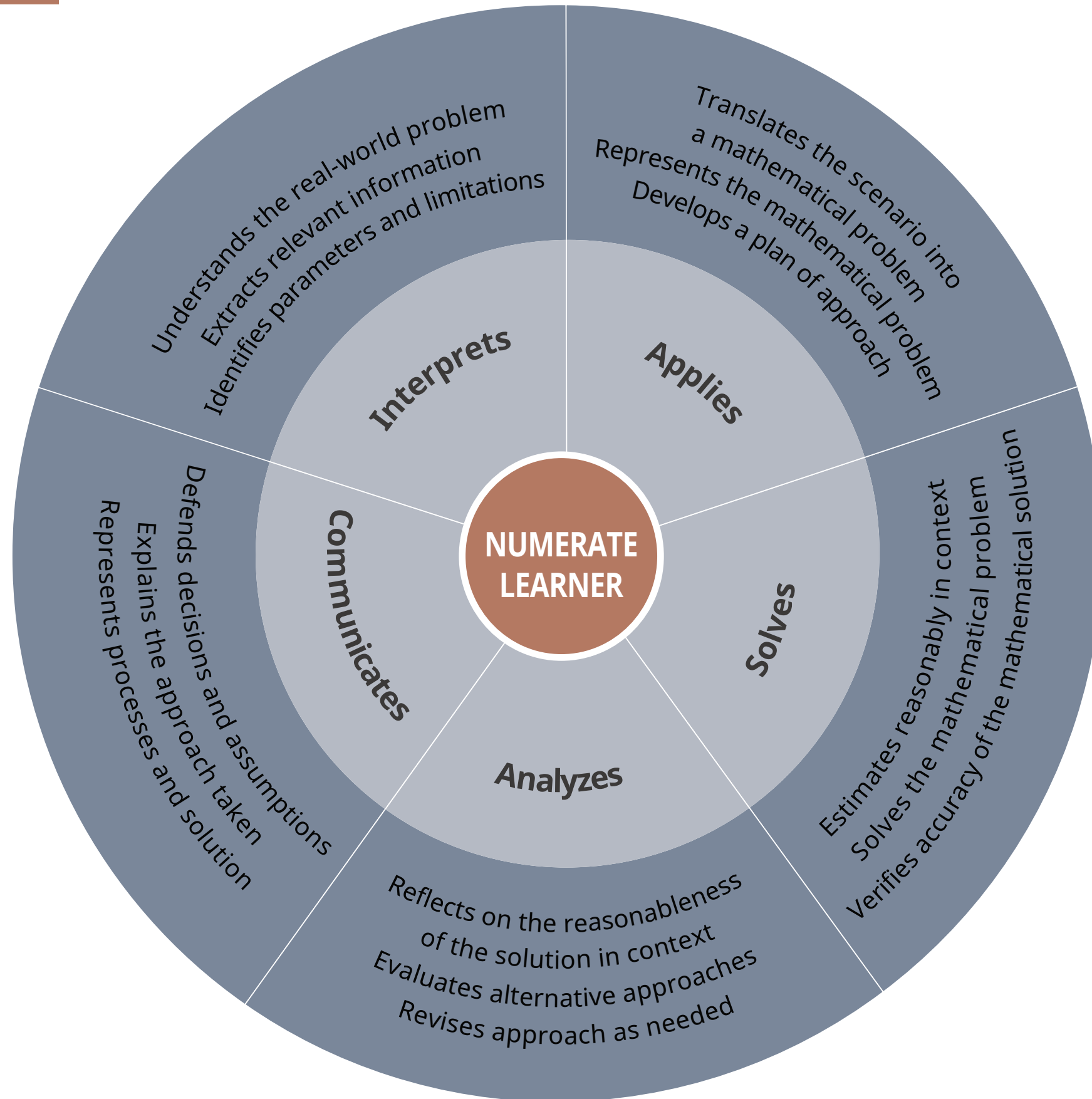
Explains their problem-solving decisions and supporting reasons

ANALYZES

Reflects on the reasonableness of a solution in relation to the original problem/scenario

Compares and contrasts alternative approaches (own approach, peer- or teacher-driven approach)

Identifies and experiments with an alternative approach to solve the problem



APPLIES

Applies the mathematical understanding (refer to Math curriculum) needed to partially translate a familiar scenario into a mathematical problem

Represents the mathematical problem, using concrete materials, diagrams, and/or equations

Develops a logical sequence of steps that applies familiar (previously seen or modelled) mathematical tools and/or strategies

SOLVES

Estimates reasonably within identified parameters, using benchmarks (e.g., up to 1 000 000, fractions, decimals, distance, colour, rhythm, pattern) and information from the scenario

Finds a solution by applying familiar mathematical tools and/or strategies (e.g., equations, play, concrete materials, models)

Verifies the accuracy of their solution, using reasonable estimates and other familiar (previously seen or modelled) mathematical strategies

NUMERACY

GRADE 6

INTERPRETS

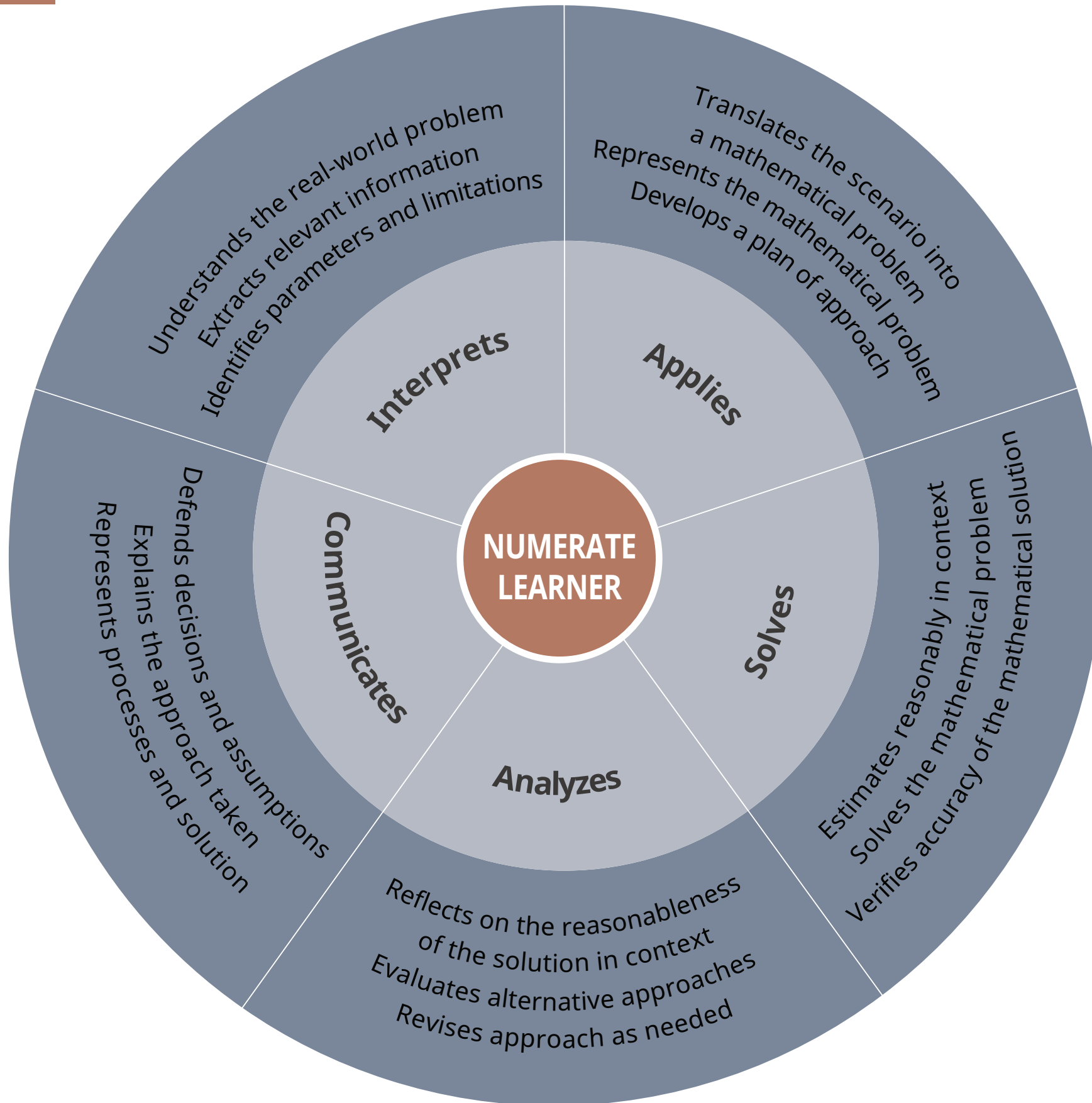
- Makes relevant connections to understand a real-world problem (contextual, relevant, related to current learning, personally/locally/globally meaningful)
- Extracts relevant information from the presented problem as needed to solve it
- Identifies only relevant explicit parameters (factors and conditions that define the problem) needed to solve the problem

COMMUNICATES

- Represents the complete process and solution by selecting and using appropriate tools (e.g., model, chart, map, table, graph, chart, array)
- Accurately explains their problem-solving approach (e.g., process: making a model; tool: manipulatives; strategy: using an equation)
- Presents a rationale for their problem-solving decisions and assumptions

ANALYZES

- Reflects on the reasonableness of their solution within the context of the problem (e.g., Social Studies: evidence from text)
- Describes the benefits and limitations of alternative approaches (own approach, peer- or teacher-driven approach)
- Refines (improves through small changes) approach, using the benefits and limitations of alternative approaches to solving the problem



APPLIES

- Applies the mathematical understanding (refer to Math curriculum) needed to translate a familiar scenario into a mathematical problem
- Accurately represents the mathematical problem, using a variety of models (e.g., concrete materials, diagrams, equations)
- Develops an organized and intentional sequence of steps that applies appropriate mathematical tools and/or strategies (refer to Math curriculum)

SOLVES

- Estimates reasonably within the context and parameters of the scenario, using benchmarks (e.g., thousandths to billions, fractions, decimals, area, rhythm, pattern)
- Finds a solution, using appropriate strategies (e.g., using a tool (calculator), picture, graph, equations, concrete materials, and/or models)
- Verifies the accuracy of their results and/or solution, using reasonable estimates and other familiar (previously seen or modelled) mathematical strategies

NUMERACY

GRADE 7

INTERPRETS

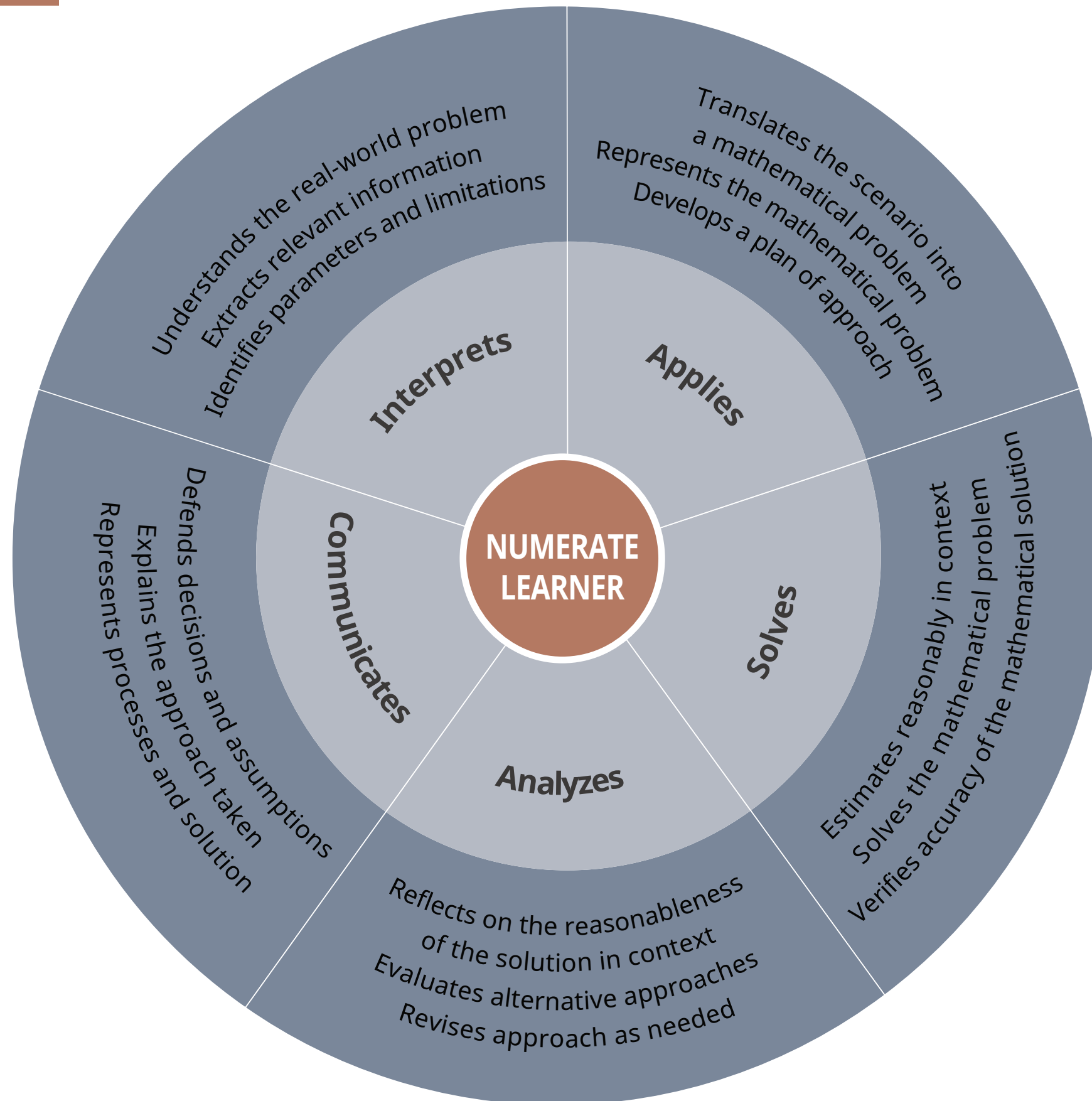
- Makes relevant connections to understand a real-world problem (contextual, relevant, related to current learning, personally/locally/globally meaningful)
- Extracts relevant information from the presented problem as needed to solve it
- Identifies only relevant explicit parameters (factors and conditions that define the problem) needed to solve the problem

COMMUNICATES

- Represents the complete process and solution by selecting and using appropriate tools (e.g., model, chart, map, table, graph, chart, array, equation)
- Accurately explains their problem-solving approach (e.g., process: making a model; tool: calculator; strategy: using an equation)
- Presents a rationale for their problem-solving decisions and assumptions

ANALYZES

- Reflects on the reasonableness of their solution within the context of the problem (e.g., Social Studies: evidence from text)
- Describes the benefits and limitations of alternative approaches (own approach, peer- or teacher-driven approach)
- Refines (improves through small changes) approach, using the benefits and limitations of alternative approaches to solving the problem



APPLIES

- Applies the mathematical understanding (refer to Math curriculum) needed to translate a familiar scenario into a mathematical problem
- Accurately represents the mathematical problem, using a variety of models (e.g., concrete materials, diagrams, equations)
- Develops a logical and organized plan (an intentional sequence of steps with an end goal) that applies appropriate mathematical tools and/or strategies (e.g., using a tool (calculator), picture, graph, equation)

SOLVES

- Estimates reasonably within the context and parameters of the scenario, using benchmarks (e.g., thousandths to billions, length, area; Arts: rhythm, pattern; Science: trend, frequency; Language Arts: pattern; ADST: area, materials needed)
- Finds a solution, using appropriate strategies (e.g., using a tool (calculator), picture, graph, equations, concrete materials, and/or models)
- Verifies the accuracy of their results and/or solution, using reasonable estimates and other familiar mathematical strategies (e.g., using a tool [calculator], alternate algorithm, picture, graph)

INTERPRETS

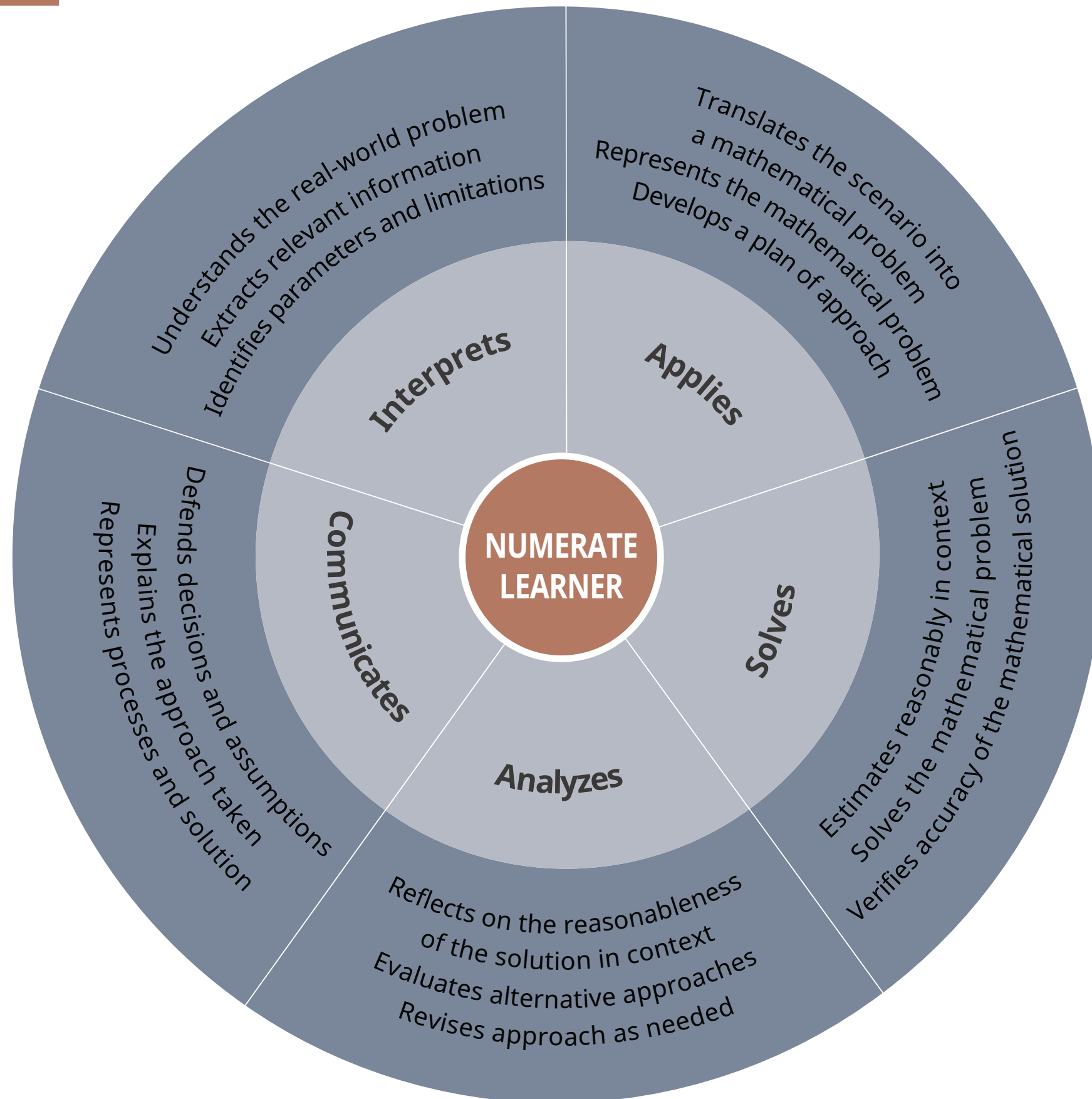
- Makes relevant connections to fully understand a real-world problem (contextual, relevant, personally/locally/globally meaningful)
- Extracts relevant information from the presented problem and other resources as needed to solve the problem
- Identifies relevant explicit parameters (factors that define the problem) and limitations (constraints in a real-world context) needed to solve the problem

COMMUNICATES

- Effectively represents the complete process and solution, using appropriate presentations (e.g., bulleted explanation, equation, graph, model, map, table, array)
- Accurately explains their problem-solving approach (e.g., process: making a model; tool: calculator; strategy: using an equation), identifying its limitations and assumptions
- Presents a logical argument and justifies their decisions and assumptions

ANALYZES

- Reflects on the validity (accuracy in context) of their solution within the context of the problem
- Evaluates the benefits and limitations of alternative approaches (e.g. peer- or teacher-driven approach)
- Revises (reflects and adjusts) approach, using the benefits and limitations of alternative approaches to solve the problem



APPLIES

- Applies the mathematical understanding (refer to Math curriculum) needed to translate an unfamiliar (previously unseen or unmodelled) scenario into a mathematical problem
- Clearly represents the mathematical problem by choosing an appropriate model(s) (e.g., concrete materials, diagrams, equations)
- Uses mathematical reasoning to develop a logical and organized plan (an intentional sequence of steps with an end goal) that applies appropriate mathematical tools and/or strategies (e.g., using a tool (calculator), picture, graph, equation)

SOLVES

- Estimates reasonably within the context and parameters of the scenario, using appropriate benchmarks (e.g., perfect squares, volume; Arts: rhythm, pattern; Science: trend, frequency; Language Arts: pattern; ADST: materials needed)
- Solves the mathematical problem, using effective strategies (e.g., using a tool (calculator), picture, graph, equations, concrete materials, and/or models) as needed
- Verifies the accuracy of their results and/or solution, using reasonable estimates and other familiar strategies (e.g., using a tool [calculator], alternate algorithm, picture, graph); identifies factors that could affect accuracy of results

INTERPRETS

Makes relevant connections to fully understand a real-world problem (contextual, relevant, personally/locally/globally meaningful)

Extracts relevant information from the presented problem and other resources as needed to solve the problem

Identifies relevant explicit parameters (factors that define the problem) and limitations (constraints in a real-world context) needed to solve the problem

COMMUNICATES

Effectively represents the complete process and solution, using appropriate presentations (e.g., bulleted explanation, equation, graph, model, map, table, array)

Accurately explains their problem-solving approach (e.g., process: making a model; tool: calculator; strategy: using an equation), identifying its limitations and assumptions

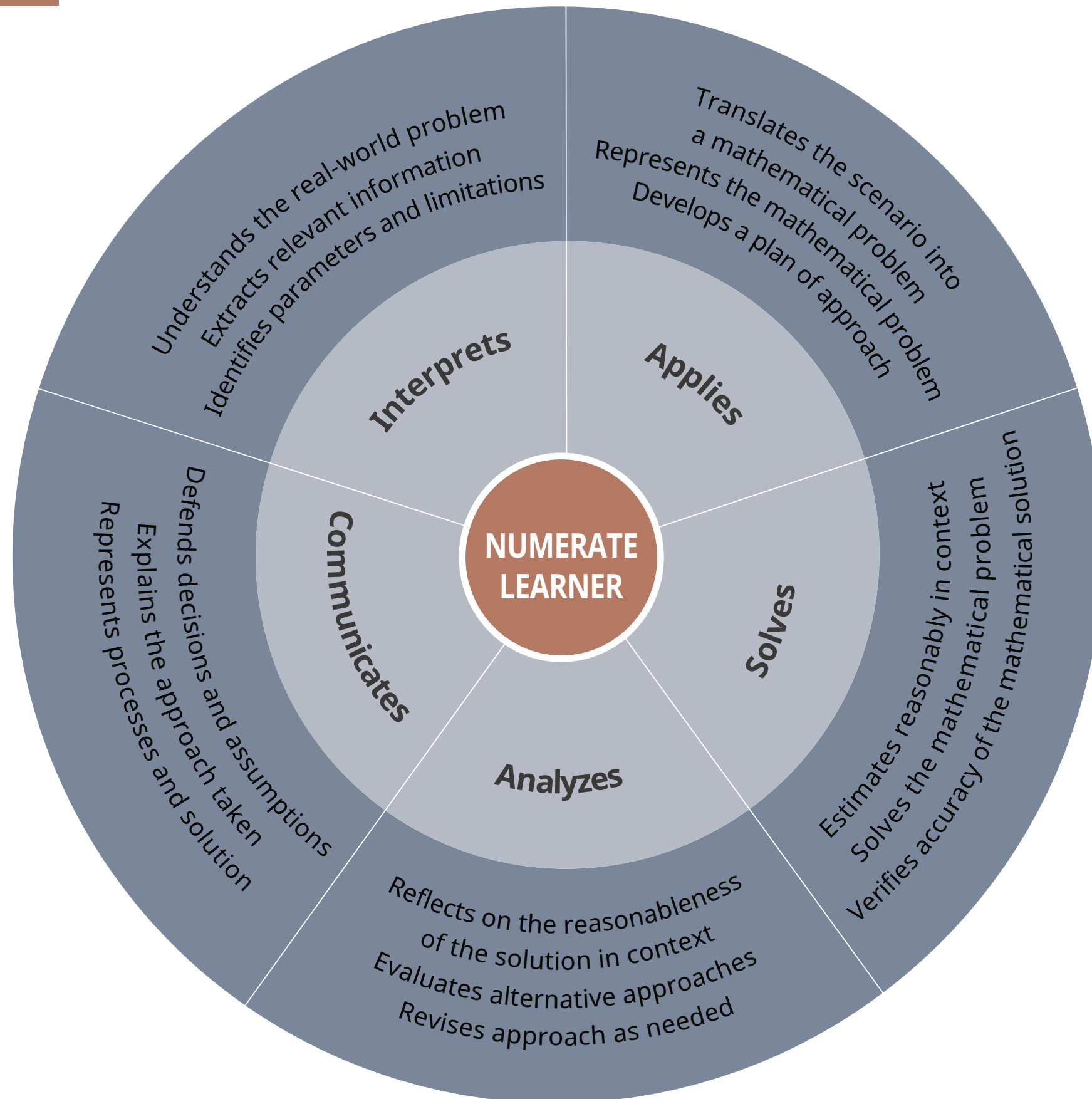
Presents a logical argument and justifies their decisions and assumptions

ANALYZES

Reflects on the validity (accuracy in context) of their solution within the context of the problem

Evaluates the benefits and limitations of alternative approaches (e.g. peer- or teacher-driven approach)

Revises (reflects and adjusts) approach based on their evaluation of alternative approaches to solving the problem



APPLIES

Applies the mathematical understanding (refer to Math curriculum) needed to translate an unfamiliar (previously unseen or unmodelled) scenario into a mathematical problem

Clearly represents the mathematical problem by choosing an appropriate model(s) (e.g., concrete materials, diagrams, equations)

Uses mathematical reasoning to develop a logical and organized plan (an intentional sequence of steps with an end goal) that applies appropriate mathematical tools and/or strategies (e.g., using a tool (calculator), picture, graph, equation)

SOLVES

Estimates reasonably within the context and parameters of the scenario, using appropriate benchmarks (e.g., perfect squares, volume; Arts: rhythm, pattern; Science: trend, frequency; Language Arts: pattern; ADST: materials needed)

Solves the mathematical problem, using effective strategies (e.g., using a tool (calculator), picture, graph, equations, concrete materials, and/or models) as needed

Verifies the accuracy of their results and/or solution, using reasonable estimates and other familiar strategies (e.g., using a tool [calculator], alternate algorithm, picture, graph); identifies factors that could affect accuracy of results

INTERPRETS

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 relevant explicit parameters (factors that define the problem) and infers implicit limitations needed to solve the problem

COMMUNICATES

Represents complex processes and solutions, using a variety of presentations (e.g., bulleted explanation, equation, model, map, table) in a manner that is suitable to the context

Explains their problem-solving approach (e.g., process: flowchart; strategy: using evidence from text), describing any limitations and assumptions

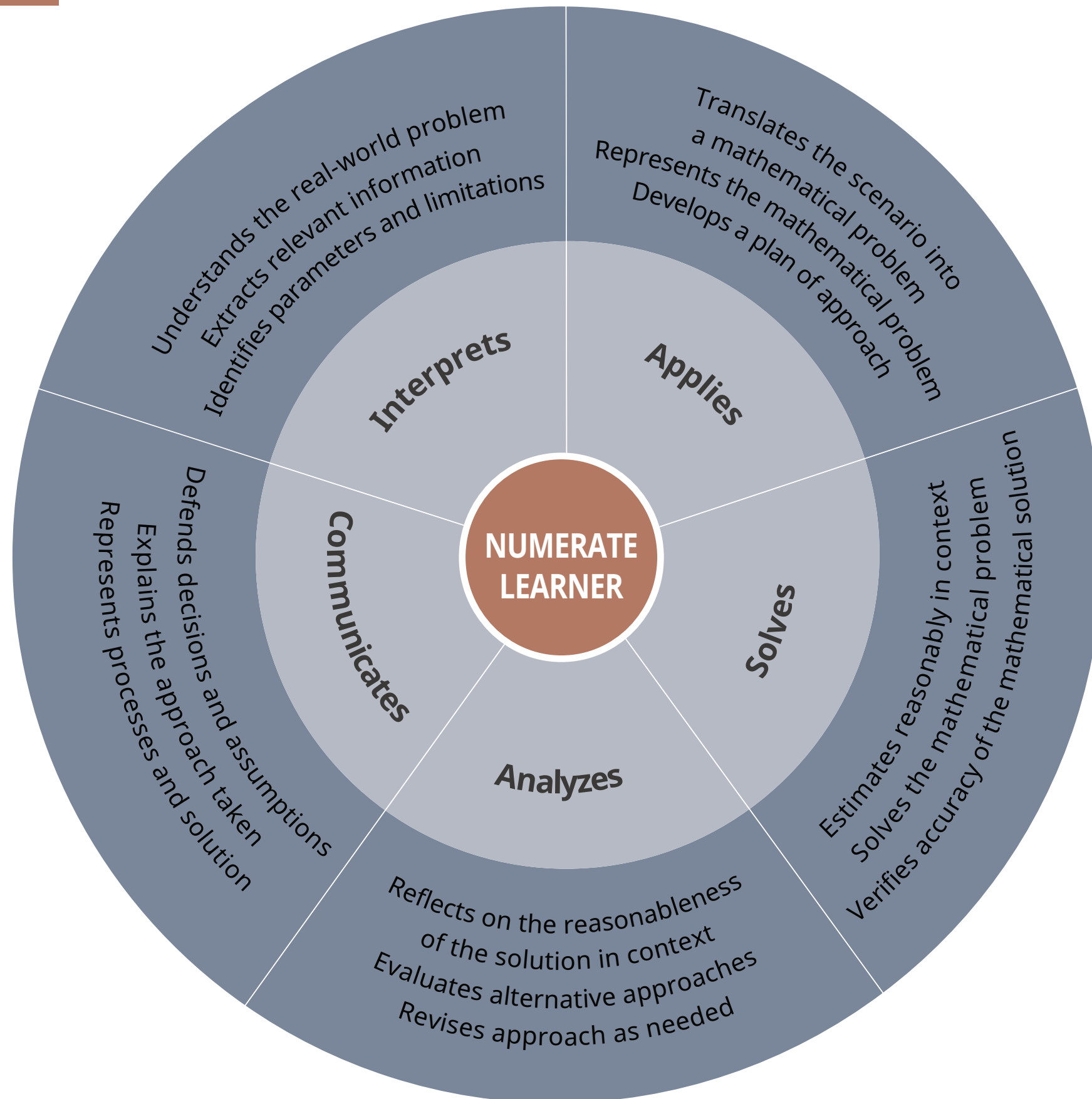
Presents a valid, logical argument to justify their decisions about the selected approach and assumptions, and describes the effects of these choices

ANALYZES

Reflects on the validity (accuracy in context) of their solution, identifying contextual factors that may affect their answer (e.g., Science: evidence from text)

Evaluates the efficiency and effectiveness of alternative approaches (e.g. peer- or teacher-driven approach)

Revises approach, using the benefits and limitations of alternative approaches to compare alternative solution(s)



APPLIES

Applies the mathematical understanding (refer to Math curriculum) needed to translate an unfamiliar (previously unseen or unmodelled) scenario into a mathematical problem

Clearly and accurately represents the problem by strategically choosing an effective model(s) (e.g., concrete materials, diagrams, equations)

Uses mathematical reasoning to develop a logical, organized, and effective plan (an intentional sequence of steps with an end goal) that applies appropriate mathematical tools and/or strategies (e.g., using a tool (calculator), picture, graph, equation)

SOLVES

Estimates reasonably in context, within parameters, and considering limitations (reasonable constraints in a real-world problem or context)

Solves the mathematical problem by following a logical plan (an intentional sequence of steps with an end goal) and using efficient strategies (e.g., using a tool (calculator), algorithm, picture, graph; Social Studies/Science: evidence from text) as needed

Verifies the accuracy of their results and/or solution, using reasonable estimates and other familiar strategies (e.g., using a tool [calculator], alternate algorithm, picture, graph); describes how factors affect accuracy of results

INTERPRETS

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 and implicit parameters (factors and conditions that define the problem) and limitations needed to solve the problem

COMMUNICATES

Represents complex processes and solutions; chooses a presentation (e.g., proof, model, map, diagram) that suits the purpose, context, and audience

Explains their problem-solving approach (e.g., strategy: using evidence from text) accurately and in detail, evaluating (assessing the implications of) the effect of any assumptions or limitations

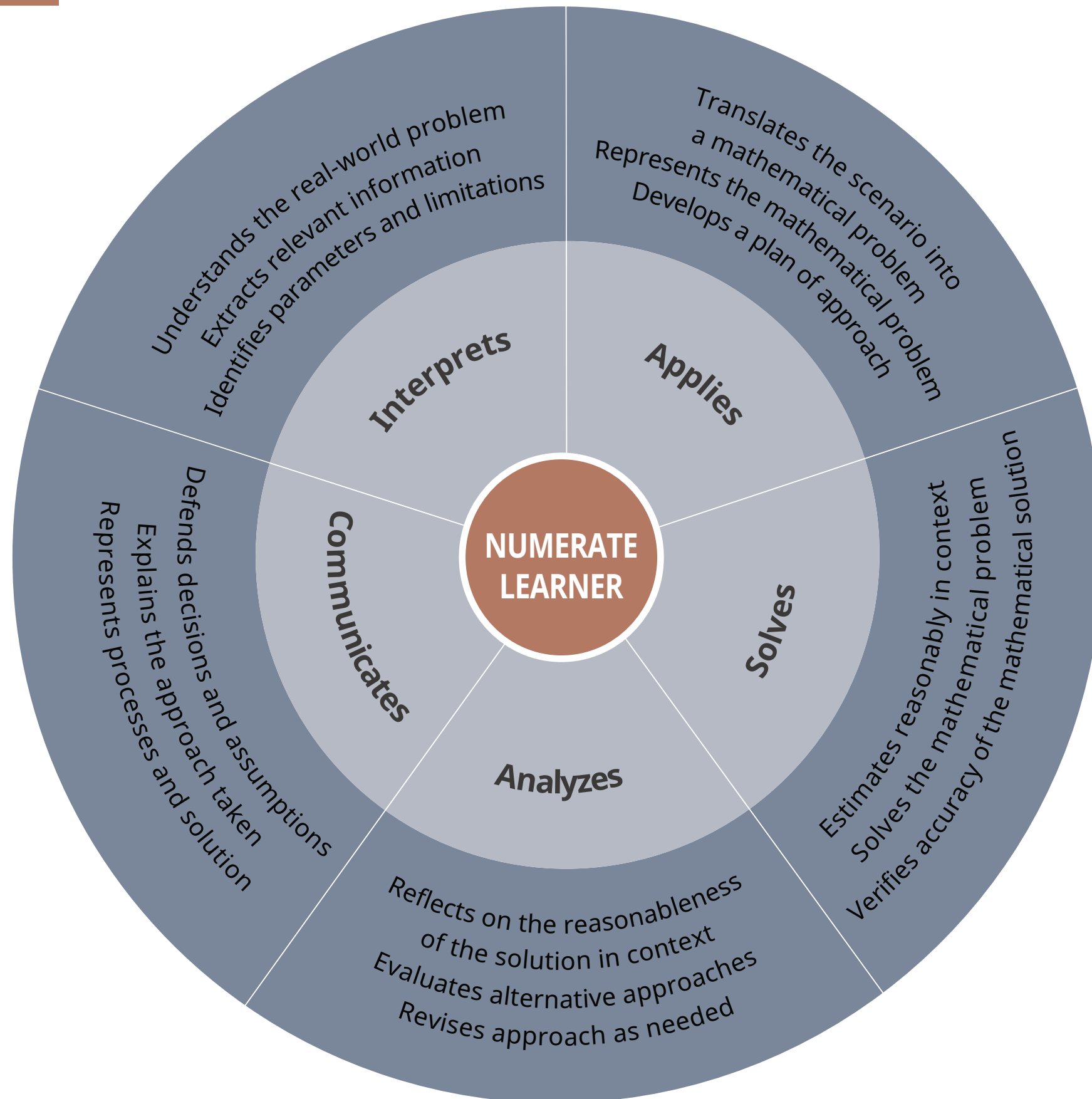
Presents a valid, logical argument to justify their decisions about the selected approach, evaluating assumptions and the effects of their choices

ANALYZES

Reflects on the validity and reliability (reproducibility of results) 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 (iteratively reflects and adjusts) approach to improve efficiency of process or the accuracy of solution to the problem



APPLIES

Applies the mathematical understanding (refer to Math curriculum) needed to translate a complex, unfamiliar (previously unseen or unmodelled) scenario into a mathematical problem

Clearly and accurately represents the problem in context by strategically choosing an effective model(s) (e.g., concrete materials, diagrams, equations)

Uses mathematical reasoning to develop a logical, organized, and effective multi-step plan (an intentional sequence of steps with an end goal) that applies appropriate mathematical tools and/or strategies (e.g., using a tool (calculator), picture, graph, equation)

SOLVES

Estimates reasonably in context, within parameters, and considering limitations; explains reasoning for estimate

Solves the mathematical problem by following a logical, multi-step plan (an intentional sequence of steps with an end goal) and using efficient strategies (e.g., using a tool (calculator), algorithm, picture, graph; Social Studies/Science: evidence from text) as needed

Verifies the accuracy of their results and/or solution, using reasonable estimates and other familiar strategies (e.g., using a tool [calculator], alternate algorithm, picture, graph); compares and evaluates how factors affect accuracy of results

INTERPRETS

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 and implicit parameters (factors and conditions that define the problem) and limitations needed to solve the problem

COMMUNICATES

Represents complex processes and solutions; chooses a presentation (e.g., proof, model, map, diagram) that suits the purpose, context, and audience

Explains their problem-solving approach (e.g., strategy: using evidence from text) accurately and in detail, evaluating (assessing the implications of) the effect of any assumptions or limitations

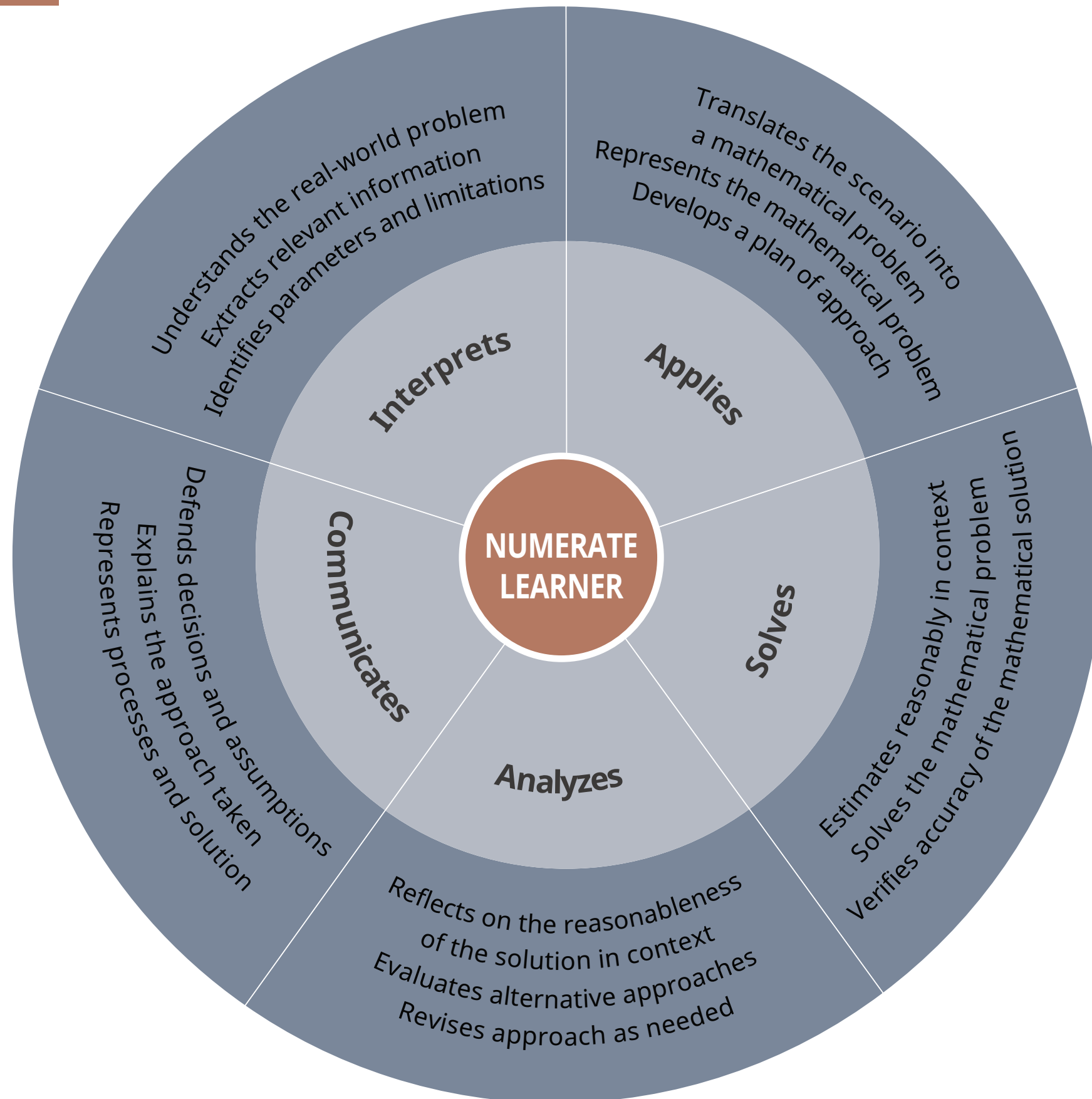
Presents a valid, logical argument to justify their decisions about the selected approach, evaluating assumptions and the effects of their choices

ANALYZES

Reflects on the validity and reliability (reproducibility of results) 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 (iteratively reflects and adjusts) approach to improve efficiency of process or the accuracy of solution to the problem



APPLIES

Applies the mathematical understanding (refer to Math curriculum) needed to translate a complex, unfamiliar (previously unseen or unmodelled) scenario into a mathematical problem

Clearly and accurately represents the problem in context by strategically choosing an effective model(s) (e.g., concrete materials, diagrams, equations)

Uses mathematical reasoning to develop a logical, organized, and effective multi-step plan (an intentional sequence of steps with an end goal) that applies appropriate mathematical tools and/or strategies (e.g., using a tool (calculator), picture, graph, equation)

SOLVES

Estimates reasonably in context, within parameters, and considering limitations; explains reasoning for estimate

Solves the mathematical problem by following a logical, multi-step plan (an intentional sequence of steps with an end goal) and using efficient strategies (e.g., using a tool (calculator), algorithm, picture, graph; Social Studies/Science: evidence from text) as needed

Verifies the accuracy of their results and/or solution, using reasonable estimates and other familiar strategies (e.g., using a tool [calculator], alternate algorithm, picture, graph); compares and evaluates how factors affect accuracy of results

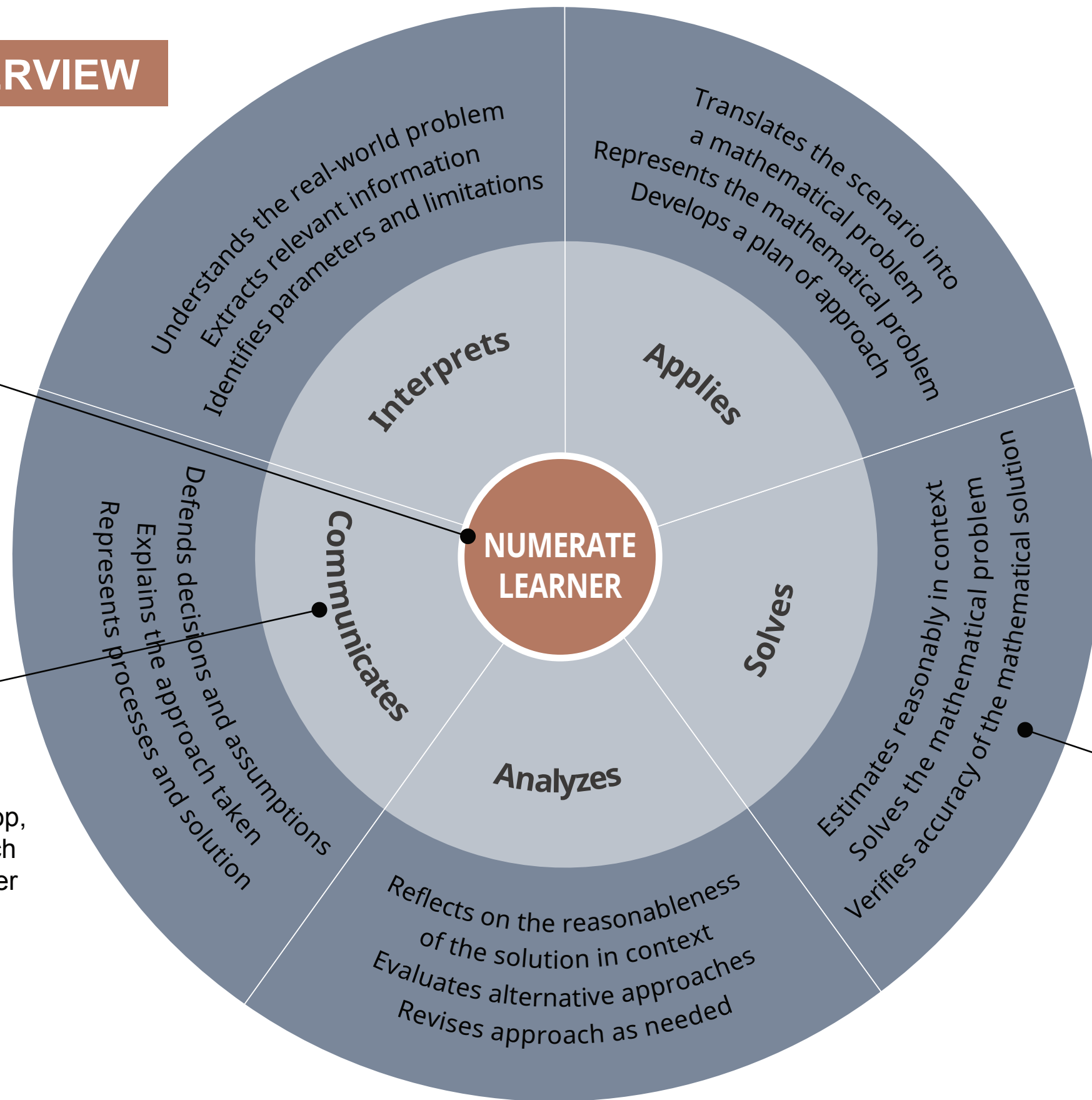
QUICK SCALE OVERVIEW

The learner is at the centre

Each **ASPECT** represents a set of transferrable thinking or communication skills

A proficient student must develop, practise, and demonstrate each aspect to be a Numerate Learner

All aspects are important when building Numeracy



Each **SUB-ASPECT** further defines the transferrable skills within each aspect