

Session 1: Get Started	Strand	Specific Expectations	Addressed
Introduction ● Get to know team members and think of a team name ● Watch season videos & read Engineering Notebook to learn about how FIRST LEGO League Challenge works and about the BIOGLOW Robot Game and Innovation Project Tasks ● Use the building instructions to build the robot game mission models ● Place each model where it belongs on the mat, using the <i>Robot Game Rulebook</i> for reference ● Explore how the models work and how they connect to the Project Sparks Clean Up & Reflection ● Groups show how the mission models work and how they relate to the Project Sparks ● Groups discuss which missions look interesting and how your team plans to have <i>Fun</i> while working on the game and project	A. Social-Emotional Learning (SEL) Skills in Mathematics and the Mathematical Process	A1. Social-Emotional Learning (SEL) Skills and the Mathematical Processes: apply, to the best of their ability, a variety of social-emotional learning skills to support their use of the mathematical processes and their learning in connection with the expectations in the other five strands of the mathematics curriculum. 1. To the best of their ability, students will learn to identify and manage emotions as they apply the mathematical processes: problem solving, reasoning & proving, reflecting, connecting, communicating, representing and selecting tools & strategies so they can express and manage their feelings, and show understanding of the feelings of others, as they engage positively in mathematics activities 2. To the best of their ability, students will learn to recognize sources of stress and cope with challenges as they apply the mathematical processes: problem solving, reasoning & proving, reflecting, connecting, communicating, representing and selecting tools & strategies so they can work through challenging math problems, understanding that their resourcefulness in using various strategies to respond to stress is helping them build personal resilience 3. To the best of their ability, students will learn to maintain positive motivation and perseverance as they apply the mathematical process: selecting tools and strategies so they can recognize that testing out different approaches to problems and learning from mistakes is an important part of the learning process, and is aided by a sense of optimism and hope. 4. To the best of their ability, students will learn to build relationships and communicate effectively as they apply the mathematical process of selecting tools and strategies so they can work collaboratively on math problems – expressing their thinking, listening to the thinking of others, and practising inclusivity – and in that way fostering healthy relationships. 5. To the best of their ability, students will learn to develop self-awareness and sense of identity as they apply the mathematical process: problem solving so they can see themselves as capable math learners, and strengthen their sense of ownership of their learning, as part of their emerging sense of identity and belonging 6. To the best of their ability, students will learn to think critically and creatively as they apply the mathematical process: reflecting so they can work through challenging math problems, understanding that their resourcefulness in using various strategies to respond to stress is helping them build personal resilience.	● ● ● ● ● ●
	B. Number		
	C. Algebra		
	D. Data		
	E. Spatial Sense		
	F. Financial Literacy		

● The standard is clearly addressed by program activities.

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Session 2: Training Camp 1	Strand	Specific Expectations	Addressed
Introduction - Think about how you will use the Core value of <i>Discovery</i>. - Record your team's goals and what you hope to learn on the Team Progress sheet Tasks - Learn how to prepare & connect the hub, to create simple programs and to use the motors and sensors by completing the Tutorial Activities: 1 – 6 - Learn to program the robot to move forward, in reverse & turn by completing Training Camp 1: Driving Around in the Competition Ready Unit - Review the Robot Game Rulebook to learn about the mission details and use the coding skills you learned to drive the robot to one of the mission models - Discuss any Innovation Project ideas that are sparked by the mission models Clean Up & Reflection - Groups share robot skills and discuss how they can be applied in the Robot Game - Groups share how they used the Engineering Design Process in this session - Groups discuss which Project Sparks interest the team & how the team will research the problem	A. Social-Emotional Learning (SEL) Skills in Mathematics and the Mathematical Process	A1. Social-Emotional Learning (SEL) Skills and the Mathematical Processes: apply, to the best of their ability, a variety of social-emotional learning skills to support their use of the mathematical processes and their learning in connection with the expectations in the other five strands of the mathematics curriculum. - To the best of their ability, students will learn to identify and manage emotions as they apply the mathematical processes: problem solving, reasoning & proving, reflecting, connecting, communicating, representing and selecting tools & strategies so they can express and manage their feelings, and show understanding of the feelings of others, as they engage positively in mathematics activities - To the best of their ability, students will learn to recognize sources of stress and cope with challenges as they apply the mathematical processes: problem solving, reasoning & proving, reflecting, connecting, communicating, representing and selecting tools & strategies so they can work through challenging math problems, understanding that their resourcefulness in using various strategies to respond to stress is helping them build personal resilience - To the best of their ability, students will learn to maintain positive motivation and perseverance as they apply the mathematical process: selecting tools and strategies so they can recognize that testing out different approaches to problems and learning from mistakes is an important part of the learning process, and is aided by a sense of optimism and hope. - To the best of their ability, students will learn to build relationships and communicate effectively as they apply the mathematical process of selecting tools and strategies so they can work collaboratively on math problems – expressing their thinking, listening to the thinking of others, and practising inclusivity – and in that way fostering healthy relationships. - To the best of their ability, students will learn to develop self-awareness and sense of identity as they apply the mathematical process: problem solving so they can see themselves as capable math learners, and strengthen their sense of ownership of their learning, as part of their emerging sense of identity and belonging - To the best of their ability, students will learn to think critically and creatively as they apply the mathematical process: reflecting so they can work through challenging math problems, understanding that their resourcefulness in using various strategies to respond to stress is helping them build personal resilience.	• • • • • •
	B. Number	B1. Number Sense: demonstrate an understanding of numbers and make connections to the way numbers are used in everyday life B1.1 read and represent whole numbers up to and including one million, using appropriate tools and strategies, and describe various ways they are used in everyday life B1.2 read and represent integers, using a variety of tools and strategies, including horizontal and vertical number lines B1.3 compare and order integers, decimal numbers, and fractions, separately and in combination, in various contexts B1.4 read, represent, compare, and order decimal numbers up to thousandths, in various contexts B1.5 round decimal numbers, both terminating and repeating, to the nearest tenth, hundredth, or whole number, as applicable, in various contexts B2. Operations: use knowledge of numbers and operations to solve mathematical problems encountered in everyday life B2.3 use mental math strategies to calculate percents of whole numbers, including 1%, 5%, 10%, 15%, 25%, and 50%, and explain the strategies used B2.12 solve problems involving ratios, including percentages and rates, using appropriate tools and strategies	• - - - - • - •

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	C. Algebra	C2. Equations and Inequalities: demonstrate an understanding of variables, expressions, equalities, and inequalities, and apply this understanding in various contexts C2.4 solve inequalities that involve two operations and whole numbers up to 100 and verify and graph the solutions C3. Coding: solve problems and create computational representations of mathematical situations using coding concepts and skills C3.1 solve problems and create computational representations of mathematical situations by writing and executing efficient code, including code that involves conditional statements and other control structures C3.2 read and alter existing code, including code that involves conditional statements and other control structures, and describe how changes to the code affect the outcomes and the efficiency of the code C4. Mathematical Modelling: apply the process of mathematical modelling to represent, analyse, make predictions, and provide insight into real-life situations	• - • • • •
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	E. Spatial Sense	E1. Geometric and Spatial Reasoning: describe and represent shape, location, and movement by applying geometric properties and spatial relationships in order to navigate the world around them E1.4 describe and perform combinations of translations, reflections, and rotations up to 360° on a grid, and predict the results of these transformations E2. Measurement: compare, estimate, and determine measurements in various contexts E2.1 measure length, area, mass, and capacity using the appropriate metric units, and solve problems that require converting smaller units to larger ones and vice versa E2.2 use a protractor to measure and construct angles up to 360°, and state the relationship between angles that are measured clockwise and those that are measured counter-clockwise	• - • - -
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Session 3: Training Camp 2	Strand	Specific Expectations	Addressed
Introduction - Review the Innovation Project page and the Project Sparks - Select a Project Spark or one of your own ideas and think of the problem you're your team will explore, ensuring that everyone has a chance to share Tasks - Record your team's problem statement - Learn to program your robot to avoid obstacles using a sensor and power an attachment by completing Training Camp 2: Playing with Objects in the Competition Ready unit - Reflect on how the coding & building skills learned will help in the Robot Game and use them to complete a mission Clean Up & Reflection - Groups share what additional skills are needed to select an idea for the project - Groups discuss what objects the robot needs to avoid in the Robot Game - Groups decide what mission the team wants to attempt next	A. Social-Emotional Learning (SEL) Skills in Mathematics and the Mathematical Process	A1. Social-Emotional Learning (SEL) Skills and the Mathematical Processes: apply, to the best of their ability, a variety of social-emotional learning skills to support their use of the mathematical processes and their learning in connection with the expectations in the other five strands of the mathematics curriculum. - To the best of their ability, students will learn to identify and manage emotions as they apply the mathematical processes: problem solving, reasoning & proving, reflecting, connecting, communicating, representing and selecting tools & strategies so they can express and manage their feelings, and show understanding of the feelings of others, as they engage positively in mathematics activities - To the best of their ability, students will learn to recognize sources of stress and cope with challenges as they apply the mathematical processes: problem solving, reasoning & proving, reflecting, connecting, communicating, representing and selecting tools & strategies so they can work through challenging math problems, understanding that their resourcefulness in using various strategies to respond to stress is helping them build personal resilience - To the best of their ability, students will learn to maintain positive motivation and perseverance as they apply the mathematical process: selecting tools and strategies so they can recognize that testing out different approaches to problems and learning from mistakes is an important part of the learning process, and is aided by a sense of optimism and hope. - To the best of their ability, students will learn to build relationships and communicate effectively as they apply the mathematical process of selecting tools and strategies so they can work collaboratively on math problems – expressing their thinking, listening to the thinking of others, and practising inclusivity – and in that way fostering healthy relationships. - To the best of their ability, students will learn to develop self-awareness and sense of identity as they apply the mathematical process: problem solving so they can see themselves as capable math learners, and strengthen their sense of ownership of their learning, as part of their emerging sense of identity and belonging - To the best of their ability, students will learn to think critically and creatively as they apply the mathematical process: reflecting so they can work through challenging math problems, understanding that their resourcefulness in using various strategies to respond to stress is helping them build personal resilience.	• • • • • •
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	E. Spatial Sense	E1. Geometric and Spatial Reasoning: describe and represent shape, location, and movement by applying geometric properties and spatial relationships in order to navigate the world around them E1.4 describe and perform combinations of translations, reflections, and rotations up to 360° on a grid, and predict the results of these transformations E2. Measurement: compare, estimate, and determine measurements in various contexts E2.1 measure length, area, mass, and capacity using the appropriate metric units, and solve problems that require converting smaller units to larger ones and vice versa E2.2 use a protractor to measure and construct angles up to 360°, and state the relationship between angles that are measured clockwise and those that are measured counter-clockwise	• - • - -
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Session 4: Training Camp 3	Strand	Specific Expectations	Addressed
Introduction • Work with your team to research and learn about existing solutions • Determine how to use the information collected to create a solution to the problem Tasks • Learn how to program a driving base to follow a line by completing Training Camp 3: Reacting to Lines in the Competition Ready unit • Reflect on how the coding & building skills learned will help in the Robot Game and use them to complete a mission Clean Up & Reflection • Groups share how the team will record research about your chosen problem • Groups discuss how testing your program helped make your robot more accurate • Groups discuss how the lines on the mat can be used in your mission strategy	A. Social-Emotional Learning (SEL) Skills in Mathematics and the Mathematical Process	A1. Social-Emotional Learning (SEL) Skills and the Mathematical Processes: apply, to the best of their ability, a variety of social-emotional learning skills to support their use of the mathematical processes and their learning in connection with the expectations in the other five strands of the mathematics curriculum. 1. To the best of their ability, students will learn to identify and manage emotions as they apply the mathematical processes: problem solving, reasoning & proving, reflecting, connecting, communicating, representing and selecting tools & strategies so they can express and manage their feelings, and show understanding of the feelings of others, as they engage positively in mathematics activities 2. To the best of their ability, students will learn to recognize sources of stress and cope with challenges as they apply the mathematical processes: problem solving, reasoning & proving, reflecting, connecting, communicating, representing and selecting tools & strategies so they can work through challenging math problems, understanding that their resourcefulness in using various strategies to respond to stress is helping them build personal resilience 3. To the best of their ability, students will learn to maintain positive motivation and perseverance as they apply the mathematical process: selecting tools and strategies so they can recognize that testing out different approaches to problems and learning from mistakes is an important part of the learning process, and is aided by a sense of optimism and hope. 4. To the best of their ability, students will learn to build relationships and communicate effectively as they apply the mathematical process of selecting tools and strategies so they can work collaboratively on math problems – expressing their thinking, listening to the thinking of others, and practising inclusivity – and in that way fostering healthy relationships. 5. To the best of their ability, students will learn to develop self-awareness and sense of identity as they apply the mathematical process: problem solving so they can see themselves as capable math learners, and strengthen their sense of ownership of their learning, as part of their emerging sense of identity and belonging 6. To the best of their ability, students will learn to think critically and creatively as they apply the mathematical process: reflecting so they can work through challenging math problems, understanding that their resourcefulness in using various strategies to respond to stress is helping them build personal resilience.	• • • • • •
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	D. Data	D1. manage, analyse, and use data to make convincing arguments and informed decisions, in various contexts drawn from real life D1.2 collect qualitative data and discrete and continuous quantitative data to answer questions of interest about a population, and organize the sets of data as appropriate, including using intervals D1.6 analyse different sets of data presented in various ways, including in histograms and broken-line graphs and in misleading graphs, by asking and answering questions about the data, challenging preconceived notions, and drawing conclusions, then make convincing arguments and informed decisions	• - -
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Session 5: Guided Mission	Strand	Specific Expectations	Addressed
Introduction - Think about how you have used the Core value of Teamwork, and record ways in which your team has learned to work together Project - Perform additional research about why the chosen problem exists and who or what is affected - Decide whether to develop a new solution or improve upon an existing one and select a solution to further develop Robot - Apply coding principles to complete the guided mission in the Competition Ready unit and continue to refine the mission until it works consistently - Continue to practice completing other missions in the Robot Game Clean Up & Reflection - Brainstorm who your team could talk to about the chosen problem and what questions you would ask them - Explain what the Robot Game teaches about Coopertition and how what you learned in the guided mission could help you complete additional missions.	A. Social-Emotional Learning (SEL) Skills in Mathematics and the Mathematical Process	A1. Social-Emotional Learning (SEL) Skills and the Mathematical Processes: apply, to the best of their ability, a variety of social-emotional learning skills to support their use of the mathematical processes and their learning in connection with the expectations in the other five strands of the mathematics curriculum. - To the best of their ability, students will learn to identify and manage emotions as they apply the mathematical processes: problem solving, reasoning & proving, reflecting, connecting, communicating, representing and selecting tools & strategies so they can express and manage their feelings, and show understanding of the feelings of others, as they engage positively in mathematics activities - To the best of their ability, students will learn to recognize sources of stress and cope with challenges as they apply the mathematical processes: problem solving, reasoning & proving, reflecting, connecting, communicating, representing and selecting tools & strategies so they can work through challenging math problems, understanding that their resourcefulness in using various strategies to respond to stress is helping them build personal resilience - To the best of their ability, students will learn to maintain positive motivation and perseverance as they apply the mathematical process: selecting tools and strategies so they can recognize that testing out different approaches to problems and learning from mistakes is an important part of the learning process, and is aided by a sense of optimism and hope. - To the best of their ability, students will learn to build relationships and communicate effectively as they apply the mathematical process of selecting tools and strategies so they can work collaboratively on math problems – expressing their thinking, listening to the thinking of others, and practising inclusivity – and in that way fostering healthy relationships. - To the best of their ability, students will learn to develop self-awareness and sense of identity as they apply the mathematical process: problem solving so they can see themselves as capable math learners, and strengthen their sense of ownership of their learning, as part of their emerging sense of identity and belonging - To the best of their ability, students will learn to think critically and creatively as they apply the mathematical process: reflecting so they can work through challenging math problems, understanding that their resourcefulness in using various strategies to respond to stress is helping them build personal resilience.	• • • • • •
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	D. Data	D1. manage, analyse, and use data to make convincing arguments and informed decisions, in various contexts drawn from real life D1.2 collect qualitative data and discrete and continuous quantitative data to answer questions of interest about a population, and organize the sets of data as appropriate, including using intervals D1.6 analyse different sets of data presented in various ways, including in histograms and broken-line graphs and in misleading graphs, by asking and answering questions about the data, challenging preconceived notions, and drawing conclusions, then make convincing arguments and informed decisions D2. describe the likelihood that events will happen, and use that information to make predictions D2.1 use fractions, decimals, and percents to express the probability of events happening, represent this probability on a probability line, and use it to make predictions and informed decisions D2.2 determine and compare the theoretical and experimental probabilities of two independent events happening	• - - • - -
	E. Spatial Sense	E1. Geometric and Spatial Reasoning: describe and represent shape, location, and movement by applying geometric properties and spatial relationships in order to navigate the world around them E1.4 describe and perform combinations of translations, reflections, and rotations up to 360° on a grid, and predict the results of these transformations E2. Measurement: compare, estimate, and determine measurements in various contexts E2.1 measure length, area, mass, and capacity using the appropriate metric units, and solve problems that require converting smaller units to larger ones and vice versa E2.2 use a protractor to measure and construct angles up to 360°, and state the relationship between angles that are measured clockwise and those that are measured counter-clockwise	• - • - -
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Session 6: Pseudocode	Strand	Specific Expectations	Addressed
Introduction - Think about and record what your team has already learned and what more you still want to explore - Complete the “Halfway There” section of the Team Progress sheet Project - Plan how you will develop your solution using the Innovation Project Planning sheet as a tool - Use a variety of sources and keep track of them in the Engineering Notebook - Determine what materials are needed to create a prototype, model, or drawing of your solution Robot - Watch the “Robot Game Missions” video, decide which missions your team will attempt next and complete the Pseudocode worksheet - Continue to practice completing missions in the Robot Game Clean Up & Reflection - Consider the next step in developing your innovative solution and how to document your progress - Discuss how your robot’s attachments and code support your team’s mission strategy & how you can iterate to improve your	A. Social-Emotional Learning (SEL) Skills in Mathematics and the Mathematical Process	A1. Social-Emotional Learning (SEL) Skills and the Mathematical Processes: apply, to the best of their ability, a variety of social-emotional learning skills to support their use of the mathematical processes and their learning in connection with the expectations in the other five strands of the mathematics curriculum. - To the best of their ability, students will learn to identify and manage emotions as they apply the mathematical processes: problem solving, reasoning & proving, reflecting, connecting, communicating, representing and selecting tools & strategies so they can express and manage their feelings, and show understanding of the feelings of others, as they engage positively in mathematics activities - To the best of their ability, students will learn to recognize sources of stress and cope with challenges as they apply the mathematical processes: problem solving, reasoning & proving, reflecting, connecting, communicating, representing and selecting tools & strategies so they can work through challenging math problems, understanding that their resourcefulness in using various strategies to respond to stress is helping them build personal resilience - To the best of their ability, students will learn to maintain positive motivation and perseverance as they apply the mathematical process: selecting tools and strategies so they can recognize that testing out different approaches to problems and learning from mistakes is an important part of the learning process, and is aided by a sense of optimism and hope. - To the best of their ability, students will learn to build relationships and communicate effectively as they apply the mathematical process of selecting tools and strategies so they can work collaboratively on math problems – expressing their thinking, listening to the thinking of others, and practising inclusivity – and in that way fostering healthy relationships. - To the best of their ability, students will learn to develop self-awareness and sense of identity as they apply the mathematical process: problem solving so they can see themselves as capable math learners, and strengthen their sense of ownership of their learning, as part of their emerging sense of identity and belonging - To the best of their ability, students will learn to think critically and creatively as they apply the mathematical process: reflecting so they can work through challenging math problems, understanding that their resourcefulness in using various strategies to respond to stress is helping them build personal resilience.	• • • • • •
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	F. Financial Literacy	F1. demonstrate the knowledge and skills needed to make informed financial decisions F1.1 describe the advantages and disadvantages of various methods of payment that can be used to purchase goods and services F1.2 identify different types of financial goals, including earning and saving goals, and outline some key steps in achieving them F1.3 identify and describe various factors that may help or interfere with reaching financial goals F1.5 describe trading, lending, borrowing, and donating as different ways to distribute financial and other resources among individuals and organizations	• - - - -
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Session 7: Create Solutions	Strand	Specific Expectations	Addressed
Introduction - Revisit the Core Values, with a focus on <i>Gracious Professionalism</i> and record ways in which your team demonstrates this in everything you do Project - Continue to develop your innovation project solution - Draw your solution and describe how it solves the problem - Create a prototype, model or labelled drawing of your solution - Document the process you use to develop your solution on the Innovation Project Planning sheet Robot - Continue to test and improve your robot and its attachments to complete missions in the Robot Game, with the option to combine mission solutions into one program - Test and improve your robot and its programs by revisiting previous lessons to develop your coding skills or work on solving missions Clean Up & Reflection - Consider how to describe your solution in a way that is easy for others to understand and with whom you can share your solution for	A. Social-Emotional Learning (SEL) Skills in Mathematics and the Mathematical Process	A1. Social-Emotional Learning (SEL) Skills and the Mathematical Processes: apply, to the best of their ability, a variety of social-emotional learning skills to support their use of the mathematical processes and their learning in connection with the expectations in the other five strands of the mathematics curriculum. - To the best of their ability, students will learn to identify and manage emotions as they apply the mathematical processes: problem solving, reasoning & proving, reflecting, connecting, communicating, representing and selecting tools & strategies so they can express and manage their feelings, and show understanding of the feelings of others, as they engage positively in mathematics activities - To the best of their ability, students will learn to recognize sources of stress and cope with challenges as they apply the mathematical processes: problem solving, reasoning & proving, reflecting, connecting, communicating, representing and selecting tools & strategies so they can work through challenging math problems, understanding that their resourcefulness in using various strategies to respond to stress is helping them build personal resilience - To the best of their ability, students will learn to maintain positive motivation and perseverance as they apply the mathematical process: selecting tools and strategies so they can recognize that testing out different approaches to problems and learning from mistakes is an important part of the learning process, and is aided by a sense of optimism and hope. - To the best of their ability, students will learn to build relationships and communicate effectively as they apply the mathematical process of selecting tools and strategies so they can work collaboratively on math problems – expressing their thinking, listening to the thinking of others, and practising inclusivity – and in that way fostering healthy relationships. - To the best of their ability, students will learn to think critically and creatively as they apply the mathematical process: reflecting so they can work through challenging math problems, understanding that their resourcefulness in using various strategies to respond to stress is helping them build personal resilience.	• • • • •
	B. Number	B1. Number Sense: demonstrate an understanding of numbers and make connections to the way numbers are used in everyday life B1.1 read and represent whole numbers up to and including one million, using appropriate tools and strategies, and describe various ways they are used in everyday life B1.2 read and represent integers, using a variety of tools and strategies, including horizontal and vertical number lines B1.3 compare and order integers, decimal numbers, and fractions, separately and in combination, in various contexts B1.4 read, represent, compare, and order decimal numbers up to thousandths, in various contexts B1.5 round decimal numbers, both terminating and repeating, to the nearest tenth, hundredth, or whole number, as applicable, in various contexts B2. Operations: use knowledge of numbers and operations to solve mathematical problems encountered in everyday life B2.3 use mental math strategies to calculate percents of whole numbers, including 1%, 5%, 10%, 15%, 25%, and 50%, and explain the strategies used B2.12 solve problems involving ratios, including percentages and rates, using appropriate tools and strategies	• - - - - - • - •

• The standard is clearly addressed by program activities.

- This standard potentially could be addressed, either by actions taken when working with students or by conditions established by the program

feedback Discuss how to iterate to improve your robot's design	C. Algebra	C2. Equations and Inequalities: demonstrate an understanding of variables, expressions, equalities, and inequalities, and apply this understanding in various contexts C2.2 evaluate algebraic expressions that involve whole numbers and decimal tenths C2.3 solve equations that involve multiple terms and whole numbers in various contexts, and verify solutions C2.4 solve inequalities that involve two operations and whole numbers up to 100 and verify and graph the solutions C3. Coding: solve problems and create computational representations of mathematical situations using coding concepts and skills C3.1 solve problems and create computational representations of mathematical situations by writing and executing efficient code, including code that involves conditional statements and other control structures C3.2 read and alter existing code, including code that involves conditional statements and other control structures, and describe how changes to the code affect the outcomes and the efficiency of the code C4. Mathematical Modelling: apply the process of mathematical modelling to represent, analyse, make predictions, and provide insight into real-life situations	• - - - • • • •
	D. Data	D1. manage, analyse, and use data to make convincing arguments and informed decisions, in various contexts drawn from real life D1.2 collect qualitative data and discrete and continuous quantitative data to answer questions of interest about a population, and organize the sets of data as appropriate, including using intervals D1.6 analyse different sets of data presented in various ways, including in histograms and broken-line graphs and in misleading graphs, by asking and answering questions about the data, challenging preconceived notions, and drawing conclusions, then make convincing arguments and informed decisions D2. describe the likelihood that events will happen, and use that information to make predictions D2.1 use fractions, decimals, and percents to express the probability of events happening, represent this probability on a probability line, and use it to make predictions and informed decisions D2.2 determine and compare the theoretical and experimental probabilities of two independent events happening	• - - • - -
	E. Spatial Sense	E1. Geometric and Spatial Reasoning: describe and represent shape, location, and movement by applying geometric properties and spatial relationships in order to navigate the world around them E1.2 construct three-dimensional objects when given their top, front, and side views E1.3 plot and read coordinates in all four quadrants of a Cartesian plane, and describe the translations that move a point from one coordinate to another E1.4 describe and perform combinations of translations, reflections, and rotations up to 360° on a grid, and predict the results of these transformations E2. Measurement: compare, estimate, and determine measurements in various contexts E2.1 measure length, area, mass, and capacity using the appropriate metric units, and solve problems that require converting smaller units to larger ones and vice versa E2.2 use a protractor to measure and construct angles up to 360°, and state the relationship between angles that are measured clockwise and those that are measured counter-clockwise	• • - - • • -
	F. Financial Literacy	F1. Money and Finances: demonstrate the knowledge and skills needed to make informed financial decisions.	•

- The standard is clearly addressed by program activities.
- This standard potentially could be addressed, either by actions taken when working with students or by conditions established by the program

Session 8: Continue Creating	Strand	Specific Expectations	Addressed
Introduction - Revisit the Core Values, with a focus on <i>Inclusion</i> and record how your team makes sure everyone is respected and their voices heard Project - Share your solution with others and collect feedback - Improve the solution based on feedback and determine if you can do any testing to improve your solution Robot - Decide what missions to attempt next and develop a strategy to complete these and other missions during a 2.5-minute match - Refine your attachments and programs so that the robot completes these missions reliably - Document the design process and testing for each mission Clean Up & Reflection - Gather at the mat to show any new missions on which you have been working and discuss in what order you will complete the missions during the Robot Game - Consider what changes you will make to your solution based on the feedback you received	A. Social-Emotional Learning (SEL) Skills in Mathematics and the Mathematical Process	A1. Social-Emotional Learning (SEL) Skills and the Mathematical Processes: apply, to the best of their ability, a variety of social-emotional learning skills to support their use of the mathematical processes and their learning in connection with the expectations in the other five strands of the mathematics curriculum. - To the best of their ability, students will learn to identify and manage emotions as they apply the mathematical processes: problem solving, reasoning & proving, reflecting, connecting, communicating, representing and selecting tools & strategies so they can express and manage their feelings, and show understanding of the feelings of others, as they engage positively in mathematics activities - To the best of their ability, students will learn to recognize sources of stress and cope with challenges as they apply the mathematical processes: problem solving, reasoning & proving, reflecting, connecting, communicating, representing and selecting tools & strategies so they can work through challenging math problems, understanding that their resourcefulness in using various strategies to respond to stress is helping them build personal resilience - To the best of their ability, students will learn to maintain positive motivation and perseverance as they apply the mathematical process: selecting tools and strategies so they can recognize that testing out different approaches to problems and learning from mistakes is an important part of the learning process, and is aided by a sense of optimism and hope. - To the best of their ability, students will learn to build relationships and communicate effectively as they apply the mathematical process of selecting tools and strategies so they can work collaboratively on math problems – expressing their thinking, listening to the thinking of others, and practising inclusivity – and in that way fostering healthy relationships. - To the best of their ability, students will learn to think critically and creatively as they apply the mathematical process: reflecting so they can work through challenging math problems, understanding that their resourcefulness in using various strategies to respond to stress is helping them build personal resilience.	• • • • • •

• The standard is clearly addressed by program activities.

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	B. Number	B1. Number Sense: demonstrate an understanding of numbers and make connections to the way numbers are used in everyday life B1.1 read and represent whole numbers up to and including one million, using appropriate tools and strategies, and describe various ways they are used in everyday life B1.2 read and represent integers, using a variety of tools and strategies, including horizontal and vertical number lines B1.3 compare and order integers, decimal numbers, and fractions, separately and in combination, in various contexts B1.4 read, represent, compare, and order decimal numbers up to thousandths, in various contexts B1.5 round decimal numbers, both terminating and repeating, to the nearest tenth, hundredth, or whole number, as applicable, in various contexts B2. Operations: use knowledge of numbers and operations to solve mathematical problems encountered in everyday life B2.1 use the properties of operations, and the relationships between operations, to solve problems involving whole numbers, decimal numbers, fractions, ratios, rates, and whole number percents, including those requiring multiple steps or multiple operations B2.3 use mental math strategies to calculate percents of whole numbers, including 1%, 5%, 10%, 15%, 25%, and 50%, and explain the strategies used B2.4 represent and solve problems involving the addition and subtraction of whole numbers and decimal numbers, using estimation and algorithms B2.7 represent and solve problems involving the multiplication of three-digit whole numbers by decimal tenths, using algorithms B2.8 represent and solve problems involving the division of three-digit whole numbers by decimal tenths, using appropriate tools, strategies, and algorithms, and expressing remainders as appropriate B2.11 represent and solve problems involving the division of decimal numbers up to thousandths by whole numbers up to 10, using appropriate tools and strategies B2.12 solve problems involving ratios, including percents and rates, using appropriate tools and strategies	• - - - - • - - - - - - •
	C. Algebra	C2. Equations and Inequalities: demonstrate an understanding of variables, expressions, equalities, and inequalities, and apply this understanding in various contexts C2.2 evaluate algebraic expressions that involve whole numbers and decimal tenths C2.3 solve equations that involve multiple terms and whole numbers in various contexts, and verify solutions C2.4 solve inequalities that involve two operations and whole numbers up to 100 and verify and graph the solutions C3. Coding: solve problems and create computational representations of mathematical situations using coding concepts and skills C3.1 solve problems and create computational representations of mathematical situations by writing and executing efficient code, including code that involves conditional statements and other control structures C3.2 read and alter existing code, including code that involves conditional statements and other control structures, and describe how changes to the code affect the outcomes and the efficiency of the code C4. Mathematical Modelling: apply the process of mathematical modelling to represent, analyse, make predictions, and provide insight into real-life situations	• - - - • • • •

• The standard is clearly addressed by program activities.

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	D. Data	D1. Data Literacy: manage, analyse, and use data to make convincing arguments and informed decisions, in various contexts drawn from real life D1.2 collect qualitative data and discrete and continuous quantitative data to answer questions of interest about a population, and organize the sets of data as appropriate, including using intervals D1.3 select from among a variety of graphs, including histograms and broken-line graphs, the type of graph best suited to represent various sets of data; display the data in the graphs with proper sources, titles, and labels, and appropriate scales; and justify their choice of graphs D1.5 determine the range as a measure of spread and the measures of central tendency for various data sets, and use this information to compare two or more data sets D1.6 analyse different sets of data presented in various ways, including in histograms and broken-line graphs and in misleading graphs, by asking and answering questions about the data, challenging preconceived notions, and drawing conclusions, then make convincing arguments and informed decisions D2. Probability: describe the likelihood that events will happen, and use that information to make predictions D2.1 use fractions, decimals, and percents to express the probability of events happening, represent this probability on a probability line, and use it to make predictions and informed decisions D2.2 determine and compare the theoretical and experimental probabilities of two independent events happening	● - - - - ● - -
	E. Spatial Sense	E1. Geometric and Spatial Reasoning: describe and represent shape, location, and movement by applying geometric properties and spatial relationships in order to navigate the world around them E1.2 construct three-dimensional objects when given their top, front, and side views E1.3 plot and read coordinates in all four quadrants of a Cartesian plane, and describe the translations that move a point from one coordinate to another E1.4 describe and perform combinations of translations, reflections, and rotations up to 360° on a grid, and predict the results of these transformations E2. Measurement: compare, estimate, and determine measurements in various contexts E2.1 measure length, area, mass, and capacity using the appropriate metric units, and solve problems that require converting smaller units to larger ones and vice versa E2.2 use a protractor to measure and construct angles up to 360°, and state the relationship between angles that are measured clockwise and those that are measured counter-clockwise	● - - - ● - -
	F. Financial Literacy	F1. Money and Finances: demonstrate the knowledge and skills needed to make informed financial decisions.	●

● The standard is clearly addressed by program activities.

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Session 9: Iterate & Improve	Strand	Specific Expectations	Addressed
Introduction - Revisit the Core Values, with a focus on <i>Impact</i>, and record ways your team has had a positive influence on one another and on others Project - Test, iterated and improve your Innovation Project, as time allows Robot - Think about your mission strategy and continue to create solutions for each mission, as time allows - Iterate and improve your robot design and code Clean Up & Reflection - Gather around the mat to show any work completed on the Innovation Project and Robot Game - Review the Core Values rubric and discuss how you will demonstrate Core Values at the event and during judging sessions - Groups discuss and record any changes made to your innovation project and robot design based on feedback and testing	A. Social-Emotional Learning (SEL) Skills in Mathematics and the Mathematical Process	A1. Social-Emotional Learning (SEL) Skills and the Mathematical Processes: apply, to the best of their ability, a variety of social-emotional learning skills to support their use of the mathematical processes and their learning in connection with the expectations in the other five strands of the mathematics curriculum. - To the best of their ability, students will learn to identify and manage emotions as they apply the mathematical processes: problem solving, reasoning & proving, reflecting, connecting, communicating, representing and selecting tools & strategies so they can express and manage their feelings, and show understanding of the feelings of others, as they engage positively in mathematics activities - To the best of their ability, students will learn to recognize sources of stress and cope with challenges as they apply the mathematical processes: problem solving, reasoning & proving, reflecting, connecting, communicating, representing and selecting tools & strategies so they can work through challenging math problems, understanding that their resourcefulness in using various strategies to respond to stress is helping them build personal resilience - To the best of their ability, students will learn to maintain positive motivation and perseverance as they apply the mathematical process: selecting tools and strategies so they can recognize that testing out different approaches to problems and learning from mistakes is an important part of the learning process, and is aided by a sense of optimism and hope. - To the best of their ability, students will learn to build relationships and communicate effectively as they apply the mathematical process of selecting tools and strategies so they can work collaboratively on math problems – expressing their thinking, listening to the thinking of others, and practising inclusivity – and in that way fostering healthy relationships. - To the best of their ability, students will learn to think critically and creatively as they apply the mathematical process: reflecting so they can work through challenging math problems, understanding that their resourcefulness in using various strategies to respond to stress is helping them build personal resilience.	• • • • •

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	B. Number	B1. Number Sense: demonstrate an understanding of numbers and make connections to the way numbers are used in everyday life B1.1 read and represent whole numbers up to and including one million, using appropriate tools and strategies, and describe various ways they are used in everyday life B1.2 read and represent integers, using a variety of tools and strategies, including horizontal and vertical number lines B1.3 compare and order integers, decimal numbers, and fractions, separately and in combination, in various contexts B1.4 read, represent, compare, and order decimal numbers up to thousandths, in various contexts B1.5 round decimal numbers, both terminating and repeating, to the nearest tenth, hundredth, or whole number, as applicable, in various contexts B2. Operations: use knowledge of numbers and operations to solve mathematical problems encountered in everyday life B2.1 use the properties of operations, and the relationships between operations, to solve problems involving whole numbers, decimal numbers, fractions, ratios, rates, and whole number percents, including those requiring multiple steps or multiple operations B2.3 use mental math strategies to calculate percents of whole numbers, including 1%, 5%, 10%, 15%, 25%, and 50%, and explain the strategies used B2.4 represent and solve problems involving the addition and subtraction of whole numbers and decimal numbers, using estimation and algorithms B2.7 represent and solve problems involving the multiplication of three-digit whole numbers by decimal tenths, using algorithms B2.8 represent and solve problems involving the division of three-digit whole numbers by decimal tenths, using appropriate tools, strategies, and algorithms, and expressing remainders as appropriate B2.11 represent and solve problems involving the division of decimal numbers up to thousandths by whole numbers up to 10, using appropriate tools and strategies B2.12 solve problems involving ratios, including percents and rates, using appropriate tools and strategies	• - - - - - • - - - - - - •
	C. Algebra	C2. Equations and Inequalities: demonstrate an understanding of variables, expressions, equalities, and inequalities, and apply this understanding in various contexts C2.2 evaluate algebraic expressions that involve whole numbers and decimal tenths C2.3 solve equations that involve multiple terms and whole numbers in various contexts, and verify solutions C2.4 solve inequalities that involve two operations and whole numbers up to 100 and verify and graph the solutions C3. Coding: solve problems and create computational representations of mathematical situations using coding concepts and skills C3.1 solve problems and create computational representations of mathematical situations by writing and executing efficient code, including code that involves conditional statements and other control structures C3.2 read and alter existing code, including code that involves conditional statements and other control structures, and describe how changes to the code affect the outcomes and the efficiency of the code C4. Mathematical Modelling: apply the process of mathematical modelling to represent, analyse, make predictions, and provide insight into real-life situations	• - - - • • • •

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	D. Data	D1. Data Literacy: manage, analyse, and use data to make convincing arguments and informed decisions, in various contexts drawn from real life D1.2 collect qualitative data and discrete and continuous quantitative data to answer questions of interest about a population, and organize the sets of data as appropriate, including using intervals D1.3 select from among a variety of graphs, including histograms and broken-line graphs, the type of graph best suited to represent various sets of data; display the data in the graphs with proper sources, titles, and labels, and appropriate scales; and justify their choice of graphs D1.5 determine the range as a measure of spread and the measures of central tendency for various data sets, and use this information to compare two or more data sets D1.6 analyse different sets of data presented in various ways, including in histograms and broken-line graphs and in misleading graphs, by asking and answering questions about the data, challenging preconceived notions, and drawing conclusions, then make convincing arguments and informed decisions D2. Probability: describe the likelihood that events will happen, and use that information to make predictions D2.1 use fractions, decimals, and percents to express the probability of events happening, represent this probability on a probability line, and use it to make predictions and informed decisions D2.2 determine and compare the theoretical and experimental probabilities of two independent events happening	● - - - - ● - -
	E. Spatial Sense	E1. Geometric and Spatial Reasoning: describe and represent shape, location, and movement by applying geometric properties and spatial relationships in order to navigate the world around them E1.2 construct three-dimensional objects when given their top, front, and side views E1.3 plot and read coordinates in all four quadrants of a Cartesian plane, and describe the translations that move a point from one coordinate to another E1.4 describe and perform combinations of translations, reflections, and rotations up to 360° on a grid, and predict the results of these transformations E2. Measurement: compare, estimate, and determine measurements in various contexts E2.1 measure length, area, mass, and capacity using the appropriate metric units, and solve problems that require converting smaller units to larger ones and vice versa E2.2 use a protractor to measure and construct angles up to 360°, and state the relationship between angles that are measured clockwise and those that are measured counter-clockwise	● - - - ● - -
	F. Financial Literacy	F1. Money and Finances: demonstrate the knowledge and skills needed to make informed financial decisions.	●

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Session 10: Iterate Solutions	Strand	Specific Expectations	Addressed
Introduction - Revisit the Core Values, with a focus on <i>Cooperation</i>, and record ways your team will demonstrate it when competing with other teams Project - Plan your project presentation by writing a script and making any required props or displays - Refer to the criteria in the Innovation Project Rubric to ensure that you are covering everything in your presentation Robot - Continue to create, test and iterate on your robot solution - Practice a 2.5-minute Robot Game with all of your completed missions Clean Up & Reflection - Discuss how you know whether your solution will have a positive impact on others - Discuss what your team is proud of in your work on the project and robot design - Consider what skills you have developed through participation in FIRST LEGO league and discuss how to include everyone in the Innovation Project presentation	A. Social-Emotional Learning (SEL) Skills in Mathematics and the Mathematical Process	A1. Social-Emotional Learning (SEL) Skills and the Mathematical Processes: apply, to the best of their ability, a variety of social-emotional learning skills to support their use of the mathematical processes and their learning in connection with the expectations in the other five strands of the mathematics curriculum. - To the best of their ability, students will learn to identify and manage emotions as they apply the mathematical processes: problem solving, reasoning & proving, reflecting, connecting, communicating, representing and selecting tools & strategies so they can express and manage their feelings, and show understanding of the feelings of others, as they engage positively in mathematics activities - To the best of their ability, students will learn to recognize sources of stress and cope with challenges as they apply the mathematical processes: problem solving, reasoning & proving, reflecting, connecting, communicating, representing and selecting tools & strategies so they can work through challenging math problems, understanding that their resourcefulness in using various strategies to respond to stress is helping them build personal resilience - To the best of their ability, students will learn to maintain positive motivation and perseverance as they apply the mathematical process: selecting tools and strategies so they can recognize that testing out different approaches to problems and learning from mistakes is an important part of the learning process, and is aided by a sense of optimism and hope. - To the best of their ability, students will learn to build relationships and communicate effectively as they apply the mathematical process of selecting tools and strategies so they can work collaboratively on math problems – expressing their thinking, listening to the thinking of others, and practising inclusivity – and in that way fostering healthy relationships. - To the best of their ability, students will learn to think critically and creatively as they apply the mathematical process: reflecting so they can work through challenging math problems, understanding that their resourcefulness in using various strategies to respond to stress is helping them build personal resilience.	• • • • • •
	B. Number	B1. Number Sense: demonstrate an understanding of numbers and make connections to the way numbers are used in everyday life B1.1 read and represent whole numbers up to and including one million, using appropriate tools and strategies, and describe various ways they are used in everyday life B1.2 read and represent integers, using a variety of tools and strategies, including horizontal and vertical number lines B1.3 compare and order integers, decimal numbers, and fractions, separately and in combination, in various contexts B1.4 read, represent, compare, and order decimal numbers up to thousandths, in various contexts B1.5 round decimal numbers, both terminating and repeating, to the nearest tenth, hundredth, or whole number, as applicable, in various contexts B2. Operations: use knowledge of numbers and operations to solve mathematical problems encountered in everyday life B2.1 use the properties of operations, and the relationships between operations, to solve problems involving whole numbers, decimal numbers, fractions, ratios, rates, and whole number percents, including those requiring multiple steps or multiple operations B2.3 use mental math strategies to calculate percents of whole numbers, including 1%, 5%, 10%, 15%, 25%, and 50%, and explain the strategies used	• - - - - • - -

• The standard is clearly addressed by program activities.

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		B2.4 represent and solve problems involving the addition and subtraction of whole numbers and decimal numbers, using estimation and algorithms B2.7 represent and solve problems involving the multiplication of three-digit whole numbers by decimal tenths, using algorithms B2.8 represent and solve problems involving the division of three-digit whole numbers by decimal tenths, using appropriate tools, strategies, and algorithms, and expressing remainders as appropriate B2.11 represent and solve problems involving the division of decimal numbers up to thousandths by whole numbers up to 10, using appropriate tools and strategies B2.12 solve problems involving ratios, including percents and rates, using appropriate tools and strategies	- - - - •
	C. Algebra	C1. identify, describe, extend, create, and make predictions about a variety of patterns, including those found in real-life contexts C1.1 identify and describe repeating, growing, and shrinking patterns, including patterns found in real-life contexts, and specify which growing patterns are linear C1.2 create and translate repeating, growing, and shrinking patterns using various representations, including tables of values, graphs, and, for linear growing patterns, algebraic expressions and equations C1.4 create and describe patterns to illustrate relationships among whole numbers and decimal numbers C2. Equations and Inequalities: demonstrate an understanding of variables, expressions, equalities, and inequalities, and apply this understanding in various contexts C2.2 evaluate algebraic expressions that involve whole numbers and decimal tenths C2.3 solve equations that involve multiple terms and whole numbers in various contexts, and verify solutions C2.4 solve inequalities that involve two operations and whole numbers up to 100 and verify and graph the solutions C3. Coding: solve problems and create computational representations of mathematical situations using coding concepts and skills C3.1 solve problems and create computational representations of mathematical situations by writing and executing efficient code, including code that involves conditional statements and other control structures C3.2 read and alter existing code, including code that involves conditional statements and other control structures, and describe how changes to the code affect the outcomes and the efficiency of the code C4. Mathematical Modelling: apply the process of mathematical modelling to represent, analyse, make predictions, and provide insight into real-life situations	• - - - • - - - • • • •

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	D. Data	D1. Data Literacy: manage, analyse, and use data to make convincing arguments and informed decisions, in various contexts drawn from real life D1.2 collect qualitative data and discrete and continuous quantitative data to answer questions of interest about a population, and organize the sets of data as appropriate, including using intervals D1.3 select from among a variety of graphs, including histograms and broken-line graphs, the type of graph best suited to represent various sets of data; display the data in the graphs with proper sources, titles, and labels, and appropriate scales; and justify their choice of graphs D1.4 create an infographic about a data set, representing the data in appropriate ways, including in tables, histograms, and broken-line graphs, and incorporating any other relevant information that helps to tell a story about the data D1.5 determine the range as a measure of spread and the measures of central tendency for various data sets, and use this information to compare two or more data sets D1.6 analyse different sets of data presented in various ways, including in histograms and broken-line graphs and in misleading graphs, by asking and answering questions about the data, challenging preconceived notions, and drawing conclusions, then make convincing arguments and informed decisions D2. Probability: describe the likelihood that events will happen, and use that information to make predictions D2.1 use fractions, decimals, and percents to express the probability of events happening, represent this probability on a probability line, and use it to make predictions and informed decisions D2.2 determine and compare the theoretical and experimental probabilities of two independent events happening	● - - - - - ● - -
	E. Spatial Sense	E1. Geometric and Spatial Reasoning: describe and represent shape, location, and movement by applying geometric properties and spatial relationships in order to navigate the world around them E1.2 construct three-dimensional objects when given their top, front, and side views E1.3 plot and read coordinates in all four quadrants of a Cartesian plane, and describe the translations that move a point from one coordinate to another E1.4 describe and perform combinations of translations, reflections, and rotations up to 360° on a grid, and predict the results of these transformations E2. Measurement: compare, estimate, and determine measurements in various contexts E2.1 measure length, area, mass, and capacity using the appropriate metric units, and solve problems that require converting smaller units to larger ones and vice versa E2.2 use a protractor to measure and construct angles up to 360°, and state the relationship between angles that are measured clockwise and those that are measured counter-clockwise	● - - - ● - -
	F. Financial Literacy	F1. Money and Finances: demonstrate the knowledge and skills needed to make informed financial decisions. F1.1 describe the advantages and disadvantages of various methods of payment that can be used to purchase goods and services F1.2 identify different types of financial goals, including earning and saving goals, and outline some key steps in achieving them F1.3 identify and describe various factors that may help or interfere with reaching financial goals F1.5 describe trading, lending, borrowing, and donating as different ways to distribute financial and other resources among individuals and organizations	● - - - -

● The standard is clearly addressed by program activities.

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Session 11: Presentation Planning	Strand	Specific Expectations	Addressed
Introduction - Revisit the Core Values, with a focus on Fun, and record ways your team has had fun throughout this experience and celebrated your work - Complete the “Event Time” section of the Team Progress sheet Project - Continue to work on your Innovation Project presentation Robot - Plan your Robot Design presentation by writing a script to let each person on the team know what they will say about the robot design and programs - Refer to the criteria in the Robot Design Rubric to ensure that you are covering everything in your presentation Clean Up & Reflection - Discuss how the parts of your robot reflect how you used the Engineering Design Process - Discuss each person’s role in the Robot Design presentation and show what missions are completed by running a 2.5-minute match. Consider how <i>FIRST LEGO League</i> has made a	A. Social-Emotional Learning (SEL) Skills in Mathematics and the Mathematical Process	A1. Social-Emotional Learning (SEL) Skills and the Mathematical Processes: apply, to the best of their ability, a variety of social-emotional learning skills to support their use of the mathematical processes and their learning in connection with the expectations in the other five strands of the mathematics curriculum. - To the best of their ability, students will learn to identify and manage emotions as they apply the mathematical processes: problem solving, reasoning & proving, reflecting, connecting, communicating, representing and selecting tools & strategies so they can express and manage their feelings, and show understanding of the feelings of others, as they engage positively in mathematics activities - To the best of their ability, students will learn to recognize sources of stress and cope with challenges as they apply the mathematical processes: problem solving, reasoning & proving, reflecting, connecting, communicating, representing and selecting tools & strategies so they can work through challenging math problems, understanding that their resourcefulness in using various strategies to respond to stress is helping them build personal resilience - To the best of their ability, students will learn to maintain positive motivation and perseverance as they apply the mathematical process: selecting tools and strategies so they can recognize that testing out different approaches to problems and learning from mistakes is an important part of the learning process, and is aided by a sense of optimism and hope. - To the best of their ability, students will learn to build relationships and communicate effectively as they apply the mathematical process of selecting tools and strategies so they can work collaboratively on math problems – expressing their thinking, listening to the thinking of others, and practising inclusivity – and in that way fostering healthy relationships. - To the best of their ability, students will learn to develop self-awareness and sense of identity as they apply the mathematical process: problem solving so they can see themselves as capable math learners, and strengthen their sense of ownership of their learning, as part of their emerging sense of identity and belonging - To the best of their ability, students will learn to think critically and creatively as they apply the mathematical process: reflecting so they can work through challenging math problems, understanding that their resourcefulness in using various strategies to respond to stress is helping them build personal resilience.	• • • • • •
	B. Number	B1. Number Sense: demonstrate an understanding of numbers and make connections to the way numbers are used in everyday life B1.2 read and represent integers, using a variety of tools and strategies, including horizontal and vertical number lines B1.4 read, represent, compare, and order decimal numbers up to thousandths, in various contexts B2. Operations: use knowledge of numbers and operations to solve mathematical problems encountered in everyday life B2.3 use mental math strategies to calculate percents of whole numbers, including 1%, 5%, 10%, 15%, 25%, and 50%, and explain the strategies used B2.12 solve problems involving ratios, including percentages and rates, using appropriate tools and strategies	• - - • - •

- The standard is clearly addressed by program activities.
- This standard potentially could be addressed, either by actions taken when working with students or by conditions established by the program

difference for you	C. Algebra	C2. Equations and Inequalities: demonstrate an understanding of variables, expressions, equalities, and inequalities, and apply this understanding in various contexts C2.4 solve inequalities that involve two operations and whole numbers up to 100, and verify and graph the solutions C3. Coding: solve problems and create computational representations of mathematical situations using coding concepts and skills C3.1 solve problems and create computational representations of mathematical situations by writing and executing efficient code, including code that involves conditional statements and other control structures C3.2 read and alter existing code, including code that involves conditional statements and other control structures, and describe how changes to the code affect the outcomes and the efficiency of the code C4. Mathematical Modelling: apply the process of mathematical modelling to represent, analyse, make predictions, and provide insight into real-life situations	• - • • • •
	D. Data	D1. Data Literacy: manage, analyse, and use data to make convincing arguments and informed decisions, in various contexts drawn from real life D1.2 collect qualitative data and discrete and continuous quantitative data to answer questions of interest about a population, and organize the sets of data as appropriate, including using intervals D1.3 select from among a variety of graphs, including histograms and broken-line graphs, the type of graph best suited to represent various sets of data; display the data in the graphs with proper sources, titles, and labels, and appropriate scales; and justify their choice of graphs D1.4 create an infographic about a data set, representing the data in appropriate ways, including in tables, histograms, and broken-line graphs, and incorporating any other relevant information that helps to tell a story about the data D1.5 determine the range as a measure of spread and the measures of central tendency for various data sets, and use this information to compare two or more data sets D1.6 analyse different sets of data presented in various ways, including in histograms and broken-line graphs and in misleading graphs, by asking and answering questions about the data, challenging preconceived notions, and drawing conclusions, then make convincing arguments and informed decisions D2. Probability: describe the likelihood that events will happen, and use that information to make predictions D2.1 use fractions, decimals, and percents to express the probability of events happening, represent this probability on a probability line, and use it to make predictions and informed decisions D2.2 determine and compare the theoretical and experimental probabilities of two independent events happening	• - - - - - • - -
	E. Spatial Sense	E1. Geometric and Spatial Reasoning: describe and represent shape, location, and movement by applying geometric properties and spatial relationships in order to navigate the world around them E1.4 describe and perform combinations of translations, reflections, and rotations up to 360° on a grid, and predict the results of these transformations E2. Measurement: compare, estimate, and determine measurements in various contexts E2.1 measure length, area, mass, and capacity using the appropriate metric units, and solve problems that require converting smaller units to larger ones and vice versa	• - • -

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	F. Financial Literacy		
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• The standard is clearly addressed by program activities.
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Session 12: Practice	Strand	Specific Expectations	Addressed
Introduction ● Revisit the Core Values, with a focus on Fun, and record ways your team has had fun throughout this experience Project ● Rehearse your Innovation Project presentation, remembering to demonstrate and mention how your team has used the Core Values Robot ● Rehearse your Robot Design presentation, remembering to demonstrate and mention how your team has used the Core Values ● Collect and implement feedback about your presentation ● Practice multiple 2.5-minute Robot Game matches Clean Up & Reflection ● Review all of the rubrics and use them to evaluate and improve upon your presentations ● Consider what your team will do if a mission does not work during a match ● Create a plan for having all of your attachments ready for the Robot Game Review how to “Prepare for your Event” in your Engineering Notebook and make final preparations	A. Social-Emotional Learning (SEL) Skills in Mathematics and the Mathematical Process	A1. Social-Emotional Learning (SEL) Skills and the Mathematical Processes: apply, to the best of their ability, a variety of social-emotional learning skills to support their use of the mathematical processes and their learning in connection with the expectations in the other five strands of the mathematics curriculum. 1. To the best of their ability, students will learn to identify and manage emotions as they apply the mathematical processes: problem solving, reasoning & proving, reflecting, connecting, communicating, representing and selecting tools & strategies so they can express and manage their feelings, and show understanding of the feelings of others, as they engage positively in mathematics activities 2. To the best of their ability, students will learn to recognize sources of stress and cope with challenges as they apply the mathematical processes: problem solving, reasoning & proving, reflecting, connecting, communicating, representing and selecting tools & strategies so they can work through challenging math problems, understanding that their resourcefulness in using various strategies to respond to stress is helping them build personal resilience 3. To the best of their ability, students will learn to maintain positive motivation and perseverance as they apply the mathematical process: selecting tools and strategies so they can recognize that testing out different approaches to problems and learning from mistakes is an important part of the learning process, and is aided by a sense of optimism and hope. 4. To the best of their ability, students will learn to build relationships and communicate effectively as they apply the mathematical process of selecting tools and strategies so they can work collaboratively on math problems – expressing their thinking, listening to the thinking of others, and practising inclusivity – and in that way fostering healthy relationships. 5. To the best of their ability, students will learn to develop self-awareness and sense of identity as they apply the mathematical process: problem solving so they can see themselves as capable math learners, and strengthen their sense of ownership of their learning, as part of their emerging sense of identity and belonging 6. To the best of their ability, students will learn to think critically and creatively as they apply the mathematical process: reflecting so they can work through challenging math problems, understanding that their resourcefulness in using various strategies to respond to stress is helping them build personal resilience.	● ● ● ● ● ●
	B. Number	B1. Number Sense: demonstrate an understanding of numbers and make connections to the way numbers are used in everyday life B1.2 read and represent integers, using a variety of tools and strategies, including horizontal and vertical number lines B1.4 read, represent, compare, and order decimal numbers up to thousandths, in various contexts	● - -

● The standard is clearly addressed by program activities.

- This standard potentially could be addressed, either by actions taken when working with students or by conditions established by the program

	C. Algebra	C2. Equations and Inequalities: demonstrate an understanding of variables, expressions, equalities, and inequalities, and apply this understanding in various contexts C2.4 solve inequalities that involve two operations and whole numbers up to 100, and verify and graph the solutions C3. Coding: solve problems and create computational representations of mathematical situations using coding concepts and skills C3.1 solve problems and create computational representations of mathematical situations by writing and executing efficient code, including code that involves conditional statements and other control structures C3.2 read and alter existing code, including code that involves conditional statements and other control structures, and describe how changes to the code affect the outcomes and the efficiency of the code C4. Mathematical Modelling: apply the process of mathematical modelling to represent, analyse, make predictions, and provide insight into real-life situations	• - • • • •
	D. Data		
	E. Spatial Sense	E1. Geometric and Spatial Reasoning: describe and represent shape, location, and movement by applying geometric properties and spatial relationships in order to navigate the world around them	•
	F. Financial Literacy		