Grade 4 – Ontario Science Curriculum Alignment
2026-27 *FIRST* LEGO League Challenge Bioglow Team Meeting Guide

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 *Robot Game Rulebook* 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 *Fun* while working on the game and project	A. STEM Skills and Connections	A1. Use a scientific research process, a scientific experimentation process, and an engineering design process to conduct investigations, following appropriate health and safety procedures.	●
		A1.1 Use a scientific research process and associated skills to conduct investigations.	●
		A1.3 Use an engineering design process and associated skills to design, build, and test devices, models, structures, and/or systems.	●
		A1.5 Communicate their findings, using science and technology vocabulary and formats that are appropriate for specific audiences and purposes.	●
		A3. Demonstrate an understanding of the practical applications of science and technology, and of contributions to science and technology from people with diverse lived experiences.	●
		A3.1 Describe practical applications of science and technology concepts in various occupations, including skilled trades, and how these applications address real-world problems.	●
		A3.2 Investigate how science and technology can be used with other subject areas to address real-world problems.	●
		A3.3 Analyse contributions to science and technology from various communities.	-
	B. Life Systems	B1. Assess impacts of human activities on habitats and communities, and analyse actions for minimizing negative impacts and enhancing positive ones.	●
		B1.1 Assess positive and negative impacts of human activities on habitats and communities, while taking different perspectives into account.	●
		B1.2 Analyse the impact of the depletion or extinction of a species on its habitat and community, and describe possible actions to prevent such depletions or extinctions.	●
		B2. Demonstrate an understanding of habitats and communities and of interrelationships among the organisms that live in them.	●
		B2.1 Describe habitats as areas that provide organisms, including plants and animals, with the necessities of life, and identify ways in which a local habitat provides these necessities.	●
		B2.2 Describe a community as a group of interacting species sharing a common habitat, and identify factors that affect the ability of a community of plants and animals to survive in a local habitat.	●
		B2.3 Describe the relationship of organisms in a food chain, and classify organisms as producers, consumers, or decomposers.	●
		B2.4 Demonstrate an understanding of a food web as the interconnection of multiple food chains in a natural community.	●
		B2.5 Describe how animals are categorized according to their diet, and categorize various animals as carnivores, herbivores, or omnivores.	●
		B2.6 Describe structural adaptations of a variety of plants and animals and how these adaptations allow the organisms to survive in specific habitats.	●
		B2.7 Explain why all habitats have limits to the number of plants and animals they can support.	●

● 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. Matter and Energy	C1. Assess the impacts on society and the environment of technological innovations related to light and sound. C1.2 Assess the impacts on the environment of light energy and sound energy produced by various technologies, while taking different perspectives into account. C2. Demonstrate an understanding of light and sound as forms of energy that have specific characteristics and properties. C2.6 Describe how different objects and materials interact with light and sound energy.	- - - -
	D. Structures and Mechanisms	D1. Evaluate the impacts of various machines and their mechanisms on society and the environment. D1.2 Assess and compare the environmental impacts of using different machines designed for similar purposes. D2. Demonstrate an understanding of the basic principles and functions of machines and their mechanisms. D2.1 Identify machines that are used in daily life, and describe their purposes. D2.2 Identify the parts of various mechanisms and describe the purpose of each part. D2.3 Describe how different mechanisms transmit various types of motion, including rotary motion, from one system to another. D2.4 Describe how mechanisms transform motion, including how they can change the geometric plane in which the motion occurs and the speed and/or direction of motion. D2.5 Explain how forces are changed in a variety of machines.	● ● ● ● ● ● ● ●
	E. Earth & Space Systems	E1. Assess the social and environmental impacts of geological processes and of human uses of rocks and minerals. E1.1 Analyse ways in which geological processes impact society and the environment. E1.2 Assess social and environmental impacts of extracting and refining rocks and minerals and of manufacturing, recycling, and disposing of products derived from rocks and minerals, while taking various perspectives into account. E2. Demonstrate an understanding of rocks, minerals, and Earth's geological processes. E2.4 Describe everyday uses of rocks and minerals. E2.5 Describe how fossils are formed and what information they can provide about Earth's history.	● ● ● - - -

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2026-27 *FIRST* LEGO League Challenge Bioglow Team Meeting Guide

Session 2: Training Camp 1	Strand	Specific Expectations	Addressed
Introduction ● Think about how you will use the Core value of ***Discovery***. ● 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. STEM Skills and Connections	A1. Use a scientific research process, a scientific experimentation process, and an engineering design process to conduct investigations, following appropriate health and safety procedures. A1.1 Use a scientific research process and associated skills to conduct investigations. A1.2 Use a scientific experimentation process and associated skills to conduct investigations. A1.3 Use an engineering design process and associated skills to design, build, and test devices, models, structures, and/or systems. A1.5 Communicate their findings, using science and technology vocabulary and formats that are appropriate for specific audiences and purposes. A2. Use coding in investigations and to model concepts, and assess the impact of coding and of emerging technologies on everyday life and in STEM-related fields. A2.1 Write and execute code in investigations and when modelling concepts, with a focus on producing different types of output for a variety of purposes. A2.2 Identify and describe impacts of coding and of emerging technologies on everyday life, including skilled trades. A3. Demonstrate an understanding of the practical applications of science and technology, and of contributions to science and technology from people with diverse lived experiences. A3.1 Describe practical applications of science and technology concepts in various occupations, including skilled trades, and how these applications address real-world problems. A3.2 Investigate how science and technology can be used with other subject areas to address real-world problems. A3.3 Analyse contributions to science and technology from various communities.	● ● ● ● ● ● ● ● ● ● ● -

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	B. Life Systems	B1. Assess impacts of human activities on habitats and communities, and analyse actions for minimizing negative impacts and enhancing positive ones. B1.1 Assess positive and negative impacts of human activities on habitats and communities, while taking different perspectives into account. B1.2 Analyse the impact of the depletion or extinction of a species on its habitat and community, and describe possible actions to prevent such depletions or extinctions. B2. Demonstrate an understanding of habitats and communities and of interrelationships among the organisms that live in them. B2.1 Describe habitats as areas that provide organisms, including plants and animals, with the necessities of life, and identify ways in which a local habitat provides these necessities. B2.2 Describe a community as a group of interacting species sharing a common habitat, and identify factors that affect the ability of a community of plants and animals to survive in a local habitat. B2.3 Describe the relationship of organisms in a food chain, and classify organisms as producers, consumers, or decomposers. B2.4 Demonstrate an understanding of a food web as the interconnection of multiple food chains in a natural community. B2.5 Describe how animals are categorized according to their diet, and categorize various animals as carnivores, herbivores, or omnivores. B2.6 Describe structural adaptations of a variety of plants and animals and how these adaptations allow the organisms to survive in specific habitats. B2.7 Explain why all habitats have limits to the number of plants and animals they can support.	● ● ● ● ● ● ● ● ● ● ●
	C. Matter and Energy	C1. Assess the impacts on society and the environment of technological innovations related to light and sound. C1.2 Assess the impacts on the environment of light energy and sound energy produced by various technologies, while taking different perspectives into account. C2. Demonstrate an understanding of light and sound as forms of energy that have specific characteristics and properties. C2.6 Describe how different objects and materials interact with light and sound energy.	- - - -
	D. Structures and Mechanisms	D1. Evaluate the impacts of various machines and their mechanisms on society and the environment. D1.2 Assess and compare the environmental impacts of using different machines designed for similar purposes. D2. Demonstrate an understanding of the basic principles and functions of machines and their mechanisms. D2.1 Identify machines that are used in daily life, and describe their purposes. D2.2 Identify the parts of various mechanisms and describe the purpose of each part. D2.3 Describe how different mechanisms transmit various types of motion, including rotary motion, from one system to another. D2.4 Describe how mechanisms transform motion, including how they can change the geometric plane in which the motion occurs and the speed and/or direction of motion. D2.5 Explain how forces are changed in a variety of machines.	● ● ● ● ● ● ● ● ●

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	E. Earth & Space Systems	E1. Assess the social and environmental impacts of geological processes and of human uses of rocks and minerals. E1.1 Analyse ways in which geological processes impact society and the environment. E1.2 Assess social and environmental impacts of extracting and refining rocks and minerals and of manufacturing, recycling, and disposing of products derived from rocks and minerals, while taking various perspectives into account. E2. Demonstrate an understanding of rocks, minerals, and Earth's geological processes. E2.4 Describe everyday uses of rocks and minerals. E2.5 Describe how fossils are formed and what information they can provide about Earth's history.	● ● ● - - -

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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. STEM Skills and Connections	A1. Use a scientific research process, a scientific experimentation process, and an engineering design process to conduct investigations, following appropriate health and safety procedures.	●
		A1.1 Use a scientific research process and associated skills to conduct investigations.	●
		A1.2 Use a scientific experimentation process and associated skills to conduct investigations.	●
		A1.3 Use an engineering design process and associated skills to design, build, and test devices, models, structures, and/or systems.	●
		A1.5 Communicate their findings, using science and technology vocabulary and formats that are appropriate for specific audiences and purposes.	●
		A2. Use coding in investigations and to model concepts, and assess the impact of coding and of emerging technologies on everyday life and in STEM-related fields.	●
		A2.1 Write and execute code in investigations and when modelling concepts, with a focus on producing different types of output for a variety of purposes.	●
		A2.2 Identify and describe impacts of coding and of emerging technologies on everyday life, including skilled trades.	●
		A3. Demonstrate an understanding of the practical applications of science and technology, and of contributions to science and technology from people with diverse lived experiences.	●
		A3.1 Describe practical applications of science and technology concepts in various occupations, including skilled trades, and how these applications address real-world problems.	●
		A3.2 Investigate how science and technology can be used with other subject areas to address real-world problems.	●
		A3.3 Analyse contributions to science and technology from various communities.	-
	B. Life Systems	B1. Assess impacts of human activities on habitats and communities, and analyse actions for minimizing negative impacts and enhancing positive ones.	●
		B1.1 Assess positive and negative impacts of human activities on habitats and communities, while taking different perspectives into account.	●
		B1.2 Analyse the impact of the depletion or extinction of a species on its habitat and community, and describe possible actions to prevent such depletions or extinctions.	●
		B2. Demonstrate an understanding of habitats and communities and of interrelationships among the organisms that live in them.	●
		B2.1 Describe habitats as areas that provide organisms, including plants and animals, with the necessities of life, and identify ways in which a local habitat provides these necessities.	●
		B2.2 Describe a community as a group of interacting species sharing a common habitat, and identify factors that affect the ability of a community of plants and animals to survive in a local habitat.	●
		B2.3 Describe the relationship of organisms in a food chain, and classify organisms as producers, consumers, or decomposers.	●
		B2.4 Demonstrate an understanding of a food web as the interconnection of multiple food chains in a natural community.	●
		B2.5 Describe how animals are categorized according to their diet, and categorize various animals as carnivores, herbivores, or omnivores.	●
		B2.6 Describe structural adaptations of a variety of plants and animals and how these adaptations allow the organisms to survive in specific habitats.	●
		B2.7 Explain why all habitats have limits to the number of plants and animals they can support.	●

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	C. Matter and Energy	C1. Assess the impacts on society and the environment of technological innovations related to light and sound. C1.2 Assess the impacts on the environment of light energy and sound energy produced by various technologies, while taking different perspectives into account. C2. Demonstrate an understanding of light and sound as forms of energy that have specific characteristics and properties. C2.6 Describe how different objects and materials interact with light and sound energy.	- - - -
	D. Structures and Mechanisms	D1. Evaluate the impacts of various machines and their mechanisms on society and the environment. D1.2 Assess and compare the environmental impacts of using different machines designed for similar purposes. D2. Demonstrate an understanding of the basic principles and functions of machines and their mechanisms. D2.1 Identify machines that are used in daily life, and describe their purposes. D2.2 Identify the parts of various mechanisms and describe the purpose of each part. D2.3 Describe how different mechanisms transmit various types of motion, including rotary motion, from one system to another. D2.4 Describe how mechanisms transform motion, including how they can change the geometric plane in which the motion occurs and the speed and/or direction of motion. D2.5 Explain how forces are changed in a variety of machines.	● ● ● ● ● ● ● ●
	E. Earth & Space Systems	E1. Assess the social and environmental impacts of geological processes and of human uses of rocks and minerals. E1.1 Analyse ways in which geological processes impact society and the environment. E1.2 Assess social and environmental impacts of extracting and refining rocks and minerals and of manufacturing, recycling, and disposing of products derived from rocks and minerals, while taking various perspectives into account. E2. Demonstrate an understanding of rocks, minerals, and Earth's geological processes. E2.4 Describe everyday uses of rocks and minerals. E2.5 Describe how fossils are formed and what information they can provide about Earth's history.	● ● ● - - -

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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. STEM Skills and Connections	A1. Use a scientific research process, a scientific experimentation process, and an engineering design process to conduct investigations, following appropriate health and safety procedures. A1.1 Use a scientific research process and associated skills to conduct investigations. A1.2 Use a scientific experimentation process and associated skills to conduct investigations. A1.3 Use an engineering design process and associated skills to design, build, and test devices, models, structures, and/or systems. A1.5 Communicate their findings, using science and technology vocabulary and formats that are appropriate for specific audiences and purposes. A2. Use coding in investigations and to model concepts, and assess the impact of coding and of emerging technologies on everyday life and in STEM-related fields. A2.1 Write and execute code in investigations and when modelling concepts, with a focus on producing different types of output for a variety of purposes. A2.2 Identify and describe impacts of coding and of emerging technologies on everyday life, including skilled trades. A3. Demonstrate an understanding of the practical applications of science and technology, and of contributions to science and technology from people with diverse lived experiences. A3.1 Describe practical applications of science and technology concepts in various occupations, including skilled trades, and how these applications address real-world problems. A3.2 Investigate how science and technology can be used with other subject areas to address real-world problems. A3.3 Analyse contributions to science and technology from various communities.	● ● ● ● ● ● ● ● ● ● -

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	B. Life Systems	B1. Assess impacts of human activities on habitats and communities, and analyse actions for minimizing negative impacts and enhancing positive ones. B1.1 Assess positive and negative impacts of human activities on habitats and communities, while taking different perspectives into account. B1.2 Analyse the impact of the depletion or extinction of a species on its habitat and community, and describe possible actions to prevent such depletions or extinctions. B2. Demonstrate an understanding of habitats and communities and of interrelationships among the organisms that live in them. B2.1 Describe habitats as areas that provide organisms, including plants and animals, with the necessities of life, and identify ways in which a local habitat provides these necessities. B2.2 Describe a community as a group of interacting species sharing a common habitat, and identify factors that affect the ability of a community of plants and animals to survive in a local habitat. B2.3 Describe the relationship of organisms in a food chain, and classify organisms as producers, consumers, or decomposers. B2.4 Demonstrate an understanding of a food web as the interconnection of multiple food chains in a natural community. B2.5 Describe how animals are categorized according to their diet, and categorize various animals as carnivores, herbivores, or omnivores. B2.6 Describe structural adaptations of a variety of plants and animals and how these adaptations allow the organisms to survive in specific habitats. B2.7 Explain why all habitats have limits to the number of plants and animals they can support.	● ● ● ● ● ● ● ● ● ● ● ●
	C. Matter and Energy	C1. Assess the impacts on society and the environment of technological innovations related to light and sound. C1.2 Assess the impacts on the environment of light energy and sound energy produced by various technologies, while taking different perspectives into account. C2. Demonstrate an understanding of light and sound as forms of energy that have specific characteristics and properties. C2.6 Describe how different objects and materials interact with light and sound energy.	- - - ●
	D. Structures and Mechanisms	D1. Evaluate the impacts of various machines and their mechanisms on society and the environment. D1.2 Assess and compare the environmental impacts of using different machines designed for similar purposes. D2. Demonstrate an understanding of the basic principles and functions of machines and their mechanisms. D2.1 Identify machines that are used in daily life, and describe their purposes. D2.2 Identify the parts of various mechanisms and describe the purpose of each part. D2.3 Describe how different mechanisms transmit various types of motion, including rotary motion, from one system to another. D2.4 Describe how mechanisms transform motion, including how they can change the geometric plane in which the motion occurs and the speed and/or direction of motion. D2.5 Explain how forces are changed in a variety of machines.	● ● ● ● ● ● ● ● ●

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	E. Earth & Space Systems	E1. Assess the social and environmental impacts of geological processes and of human uses of rocks and minerals. E1.1 Analyse ways in which geological processes impact society and the environment. E1.2 Assess social and environmental impacts of extracting and refining rocks and minerals and of manufacturing, recycling, and disposing of products derived from rocks and minerals, while taking various perspectives into account. E2. Demonstrate an understanding of rocks, minerals, and Earth's geological processes. E2.4 Describe everyday uses of rocks and minerals. E2.5 Describe how fossils are formed and what information they can provide about Earth's history.	● ● ● - - -

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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. STEM Skills and Connections	A1. Use a scientific research process, a scientific experimentation process, and an engineering design process to conduct investigations, following appropriate health and safety procedures. A1.1 Use a scientific research process and associated skills to conduct investigations. A1.2 Use a scientific experimentation process and associated skills to conduct investigations. A1.3 Use an engineering design process and associated skills to design, build, and test devices, models, structures, and/or systems. A1.5 Communicate their findings, using science and technology vocabulary and formats that are appropriate for specific audiences and purposes. A2. Use coding in investigations and to model concepts, and assess the impact of coding and of emerging technologies on everyday life and in STEM-related fields. A2.1 Write and execute code in investigations and when modelling concepts, with a focus on producing different types of output for a variety of purposes. A2.2 Identify and describe impacts of coding and of emerging technologies on everyday life, including skilled trades. A3. Demonstrate an understanding of the practical applications of science and technology, and of contributions to science and technology from people with diverse lived experiences. A3.1 Describe practical applications of science and technology concepts in various occupations, including skilled trades, and how these applications address real-world problems. A3.2 Investigate how science and technology can be used with other subject areas to address real-world problems. A3.3 Analyse contributions to science and technology from various communities.	● ● ● ● ● ● ● ● ● - ●

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	B. Life Systems	B1. Assess impacts of human activities on habitats and communities, and analyse actions for minimizing negative impacts and enhancing positive ones. B1.1 Assess positive and negative impacts of human activities on habitats and communities, while taking different perspectives into account. B1.2 Analyse the impact of the depletion or extinction of a species on its habitat and community, and describe possible actions to prevent such depletions or extinctions. B2. Demonstrate an understanding of habitats and communities and of interrelationships among the organisms that live in them. B2.1 Describe habitats as areas that provide organisms, including plants and animals, with the necessities of life, and identify ways in which a local habitat provides these necessities. B2.2 Describe a community as a group of interacting species sharing a common habitat, and identify factors that affect the ability of a community of plants and animals to survive in a local habitat. B2.3 Describe the relationship of organisms in a food chain, and classify organisms as producers, consumers, or decomposers. B2.4 Demonstrate an understanding of a food web as the interconnection of multiple food chains in a natural community. B2.5 Describe how animals are categorized according to their diet, and categorize various animals as carnivores, herbivores, or omnivores. B2.6 Describe structural adaptations of a variety of plants and animals and how these adaptations allow the organisms to survive in specific habitats. B2.7 Explain why all habitats have limits to the number of plants and animals they can support.	● ● ● ● ● ● ● ● ● ● ●
	C. Matter and Energy	C1. Assess the impacts on society and the environment of technological innovations related to light and sound. C1.2 Assess the impacts on the environment of light energy and sound energy produced by various technologies, while taking different perspectives into account. C2. Demonstrate an understanding of light and sound as forms of energy that have specific characteristics and properties. C2.6 Describe how different objects and materials interact with light and sound energy.	- - - -
	D. Structures and Mechanisms	D1. Evaluate the impacts of various machines and their mechanisms on society and the environment. D1.2 Assess and compare the environmental impacts of using different machines designed for similar purposes. D2. Demonstrate an understanding of the basic principles and functions of machines and their mechanisms. D2.1 Identify machines that are used in daily life, and describe their purposes. D2.2 Identify the parts of various mechanisms and describe the purpose of each part. D2.3 Describe how different mechanisms transmit various types of motion, including rotary motion, from one system to another. D2.4 Describe how mechanisms transform motion, including how they can change the geometric plane in which the motion occurs and the speed and/or direction of motion. D2.5 Explain how forces are changed in a variety of machines.	● ● ● ● ● ● ● ● ●

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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. STEM Skills and Connections	A1. Use a scientific research process, a scientific experimentation process, and an engineering design process to conduct investigations, following appropriate health and safety procedures. A1.1 Use a scientific research process and associated skills to conduct investigations. A1.2 Use a scientific experimentation process and associated skills to conduct investigations. A1.3 Use an engineering design process and associated skills to design, build, and test devices, models, structures, and/or systems. A1.5 Communicate their findings, using science and technology vocabulary and formats that are appropriate for specific audiences and purposes. A2. Use coding in investigations and to model concepts, and assess the impact of coding and of emerging technologies on everyday life and in STEM-related fields. A2.1 Write and execute code in investigations and when modelling concepts, with a focus on producing different types of output for a variety of purposes. A3. Demonstrate an understanding of the practical applications of science and technology, and of contributions to science and technology from people with diverse lived experiences. A3.1 Describe practical applications of science and technology concepts in various occupations, including skilled trades, and how these applications address real-world problems. A3.2 Investigate how science and technology can be used with other subject areas to address real-world problems. A3.3 Analyse contributions to science and technology from various communities.	● ● ● ● ● ● ● - ● -
	B. Life Systems	B1. Assess impacts of human activities on habitats and communities, and analyse actions for minimizing negative impacts and enhancing positive ones. B1.1 Assess positive and negative impacts of human activities on habitats and communities, while taking different perspectives into account. B1.2 Analyse the impact of the depletion or extinction of a species on its habitat and community, and describe possible actions to prevent such depletions or extinctions. B2. Demonstrate an understanding of habitats and communities and of interrelationships among the organisms that live in them. B2.1 Describe habitats as areas that provide organisms, including plants and animals, with the necessities of life, and identify ways in which a local habitat provides these necessities. B2.2 Describe a community as a group of interacting species sharing a common habitat, and identify factors that affect the ability of a community of plants and animals to survive in a local habitat. B2.3 Describe the relationship of organisms in a food chain, and classify organisms as producers, consumers, or decomposers. B2.4 Demonstrate an understanding of a food web as the interconnection of multiple food chains in a natural community. B2.5 Describe how animals are categorized according to their diet, and categorize various animals as carnivores, herbivores, or omnivores. B2.6 Describe structural adaptations of a variety of plants and animals and how these adaptations allow the organisms to survive in specific habitats. B2.7 Explain why all habitats have limits to the number of plants and animals they can support.	● ● ● ● ● ● ● ● ● ●

● The standard is clearly addressed by program activities.
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robot's design			●
	C. Matter and Energy	C1. Assess the impacts on society and the environment of technological innovations related to light and sound. C1.2 Assess the impacts on the environment of light energy and sound energy produced by various technologies, while taking different perspectives into account. C2. Demonstrate an understanding of light and sound as forms of energy that have specific characteristics and properties. C2.6 Describe how different objects and materials interact with light and sound energy.	- - - -
	D. Structures and Mechanisms	D1. Evaluate the impacts of various machines and their mechanisms on society and the environment. D1.2 Assess and compare the environmental impacts of using different machines designed for similar purposes. D2. Demonstrate an understanding of the basic principles and functions of machines and their mechanisms. D2.1 Identify machines that are used in daily life, and describe their purposes. D2.2 Identify the parts of various mechanisms and describe the purpose of each part. D2.3 Describe how different mechanisms transmit various types of motion, including rotary motion, from one system to another. D2.4 Describe how mechanisms transform motion, including how they can change the geometric plane in which the motion occurs and the speed and/or direction of motion. D2.5 Explain how forces are changed in a variety of machines.	● - ● - ● ● - -
	E. Earth & Space Systems	E1. Assess the social and environmental impacts of geological processes and of human uses of rocks and minerals. E1.1 Analyse ways in which geological processes impact society and the environment. E1.2 Assess social and environmental impacts of extracting and refining rocks and minerals and of manufacturing, recycling, and disposing of products derived from rocks and minerals, while taking various perspectives into account. E2. Demonstrate an understanding of rocks, minerals, and Earth's geological processes. E2.4 Describe everyday uses of rocks and minerals. E2.5 Describe how fossils are formed and what information they can provide about Earth's history.	● ● ● - - -

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Grade 4 – Ontario Science Curriculum Alignment
2026-27 *FIRST* LEGO League Challenge Bioglow Team Meeting Guide

Session 7: Create Solutions	Strand	Specific Expectations	Addressed
Introduction ● Revisit the Core Values, with a focus on *Gracious Professionalism* 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 feedback ● Discuss how to iterate to improve your robot's design	A. STEM Skills and Connections	A1. Use a scientific research process, a scientific experimentation process, and an engineering design process to conduct investigations, following appropriate health and safety procedures. A1.1 Use a scientific research process and associated skills to conduct investigations. A1.2 Use a scientific experimentation process and associated skills to conduct investigations. A1.3 Use an engineering design process and associated skills to design, build, and test devices, models, structures, and/or systems. A1.5 Communicate their findings, using science and technology vocabulary and formats that are appropriate for specific audiences and purposes. A2. Use coding in investigations and to model concepts, and assess the impact of coding and of emerging technologies on everyday life and in STEM-related fields. A2.1 Write and execute code in investigations and when modelling concepts, with a focus on producing different types of output for a variety of purposes. A2.2 Identify and describe impacts of coding and of emerging technologies on everyday life, including skilled trades. A3. Demonstrate an understanding of the practical applications of science and technology, and of contributions to science and technology from people with diverse lived experiences. A3.1 Describe practical applications of science and technology concepts in various occupations, including skilled trades, and how these applications address real-world problems. A3.2 Investigate how science and technology can be used with other subject areas to address real-world problems. A3.3 Analyse contributions to science and technology from various communities.	● ● ● ● ● ● - ● ● ● -

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	B. Life Systems	B1. Assess impacts of human activities on habitats and communities, and analyse actions for minimizing negative impacts and enhancing positive ones.	●
		B1.1 Assess positive and negative impacts of human activities on habitats and communities, while taking different perspectives into account.	●
		B1.2 Analyse the impact of the depletion or extinction of a species on its habitat and community, and describe possible actions to prevent such depletions or extinctions.	●
		B2. Demonstrate an understanding of habitats and communities and of interrelationships among the organisms that live in them.	●
		B2.1 Describe habitats as areas that provide organisms, including plants and animals, with the necessities of life, and identify ways in which a local habitat provides these necessities.	●
		B2.2 Describe a community as a group of interacting species sharing a common habitat, and identify factors that affect the ability of a community of plants and animals to survive in a local habitat.	●
		B2.3 Describe the relationship of organisms in a food chain, and classify organisms as producers, consumers, or decomposers.	●
		B2.4 Demonstrate an understanding of a food web as the interconnection of multiple food chains in a natural community.	●
		B2.5 Describe how animals are categorized according to their diet, and categorize various animals as carnivores, herbivores, or omnivores.	●
		B2.6 Describe structural adaptations of a variety of plants and animals and how these adaptations allow the organisms to survive in specific habitats.	●
		B2.7 Explain why all habitats have limits to the number of plants and animals they can support.	●
	C. Matter and Energy	C1. Assess the impacts on society and the environment of technological innovations related to light and sound.	-
		C1.2 Assess the impacts on the environment of light energy and sound energy produced by various technologies, while taking different perspectives into account.	-
		C2. Demonstrate an understanding of light and sound as forms of energy that have specific characteristics and properties.	-
		C2.6 Describe how different objects and materials interact with light and sound energy.	-
	D. Structures and Mechanisms	D1. Evaluate the impacts of various machines and their mechanisms on society and the environment.	●
		D1.2 Assess and compare the environmental impacts of using different machines designed for similar purposes.	-
		D2. Demonstrate an understanding of the basic principles and functions of machines and their mechanisms.	●
		D2.1 Identify machines that are used in daily life, and describe their purposes.	-
		D2.2 Identify the parts of various mechanisms and describe the purpose of each part.	●
		D2.3 Describe how different mechanisms transmit various types of motion, including rotary motion, from one system to another.	●
		D2.4 Describe how mechanisms transform motion, including how they can change the geometric plane in which the motion occurs and the speed and/or direction of motion.	-
		D2.5 Explain how forces are changed in a variety of machines.	-

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	E. Earth & Space Systems	E1. Assess the social and environmental impacts of geological processes and of human uses of rocks and minerals. E1.1 Analyse ways in which geological processes impact society and the environment. E1.2 Assess social and environmental impacts of extracting and refining rocks and minerals and of manufacturing, recycling, and disposing of products derived from rocks and minerals, while taking various perspectives into account. E2. Demonstrate an understanding of rocks, minerals, and Earth's geological processes. E2.4 Describe everyday uses of rocks and minerals. E2.5 Describe how fossils are formed and what information they can provide about Earth's history.	● ● ● - - -

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2026-27 *FIRST* LEGO League Challenge Bioglow Team Meeting Guide

Session 8: Continue Creating	Strand	Specific Expectations	Addressed
Introduction ● Revisit the Core Values, with a focus on *Inclusion* 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. STEM Skills and Connections	A1. Use a scientific research process, a scientific experimentation process, and an engineering design process to conduct investigations, following appropriate health and safety procedures.	●
		A1.1 Use a scientific research process and associated skills to conduct investigations.	●
		A1.2 Use a scientific experimentation process and associated skills to conduct investigations.	●
		A1.3 Use an engineering design process and associated skills to design, build, and test devices, models, structures, and/or systems.	●
		A1.5 Communicate their findings, using science and technology vocabulary and formats that are appropriate for specific audiences and purposes.	●
		A2. Use coding in investigations and to model concepts, and assess the impact of coding and of emerging technologies on everyday life and in STEM-related fields.	●
		A2.1 Write and execute code in investigations and when modelling concepts, with a focus on producing different types of output for a variety of purposes.	●
		A3. Demonstrate an understanding of the practical applications of science and technology, and of contributions to science and technology from people with diverse lived experiences.	-
		A3.1 Describe practical applications of science and technology concepts in various occupations, including skilled trades, and how these applications address real-world problems.	-
		A3.2 Investigate how science and technology can be used with other subject areas to address real-world problems.	-
		A3.3 Analyse contributions to science and technology from various communities.	-
	B. Life Systems	B1. Assess impacts of human activities on habitats and communities, and analyse actions for minimizing negative impacts and enhancing positive ones.	●
		B1.1 Assess positive and negative impacts of human activities on habitats and communities, while taking different perspectives into account.	●
		B1.2 Analyse the impact of the depletion or extinction of a species on its habitat and community, and describe possible actions to prevent such depletions or extinctions.	●
		B2. Demonstrate an understanding of habitats and communities and of interrelationships among the organisms that live in them.	●
		B2.1 Describe habitats as areas that provide organisms, including plants and animals, with the necessities of life, and identify ways in which a local habitat provides these necessities.	●
		B2.2 Describe a community as a group of interacting species sharing a common habitat, and identify factors that affect the ability of a community of plants and animals to survive in a local habitat.	●
		B2.3 Describe the relationship of organisms in a food chain, and classify organisms as producers, consumers, or decomposers.	●
		B2.4 Demonstrate an understanding of a food web as the interconnection of multiple food chains in a natural community.	●
		B2.5 Describe how animals are categorized according to their diet, and categorize various animals as carnivores, herbivores, or omnivores.	●
		B2.6 Describe structural adaptations of a variety of plants and animals and how these adaptations allow the organisms to survive in specific habitats.	●
		B2.7 Explain why all habitats have limits to the number of plants and animals they can support.	●

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	C. Matter and Energy	C1. Assess the impacts on society and the environment of technological innovations related to light and sound. C1.2 Assess the impacts on the environment of light energy and sound energy produced by various technologies, while taking different perspectives into account. C2. Demonstrate an understanding of light and sound as forms of energy that have specific characteristics and properties. C2.6 Describe how different objects and materials interact with light and sound energy.	- - - -
	D. Structures and Mechanisms	D1. Evaluate the impacts of various machines and their mechanisms on society and the environment. D1.2 Assess and compare the environmental impacts of using different machines designed for similar purposes. D2. Demonstrate an understanding of the basic principles and functions of machines and their mechanisms. D2.1 Identify machines that are used in daily life, and describe their purposes. D2.2 Identify the parts of various mechanisms and describe the purpose of each part. D2.3 Describe how different mechanisms transmit various types of motion, including rotary motion, from one system to another. D2.4 Describe how mechanisms transform motion, including how they can change the geometric plane in which the motion occurs and the speed and/or direction of motion. D2.5 Explain how forces are changed in a variety of machines.	● - ● - ● ● - -
	E. Earth & Space Systems	E1. Assess the social and environmental impacts of geological processes and of human uses of rocks and minerals. E1.1 Analyse ways in which geological processes impact society and the environment. E1.2 Assess social and environmental impacts of extracting and refining rocks and minerals and of manufacturing, recycling, and disposing of products derived from rocks and minerals, while taking various perspectives into account. E2. Demonstrate an understanding of rocks, minerals, and Earth's geological processes. E2.4 Describe everyday uses of rocks and minerals. E2.5 Describe how fossils are formed and what information they can provide about Earth's history.	● ● ● - - -

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2026-27 *FIRST* LEGO League Challenge Bioglow Team Meeting Guide

Session 9: Iterate & Improve	Strand	Specific Expectations	Addressed
Introduction ● Revisit the Core Values, with a focus on *Impact*, and record ways your team has had a positive influence on one another and on others **Project** ● Test, iterate 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. STEM Skills and Connections	A1. Use a scientific research process, a scientific experimentation process, and an engineering design process to conduct investigations, following appropriate health and safety procedures.	●
		A1.1 Use a scientific research process and associated skills to conduct investigations.	●
		A1.2 Use a scientific experimentation process and associated skills to conduct investigations.	●
		A1.3 Use an engineering design process and associated skills to design, build, and test devices, models, structures, and/or systems.	●
		A1.5 Communicate their findings, using science and technology vocabulary and formats that are appropriate for specific audiences and purposes.	●
		A2. Use coding in investigations and to model concepts, and assess the impact of coding and of emerging technologies on everyday life and in STEM-related fields.	●
		A2.1 Write and execute code in investigations and when modelling concepts, with a focus on producing different types of output for a variety of purposes.	●
		A3. Demonstrate an understanding of the practical applications of science and technology, and of contributions to science and technology from people with diverse lived experiences.	-
		A3.1 Describe practical applications of science and technology concepts in various occupations, including skilled trades, and how these applications address real-world problems.	-
		A3.2 Investigate how science and technology can be used with other subject areas to address real-world problems.	-
		A3.3 Analyse contributions to science and technology from various communities.	-
	B. Life Systems	B1. Assess impacts of human activities on habitats and communities, and analyse actions for minimizing negative impacts and enhancing positive ones.	●
		B1.1 Assess positive and negative impacts of human activities on habitats and communities, while taking different perspectives into account.	●
		B1.2 Analyse the impact of the depletion or extinction of a species on its habitat and community, and describe possible actions to prevent such depletions or extinctions.	●
		B2. Demonstrate an understanding of habitats and communities and of interrelationships among the organisms that live in them.	●
		B2.1 Describe habitats as areas that provide organisms, including plants and animals, with the necessities of life, and identify ways in which a local habitat provides these necessities.	●
		B2.2 Describe a community as a group of interacting species sharing a common habitat, and identify factors that affect the ability of a community of plants and animals to survive in a local habitat.	●
		B2.3 Describe the relationship of organisms in a food chain, and classify organisms as producers, consumers, or decomposers.	●
		B2.4 Demonstrate an understanding of a food web as the interconnection of multiple food chains in a natural community.	●
		B2.5 Describe how animals are categorized according to their diet, and categorize various animals as carnivores, herbivores, or omnivores.	●
		B2.6 Describe structural adaptations of a variety of plants and animals and how these adaptations allow the organisms to survive in specific habitats.	●
		B2.7 Explain why all habitats have limits to the number of plants and animals they can support.	●

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	C. Matter and Energy	C1. Assess the impacts on society and the environment of technological innovations related to light and sound. C1.2 Assess the impacts on the environment of light energy and sound energy produced by various technologies, while taking different perspectives into account. C2. Demonstrate an understanding of light and sound as forms of energy that have specific characteristics and properties. C2.6 Describe how different objects and materials interact with light and sound energy.	- - - -
	D. Structures and Mechanisms	D1. Evaluate the impacts of various machines and their mechanisms on society and the environment. D1.2 Assess and compare the environmental impacts of using different machines designed for similar purposes. D2. Demonstrate an understanding of the basic principles and functions of machines and their mechanisms. D2.1 Identify machines that are used in daily life, and describe their purposes. D2.2 Identify the parts of various mechanisms and describe the purpose of each part. D2.3 Describe how different mechanisms transmit various types of motion, including rotary motion, from one system to another. D2.4 Describe how mechanisms transform motion, including how they can change the geometric plane in which the motion occurs and the speed and/or direction of motion. D2.5 Explain how forces are changed in a variety of machines.	● - ● - ● ● - -
	E. Earth & Space Systems	E1. Assess the social and environmental impacts of geological processes and of human uses of rocks and minerals. E1.1 Analyse ways in which geological processes impact society and the environment. E1.2 Assess social and environmental impacts of extracting and refining rocks and minerals and of manufacturing, recycling, and disposing of products derived from rocks and minerals, while taking various perspectives into account. E2. Demonstrate an understanding of rocks, minerals, and Earth's geological processes. E2.4 Describe everyday uses of rocks and minerals. E2.5 Describe how fossils are formed and what information they can provide about Earth's history.	● ● ● - - -

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2026-27 *FIRST* LEGO League Challenge Bioglow Team Meeting Guide

Session 10: Iterate Solutions	Strand	Specific Expectations	Addressed
Introduction ● Revisit the Core Values, with a focus on *Coopertition*, 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. STEM Skills and Connections	A1. Use a scientific research process, a scientific experimentation process, and an engineering design process to conduct investigations, following appropriate health and safety procedures. A1.1 Use a scientific research process and associated skills to conduct investigations. A1.2 Use a scientific experimentation process and associated skills to conduct investigations. A1.3 Use an engineering design process and associated skills to design, build, and test devices, models, structures, and/or systems. A1.5 Communicate their findings, using science and technology vocabulary and formats that are appropriate for specific audiences and purposes. A2. Use coding in investigations and to model concepts, and assess the impact of coding and of emerging technologies on everyday life and in STEM-related fields. A2.1 Write and execute code in investigations and when modelling concepts, with a focus on producing different types of output for a variety of purposes. A3. Demonstrate an understanding of the practical applications of science and technology, and of contributions to science and technology from people with diverse lived experiences. A3.1 Describe practical applications of science and technology concepts in various occupations, including skilled trades, and how these applications address real-world problems. A3.2 Investigate how science and technology can be used with other subject areas to address real-world problems. A3.3 Analyse contributions to science and technology from various communities.	● ● ● ● ● ● ● - - - -
	B. Life Systems	B1. Assess impacts of human activities on habitats and communities, and analyse actions for minimizing negative impacts and enhancing positive ones. B1.1 Assess positive and negative impacts of human activities on habitats and communities, while taking different perspectives into account. B1.2 Analyse the impact of the depletion or extinction of a species on its habitat and community, and describe possible actions to prevent such depletions or extinctions. B2. Demonstrate an understanding of habitats and communities and of interrelationships among the organisms that live in them. B2.1 Describe habitats as areas that provide organisms, including plants and animals, with the necessities of life, and identify ways in which a local habitat provides these necessities. B2.2 Describe a community as a group of interacting species sharing a common habitat, and identify factors that affect the ability of a community of plants and animals to survive in a local habitat. B2.3 Describe the relationship of organisms in a food chain, and classify organisms as producers, consumers, or decomposers. B2.4 Demonstrate an understanding of a food web as the interconnection of multiple food chains in a natural community. B2.5 Describe how animals are categorized according to their diet, and categorize various animals as carnivores, herbivores, or omnivores. B2.6 Describe structural adaptations of a variety of plants and animals and how these adaptations allow the organisms to survive in specific habitats. B2.7 Explain why all habitats have limits to the number of plants and animals they can support.	● ● ● ● ● ● ● ● ● ● ● ● ●

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	C. Matter and Energy	C1. Assess the impacts on society and the environment of technological innovations related to light and sound. C1.2 Assess the impacts on the environment of light energy and sound energy produced by various technologies, while taking different perspectives into account. C2. Demonstrate an understanding of light and sound as forms of energy that have specific characteristics and properties. C2.6 Describe how different objects and materials interact with light and sound energy.	- - - -
	D. Structures and Mechanisms	D1. Evaluate the impacts of various machines and their mechanisms on society and the environment. D1.2 Assess and compare the environmental impacts of using different machines designed for similar purposes. D2. Demonstrate an understanding of the basic principles and functions of machines and their mechanisms. D2.1 Identify machines that are used in daily life, and describe their purposes. D2.2 Identify the parts of various mechanisms and describe the purpose of each part. D2.3 Describe how different mechanisms transmit various types of motion, including rotary motion, from one system to another. D2.4 Describe how mechanisms transform motion, including how they can change the geometric plane in which the motion occurs and the speed and/or direction of motion. D2.5 Explain how forces are changed in a variety of machines.	● - ● - ● ● - -
	E. Earth & Space Systems	E1. Assess the social and environmental impacts of geological processes and of human uses of rocks and minerals. E1.1 Analyse ways in which geological processes impact society and the environment. E1.2 Assess social and environmental impacts of extracting and refining rocks and minerals and of manufacturing, recycling, and disposing of products derived from rocks and minerals, while taking various perspectives into account. E2. Demonstrate an understanding of rocks, minerals, and Earth's geological processes. E2.1 Explain geological processes that result in the formation of igneous, sedimentary, and metamorphic rocks, using the rock cycle. E2.2 Describe the physical properties of igneous, sedimentary, and metamorphic rocks. E2.4 Describe everyday uses of rocks and minerals. E2.5 Describe how fossils are formed and what information they can provide about Earth's history. E2.6 Demonstrate an understanding of First Nations, Métis, and Inuit geological knowledges that are used in the selection of different rocks and minerals for specific purposes.	● ● ● ● - - - ● -

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Grade 4 – Ontario Science Curriculum Alignment
2026-27 *FIRST* LEGO League Challenge Bioglow Team Meeting Guide

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 *FIRST* LEGO League has made a difference for you	A. STEM Skills and Connections	A1. Use a scientific research process, a scientific experimentation process, and an engineering design process to conduct investigations, following appropriate health and safety procedures. A1.1 Use a scientific research process and associated skills to conduct investigations. A1.2 Use a scientific experimentation process and associated skills to conduct investigations. A1.3 Use an engineering design process and associated skills to design, build, and test devices, models, structures, and/or systems. A1.5 Communicate their findings, using science and technology vocabulary and formats that are appropriate for specific audiences and purposes. A2. Use coding in investigations and to model concepts, and assess the impact of coding and of emerging technologies on everyday life and in STEM-related fields. A2.1 Write and execute code in investigations and when modelling concepts, with a focus on producing different types of output for a variety of purposes. A3. Demonstrate an understanding of the practical applications of science and technology, and of contributions to science and technology from people with diverse lived experiences. A3.1 Describe practical applications of science and technology concepts in various occupations, including skilled trades, and how these applications address real-world problems. A3.2 Investigate how science and technology can be used with other subject areas to address real-world problems. A3.3 Analyse contributions to science and technology from various communities.	● - ● ● ● ● ● - - - -

● 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

	B. Life Systems	B1. Assess impacts of human activities on habitats and communities, and analyse actions for minimizing negative impacts and enhancing positive ones. B1.1 Assess positive and negative impacts of human activities on habitats and communities, while taking different perspectives into account. B1.2 Analyse the impact of the depletion or extinction of a species on its habitat and community, and describe possible actions to prevent such depletions or extinctions. B2. Demonstrate an understanding of habitats and communities and of interrelationships among the organisms that live in them. B2.1 Describe habitats as areas that provide organisms, including plants and animals, with the necessities of life, and identify ways in which a local habitat provides these necessities. B2.2 Describe a community as a group of interacting species sharing a common habitat, and identify factors that affect the ability of a community of plants and animals to survive in a local habitat. B2.3 Describe the relationship of organisms in a food chain, and classify organisms as producers, consumers, or decomposers. B2.4 Demonstrate an understanding of a food web as the interconnection of multiple food chains in a natural community. B2.5 Describe how animals are categorized according to their diet, and categorize various animals as carnivores, herbivores, or omnivores. B2.6 Describe structural adaptations of a variety of plants and animals and how these adaptations allow the organisms to survive in specific habitats. B2.7 Explain why all habitats have limits to the number of plants and animals they can support.	● ● ● ● ● ● ● ● ● ● ● ●
	C. Matter and Energy	C1. Assess the impacts on society and the environment of technological innovations related to light and sound. C1.2 Assess the impacts on the environment of light energy and sound energy produced by various technologies, while taking different perspectives into account. C2. Demonstrate an understanding of light and sound as forms of energy that have specific characteristics and properties. C2.6 Describe how different objects and materials interact with light and sound energy.	- - - -
	D. Structures and Mechanisms	D1. Evaluate the impacts of various machines and their mechanisms on society and the environment. D1.2 Assess and compare the environmental impacts of using different machines designed for similar purposes. D2. Demonstrate an understanding of the basic principles and functions of machines and their mechanisms. D2.1 Identify machines that are used in daily life, and describe their purposes. D2.2 Identify the parts of various mechanisms and describe the purpose of each part. D2.3 Describe how different mechanisms transmit various types of motion, including rotary motion, from one system to another. D2.4 Describe how mechanisms transform motion, including how they can change the geometric plane in which the motion occurs and the speed and/or direction of motion. D2.5 Explain how forces are changed in a variety of machines.	● - ● - ● ● - -

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	E. Earth & Space Systems	E1. Assess the social and environmental impacts of geological processes and of human uses of rocks and minerals. E1.1 Analyse ways in which geological processes impact society and the environment. E1.2 Assess social and environmental impacts of extracting and refining rocks and minerals and of manufacturing, recycling, and disposing of products derived from rocks and minerals, while taking various perspectives into account. E2. Demonstrate an understanding of rocks, minerals, and Earth's geological processes. E2.4 Describe everyday uses of rocks and minerals. E2.5 Describe how fossils are formed and what information they can provide about Earth's history.	● ● ● - - -

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Grade 4 – Ontario Science Curriculum Alignment
2026-27 *FIRST* LEGO League Challenge Bioglow Team Meeting Guide

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. STEM Skills and Connections	A1. Use a scientific research process, a scientific experimentation process, and an engineering design process to conduct investigations, following appropriate health and safety procedures. A1.1 Use a scientific research process and associated skills to conduct investigations. A1.2 Use a scientific experimentation process and associated skills to conduct investigations. A1.3 Use an engineering design process and associated skills to design, build, and test devices, models, structures, and/or systems. A1.5 Communicate their findings, using science and technology vocabulary and formats that are appropriate for specific audiences and purposes. A2. Use coding in investigations and to model concepts, and assess the impact of coding and of emerging technologies on everyday life and in STEM-related fields. A2.1 Write and execute code in investigations and when modelling concepts, with a focus on producing different types of output for a variety of purposes. A3. Demonstrate an understanding of the practical applications of science and technology, and of contributions to science and technology from people with diverse lived experiences. A3.1 Describe practical applications of science and technology concepts in various occupations, including skilled trades, and how these applications address real-world problems. A3.2 Investigate how science and technology can be used with other subject areas to address real-world problems. A3.3 Analyse contributions to science and technology from various communities.	● - - ● ● ● - - - -
	B. Life Systems	B1. Assess impacts of human activities on habitats and communities, and analyse actions for minimizing negative impacts and enhancing positive ones. B1.1 Assess positive and negative impacts of human activities on habitats and communities, while taking different perspectives into account. B1.2 Analyse the impact of the depletion or extinction of a species on its habitat and community, and describe possible actions to prevent such depletions or extinctions. B2. Demonstrate an understanding of habitats and communities and of interrelationships among the organisms that live in them. B2.1 Describe habitats as areas that provide organisms, including plants and animals, with the necessities of life, and identify ways in which a local habitat provides these necessities. B2.2 Describe a community as a group of interacting species sharing a common habitat, and identify factors that affect the ability of a community of plants and animals to survive in a local habitat. B2.3 Describe the relationship of organisms in a food chain, and classify organisms as producers, consumers, or decomposers. B2.4 Demonstrate an understanding of a food web as the interconnection of multiple food chains in a natural community. B2.5 Describe how animals are categorized according to their diet, and categorize various animals as carnivores, herbivores, or omnivores. B2.6 Describe structural adaptations of a variety of plants and animals and how these adaptations allow the organisms to survive in specific habitats. B2.7 Explain why all habitats have limits to the number of plants and animals they can support.	● ● ● ● ● ● ● ● ● ● ●

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	C. Matter and Energy	C1. Assess the impacts on society and the environment of technological innovations related to light and sound. C1.2 Assess the impacts on the environment of light energy and sound energy produced by various technologies, while taking different perspectives into account. C2. Demonstrate an understanding of light and sound as forms of energy that have specific characteristics and properties. C2.6 Describe how different objects and materials interact with light and sound energy.	- - - -
	D. Structures and Mechanisms	D1. Evaluate the impacts of various machines and their mechanisms on society and the environment. D1.2 Assess and compare the environmental impacts of using different machines designed for similar purposes. D2. Demonstrate an understanding of the basic principles and functions of machines and their mechanisms. D2.1 Identify machines that are used in daily life, and describe their purposes. D2.2 Identify the parts of various mechanisms and describe the purpose of each part. D2.3 Describe how different mechanisms transmit various types of motion, including rotary motion, from one system to another. D2.4 Describe how mechanisms transform motion, including how they can change the geometric plane in which the motion occurs and the speed and/or direction of motion. D2.5 Explain how forces are changed in a variety of machines.	● - ● - ● ● - -
	E. Earth & Space Systems	E1. Assess the social and environmental impacts of geological processes and of human uses of rocks and minerals. E1.1 Analyse ways in which geological processes impact society and the environment. E1.2 Assess social and environmental impacts of extracting and refining rocks and minerals and of manufacturing, recycling, and disposing of products derived from rocks and minerals, while taking various perspectives into account. E2. Demonstrate an understanding of rocks, minerals, and Earth's geological processes. E2.4 Describe everyday uses of rocks and minerals. E2.5 Describe how fossils are formed and what information they can provide about Earth's history.	● ● ● - - -

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