Grade 4 - Science Curriculum Alignment
2020-21 *FIRST* LEGO League Explore Team Meeting Guide

Team Meeting Guide Outcomes	Strand	Specific Expectations	Addressed
Session 1: **Introduction - Let's Discover** ● Students discuss the Core Value of **discovery**, provide examples and draw a picture that represents their example. **Whole Team:** ● Students list their favourite activities in which they move and play and draw a picture of themselves doing that activity ● Students draw and build a LEGO model to represent their favourite activity on their individual base plate **Share** ● Students share their models before disassembling them and storing the "Prototyping Pieces" for later use ● Students reflect on where they play or participate in their favourite activity and how it	Understanding Life Systems		
	Understanding Structures and Mechanisms	2.5 use a variety of forms (e.g., oral, written, graphic, multimedia) to communicate with different audiences and for a variety of purposes	●
	Understanding Matter and Energy		

● 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

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helps to elevate their heart rate	Understanding Earth and Space Systems		

Team Meeting Guide Outcomes	Strand	Specific Expectations	Addressed
Session 2: **Introduction - Coach Says!** ● Students learn about coding concepts by performing the actions shown on Coding Block squares held up by their coach **May's Group** ● Students build the heart rate game and a solution for game for May and Marco that will raise their heart rate **Marco's Group** ● Students build and program a cooling fan	Understanding Life Systems		
	Understanding Structures and Mechanisms	2.2 use scientific inquiry/experimentation skills to investigate changes in force, distance, speed, and direction in pulley and gear systems 3.1 describe the purposes of pulley systems and gear systems 3.2 describe how rotary motion in one system or its components (e.g., a system of pulleys of different sizes) is transferred to another system or component (e.g., a system of various gears) in the same structure	● - -

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Share ● Groups demonstrate how the heart rate game works and explain their designs and solutions for the challenge presented by Marco ● Groups show the coding skills they learned and how they changed the code and modified their design	Understanding Matter and Energy		
	Understanding Earth and Space Systems		

Team Meeting Guide Outcomes	Strand	Specific Expectations	Addressed
Session 3: **Introduction - Walk and See** ● Students take a community walk to identify the different places where they can play and be active	Understanding Life Systems		

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May's Group ● Students build a treadmill and a solution for different play stations for May and Marco **Marco's Group** ● Students build and program a moving satellite **Share** ● Groups demonstrate how the treadmill works and explain their designs and solutions for the challenge presented by Marco ● Groups show the coding skills they learned and how they changed the code and modified their design	Understanding Structures and Mechanisms	2.3 use technological problem-solving skills to design, build, and test a pulley or gear system that performs a specific task 3.6 identify pulley systems (e.g., clotheslines, flagpoles, cranes, elevators, farm machinery) and gear systems (e.g., bicycles, hand drills, can openers) that are used in daily life	● ●
	Understanding Matter and Energy		
	Understanding Earth and Space Systems		

Team Meeting Guide Outcomes	Strand	Specific Expectations	Addressed

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Session 4: **Introduction - Act It Out** ● Students act out a variety of activities of sports and then measure the change in their heart rate **May's Group** ● Students will combine the heart game and the treadmill and build a solution for a path for May and Marco **Marco's Group** ● Students build and program the spy robot **Share** ● Groups demonstrate how the combined build works and explain their designs and solutions for the challenge presented by Marco ● Groups show the coding skills they learned and how they	Understanding Life Systems		
	Understanding Structures and Mechanisms	3.6 identify pulley systems (e.g., clotheslines, flagpoles, cranes, elevators, farm machinery) and gear systems (e.g., bicycles, hand drills, can openers) that are used in daily life	●
	Understanding Matter and Energy		

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changed the code and modified their design	Understanding Earth and Space Systems		

Team Meeting Guide Outcomes	Strand	Specific Expectations	Addressed
Session 5: **Introduction - Human Robot** ● Pairs of students create pseudocode to guide their coach to move from a starting point to an end point in the	Understanding Life Systems		

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meeting space **May's Group** ● Students build and program a cooling fan **Marco's Group** ● Students build the heart rate game and a solution for game for May and Marco that will raise their heart rate **Share** ● Groups demonstrate how the heart rate game works and explain their designs and solutions for the challenge presented by Marco ● Groups show the coding skills they learned and how they changed the code and modified their design	Understanding Structures and Mechanisms	2.2 use scientific inquiry/experimentation skills to investigate changes in force, distance, speed, and direction in pulley and gear systems 3.1 describe the purposes of pulley systems and gear systems 3.2 describe how rotary motion in one system or its components (e.g., a system of pulleys of different sizes) is transferred to another system or component (e.g., a system of various gears) in the same structure	● - -
	Understanding Matter and Energy		
	Understanding Earth and Space Systems		

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Session 6: **Introduction - Let's Dance** ● Students choreograph a dance to the FLL "Teamwork Makes the Dream Work" video **May's Group** ● Students build and program a moving satellite **Marco's Group** ● Students build a treadmill and a solution for different play stations for May and Marco **Share** ● Groups demonstrate how the treadmill works and explain their designs and solutions for the challenge presented by Marco ● Groups show the coding skills they learned and how they changed the code and	Understanding Life Systems		
	Understanding Structures and Mechanisms	2.3 use technological problem-solving skills to design, build, and test a pulley or gear system that performs a specific task 3.6 identify pulley systems (e.g., clotheslines, flagpoles, cranes, elevators, farm machinery) and gear systems (e.g., bicycles, hand drills, can openers) that are used in daily life	● ●
	Understanding Matter and Energy		

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modified their design	Understanding Earth and Space Systems		

Team Meeting Guide Outcomes	Strand	Specific Expectations	Addressed
Session 7: **Introduction - Kid Robot** ● Pairs of students guide one another through a maze or obstacle course by giving or following instructions **May's Group** ● Students build and program the spy robot **Marco's Group** ● Students will combine the heart game and the treadmill and build a solution for a path for May and Marco **Share**	Understanding Life Systems		
	Understanding Structures and Mechanisms	3.2 describe how rotary motion in one system or its components (e.g., a system of pulleys of different sizes) is transferred to another system or component (e.g., a system of various gears) in the same structure 3.3 describe how one type of motion can be transformed into another type of motion using pulleys or gears	- -

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● Groups demonstrate how the combined build works and explain their designs and solutions for the challenge presented by Marco ● Groups show the coding skills they learned and how they changed the code and modified their design	Understanding Matter and Energy		
	Understanding Earth and Space Systems		

Team Meeting Guide Outcomes	Strand	Specific Expectations	Addressed
Session 8: **Introduction - Have an Impact** ● Students discuss the Core Value of **impact**, provide examples and draw a picture that represents their example.	Understanding Life Systems		

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Whole Team ● Finalize the combined build and program it to make the flag rise **Share** ● The team explains the code created for each challenge, demonstrates the code on the combined build and shares progress on team model	Understanding Structures and Mechanisms	2.3 use technological problem-solving skills to design, build, and test a pulley or gear system that performs a specific task. Sample problems: Design, build, and test a mechanism that will raise and lower a flag. 3.6 identify pulley systems (e.g., clotheslines, flagpoles, cranes, elevators, farm machinery) and gear systems (e.g., bicycles, hand drills, can openers) that are used in daily life, and explain the purpose and basic operation of each	● ●
	Understanding Matter and Energy		
	Understanding Earth and Space Systems		

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Session 9: **Introduction - Let's Innovate** ● Students discuss the Core Value of **innovation**, provide examples and draw a picture that represents their example **Whole Team** ● Design, draw, label and start to build an obstacle course for May and Marco to play in and that raises their heart rate **Share** ● Review the list of required parts and identify them on the team model	Understanding Life Systems		
	Understanding Structures and Mechanisms	2.3 use technological problem-solving skills to design, build, and test a pulley or gear system that performs a specific task	●
	Understanding Matter and Energy		

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	Understanding Earth and Space Systems		

Team Meeting Guide Outcomes	Strand	Specific Expectations	Addressed
Session 10: **Introduction - Be Inclusive** ● Students discuss the Core Value of **inclusion**, provide examples and draw a picture that represents their example	Understanding Life Systems		

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Whole Team ● Plan what to include on your poster, including words, drawings and photos **Share** ● Discuss how the team poster will represent the team's journey throughout the sessions	Understanding Structures and Mechanisms	2.4 use appropriate science and technology vocabulary, including pulley, gear, force, and speed, in oral and written communication 2.5 use a variety of forms (e.g., oral, written, graphic, multimedia) to communicate with different audiences and for a variety of purposes	● ●
	Understanding Matter and Energy		
	Understanding Earth and Space Systems		

Team Meeting Guide Outcomes	Strand	Specific Expectations	Addressed

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Session 11: **Introduction - Go Team** ● Students discuss the Core Value of **teamwork**, provide examples and draw a picture that represents their example **Whole Team** ● Create the team poster based on the draft from the previous session **Share** ● Discuss how the poster shows what the team learned during the sessions	Understanding Life Systems		
	Understanding Structures and Mechanisms	2.4 use appropriate science and technology vocabulary, including pulley, gear, force, and speed, in oral and written communication 2.5 use a variety of forms (e.g., oral, written, graphic, multimedia) to communicate with different audiences and for a variety of purposes	●
	Understanding Matter and Energy		

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	Understanding Earth and Space Systems		

Team Meeting Guide Outcomes	Strand	Specific Expectations	Addressed
Session 12: **Introduction - Let's Have Fun** ● Students discuss the Core Value of **fun**, provide examples and draw a picture that represents their example **Team** ● Team members answer practice questions to help them reflect on their learning	Understanding Life Systems		
	Understanding Structures and Mechanisms	2.4 use appropriate science and technology vocabulary, including pulley, gear, force, and speed, in oral and written communication 2.5 use a variety of forms (e.g., oral, written, graphic, multimedia) to communicate with different audiences and for a variety of purposes	● ●

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and to prepare for what to share at their final event **Share** ● Teams explain the code they created for their motorized part and how the team model relates to the challenge.	Understanding Matter and Energy		
	Understanding Earth and Space Systems		

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