Our Lady of the Lake Roman Catholic School
Yearly Course Outline
Science
Third Grade
2024–2025

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Course Description

Students will complete modules in the areas of engineering, computer programming, environmental science, life science, and biomedical research. Students will learn about the forces involved in flight as well as Newton's Laws of Motion. They will explore, design, sketch, and build both simple and compound machines that demonstrate the use of forces. Students will identify factors that cause environmental changes, explore three factors that affect weather, contrast weather and climate, explore different types of weather hazards, and compare and contrast different animal life cycles. They will also test the forces of magnets, code a computer game, investigate fossils, and investigate learned/inherited genetic traits as well as dominant/recessive genes.

Instructional Materials

Project Lead the Way (PLTW) Launch Curriculum, Grade 3

Methods of Assessment and Distribution

All grades are weighted equally and posted regularly. Please check PowerSchool for postings (www.ollpowerschool.org).

Grading Scale

A: 100-94
B: 93-86
C: 85-78
D: 77-70

U: 69 and below

Tentative Course Calendar

***** Dates and course content are subject to change at discretion of teacher or administration. *****

Week	Standards	Objectives (The learner will . . .)	Instructional Materials	Assessments
1st Quarter				
Week 1 ***Aug. 12-16***		Social Studies		
Week 2 ***Aug. 19-23***		Social Studies		
Week 3 ***Aug. 26-30***		Social Studies		
Week 4 ***Sept.02-06*** 9/2 No School		Social Studies		
Week 5 ***Sept. 9-13***	3-PS2-1 3-PS2-2 PS2.A PS2.B 3-5-ETS1-1 3-5-ETS1-2 3-5-ETS1-3 ETS1.A ETS1.B	- Explain what happens at each step of the design process - State questions that engineers may ask when gathering information about a situation people want to change - Describe the motion and stability of an object with balanced/unbalanced forces	- PLTW Launch Materials, Grade 3 for Stability and Motion, Science of Flight	Activity 1: completion and launch logs (test)
Week 6 ***Sept. 16-20***	3-PS2-1 3-PS2-2 PS2.A PS2.B 3-5-ETS1-1 3-5-ETS1-2 3-5-ETS1-3 ETS1.A ETS1.B	- Identify forces working on an airplane in flight	- PLTW Launch Materials, Grade 3 for Stability and Motion, Science of Flight	Activity 2: completion and launch logs (test)
Week 7 ***Sept. 23-27***	3-PS2-1 3-PS2-2 PS2.A PS2.B 3-5-ETS1-1 3-5-ETS1-2 3-5-ETS1-3	- Identify the differences between invention and innovation - Describe how the major parts (fuselage, wings, and horizontal stabilizers) of a glider affect the overall	- PLTW Launch Materials, Grade 3 for Stability and Motion,	

	ETS1.A ETS1.B	balance of an airplane during flight - Describe how Newton's Laws apply to flight - Explain how the center of gravity affects an aerospace vehicle in distributing weight - Plan and conduct an investigation to provide evidence of the effects of balanced/unbalanced forces on the motion of an object - Analyze the features and benefits of different wing types - Make observations and measurements of an object's motion to provide evidence that a pattern can be used to predict future motion - Demonstrate how glider parts interact and affect flight	Science of Flight	
Week 8 *Sept. 20-Oct.04*	3-PS2-1 3-PS2-2 PS2.A PS2.B 3-5-ETS1-1 3-5-ETS1-2 3-5-ETS1-3 ETS1.A ETS1.B	- Follow a step by step approach to solving a problem - Identify specific constraints that engineers and designers must consider given a specific design problem - Brainstorm and evaluate existing solutions to a design problem - Generate multiple solutions to a design problem while considering criterion and constraints - Use the design matrix to compare multiple possible solutions to a design problem and select one to develop - Plan and perform fair tests in which variables are controlled to identify a	- PLTW Launch Materials, Grade 3 for Stability and Motion, Science of Flight	Project and Problem: completion of building/testing gliders; complete the Disaster Relief Effort problem using their gliders (test)

		product's strengths and limitations - Organize and maintain an engineering notebook to document work - Share findings and conclusions with an audience		
Week 9 ***Oct. 07-11***	3-PS2-1 3-PS2-2 3-PS2-3 3-PS2-4 PS2.A PS2.B 3-5-ETS1-1 3-5-ETS1-2 3-5-ETS1-3 ETS1.A ETS1.B	-Pose questions that can be answered by using student's own observations, scientific knowledge, and testable scientific investigations -Express data in a variety of ways by constructing illustrations, graphs, charts, tables, concept maps, and oral and written explanations as appropriate -Demonstrate how force is a push or a pull -Explain how the amount and direction of force exerted on an object determine how much the object will move -Observe and analyze motion and position of objects over time -Explain the effects of varying amounts of force on the motion of an object -Give examples of how energy can be used to move or lift objects	- PLTW Launch Materials, Grade 3 for Stability and Motion, Forces and Interactions	Activity 1: completion and launch logs (test)
2nd Quarter				
Week 10 ***Oct. 14-18***	3-PS2-1 3-PS2-2 3-PS2-3 3-PS2-4 PS2.A PS2.B 3-5-ETS1-1 3-5-ETS1-2 3-5-ETS1-3 ETS1.A ETS1.B	-Explain the effects of varying amounts of force on the motion of an object -Give examples of how energy can be used to move or lift objects -Identify simple machines and the tasks they make possible - Plan and conduct an investigation to provide	- PLTW Launch Materials, Grade 3 for Stability and Motion, Forces and Interactions	Activity 2: completion of either an inclined plane, lever, or pulley and launch log questions pertaining to the simple machine (test)

		evidence of the effects of balanced and unbalanced forces on the motion of an object - Provide evidence that an object's motion can be used to predict future motion		
Week 11 ***Oct.21-25***	3-PS2-1 3-PS2-2 3-PS2-3 3-PS2-4 PS2.A PS2.B 3-5-ETS1-1 3-5-ETS1-2 3-5-ETS1-3 ETS1.A ETS1.B	- Ask questions to determine cause and effect relationships of electric or magnetic interactions between two objects not in contact with each other -Define a simple design problem that can be solved by applying scientific ideas about magnets	- PLTW Launch Materials, Grade 3 for Stability and Motion, Forces and Interactions	Project: completion of magnet project and launch log questions (test)
Week 12 ***Oct. 8-Nov.01***	3-PS2-1 3-PS2-2 3-PS2-3 3-PS2-4 PS2.A PS2.B 3-5-ETS1-1 3-5-ETS1-2 3-5-ETS1-3 ETS1.A ETS1.B	-Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost. - Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem - Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved	- PLTW Launch Materials, Grade 3 for Stability and Motion, Forces and Interactions	Problem: Complete the Animal Rescue problem and answer the questions in the launch log (test)
Week 13 ***Nov. 04-8***	3-LS1-1 3-LS2-1 3-5-ETSI-1 3-5-ETSI-2 LS1.B LS2.D ETS1.A ETS1.B ETS1.C	-Compare and contrast different animal life cycles -Evaluate the effect of honeybees on other organisms' life cycles -Analyze the importance of bees and other pollinators to the flowering plant life cycle	- PLTW Launch Materials, Grade 3 for Life Cycles and Survival	Activity 1 and 2: completion and launch logs (test)

		-Identify the needs of living things and the specific needs of honeybees -Explain the roles of honeybees		
Week 14 ***Nov. 11-15***	3-LS1-1 3-LS2-1 3-5-ETSI-1 3-5-ETSI-2 LS1.B LS2.D ETS1.A ETS1.B ETS1.C	-Compare and contrast different animal life cycles -Evaluate the effect of honeybees on other organisms' life cycles -Analyze the importance of bees and other pollinators to the flowering plant life cycle -Identify the needs of living things and the specific needs of honeybees -Explain the roles of honeybees -Identify that some animals live in isolation and others live in groups -Evaluate the effects of living in isolation versus living in a group	- PLTW Launch Materials, Grade 3 for Life Cycles and Survival	Activity 3 and Project: Solitary and Group Living chart, Animal Simulation, Project Part 1. Mystery Pollen Simulation, and Project Part 3. Read and Reflect (test)
Week 15 Nov.18-22		Social Studies		
Thanksgiving Holidays ***Nov. 25-29***				
Week 16 ***Dec. 02-06***		Social Studies		
Week 17 ***Dec. 9-13***		Social Studies		
Week 18 ***Dec. 16-20***		Social Studies		
Christmas Holidays ***Dec. 23-03***				
3rd Quarter				

Week 19 ***Jan. 06-10***	3-LS3-1 3-LS3-2 3-LS4-2 3-5-ETS1-1 3-5-ETS1-2 LS3.A LS3.B LS4.B ETS1.A ETS1.B	- Characterize inherited traits vs. learned behaviors - Gather and analyze data on traits - Perform an investigation in order to draw conclusions - Organize and maintain a notebook to document work - Organize and analyze data in the form of charts and graphs - Share findings and conclusions with an audience	- PLTW Launch Materials, Grade 3 for Variation of Traits	Activity 1: completion and launch log (test)
Week 20 ***Jan. 13-17***	3-LS3-1 3-LS3-2 3-LS4-2 3-5-ETS1-1 3-5-ETS1-2 LS3.A LS3.B LS4.B ETS1.A ETS1.B	-Analyze how traits are passed down from parents to offspring -Identify inherited traits in organisms -Explain how traits may be influenced by the environment -Explain why some traits may provide advantages to species -Recognize that there is a variation among the same species	- PLTW Launch Materials, Grade 3 for Variation of Traits	Activity 2: completion of Parts 1-3 and launch log (test)
Week 21 ***Jan. 20-24*** 1/20 No School	3-LS3-1 3-LS3-2 3-LS4-2 3-5-ETS1-1 3-5-ETS1-2 LS3.A LS3.B LS4.B ETS1.A ETS1.B	-Analyze how traits are passed down from parents to offspring - Recognize that offspring have two copies of each of their genes -Gather and analyze data on traits through Punnett squares -Identify the genotype and phenotype of different traits -Recognize that there is a variation among the same species	- PLTW Launch Materials, Grade 3 for Variation of Traits	Activity 3: completion of Parts 1-3 and launch log (test)
Week 22 ***Jan. 27-31***	3-LS3-1 3-LS3-2 3-LS4-2 3-5-ETS1-1	- Recognize that individuals have two copies of each gene, one from the mother and one from the father	- PLTW Launch Materials, Grade 3 for	Project: Completion of the Simple Plant

Catholic Schools Week, 1/31 Pep Rally	3-5-ETS1-2 LS3.A LS3.B LS4.B ETS1.A ETS1.B	- Describe how a person's genes determine some aspects of their physical characteristics and abilities - Predict phenotype of offspring based on genotype of the parents - Given a specific genotype, determine the associated phenotype - Organize and maintain a notebook to document work - Organize and analyze data in the form of charts and graphs - Share findings and conclusions with an audience	Variation of Traits	Inheritance project and launch log questions (test)
Week 23 ***Feb. 03-07***	3-LS4-1 3-LS4-3 3-LS4-4 3-5-ETS1-1 3-5-ETS1-2 LS2.C LS4.A LS4.C LS4.D ESS2.D ETS1.A ETS1.B	- Analyze data to look for patterns or to test whether data are consistent with an initial prediction -Develop a basic understanding of habitats and organisms from long ago - Identify the habitat of a fossilized organism -Generate ideas as a team - Demonstrate collaboration through effective communication	- PLTW Launch Materials, Grade 3 for Environmental Changes	Activity 2 Long Ago: completion and launch log (test)
Week 24 ***Feb.10-14***		Social Studies		
Week 25 Feb. 17-21		Social Studies		
Week 26 Feb. 24-28		Social Studies		
Mardi Gras Holidays Mar. 3-7				

Week 27 *March 10-14*		Social Studies		
4th Quarter				
Week 28 *March 17-21*		Social Studies		
Week 29 *March 24-28*		Social Studies		
Week 30 *March 31-April 4*		Social Studies		
Week 31 *April 7-11*		Social Studies		
Week 32 *April 14-17*	3-LS4-1 3-LS4-3 3-LS4-4 3-5-ETS1-1 3-5-ETS1-2 LS2.C LS4.A LS4.C LS4.D ESS2.D ETS1.A ETS1.B	-Explore eight major habitats found on Earth -Compare and contrast the major habitats -Identify the basic needs of organisms -Explain how the basic needs are met within a specific habitat	- PLTW Launch Materials, Grade 3 for Environmental Changes	Activity 1: Habitat Presentation (test)
Easter Holidays *April 18-25*				
Week 33 *April 28-02*	3-LS4-1 3-LS4-3 3-LS4-4 3-5-ETS1-1 3-5-ETS1-2 LS2.C LS4.A LS4.C LS4.D ESS2.D	-Identify examples of environmental changes -Explain how the environmental change impacts an organism's habitat -Evaluate the effect of invasive species on a specific habitat	- PLTW Launch Materials, Grade 3 for Environmental Changes	Activity 3 and Project House Sparrow Game: Completion and launch log (test)

	ETS1.A ETS1.B			
Week 34 ***May 05-9***	3-ESS2-1 3-ESS2-2 3-ESS3-1 3-5-ETS1-1 3-5-ETS1-2 3-5-ETS1-3 ESS2.D ESS3.B ETS1.A ETS1.B ETS1.C	-Analyze the effects of weather -Understand how weather data is collected and interpreted -Identify the three aspects of weather: precipitation, wind, and temperature -Use weather tools to collect data -Measure and estimate liquid volumes and masses of objects using standard units of grams, kilograms, and liters -Compare and contrast weather and climate -Chart daily weather data -Describe the five climate zones -Identify trends in climate data	- PLTW Launch Materials, Grade 3 for Weather: Factors and Hazards	Activity 1 and 2: completion and Weekly Weather Chart (test)
Week 35 ***May 12-16***	3-ESS2-1 3-ESS2-2 3-ESS3-1 3-5-ETS1-1 3-5-ETS1-2 3-5-ETS1-3 ESS2.D ESS3.B ETS1.A ETS1.B ETS1.C	-Analyze data to look for patterns or to test whether data are consistent with an initial prediction -Describe weather-related hazards -Explain the effects of weather-related hazards to humans, structures, and/or land -Use weather tools to collect data -Chart daily weather data -Identify trends in weather data	- PLTW Launch Materials, Grade 3 for Weather: Factors and Hazards	Activity 3 Weather Hazards: completion and launch log (test)
Week 36 ***May 19-23***	3-5-ETS1-1 3-5-ETS1-2 3-5-ETS1-3 ETS1.A ETS1.B	- Identify parts of a computational solution that can be abstracted and modularized so that they can be reused multiple times with different data - Identify ways that teamwork and collaboration can support	- PLTW Launch Materials, Grade 3 for Programming Patterns -Scratch website	Activity 2: Rosie's Path completion and Activity 3: Let's Dance program in Scratch (test) If there's time, have students

		problem solving and innovation - Decompose a problem and using a predefined set of commands, write an algorithm that will solve the problem - Use functions to modularized repetitive tasks, break a program down into smaller pieces, and to make the program more efficient - Use variables appropriately as part of a computational solution to store and manipulate values that may change a program as it runs - Use a conditional statement in a program as a true/false test to make the program follow a specified sequence of steps depending on the state of the condition - Demonstrate persistence in the cycle of testing, finding, and fixing problems in computer programs - Create computer programs using step-by-step instructions that a computer can understand - Implement a loop when appropriate to make a program repeat a section of code until an ending condition is reached		begin Project: Digital Animations creation in Scratch (test)