FIRST LEGO LEAGUE EXPLORE

FIRST® LEGO® League Explore – Learning Progression

The *FIRST*® LEGO® League Explore learning progression below outlines the differences in student learning outcomes for the program by grade level. It articulates the sequencing of learning that is expected with participation in that grade level. It could also occur as a result of multiple years of participation in *FIRST* programming. Written as a checklist that reflects clearly articulated learning expectations from the perspective of the student to articulate learning while preparing students for more challenging and sophisticated concepts at the next level. The basic idea is to make sure that students are learning age-appropriate material, knowledge, and skills that are neither too advanced nor too rudimentary. This progression could be repurposed as a student-facing document to be used as a reflection of learning upon completion of the *FIRST* LEGO League Explore experience.

I have EXPLORED – checklist for *FIRST*® LEGO® League Explore

	Grade 2 YEAR 1	Grade 3 YEAR 2	Grade 4 YEAR 3
Science	☐ By building my Explore model, I have made observations to construct an object using a small set of pieces and can dismantle them into a new object.	☐ When making my Explore model move, I make observations and measurement of the object's motion to predict future motion. I ask questions and solve a problem applying scientific ideas.	☐ Using my Explore model, I construct evidence to explain the speed of an object, make observations about the transformation of energy, and apply scientific ideas to design, test, and refine a device that converts energy from one form to another.
Math	☐ Using the LEGO® bricks in the Explore set, I can tell the difference in the lengths of two different objects to choose the best brick for my design.	☐ I identify patterns using LEGO bricks in the Explore set, add or subtract amounts, draw scaled pictures, and understand that shares of different categories share attributes.	☐ Using a motor to turn an object, I understand that an angle turn is measured in degrees, how to classify two dimensional figures, and to recognize a line of symmetry.
Reading	☐ I can read longer words with long vowel sounds related to STEM (science, technology, engineering, and math) activities and use information from illustrations in the Engineering Notebook to comprehend meaning.	☐ I determine the main idea of a STEM-based text, recount key details, and describe the relationship between a series of steps in the Engineering Notebook.	☐ I use context to self-correct STEM word recognition and refer to details and examples in the Engineering Notebook when explaining the meaning of the text.
Engineering Design	☐ When designing my Explore model, I drew a simple sketch and built a physical model to illustrate how the object functions and solves the problem.	☐ I provide evidence to support explanations of design solutions, predict outcomes following sketching a plan for building, and design my Explore model to meet identified criteria and constraints given.	☐ I incorporate specific criteria for success and reflect on the materials, time, or cost, and I plan and carry out tests to identify aspects of the Explore model that can be improved.
Coding	☐ I construct step-by-step instructions both independently and collaboratively to make my device accomplish tasks using a block-based programming language and when the actions do not occur as expected, I analyze and correct the steps.	☐ I decompose a larger problem into smaller problems independently and collaboratively. I plan as part of the iterative design process. Using a variety of strategies, I construct programs that use loops, patterns, or events.	☐ I create block-based programming algorithms using variables, perform number calculations on variables, construct programs to accomplish a task both independently and collaboratively, and classify or arrange groups of items based on the attributes or actions.

Contact firsteducation@firstinspires.org for additional information.