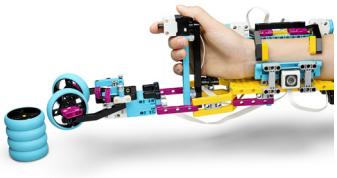
LEGO® Education SPIKE™ Prime Curriculum Alignment

Accelerate STEAM learning for your whole class with LEGO® Education SPIKE™ Prime

From easy-entry lessons to the limitless creative designs, SPIKE Prime engages students—regardless of their learning level—in thinking critically, analyzing data, and solving complex problems with real-world relevance.

See how SPIKE Prime fits into your curriculum through standards-aligned, real-life units such as **Invention Squad**, **Kickstart a Business**, **Life Hacks** and **Competition Ready**. Each of these units links directly to curriculum standards and is designed to improve student engagement and outcomes. Learn more about these four units, the learning promises and outcomes they deliver on, and specific curriculum alignment below.

Invention Squad Unit



Learning promise

Students will apply their engineering design skills for each step of the design process by defining a problem and success criteria, making different prototypes, establishing systematic testing procedures, analyzing data to improve their solutions, and describing why a solution is the best.

Learning outcomes

In this unit, students will

- Define problems within a situation
- Develop their ability to prototype, iterate, and improve designs
- Test and analyze their ideas to see how well they meet the problem-solving criteria
- Develop their communication skills
- Use and understand the design process

Curriculum Links

NGSS

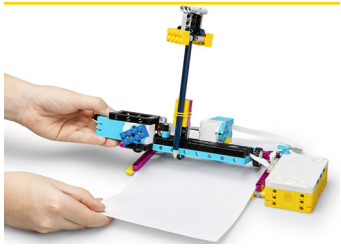
MS-ETS1-1 Engineering Design
Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions

MS-ETS1-2 Engineering Design
Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem

MS-ETS1-3 Engineering Design
Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success

MS-ETS1-4 Engineering Design
Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process so that an optimal design can be achieved

Kickstart a Business Unit



Learning promise

Students will develop efficient problem-solving skills by breaking down problems into subproblems, using pseudocode as a tool to sequence actions, recognizing patterns using existing code with attribution, systematically identifying bugs and fixing them and using conditions and compound conditions to program encoded devices.

Learning outcomes

In this unit, students will

- Decompose problems into smaller parts, and identify the actions and structure of an algorithm
- Identify issues in an algorithm, and provide the correct documentation to make it work and make it easier to follow, test, and debug
- Repurpose existing code to create original programs, and give attribution
- Use algorithmic thinking to develop programs that combine control structures, including nested loops and compound conditionals
- Systematically test and refine programs using a range of test cases

Curriculum Links

CSTA

2-AP-10 6-8
Use flowcharts and/or pseudocode to address complex problems as algorithms

2-AP-16 6-8
Incorporate existing code, media, and libraries into original programs, and give attribution

2-AP-13 6-8
Decompose problems and subproblems into parts to facilitate the design, implementation, and review of programs

2-AP-12 6-8
Design and iteratively develop programs that combine control structures, including nested loops and compound conditionals

2-CS-03 6-8
Systematically identify and fix problems with computing devices and their components

2-NI-05 6-8
Explain how physical and digital security measures protect electronic information

Life Hacks Unit

Learning promise

Students will create clearly named variables and lists that represent different data types and perform basic math operations on their values, use cloud data to make it useful and reliable, improve a program to refine a solution, and design projects that combine hardware and software components to collect and exchange data.

Learning outcomes

In this unit, students will use algorithmic thinking to

- Create and use time variables
- Make basic math operations (e.g., additions, reset) on variables
- Make operations on arrays
- Collect and exchange data from the cloud
- Represent data using multiple calibration processes
- Design projects that combine hardware and software components to collect and exchange data

Curriculum Links

CSTA

2-DA-09 6-8
Refine computational models based on the data they have generated

2-AP-11 6-8
Create clearly named variables that represent different data types and perform operations on their values

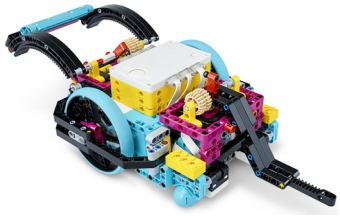
2-DA-08 6-8
Collect data using computational tools and transform the data to make it more useful and reliable

3A-AP-14 6-8
Use lists to simplify solutions, generalizing computational problems instead of repeatedly using simple variables

2-IC-20 6-8
Compare trade-offs associated with computing technologies that affect people's everyday activities and career options

2-CS-02 6-8
Design projects that combine hardware and software components to collect and exchange data

Competition Ready Unit



Learning promise

In this unit, your students will be introduced to the world of robotics competitions as they gradually learn the basics of building and programming autonomous robots using sensors. Working together to build an effective competition robot, they'll systematically test and refine programs, using the design process to develop a solution in order to complete missions, all the while developing skills related to collaboration and teamwork, and life skills for their future careers.

Learning outcomes

In this unit, students will

- Learn the basics of creating and programming autonomous robots using sensors
- Develop skills related to collaboration and teamwork as they build a competition robot
- Systematically test and refine programs
- Use problem-solving skills to complete missions
- Develop life skills for future careers

Curriculum Links

NGSS

MS-ETS1-1 Engineering Design
Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions

MS-ETS1-2 Engineering Design
Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem

MS-ETS1-3 Engineering Design
Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success

MS-ETS1-4 Engineering Design
Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process so that an optimal design can be achieved

For more information visit LEGOeducation.com