# 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, analysing 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 achievement 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
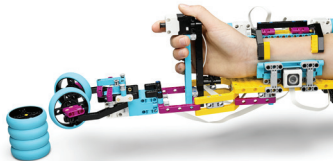
Learning promise

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, analysing 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 analysing their ideas to see how well they meet the problem-solving criteria
- Develop their communication skills
- Use and understand the design process

Curriculum Links

Australian Curriculum: Technologies

Investigating and defining
ACTDEP024

Critique needs or opportunities for designing, and investigate materials, components, tools, equipment and processes to achieve intended designed solutions

ACTDEP035
Critique needs or opportunities for designing and investigate, analyse and select from a range of materials, components, tools, equipment and processes to develop design ideas

Generating and designing
ACTDEP025
Generate, develop and communicate design ideas and processes for audiences using appropriate technical terms and graphical representation techniques

ACTDEP036
Generate, develop, test and communicate design ideas, plans and processes for various audiences using appropriate technical terms and technologies including graphical representation techniques

Evaluating
ACTDEP027
Negotiate criteria for success that include sustainability to evaluate design ideas, processes and solutions

ACTDEP038
Independently develop criteria for success to evaluate design ideas, processes and solutions and their sustainability

Collaborating and Managing
ACTDEP028
Develop project plans that include consideration of resources when making designed solutions individually and collaboratively

ACTDIP032
Plan and manage projects that create and communicate ideas and information, taking safety and social contexts into account
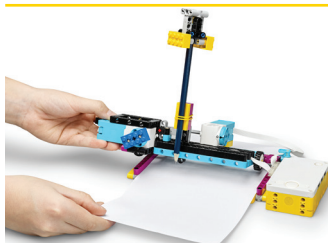
Producing and implementing
ACTDEP026
Select appropriate materials, components, tools, equipment and techniques and apply safe procedures to make designed solutions

ACTDEP037
Select and justify choices of materials, components, tools, equipment and techniques to effectively and safely make designed solutions

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, recognising 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

Australian Curriculum: Technologies

Investigating and defining
ACTDIP017
Define problems in terms of data and functional requirements drawing on previously solved problems

ACTDIP027
Define and decompose real-world problems taking into account functional requirements and economic, environmental, social, technical and usability constraints

Producing and implementing
ACTDIP020
Implement digital solutions as simple visual programs involving branching, iteration (repetition), and user input

ACTDIP030
Implement and modify programs with user interfaces involving branching, iteration and functions in a general-purpose programming language

Collaborating and Managing
ACTDIP022
Plan, create and communicate ideas and information, including applying agreed ethical, social and technical protocols

ACTDIP032
Plan and manage projects that create and communicate ideas and information, taking safety and social contexts into account

Generating and designing
ACTDIP019
Design, modify and follow simple algorithms involving sequences of steps, branching, and iteration (repetition)

ACTDIP029
Design algorithms represented diagrammatically and in English, and trace algorithms to predict output for a given input and to identify errors

Evaluating
ACTDIP021
Explain how student solutions and existing information systems are sustainable and meet current and future local community needs

ACTDIP031
Evaluate how student solutions and existing information systems meet needs, are innovative, and take account of future risks and sustainability

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

Australian Curriculum: Technologies

|		
Collecting, managing, and analysing data ACTDIP016 Acquire, store and validate different types of data, and use a range of software to interpret and visualise data to create information ACTDIP025 Acquire data from a range of sources and evaluate authenticity, accuracy and timeliness ACTDIP026 Analyse and visualise data using a range of software to create information, and use structured data to model objects or events	**Investigating and defining** ACTDIP017 Define problems in terms of data and functional requirements drawing on previously solved problems ACTDIP027 Define and decompose real-world problems taking into account functional requirements and economic, environmental, social, technical and usability constraints	**Evaluating** ACTDIP021 Explain how student solutions and existing information systems are sustainable and meet current and future local community needs ACTDIP031 Evaluate how student solutions and existing information systems meet needs, are innovative, and take account of future risks and sustainability
	Generating and designing ACTDIP018 Design a user interface for a digital system ACTDIP028 Design the user experience of a digital system, generating, evaluating and communicating alternative designs	**Collaborating and managing** ACTDIP022 Plan, create and communicate ideas and information, including applying agreed ethical, social and technical protocols ACTDIP032 Plan and manage projects that create and communicate ideas and information, taking safety and social contexts into account

Competition Ready Unit
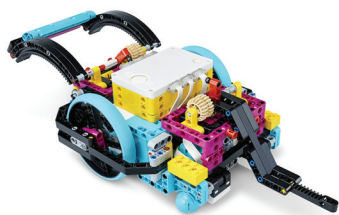
Learning promise

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

Australian Curriculum: Technologies

Investigating and defining **ACTDEP024** Critique needs or opportunities for designing, and investigate materials, components, tools, equipment and processes to achieve intended designed solutions **ACTDEP035** Critique needs or opportunities for designing and investigate, analyse and select from a range of materials, components, tools, equipment and processes to develop design ideas **ACTDIP017** Define problems in terms of data and functional requirements drawing on previously solved problems **ACTDIP027** Define and decompose real-world problems taking into account functional requirements and economic, environmental, social, technical and usability constraints	**Generating and designing** **ACTDEP025** Generate, develop and communicate design ideas and processes for audiences using appropriate technical terms and graphical representation techniques **ACTDEP036** Generate, develop, test and communicate design ideas, plans and processes for various audiences using appropriate technical terms and technologies including graphical representation techniques **ACTDIP019** Design, modify and follow simple algorithms involving sequences of steps, branching, and iteration (repetition) **ACTDIP029** Design algorithms represented diagrammatically and in English, and trace algorithms to predict output for a given input and to identify errors

Producing and implementing

ACTDEP026
Select appropriate materials, components, tools, equipment and techniques and apply safe procedures to make designed solutions

ACTDEP037
Select and justify choices of materials, components, tools, equipment and techniques to effectively and safely make designed solutions

ACTDIP020
Implement digital solutions as simple visual programs involving branching, iteration (repetition), and user input

ACTDIP030
Implement and modify programs with user interfaces involving branching, iteration and functions in a general-purpose programming language

Evaluating

ACTDEP027
Negotiate criteria for success that include sustainability to evaluate design ideas, processes and solutions

ACTDEP038
Independently develop criteria for success to evaluate design ideas, processes and solutions and their sustainability

ACTDIP021
Explain how student solutions and existing information systems are sustainable and meet current and future local community needs

ACTDIP031
Evaluate how student solutions and existing information systems meet needs, are innovative, and take account of future risks and sustainability

Collaborating and Managing

ACTDEP028
Develop project plans that include consideration of resources when making designed solutions individually and collaboratively

ACTDEP039
Use project management processes when working individually and collaboratively to coordinate production of designed solutions

ACTDIP022
Plan, create and communicate ideas and information, including collaboratively online, applying agreed ethical, social and technical protocols

ACTDIP032
Plan and manage projects that create and communicate ideas and information collaboratively online, taking safety and social contexts into account

For more information visit LEGOeducation.com.au