Level 1 Pathway

Standards Alignment

Summary

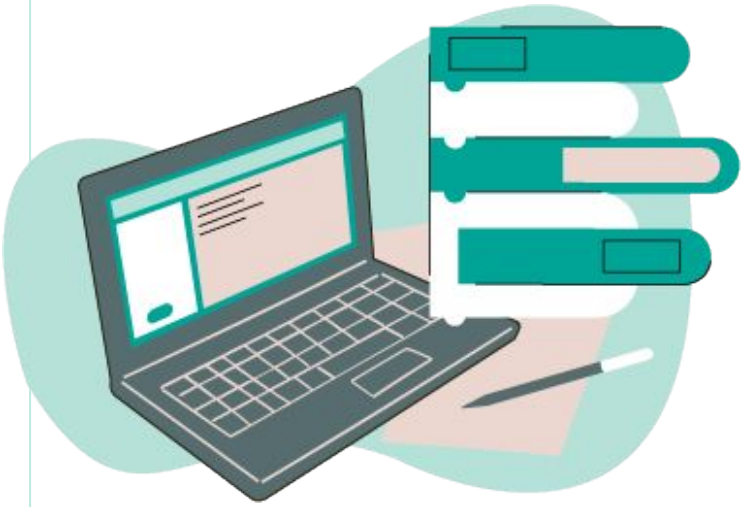
The Level 1 Pathway is a collection of beginner level tutorials and challenges designed for students that are new to coding. The pathway begins with how to use the components in the electronics kit, and progresses to STEAM based challenges. All of the content utilizes Block-pi, our block-based coding language.

In this pathway, students will be able to build and program interactive projects in the real world. They'll blink lights, buzz buzzers, push buttons, and more. The lessons were created so that students have opportunities to get hands on, while developing an understanding of code concepts.

Level 1 is perfect for beginners because in a block based language, students can write code without having to type out each command. Snapping blocks together also helps prevent things like spelling, syntax, and placement errors. By eliminating the possibility of written errors, block-based coding allows users to focus on computational thinking and logic. The blocks were also created to show the underlying Python language so that students have an easier time understanding the text-based code they'll eventually move on to.

Lesson Sequence

- Block-Pi LED Tutorial
- Block-Pi Button Tutorial
- Block-Pi Buzzer Tutorial
- Block-pi Rover Lights
- Block-pi 2022 Digits
- Block-pi Rover World Tunnel Card
- Block-pi Electric Heart
- Block-pi Let It Grow
- Block-pi Traffic Lights



CSTA Level 1A

Standards Alignment

	BP LED Tutorial	BP Button Tutorial	BP Buzzer Tutorial	BP Rover Lights	BP 2022 Digits	BP Rover World Tunnel Card	BP Electric Heart	BP Let It Grow	BP Traffic Lights
1A-CS-02 Use appropriate terminology in identifying and describing the function of common physical components of computing systems (hardware).	•	•	•	•	•	•	•	•	•
1A-CS-03 Describe basic hardware and software problems using accurate terminology.	•	•	•	•	•	•	•	•	•
1A-DA-06 Collect and present the same data in various visual formats.								•	
1A-DA-07 Identify and describe patterns in data visualizations, such as charts or graphs, to make predictions.								•	
1A-AP-08 Model daily processes by creating and following algorithms (sets of step-by-step instructions) to complete tasks.								•	•
1A-AP-09 Model the way programs store and manipulate data by using numbers or other symbols to represent information.				•			•	•	•
1A-AP-10 Develop programs with sequences and simple loops, to express ideas or address a problem.	•	•	•	•	•	•	•	•	•
1A-AP-11 Decompose (break down) the steps needed to solve a problem into a precise sequence of instructions.				•	•		•	•	•
1A-AP-12 Develop plans that describe a program's sequence of events, goals, and expected outcomes.						•	•		•
1A-AP-14 Debug (identify and fix) errors in an algorithm or program that includes sequences and simple loops.	•	•	•	•	•	•	•	•	•
1A-AP-15 Using correct terminology, describe steps taken and choices made during the iterative process of program development.				•		•	•	•	•
1A-IC-16 Compare how people live and work before and after the implementation or adoption of new computing technology.								•	
1A-IC-18 Keep login information private, and log off of devices appropriately.	•	•	•	•	•	•	•	•	•

CSTA Level 1B

Standards Alignment

	BP LED Tutorial	BP Button Tutorial	BP Buzzer Tutorial	BP Rover Lights	BP 2022 Digits	BP Rover World Tunnel Card	BP Electric Heart	BP Let It Grow	BP Traffic Lights
1B-CS-01 Describe how internal and external parts of computing devices function to form a system.					•	•	•	•	•
1B-CS-02 Model how computer hardware and software work together as a system to accomplish tasks.	•	•	•	•	•	•	•	•	•
1B-CS-03 Determine potential solutions to solve simple hardware and software problems using common troubleshooting strategies.	•	•	•	•	•	•	•	•	•
1B-DA-06 Organize and present collected data visually to highlight relationships and support a claim.				•				•	
1B-DA-07 Use data to highlight or propose cause-and-effect relationships, predict outcomes, or communicate an idea.								•	•
1B-AP-08 Compare and refine multiple algorithms for the same task and determine which is the most appropriate.				•	•	•	•		•
1B-AP-09 Create programs that use variables to store and modify data.				•	•	•	•	•	•
1B-AP-10 Create programs that include sequences, events, loops, and conditionals.	•	•	•	•	•	•	•	•	•
1B-AP-11 Decompose (break down) problems into smaller, manageable subproblems to facilitate the program development process.				•	•	•		•	•
1B-AP-12 Modify, remix, or incorporate portions of an existing program into one's own work, to develop something new or add more advanced features.				•	•	•	•	•	•
1B-AP-13 Use an iterative process to plan the development of a program by including others' perspectives and considering user preferences.					•		•	•	•
1B-AP-15 Test and debug (identify and fix errors) a program or algorithm to ensure it runs as intended.	•	•	•	•	•	•	•	•	•
1B-AP-16 Take on varying roles, with teacher guidance, when collaborating with peers during the design, implementation, and review stages of program development.									•

CSTA Level 1B

Standards Alignment

	BP LED Tutorial	BP Button Tutorial	BP Buzzer Tutorial	BP Rover Lights	BP 2022 Digits	BP Rover World Tunnel Card	BP Electric Heart	BP Let It Grow	BP Traffic Lights
1B-AP-17 Describe choices made during program development using code comments, presentations, and demonstrations.						•			•
1B-IC-18 Discuss computing technologies that have changed the world, and express how those technologies influence, and are influenced by, cultural practices.					•			•	•
1B-IC-19 Brainstorm ways to improve the accessibility and usability of technology products for the diverse needs and wants of users.					•		•	•	•