STEM Education Works®

Scope & Sequence
Coding with Sphero - Foundations of Design and Innovation

CODING WITH SPHERO – Foundations of Design and Innovation

Grade Band	Unit	Overview
K-5	Meet the Technology	Students learn coding and robotics with this maze-following activity, introducing block coding basics to students of all levels. This unit serves as a foundation for the rest of the course.
K-1	Which Way?	Students learn the importance of simple, concrete directions as they break larger code into smaller tasks. Then they use their knowledge of directions to lead their teammates through a maze.
K-1	The Ugly Duckling	In this integrated literacy and science activity, students guide Sphero (as the ugly duckling) through various habitats, applying their knowledge of animal life cycles to reunite him with his family.
2-3	Coding My Way to the Game	Students physically code a basketball game by breaking down complex tasks into smaller ones before taking on the role of a city planner, maneuvering around closed roads and roadblocks to ensure Sphero reaches the game on schedule.
4-5	Sphero Bowling	Students explore block coding fundamentals while constructing a bowling alley with an automatic return and adding a playful twist by using Sphero as the bowling ball.
4-5	Sphero Solar System	Students explore the scale of the solar system, including the sizes and relative distances of the planets from the sun. Students also explore a scale model and the rotations of the planets.
K-5	Sphero Code Map	The Code Mat provides an easy and accessible method for learning block-based coding, basic math principles, and collaborative problem-solving with any round Sphero robot. It includes three sets of 10 double-sided coding cards that provide guided, hands-on lessons in coding.
K-5	Sphero indi	Sphero indi is a learning robot that teaches early learners about computational thinking, STEAM, and computer science principles through imaginative, play-based learning. It offers both unplugged programming with an onboard color sensor and coding options through the free Sphero Edu Jr app. Students can build custom mazes and solve puzzles with real-life scenarios.

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NGSS Standards Alignment	NGSS Discipline	Connected Subjects	Time Required
3-5-ETS1-3	Engineering, technology, and applications of science	Science, math, SEL, movement	1.5 hours
K-PS2-1 K-2-ETS1-2	Engineering, technology, and applications of science	ELA, science, social studies, art, SEL, movement	3 hours
1-LS1-2 1-LS3-1 K-2-ETS1-2	Life science	ELA, science, social studies, art, SEL, movement	3 hours
K-2-ETS1-1 K-2-ETS1-2 K-2-ETS1-3	Engineering, technology, and applications of science	ELA, science, math, social studies, SEL	3 hours
3-5-ETS1-1 3-5-ETS1-2 3-5-ETS1-3	Engineering, technology, and applications of science	Science, math, SEL, movement	2.5 hours
5-ESS1-1 3-5-ETS-1-1 3-5-ETS1-3	Earth and space science	ELA, science, math, SEL, movement	2.5 hours
K-2-ETS1-1 K-2-ETS1-2 K-2-ETS1-3 3-5-ETS1-1 3-5-ETS1-2 3-5-ETS1-3	Engineering, technology, and applications of science	Science, math, social studies, SEL, movement	7.5 hours
K-2-ETS1-1 K-2-ETS1-2 K-2-ETS1-3 3-5-ETS1-1 3-5-ETS1-2 3-5-ETS1-3	Engineering, technology, and applications of science	Math, SEL, movement	5 hours