STEM Education Works®

Scope & Sequence

Coding with Wonder Workshop

CODING WITH WONDER WORKSHOP

	Grade Band	Unit	Overview
CODING WITH WONDER WORKSHOP	K-1	**Level A Unplugged:** Sequences and Algorithms	Students define sequences and algorithms and explain how they relate to their daily lives at home and school.
	K	**Level A Sequences:** Lights, Sounds, and Animations with Dash	Students are introduced to coding using Blockly and Dash the robot and will explore sequencing with Dash.
	K	**Level A Sequences:** Lights, Sounds, and Animations with Dot	Students revisit programming sequences using light, sound, and animation blocks and expand their knowledge by exploring sequencing with Dash. They utilize pre-programmed Blockly codes and Challenge Cards to enhance their proficiency.
	K	**Level A Sequences:** Movements	Students identify optimal uses for sequencing and employ it iteratively to modify code and tackle coding challenges.
	K	**Level A Loops:** Repeat Forever	Students identify the most suitable applications for loops and utilize them iteratively to modify code and accomplish coding challenges.
	K	**Level A Assessment:** Design Thinking Project	Students utilize the Dash robot to address a household issue. They apply a segment of the Design Thinking Process to recognize the problem and generate potential solutions.
	1	**Level B Sequences:** Changing Parameters	Students learn how to change the parameters (distances, speeds, etc.) in programs.
	1	**Level B Unplugged:** Loops	Students define loops, determine real-life examples of their applications, and devise a Dash dance that integrates loops.
	1	**Level B Loops:** Repeat X with Dot	Students refresh their programming knowledge of sequencing, loops, and the Repeat Forever block while also learning how to use the Repeat block to define a specific number of loops. They practice their skills using Blockly preset programs and Challenge Cards.
	1	**Level B Events:** Waiting for Events	Students review what they have already accomplished with Repeat blocks and explore using Wait For blocks. They use Blockly preset programs and Challenge Cards to practice their new skills.
	1	**Level B Assessment:** Designing Solutions for the Home	Students work in small groups, using Dash to solve a problem at home. Students use the Design Thinking Process to identify a problem and possible solution(s).

NGSS Standards Alignment	NGSS Discipline	Connected Subjects	Time Required
K-2-ETS1-2	Engineering, technology, and applications of science	ELA, math, SEL, movement	1 hour
K-2-ETS1-1 K-2-ETS1-2	Engineering, technology, and applications of science	ELA, math, SEL, movement	1 hour
K-2-ETS1-1 K-2-ETS1-2	Engineering, technology, and applications of science	ELA, math, SEL, movement	1 hour
K-2-ETS1-1 K-2-ETS1-2	Engineering, technology, and applications of science	ELA, math, SEL, movement	1 hour
K-2-ETS1-2 K-2-ETS1-3	Engineering, technology, and applications of science	ELA, math, SEL, movement	1 hour
K-2-ETS1-1 K-2-ETS1-2 K-2-ETS1-3	Engineering, technology, and applications of science	ELA, math, SEL, movement	2 hours
K-2-ETS1-2 K-2-ETS1-3	Engineering, technology, and applications of science	ELA, math, SEL, movement	1 hour
K-2-ETS1-2	Engineering, technology, and applications of science	ELA, math, SEL, movement	1 hour
K-2-ETS1-1 K-2-ETS1-2	Engineering, technology, and applications of science	ELA, math, SEL, movement	1 hour
K-2-ETS1-1 K-2-ETS1-2	Engineering, technology, and applications of science	ELA, math, SEL, movement	1 hour
K-2-ETS1-1 K-2-ETS1-2 K-2-ETS1-3	Engineering, technology, and applications of science	ELA, math, SEL, movement	2 hours

	Grade Band	Unit	Overview
CODING WITH WONDER WORKSHOP	2	**Level C Sequences:** Complex Parameters	Students enhance their coding skills by programming Dash to look in different directions and turn. They will practice using Blockly preset programs and Challenge Cards.
	2	**Level C Unplugged:** Event Handlers	Students learn about event handlers, their definition and functions. They utilize these event handlers to "program" their peers by utilizing Dash's buttons.
	2	**Level C Events:** Event Handlers, Part 1	Students revisit their previous programming projects involving events and are introduced to the concept of using When blocks in Blockly to create event handlers for Dash. To practice their newly acquired skills, they utilize Blockly's preset programs and Challenge Cards.
	2	**Level C Events:** Event Handlers, Part 2	Students recognize the purpose of utilizing event handlers and successfully utilize a variety of them. To enhance their skills, they practice using Blockly's preset programs and Challenge Cards.
	2	**Level C Loops:** Multiple Loops	Students use multiple loops in a program. They use Blockly preset programs and Challenge Cards to practice their new skills.
	2	**Level C Assessment:** Designing Solutions for the Classroom	Students utilize Dash to resolve a classroom issue by applying the Design Thinking Process. They identify a problem and potential solutions, as well as plan, construct, and test their solution.
	3	**Level D Loops:** Nested Loops	Students learn how and why to use Nested Loops. They use Blockly preset programs and Challenge Cards to practice their new skills.
	3	**Level D Events:** Event Handlers with Dash and Dot	Students write a program using event handlers. They use Blockly preset programs and Challenge Cards to practice their new skills.
	3	**Level D Unplugged:** Conditionals	Students learn the definition and function of conditionals. Students learn how conditionals are used in real life and in coding.
	3	**Level D Conditionals:** If/Then, Part 1	Students explore the benefits of using conditionals in their code. They use Blockly preset programs and Challenge Cards to practice their new skills.
	3	**Level D Conditionals:** If/Then, Part 2	Students understand how multiple conditionals affect a program. They use Blockly preset programs and Challenge Cards to practice their new skills.
	3	**Level D Assessment:** Complex Solutions for the Classroom	Students employ Dash to address a classroom problem by utilizing the Design Thinking Process. They develop an accessory and code for Dash as a solution, then plan, construct, test, and retest it.

NGSS Standards Alignment	NGSS Discipline	Connected Subjects	Time Required
K-2-ETS1-2 K-2-ETS1-3	Engineering, technology, and applications of science	ELA, math, SEL, movement	1 hour
K-2-ETS1-1	Engineering, technology, and applications of science	ELA, math, SEL, movement	1 hour
K-2-ETS1-1 K-2-ETS1-2	Engineering, technology, and applications of science	ELA, math, SEL, movement	1 hour
K-2-ETS1-1 K-2-ETS1-2	Engineering, technology, and applications of science	ELA, math, SEL, movement	1 hour
K-2-ETS1-1 K-2-ETS1-2	Engineering, technology, and applications of science	ELA, math, SEL, movement	1 hour
K-2-ETS1-1 K-2-ETS1-2 K-2-ETS1-3	Engineering, technology, and applications of science	ELA, math, SEL, movement	4 hours
3-5-ETS1-2	Engineering, technology, and applications of science	ELA, math, SEL, movement	1 hour
3-5-ETS1-2	Engineering, technology, and applications of science	ELA, math, SEL, movement	1 hour
3-5-ETS1-2	Engineering, technology, and applications of science	ELA, math, SEL, movement	1 hour
3-5-ETS1-2	Engineering, technology, and applications of science	ELA, math, SEL, movement	1 hour
3-5-ETS1-2	Engineering, technology, and applications of science	ELA, math, SEL, movement	1 hour
3-5-ETS1-1 3-5-ETS1-2 3-5-ETS1-3	Engineering, technology, and applications of science	ELA, math, SEL, movement	4 hours

	Grade Band	Unit	Overview
CODING WITH WONDER WORKSHOP	4	**Level E Loops:** Repeat Until Loops	Students learn how and why to use Repeat Until blocks. They use Blockly preset programs and Challenge Cards to practice their new skills.
	4	**Level E Conditionals:** If/Else	Students learn how and when to use If/Else blocks. They use Blockly preset programs and Challenge Cards to practice their new skills.
	4	**Level E Unplugged:** Functions	Students learn how and why to use functions to create their own version of a familiar chant.
	4	**Level E Functions:** Part 1	Students revisit the previous lesson's material on Function blocks and expand their understanding of utilizing functions in computer programming. They enhance their skills by utilizing Blockly's preset programs and Challenge Cards.
	4	**Level E Functions:** Part 2	Students use functions and combine them with event handlers and loops. They use Blockly preset programs and Challenge Cards to practice their new skills.
	4	**Level E Assessment:** Designing Solutions for the School	Students utilize Dash and the Design Thinking Process to develop an accessory and code to address a schoolwide problem. They plan, construct, test, and retest their solution.
	5	**Level F Conditionals:** Nested Conditionals	Students understand how to identify and use nested conditionals.
	5	**Level F Unplugged:** Variables	Students learn about the benefits of using variables when coding and in real life.
	5	**Level F Variables:** Single Variables	Students use variables in a program.
	5	**Level F Variables:** Complex Variables	Students understand how to use and manipulate variables.
	5	**Level F Variables:** Multiple Variables	Students understand how to use and manipulate many variables within the same program.
	5	**Level F Assessment:** Designing Solutions for the World	Students utilize Dash to address a real-world issue. They utilize the Design Thinking Process to identify a problem, design an accessory, and develop a program to demonstrate the solution.

NGSS Standards Alignment	NGSS Discipline	Connected Subjects	Time Required
3-5-ETS1-2 3-5-ETS1-3	Engineering, technology, and applications of science	ELA, math, SEL, movement	1 hour
3-5-ETS1-2 3-5-ETS1-3	Engineering, technology, and applications of science	ELA, math, SEL, movement	1 hour
3-5-ETS1-2	Engineering, technology, and applications of science	ELA, math, SEL, movement	1 hour
3-5-ETS1-2 3-5-ETS1-3	Engineering, technology, and applications of science	ELA, math, SEL, movement	1 hour
3-5-ETS1-2 3-5-ETS1-3	Engineering, technology, and applications of science	ELA, math, SEL, movement	1 hour
3-5-ETS1-1 3-5-ETS1-2 3-5-ETS1-3	Engineering, technology, and applications of science	ELA, math, SEL, movement	4 hours
3-5-ETS1-2	Engineering, technology, and applications of science	ELA, math, SEL, movement	1 hour
3-5-ETS1-2	Engineering, technology, and applications of science	ELA, math, SEL, movement	1 hour
3-5-ETS1-2	Engineering, technology, and applications of science	ELA, math, SEL, movement	1 hour
3-5-ETS1-2	Engineering, technology, and applications of science	ELA, math, SEL, movement	1 hour
3-5-ETS1-2	Engineering, technology, and applications of science	ELA, math, SEL, movement	1 hour
3-5-ETS1-1 3-5-ETS1-2 3-5-ETS1-3	Engineering, technology, and applications of science	ELA, math, SEL, movement	4 hours