

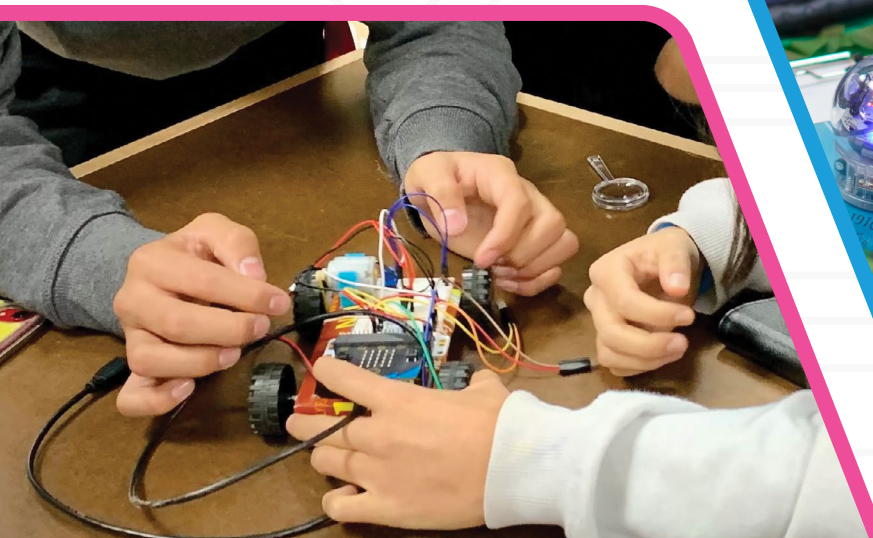


STEM Education Works®

Scope & Sequence

Dobot - Middle School

Foundations of Engineering, Technology, and Robotics



DOBOT – Middle School Foundations of Engineering, Technology, and Robotics

Grade Band	Unit	Overview
6-8	Unit 1 Lesson 1: What Is a Robot?	In this lesson, students will learn about robots, their primary components, and how they interact with the world around them.
6-8	Unit 1 Lesson 2: Writing and Drawing	In this lesson, students will become more familiar with the Dobot robotic arm as they learn how it can be used to create designs with the pen end effector.
6-8	Unit 1 Lesson 3: Teaching and Playback	In this lesson, students will create their first computer program using teaching-and-playback-style coding. Teaching-and-playback-style coding is a simplified form of coding in which students manually move a robotic arm and enter end effector commands to form a list of instructions that the robotic arm can then carry out.
6-8	Unit 2 Lesson 1: Block Coding Basics	In this lesson, students program a Dobot via block coding. Block coding is a simple, intuitive form of programming with an emphasis on visual learning and a de-emphasis on complex syntax. These characteristics make block coding an excellent way to introduce students to the world of computer programming.
6-8	Unit 2 Lesson 2: Block Coding with Variables	In this lesson, students will be introduced to variables and their importance in the context of computer programming. Variables serve as a way to store and update qualitative and quantitative values in a computer program, a function that can add new levels of depth, complexity, and even simplicity to a program.
6-8	Unit 2 Lesson 3: Block Coding with Lists	In this lesson, students will be introduced to lists and their importance in the context of computer programming. Lists serve as a way to store and update multiple qualitative and quantitative values in a computer program.
6-8	Unit 3 Lesson 1: Block Coding with Logic	In this lesson, students will be introduced to logic and its importance in the context of computer programming. Logic is an important dynamic programming tool that allows us to make decisions in our code, resulting in multiple branching paths in a program.
6-8	Unit 3 Lesson 2: Block Coding with Loops	In this lesson, students will be introduced to loops and their importance in the context of computer programming. Loops are an important dynamic programming tool that allows us to repeat steps in our code, making our program more efficient and less repetitive.
6-8	Unit 3 Lesson 3: Block Coding with Functions	In this lesson, students will be introduced to functions and their importance in the context of computer programming. Functions are an important dynamic programming tool that allows us to make small chunks of code that complete specific tasks, making our overall program both more complex and more organized.

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NGSS Standards Alignment	NGSS Discipline	Connected Subjects	Time Required
MS-ETS1 MS-ETS1-4 MS-PS3-2	Engineering, technology, and applications of science, physical science	Physics, environmental science, language arts	4.5 hours
MS-ETS1-2 MS-ETS1-3	Engineering, technology, and application of science, science and engineering practices	Language arts	3 hours
MS-ETS1-4 MS-PS2-2 MS-ESS1-3	Engineering, technology, and applications of science, physical science, earth and space science	Language arts	3 hours
MS-ETS1-1 MS-ETS1-4	Engineering design, science and engineering practices	Computer science, language arts	4 hours
MS-ETS1-4	Engineering, technology, and applications of science, engineering design	Data science, computer science, language arts	3.5 hours
MS-ETS1-4	Engineering, technology, and applications of science, engineering design	Data science, computer science, language arts	3 hours
MS-ETS1-4	Engineering, technology, and applications of science, engineering design	Language arts	4.5 hours
MS-ETS1-3	Engineering, technology, and applications of science, engineering design	Data science, computer science, language arts	3.5 hours
MS-ETS1-2	Engineering, technology, and applications of science, engineering design	Computer science	4 hours

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