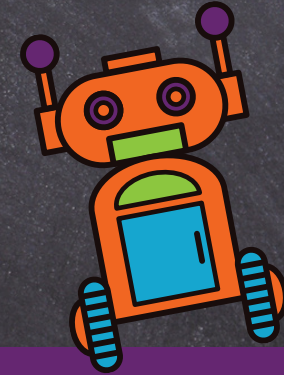# NextWaveSTEM

## Discovery of Robots: Coding mBot

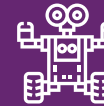*Designed for learners in Grades 3-5*

### Course Description:

How can students learn about coding and robotics at the same time? Building and coding come to life for students as they interact with the mBot! Students will create a robot that tracks and follows a line, responds with sound, flashes lights, and competes in a series of robot tasks and challenges.

### Equipment, Curriculum, and Training Available:

- Classroom set of mBot® Robots
- 15 Lesson Hours
- Curriculum and supporting materials
- Ongoing product and curriculum support
- Professional development
- Facilitation by a trained STEM instructor (optional)

| LESSONS | LEARNING TARGET EXAMPLES |
|---|---|
| 1: What is a Robot? | I can design a robot to solve a problem. |
| 2: Intro to mBot | I can name the components and describe the function of mBots components. |
| 3: Build mBot | I can assemble an mBot. |
| 4: Coding Unplugged | I can create an algorithm for someone to follow. |
| 5: Block Coding | I can use the mBlock Blockly app to program a robot. |
| 6: Wait, Loop, Branch | I can use an increasing number of features in mBlock Blockly to program my mBot. |
| 7: Distance Measurement | I can make the robot travel a certain distance. |
| 8: Competition #1: Parking Space | I can carefully control the motion of my robot. |
| 9: Line Follower | I can design a line follower track for the mBot. |
| 10: Competition #2 Line Follower | I can modify existing line follow programs to complete complex line following maps. |
| 11: Robots at Work | I can form and support an opinion about robots doing human jobs. |
| 12: Obstacle Detection | I can program the mBot robot to use the ultrasonic sensor. |
| 13: Competition #3 Obstacle Detection and Avoidance | I can program my robot to detect and avoid obstacles |
| 14: Competition #4 Maze | I can program my robot to navigate a maze. |
| 15: Competition #5 Design Your Own Competition | I can design a robot competition for other teams to perform. |