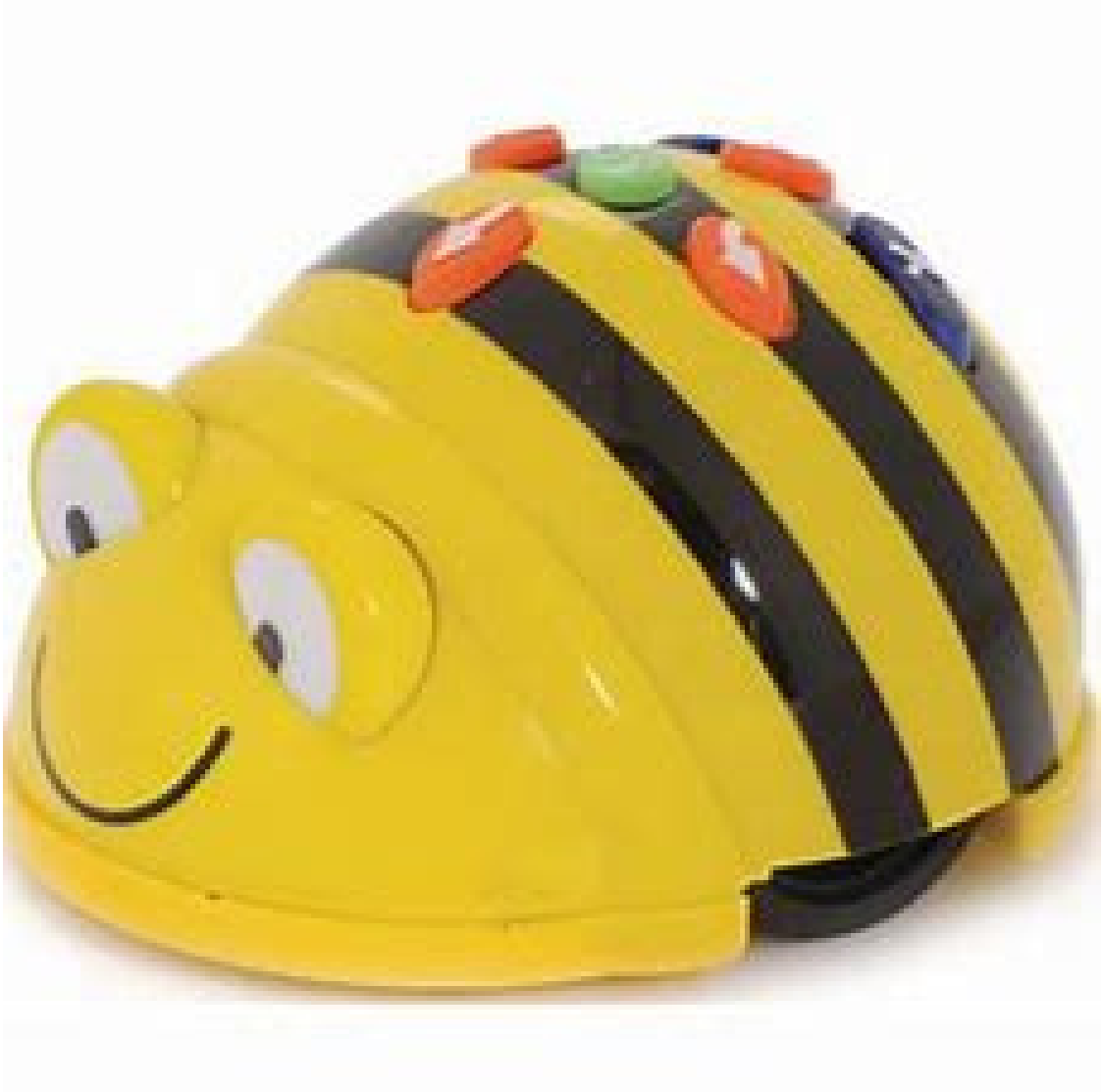
Beebots



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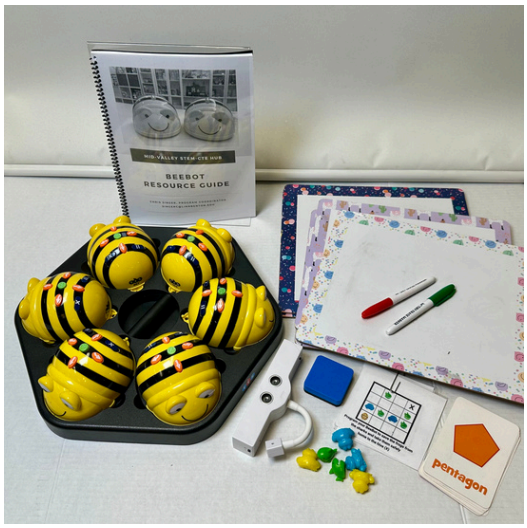

The BeeBot Robotics Kit introduces students to foundational programming concepts, logical sequencing, and problem-solving through hands-on coding activities. By inputting directional commands, students develop an understanding of algorithms and computational thinking while engaging in interactive storytelling and STEAM exploration. This kit fosters creativity, collaboration, and critical thinking, making it an engaging tool for introducing robotics and coding fundamentals in a classroom.

Grade Level

PreK - 3rd grades

Group Size

Up to 4 students per BeeBot

Time Duration

30 minutes - 1 hour

Content of Kits

Components

- 6x BeeBots
- Charging dock
- 4x Bot sensor
- Resource booklet
- 6x Dry erase boards
- 6x Rulers
- 6x Game kits
- 6x Solar System game card sets

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Usage

Getting Started

1. **Introduce BeeBot Basics** – Demonstrate how to input directional commands and have students practice with simple movement sequences.
2. **Plan Before Coding** – Encourage students to use dry erase boards and rulers to map out paths and predict movements before programming.
3. **Start with Simple Challenges** – Use pre-designed paths or mazes to help students grasp sequencing and navigation.
4. **Encourage Iteration** – Teach students how to test, refine, and debug their programs to improve their problem-solving abilities.

Storage

Keep BeeBots charged and stored neatly to prevent loss or misplacement. Return all group kit components back to their containers. store BeeBots and accessories in provided clear bin.

Troubleshooting

- **BeeBot Not Moving** – Check that it is fully charged and ensure the program sequence is input correctly.
- **Commands Not Working as Expected** – Clear previous commands by holding the reset button before entering a new sequence.
- **Sensor Not Responding** – Ensure the bot sensor is properly placed and within range of obstacles or objects.
- **BeeBot Drifting Off Path** – Check the surface for debris and recalibrate by resetting the robot.

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Activity Guide

Beginner

Intro to Coding
Students will explore how BeeBots work by inputting simple commands (forward, backward, left, right) to navigate a straight path. They will test their sequences, refine their commands, and observe how the BeeBots respond, reinforcing cause-and-effect relationships and logical thinking.

Intermediate

Measurement & Navigation Challenge
Using rulers and dry erase boards, students will map out paths for their BeeBots, measuring distances and angles before programming movement sequences. They will then test and adjust their codes to ensure accuracy, reinforcing real-world applications of measurement and estimation.

Advanced

The Solar System Mission
Students will use the Solar System game cards to program BeeBots on a space-themed mat, navigating between planets and completing space-related challenges. This activity integrates coding, math, and astronomy, promoting interdisciplinary learning and creative storytelling.

Extension Activities:

BeeBot Board Game Coding
Students will design their own BeeBot board games using the game kits, incorporating challenges, objectives, and coded paths. They will test each other's games, refining both their coding sequences and strategic thinking.

Collaborative Obstacle Course
Students will work in teams to create a challenging obstacle course for their BeeBots, using the bot sensors to trigger interactions. They will write precise code to navigate through obstacles and complete tasks, refining their computational thinking and debugging skills.

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Learning Extensions

STEAM Connections: Electrical Engineering - Circuit Building

Learning Objectives:

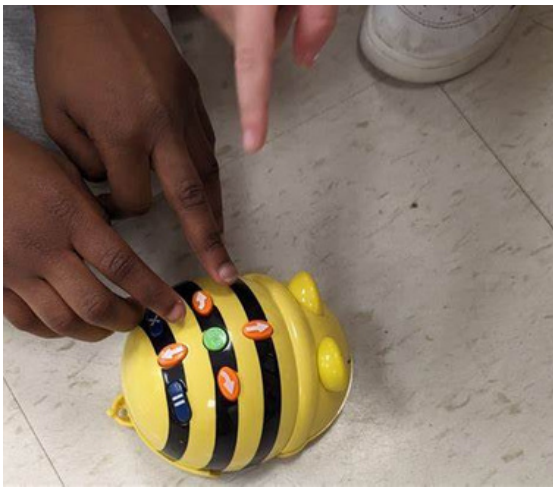
- Develop foundational coding and computational thinking skills.
- Strengthen problem-solving and debugging through iterative programming.
- Enhance spatial reasoning and measurement skills through precise movement planning.
- Encourage collaboration and teamwork in hands-on robotics challenges.
- Integrate STEAM concepts through themed challenges, such as space exploration.

Career Connections:

- **Robotics Engineer** – Introduces students to programming logic, problem-solving, and robotics fundamentals.
- **Game Designer** – Encourages creativity and strategic thinking in game-based coding challenges.
- **Mathematician & Data Analyst** – Develops measurement, sequencing, and logic skills applicable to data science.
- **Aerospace Engineer** – Connects programming and space exploration, introducing students to navigation and physics concepts.

Essential Employability Skills:

- Critical thinking
- Creative problem-solving
- Computational thinking
- Digital literacy
- Communication
- Innovation



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Resources and Accessibility

Safety Guidelines

Keep floors around learning spaces and floors free of clutter to prevent tripping and injury.

Accessibility

- **Large-Print & Tactile Resources** – Provide enlarged game cards or raised markers for students with visual impairments.
- **Alternative Input Methods** – Use verbal step-by-step guidance for students who may struggle with button-based commands.
- **Collaborative Play Options** – Pair students to work together, allowing those with different abilities to contribute in various ways (e.g., planning vs. programming).
- **Adjustable Workstations** – Ensure an inclusive setup where students of all mobility levels can participate in programming tasks.
- **Auditory Feedback** – Utilize the BeeBot's built-in sound cues to reinforce learning for students with different learning preferences.

Library Catalog

Library Resources

Feedback

QR to feedback survey