Sphero Indi

Mid-Valley
STEM-CTE HUB

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Sphero Indi

The Sphero Indi Student Kit features a palm-sized, car-like robot designed for Pre-K to Grade 3 learners to explore computational thinking and STEAM fundamentals. It offers both screenless learning using onboard color sensors and color tiles, and app-enabled block coding via the Sphero Edu Jr app. With challenge cards, tiles, and a durable robot, students design mazes, practice sequencing, and build early coding skills in a fun, hands-on way.

Grade Level

Pre-K - 3rd

Group Size

1 - 2 students per robot

Time Duration

15 - 60 minutes

Content of Kits

Components

- 8 Indi robots
- 8 durable student cases
- 1 charging case to charge and store 8 Indi robots
- 1 educator guidebook
- 1 classroom tote
- 160 durable, latex-free rubber color tiles (20 per student case)
- 8 sets of Beginner's Programming Challenge Cards (15 per student case)
- 2 sets of paper color cards (60)
- 2 decorative sticker sheets
- 8 charging cables
- 1 two-sided Indi Code Mat
- 1 literacy card pack with 168 letters and images
- 1 literacy card pack with 114 words

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Usage

Getting Started

1. Unbox Indi. Ensure you have all components and that the Indi car robots are fully charged before use. Introduce the robots, coding tiles, and activity cards to students.

2. Show basics of screenless programming by placing the color tiles on a flat surface, explaining their function and guiding Indi robots over them.

3. Run through a sample beginner coding challenge from the card set.

4. Allow students to try out the Indi robots and their activity cards. Encourage exploration through building unique tile layouts, mazes, or patterns.

5. Introduce Sphero Edu Jr app for block-based coding once screen-free is mastered.

Storage

- Keep each robot, tiles, and cards in its own student case.
- Store all sets in a labeled tote or charging case for easy transport.
- Protect tiles with a zip pouch inside the case.
- Make a checklist of robots, tiles, cards, and cables for quick inventory.

Troubleshooting

- If Indi won't respond to tiles, ensure tiles are fully flat and sensor area is clean.
- A drained battery may prevent operation—charge fully before use.
- Motor stalls may need a soft reset (turn off, then on).
- Fogged or colored tiles can be wiped gently to improve sensor detection.

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Activity Guide

Beginner

Color-Code a Path
Students start with 3–10 color tiles (green = go fast, yellow = slow down, pink = turn left, etc.) and create a simple straight or curved path for Indi to follow. They place Indi at the start and observe how each color affects the robot's behavior. Students can rearrange the order of the tiles and test how changes in the sequence impact the outcome. Teachers prompt students to explain what they expect Indi to do and compare it to the observed result.

Intermediate

Maze Maker
Students design their own tile maze that Indi must navigate from a start tile to a finish tile (e.g., a flag or stop tile). The maze should include turns, speed changes, and obstacle navigation (chairs, books, tape boundaries). Students predict the outcome, run Indi through the maze, and debug any errors (tile placements, angles, sequencing). Teams can compete to build the most efficient maze or the longest successful maze path.

Advanced

Introduction to Blocks
Students connect Indi to the Sphero Edu Jr app via Bluetooth and explore block-coding capabilities. They create a short sequence controlling Indi's speed, light colors, and sound for specific tiles or events (e.g., flashlights when turning left, play a sound when stopping). After designing a block sequence, students run it on Indi and adjust their code based on performance. They compare the results of block programming vs. color tile programming and discuss advantages of both.

Extension Activities:

Storytelling with Indi
Students select or create a short story prompt (example: Indi is delivering supplies through a forest, or Indi is a race car finishing a race course). They design a tile path that represents the story's action, incorporating specific tile behaviors (turns, speed changes, lights, sounds). Students then present their project to the class, describing each part of the path and how it reflects their story. The activity can be cross-curricular (integrate with writing, art, or social studies themes).

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Learning Extensions

STEAM Connections: Technology - Math - Science

Learning Objectives:

- Develop early computational thinking through sequencing and pattern planning.
- Understand cause-and-effect through physical interaction with tiles and robot behavior.
- Improve problem-solving via debugging maze designs.
- Introduce basic block coding using drag-and-drop programming.
- Extend STEAM learning through storytelling and design challenges.

Career Connections:

- **Software Developer -** Practices sequencing and debugging in coding.
- **Robotics Engineer -** Designs and tests robot behavior and pathways.
- **Game Designer -** Uses logical flow and visual design to create interactive experiences.
- **STEAM Educator -** Integrates storytelling, coding, and creative problem-solving.
- **Product Designer -** Prototypes user interaction and flow in physical products.

Essential Employability Skills:

- Logical Reasoning
- Problem-Solving
- Creativity
- Teamwork
- Adaptability

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Resources and Accessibility

Safety Guidelines

- No small parts; ages ≥ 3 only due to small tiles.
- Supervise to prevent robot from driving off tables or into feet.
- Keep small charging cables secured to avoid tripping hazards.
- Wipe tiles and robot with a dry or slightly damp cloth—no submersion.

Accessibility

- Partner students for roles like designing paths vs. placing tiles.
- Offer verbal explanation of block-coding steps for non-readers.
- Provide extra time for maze-building and debugging activities.

Library Catalog

Library Resources

Feedback

QR to feedback survey