

THE SPHERO INDI BASIC INTRODUCTION

OVERALL TIME 100- to 120-minute lesson
(can be split over two class periods)

GROUPS Two to three kids per indi

Next Generation Science Standards

K-2-ETS1-1

Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.

OBJECTIVE

Kids will identify what each color tile tells indi to do. Kids will create different sequences or patterns for indi to travel using the color tiles.

OVERVIEW

The indi robot is designed to introduce early learners to the fundamentals of computational thinking, STEAM, and computer science principles while encouraging open-ended, imaginative play-based learning with real-life scenarios as students build custom paths and solve puzzles.

MATERIALS

Day One

- indi
- color tiles
- green-go, yellow-slow down, red-stop, purple-celebrate

Day Two

- indi
- color tiles

- Pink- 90° left, blue 90° right
- Optional: orange 45° left, teal 45° right

KEY TERM(S)

Algorithm: a list of steps to complete a task

Program: an algorithm that contains a series of coded instructions to be followed by a computer or other machine

Programming: designing and creating a program

Code: the language the computers speak

VOCABULARY

- 45° turn
- 90° turn
- backward
- blue
- communication
- forward
- go
- green
- left
- orange
- pink
- purple
- red
- right
- slow
- teal
- turn
- yellow

PREPARATION

1. Create groups ahead of time.
2. Make sure to charge the indi in advance so it is ready for use.
3. Have a plan for clean-up to make sure all materials are put away.
4. Clear a large open space for groups to be able to spread out to use the indi.

LAUNCH 10 to 15 minutes

Session 1

Have kids form a circle and ask the following questions:

- *What does it mean to communicate?*
- *How do people communicate with computers?*

Tell kids that today they are going to be communicating with a robot by giving it detailed instructions to make it move. Show kids the indi and identify the various parts of the robot (power switch, color sensor, wheels, LED lights front and on top). Then, one at a time, place each of the assorted color tiles on the floor and put the indi on the tile to demonstrate how it reacts to each color (green, yellow, red, purple).

Discuss how the indi reacts with each of the color tiles. Ask the following questions:

- *What do you hear?*
- *What did you see?*

Session 2

Have kids partner up for a turn and talk. Ask the following question: *What did you learn about the indi robot in the previous lesson?* Introduce the new color tiles the same as in the previous session. (pink, blue, optional orange, teal)

Discuss how the indi reacts with each of the color tiles. Ask the following questions:

- *What do you hear?*
- *What did you see?*

EXPLORATION 20 to 30 minutes

Have kids form groups. Give kids the first 10-15 minutes to free explore using the indi robot.

During the last 10-15 minutes of exploration, share the challenge.

Session 1 Challenge: Create an indi sequence using six or more tiles.

Session 2 Challenge: Create an indi sequence using six or more tiles, including at least three assorted colors and one turn (right or left).

CLOSING 10 to 15 minutes

Bring kids back together and have each group share the sequence they created for the challenge. Choose one or more of the following questions to ask:

- *What did your group learn about the indi?*
- *Did anything happen that you did not expect?*
- *Was your group able to complete the challenge?*
- *What would you do differently next time?*
- *What did your group do well?*

CLEAN-UP (5 min.)

Allow time to make sure all the materials are put away.

RESOURCES

<https://Sphero.com>

ENRICHMENT AND NEXT STEPS

Challenge kids to create a sequence for the indi to travel using more than eight of the color tiles.