

SPHERO INDI ALGORITHM DETECTIVES

OVERALL TIME 50- to 60-minute lesson

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 work in groups to sketch and design an algorithm puzzle challenge card.

MATERIALS

- indi
- Color tiles
- Beginner's Programming Challenge Cards
- Challenge Card Template (one for each group)
- Colored pencils, crayons, or markers

PREPARATION

1. Create partners or groups ahead of time.
2. Make sure that the indi is charged and ready for use.
3. Clear a large open space for groups to be able to spread out to use the indi.
4. Copy blank challenge card templates

LAUNCH 10 to 15 minutes

Have kids form a circle. Each group will need a blank challenge card template and colored pencils, crayons, or markers. Review the challenge card model from the previous lesson or choose one of the challenge cards from the kit. Explain to the kids that today they will design an algorithm, test it, and then record it on the blank challenge card remembering to leave out one step to create a puzzle.

EXPLORATION 20 to 30 minutes

Give groups 10 to 15 minutes to design, test, and sketch a challenge card puzzle. Then, invite groups to trade their challenge card with another group. Give groups an additional 10 to 15 minutes to solve the new puzzle.

CLOSING 5 to 10 minutes

Bring kids back together in a large group. Choose one or two algorithms to share. If possible, use technology (smartboard, document camera) to display. If technology is not available, use the color tiles on the floor to display the sequence leaving a space for the missing tile. Have kids partner up to solve the puzzle. Call on a couple of kids to share their thinking. Encourage language that uses directional words to describe how the indi traveled.

CLEAN-UP (5 min.)

Allow time to make sure materials are safely put away.

ENRICHMENT AND NEXT STEPS

Challenge kids to create an algorithm puzzle with more than one missing tile.