

# BEE-BOTS DIORAMA STORYBOARD

**OVERALL TIME** 60-minute lesson

**GROUPS** One to two kids per Bee-Bot

## Next Generation Science Standards:

### K-2-ETS1-2

*Develop a simple model based on evidence to represent a proposed object or tool.*

## OBJECTIVE

Kids will work together using a grid to create a pathway for a Bee-Bot to travel.

Kids will sketch and communicate the programming code using directional vocabulary.

## MATERIALS

- Bee-Bots
- Bee-Bot Journal Page (one per group)
- Bee-Bot cutout (one per group)
- Scissors
- Pencil
- Colored pencils (optional)

## PREPARATION

Kids will use previous programming basics to create a code sequence. Prepare an example of a coding sequence on large paper mirroring the Bee-Bot Coding Journal to use in the launch. One example: forward, turn right, forward, forward. Decide if you want to assign partners ahead of time, or allow kids to pick their partner. Set up an area where groups can complete a test run using a Bee-Bot and grid mat.

## KEY TERMS

**Program:** the action of writing code for computers

## LAUNCH 10 to 15 minutes

Bring everyone together in a large circle. Remind the group that they have been learning about coding using directions such as forward, backward, turn left, and turn right to program the Bee-Bots. Hold up and show off the example grid, then place it in the middle of the circle. Next, hold up the Bee-Bot. Tell the group that they are going to read the code on the Bee-Bot grid. Start by asking what the first move the Bee-Bot needs to make to follow the path. Choose someone to answer. Then, have them check their answer by using the example grid and program the Bee-Bot to go forward one move. Ask the kids if the move was correct. Ask them what move the Bee-Bot needs to make next. Continue until the example coding sequence is complete.

## ACTIVITY 15 to 45 minutes

Give each pair a Bee-Bot Coding Journal page and a Bee-Bot cutout. Tell everyone they will create a path for a paper bot to travel by coloring in a path of squares on their Bee-Bot Coding Journal page. The path should have the Bee-Bot make five or more moves, and include one start square and one stop square. Once the pairs are done with their path, have them switch worksheets with another group.

Once they have switched worksheets, have pairs use the Bee-Bot cutout to figure out the directions needed to navigate the path. Instruct the group to write their code on the bottom of the Bee-Bot Coding Journal page.

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After testing on paper, have kids move to the grid mat and test their code with a Bee-Bot.

**CLOSING** 5 to 10 minutes

Bring the group back together.

Ask the group the following questions and choose a few kids to respond.

- *How did you work together?*
- *How did you decide on the pattern the Bee-Bot would travel?*
- *Was it hard to identify the directions the Bee-Bot needed to take? If so, what did you do?*
- *Did you use directional vocabulary while working with your partner?*

**ENRICHMENT AND NEXT STEPS**

Challenge kids to complete a Bee-Bot Coding Journal independently, and find the total distance in inches a Bee-Bot would travel, remembering the bot travels in six inch steps.

# BEE-BOT CODING JOURNAL

NAME \_\_\_\_\_


Write the code.

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