Coordinate Moves with Dash

by Michelle Eckstein

Description

Students will use a Coordinate Grid and point addresses to plan an algorithm for Dash to complete.

Objectives

Students can write and debug algorithms that include moves, sounds, and lights
Students can express locations as points on a coordinate grid
Students can understand forward or backward distances and movements on the coordinate grid.

What You'll Need

Robots & Accessories

Dash

Downloadable Materials

ExampleCoordinateActivity.pdf  CoordinateMoves.pdf

Other Supplies

iPad
Coordinate Grid

Lesson Procedure

See downloadable files for lesson procedure.

Warm up and review

Prior to this lesson, students should know how to name points on the coordinate grid.

Students have used Dash and Dot -- activate prior knowledge by challenging students to describe using coding vocabulary some of the activities they have done with Dash or Dot.

- written algorithms to ...
- debugged algorithms when ...
- used loops to ...
- used events to initiate ...

Lesson and context
Students may benefit from a refresher of on coordinate grid and naming points.

1. Have students complete this or this interactive to understand what they will be doing with Dash.

2. Explain that students will be designing a coordinate grid with tasks for Dash to complete. They will then use Blocky to write an algorithm for Dash to complete the tasks.

3. Model for students using the Example Plan (see downloadable) and write the algorithm for Dash to complete this plan. Have a student act as “guesser” by completing a blank plan sheet as Dash completes your plan. They will write each coordinate that Dash stops at and then the task he did at that point. Compare the plan and guess (they should be the same). Note for a more challenging activity for advanced students, use points in all 4 quadrants.

Activity with Dash & Dot

Working in small groups, students will take turns writing the plan with coordinates, coding the algorithm, and guessing the algorithm using the guessing sheet (see downloadable). Repeat the task so that each student has a chance to perform each role.
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Subjects

Coding, Math

Group Size

1 - 4 students

Target Grades

4 - 5

Time Required

1 hour

What You'll Need

Robots & Accessories

Dash

Downloads/Handouts

ExampleCoordinateActivity.pdf

CoordinateMoves.pdf

Other Supplies

iPad

Coordinate Grid

Lesson Procedure

See downloadable for lesson procedure.

Educational Standards

CCSS.MATH.CONTENT.5.G.A.1 Use a pair of perpendicular number lines, called axes, to define a coordinate system. With the intersection of the lines (the origin) arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called its coordinates. Understand that the first number indicates how far to travel from the origin in the direction of one axis, and the second number indicates how far to travel in the direction of the second axis, with the convention that the names of the two axes and the coordinates correspond (e.g., x-axis and x-coordinate, y-axis and y-coordinate).

CCSS.MATH.CONTENT.5.G.A.2 Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation.
Name: _______________________________________________________

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**Possible Tasks**

- Weird
- Animal
- Transport
- Say
- Look
- All Colors
- Eye Pattern
Name: _______________________________________________________

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- Weird
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