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The Coordinate Plane Lesson - #CSandMath

Project goal:

Students will be able to use their understanding of coordinates to draw a desired shape or design, then students will create a guessing game to send their character from a random place to a desired (x,y) coordinate.

Standards:

6.1.1.1 Locate positive rational numbers on a number line and plot pairs of positive rational numbers on a coordinate grid.

7.1.1.3 Locate positive and negative rational numbers on the number line, understand the concept of opposites, and plot pairs of positive and negative rational numbers on a coordinate grid.

Blocks:



Student Handout

Teacher Guide:

The rectangle drawing warm-up and star challenge activity lesson would take about 30-45 minutes for students that aren't well versed in Scratch. They should have a basic understanding of the coordinate plane before the activity.

The game challenge is more like a full hour and could be 2-3 hours depending on how long you have to let students explore extensions.

Possible Solutions:

Initial Rectangle Challenge



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```
when clicked
  pen down
  set pen size to 2
  set pen color to 6
  glide 1 secs to x: 50 y: -100
  glide 1 secs to x: -50 y: -100
  glide 1 secs to x: -50 y: 100
  glide 1 secs to x: 50 y: 100
```

Coordinate Guessing Game

Blue Dot:

```
when clicked
  glide 1 secs to x: pick random -240 to 240 y: pick random -180 to 180
  ask "What is the X location of the green square" and wait
  set x_guess to answer
  ask "What is the Y location of the green square" and wait
  set y_guess to answer
  glide 1 secs to x: x_guess y: y_guess
  if touching Green Square ? then
    say BOOM! for 2 secs
  else
    say C'Mon Man! for 2 secs
```

Green Square:

```
when clicked
  glide 1 secs to x: pick random -240 to 240 y: pick random -180 to 180
```