



'Geoguessr' Simulation - #CSandMath

Project Goal:

Students will apply the distance formula to create a game based on a Google Earth simulator.

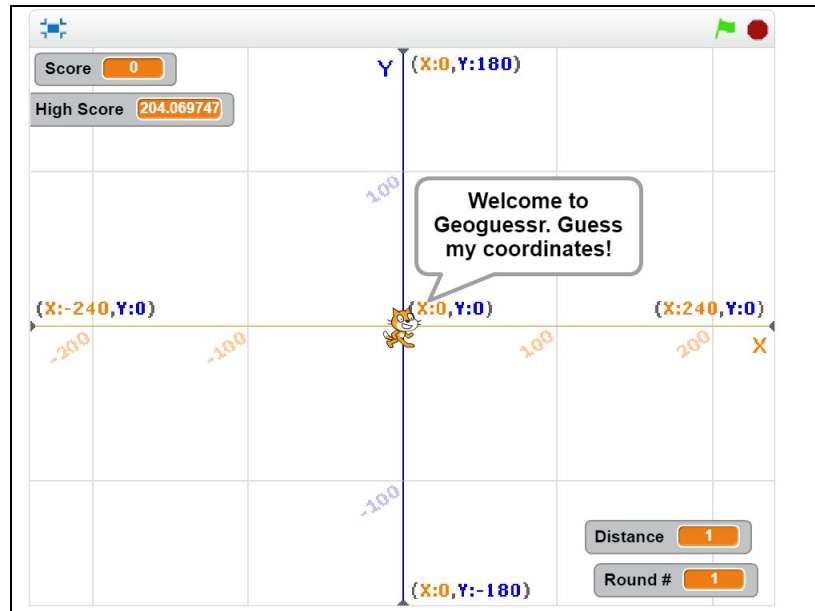
CC Standard:

8.G.8 Apply the Pythagorean Theorem to find the distance between two points in a coordinate system.

MN Standard:

8.3.1.2 Determine the distance between two points on a horizontal or vertical

line in a coordinate system. Use the Pythagorean Theorem to find the distance between any two points in a coordinate system.



Teacher Guide:

Introduce [Geoguessr](#) to the students, play as a class. After one or two rounds, let the students explore the game on their own. Let them play for 5 minutes, and then discuss the inner-workings of the program. How does this game work? What math is present? What would we need to make this code?

After sufficient discussion (talking about coordinate plane, distance formula, etc.), let kids begin to make this game. If I were running the activity, I would show the kids the first few blocks and let them go from here. If students are really struggling, pass out the student handout, which walks them through the process step-by-step.

[Student Handout Lined Here](#)

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Solution:

```

set Distance to sqrt of X Location - X Guess * X Loc
say join You are join Distance units away. for 2 secs
change Round # by 1
change Score by 50 - Distance
if Score > High Score then
  set High Score to Score
set Round # to 1
say join Final Score = Score for 3 secs
say Press space to try again! for 2 secs

```

```

when flag clicked
  go to x: 0 y: 0
  say Welcome to Geoguessr. Guess my coordinates! for 2 secs
  set Round # to 1
  set Score to 0
  repeat 5
    set X Location to pick random -240 to 240
    set Y Location to pick random -180 to 180
    go to x: X Location y: Y Location
    ask X Coordinate - Where am I? and wait
    set X Guess to answer
    ask Y Coordinate - Where am I? and wait
    set Y Guess to answer

```

Distance Formula... set 'Distance' Variable to this:

```

sqrt of x2 - x1 * x2 - x1 + y2 - y1 * y2 - y1

```

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