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Cassidy and Chloe - [Inspired By Math](#)



# The Staircase Investigation

## Student Discovery Activity - Finding Slope from Graphs

### Instructions

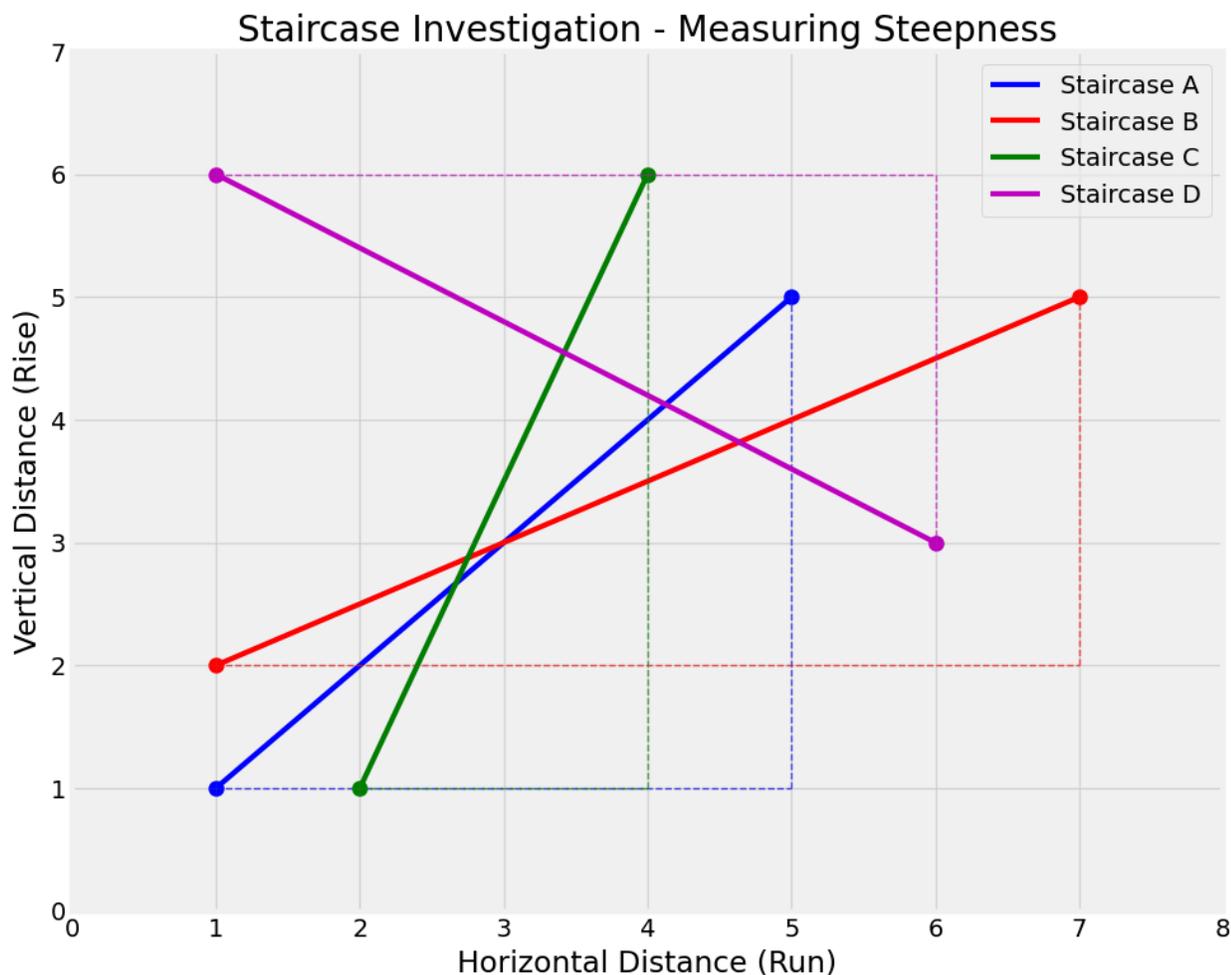
You are going to investigate different "staircases" to discover what makes some steeper than others. Work carefully and record all your findings - you'll use this discovery in our next lesson!

### What You'll Need:

- This worksheet
- A ruler
- A pencil

### Part 1: Analyze the Staircases

Look at each staircase below. Each one connects two points with a straight line, but they have different steepness levels.



## Part 2: Count and Calculate

### Staircase A (Blue)

1. **Starting Point:** ( \_\_\_\_ , \_\_\_\_ )
2. **Ending Point:** ( \_\_\_\_ , \_\_\_\_ )
3. **Rise** (vertical steps up/down): \_\_\_\_
4. **Run** (horizontal steps right): \_\_\_\_
5.  $\frac{\text{Rise}}{\text{Run}} = \text{---}$

### Staircase B (Red)

1. **Starting Point:** ( \_\_\_\_ , \_\_\_\_ )
2. **Ending Point:** ( \_\_\_\_ , \_\_\_\_ )
3. **Rise** (vertical steps up/down): \_\_\_\_
4. **Run** (horizontal steps right): \_\_\_\_
5.  $\frac{\text{Rise}}{\text{Run}} = \text{---}$

### Staircase C (Green)

1. **Starting Point:** ( \_\_\_\_ , \_\_\_\_ )
2. **Ending Point:** ( \_\_\_\_ , \_\_\_\_ )
3. **Rise** (vertical steps up/down): \_\_\_\_
4. **Run** (horizontal steps right): \_\_\_\_
5.  $\frac{\text{Rise}}{\text{Run}} = \text{---}$

### Staircase D (Purple)

1. **Starting Point:** ( \_\_\_\_ , \_\_\_\_ )
2. **Ending Point:** ( \_\_\_\_ , \_\_\_\_ )
3. **Rise** (vertical steps up/down): \_\_\_\_
4. **Run** (horizontal steps right): \_\_\_\_
5.  $\frac{\text{Rise}}{\text{Run}} = \text{---}$

### Part 3: Make Discoveries

3.1 Which staircase looks the steepest to your eyes? \_\_\_\_\_

What is its  $\frac{\text{Rise}}{\text{Run}}$  value? \_\_\_\_\_

3.2 Which staircase looks the most gradual (least steep)? \_\_\_\_\_

What is its  $\frac{\text{Rise}}{\text{Run}}$  value? \_\_\_\_\_

3.3 What do you notice about Staircase D? How is it different from the others?

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3.4 Look at your  $\frac{\text{Rise}}{\text{Run}}$  calculations for staircases A-C. Write them in order from least to greatest:

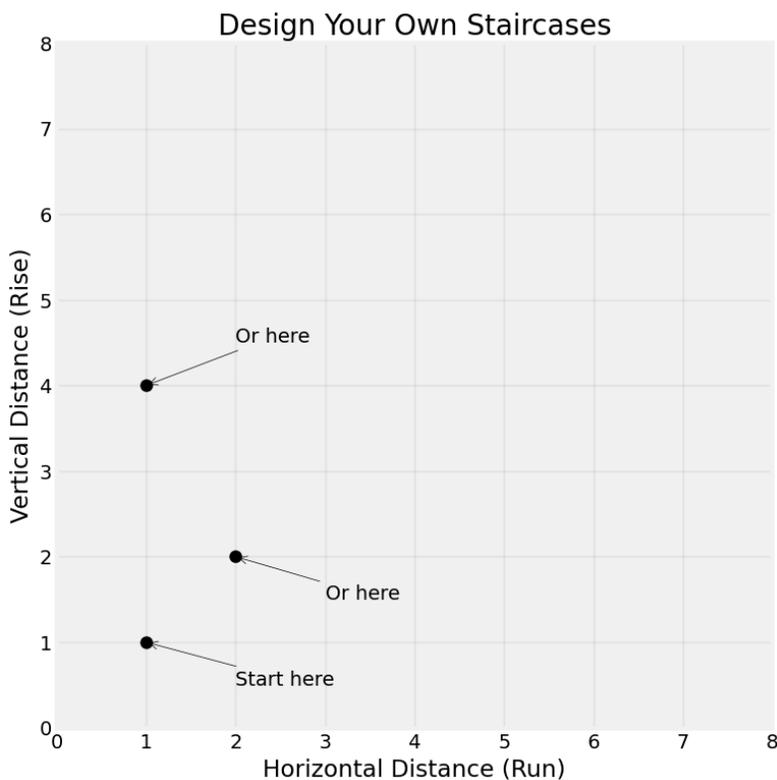
Least: \_\_\_\_\_ → \_\_\_\_\_ → \_\_\_\_\_ → : Greatest

3.5 What pattern do you notice between the  $\frac{\text{Rise}}{\text{Run}}$  value and the steepness of the staircase?

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### Part 4: Test Your Discovery



**Your Turn!** Using the grid:

1. Draw a staircase that you predict will be **very steep**.

What  $\frac{\text{Rise}}{\text{Run}}$  value are you aiming for? \_\_\_\_\_

2. Draw a staircase that you predict will be **not very steep**.

What  $\frac{\text{Rise}}{\text{Run}}$  value are you aiming for? \_\_\_\_\_

1. Calculate the actual  $\frac{\text{Rise}}{\text{Run}}$  for each of your staircases. Were your predictions correct?