

## “Rate of Change with Rebounds”

### Objective:

By the end of the activity, the students will be able to:

- Understand that the slope is a constant rate of change using a real world problem.

### Teacher Preparation:

- Have the students in small groups (2-4 members).
- Provide copies of the “Rate of Change with Rebounds” activity sheet.

### Introduction:

1. Introduce the scenario to the students. As a whole group, discuss what a rebound is and whether it would be considered a good or bad in basketball.
2. Then, pass out the activity sheet. Allow the students to have about 30 minutes to work through their scenario.

### Activity:

Have the students to work within their groups to answer the questions in the activity. You will walk around to facilitate student interaction and ask probing questions throughout. At the end of the activity, discuss how the constant rate of change displays slope.

### South Carolina College- and Career-Ready Standards for Mathematics:

8.F.4 Apply the concepts of linear functions to real-world and mathematical situations.

### Extensions:

- Have the students graph the data from the table and analyze the graph. Discuss how the graph shows a constant rate of change.
- Give some small groups a different scenario (non-example of linear function) to complete and compare within their groups.
- You may use the same scenario to add the concept of y-intercepts.

## Rate of Change with Rebounds

As a basketball player, you want to look at how the total number of rebounds you have made has changed over a period of games.

Number of Games Played vs. Total Number of Rebounds						
$x$ Number of games played	0	1	2	3	4	5
$y$ Total number of rebounds made	0	8	16	24	32	40

What pattern(s) do you notice happening in the table?

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### Understanding Rates of Change

**Reflect:**

If you wanted to know the rate at which something changes, what do you think you are looking for?

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**Directions:** Each person from your group needs to choose any 2 different sets of points from the table. You will each find the rate of change (how one quantity changes in relation to another) for that interval using the formula below.

$$\frac{y_2 - y_1}{x_2 - x_1}$$

Points:  $(x_1, y_1)$  and  $(x_2, y_2)$

**Example: (1, 2) and (3, 4)**

$$\frac{4 - 2}{3 - 1} = \frac{2}{2} = 1$$

**Group Results:**

**You:**

Rate of change for (\_\_, \_\_) and (\_\_, \_\_) =

*Member's Name:*

Rate of change for (\_\_, \_\_) and (\_\_, \_\_) =

*Member's Name:*

Rate of change for (\_\_, \_\_) and (\_\_, \_\_) =

*Member's Name:*

Rate of change for (\_\_, \_\_) and (\_\_, \_\_) =

**Reflect:** What pattern do you notice between all of your group members' answers compared to the pattern you noticed in your table? Why do you think that is?

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