



STUDENT \_\_\_\_\_ GROUP \_\_\_\_\_

INSTRUCTOR \_\_\_\_\_ DATE \_\_\_\_\_

## Math Lab Lesson #2 Group Activity:

### Percent Change

#### ★ ACTIVITY LAUNCH:

1. After graduating from college, Antoine gets an entry level job at a law firm.

After his first year, he gets a \$1,000 raise.

**Should Antoine be happy? What other information would you like to know?**

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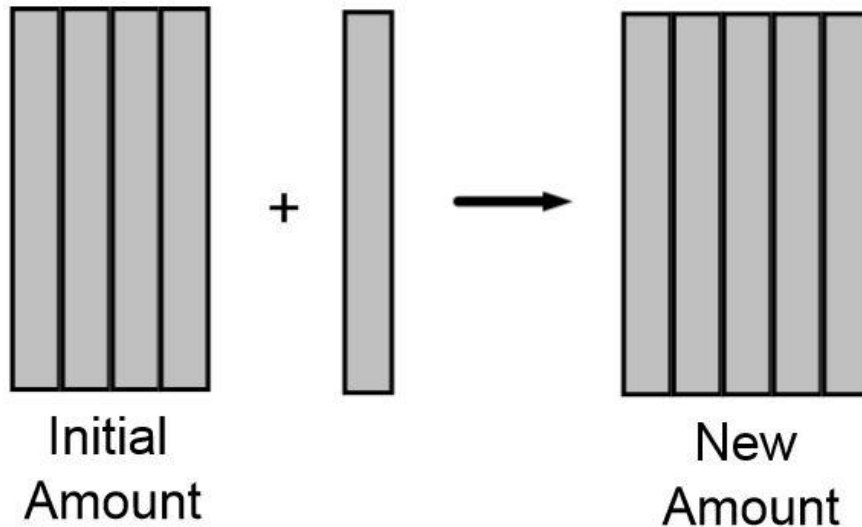
<u>Scenario #1</u>	<u>Scenario #2</u>

★ **ACTIVITY PART 1: INCREASING AND DECREASING AREAS**

You have a set of rectangular tiles in front of you. Use the tiles to model the situations below, and then find the percent change. **The first one is done for you as an example, with a picture.**

**\*YOU DO NOT NEED TO DRAW A PICTURE OF THE TILES\***

1. Start with 4 tiles, add 1.     PERCENT CHANGE:     **25% Increase**



2. Start with 2 tiles, add 1.     PERCENT CHANGE:    

3. Start with 3 tiles, add 3.     PERCENT CHANGE:



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4. Start with 5 tiles, add 1.     PERCENT CHANGE:

\*A population of a town increases from 50,000 people to 60,000 people. By what percent did the population increase?

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5. Start with 3 tiles, add 2.     PERCENT CHANGE:

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6. Start with 6 tiles, add 4.     PERCENT CHANGE:

Compare your answers to #5. What do you notice?

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7. Start with 10 tiles, take away 4.     PERCENT CHANGE:

Compare your answers to #7. What do you notice?

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8. Start with 5 tiles, add 4.     PERCENT CHANGE:



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9. Start with 5 tiles, take away 1.

PERCENT CHANGE:

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10. Start with 5 tiles, take away 3.

PERCENT CHANGE:

Compare your answers to #9. What do you notice?

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11. Start with 4 tiles, take away 3.

PERCENT CHANGE:

I used to be able to do 8 pushups in one minute. Now I can only do 2 pushups. By what percent has the number of pushups I can do in one minute decreased?

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12. Start with 3 tiles, take away 3.

PERCENT CHANGE:



★ **ACTIVITY PART 2: HOPPING, RUNNING, AND RUNNING BACKWARDS**

Choose a partner and grab a stopwatch. You and your partner are going to record how long it takes to get to the wall and back in three sprints:

- Sprint #1: Hopping
- Sprint #2: Jogging
- Sprint #3: Running Backwards

Then, you are going to calculate the percent change in the amount of time it took you from one sprint to the next.

★ **Before you begin, make a prediction: in which sprint do you think you will run the fastest? In which sprint do you think you will run the slowest?**

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Below, record the amount of time (in seconds) that it takes you and your partner to complete the three sprints. **Record up to the hundredth of a second.**

**MY TIME:**

<u>Sprint #1: Hopping</u>	<u>Sprint #2: Jogging</u>	<u>Sprint #3: Running Backwards</u>

**MY PARTNER'S TIME:**

<u>Sprint #1: Hopping</u>	<u>Sprint #2: Jogging</u>	<u>Sprint #3: Running Backwards</u>

**TURN OVER →**



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1. Calculate the percent change of the time it took **you** to finish the following sprints. For each one, determine whether it is a percent increase or a percent decrease.

a) Initial Run: Sprint 1 (Hopping)      Final Run: Sprint 2 (Jogging)

b) Initial Run: Sprint 2 (Jogging)      Final Run: Sprint 3 (Running backwards)

c) Initial Run: Sprint 1(Hopping)      Final Run: Sprint 3 (Running backwards)

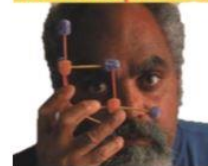
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2. Calculate the percent change of the time it took **your partner** to finish the following sprints. For each one, determine whether it is a percent increase or a percent decrease?

a) Initial Run: Sprint 1 (Hopping)      Final Run: Sprint 2 (Jogging)

b) Initial Run: Sprint 2 (Jogging)      Final Run: Sprint 3 (Running backwards)

c) Initial Run: Sprint 1(Hopping)      Final Run: Sprint 3 (Running backwards)



### BOSS LEVEL

1. During the previous activity in 1a) and 2a), you probably found that there was a **percent decrease** in the amount of time that it took you to complete Sprint 1 (Hopping) when compared to Sprint 2 (Jogging). But you went **faster** when jogging than when hopping.

Why does a percent decrease in time it takes correspond to an increase in the speed that you go?