

Name

Date

Period #

**Math and Music Lab**

**Introduction:**

In this exercise you will design and carry out a successful experiment using all of the elements of the scientific method. I have **observed** that students these days like to listen to music while they do their work. In this activity you will listen to 4 different types of music (**rock, pop, hip-hop, classical, and a control**) while completing basic math problems.

**Objective:**

- Perform a controlled experiment to determine which type of music you work best to

**Purpose:**

\_\_\_\_\_

**Problem/Experimental Question:**

\_\_\_\_\_  
\_\_\_\_\_

**Hypothesis:** *I think that/If...*

\_\_\_\_\_  
\_\_\_\_\_

**What results would support this hypothesis?**

\_\_\_\_\_  
\_\_\_\_\_

**Procedure:** How will we carry out the experiment?

1. \_\_\_\_\_  
\_\_\_\_\_
2. \_\_\_\_\_  
\_\_\_\_\_
3. \_\_\_\_\_  
\_\_\_\_\_
4. \_\_\_\_\_  
\_\_\_\_\_

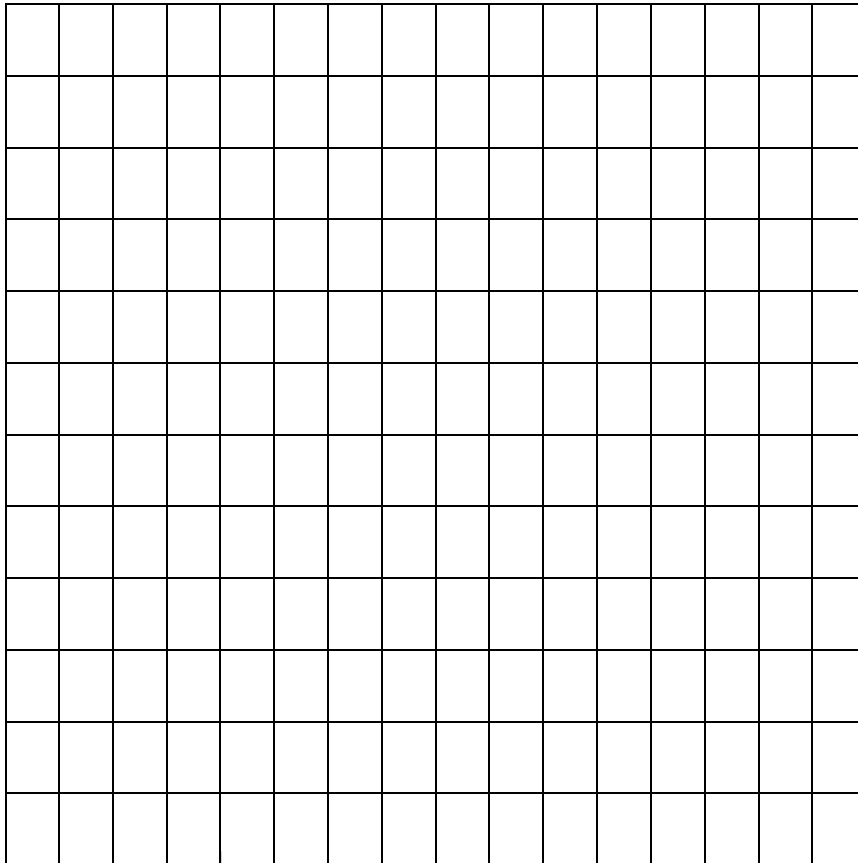
**Potential Human errors:** describe any variables in the experiment that may reduce the validity of the data

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_

Test Type	Number Correct
Rock	
Pop	
Hip-Hop	
Classical	
Control	

**Graph your data:** Bar Graph

- Properly label your axes
- Label your bars on the x-axis
- Choose a scale for your y-axis. It is helpful to use the highest and lowest numbers in your data as a guide. Write numbers along your axes.
- PLOT POINTS
- Title the graph



**Analysis:**

1. Describe/Explain what the graph shows you?

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2. Compare your interpretation of the data (analysis) with your hypothesis. Was your hypothesis supported? Explain

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3. Why would changing the volume or time for each group invalidate the results?

**Draw conclusions:**

1. What do your results and the class results say about how music affects student performance?

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2. Do these results raise any new questions that you could test? Explain

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3. How could you modify this experiment to make it more valid (better support your results)?

**Interpretation Questions**

1. What is the independent variable? (what did we control)

2. What is the dependent variable? (what 'depends' on the independent variable, what did we 'measure')
  
3. What are the experimental groups?
  
4. What was the control group? (take away the independent variable)
  
5. Name at least three other factors/variables in this experiment that should NOT have changed