

Name: \_\_\_\_\_

Date: \_\_\_\_\_ Hour: \_\_\_\_\_

Partner: \_\_\_\_\_

**Background:**

The scientific method begins with making observations leading to a question/problem. Observations are either qualitative or quantitative. Qualitative observations are made using your senses. In this activity, you will be testing the reaction time of your senses (sight, touch, sound) by measuring the height at which a dropped ruler is caught. One student will be dropping a ruler; one student will be catching the ruler. The lower the measurement on the caught ruler, the faster the reaction time for that sense.

**Problem:** What sense has the fastest reaction time?

**Hypothesis:** State your hypothesis here: \_\_\_\_\_

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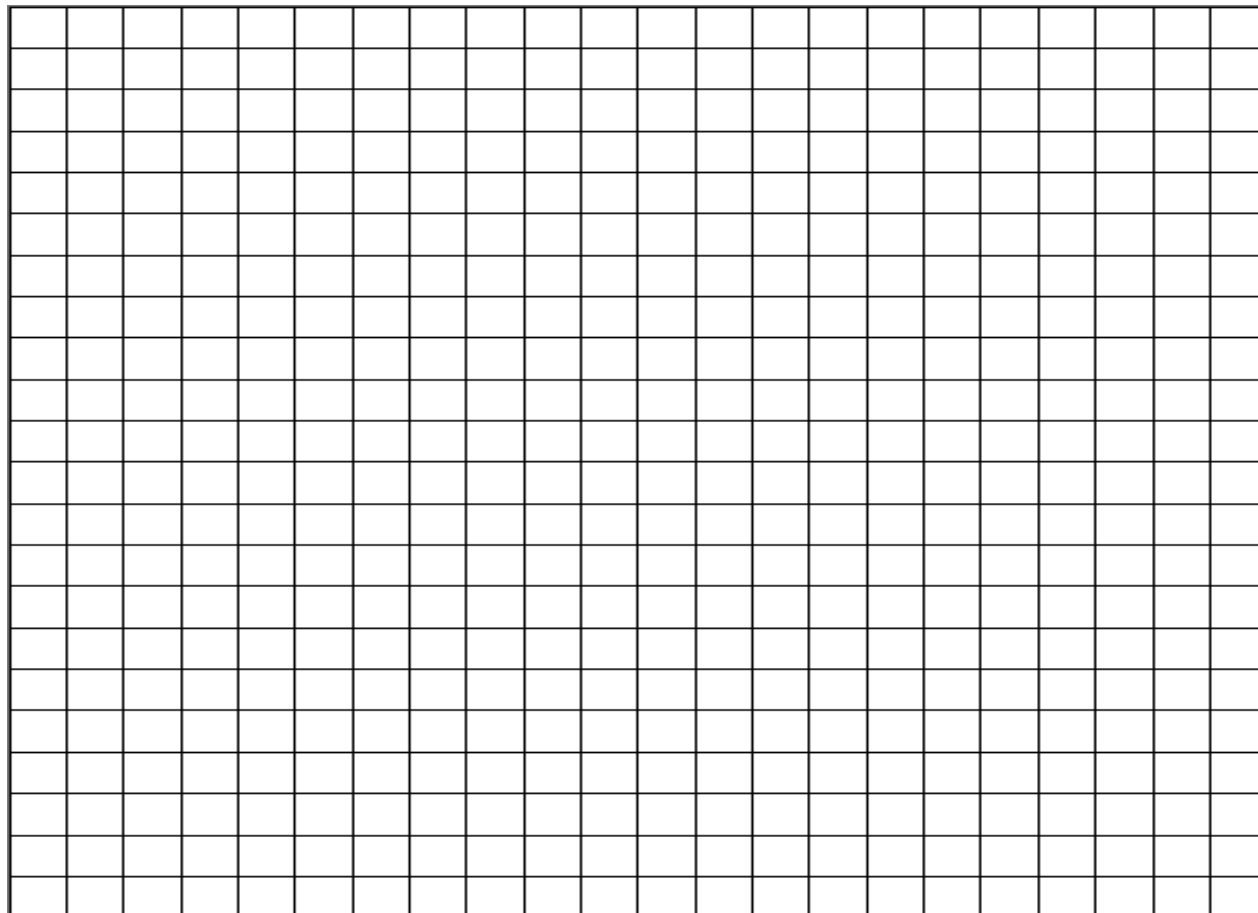
**Procedure:**

1. Your roles are: Dropper or Catcher. The student who is catching the ruler will repeat the experiment 4 times for each of the 3 senses (touch, sight, sound).
2. The student, who is dropping the ruler, holds the ruler vertically, holding it at the 80cm mark with their thumb and index finger. The student, who is catching the ruler, puts the top of their index finger at the 0cm mark and their thumb on the other side of the ruler. This lets the student grab or pinch the ruler.
3. First test Sight
  - a. The catching student has their index finger and thumb close to the ruler, BUT NOT TOUCHING IT! Once the other student drops the ruler, the catcher tries to catch the ruler with their fingers. The highest point where the catching student's index finger is should be recorded in the data table. Record the height in the data table and repeat 3 more times for sight.
4. Sound
  - a. The catcher puts their finger back at the 0cm mark and closes his/her eyes. The student who drops the ruler says "now" and drops the ruler at the same time. Once the catcher hears "now", they try to grab the ruler. Record the results. Repeat 3 times.
5. Touch
  - a. The catcher puts their fingers back at the 0cm mark and closes his/her eyes. The student who drops the ruler taps the catcher on the arm and drops the ruler at the same time. Once the catcher's arm is touched, they try to grab the ruler. Record the results. Repeat 3 times.
6. Find the averages of all your times.

**Data Table:**

Trial	Sight	Sound	Touch
1			
2			
3			
4			
Average			

**Graph:** Create a **bar graph** displaying the avg. reaction times for your data above. Make sure to label all relevant information.



**Analysis:** To be answered using complete sentences.

1. What were the independent variable(s) used in this experiment? \_\_\_\_\_
2. What was the dependent variable in this experiment? \_\_\_\_\_
3. Name at least one constant: \_\_\_\_\_
4. Was this activity demonstrating a controlled situation? \_\_\_\_\_
5. Briefly explain why it is necessary to perform 3-5 trials \_\_\_\_\_  
\_\_\_\_\_

**Claim-Evidence-Reasoning:** Recall from class what each component entails. Write your CER in complete sentences on another piece of paper and staple to the lab.