

**What to turn in: Prelab question, part 1
analysis question, part 2 analysis question,
and data tables**

Accuracy and Precision Lab

Prelab Question:

Explain the difference between accuracy and precision.

Part I: Estimating Lengths

- a) Roughly tear a piece of paper so that you have 8 small pieces of paper.
- b) Without using a ruler, draw a line that you estimate to be 5.00 cm long on one of the pieces of paper. Turn the square of paper over.
- c) Repeat the process on 3 more pieces of paper. Each time turn the piece of paper over so that you cannot look back at your previous estimate while you draw you 5.00 cm line on the next sheet
- d) Use a ruler to measure the length of each line in centimeters. Record your measurements to two decimal places. Copy the table below and enter your data.
- e) Hide the first four pieces of paper so that you cannot look back at your previous estimates. Repeat the above procedure using the last 4 squares of paper. Each time you draw a line turn that piece of paper over so that you cannot see that estimate as you draw the next estimate.
- f) Repeat the above process of using your ruler to record the measurements in the table you created. Then calculate your average lengths and your percent error.

Part 1 Analysis Question:

1. How did your accuracy and precision change as you performed this experiment?

Measured Length (cm)		% Error	
First 4 squares of paper	Second 4 squares of paper	First 4 squares of paper	Second 4 squares of paper
Average length:	Average length:	Avg. % error:	Avg. % error:

Procedure 2: Estimating time (You will need a partner for this section.)

- a) Your partner will tell you when to start. Close your eyes and estimate the passing of exactly 20 seconds. When you believe 20 seconds have passed, tell your partner to stop. (You can count in your head if you would like.) Here is an online stopwatch you can use: <http://www.online-stopwatch.com/>
- b) Your partner will let you know how much time has actually passed. Copy the chart below and record the actual time.
- c. Repeat the process three times and record those results. Complete the percent error and averages calculations.

Measured Length (s)	% Error
Trial 1	
Trial 2	
Trial 3	
Trial 4	
Average	

Part 2 Analysis Questions:

2. How did your accuracy and change as you performed this experiment? Did you get better with practice?