**Accuracy and Precision**

**Lab Instructions**

1. Work with your 6 o’clock partner to identify the difference between accuracy and precision by completing the following challenges:
   1. Have your partner start a stopwatch. Tell your partner when you think 30 seconds has elapsed. Your partner will not tell you if you are correct, but will record the actual elapsed time. Repeat this activity three times, graph your results.
   2. Fill a cup with what you think is 25 mL of water. Repeat this activity three times. Then measure the amount of water using a graduated cylinder and graph your results.
   3. Draw a circle that measures 4 cm in diameter. Repeat this three times. Then measure to see if you were correct. Graph your results.
2. With your partner, look at each graph of your results. Label your graphs to show which ones were accurate, which ones were precise, which ones were both accurate and precise, and which ones were neither accurate nor precise. Then, define accuracy and precision in your own words (not the definitions in your notes).

Challenge #1: 30 seconds elapsed time

|  |  |  |  |
| --- | --- | --- | --- |
|  | Trial 1 | Trial 2 | Trial 3 |
| seconds |  |  |  |

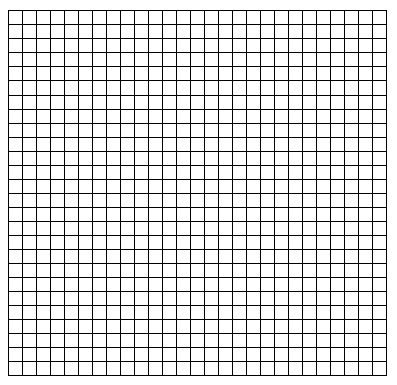
Challenge #2: Cup Capacity

|  |  |  |  |
| --- | --- | --- | --- |
|  | Trial 1 | Trial 2 | Trial 3 |
| Volume in mL |  |  |  |

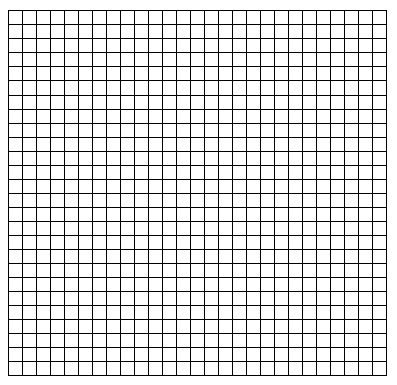
Challenge #3: Circle Diameter

|  |  |  |  |
| --- | --- | --- | --- |
|  | Trial 1 | Trial 2 | Trial 3 |
| Circle diameter in cm |  |  |  |

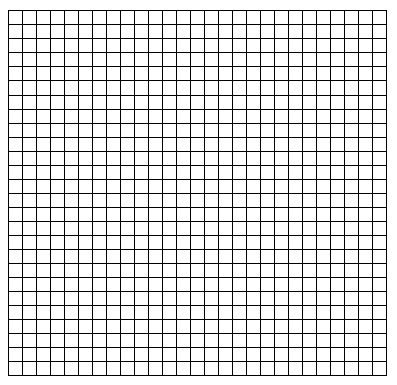
Graph #1: Elapsed Time



Graph #2: Cup Capacity



Graph #3: Circle Diameter



Which graphs are accurate? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Which graphs are precise? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Which graphs are both? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Which graphs are neither? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Define accurate and precise in your own words (not the definition in your notes).

Accurate: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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

Precise: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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