**ANNOUNCEMENT:**

**You have just been hired to go on a treasure hunt; however before you are allowed on the hunt, you must prove that you can determine Total Distance, determine Displacement, and make Conversions.**

*The object of this lab is to learn the difference between Total Distance and Displacement and complete conversions. You will be broken into groups, then prepare to go outside with a notebook, calculator, and a pen or pencil. Calculate all answers to 3 Sig. Figs.*

Mission 1: Follow directions, keep track of the distance travelled for each leg, and consider total distance and displacement at each stopping point. *Use scratch paper for calculations and attach.*

1. Choose a location along the school wall below the classroom windows.
2. Take 10 steps forwards, estimate your segment (leg) distance, total distance and displacement travelled in feet.
3. Turn 90° to the right
4. Take 15 steps forward; estimate your segment (leg) distance, total distance and displacement travelled in feet.
5. Turn 90° to the right
6. Take 5 steps forward; estimate your segment (leg) distance, total distance and displacement travelled in feet.
7. Turn 180° around
8. Take 20 steps forward; estimate your segment (leg) distance, total distance and displacement travelled in feet.
9. Complete the chart provided below

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| LEG | Leg Distance (ft) | Total Distance (ft) | Displacement (ft) | Displacement (m) |
| 1 |  |  |  |  |
| 2 |  |  |  |  |
| 3 |  |  |  |  |
| 4 |  |  |  |  |

Mission 2: Prove that your team can identify the differences between accuracy and precision, estimate distances, and calculate and convert distances.

* Complete the table below. Each letter represents the corresponding description.
  1. Distance between the Gate and the Cafeteria Door.
  2. Distance between the trees near the Cafeteria
  3. Length of the “Lawn” (from classroom windows wall to sidewalk)
  4. Length of a picnic table.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Task | Estimate | Actual Measurement | | |
| (in) | (ft) | (m) |
| A |  |  |  |  |
| B |  |  |  |  |
| C |  |  |  |  |
| D |  |  |  |  |

* Explain for each task, how you calculated the distance, include any tools or objects that were used to help. Explain any errors that may have existed in the calculations.

Names

Date

Block

**What were you trying to accomplish in this lab?**

**How does this lab relate to everyday life?**

**What professions may have to use similar procedures to determine (estimate) distances? Why?**

**What is the problem with calculating distances in this manner?**

**Describe the level of precision used in this lab. (First, need to know what precision is)**

**Describe the level of accuracy used in this lab. (First, need to know what accuracy is)**

**How could you improve accuracy/precision in these measurements?**