ETS Motion Lab: Calculations & Graphing

Calculations:

- Calculate the **average speed** for each of your **3 modes** of locomotion. Please **show all your work**, **formulas** and **include the units** on all numbers. (round to one decimal place)

$$\text{speed} = \frac{\text{Distance}}{\text{Time}} \qquad \text{or} \qquad \text{avg. speed} = \frac{D_f - D_i}{T_f - T_i}$$

D_f= Final distance traveled
D_i= Final starting distance or place
T_f= Time it took to get to your final distance
T_i= the time when you started moving

Graph:

1. Use the **SULTAN Method** to make a graph that is **at least ½ of the page**.
2. Use **proper scale (**look at your **max values** for **time** and/or **distance** to help determine the proper scale.).
3. **Use a ruler** to make **straight**, beautiful lines.
4. Each event should have its **OWN COLOR** (*or* **unique line**).
5. **Include a key**.

Conclusion: (Write a conclusion using the CLEAR Science technique.)

Claim: Looking at your **hypothesis**, were you correct on which method of motion you predicted would be the fastest? (Explain or elaborate)

Evidence: Use evidence from your graph and/or data table to back up your claim. Include the average speed as evidence.

Reasoning: Explain why you think that method of motion was the fastest?

Error Analysis: What were some errors that occurred and how could they have affected your data?

Future experimentation: What would you do differently next time or what questions do you have now that you would want to investigate?

Reflection Questions:

1. Why do you think NASA or JPL would **not** want astronauts to run on the planet?
2. What **other ways** could astronauts get around an extraterrestrial planet surface?