

My Name: _____ Period: _____ Date: _____

My partner

(s): _____

RUN! Pre-Lab Warm-Up:
Using a graph to find SPEED [TOTAL = 20 PTS]

Graph: 3 ½ pts

Several students in Mr. Hall's class collected the following data representing the distances their class pets (*Speedy the Snail* and *Lightning the Turtle*) travelled during a field day race. Plot the data on the graph and find the line of best fit to create a distance-time graph.

Be sure to spread out your data
to make a graph that
shows differences easily!

Time (min)	Speedy Distance Travelled (cm)	Lightning Distance Travelled (cm)
1	0.5	1.0
2	1.5	1.5
3	2.0	2.5
4	2.5	3.0
5	3.5	4.5

1. What is the formula to find the **slope** of a line? (½)

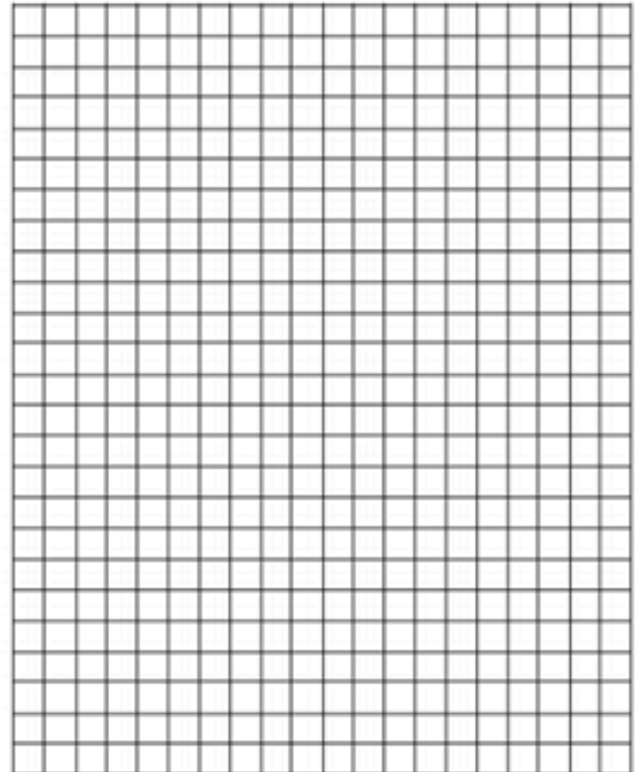
2. How can you use this graph to find the **average speed** of the snail (Speedy)? (½)

3. Which class pet is moving **faster**? (½)

4. How can you tell just by **looking** at the graph? (½)

5. How **much** faster? (Be sure to include units!) (½)

Title: _____



Y: Distance measured in _____

X: Time measured in _____

Key: (what symbol/color/line type is what)

Pre-lab total: 6 pts

Score ____/6

Run! Speed Lab

Problem/Question: What is the effect of **moving different ways** on a **person's speed**?

Hypothesis:

If _____,

then _____

Materials: stopwatch measuring tape at least two teammates (may vary)

Procedure:

1. **Prepare.** Clear your "runway", free of any obstructions. Attach the measuring tape securely to the floor/ground.
2. **Choose roles.** For each trial, one team member will track distance travelled, one team member will measure time with the stopwatch, one team member will record data and one team member will move.
3. **Decide** on distance. You should pick a **different** distance for each trial.
4. **Conduct** the first trial for the movement you have chosen (walking, running, skipping, hopping, etc). Choose a **DIFFERENT** type of movement for trials #2 - 4.
5. **Calculate** your speed for each trial using the speed formula. $s = d/t$ (speed equals distance divided by time)
6. **Report** your data by completing the data table below.
7. **Analyze** your data by plotting your data on the graph on the next page.
8. **Think, discuss, complete** the analysis questions with your team.

Run!Lab Data

(4pts)

Motion Type	Group Member Name	Distance (m)	Time (s)	Speed (m/s)

Run! Lab Graph Instructions

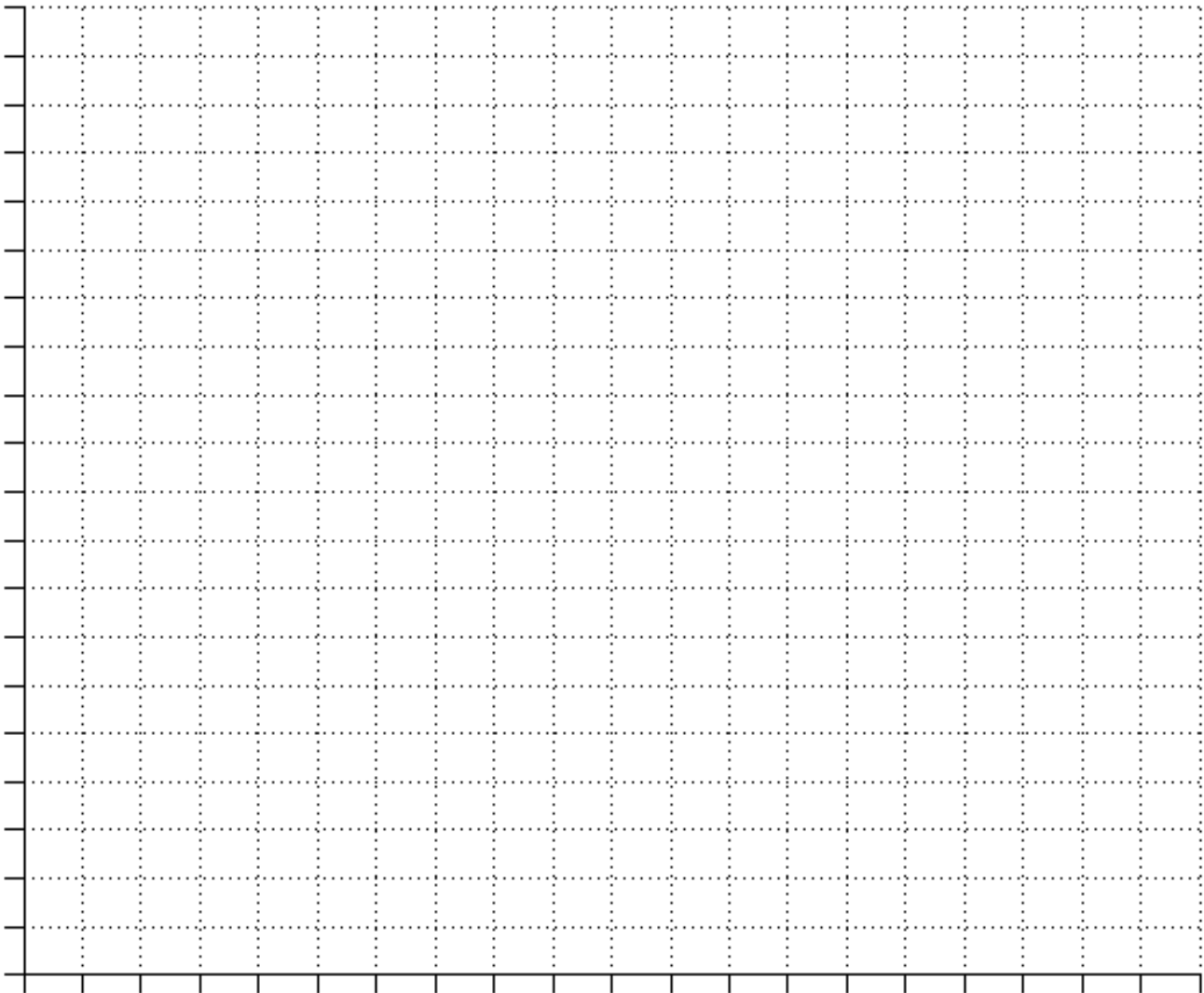
1. On the next page, create a distance vs. time graph for each movement your team completed.

2. Make sure that you have clearly noted the line of best fit (draw from 0,0 to the point that your movement fell on the graph).

Run! Lab Data Graphing

Graph Rubric:

-Appropriate title	___/1/2 pt
-X/Y axis labels	___/1/2 pt
-UNITS on axes	___/1/2 pt
-Appropriate scale	___/1/2 pt
-Data spread out on graph	___/1/2 pt
-Lines of best fit included	___/1 pt
-Clear key	___/1/2 pt



Key: (what symbol/color/line type is what)

Summarize Your Findings

1. What does the **slope** of each line represent in this activity? (Think of the variables in the $s=d/t$ formula.) (1pt)

2. Looking at your graph, what is **special** about the line that shows the **highest** speed? (1/2pt)

3. Looking at your graph, what **type of motion** had the **highest** speed? (1/2pt)

4. Looking at your graph, what is **special** about the line that shows the **lowest** speed? (1/2pt)

5. What **type of motion** had the **lowest** speed? (1/2pt)

6. These results should be unsurprising to you now that you know about speed. Explain the relationship between slope of the line and speed. (Make sure to **support** your conclusion with **data/NUMBERS!**) (3pts)
