

Name: _____ Date: _____ Class: _____

Physics - Vector Treasure Hunt Lab

MATERIALS: Graph paper, compass, ruler, protractor

PROCEDURE:

1. Each group will make a list of five instructions to find a target. (only North, South, East, West)
2. Using the floor tiles as a guide (each floor tile is 1 foot x 1 foot) and compass directions (north, east, south, west), follow the instructions to your 'target'. You have six hundred seconds.
3. Bring the target to your teacher when you have completed your journey and acquired your target.
4. Please note: There will be extra targets out there! You must follow the directions to **your** target.
5. **EACH PERSON** will make a map of his journey on graph paper and turn in.
 - a. Using graph paper, draw a map to the scale of the directions(Use centimeter. Do not use boxes on graph).
 - b. Draw and label a compass rose (NSEW)
 - c. Show all vectors and label each vector with the **actual distance** and **direction** (ex. V_1 20 ft. N , V_2 5 ft. E)
 - d. Draw Cartesian coordinates(X, Y axis) with origin at start location and x axis running east/west.
 - e. Calculate the **total distance** on a separate piece of paper.
 - f. Show the **final displacement**, both mathematically and graphically, with the actual distance and direction (angle from 0^0 or Due East) from the starting point clearly labeled. Label one **mathematical** and one **graphical**.
 - g. Include clear calculations on a separate sheet of paper (total distance, resultant).

PROBLEMS: (answer in paragraph form on separate sheet of lined paragraph)

1. How can vectors be used in physics?
2. How are vectors pictured on graphs?
3. How are vectors added and subtracted in graphing methods?
4. How are distance and displacement measured?

LAB REPORT:

Each team member must have the following information for this lab report:

Conclusion: Answers to the four problems listed at the beginning of the lab must be written in full sentences with lots of detail.

Rubric for Vector Treasure Hunt Lab

Map:

	Possible Points	Earned Points
The map has a compass showing directions.	5	
The map has a clearly marked scale.	5	
The map has a title.	5	
The starting point and end point are clearly marked. (2.5 points each)	5	
Each vector is drawn to scale (1 point each)	5	
The size/direction of each vector is labeled. (2 points each)	10	
The displacement vector is drawn and clearly labeled with size/direction.	10	
Every vector has an arrow drawn. (1 point each)	5	
The total distance is calculated and written clearly.	10	
All units are correct.	5	
The map takes up most of the graph paper and is clear and neat.	5	
Attach rubric to report	2	

Conclusion:

	Possible Points	Earned Points
Problem #1 answered clearly, fully and in complete sentences	7	
Problem #2 answered clearly, fully and in complete sentences	7	
Problem #3 answered clearly, fully and in complete sentences	7	
Problem #4 answered clearly, fully and in complete sentences	7	