

Measuring Speed

Procedure

1. Find a hallway within the designated area where you can work.
2. Count out 30 tiles and use duct tape mark the start and finish points on the floor. Also place a piece of tape every five tiles.
3. Have one person balance a textbook on their head and walk the distance you have marked off. Start the timer when the person starts walking and DO NOT stop it no matter what happens. If the book falls, stop walking and replace it on the head. Record the time when the walker advances every five tiles.
4. Repeat the process twice more so that you have three sets of data.

Questions

1. Draw a graph of the average.
2. Use the graph to calculate the average speed. Now calculate the average speed of the three trials. Does the value from the graph agree with the three measured values? Why or why not?
3. Is the line on your graph horizontal or diagonal line? Why?
4. Think about the relationship between variables when measuring speed in this investigation.
 - a) If the distance traveled increases and the time remains the same, what happens to the average speed?
 - b) If the distance traveled remains the same and the time increases, what happens to the average speed?
 - c) If the speed of travel increases and the time remains the same, what happens to the distance traveled?
 - d) If the speed of travel remains the same and the time increases, what happens to the distance traveled?
 - e) If the speed of travel increases and the distance remains the same, what happens to the time required for the trip?
 - f) If the speed of travel remains the same and the distance increases, what happens to the time required for the trip?
5. The relationship between two variables may be a direct variation (when x increases, y increases) or it may be an inverse variation (when x increases, y decreases). Use these terms to describe the relationship between:
 - a) speed and distance
 - b) speed and time
 - c) distance and time