Force & Motion

Name _____

Speed Trials

Problem: To calculate speed

Background Information: <u>Motion</u> is a change in position measured by distance and time.

<u>Speed</u> is the rate of change in position. Speed combines information about how far an object moves (distance) with how long it takes to move that distance (time).

Speed is the rate at which an object moves.

Speed = distance ÷ time

Distance and Time can also be calculated with these formulas:

Distance = speed X time

Time = distance ÷ speed

Describe SPEED in your own words:

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

Materials:

Stopwatch   1m board   Wood blocks
Toy car   Calculator

Procedure:
1. Use the wood blocks and the board to build a ramp
2. Put the toy car at the top of the ramp, with the front wheels behind the edge of the board.
3. On the signal, release the toy car so that it rolls down the ramp AND start the stopwatch.
4. Stop timing when the back wheels of the toy car leave the end of the ramp.
5. Record the data.
6. Repeat the procedure for a total of 5 times.
7. Average the data.

Data:

Trial	Distance (m)	Time (sec)	Speed (m/s)
1	1		
2	1		
3	1		
4	1		
5	1		
Average	*1*		

Questions:
1. Use your textbook to describe:
   a. Average speed

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   b. Instantaneous speed

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   c. Constant speed

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2. How is instantaneous speed different from average speed?

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3. If you drive 200 miles in 3 hours before stopping for 30 minutes for lunch and gas. After lunch you travel 150 miles in an hour and a half. What was your average speed for the trip? Show your work.