

****2.2 - Kickball Challenge Directions****

Materials:

Ball



Ramp



Laptop



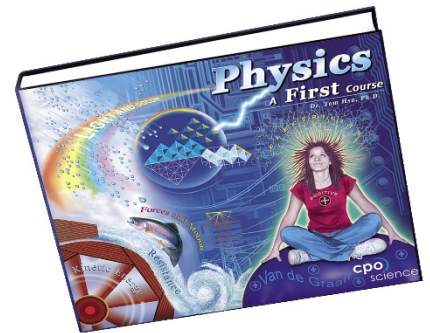
Motion Sensor
with cables



Interface Box



Textbooks



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- Step 1: Connect your sensor and interface to the laptop.
 - Step 2: With your group, build a ramp using textbooks
 - Step 3: Place your ball on the ramp
 - Step 4: One group member will clear the sensor and hit start
 - Step 5: Roll the ball down the ramp (Once you get a good run, go to the next step.)

- Step 6: Add a column to the left side of the table for you to enter the **Velocity** using slope from your **Position vs. Time** graph.

The screenshot shows a table interface with two main sections: 'runs (0 cases)' and 'measurements (0 cases)'. The 'runs' section has columns for 'Index' and 'Run'. The 'measurements' section has columns for 'Index', 'Time (s)', and 'Position (m)'. A small square icon is visible between the two sections, and an arrow points to it, indicating the process of adding a new column.

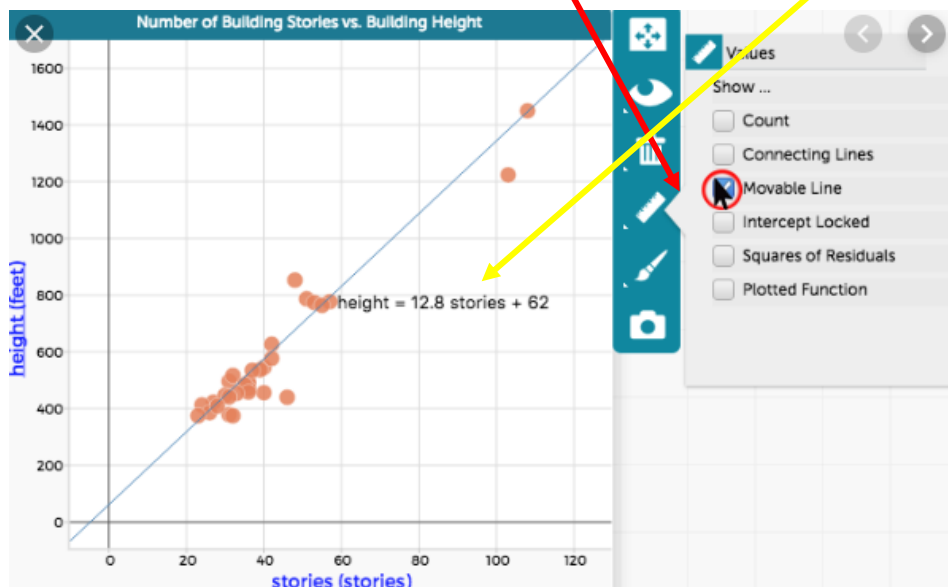
- Step 7: Make a **Position vs. Time** graph.



(HINT: If you need to make room to see your graph, click the (-) sign in the header bar of the Sensor Interactive.)



- Step 8: Choose the ruler option, click on moveable line. Adjust your moveable line to find your slope in the yellow box.



- Step 9: In your table, type your slope into your **velocity** column.



A screenshot of a data table titled "measurements (184)". The table has four columns: "index", "Time (s)", "Distance to surface (m)", and "Velocity (m/s)". The "Velocity" column is highlighted in light blue. A purple arrow points from the text "velocity column" in the step above to this column. The table contains several rows of data, with the top three rows (index 52, 53, 54) and the bottom three rows (index 1, 2, 3) highlighted in light green.

index	Time (s)	Distance to surface (m)	Velocity (m/s)
52	2.12	5.51	1.45
53	2.16	5.45	1.45
54	2.2	5.39	1.45
1	0	8.33	0
2	0.04	8.32	0.31
3	0.08	8.3	0.58

- Step 10: Write your group's **Velocity (slope)** value on the class white board.