

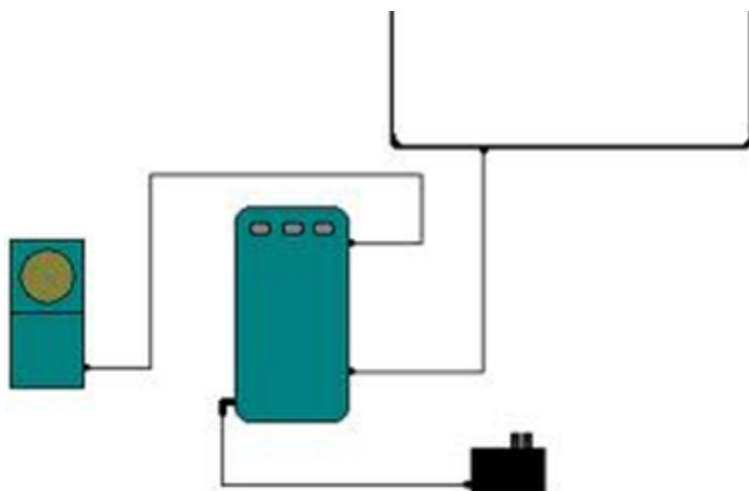
Click FILE-MAKE A COPY, Share with your group and instructor (achapman1@phoenixunion.org),
Then please add your names, period, and group right here! (Remember to use **COLORS**) Please add
in a small group selfie too! (Insert-Image-Take a Snapshot-Allow-Allow)

Constant Velocity Particle Model Ultrasonic Motion Detector Lab:

(In the top drawer at your station, ensure you have the right stuff: Always put this stuff back when done - it keeps things fresh for us!)

1. LabPro (Green Box)
2. 6V Power Supply
3. USB A-B Cable
4. Digital I/O Cable (little white plugs at each end)
5. Microphone in a Box - we use this later :-)

Set up the Motion Detector as below, and open Logger Pro



Multiple Representations of Motion

Do the following for each of the 11 situations below (Grab a small whiteboard, snap a pic, paste it in!)

INSTRUCTIONS

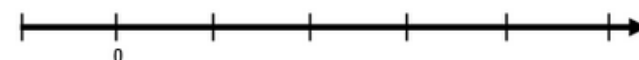
1) MOVE & MATCH THE MOTION INDICATED

2) SKETCH THE MISSING GRAPH

Written description

3) WRITE A VERBAL DESCRIPTION OF THE MOTION (include starting position, direction moved, type of motion, relative speed)

Motion map



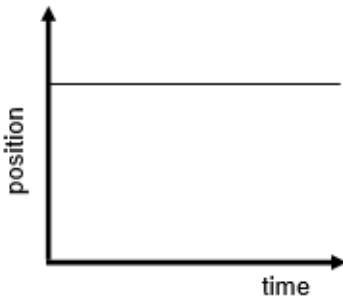
4) Draw the motion map

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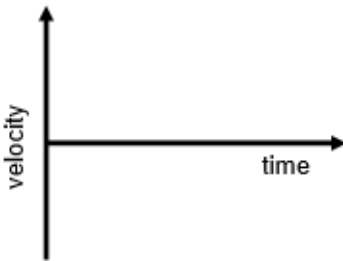
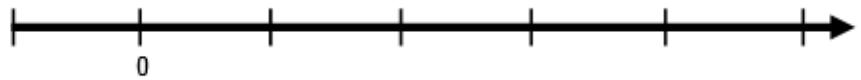
It's highly recommended that you use a small whiteboard to diagram/write/map the stuff below, then INSERT a snapshot! Click "Allow" **TWICE**, and please put your names on the whiteboard!) Advanced students can even try to make the math representations (ish)

1.

Written description

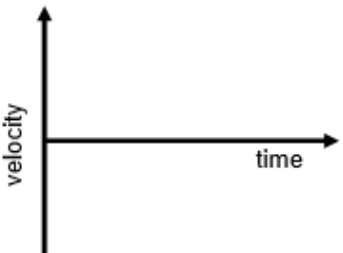
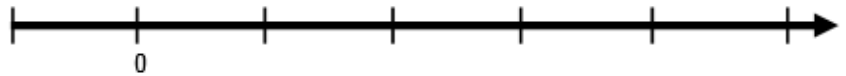
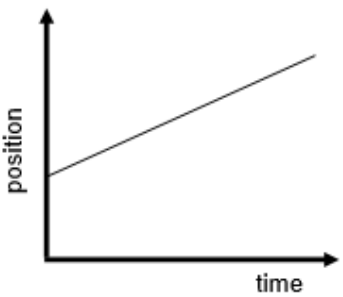


Motion map



2.

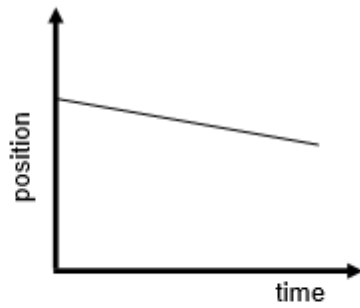
Written description



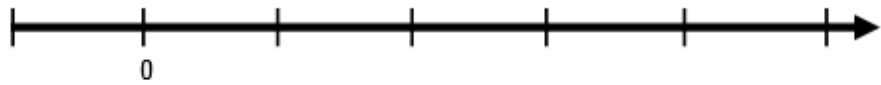
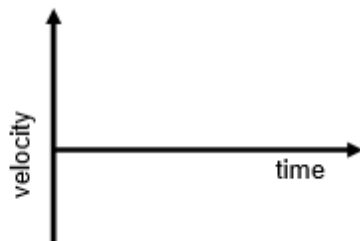
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3.

Written description

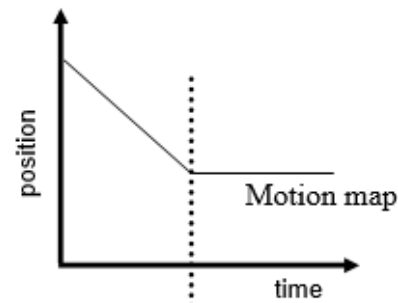


Motion map

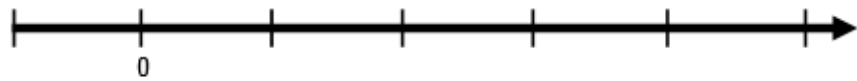
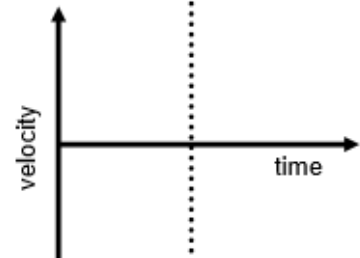


4.

Written description

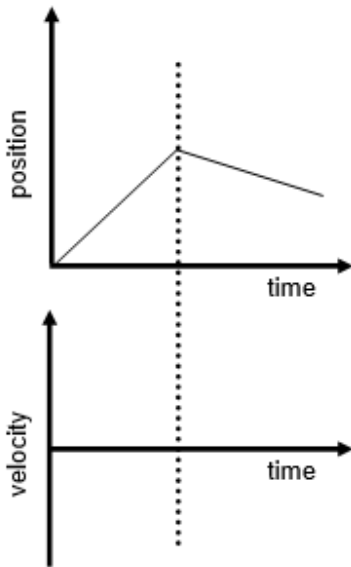


Motion map



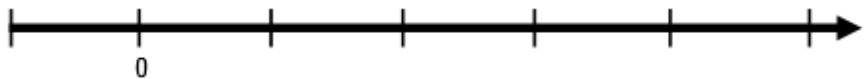
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5.

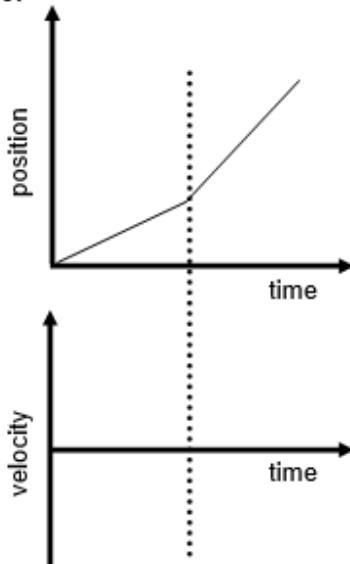


Written description

Motion map

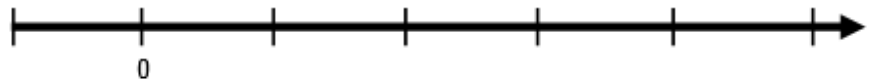


6.



Written description

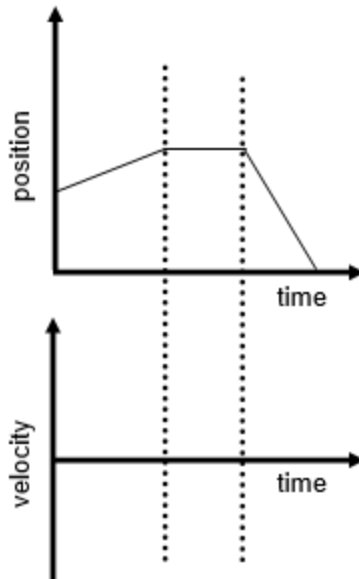
Motion map



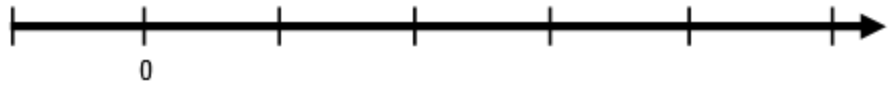
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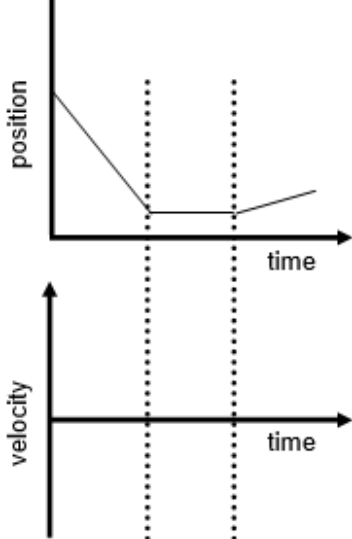


Motion map

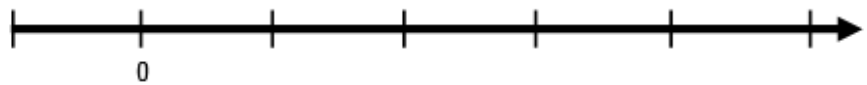


8.

Written description



Motion map

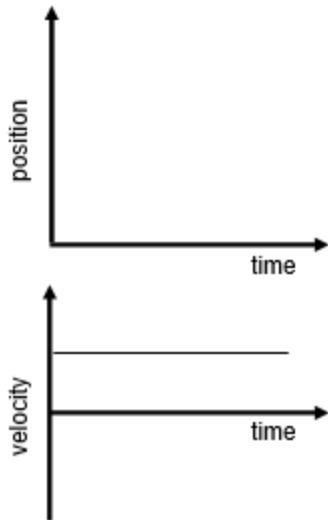


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WHAT THE PHYSICS? NOW WE START WITH A VELOCITY GRAPH? OK - we got this, but keep in mind that the velocity graphs are not going to look perfect with the motion detector, just go for "pretty close"

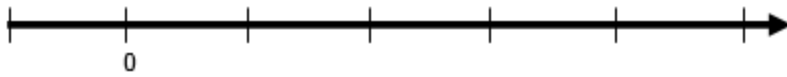
For the following, match the velocity-time graphs and sketch corresponding position-time graphs

9.

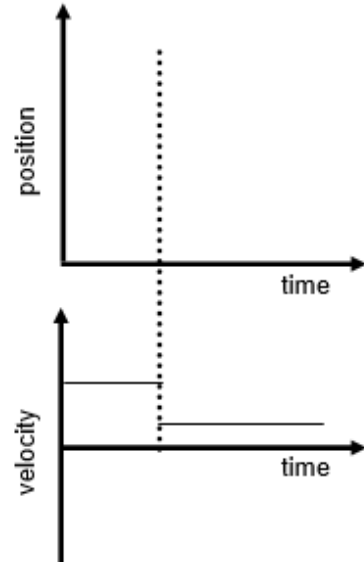


Written description

Motion map

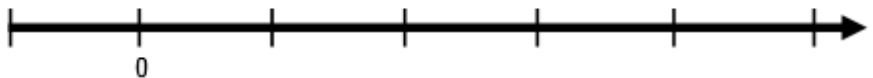


10.

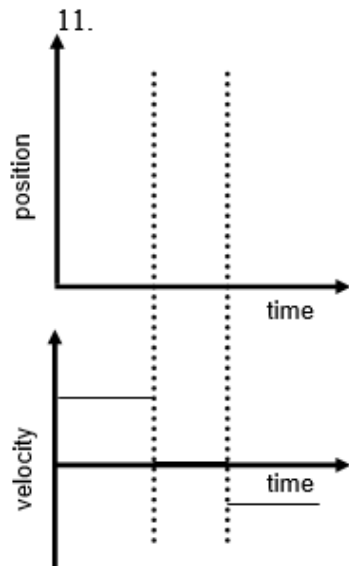


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Motion map



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Written description

Motion map

