Physics

Linear Kinematics Unit Syllabus

Text: *Holt Physics* – by Serway and Faughn.

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| Block[[1]](#footnote-1) | Class  | Due on this class[[2]](#footnote-2) |
| 1**Sept** **7/8** | -Hand out Course Policy-Fill out information sheet-Speed Trap/Uncertainty-Tour of the Website assignment-Data collection assignment for No reason to Speed  | **Bring:** Your smiling face**Bring:** Paper and pencil**Turn in:** Completed information sheet**Turn in:** Speed trap (In class) (indiv) |
| 2**Sept** **9/12** | -Speed-Speed Whiteboard -Review Dimensional analysis-Tour o' th' Room-Hand out *Speed* and *Acceleration* practice | **Video (all):** Tour of the Website**Bring:** A calculator (every day hereafter :-)**Read:** 2-1[[3]](#footnote-3), 1-2 to 1-3**Read:** This syllabus! |
| 3**Sept 13/14** | -Explain/assign No reason to Speed LabIn class time for:-Speed Worksheet-Work on No reason to Speed  | **Bring:** Your data for No reason to Speed |
| 4**Sept 15/16** | -*No Reason to Speed* recap/Collect-Quiz on Course Policy -Grade quiz in class-Vector nature of acceleration and velocity -Acceleration  | **Video:** Vector Velocity (B)**Video:** Acceleration (C)**Practice:** Speed: 1-8**Turn in:** No reason to Speed lab (indiv)**Read:** Course Policy |
| 5Sept 19/20 | -More acceleration vf = vi + at-Assign Lateral accelerometer take home lab.-Graphs of position  | **Video:** Acceleration with vf = vi + at (D)**Practice:** Speed: 9-16**Read:** 2-2, pp 48-51 |
| 6**Sept 21/22** | -Velocity v. time graphs-Cha cha cha lab intro-Hand out Formative Assessments on:-FA 2.1 Speed-FA 2.2 Acceleration-Demo the Moving Plots equipment (**Video Flip**)-In class time for Labs and FAs | **Practice:** Acceleration: 1-15**Turn in:** Cha Cha Cha Lab note (group) |
| 7**Sept 23/27** | -Moving Plots equipment demo-In class time for: -Moving Plots Lab  | **Video Flip:** Moving Plots Lab Graphs **Practice:** Acceleration: 16-25**Read:** 2-2, pp51-58 |
| 8**Sept** **28/29** | -Finish up Moving Plots Lab graphs-Finish FA 2.1, 2.2-Questions from Speed and Acceleration FAs?? | **Video Flip:** Moving Plots Lab Lines**Practice:** P2A:1,3,5, P2B:1,3,5[[4]](#footnote-4) |
| 9**Sept 30/****Oct 3** | -Tangent Lines for Moving Plots lab**-Summative Assessments on:****-SA 2.1 Speed****-SA 2.2 Acceleration** | **Turn in:** Moving plots lab (Pairs)**Turn In:** FA 2.1 Speed**Turn In:** FA 2.2 Acceleration |
| 10**Oct** **4/5** | -Figuring out how far L/D + WB/gravity = 9.8 m/s/s-Hand out *How Far* worksheet-Work on How Far 1-10 | **Video:** How Far (E) (all 3 videos) |
| 11**Oct 6/7** | -Reaction time lab-Hand out How Far II worksheet.Class time to work on-Reaction time lab-How Far I and II worksheet | **Video:** Reaction Time Lab **Practice:** How Far: 1-10**Check:[[5]](#footnote-5)** Practice 2.3 #1-5, 21, 22**Read:** 2-3 |
| 12**Oct 10/11** | -Measuring the Initial Velocity of an Air Rocket labClass time to work on-Air Rocket Lab Calculations-How Far I and II worksheet | **Video:** Air Rocket Calculations**Check:** Practice 2.3 #6-10, 23, 24**Practice:** How Far II: 5, 6, 7, 8, 10**Turn in:** Air Rocket Lab (indiv)**Turn in:** Reaction time lab (indiv) |
| 13**Oct 12/13** | -Free Fall and Terminal velocity -Advanced Free Fall Problems-Hand out How Far III | **Video:** How Far Part II – Free Fall (F)**Practice:** How Far II: 1, 2, 3, 4, 9 **Turn in:** Practice 2.3 #1-10, 21-24[[6]](#footnote-6) |
| 14**Oct 17/18** | -More Advanced Free Fall Problems-Prep for air rocket comp.: The Range Equation (magic!) | **Practice:** How Far III: 1,3**Check:** Practice 2.4 #1, 2, 3 |
| 15**Oct 19/24** | -Warmup – calculate angle-Reminder about lateral Accelerometer assignment…-Air Rocket Competition: Hitting a target | **Video (all):** Range Equation**Practice:** How Far III: 4, 7, 8**Check:** Practice 2.4 #4, 5, 6 |
| 16**Oct 25/26** | -Formative Assessments on:-FA 2.3 Basic Kinematics-FA 2.4 Free Fall kinematics | **Practice:** P2F:1,2(22.1 m/s, 2.3 s),3,4(3.7 m, 0.77 s),5**Turn In:** Practice 2.4 #1-6 |
| 17**Oct 27/28** | -Accelerometers judged **-Summative Assessments on:****-SA 2.3 Basic Kinematics****-SA 2.4 Free Fall Kinematics**-Finish your lateral accelerometer lab writeup? | **Turn In:** FA 2.3 Basic Kinematics**Turn In:** FA 2.4 Free Fall Kinematics **Bring:** Your lateral accelerometer**Turn in:** Your completed Lateral Accelerometer lab write-up signed by your parents. (indiv) |

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| Assignments* 7 Labs:
	+ Speed Trap Lab – Timing cars, No handout /20 pts (indiv)
	+ No Reason to Speed Lab – Spreadsheet and questions /40 pts (indiv)
	+ Air Rocket Lab – Initial velocity outdoors, No handout /30 pts (indiv)
	+ Reaction Time Lab – Dropping meter stick /20 pts (indiv)
	+ Moving Plots Lab – tape timer and cart /40 pts (pairs)
	+ Plot Matching Lab – matching the plots on the computer/written note saying you did it. No handout /20 pts (group)
	+ Rocket Competition – No write-up required
	+ Lateral Accelerometer Lab – Do at home, bring the jar+writeup on the day after the test/20 (indiv)
* 2 Formative Homework Assignments:
	+ Practice 2.3 #1-10, 21-24/28 pts
	+ Practice 2.4 #1-6/30 pts
* 4 Formative/Summative Assessments: (10 pts ea)
	+ 2.1 Speed
	+ 2.2 Acceleration
	+ 2.3 Basic Kinematics
	+ 2.4 Free Fall Kinematics
 | Handouts Syllabus-LinearKinematicsLab-MovingPlotsLabLab-NoReasonToSpeedLab-ReactionTimeLab-LateralAccelerometerMisc-CoursePolicyNoteguide-HowFarWorksheet-AccelerationWorksheet-HowFarWorksheet-HowFarIIWorksheet-HowFarIIIWorksheet-Speed |

1. This is the block of the syllabus, and the numbers that follow are the dates that they will happen, the first is for A day classes, the second for B. [↑](#footnote-ref-1)
2. Note that this column is for things to be brought to class turned in, or done before the beginning of class. [↑](#footnote-ref-2)
3. This is section 2-1. It starts on page 40 of your textbook. [↑](#footnote-ref-3)
4. These are practice problems from the book. P2A is Practice 2A on page 44. [↑](#footnote-ref-4)
5. These practice problems will be stamped at the beginning of class, and they will be turned in as formative work. Do them on a separate piece of paper. This is your homework!!! If you want an extra stamp, put the problem on the board, and be able to explain it. [↑](#footnote-ref-5)
6. Turn this in all stapled together if you used different sheets. Label it "Practice 2.3" :-) [↑](#footnote-ref-6)