**IB Physics**

Linear Kinematics (Chapter 2) Syllabus

Text: *Physics* 6th edition by Douglas Giancoli

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| Block[[1]](#footnote-1) | Class | Due on this class[[2]](#footnote-2) |
| 1  **Sept**  **9/10** | -Check out textbooks?  -Calculating Speed/Sig Figs  -Speed Trap lab outside  -Hand out Syllabus/Course Policy  -Website Assignment (Watch Video)  -Information card | **Bring:** Your smiling face  **Bring:** Paper and pencil  **Turn in:** Completed information card |
| 2  **Sept 11/14** | -Calculating Uncertainty  -Vector nature of velocity  -Hand out Uncertainty Worksheet  -Finish Speed Trap Lab in class | **Video:** Tour of the website  **Bring:** A calculator (every day hereafter :-)  **Read:** This Syllabus (All the footnotes)  **Turn in:** Speed trap (from block 1) |
| 3  **Sept 15/16** | -Velocity and Acceleration  -Hand out the IB Data Booklet  -Velocity, acceleration, displacement  -Tips for Book Problems | **Video:** Velocity and Acceleration (C)  **Video:** Velocity, acceleration, displacement (D)  **Practice:** Uncertainty Worksheet  **Read:** 2.1-5[[3]](#footnote-3) |
| 4  **Sept 17/18** | -**Quiz** on Course policy  -Grade quiz in class/ Tour of the room  -Hand out *How Far I & III*  -Unit conversions for Physics  -More velocity, acceleration, displacement | **Video:** Unit Conversions (E)  **Practice:** 2:1,**15[[4]](#footnote-4)**,17,19,21, 23[[5]](#footnote-5)  **Read:** Course Policy**,** 2.6 |
| 5 Sept 21/22 | -Hand out *Graphs of Motion*  -Position time graphs  -Velocity time graphs  -Demo *Plot Matching Lab*  -Finish *Graphs of Motion 1 and 2* | **Video:** Graphs of motion 1 – position (F)  **Video:** Graphs of motion 2 - velocity (G)  **Read:** 2.8  **Practice:** How Far I : #2, 3, 5, 7, 9 |

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| 6  **Sept 23/24** | -Free Fall and Terminal Velocity Demos  -Solving Free fall problems  -Work on HF III #1, 3, 4, 7, 8, **P2.4 #1, 2, 3, 4, 6, 8** | **Video:** Free Fall Problems (H) (17:23!)  **Read:** 2.7  **Practice:** Graphs #1, and #2 |
| 7  **Sept 25/29** | -More Solving Free Fall Problems  -Hand out Moving Plots/Air Rocket  -Hand out Formative Assessments:  -FA 2.3 Basic Kinematics  -FA 2.4 Free Fall Kinematics  -FA 1.1 Propagation of Uncertainty  Gather data for:  -*Moving Plots* lab | **Practice:** Problems from 2.3  **Video Flip:** Moving Plots Data Gathering |
| 8  **Sept 30/ Oct 1** | -Air Rocket Demo  Gather data for:  -*Measuring the Initial Velocity of an Air Rocket* lab[[6]](#footnote-6)  In class time to work on:  -*Air Rocket* lab  -*Plot Matching* lab  -*Moving Plots* lab | **Video Flip:** Air Rocket Lab  **Read:** 2.7  **Practice:** How Far III #1, 3, 4, 7, 8, Problems from 2.4  **Bring:** A warm or rain coat **?**  **Video:** Moving Plots Lab – Spreadsheet  **Video:** Moving Plots Lab – Lines/Accel |
| 9  **Oct**  **2/5** | In class time to work on:  -*Air Rocket* lab  -*Plot Matching* lab  -*Moving Plots* lab | **Practice:** 2:26(35.9 m/s), 33, 35, 36(25 m, 4.5 s), 37  **Turn In:** P2.4 #1, 2, 3, 4, 6, 8 (Formative) |
| 1  **Oct**  **6/7** | **Summative assessments on:**  **-SA 2.3 Basic Kinematics**  **-SA 2.4 Free Fall Kinematics**  **-SA 1.1 Uncertainty Propagation**  In class time to work on Labs | **Practice:** 2: 34(2.4 s, or 28.4 m),47,48(27 m/s, 37 m, 1.4 s, 4.1 s)  **Turn in: FA 2.3 Basic Kinematics**  **Turn in: FA 2.4 Free Fall Kinematics**  **Turn in: FA 1.1 Uncertainty Propagation** |
|  | Beginning of vectors | **Turn in:**  *Plot Matching* lab affidavit  **Turn in:** *Air rocket* lab  **Turn in:** *Moving Plots* lab |

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| Assignments   * 4 Labs:   + Speed Trap Lab – done the first day of class, written up the second day. No handout   + Air Rocket Lab - outdoors   + Moving Plots Lab – tape timer and cart   + Plot Matching Lab – matching the plots on the computer/written note saying you did it. No handout * 1 Quiz - (Formative)   + Course Policy Quiz – study especially the bold items in the course policy * 1 Formative Homework: Practice 2.4 #1, 2, 3, 4, 6, 8 * 3 Formative/Summative Assessments:   + 2.3 Basic Kinematics   + 2.4 Free Fall Kinematics   + 1.1 Propagation of Uncertainty | Handouts  Lab - Air Rocket  Lab - Moving Plots  Misc - IB Data Booklet  Misc - Course Policy  FA01.1  FA02.3  FA02.4  Worksheet - How Far I and III  Worksheet -Graphs Of Motion  Worksheet-Uncertainty  Syllabus-Linear Kinematics |

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 readings, things to be brought to class completed, or things to be turned in. This is the due date for these things, not what you do after the class described to the left. So on block 2, for example, you will turn in your speed trap lab from the first day. The practice problems are problems like the material covered in the previous class. [↑](#footnote-ref-2)
3. These are readings from your book. You will understand class much better if you read the book even casually the night before. Section 2.1 starts on page 19 [↑](#footnote-ref-3)
4. Notice the Roman numeral III after this problem in the book. This means it is somewhat non-trivial. Don’t spend a ton of time if you get stuck, but you should be able to do the other problems. (Hint for 15 – calculate anything you can) [↑](#footnote-ref-4)
5. These are your daily practice problems. The “2:” in front of them means they are from Chapter 2. Other things are from worksheets. Be sure to do the Problems, not the Questions. (If you are IB, you should try to answer the questions as practice) Solutions for many of the problems are on my website if you get stuck – answers to odd problems are in the back of the book and you need to check them yourself. I put the answers to even numbered problems after that number in this syllabus. It is up to you how many practice problems you do. [↑](#footnote-ref-5)
6. This lab is outdoors so dress appropriately. [↑](#footnote-ref-6)