IB Physics

Electrostatics and Field Theory - Chapter 16 & 17 Syllabus

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| Block | In Class: | Due on this class: | | If you miss this class: | |
| 1  **Nov**  **2** | -Electric Charge  -Coulomb’s Law  -Electrostatics: Insulators, Conductors  -Induced Charge/Stupid Van de Graaff tricks |  | | **Read:** 16.1-5 | |
| 2  **Nov**  **6** | -Arrays of charges: Linear  -Charge on conductors/Van de Graaff/Lightning Safety  -Arrays of charges: Vectors | **Check:** A16.1 #11-17 | | **Read:** 16.6 ex. 16.3  **Watch:** Videos D | |
| 3  **Nov**  **8** | -Electric Field/Gravitational Field  -The Murray Compendium of Formulas  -Electric Field addition: Vectors again | **Check:** A16.1 #21a,c, 22a,b,c,d | | **Read:** 16.7-8  **Watch:** Videos E,F,G | |
| 4  **Nov**  **14** | -Voltage and Electric Field/Electron Volts  -Voltage due to point charges: Not a vector  -Video Flip next time - Millikan prep part 1 | **Check:** A16.1 #1-8  **Check:** A16.2 #21a,c, 22a,b,c (Keep separate from 16.1)  **Turn In:** A16.1 #1-8, 11-17, 21a,c, 22a-d | | **Read:** 17.1-5  **Watch:** Videos H,I,K,L  **Watch:** Millikan Prep Part 1 | |
| 5 Nov16 | -Conservation of energy problems  -Video Flip next time- Millikan prep part 2 | **Check:** A16.2 #1-10, 11,12,16,17,18  **Check:** A17.1 #(27a,b=V only) (Keep separate from 16.2)  **Turn in:** A16.2 #1-10, 11,12,16,17,18, #21a,c, 22a,b,c  **Video Flip:** Millikan Prep (Part 0, 1)  **Lab Check:** Millikan Prep (step size) #1 | | **Watch:** Videos M,Q  **Watch:** Millikan Prep Part 2 | |
| 6  **Nov**  **20** | -More conservation of energy problems  -Introduction to Capacitors - charge voltage energy  -Video Flip next time- Millikan prep part 3 | **Check:** A17.1 #1,2,6,7,9,15,17,18(27a,b=W, c,d=all)  **Video Flip:** Millikan Prep Part 2  **Lab Check:** Millikan Prep (q formula) #2 | | **Read:** 17.7-9  **Watch:** Videos O,Q  Get notes from someone about the Millikan Lab | |
| **Nov**  **22** | **-Show and Tell day for projects**  **-Exchange IB Essay Questions** | Demo your experimental apparatus/plan  **Your IB Essay tests are due on this day** | | Show it to me later. | |
| 7  **Nov**  **28** | -Capacitors - energy and discharge  -Video Flip N for next time  -Hand out FA16.1, 16.2, 17.1, 17.2 | **Check:** A17.1 #3,4,10,16,19,20,21  **Video Flip:** Millikan Formula Part 3  **Lab Check:** Millikan Prep (r formula) #3 | | **Read:** 19.6 (yes, chapter 19)  **Watch:** Videos P | |
| 8  **Nov**  **30** | -Millikan Lab – write up/particulars/how to run  -Electric Field Mapping lab  -Equipotential lines/Field Lines and conductors  -CRT Demo  -Heads up on the book problems (On p. 465) | **Check:** A17.1 #5,8,11,12,22,23,24,25  **Video Flip:** CRT Problems (N)  **Video:** Millikan Lab  **Turn In:** Millikan prep  **Turn in:** A17.1 #1-12, 15-25, 27a,b,c,d | | **Read:** 16-9  **Read:** 17.10  **Watch:** Videos J,N  **Watch:** Millikan Lab videos | |
| 9  **Dec**  **4** | -Work on labs | **Check:** Ch 16 #1, 3,12(+75µC: 147.2 N left, +48µC: 563.5 N right, -85µC: 416.3 N left) (On p. 465)  **Ch 17:** 65 | | You might need to come in before or after school. | |
| 10  **Dec**  **6** | -Work on labs | **Check:** Ch 16 #17(Q1 and Q2 only) (Q1: 0.30 N @ 265o, Q2: 0.26 N @139o), 28(8.4E7 N/C toward the negative charge), 36(29 cm)  **Turn In:** Ch 16#1,3,12,17,28,36 | | You might need to come in before or after school. | |
| 11  **Dec**  **8** | -Work on labs  **-Return Graded Essays to owners**  **-Go over Paper 1 questions** | **Check:** Ch 17 #1, 5, 14(2.4E5 V), 21(on p. 489)  **Your IB Paper 1 questions are due on this day**  **You need to return the essays you graded** | | You might need to come in before or after school. | |
| 12  **Dec**  **12** | -Work on labs | **Check:** Ch 17 #35, 46(4.6E-4 J) ,65  **Turn In:** Ch 17#1,5,14,21, 35,46,65 | | You might need to come in before or after school. | |
| 13  **Dec**  **14** | **Summative Assessments on:**  **16.1 - Coulomb's Law**  **16.2 - Vector Fields**  **17.1 - Voltage and Energy** | **Turn In: Electric Field mapping lab**  **Turn In: Millikan lab**  **Turn In: RC Circuit Lab**  **Turn In: FA 16.1, 16.2, 17.1, 17.2** | | You will need to come in on a makeup day to take your assessments. | |
| **Jan**  **2** | Currents and Circuits!! |  | |  | |
| Assignments   * 4 Labs:   + Electric Field Mapping – mapping with volt meters /30 pts   + Millikan Prep – take home practical analysis /30 pts   + Millikan Oil Drop Lab – simulation on the computer done in groups of 4 /40 pts   + RC Circuits Lab - a capacitor discharging /30 pts * 5 homework assignments:   + A16.1 #1-8, 11-17, 21a,c, 22a-d (3 stamps/44 pts)   + A16.2 #1-10, 11,12,16,17,18, #21a,c, 22a,b,c (2 stamps/40 pts)   + A17.1 #1-12, 15-25, 27a,b,c,d (4 stamps/54 pts)   + Ch 16#1,3,12,17,28,36 (2 stamps/30 pts)   + Ch 17#1,5,14,21, 35,46,65 (2 stamps/35 pts) * 4 Formative/3 Summative Assessments:   + 16.1 – Coulomb’s law, electric field, net force   + 16.2 – Vector electric field   + 17.1 – Voltage due to point sources, work.   + 17.2 – CRTs and Capacitors (no summative) | | | Handouts | |