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**  **2/3** | -Electric Charge  -Coulomb’s Law  -Electrostatics: Insulators, Conductors  -Induced Charge/Stupid Van de Graaff tricks |  | | **Read:** 16.1-5 | |
| 2  **Nov**  **4/7** | -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**  **8/9** | -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**  **14/15** | -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 #1-5, 21b,d, 22e,f | | **Read:** 17.1-5  **Watch:** Videos H,I,K,L  **Watch:** Millikan Prep Part 1 | |
| 5 Nov16/17 | -Conservation of energy problems  -Video Flip next time- Millikan prep part 2 | **Check:** A16.2 #1-10, 11,12,16,17,18  **Check:** A16.1 #6-10 (separate from 16.2)  **Video Flip:** Millikan Prep (Part 0, 1)  **Turn In:** A16.1 #1-17, 21a-d, 22a-f  **Lab Check:** Millikan Prep (step size) #1 | | **Watch:** Videos M,Q  **Watch:** Millikan Prep Part 2 | |
| 6  **Nov**  **18/21** | -More conservation of energy problems  -Introduction to Capacitors - charge voltage energy  -Video Flip next time- Millikan prep part 3 | **Check:** A16.2 #21a,c, #22e,f  **Video Flip:** Millikan Prep Part 2  **Lab Check:** Millikan Prep (q formula) #2  **Turn In:** A16.2 #1-10, 11,12,16,17,18, 21a,c, #22e,f | | **Read:** 17.7-9  **Watch:** Videos O,Q  Get notes from someone about the Millikan Lab | |
| **Nov**  **22/23** | **Show and Tell day for projects** | Demo your experimental apparatus/plan | | Show it to me later. | |
| 7  **Nov**  **29/30** | -Capacitors - energy and discharge  -Video Flip N for next time | **Check:** A17.1 #1-4, 6-8, 9,10,14,15  **Video Flip:** Millikan Formula Part 3  **Lab Check:** Millikan Prep (r formula) #3 | | **Read:** 19.6 (yes, chapter 19)  **Watch:** Videos P | |
| 8  **Dec**  **1/2** | -Millikan Lab – write up/particulars/how to run  -Electric Field Mapping lab  -Equipotential lines/Field Lines and conductors  -CRT Demo | **Check:** A17.1 #17-26, 27e,f  **Video Flip:** CRT Problems (N)  **Video:** Millikan Lab  **Turn In:** Millikan prep  **Turn in:** A17.1 #1-4, 6-8, 9,10,14,15,17-26, 27e,f | | **Read:** 16-9  **Read:** 17.10  **Watch:** Videos J,N  **Watch:** Millikan Lab videos | |
| 9  **Dec**  **5/6** | -Work on labs | **Check:** Ch 16 #1, 3,12(+75µC: 147.2 N left, +48µC: 563.5 N right, -85µC: 416.3 N left)  **Ch 17:** 65 | | You might need to come in before or after school. | |
| 10  **Dec**  **7/8** | -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**  **9/12** | -Work on labs | **Check:** Ch 17 #1, 5, 14(2.4E5 V), 21 | | You might need to come in before or after school. | |
| 12  **Dec**  **13/14** | -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**  **15/16** | **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**  **3/4** | Currents and Circuits |  | |  | |
| Assignments   * 4 Labs:   + Electric Field Mapping – mapping with volt meters   + Millikan Prep – take home practical analysis   + Millikan Oil Drop Lab – simulation on the computer done in groups of 4   + RC Circuits Lab - a capacitor discharging * 5 homework assignments:   + A16.1 #1-17, 21a-d, 22a-f (3 stamps)   + A16.2 #1-10, 11,12,16,17,18, 21a,c, #22e,f (2 stamps)   + A17.1 #1-4, 6-8, 9,10,14,15,17-26, 27e,f (2 stamps)   + Ch 16#1,3,12,17,28,36 (2 stamps)   + Ch 17#1,5,14,21, 35,46,65 (2 stamps) * 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  Lab - Electric Field Mapping Lab  Lab - Millikan Oil Drop Lab  Lab - Millikan Prep  Lab - RC Circuits  Syllabus - Electrostatics  FA16.1  FA16.2  FA17.1  FA17.2  Worksheet-ProblemsFromA16.1  Worksheet-ProblemsFromA16.2  Worksheet-ProblemsFromA17.1  Noteguide-FieldTheoryEquations  Worksheet-GravityVsElectricity | |