IB Physics

Magnetism and Induction

Chapter 20, 21 Syllabus

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| Block | | Class | Due on this class | |
| 1 Feb 11 | | -Intro to Magnetism  -Magnetic Field lines/Domains/Currents  -Force on current-carrying wires: Magnitude and direction | **Read:** 20.1-3, 5 | |
| 2 Feb 16 | | -Force on charged particles – motion in B fields  -The Hall Effect  -Crossed field problems: Eq = qvB  -Hysteresis - a demo I probably shouldn't do... | **Read:** 20.4  **Book Problems:** 20: 2(1.1 N), 3 | |
| 3 Feb 18 | | -Ampere's Law  -Galvanometers and Speakers  -DC Motors | **Read:** 20.7, 8, 10, 11, 12  **Book Problems:** 20: 9, 10(1.05E-13 N North) | |
| 4  **Feb 22** | | -Lenz's discovery and magnetic flux  -Electromagnetic induction  -Lenz's law  -Induced EMF in moving conductors | **Video Flip: Solenoids**  **Read:** 21.1-2  **Book Problems:** 20: 13, 16(2.5E6 m/s, 4.1 mm) | |
| 5  **Feb 24** | | -My friend eddy  -Alternators  -Solving voltages, currents and power in transformers  -Transmission of electrical power | **Read:** 21.3, 4, 6  **Book Problems:** 21: 5, 6(.048 V) | |
| 6  **Feb 26** | | -Magnetic field patterns for Solenoids, Wires, and Flat coils  -Lab Explanations  -Hand out FAs | **Read:** 21.5, 7  **Book Problems:** 21: 11, 12(.0144 V, .120 V/m down ) | |
| 7  **Mar 1** | | -Work on Labs | **Read:** 21.8 | |
| 8  **Mar 3** | | -Work on Labs |  | |
| 9  **Mar 7** | | -Work on Labs | **Turn In:** **20:** 2, 3, 9, 10, 13, 16 **21:** 5, 6, 11, 12  (Problems from the book) | |
| 10  **Mar 9** | | Summative Assessments on:  SA20.1 - Right Hand Rules  SA20.2 - Forces on Wires and Particles  SA21.1 - Lenz's Law  SA21.2 - Electrical Induction | **Turn in:** FA 20.1, 20.2, 20.3, 21.1, 21.2 | |
| 11  **Mar 11** | | Atomic and Nuclear!!! | **Turn In:** MagnaProbe Lab  **Turn In:** Magnet Design Lab  **Turn In:** Specific Heat of Water  (**Turn In:** Index of Refraction) - IB only | |
| Assignments   * 3 Labs:   + MagnaProbe Lab – Station exploration of magnetic fields   + Magnet Lab – student designed lab – no handout   + Specific Heat of Water lab * 5 Formative, 4 Summative Assessments   + 20.1 – Right Hand Rules   + 20.2 – Forces on Wires and Particles   + 20.3 - Ampere's Law (no summative)   + 21.1 – Lenz's Law   + 21.2 – Electrical Induction * 10 Book Problems: **20:** 2, 3, 9, 10, 13, 16 **21:** 5, 6, 11, 12 | | | Handouts   * FA20.1 * FA20.2 * FA20.3 * FA21.1 * FA21.2 * Worksheet20.2 * Worksheet21.2 * This Syllabus |