Atomic and Nuclear

Chapter 27, 28, 30, 31 Syllabus

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| B/A | In c lass: | Due on this class: | If you miss this class: |
| 1  Mar  7 | -Hubris at the end of the century  -Einstein's particle theory of light  -Photo-electric effect |  | **Read:** 27-1, 2, 3  **Watch:** Videos A-F (atomic) |
| 2  Mar  9 | -de Broglie wavelengths and electron microscopes  -Electron optics  -Photon interactions with matter | **Check:** P27.1 #2, 4, 6, 7, 11, 13, 14 | **Read:** 27-4, 7,8,9  **Watch:** Videos H (atomic) |
| 3  Mar  13 | -Rutherford's atom and Closest approach  -Nuclear radius  -Bohr’s atom and atomic spectra | **Check:** P27.1 #16, 17, 18, 21, 22, 23  **Turn in:** P27.1 #2, 4, 6, 7, 11, 13, 14, 16, 17, 18, 21, 22, 23 | **Read:** 27-10,11,12,13  **Watch:** Videos I, J, K, L (atomic) |
| 4  Mar  15 | -The Heisenberg uncertainty principle  -The Einstein-Bohr debate | **Check:** P27.2 #1, 2, 3, 6, 7, 8 | **Read:** 28-1,2,3,4,5  **Watch:** Videos M, N, O (atomic) |
| 5  Mar  19 | **-Collect IB Take Home Test**  -Particle Physics – Accelerators  -QED and field particles  -Hadron reference sheet | **Check:** P27.2 #11, 12, 13, 14, 15, 17  **IB take home tests (from February)** | **Read:** 32-1-3  **Watch:** Videos A, B (particle) |
| 6  Mar  21 | **-Take Home tests to graders**  -Particle Physics  -Decays and conservation laws  -“Six quarks for Muster Mark!” |  | **Read:** 32-4-9  **Watch:** Videos C, D (particle) |
| 7  Mar  23 | -Atomic Notation and Binding Energy  -Isotopic mass reference sheet  -Radioactivity/Types of radiation | **Check:** P27.2 #A1,3,B1,3, C1-6 | **Read:** 30-1,2  **Watch:** Videos E (particle)  **Watch:** Videos A, B (nuclear) |
| 26-30 | **Yay Spring Break Yay Spring Break Yay Spring Break Yay Spring Break Yay Spring Break Yay Spring Break Yay Spring Break Yay!** | | |
| 8  Apr  4 | **-Return Take home tests**  -Alpha decay energy/Tunneling  -Beta and Gamma decays | **Check:** P30.2 #1, 2, 3 (separate paper pls)  **Turn in:** P27.2#1, 2, 3, 6, 7, 8, 11, 12, 13, 14, A1,3,B1,3, C1-6 | **Read:** 30-3,4,5,6,10,12  **Watch:** Videos C, D, E, F, G, H (nuclear) |
| 9  Apr  6 | -Half life  -Decay rates | **Check:** P30.1 #1a, b, 2, 3, 7ab (same paper as 30.2) | **Read:** 30-8,9,11  **Watch:** Videos I, J, K (nuclear) |
| 10  Apr  10 | -Nuclear Reactions  -Nuclear Fission and Fusion  -Build Your own Nuclear Weapon Lab | **Check:** P30.1 #14, 16, 18, 20, 21, 22 | **Read:** 31-1,2,3  **Watch:** Videos M, N, O, Q (nuclear) |
| 11  Apr  12 | -Nuclear stability – The strong nuclear force  -Decay Lab/Young’s Double Slit Lab | **Check:** P30.2 #6ab, 7, 8, 12, 13 | **Watch:** Video L (nuclear) |
| 12  Apr  17 | -Work on Decay lab  -Work on Young’s Double Slit lab | **Check:** P30.1 #8, 9, 10, 11, 12, 13  **Turn in:** P30.2 #1, 2, 3, P30.1 #1a, b, 2, 3, 7ab, P30.1 #14, 16, 18, 20, 21, 22, P30.2 #6ab, 7, 8, 12, 13, P30.1 #8, 9, 10, 11, 12, 13 | |
| 13  Apr  19 | **Summative Assessments on:**  **27.1, 28.1, 30.1, 30.2** | **Turn In:** Decay Lab  **Turn In:** Young’s Double Slit Lab (EC)  **Turn in:** FA 27.1, 27.2, 30.1, 30.2 |  |
| April 23, 25, 27 - IB Review | |  |  |
| Assignments   * 2 Labs:   + Decay Lab – Determine the half-life of a computer-simulated nuclear decay   + Young's Double Slit - EC lab for IB * 4 Formative/Summative Assessments   + 27.1 – Photons   + 28.1 – Atomic and particle   + 30.1 – Radioactivity   + 31.1 – Nuclear Reactions * 3 sets of homework:   + P27.1 #2, 4, 6, 7, 11, 13, 14, 16, 17, 18, 21, 22, 23 /26 pts   + P27.2#1, 2, 3, 6, 7, 8, 11, 12, 13, 14, A1,3,B1,3, C1-6 / 40 pts   + P30.2 #1, 2, 3, P30.1 #1a, b, 2, 3, 7ab, P30.1 #14, 16, 18, 20, 21, 22, P30.2 #6ab, 7, 8, 12, 13, P30.1 #8, 9, 10, 11, 12, 13 /54 pts | | Handouts | |