

## Unit 8 – Vocabulary and Equations – Magnetism & Induction

<p><b><u>Vocabulary:</u></b>          previous vocabulary          magnetism, electromagnet, ferromagnetism          permanent magnet, natural magnet, lodestone          magnetic field (B), vector, magnetic field lines          field force, magnetic field strength, domain theory          magnetic North Pole, geographic North Pole          induction, motor, generator          primary coil, secondary coil          magnetic south pole, dipole, geographic north pole          right-hand rule, Tesla (T), Coulomb (C), Amp (A)          Lenz's law, Faraday's law of induction</p>	<p><b><u>Symbols:</u></b>          N, V, B, A, q, v, ε, Δt</p> <p><b><u>Equations &amp; constants:</u></b>  <b>You get these on test:</b></p> $\text{Transformer equation: } \frac{N_1}{V_1} = \frac{N_2}{V_2}$
<p><b>Unit Objectives – Williams</b></p> <ol style="list-style-type: none"> <li>1. I understand all the vocabulary &amp; math of this unit and all demos, videos, equations, and class assignments.</li> <li>2. I remember objectives &amp; vocabulary from previous units.</li> <li>3. I understand the relationship between electrical charges and how magnetism is fundamentally produced</li> <li>4. I understand magnetism fundamentally, know it's a field force, has a dipole and produces repulsive and attractive forces</li> <li>5. I know what domain theory is and how it explains how permanent magnets are made</li> <li>6. I can explain three ways to demagnetize a magnetized object: heating, shock, opposing mag. field</li> <li>7. I can name three ferromagnetic materials and what makes them ferromagnetic on an atomic level</li> <li>8. I know which pole magnetic field lines enter/exit and the kind of pole near earth's geographic north pole</li> <li>9. I understand where magnetic field strength is greatest and can make sense of a magnetic field diagram</li> <li>10. I can explain the theoretical cause of earth's magnetic field and the consequences if we had none</li> <li>11. I am able to use the right hand rule and alternate right hand rule</li> <li>12. I know the means of the symbols: arrow, x and dot for the direction of a magnetic field</li> <li>13. I know how to increase magnetic field strength using multiple coils</li> <li>14. I understand the relationship between rate of changing magnetic field and induced current and vice-versa</li> <li>15. With direction of 2 of these: magnetic force, magnetic field, current: I can find direction of the 3rd</li> <li>16. I can use the magnetic force equations to compute values regarding magnetic fields</li> <li>17. I know electromagnetic induction (Faraday) is affected by: number of coils and rate of ΔB</li> <li>18. I know how generators and electric motors work and can compare/contrast them</li> <li>19. I know transformers, how AC works with them, and how this makes for long distance energy distribution</li> <li>20. I understand how induction makes electromagnetic waves (light) possible</li> </ol>	

### 08Magnetism/Finals -Calendar

***Bold and underlined means put in journal notes***

1	<b>Fr:12/09/16</b>	<ul style="list-style-type: none"> <li>• <b><u>(08-01)</u></b> Magnetism introductory notes</li> <li>• Quest: ~40 pts, 1 short answer,</li> </ul>	• H08-01
2-LS	<b>Mo:12/12/16</b>	<ul style="list-style-type: none"> <li>• <b><u>(08-02)</u></b> Induction, Faraday, right-hand rule</li> <li>• Demos: Faraday (galvanometer), Thompson coil</li> </ul>	• H08-02
3	<b>Tu:12/13/16</b>	• Catch-up day, Magnetism lab, practice quiz	• Study for quest
4	<b>We:12/14/16</b>	• Magnetism quest and Final review (waves, sound)	• Study for final/Moodle
5	<b>Th:12/15/16</b>	• Final review 1 (waves, sound, light, mirrors, electricity)	• Study for final/Moodle
6	<b>Fr:12/16/16</b>	• Final review 2 (electricity, static electricity, magnetism)	• Study for final/Moodle
F	<b>Mo:12/19/16</b>	• Finals: 8AM – 1 PM (1, 4/5, 2)	•
F	<b>Tu:12/20/16</b>	• Finals: 8AM – 1 PM (P. 3, 7/8, 9)	•
F-Q2E	<b>We:12/21/16</b>	• Finals: 8AM – 9:30 AM (P. 10)	•