

Electricity & Magnetism – Review Ideas for Evaluations

Overview:

These are the key concepts and principles that you are responsible to know and be able to apply.

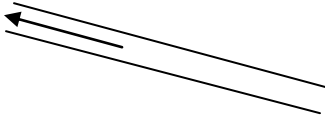
- **Magnetic Fields** (be able to draw them for a bar magnet and know what poles are the direction of magnetic fields, what are the three ferromagnetic materials)
- **Domain Theory of Magnetism** (what is it and how to draw and label a diagram of it, how it is used to explain how to create a magnet, and how it is used to explain demagnetization)
- **Oersted's Principle** (definition, what it is, right hand rules associated with it, be able to explain how to make an electromagnet as well as the benefits of an electromagnet, how do you make the magnetic field stronger or weaker)
- **Motor Principle** (what it is, right hand rules associated with it)
- **Faraday's Law** (definition, electromagnetic induction, what variables will affect the size of the induced current)
- **Transformers** (be able to explain what they are (what are they made up of, basically), what they are used for, the principle behind how they work, calculations involving transformers using the equations given in class)
- **Electricity Production** (be able to give a concise overview and explanation of the electricity production process, flow of energy from potential - to thermal - to kinetic - to electrical, be able to explain the role of the turbine, the generator (and what the principle of a generator is), the stepping-up of the voltage, transmission, and the stepping down of the voltage)

Recall From Class

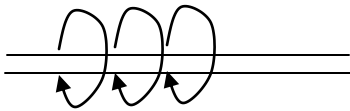
- Activity: we looked at and drew magnetic field lines with magnets and iron filings
- Activity: we built electromagnets
- Activity: we demonstrated the motor principle in many ways and even built mini-electric-motors
- Activity: we demonstrated how to produce electricity with a magnet and coiled copper wire and the factors affecting the strength of that induced current
- Activity: we dropped a magnet down a hollow copper tube and saw that it moved slowly (be able to explain why this happened using Oersted's and Faraday's principles)
- Activity: we did an assignment on Transformers (review your work on this) + assessments
- Activity: we did the electricity-production concept map and electricity production project

Right Hand Rule Practice

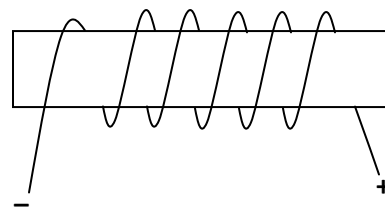
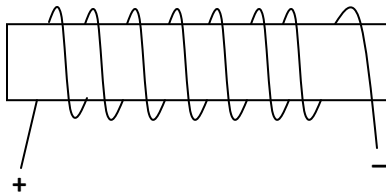
In the following diagrams determine the direction of the **magnetic field** (the conventional current is shown).



In the following diagrams determine the direction of the conventional **current** flow (the magnetic field is shown).



In the following diagrams indicate the direction of the **North** and **South** poles of the electromagnet (the conventional current flow is used – indicate the current direction with arrows as well).



In the following diagrams determine the missing information, either the poles (N/S), the direction of the Force (F), or the current direction.

