Notes for Magnetism 2
April 12 and 13

1) Magnets – most coveted, most stolen. I'm going to have to count them out.
2) Variable and Equation Sheets (so we can use variables to be faster)
3) Magnet basics – Properties of magnets
    a. Two poles – North and South
        i. Compass will point to the south pole (so what is our Earth's magnetic north pole really?)
    b. Can't be divided
    c. Opposites attract, like charges repel
    d. Magnets create field forces (emphasis "field forces")
        i. Field forces – don't need to touch to exert a force
        ii. Within the field magnets or magnetic materials will feel the magnetic force.
        iii. Cannot be shielded.
        iv. Magnetic field lines
            1. show direction and strength of magnetic fields
            2. just like electric field lines
            3. Closer or more lines = stronger Magnetic field
            4. Compass lines up with field lines.
            5. Drawing rules:
                a. Always start at a N pole
                b. Always end on a S pole
                c. Never cross
                d. If no opposite pole draw to or from ∞.
4) Comparing Electricity to Magnetism
    a. Charge (q) can be isolated – poles have to be in pairs
    b. Can be created on some substance –
        i. E – static electricity given to an insulator or conductor
            1. will remain permanently until discharged
        ii. M – magnetic substances can become temporary magnets
            1. after the permanent magnet is removed the temporary magnet remains for just a while.
            2. Lodestone and magnetite are only permanent magnetic substance.
            3. Temporary magnets can be made metals.
                a. Soft magnetic materials (like iron)
                    i. Easily magnetized, but lose it quickly
                b. Hard magnetic materials (nickel and cobalt)
                    i. Hard to magnetize, but lose magnetism slowly
5) Symbols – [*look like part of an arrows*.] X means B into the page (away from you – *tail feathers of an arrow*); ● means B out of the page (coming toward you – *point of an arrow*); ↑ means B going up (obvious, I hope).
6) Right-hand-rule
    a. For current in a circular wire – show with screw
    b. For q moving in B

7) Electromagnets – if time.