Lesson Plan - SPH3U
Unit – Electricity and Magnetism
Topic – Transformers
Day # 16
Curriculum Expectation(s) and Learning Goal(s) for the Lesson

a) Expectations: (*List 1-3 specific expectations from the Ontario Curriculum. Be realistic about how much you can accomplish in one lesson.*)

- describe the components of step-up and step-down transformers, and, using concepts and principles related to electric current and magnetic fields, explain the operation of these transformers

b) **Learning Goal(s):** (*In your own words, what do you want the students to have learned by the end of the lesson? How will you know what they have learned the information?*)

**Students will:**
- Describe the components of step-up and step-down transformers
- Explain, using concepts and vocabulary from the rest of the unit, how transformers work and where they are useful

Learning Environment and Materials (*Describe the set up of the classroom, safety considerations, individual and/ or group work considerations, facilitating smooth and safe transitions*)

Desks are set up in columns and in each column has 2 desks side by side. At the front there is a projector with white board, SMART board on the side of the class. Lab desks surround the columns of desks. J.B. is visually impaired and is seated closer to the front and there is a seating plan to enforce this and others that do not focus well with specific individuals. The seating plan is mostly alphabetical.

Overview of the Lesson (*Write the information that you will provide to the students as the intro to the lesson. This may be written on chart paper, white/blackboard, Smart board. This information will inform the students/EAs about what to expect during the lesson.*)

**Intro:**
- Take up homework questions from previous day (student led)
- Quiz 4 (covers concepts from days 12-15)
- No, not Optimus Prime …

**Body:**
- Lecture/discussion style
  - Transformers – the ability to raise or lower voltage or convert AC to DC voltage
  - Recall Faraday’s Iron Ring
  - Step Down Transformer
  - Step Up Transformer
  - Conservation of Energy
  - Transformer Equations

**Consolidation:**
- Practice Problems and Examples done as a class
- Energy Distribution – Transformers across a city
- Homework questions (could possibly be completed in remaining class time)

**Assessment/Evaluation:**
- Quiz 4 (covers concepts from days 12-15)
- Time will be allotted throughout lecture for students to ask questions
- Issue will be addresses as homework is attempted
- Homework will be formally taken up as a class next day