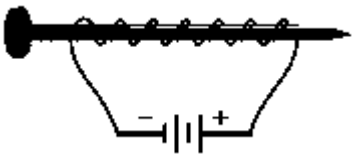
Hohete Tibeb Share Ethio - Parents' Physics Activity *I* for Grade 10

March 2019/20

The following activities will be done after reading properly your centralized note about electromagnetism.

1. Read your centralized note about electromagnetism then prepare a summary note that covers the unit.
2. Prepare a mind map about electromagnetism.
3. A long, straight, current-carrying wire runs from north to south.
a. A compass needle placed above the wire points with its north pole toward the east. In what direction is the current flowing?
b. If a compass is put underneath the wire, in which direction will the compass needle point?
4. How does the strength of a magnetic field, 1 cm from a current carrying wire, compare with each of the following?
a. the strength of the field that is 2 cm from the wire
b. the strength of the field that is 3 cm from the wire
5. A student makes a magnet by winding wire around a nail and connecting it to a battery, as shown in the Figure below. Which end of the nail, the pointed end or the head, will be the North Pole?



6. You have a spool of wire, a glass rod, an iron rod, and an aluminium rod. Which rod should you use to make an electromagnet to pick up steel objects? Explain.
7. A current-carrying wire is passed through a card on which iron filings are sprinkled. The filings show the magnetic field around the wire. A second wire is close to and parallel to the first wire. There is an identical current in the second wire. If the two currents are in the same direction, how will the first magnetic field be affected? How will it be affected if the two currents are in opposite directions?
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Hohete Tibeb Share Ethio Parents

Physics Activity *II* for Grade 10

March 2019/20

The following activities will be done after reading properly your centralized note about electromagnetic induction.

1. Read your centralized note about electromagnetic induction then prepare a summary note that covers the unit.
2. Prepare a mind map about electromagnetic induction.
3. How can you increase the induced emf in a coil?
4. Explain the fundamental operating principle of an electric generator.
5. Explain why the output voltage of an electric generator increases when the magnetic field is made stronger. What else is affected by strengthening the magnetic field?
6. What changes to the generator are required to increase the frequency?
7. Explain why a transformer may only be operated on alternating current.
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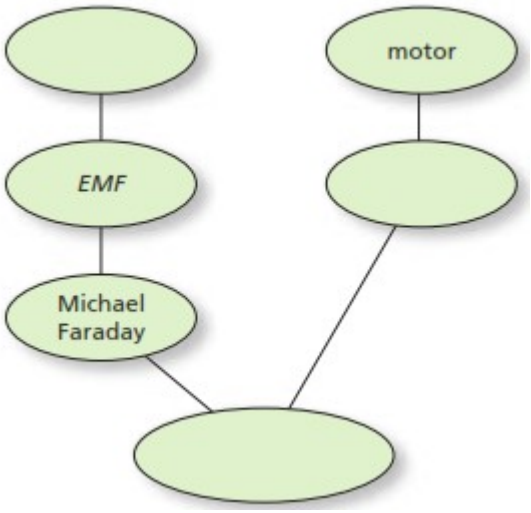
9. Frequently, transformer coils that have only a few turns are made of very thick (low resistance) wire, while those with many turns are made of thin wire. Why?
10. Complete the following concept map using the following terms: *generator, back-EMF, Lenz's law.*



11. What is the difference between a generator and a motor?