Electricity and Magnetism

Magnets

1. A magnet is surrounded by a _____.
2. The ends of a magnet are called its _____.
3. If a magnet is suspended it will (eventually) lie along a line pointing _____ / _____ because the earth is also surrounded by a _____.

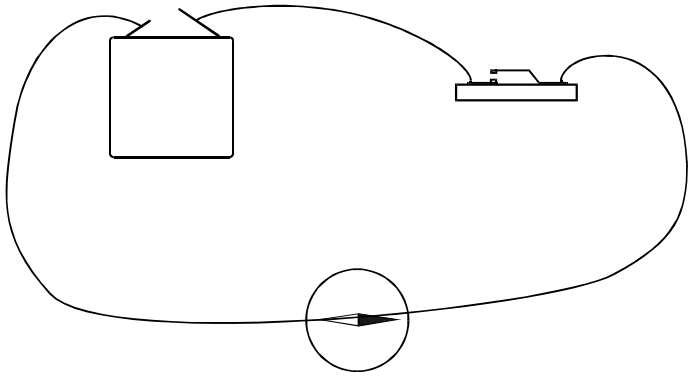
   This is the principle on which _____ work.
4. If two magnets are placed near each other, they will either _____ or _____.

   _____ poles _____

   _____ poles _____

Experiments

1. Set up the circuit shown below. This circuit should **NOT** be switched on for a long time because it is a _____; that is a circuit which has very little _____.



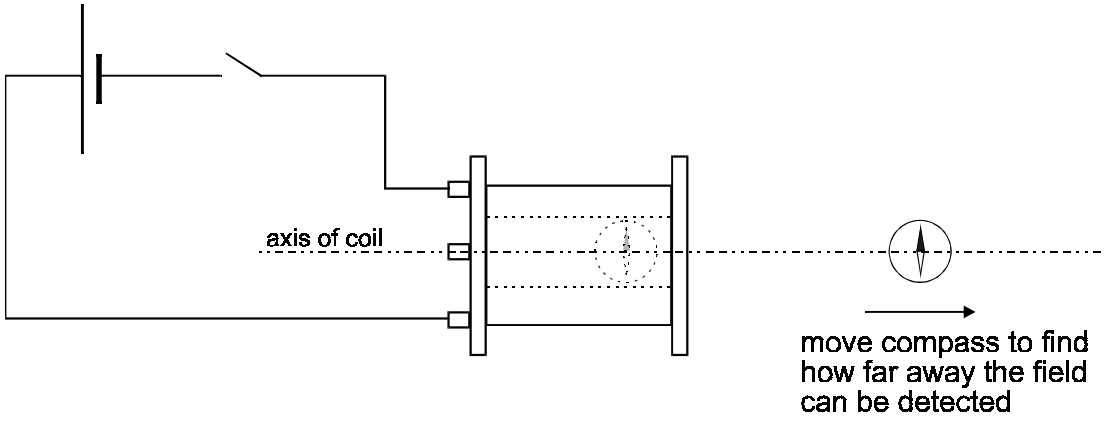
   Place the compass **very** close to the wire (as shown). Switch on for a few seconds.

   Try placing the compass at different places along the wire. If you see some effect, see *how far from the wire the effect can be detected*.

   When the compass is near the wire and current is flowing, the compass "tries" to point _____.

   The effect was detected at a distance of (about) _____ cm from the wire.

2. Now connect a battery to a long *coil* of wire with the compass *inside* the coil, as shown below.



Switch on for a few seconds.

The compass points _____.

Try reversing the battery connections.

Again, try to see *how far away from the coil* you can detect its effect.

The effect was detected at a distance of (about) _____ cm from the coil.

Conclusions

1. Electric current flowing through a piece of wire produces a _____

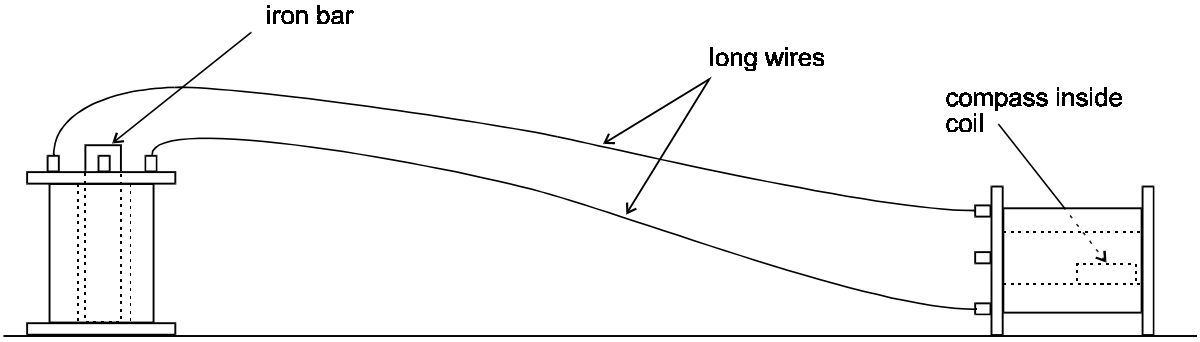
   _____ around the wire.

2. A compass can be used to detect the _____. This means that a compass can tell us if there is _____ flowing through the wire.

3. A wire in the form of a long coil produces a _____

   _____.

Experiment to show Electro-Magnetic-Induction.



Let a magnet “stick to” the iron bar. Now look at the compass.

Does the compass move when the magnet is *not* moving? YES/NO

Now *move* the magnet towards and away from the iron bar.

The compass _____.

Conclusions

1. When a magnet is *moving* near a coil of wire, a small _____ flows through the circuit.
2. The direction of the current depends on
   i) _____
   ii) _____
3. An electric current which flows first one way then the opposite way is called an _____. (This is the type of current we have produced.)

   Electro-magnetic-induction means _____

   _____

   This is the principle on which _____ operate.