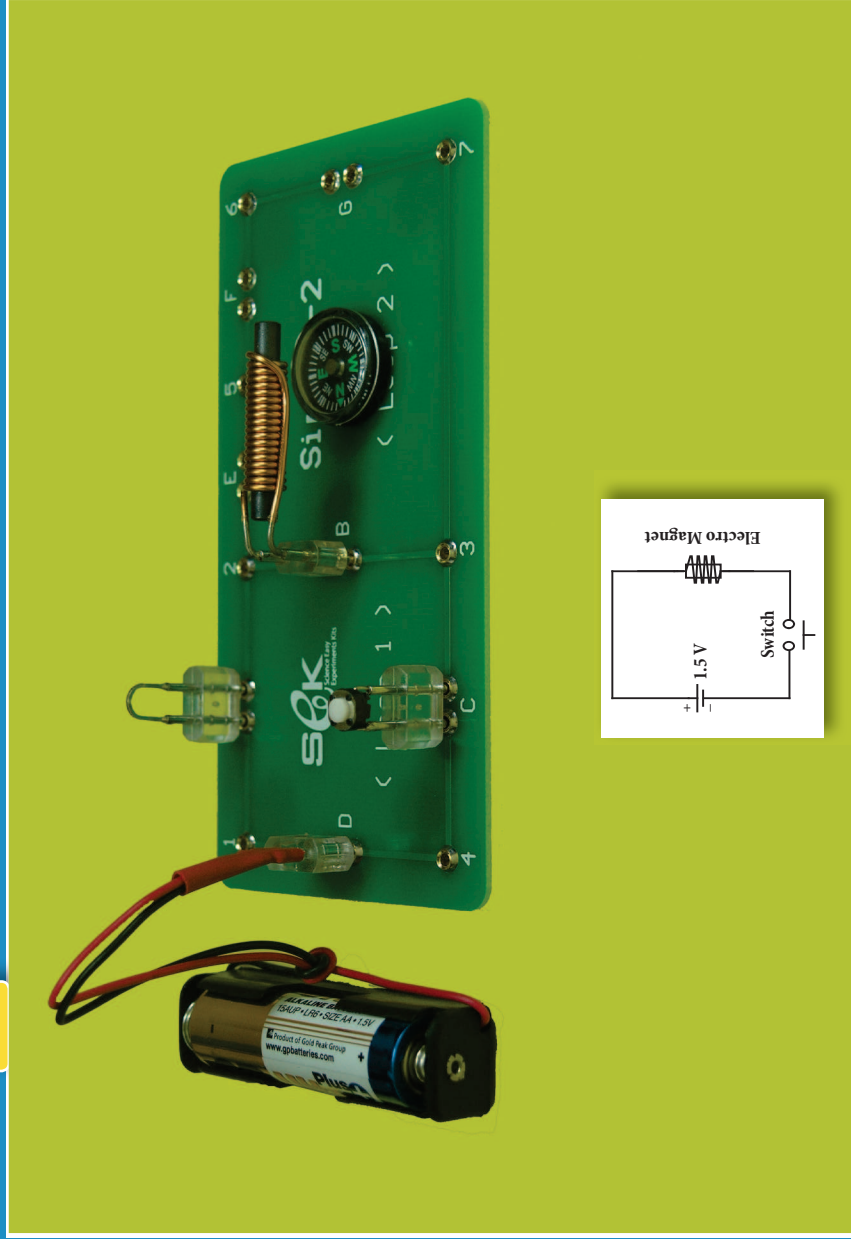


# Experiment

## 5 Electro Magnet



## Objectives

1. The student will investigate and determine the principles of an Electromagnet.
2. The student will be able to determine the north and south poles of an Electromagnet.
3. The student will investigate and determine how to change the polarities of an Electromagnet.

## Apparatus

- Experiments Board (Simple-2)
- Coil (Electromagnet)
- Compass
- 1xAA Battery Holder w/AA battery
- Jumpers
- Staples
- 2xAA Battery Holder w/AA batteries
- Switch

## Procedure & Conclusions

1. Build a simple circuit as shown in the photo.
2. Place a compass below the Electromagnet, then press the switch button and watch the deflection of the compass needle.
  - In this circuit, an electromagnet works on the ... magnetic / chemical / heating ... effect of the electric current.
3. Connect 2xAA battery holder instead of 1xAA battery holder to the pair (D).

4. Press the switch button and watch the change in the amount and speed of deflection of the compass needle.
  - As the voltage applied to the electromagnet increases, the amount and speed of deflection of the compass needle ... **increase / decrease ...**
5. Invert the polarity of the voltage source through reversing the connection of the battery holder at the pair (D) and watch at what direction the compass needle points.
  - **Inverting the polarity of the voltage source ... reverses / doesn't reverse ... the Electromagnet poles.**
6. Put a couple of staples at the end point of the Electromagnet, press the switch button and notice its capacity to attract light objects.
  - **The Electromagnet is magnetized when the ..... passes through the coil around the core of the Electromagnet.**
  - **The coil changes the ..... energy into ..... energy.**

## Discussion

1. Make your own Electromagnet by wrapping an insulated copper wire around a nail.
2. Discuss the factors that affect the strength of an electromagnet such as: current, number of turns, coil's length, material of the core.
3. Mention some examples for the use of Electromagnets in our daily life.



## Magnetic Levitation Passenger Train