1. MAGNETIC POLARITY

A magnet can exert force over a distance because the magnet is surrounded by a magnetic field. If you wanted to see the magnetic field of a bar magnet, you could sprinkle it with iron filings. The patterns of the iron filling would show the lines of force that make up the magnetic field. In this activity, you will use the Magnetic Field sensor to determine the polarity of a bar magnet.

Polarity of a magnetic can be defined as the state of being a north pole or south pole.

Objectives

- Create clearly named variables that represent different data types and perform operations on their values.
- Create a program that demonstrates that two interacting objects can exert forces on each other even though the two interacting objects are not in direct contact with each other.

Materials and Equipment

- Data collection system
- //code.Node
- Bar Magnet

Safety

Follow your normal classroom safety procedures.

Procedure

1. Select Sensor Data in SPARKvue.

2. Connect your //code.Node to your device.

3. Select only Magnetic Field Strength under Measurements and disable all other sensors.

4. Select the Digits display under Templates.

6. Click on the Code icon.
7. Replicate the following code using the blocks found on the left-hand side of the screen.

8. If your code was correct, when you hold a magnet to the top of the code.Node, the LED display should show you an "N" for north pole and "S" for the south pole.

Questions and Analysis

1. What is the function of conditional statements in computer programming? Explain how they worked in the program you created.

2. Can objects interact at a distance? How can you model this using the materials provided in this activity?

3. In your own words, how would you define magnetic force?