

Name _____

Physics

Magnetic Fields

Goal: To determine the shape of Magnetic Fields

Materials:

- (2) Bar Magnets
- (1) Bottle of Iron Filings
- (1) Piece of White Paper
- (1) Horseshoe Magnet



1. Place 1 bar magnet on the white paper and sprinkle the iron filings OVER and AROUND the magnet. Draw what you see in the space below (including the magnet)

2. Place (2) bar magnets on the white paper with opposite poles facing each other. Sprinkle the iron filings OVER and AROUND the magnets. Draw what you see in the space below (including the magnets)

3. Place (2) bar magnets on the white paper with the same poles facing each other. Sprinkle the iron filings OVER and AROUND the magnets. Draw what you see in the space below (including the magnets)



4. Place 1 horseshoe magnet on the white paper and sprinkle the iron filings OVER and AROUND the magnet. Draw what you see in the space below (including the magnet)



6. How do we know which direction the electric field lines point? _____

7. The north pointer on a compass points in which direction? _____

7a. So using this logic, the north pointer on a compass aims towards which geographic pole of Earth? _____. Is this also the same magnetic pole?

8. What causes Earth's magnetic field? _____

9. You should have noticed two important observations when making the field lines using iron filings.

According to the experiment AND lecture, magnetic field lines never do two things. These are:

1. _____ 2. _____

10. What causes an object to become magnetized? _____

11. Two bar magnets are placed together. How can you tell where the field is the strongest? _____

PLACE A BAR MAGNET ON A PIECE OF WHITE PAPER AND POSITION THE COMPASS AT THE NORTH POLE OF THE MAGNET.

12. In what direction does the north pointer of the compass point? _____

13. Move the compass in a circular motion around to the south pole. What direction does the north pointer now face? _____