

**CONCEPTUAL Physics** PRACTICE PAGE

Chapter 24 Magnetism  
Magnetic Fundamentals

Fill in each blank with the appropriate word.

1. Attraction or repulsion of charges depends on their *signs*, positives or negatives. Attraction or repulsion of magnets depends on their magnetic \_\_\_\_\_:  
\_\_\_\_\_ or \_\_\_\_\_.



2. Opposite poles attract; like poles \_\_\_\_\_.

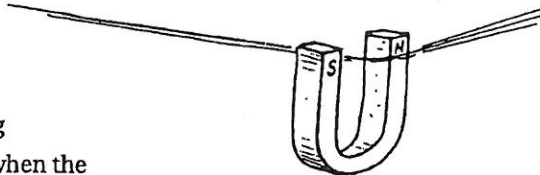
3. A magnetic field is produced by the \_\_\_\_\_ of electric charge.

4. Clusters of magnetically aligned atoms are magnetic \_\_\_\_\_.

5. A magnetic \_\_\_\_\_ surrounds a current-carrying wire.

6. When a current-carrying wire is made to form a coil around a piece of iron, the result is an \_\_\_\_\_

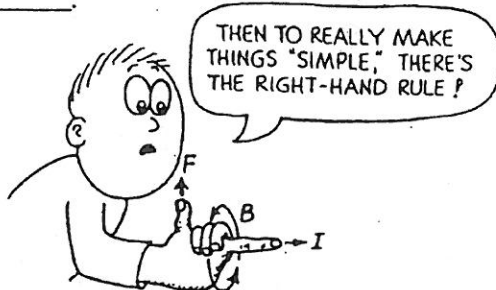
7. A charged particle moving in a magnetic field experiences a deflecting \_\_\_\_\_ that is maximum when the charge moves \_\_\_\_\_ to the field.



8. A current-carrying wire experiences a deflecting \_\_\_\_\_ that is maximum when the wire and magnetic field are \_\_\_\_\_ to one another.

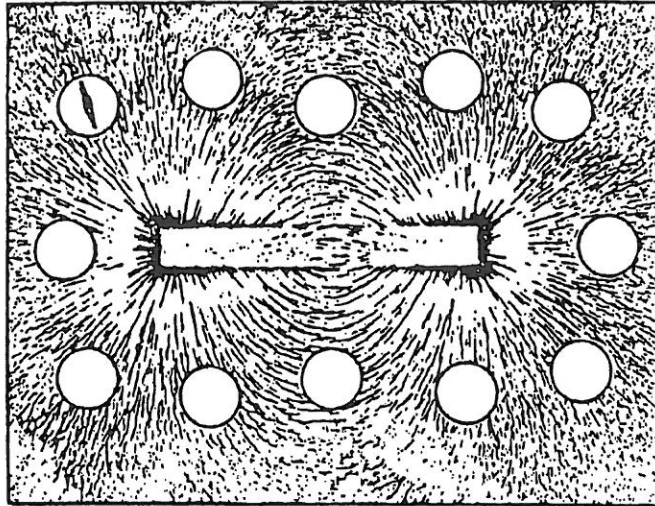
9. A simple instrument designed to detect electric current is the \_\_\_\_\_; when calibrated to measure current, it is an \_\_\_\_\_; when calibrated to measure voltage, it is a \_\_\_\_\_.

10. The largest size magnet in the world is the \_\_\_\_\_ itself.

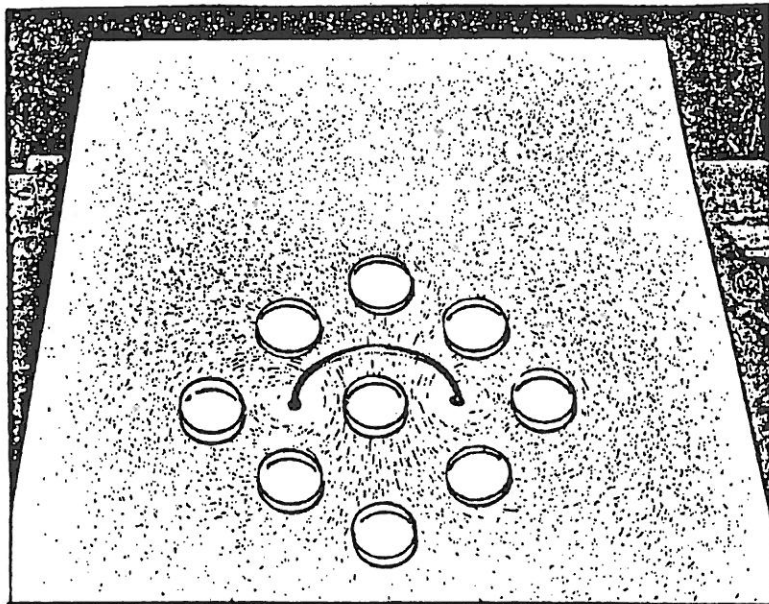


Hewitt  
Draw it!

11. The illustration below is similar to Figure 24.2 in your textbook. Iron filings trace out patterns of magnetic field lines about a bar magnet. In the field are some magnetic compasses. The compass needle in only one compass is shown. Draw in the needles with proper orientation in the other compasses.



12. The illustration below is similar to Figure 24.10 (center) in your textbook. Iron filings trace out the magnetic field pattern about the loop of current-carrying wire. Draw in the compass needle orientations for all the compasses.



## CONCEPTUAL *Physics* PRACTICE PAGE

### Chapter 25 Electromagnetic Induction Faraday's Law

1. Hans Christian Oersted discovered that magnetism and electricity are

(related) (independent of each other).

Magnetism is produced by

(batteries) (the motion of electric charges).

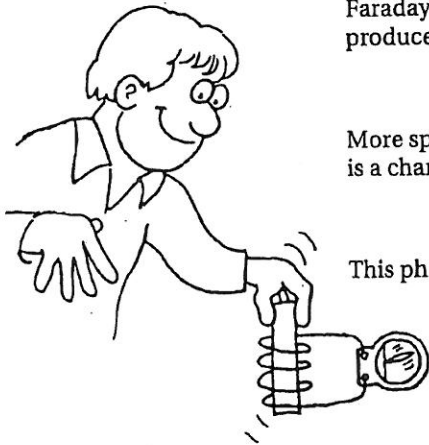


Faraday and Henry discovered that electric current can be produced by

(batteries) (motion of a magnet).

More specifically, voltage is induced in a loop of wire if there is a change in the

(batteries) (magnetic field in the loop).



This phenomenon is called

(electromagnetism) (electromagnetic induction).

2. When a magnet is plunged in and out of a coil of wire, voltage is induced in the coil. If the rate of the in-and-out motion of the magnet is doubled, the induced voltage

(doubles) (halves) (remains the same).

If instead the number of loops in the coil is doubled, the induced voltage

(doubles) (halves) (remains the same).

3. A rapidly changing magnetic field in any region of space induces a rapidly changing

(electric field) (magnetic field) (gravitational field)

which in turn induces a rapidly changing

(magnetic field) (electric field) (baseball field).

This generation and regeneration of electric and magnetic fields makes up

(electromagnetic waves) (sound waves) (both of these).



