

1. What is the minimum number of poles for a magnet?
2. When you break a magnet in half, how many poles does each piece have?
3. The north pole of a magnet is attracted to the geographic North Pole of Earth, yet like magnetic poles repel. Explain this discrepancy.
4. Which way would a compass needle point if you were at the magnetic north pole of the Earth?
5. What is a magnetic domain?
6. Why are iron atoms so strongly affected by magnetic fields?
7. When a magnetized steel needle is strongly heated in a Bunsen burner flame, it becomes demagnetized. Explain why.
8. What indicates that a piece of iron is magnetic, its attraction to or repulsion from another piece of magnetized iron?
9. A magnet attracts a piece of iron. The iron can then attract another piece of iron. Explain, on the basis of alignment of domains, what happens in each piece of iron.
10. When a small magnet is repeatedly dropped, it becomes demagnetized. Explain why this happens.

- ___ 1. Magnetic field lines surrounding a magnet are conventionally drawn
- a. in no direction
 - b. from south to north
 - c. from north to south
 - d. from east to west
- ___ 2. The source of all magnetism is
- a. tiny pieces of iron
 - b. moving electric charges
 - c. tiny domains of aligned atoms
 - d. ferromagnetic materials
- ___ 3. In a drawing of magnetic lines of force, the stronger the field is,
- a. the farther apart the lines of force are
 - b. the more divergent the lines of force are
 - c. the closer together the lines of force are
 - d. the more nearly parallel the lines of force are
- ___ 4. Which geographic pole of the earth is nearest the magnetic north pole of the earth?
- a. Tad pole
 - b. May pole
 - c. North pole
 - d. South pole
- ___ 5. The earth's magnetic field is most likely due to
- a. millions of small magnets buried in the earth
 - b. convection currents in the molten part of the earth's interior
 - c. the rotation of the earth acting on all of the earth's electrons
 - d. a magnetized solid inner core of the earth
- ___ 6. The reason a magnet can attract an unmagnetized nail is that
- a. nails really are magnetized
 - b. nails become permanently magnetized in a magnetic field
 - c. nails become temporarily magnetized in a magnetic field
 - d. a magnet can't attract anything that isn't also magnetized
- ___ 7. An iron rod becomes magnetic when
- a. the net spins of its electrons point in the same direction
 - b. positive ions gather at one end and negative ions at the other
 - c. positive charges move to one side and negative move to the other
 - d. its electrons stop moving and point in the same direction
- ___ 8. Which orientation characterizes the magnetic domains in a nonmagnetized piece of iron?
- a. random
 - b. parallel to the magnetic axis
 - c. perpendicular to the magnetic axis
 - d. antiparallel to the magnetic axis
- ___ 9. A drawing of the lines of force of a magnetic field provides information on
- a. the direction of the field only
 - b. the magnitude of the field only
 - c. the source of the field
 - d. both the direction and the magnitude of the field
- ___ 10. Which describes magnetic declination?
- a. the angle between Earth's magnetic field and the Earth's surface
 - b. the Earth's magnetic field strength at the equator
 - c. the tendency for the Earth's magnetic field to reverse itself
 - d. the angle between the geographic north and magnetic south poles