CHAPTER REVIEW

Concept Items

20.1 Magnetic Fields, Field Lines, and Force

1. If you place a small needle between the north poles of two bar magnets, will the needle become magnetized?

a. Yes, the magnetic fields from the two north poles will point in the same directions.

b. Yes, the magnetic fields from the two north poles will point in opposite directions.

c. No, the magnetic fields from the two north poles will point in opposite directions.

d. No, the magnetic fields from the two north poles will point in the same directions.

TEST PREP

Multiple Choice

20.1 Magnetic Fields, Field Lines, and Force

22. For a magnet, a domain refers to _____.

a. the region between the poles of the magnet

b. the space around the magnet that is affected by the magnetic field

c. the region within the magnet in which the magnetic poles of individual atoms are aligned

d. the region from which the magnetic material is mined

23. In the region just outside the south pole of a magnet, the magnetic field lines _____.

a. point away from the south pole

b. go around the south pole

c. are less concentrated than at the north pole

d. point toward the south pole

24.

25.

26. True or false—If a magnet shatters into many small pieces, all the pieces will have north and south poles

a. true

b. false

Short Answer

20.1 Magnetic Fields, Field Lines, and Force

35. Given a bar magnet, a needle, a cork, and a bowl full of water, describe how to make a compass.

a. Magnetize the needle by holding it perpendicular to a bar magnet's north pole and pierce the cork along its longitudinal axis by the needle and place the needle-cork combination in the water. The needle now orients itself along the magnetic field lines of Earth.

b. Magnetize the needle by holding it perpendicular to a bar magnet's north pole and pierce the cork along its longitudinal axis by the needle and place the needle-cork combination in the water. The needle now orients itself perpendicular to the magnetic field lines of Earth.

c. Magnetize the needle by holding its axis parallel to the axis of a bar magnet and pierce the cork along its longitudinal axis by the needle and place the needle-cork combination in the water. The needle now orients itself along the magnetic field lines of Earth.

d. Magnetize the needle by holding its axis parallel to the axis of a bar magnet and pierce the cork along its longitudinal axis by the needle and place the needle-cork combination in the water. The needle now orients itself perpendicular to the magnetic field lines of Earth.

Extended Response

20.1 Magnetic Fields, Field Lines, and Force

49. Summarize the properties of magnets.

a. A magnet can attract metals like iron, nickel, etc., but cannot attract nonmetals like piece of plastic or wood, etc. If free to rotate, an elongated magnet will orient itself so that its north pole will face the magnetic south pole of Earth.

b. A magnet can attract metals like iron, nickel, etc., but cannot attract nonmetals like piece of plastic or wood, etc. If free to rotate, an elongated magnet will orient itself so that its north pole will face the magnetic north pole of Earth.

c. A magnet can attract metals like iron, nickel, etc., and nonmetals like piece of plastic or wood, etc. If free to rotate, an elongated magnet will orient itself so that its north pole will face the magnetic south pole of Earth.

d. A magnet can attract metals like iron, nickel, etc., and nonmetals like piece of plastic or wood, etc. If free to rotate, an elongated magnet will orient itself so that its north pole will face the magnetic north pole of Earth.