Name Date Class

Note-taking Worksheet

Magnetism

Section 1 What is magnetism?

A. Thousands of years ago people discovered _____.

1. Iron acted like magnetite when _____ with it.

2. Pieces would point _____ when allowed to turn.

B. Magnets have a north and south pole; north and south poles _____ each other, while two norths or two souths _____ each other.

1. _____—the area around a magnet through which the magnetic force is exerted

a. Magnetic field lines begin at a _____ pole and end at a _____ pole.

b. The magnetic field is strongest close to the _____.

2. Moving _____ produce a magnetic field.

a. A group of atoms with their fields pointing in the same direction is called a _____.

b. A magnet contains a _____ number of magnetic domains.

C. Earth's magnetic field, the _____, extends into space and originates in Earth's molten iron outer core.

1. Some _____, such as homing pigeons, have magnetite in their brains that helps them navigate.

2. Earth's magnetic field _____ over time.

a. It has even _____.

b. Ancient _____ reveal magnetic field _____ from long ago.

3. A _____, a magnetic needle free to turn, can be used to detect Earth's magnetic field.

Meeting Individual Needs

Note-taking Worksheet (continued)

Section 2 Electricity and Magnetism

A. An _____ is a current-carrying wire wrapped around an iron core.

1. The _____ of an electromagnet is turned on or off when the electric current is turned on or off.
2. _____ and high-speed trains use electromagnets to operate.

B. Current-carrying _____ produce a magnetic field that acts the same way as a magnet's magnetic field.

1. Two current-carrying wires can attract or repel each other as if they were two _____.
2. The magnetic field around a wire causes it to be _____ or _____ by a magnet, depending on the direction the current is flowing in the wire.
3. An _____ (device that converts electrical energy into kinetic energy) runs by using the magnetic field formed by a _____ formed into a loop.

C. Charged particles from the Sun follow Earth's magnetic field to the poles where they create the _____.

D. A _____ uses a magnetic field to turn motion into electricity.

1. An _____ (AC) changes from positive to negative due to a looped wire changing direction of motion.
2. A generator can produce both _____ (DC), which flows in one direction, and AC current; large power plants produce _____.
3. _____ such as gas, coal, and water provide power plants with kinetic energy to generate electricity.
4. _____ is a measure of how much energy electric charges in a current are carrying.

E. A _____ changes the voltage of an alternating current.

1. Using two _____ of wire wrapped around an _____ core produces an _____ voltage and an _____ voltage.
2. The ratio of coils on the input side of a transformer to coils on the output side is

Note-taking Worksheet (continued)

_____ the ratio of the input voltage to the output voltage.

F. The _____ between magnetism and electricity is illustrated by an _____ guitar.

1. Small magnets produce a _____ around the strings.
2. The magnetic _____ in the strings line up, producing another magnetic field.
3. When strummed, the strings vibrate, changing the surrounding _____ field, causing changes in the coil to vibrate.
4. The motion of the charges is an _____ that can be amplified and sent through speakers to create sound.