Name _____ Date _____ Period _____

LAB – Magnets

PART 1

Problem: How will the poles of two bar magnets react when they come near each other?

Materials: two bar magnets, ~~string~~

Hypothesis: _____

Procedure:

1. Tie ~~a string around the exact middle of one of the bar magnets. One group member should dangle the magnet from the string.~~ Set a magnet on the table.
2. ~~Bring~~ Slide the S pole of the other magnet near the S pole of the ~~hanging~~ magnet.

   What happens? _____

   Why? _____

3. Now, ~~bring~~ slide the N pole of the second magnet near the S pole of the ~~hanging~~ magnet.

   What happens? _____

   Why? _____

4. Next, ~~bring~~ slide the N pole of the second magnet near the N pole of the ~~hanging~~ magnet.

   What happens? _____

   Why? _____

Conclusions:

The Law of Magnetic Poles states that _____

_____.

PART 2

Problem: How can we make magnets appear to float?

Materials: 2 disc magnets, round wooden stick

Procedure:

1. Hold the stick in one hand. Slide one disc magnet down the stick. Allow the magnet to rest on your fingers. Slide the other magnet onto the stick.

What happens? _____

Why? _____

2. Remove the magnet on top and flip it over. Slide it back down the stick onto the existing magnet.

What happens? _____

Why? _____

PART 3

Problem: What materials are magnetic?

Materials: one bar magnet, penny, nickel, dime, nail, house, game piece, large paper clip, pink paper clip, washer, rock, silver rock, piece of foil, Popsicle stick, metal stick, screw, paper, pipe cleaner

Hypothesis: Circle the materials above that you think are magnetic.

Procedure: One by one, test all of the materials. If it is magnetic, it should stick to the magnet. Record your observations in the table below.

Magnetic	Non-magnetic

Conclusions:

1. In order for a material to be magnetic, it must contain _____,

_____, or _____.

PART 2 - Creating a Temporary Magnet

Problem: How can we create a temporary magnet?

Materials: one nail, one bar magnet, 10 paper clips

Procedure:

1. Use just the nail to pick up the paper clips. Does it work? _____

Why? (think domains) _____

2. Now, take the north pole of the bar magnet, and rub it on the nail in only one direction. Put it near the clips.

What happens? _____

Why? (think domains) _____

3. Rub the nail in one direction 20 times. Try to pick up as many paper clips in a row as you can.

How many did you get? _____

What happens to each of the paper clips in the row? (think domains) _____

_____

4. What would happen to the number of paper clips picked up if you rubbed the nail 100 times? _____

_____

Why? _____

Conclusions:

1. A material that is highly magnetic is a _____ material.

2. By rubbing a nail in one direction with a magnet, we _____ the domain,

creating a magnet

Name _____ Date _____ Period _____

Lab – Magnetic Fields and Domains

PART 1 - Magnetic Fields

Problem: Since magnetic fields are invisible, how can we see them?

Materials: two bar magnets, paper plate, cup with iron filings

Procedure:

1. Place one of the magnets on the table. Cover it with the paper plate. Lightly sprinkle the iron filings onto the plate. You may need to LIGHTLY tap the plate to rearrange the filings. Draw a picture of what you see. Be sure to label the poles.

2. Lightly fold the plate and dump the filings back into the cup. Now, put both of the bar magnets on the table so that they are repelling. Get them as close together as possible. Place the plate over the magnets, and lightly sprinkle the iron filings on top. You may need to LIGHTLY tap the plate to rearrange the filings. Draw a picture of what you see. Be sure to label the poles.

3. Lightly fold the plate and dump the filings back into the cup. Now, put both of the bar magnets on the table so that they are attracting. Get them as close together as you can without touching. Place the plate over the magnets, and lightly sprinkle the iron filings on top. You may need to LIGHTLY tap the plate to rearrange the filings. Draw a picture of what you see. Be sure to label the poles.