Name: _____ Date: _____

Lesson 3: Handout 2

# Investigation: Materials that interact with the coil

## Investigation Procedures

1. Place your copper coil on the table. Carefully attach the each end of the copper coil to each terminal of the battery with tape. **CAUTION: The coils can get hot. Disconnect the coil of wire from the battery when you are not actively testing something.**
2. Test the coil with the magnet quickly to make sure it has an electrical current running through it. Then put the magnet to the side.
3. For each test object, do the following:
    a. Place the object on the table near the coil.
    b. Move the object incrementally closer to the coil until either the coil moves toward the object, or the object moves toward the coil. Stop when they end up touching. Record your observations in the table below.
    c. If the coil and object moved closer to one another, then touch the coil to the object and slowly lift up the coil Record your results in a row in the table below and add any observations that stand out to you.
4. Discuss the making sense questions in your groups.

## Data Table

| Test object | Attractive forces (pulled together)? | Repulsive forces (pushed apart)? | Additional observations |
|---|---|---|---|
| | Y / N | Y / N | |
| | Y / N | Y / N | |
| | Y / N | Y / N | |
| | Y / N | Y / N | |
| | Y / N | Y / N | |
| | Y / N | Y / N | |
| | Y / N | Y / N | |
| | Y / N | Y / N | |
| | Y / N | Y / N | |
| | Y / N | Y / N | |

## Making Sense

| the coil of wire is like the magnet because... | the coil of wire is different from the magnet because.... |
|---|---|
| | |