08-04 Electrical Shielding Lab *Name: _____*

Objective: Observe EM shielding and hypothesize why it works.

Materials:

- Faraday bag/metal box
- Cloth bag
- Plastic box
- Cell phone that fits in the bag or box
- 2nd phone

Observe

1. Prepare the phone
    a. If you have a Faraday bag, it has two pockets. Turn the ringer on a phone all the way up and put it in the inner silver pouch. Close the pouch.
    b. If you have a metal box, place a nonconductive object to balance the phone on such as and eraser or a couple plastic pens. Turn the ringer on a phone all the way up and put it in the box, balanced on the nonconductive object so that it does not touch the sides of the box. Close the box.
2. Using the second phone, call the one in the bag or box. What happens? _____

Hypothesis

3. Write a hypothesis about what will happen if the bag or box is left open.
    _____
4. Write a hypothesis about what will happen if the phone is put in the cloth bag or plastic box.
    _____

Test

5. Test your hypothesis by leaving the Faraday bag or metal box open and calling the phone again. What happened?
    _____
6. Now close the Faraday bag or metal box and call again. What happened? _____
7. Put the phone in the cloth bag and call again. What happened? _____
8. Put the phone in the plastic box and call again. What happened? _____

Conclusion

9. When did the phone work? _____
10. When did the phone not work? _____
11. What seems to be true about the material the container is made out of that stopped the phone call?
    _____
12. Using a material to block electromagnetic signals is called EM shielding. Suggest 3 ways that EM shielding might be useful in the real world other than to keep cell phones from working.
    _____
    _____
    _____