SEPARATION OF MIXTURES LAB

name _____

period _____

QUESTION: What is the effect of _____ on _____?

MATERIALS: Mixture (10 g sand, .5 g salt, 1 g iron filings), funnel, filter paper, petri dish, beaker, balance, plastic bags.

PROCEDURE:

1. Use the balance to measure out the mass of each of the different materials. Put the materials together into a plastic bag.

2. Write down the physical characteristics of sand, salt and iron which may be different (see notes for physical characteristics) and list the step of the procedure where a separation is taking place, based on that physical characteristic.

| Material | Physical Property | Step of Separation |
|---|---|---|
| | | |
| | | |
| | | |

3. Put the magnet inside a plastic bag. Move the magnet and the plastic bag around the mixture. Lift the magnet and the bag out of the mixture and put it over another container. Take the magnet out of the plastic bag--the iron filings should fall into the container. Repeat the process with the filings again to remove any sand or salt which may have stuck to the iron filings. Find the mass of the iron filings.

4. Fill a petri dish with water. Add the water to the bag with the sand/salt mixture. Move the mixture around to stir the water and the mixture.

5. Put a filter paper into the funnel. Put the funnel in the beaker. Cut a hole in the bottom of the plastic bag and dump the material into the filter. Be careful not to let the water mixture go over the sides of the filter paper. You may have to wait quite a while for the mixture to filter out.

6. Label a petri dish and pour the salt water into the petri dish. Put the petri dish with the dissolved salt on a shelf to evaporate. Find the mass of the salt after the water has evaporated.

7. Spread the sand out on the filter paper to dry. Find the mass of the sand after the sand has dried. Create a data table showing the mass of each material before the experiment, the mass after the experiment and the amount lost or gained.

| Material | Start Mass | End Mass | Error |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |

8. Write an error paragraph describing where you may have lost or gained mass for each material. Tell how each error contributed to the loss or gain of material. Describe how you could make the error smaller, if you did the experiment again. Use another piece of paper.

Separation of Mixtures Error Analysis

name _____
period _____

Use complete sentences to tell how you may have lost or gained material at each step of separating the sand, salt and iron filings. Write 3 sentences for each step of separation:

- How did the error happen (how was material lost or gained)?
- What effect did this have on the measurement?
- What changes could you make that would make this error smaller?

1. Removing the iron filings using the magnet.

2. Filtering the sand/salt.

3. Measuring the sand.

4. Measuring the salt.