# Extension 8.1.1

## lab- comparing compounds

An atom is the smallest part of an element that still has all the properties of that element. As you recall, an element is a pure substance which is made up of a single kind of atom. There are over 100 known elements on Earth. A compound is a substance that is made up of two or more elements that are chemically combined.

In this activity you will investigate some of the characteristics of both elements and compounds. Remember to use caution when performing the experiment in this investigation. Record your data neatly, and answer the questions at the conclusion of the activity.

**Materials:** safety goggles, iron filings, powdered sulfur, paper towel, magnet in plastic bag.

**Directions:**

1. Obtain ¼ tsp of powdered SULFUR. Place it on a piece of paper towel and carry it back to your lab table.

2. Take a few minutes to make observations about the element SULFUR (color, texture & smell). Record your observations in the data table. *Remember to waft when smelling!!!

3. Touch the magnet in the plastic bag to the SULFUR and record your observations.

4. Next obtain ¼ tsp of IRON powder and place it on a different paper towel. Carefully take it to your lab table.

5. Take a few minutes to make observations about the element IRON (color, texture & smell). Record your observations in the data table. *Remember to waft when smelling!!!

6. Touch the magnet in the plastic bag to the IRON and record your observations.

7. If iron powder has stuck to the magnet, pull it off and put it back on the paper towel.

8. Mix the SULFUR and IRON. Record your observations (color, texture & smell). Also test the magnetic properties of the mixture and record your observations.

9. The next part of the activity will be conducted by your TEACHER. Your teacher will create a compound of Sulfur and Iron called Iron Sulfide.

10. Observe the sample of the sulfur iron compound, make some observations in the data table. Also test the magnetic properties of the sample with a magnet.

**Data Table**:

| | Sulfur | Iron | Sulfur & Iron Mixture | Sulfur & Iron Compound after heating |
|---|---|---|---|---|
| **Color** | | | | |
| **Texture** | | | | |
| **Odor (smell)** | | | | |
| **Magnetic Properties** | | | | |

**Answer the following questions**.

1. Compare and contrast some of the properties of sulfur and iron.

2. What were the properties of the sulfur and iron mixture and how did they differ from those of the separate elements?

3. What part of the mixture responded to the magnet?

4. Is it possible to separate the sulfur and iron mixture into its individual parts?

5. Discuss how the properties of the sulfur and iron mixture changed after it was heated.

6. Give one example of a cross cutting concept (green sheet pg. 3) from this experiment.

7. Give one example of a science and engineering practice (green sheet pg. 3) from this experiment.