**Chemical Formulas**

**Assessment:**

Many students struggle naming compounds. In this assessment, students will work on empirical formulas and will name these compounds.

1. Harry, Ron, and Emma are all participating in a chemical engineering project to produce a compound made of iron, oxygen, and nitrogen. Each devise his/her own process to this and each produce different results. After analyzing their compounds, they determine the composition of each product. The results are:

Harry Ron Emma

Fe: 23.1% Fe: 31.05% Fe: 28.8% O: 59.5% O: 53.38% O: 49.5% N: 17.4% N: 15.57% N: 21.7%

Each makes the claim that he/she has produced **iron nitrate**. As their project leader, you have to determine who is correct. Only one person can be correct… right?

Determine the formula for each person’s compound:

Harry:

Ron:

Emma:

What is the proper name for each person’s compound? (You may need to review naming compounds by completing #2 on the next page)

Who actually made iron nitrate? If more than one person made it, how is it possible they had different results?

What errors did each person make in naming his or her compound?

**Reflection/ Teaching Tips:**

**Purpose for the assessment:**

This assessment is developed to see if students grasped several concepts together. It includes determining formulas from % composition and nomenclature. It gauges students' understanding of empirical formulas and naming them.

**Possible ways to use the assessment:**

It is used as a review tool at the end of the chapter. It is near the end of the chemical formulas unit after learning how to find empirical formulas. It is a peer-learning experience, since students will work with a partner.

**Student understanding:**

Most student groups did fairly well with the first part, but struggle a bit with the deeper questions about the mistakes with naming.