**Atomic Number**

**Assessment:** During this assessment, students will work as a group and answer following questions.

**Group Test Question 1**

"You have 15 g of a pure substance known to have an atomic number of 13. Identify the substance, and indicate how many moles of that substance you have."

**Group Test Question 2**

"If a student burned 5.00 g of magnesium in an excess amount of oxygen, how many grams of magnesium oxide would form? Be sure to write all of the formulas and the overall balanced equation for this reaction."

**SCORING:**

Scoring would be broken down like this:

**Question 1**

5 pts. ‐‐ correctly identified Al or aluminum

3 pts. ‐‐ used correct grams to moles conversion for the element they chose

7 pts. ‐‐ correctly calculated number of moles for the element they chose

(15 points total)

**Question 2**

2 pts ‐‐ per correctly written formula (6 pts total)

6 pts ‐‐ for correctly written and balanced equation

2 pts ‐‐ for each correctly written step/conversion in the stoichiometry problem (6 pts total)

5 pts ‐‐ for a correctly calculated answer (no double‐jeopardy)

(15 points total)

**Reflection/ Teaching Tips:**

**Purpose for the assessment:**

For the first question, my thought was to have students connect two seemingly separate ideas‐‐moles and atomic number‐‐to help them see better that everything is connected somehow. I think it is good to have a few cumulative knowledge questions now and again, so I thought this question might be good for that.

The second question is a little difficult on your own when you are first starting out with stoichiometry problems, especially if you aren't confident with writing formulas or with balancing equations. I think this would be a great group question because it would allow them to be more confident with all of that, and then the rest of the test calculation questions might be that much easier for them.

**Possible ways to use the assessment:**

These questions would be on a test after the unit on stoichiometry, which is well after the unit on the atom. Even though the calculation is simple for the first question, I think the question would still be challenging, at least for my students. It asks them to connect two seemingly separate topics (atomic number and moles). The second question is really challenging because it asks for so much all in one question.

**Additional advice for using the assessment:**

It is important to give partial credit and not to penalize too much if the wrong element or formula is identified at step one. Particularly if the student does the rest of the problem correctly (for example, they misidentify aluminum but correctly calculate the number of moles based on the element they do identify)