**Basic Chemistry Knowledge Inventory**

**Assessment:**

This assessment will be provided before teaching to learn students’ prior knowledge of chemistry.

1. Describe what you know of the structure of an atom. Consider the different components of an atom, the characteristics of each component, and how those components affect the properties on an element.

2. Tomorrow you wake up and discover that your car won’t start. How could you scientifically determine what is the cause of the problem? List some steps to solve the problem including what you would do if your first try at solving it was not successful.

**3**. What **metric** unit would be most appropriate to measure the following quantities?

a. amount of water in a large pot on a stove.

b. the distance a person runs in 10 sec

c. the distance a car travels in 10 minutes

d. the time needed for Usain Bolt to run 200m

e. the amount of heat absorbed by boiling water

f. the amount of sugar needed for a recipe of cookies

**4**. Perform the following conversions (show how you set up the problem)

a. 25mm to cm

b. 300kg to g

c. 450mL to L

d. 560 centimeters to meters

e. 1500 meters to kilometers

**5**. Classify the following as an element, compound, or mixture **explain** why you chose each answer.

a. Aluminum

b. Air

c. Sodium chloride

d. distilled Water

**6**. Below are five changes. Determine whether they are physical or chemical changes and **explain** why you chose your answer for each.

a. ice melts

b. a piece of paper is burned to ashes

c. a yellow solution is mixed with a blue solution to make a green solution

d. two colorless solutions are mixed to make a yellow solution

e. a student adds vinegar to baking soda, resulting in bubbles forming

**Scoring:**

Only participation points for trying.

**Reflection/ Teaching Tips:**

**Purpose for the assessment:**

I wanted to get an idea of what my students remembered from previous science classes about matter, atomic structure, measurement, and the scientific method.

**Possible ways to use the assessment:**

This assessment is used on the first day of school- at the beginning of the first unit on science and measurement. These topics are covered in the first two units. It’s kind of cruel giving this to students on the first day of school. But I figured it would be better to understand what they’ve truly learned in their previous science and math classes. Because of this assessment I knew I could breeze through the topics they understood already, and would spend more time on the metric system and atomic structure.

**Additional advice for using the assessment:**

Instead of covering several areas, assessment can be focused on a chapter at a time. The example of a car breaking down can be used to explain for scientific method.

**Student understanding:**

Students had a good understanding of physical and chemical changes, but poor understanding of metric conversions, and atomic structure. It was a fairly even split regarding scientific method and units of measurement.