**Assessment:**

**Demo setup:** A medium size test tube is attached to a ring stand in a horizontal orientation. Pack the test tube with wood splints. Close the test tube with a rubber stopper that has one hole with a 2-3" length of glass tubing attached. This will create a low oxygen environment in the test tube. Heat the test tube with a Bunsen burner. When the wood begins to blacken, take a bbq lighter and start a flame at the exit point of the glass tubing. The gas produced by the wood splints should ignite. If you're lucky, you should be able to remove the lighter and have the flame continue. Once the wood splints are finished reacting, you can remove them from the test tube and light them. Students should be able to recognize that you have made charcoal.

\*\*Distillation of wood

From the late 18th century until the early 20th century, the primary source of gas for heating and light was distilling coal. Coal would be heating without burning it. This would produce a flammable gas that could be transported and used later. A similar process can be used with wood.

Observe the demonstration and answer the following questions:

1. What phenomena do you see signifying a chemical reaction is occurring?
2. A flame occurred at the end of the tube when a lighted match was introduced. Explain.
3. What type of reaction occurred at the end of the tube?
4. What type of reaction occurred inside the tube?
5. What were the probable products from the reaction at the end of the tube?

**Demo setup:** Have two beakers, one with silver nitrate solution and the other with sodium chloride solution. Add some of the silver nitrate to the sodium chloride and observe a white precipitate form.

\*\*Silver nitrate and sodium chloride

AgNO3 (aq) + NaCl (aq)  ??

Observe the demonstration and answer the following questions:

1. What phenomena do you see signifying a chemical reaction is occurring?
   1. What type of reaction occurred?
   2. What are the products of the reaction?

**Demo setup:** Dip the tip of a copper wire into a solution of silver nitrate. After a few minutes, remove it. Place the wire under a magnifying video camera so students can observe the crystals formed.

\*\*Silver nitrate and copper

Cu (s) + AgNO3 (aq)  ??

Observe the demonstration and answer the following questions:

1. What substance is seen on the copper wire after it was placed into the solution?
2. What type of reaction occurred?
3. What are the products of the reaction?

**Scoring:**

This assessment was scored for participation. I have students’ feedback after they answered questions on each section and had a discussion about the demos.

**Reflection/ Teaching Tips:**

**Purpose for the assessment:**

The purpose of this assessment is to engage students in identifying types of chemical reactions.

**Possible ways to use the assessment:**

This was given and performed a few days before our end of the unit assessment, as a general review/assessment. There can be a class discussions after each demo, and it will support peer-learning.

**Additional advice for using the assessment:**

Practice the demos before hand to get the hang of them. The distillation of wood demo can stink and can be very messy. Have more demos, and do more like this earlier in the year. Students really enjoyed it. Some student may need to move closer to see the demos. Charcoal for cooking can be use as an example for daily life relation.

**Student understanding:**

The last 2 demos were easy for students. They enjoyed the first one, but had problems identifying the decomposition reaction occurring in the test tube*.* Students were very successful with unit, scoring an average of 86% on the unit test.

They knew the general types of rxns. Some students thought the rxn of the wood inside the test tube was combustion, since they were used to wood undergoing combustion