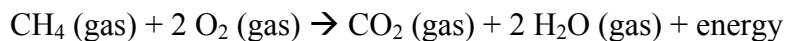


Chemical Changes

Elicitation Questions

1. You measure the weight of a nail and set it outside. The nail rusts completely before you weigh it again. Does it weigh more or less? Why?

2. When methane gas burns energy is released. This is the chemical equation for what happens when methane burns:



- a. Find 2 O₂ in the equation. Explain what each 2 means.
- b. Draw this reaction using models (ie. Lewis dot structures, ball-and-stick models, space-filling models, etc.). Show how the molecules are rearranged in this chemical equation.
- c. Describe where the energy that is released comes from.

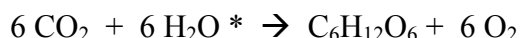
Chemical Changes

Elicitation Questions

3. When photosynthesis was being studied in the 1800s it was believed that the O₂ that was given off by plants came from the CO₂ that they absorbed.

In the 1930s Cornelius Van Niel discovered that the oxygen gas given off actually came from the water molecules, not the CO₂. His results were later verified when researchers at UC Berkeley used water with specially labeled oxygen to study the chemistry of photosynthesis.

The reaction for photosynthesis is shown here with the labeled oxygen indicated in the reactants:



- a. Circle where the labeled oxygen atoms will end up in the product.

When we eat the sugar from plants the following reaction occurs in our cells:



- b. Explain how this chemical reaction is related to photosynthesis. How are the reactions similar? How are they different?
- c. Once CO₂ gas is converted into sugars in plants, is it ever possible to get CO₂ back?