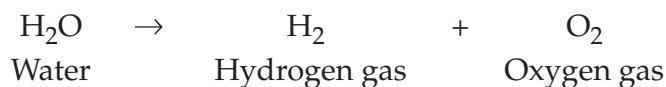


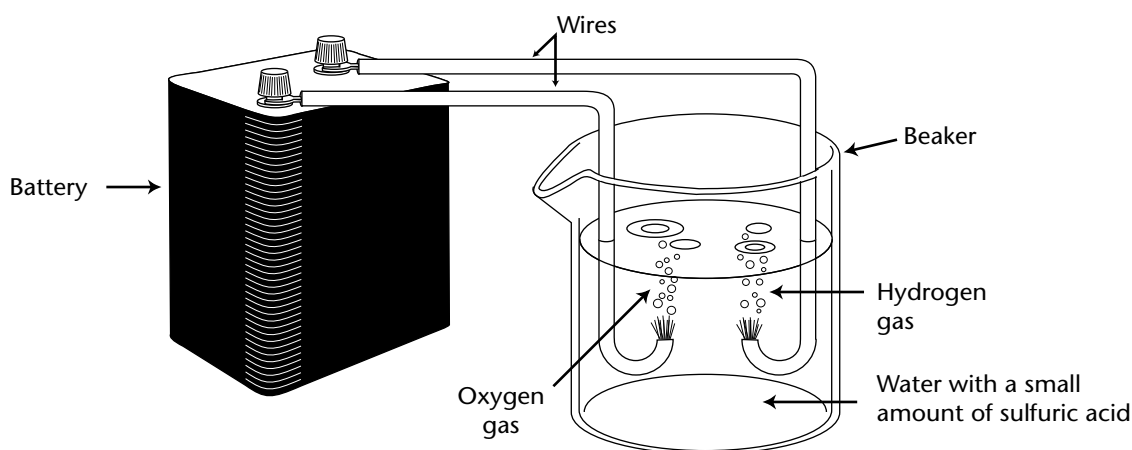
Chemical Reactions ▪ 6.2 Enrich

The Decomposition of Water

You learned in Section 2 that hydrogen gas and oxygen gas can react to produce water. The reverse of this reaction can also occur. In other words, water can be broken down to make hydrogen gas and oxygen gas. The breakdown of water is a decomposition reaction. The unbalanced equation for this reaction is shown below.



For this reaction to occur, there must be an electric current through the water as shown in the figure below. Two wires are connected to a battery, and the free ends of the wires are put into a beaker of water that contains a small amount of sulfuric acid. The sulfuric acid helps to increase the flow of current through the water.



Answer the following questions on a separate sheet of paper.

1. Write a balanced equation for the decomposition of water.
2. How many atoms of hydrogen are on the left side of the balanced equation? How many oxygen atoms? How many hydrogen atoms are on the right side of the balanced equation? How many oxygen atoms?
3. The water in a beaker has a mass of 200 g. An electric current is turned on in the water for two hours. Afterward the water has a mass of only 176 g. What happened to the missing mass?
4. Suppose a sample of water decomposes to make 4 g of hydrogen gas and 32 g of oxygen gas. What mass of water decomposed? How do you know?
5. Look at the figure above. How can you tell that a reaction is occurring?