Name _____ Date _____ Class _____

An Enlightening Discovery

In 1896, a French scientist named Henri Becquerel was experimenting with a sample of uranium salt to see if fluorescent substances give off X rays. A fluorescent substance is one that glows when exposed to sunlight. Becquerel's experiment consisted of wrapping some photographic film in lightproof paper, placing a sample of uranium salt on top of the paper, and then leaving the setup out in the sun. His hypothesis was that uranium salt gives off X rays when exposed to sunlight. He reasoned that the X rays would pass through the paper and produce an image on the film.

When Becquerel developed the photographic film, he saw the image he was looking for—evidence, he thought, that X rays had been produced by the uranium salt in sunlight. One trial was not enough, though, to support his hypothesis. He decided to repeat the experiment the next day. Much to his frustration, though, the next day was cloudy. Becquerel put the setup in a drawer and went on to other things. A day later, he developed the film anyway, thinking there wouldn't be much of an image. Much to his amazement, he saw an image on the film just as clear as when the uranium salt had been left out in the sun.

Quite by accident, Becquerel had made a discovery of great importance. He realized that the uranium salt had given off an invisible "something" that could not be explained by sunlight hitting a fluorescent substance. Becquerel tested many more uranium compounds, and he drew the conclusion that uranium produced this mysterious "something." In time, scientists realized this "something" was a type of radiation.

Answer the following questions on a separate sheet of paper.

1. What was Becquerel's original hypothesis?
2. How was Becquerel convinced at first that his hypothesis was supported?
3. What observation caused Becquerel to pose another question?
4. What discovery did Becquerel make by accident?
5. Describe the pathway of scientific inquiry by which Henri Becquerel discovered that uranium gives off a type of radiation.