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### *Boiling in the Stratosphere*

This project was intended to determine if the boiling of water is a heating or a cooling process. To test this, an experiment needed to be designed to make water boil without a heat source. Since water boils at a lower temperature at higher elevations due to less air pressure, conducting this experiment in a vacuum chamber would simulate reduced air pressure. By placing 100 ml of distilled water previously heated to 85°C in a vacuum chamber, the water could be made to boil again without an added heat source by reducing the atmospheric pressure inside the chamber. By recording the temperature at every 5°C drop, as the water continued to boil, the question could be tested. What was being looked at was whether or not the temperature of the water rose, or dropped, more rapidly than usual. After conducting this experiment, it was found that the temperature, strictly because of the boiling, dropped very rapidly. The temperature of the water dropped from 85°C to 65°C in 18.5 seconds compared to the 385 seconds it would normally take to drop the same amount. The test results show that the boiling of water is a cooling process. The real significance of the results is that it corrects a common misconception that boiling is a heating process. This misconception is mainly because heat is added to make water, or any other substance, boil. Boiling is actually the process by which substances release heat into the atmosphere, thus cooling the substance.