Materials and Methods
First, 3 16 oz water bottles were cut in half, and the top part was inverted like a funnel. A hole was poked in the lid and a water wick was threaded through the hole. Then, each of the bottles were filled with 5 heaping tablespoons of vermiculite. Next, the experiment was set up with a control (no osmocote pellets), a low concentration (6 osmocote pellets), and a high concentration plant (24 osmocote pellets). After that, 4 heaping tablespoons of 50:50 vermiculite "seedling starter" mix was added to each container. 6 Brassica rapa seeds were spaced evenly near the edge of the container. Next, the seeds were topped with 2 additional tablespoons of vermiculite. Finally, the soil was soaked until the end of the water wicks were damp, and the containers were placed under a fluorescent light bank. In order to prevent the plants from leaning, the light was periodically raised, so it would continue to be approximately 6-8 cm above the plants.

Introduction
A Brassica rapa is a rapid cycling plant with a life of 35-40 days which makes it ideal for experiments. The Brassica rapa, also known as the Wisconsin Fast Plant, is from the Kingdom Plantae and the Genus Brassica. The research question was, “How does the concentration of fertilizer quantitatively affect the height of the Brassica rapa?” The independent variable was was the amount of fertilizer pellets placed in each container, and the dependent variable was the height of the Brassica rapa plants. The hypothesis was, “The height of the Brassica rapa will substantially increase with the higher concentration of fertilizer.”

Results
Figure 2 shows the average height of the plants in each fertilizer treatment during the 22 day experiment. At the end of the experiment the final plant heights matched our original hypothesis. The height of the control treatment was 160 mm. The height of the low fertilizer treatment was 170.333 mm, and the final measurement of the high fertilizer treatment was 177.833 mm.

Abstract
The Brassica rapa was grown in 3 different treatments of fertilizer. After 22 days of growth, the Brassica rapa plants with the highest concentration of osmocote pellets had the highest average plant height out of the 3 treatments. This trend continued and the plants with the low fertilizer treatment had the second highest height, and our control treatment, which contained no fertilizer, had the lowest average height. This showed that the plants with the most fertilizer were given more nutrients which allowed them to grow at a more rapid pace.

Conclusion
The Brassica rapa plants with the highest concentration of osmocote pellets were the tallest plants. This was because more fertilizer gave the plants more nutrients allowing them to grow at a quicker pace. One of the uncontrolled variables in this experiment that may have influenced the results was the fragility of the stems. This sometimes caused them to break off the plants and decreased the collected measurement. This experiment could have been improved by having three containers of each of the treatment, as opposed to just one, because it would have allowed a better average to be collected. Thus creating more accurate results. Some new questions that surfaced from the results were, “Is it possible to have so much fertilizer it would begin to inhibit the plant’s growth?” and, “How well would these plants grow if they were placed in natural lighting or under a different lighting system?”

Fertilizer’s Effect on the Brassica rapa
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Figure 1: This is the fluorescent light bank where the plants grew.

Figure 2: This shows the final setup of the experiment.

Figure 3: Containers in order of control, low, and then high fertilizer concentration.

Figure 4: The graph records the heights of the Brassica rapa plants on each of the recorded dates.