

THE VAN HELMONT EXPERIMENT

Van Helmont performed an experiment in which he placed a 5 pound stem of a willow tree in a vessel containing 200 pounds of dirt that had been dried in an oven. Over the course of five years- the stem, watered only with distilled water and rainwater, grew into a tree weighing 169 pounds. Van Helmont dried the earth in which the tree had been growing and weighed it again. He found that the earth weighed only two ounces less and concluded:

“Hence, one hundred and sixty four pounds of wood, bark, and roots had come up from water alone”.

1. Why did Van Helmont dry the 200 pounds of dirt in an oven prior to planting the stem? _____

2. Why did he use only distilled water and rainwater? _____

3. Why did he dry the earth again at the end of the experiment? _____

4. Why do you propose the earth weighed 2 ounces less at the end of the experiment? _____

5. Do you agree with Van Helmont that 164 pounds of wood, bark, and roots had “come up” from water alone? Explain your answer. _____

6. On the reverse of this sheet, critique Van Helmont’s experiment. What question was he trying to answer? Was his conclusion valid? Do you have an alternate conclusion? How could an experiment be designed to improve upon Van Helmont’s experimental design?