

7th grade



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**Compost Experiment**

Name \_\_\_\_\_

Date \_\_\_\_\_ Per \_\_\_\_\_

**Introduction:** Greens are the greatest. No other family of vegetables provides so much good eating for so little effort. Most greens grow quickly and have a long harvest from early spring to late fall. Celery, chard, collards, endive, kale, lettuce, mustard, and spinach all belong to the green family. Chard comes in different colors. Swiss chard is green with white stems. Ruby chard has bright red stems and reddish green leaves. Vegetables in the same family often need the same growing conditions, are planted at the same time, need the same plant food, and are bothered by the same insects and diseases.

Vegetables use 16 different nutrients. Luckily for us, most of these 16 nutrients are taken from the soil in very small quantities and they're already present in most soils. Only three of the 16 nutrients are taken up by plants in hefty doses - nitrogen (N), phosphorus (P), and potassium (K). It's important for every garden soil to have an adequate supply of these three "major nutrients," or plants simply won't do so well. Besides the three major nutrients, there are three nutrients known as secondary plant nutrients - calcium, magnesium, and sulfur. Less crucial are the six nutrients known as trace minerals. They are iron, chlorine, zinc, manganese, copper, and boron. These six nutrients are every bit as vital to plant growth as any of the others, but are only needed in very small quantities.

Nutrient	Function
Nitrogen	Nitrogen is essential to almost all the complex chemical activities in every plant. Greens especially like it because it gives the plants lots of healthy, tender, dark green leaves.
Phosphorus	Phosphorus is important for the early growth of young plants because it stimulates root growth. Bone meal is high in phosphorus.
Potassium	Potassium or "potash" helps vegetable crops stay vigorous, fight off disease, and yield tasty produce. All gardens need it.

Composting is a method of recycling organic materials such as food scraps and plant trimmings. Over time, decomposers turn the organic (made of carbon) material into a valuable, nutrient-rich soil amendment. Well-made compost is a soft, crumbly, brownish or blackish soil resulting from decomposition of organic material. Decomposition is the result of the efforts of billions of microorganisms (decomposers), primarily bacteria and fungi, which eat the highly organized matter and in so doing break it into smaller, simpler molecules that become available as nutrients (fertilizer) for plants. Good compost makes excellent fertilizer because in addition to some important nitrogen, phosphorous, and potassium, it often contains trace elements you don't ordinarily find in commercial fertilizers. Composting household kitchen scraps also helps to reduce the amount of garbage produced!

**Scientific Question (problem):** \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
(2 pts.)

**Hypothesis:** \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
(2 pts.)

**Experiment:** Plant one ruby chard plant in regular soil and plant one ruby chard plant in soil amended with compost. Plants need to be planted a minimum of 10 centimeters away from other plants. You will be working in small groups of four and monitoring the growth of the two ruby chard plants over the next two months.

Soil Observations (1 pts.)

Description of soil without compost.	Description of compost.

Ruby Chard Data Table (3 pts.)

Date	Height in Centimeters	Description of plant

Analysis: Read the lab introduction and complete the questions below. (2 points each)

- 1) Name the nutrient needed to stimulate root growth. \_\_\_\_\_
- 2) Name the nutrient needed to give plants healthy, tender, dark green leaves. \_\_\_\_\_
- 3) What is compost?
- 4) What is the function of decomposers?

Conclusion: Based upon your observations write a conclusion (summary) using the observations you have recorded above to support or NOT support you hypothesis. (4 points)

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