

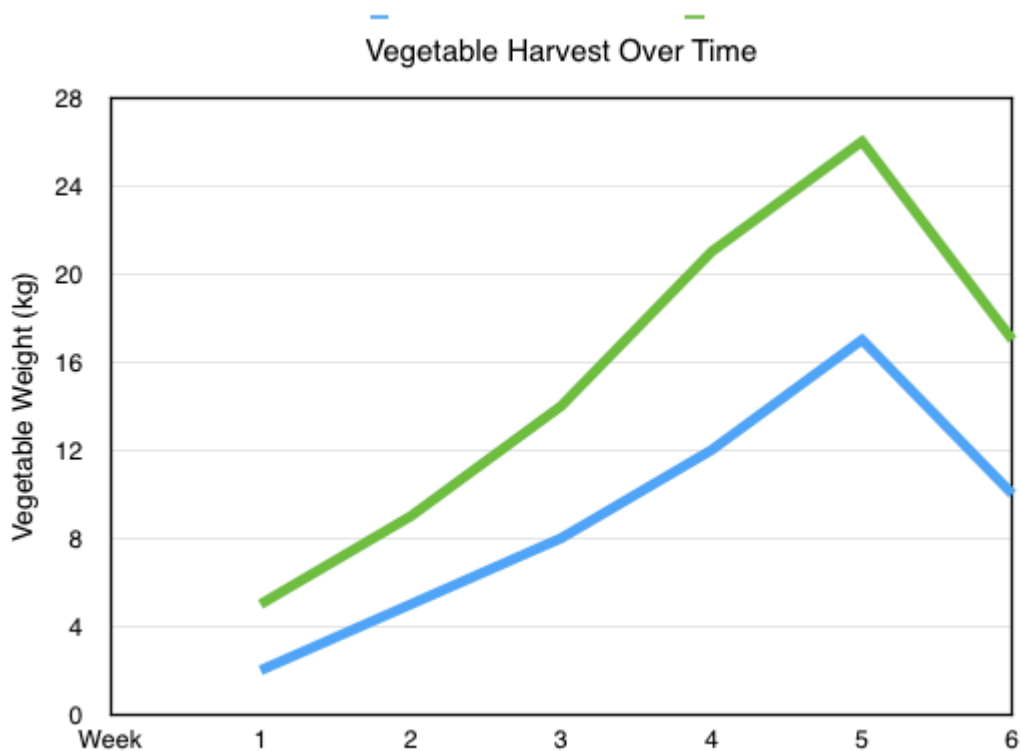
High School Performance Task

Instructions: Please carefully read through the information below. You will be asked to make a recommendation based on this information. Using all resources provided answer the **Analysis Question** that follows.

Excerpt from a science experiment

As we get closer to Thanksgiving, a science class wants to build a community garden as a food source for their outreach program. They need to act quickly so they need to figure out the fastest way to produce the greatest amount of vegetables. They had two plant boxes and two groups. California is currently in a drought so Group A (represented by the green line on the graph) decided to gather and use rainwater while Group B (represented by the blue line on the graph) decided to use tap water from the garden hose. They both watered their plants with the same amount of water at the same time of day. They measured the weight of the harvest from each group at the end of each week for 6 weeks.

The following graph represents their data over those 6 weeks:



Excerpt from a gardening blog

Rainwater for Gardens: Why Plants Love Rainwater!
<https://www.bluebarrelsystems.com/blog/rainwater-for-garden/>

It might not come as a surprise that there's no water plants love better than rainwater. Imagine your thirsty plants doused in droplets fallen fresh from the sky, their leaves expertly channeling the bounty down stalks and into the soil—right to the root zone where it is needed most. Read on to learn about rainwater for gardens!

Why is rainwater such a preferred water source? There is more than just one reason—in fact there are three!:

1. Rainwater is 100% soft water. Free of the salts, minerals, and chemicals that are found in municipal treated water, groundwater, and surface water, rainwater is pure hydration. Salts and chemicals build your soil over time and these residues are tough on plants. This effect is exaggerated in potted plants where the accumulation is more pronounced.

2. Rainwater is slightly acidic—naturally! Green gardeners know that most organically grown plants prefer soil pH levels between 5.5 and 6.5. This is on the acidic side of the neutral pH 7. Irrigate with rainwater and help keep your soil pH in perfect balance!

3. Stored rainwater contains some organic matter. If collected from your rooftop, rainwater contains traces of organic material. While the water is very clean and should run clear, it has been exposed to anything on your roof. We're not talking about chunks (these get pre-filtered out on their way into properly-designed rain barrels)—we're just talking about contact exposure to leaf litter, pollen, bird droppings and the like (which perhaps not surprisingly are great for your plants). It's like a light application of fertilizer every time you water!

I always thought I had a knack for killing house plants. Then I learned about watering with rainwater. Rainwater straight from my rain barrels into a watering can is what I use for my potted plants. A gravity fed drip line allows me to apply rainwater directly to my in-ground garden with no effort at all. And what a difference it makes. Suddenly I have a green thumb... but (shhh, don't tell!) the secret is the water.

Analysis Question:

1. What type of water would you recommend for next year's class to use? Justify your recommendation.

2. What does an engineer do? (Choose all that apply)
 - a. Plan and carry out investigations
 - b. Engage in argument from evidence
 - c. Define problems and design solutions
 - d. Analyze and interpret data

3. What does a scientist do? (choose all that apply)
 - a. Plan and carry out investigations
 - b. Engage in argument from evidence
 - c. Define problems and design solutions
 - d. Analyze and interpret data

4. What is the difference between a scientist and an engineer?

5. Explain why scientists make and use models.