



LINKS TO AGRICULTURE



Pennsylvania Friends of Agriculture Foundation™
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No Soil? Now What?

Doing More With Less

Hydroponics is a new and exciting way to grow food! With this method plants are grown without soil and in a nutrient solution. Hydroponics benefits the environment in many ways.

Water:



Hydroponics uses less water than conventional gardening. In conventional gardening a lot of water is lost to the soil and is not absorbed by the plants. However, in hydroponics we eliminate the soil and plants grown this way waste 90% less water. Since fresh water is a limited resource, it is a good idea to conserve water by using hydroponics.

Soil:



Hydroponics conserves soil because it does not require any! There are two ways soil can be wasted. Weathering occurs when soil is broken down into smaller pieces. This is a natural process and can be caused by rain. The real problem occurs when the small pieces are transported or washed away. When soil particles move from their original location to a new location erosion has occurred. Soil weathering and erosion threaten the 1/32 of arable land where we can grow our food.

Time:



Plants grown with hydroponic systems grow faster and larger than plants that do not. Some plants can grow twice as fast! That would be like if you can run a lap around the track in 10 minutes, now it would only take you 5! You also don't have to weed plants grown using hydroponics and plants can grow year-round.

Hydroponics is an environmentally friendly way to grow our food because it conserves water, soil and time. But, did you know? With hydroponics, you can plant 4 times the number of crops in the same area! For example, if you have one flower pot, before you would only be able to fit one tomato plant in it. but with hydroponics, you could fit FOUR!

Math with Meaning!

The Ag Lab visits Charles's school on September 15th. He learned all about how to grow plants without soil and brought his hydroponic system home to watch it grow. Solve the following math problems

Question 1: In 30 days, Charles's pea plant grows 3 inches. How many inches did it grow per day. Write your answer as a fraction and a decimal.

Fraction: _____ Decimal: _____

Question 2: Using your answer from Question 1, assume the rate of growth Charles's pea plant remains the same. How tall will his seedling be on November 5th?

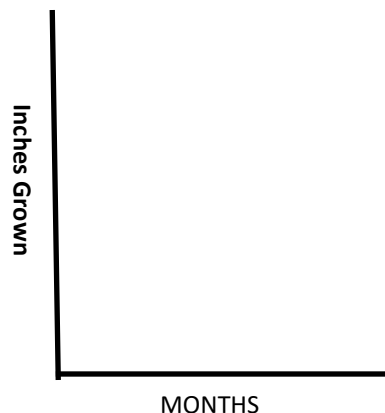
September 15th _____ in.

October 15th _____ in

November 5th _____ in.



Question 3: Use your answers from Question 2 to create a line graph that illustrates the growth of Charles's pea plant.



Question 4: Using your graph predict how tall Charles's pea plant will be on Christmas ?

December 25th= _____ in.



Career Corner

Irrigation Technician - Irrigation technicians manage the amount of water plants receive in a greenhouse, hydroponic system, field or garden. They also must repair leaks and broken pipes and hoses. With a high school diploma and some training, you can do this job too!

How Irrigation Technicians Benefit Agriculture:

- Reduces runoff and erosion
- Helps against famine

Irrigation Technicians Study:

- Math
- Plant Science



SCAN ME



Farm Facts

- Soil has many uses. It can ...
 - Filter water
 - Provide habitat
 - Recycle nutrients
 - Grow living things!
- Soil is made from water, air, rocks, minerals, and living organisms.
- The soil has different layers. They are called the soil horizons.
- Only 1/32 of the Earth's surface has the potential to grow crops.



Think About This!

There are 7.3 billion people in the world right now. By 2050 there could be as many as 9.7 billion. This means our farmers will have to grow more food to feed the world population.

Circle the correct answer.

The amount of arable land is Increasing or Decreasing

The demand for food is Increasing or Decreasing

Would hydroponics be a good solution for growing more food? Why or why not?

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