

**Plants
Need Water,
Not Soil!**



HYDROPONICS

Reading Passage & Questions



READ THE PASSAGE CAREFULLY.

Plants need the following to grow; water, light, carbon dioxide, chlorophyll and minerals. They get water from rain or when people water them. They get light from the sun or from special types of artificial lights. Carbon dioxide comes from air. Chlorophyll is a chemical which is in the leaves of the plant. It is responsible for giving leaves their green colour. The minerals that plants need are often found naturally in the soil but they are also in Fertilizers. So we can see that plants do not need the soil itself – just the nutrients in it. So, if the nutrients are put in water, plants can get all they need to grow without the soil. This is the basic principle behind hydroponics which is a technique for growing plants without using soil.

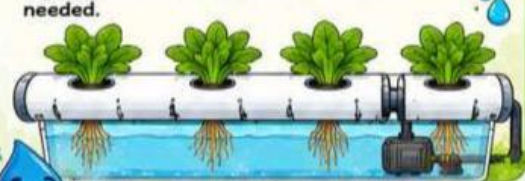
There are many types of hydroponics systems. In some systems the plants are hung from nets or other structures with their roots dangling in the water containing nutrients below. In other systems, the roots are dangling in the air and the water solution is sprayed on them. Some systems have plant roots growing in materials other than soil. These materials include vermiculite, coconut husks and fibre glass. The materials support the plant roots and leave lots of space around them. This allows the water solution to reach the plant roots easily.

In any of these methods, hydroponics farmers may use pumps, timers, gravity and technology to supply the water to the plants in the most efficient way.

Some hydroponics farmers have found that their plants grow bigger than when they use soil. This is because hydroponically grown plants need much smaller root systems since they get the nutrients easily from the water. This means the plant can spend more energy on leaf and stem growth. Although this is a good thing for leafy crops, it is a disadvantage for heavy fruiting plants since the roots may be too small to support them. Hydroponics plants also grow faster and have fewer diseases. One main disadvantage of hydroponics is the high cost of the materials and equipment needed.

ANSWER THE QUESTIONS

- 1 What is the meaning of the following words as used in the passage?
 - i. "technique" (line 14)
 - ii. "dangling" (line 18)
- 2 What is the main idea in paragraph two?
- 3 List three advantages of hydroponics farming from the passage.
- 4 Some plants grow bigger leaves using hydroponics. According to the passage, why is this so?
- 5 State one disadvantage of smaller roots in hydroponics farming.
- 6 Which method of farming do you prefer – traditional (in the soil) or hydroponics? Give one reason for your answer using evidence from the passage.
- 7 Is there enough information in the passage to encourage hydroponic farming? Give a reason for your answer.



No Soil. Just Water. Big Ideas. A Greener Tomorrow!