

## SPECIALTY STRUCTURES

### Hydroponic Garden

Hydroponic gardening is a method of growing plants in a nutrient solution without soil. It is also known as aquaculture, water culture or soilless gardening.

The novelty of this advanced technology may appeal to middle or high school students.



### Location

A hydroponic garden takes little space and is ideal for the classroom because it offers the students a laboratory for controlled experimentation for growing plants. It can be located almost anywhere: in a container on a patio, in a greenhouse, in front of a south facing window, or on a shelf in a classroom. All that is required is electricity to run the equipment, sufficient light (either natural or artificial), and the proper temperature.

## Example of a Hydroponic System



On the left is the hydroponic container before any planting and on the right is lettuce about 8 weeks after planting from seeds.

The Water Farm system pictured above consists of a four-gallon lower bucket for the nutrient or fertilizer solution and a two-gallon upper bucket for the growing media, in this case, horticultural rockwool cubes. Two gallons of nutrient solution is placed in the lower bucket. Several times a day the nutrient solution is pumped from the lower bucket to the upper bucket and, distributed over the growing surface by the hollow plastic ring. The solution drains back to the lower bucket through drainage holes. An interval timer controls the pump. Lettuce seed was planted directly on the top of the wet rockwool cubes.

### Advantages of a Hydroponic System

Some advantages of setting up a hydroponic garden are automatic watering and feeding, no cultivating or weeding, no mulching or soil-borne diseases, and low water use. On the other hand, some of the disadvantages are the high cost of setting up the system; regular monitoring of the nutrient solution, pH and nutrient levels; and not all plants will adapt to hydroponic growing techniques.

### Other Resources

There are many excellent books and pamphlets written on the subject of hydroponics. These are available at sources that offer hydroponic equipment and supplies and in the gardening section of large bookstores. [Click here to link to School Garden References for local supplier information.](#)