

A Place to Call Home

Plant Needs Week 5 Reading Page

Plants need five main things to stay alive. They need **air** and **light** to make their food through photosynthesis. They need to take in **water** and **nutrients** through their roots so they can be used by all parts of the plant for healthy growth. And there is one more thing on their list — they also need **space to grow**.

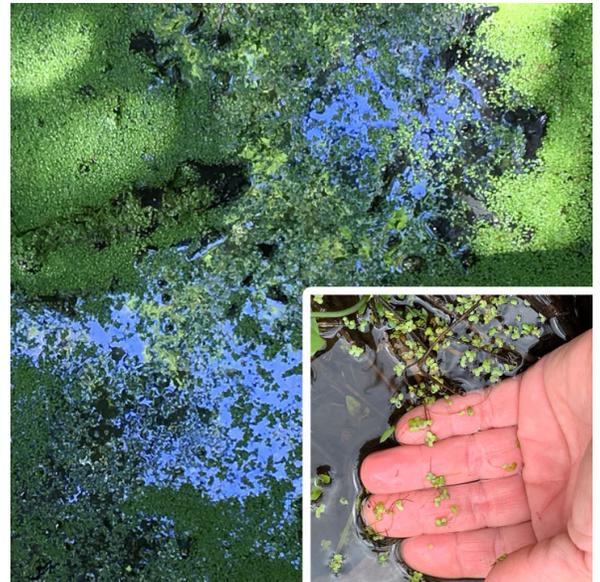
Just like animals, plants come in all shapes and sizes. For example:

- The watermeal plant is about 1/42" long and 1/85" wide, which is about the size of a candy sprinkle or the salt on a soft pretzel. (Some people think the plant, which grows in water, looks like cornmeal, which is how it got its common name.)
- The tallest tree in the world is a giant sequoia in California that is 275' tall and has a trunk that is about 32' wide. It is just a little bit shorter than the Statue of Liberty.

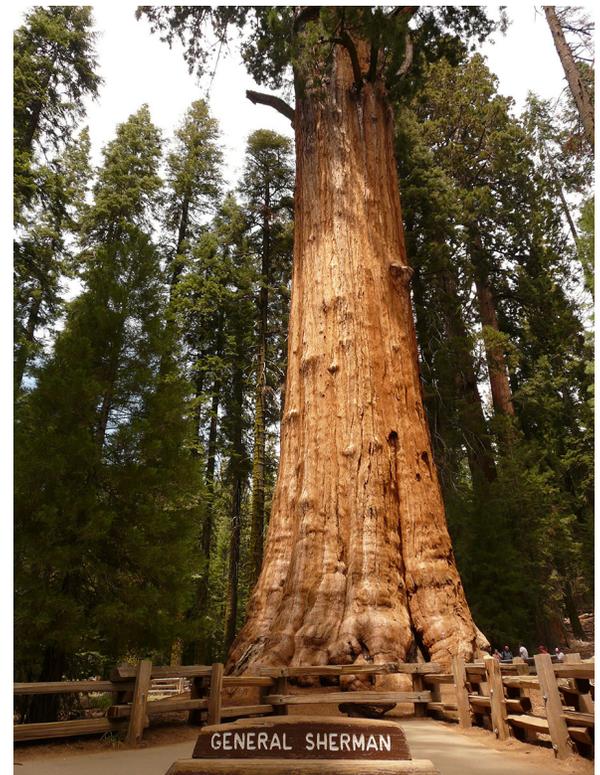
That is a big difference in size!

So, if a plant is given all the space in the world, along with the perfect amounts of water, nutrients, light, and air, will it keep getting bigger? Nope! Each type of plant has a specific size and shape it will reach when it's all grown up, ranging from teeny tiny to humongous.

Do plants always grow to their full size? Unlike animals that can move around to find the space they need, plants are rooted into place. So, if they are planted in a spot with limited room to grow, they will adapt to the space they have and may be thinner or shorter than normal. Also, when plants are crowded in their space they are competing with the plants around them for their other needs (light, water, air, and nutrients), and this can also keep them smaller.



Floating on the surface of a pond, common duckweed plants are less than 1/10" long. Watermeal plants are even tinier!



Can you imagine a tree so big it would take 25 kids reaching hand-to-hand to form a circle around its trunk? The General Sherman sequoia tree stands 275' tall and is more than 36' in diameter at the base. If you wrapped a tape measure around the trunk it would measure more than 100'.

Have you ever seen a garden packed with lots of plants and noticed the plants are tall and skinny? They may be stretching to try to get more sunlight. How about a tree planted in a narrow strip of land between a sidewalk and a street that never seems to get any taller? The size of its roots may be limiting how much its trunk and leaves can grow.

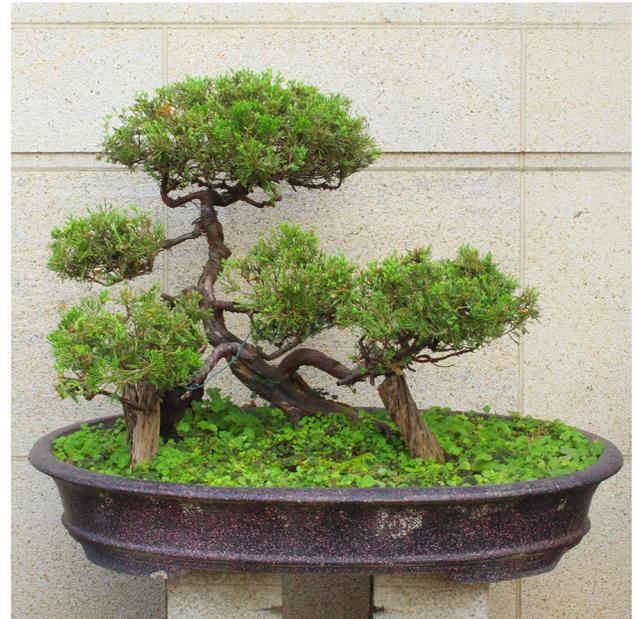
This ability to adapt to the space available is a cool thing about plants.

Although each type of plant has an ideal environment and amount of space where it will grow best, individual plants can adjust to less-than-ideal spots and still thrive. This is a very good thing for gardeners who like to grow plants in places and in ways that are not necessarily found in nature.

One example of this is the Japanese art of **bonsai**. Gardeners prune the stems and roots of plants to make them grow much smaller than they would be in nature. Towering trees can become container plants that fit on a shelf.

An example of a growing method that provides plants with a place to grow that is much different than where they grow in nature is hydroponics. In **hydroponics**, gardeners grow plants with their roots getting nutrients from water, instead of soil. This growing technique can be useful in environments where good soil is not available. For example, it can be used to grow plants in the desert, in Antarctica, and even on the International Space Station!

A hydroponic garden looks very different than a regular outdoor garden, but as long as all of a plant's needs can be met, it will be happy to call it home.



Bonsai artists prune the stems and roots of trees over many years to achieve miniature forms that can grow in small pots.



With enough light, water, and nutrients to meet their needs, plants can adapt to growing in small spaces.



These plants are growing in different types of hydroponic set-ups.

Reading Comprehension Questions:

1. List the 5 basic needs of plants:
2. True or false: All plants need the same amount of space to grow.
3. What does a plant do if it does not have enough space to grow:
 - Move to a new location
 - Adapt to its space by growing differently
 - Nothing
 - File a complaint
4. Hydroponics is a way to grow plants in:
 - Soil
 - Milk
 - Water
 - Quicksand
5. List one unusual place that you have seen a plant growing: