

# How Plants Grow

The plants we eat grow in a range of shapes and sizes, and require different conditions. Do you know our well loved vegetables, grains, seeds and nuts are really just roots, stems, leaves, flower buds, flowers, fruits or seeds of plants?



## 1. Key Ideas

We want to know how things grow in the garden - the shape they grow, and their height and spread.

- A head of lettuce has shallow roots and lots of bushy leaves. Even when it's ready for harvest it's still short.
- Carrots are mainly roots in their first year of growth. When we harvest them their leaves take up only a little space above ground, while their roots are thin and long underground.
- Runner beans on the other hand have most of their growth above ground and grow quite a lot in height over the course of one year.

If the plant does not have enough space and/ or enough light it might grow thinner and taller. It might even grow wonky to find sunlight. Stony ground can make carrot roots wonky.

So the shape and size is different for every type of plant, and the environment shapes how it grows as well.

## 2. Environment

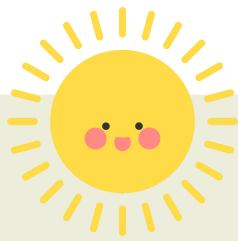
Growth is affected by environmental conditions. Plants have preferred environments to grow, but they can adjust to changes.

Even the same plant can grow very differently in different conditions.

- Wind can make plants bushier and shorter.
- Shade can make plants longer and thinner.

For our vegetables, we want as much of the edible part of the plant as possible. If we want a nice big head of cabbage, it needs enough space to bulk out. And if we want a long parsnip, we need a deep bed of compost or topsoil for the roots to grow into.

### 3. Plant Health



Healthy growth is affected by light, water and soil. Plants adopt different strategies to make the most of light, to store water, or to get the nutrients from the soil.

Rapid stem growth and large surfaces may give leaves an advantage for obtaining light, but may also result in weakness and a need for support. Pliable stems can recover from trampling and buffeting by wind, but stems that break cannot recover, and the part of the plant which is separated from the water supply will die.

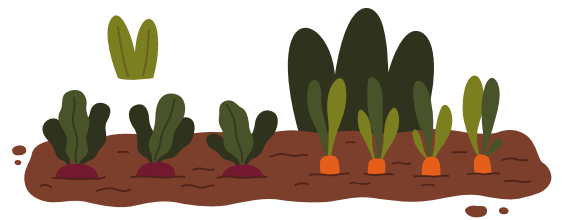
Besides light and water, plants need nutrients just like we do. A healthy soil full of organic matter makes nutrients available to the plant. Avoiding repetitive digging and compacting, but mulching frequently (for example, adding compost on top of the soil) is the perfect way to bring food to your plants.

### 4. Plants as Food

The nutritional content of different vegetables is affected by the growing conditions of the plant.

Ensuring our plants are healthy (because they have enough light, water, and nutrients) will make for a healthy harvest.

As well as the direct nutrients we get from food, our microbiome (the mix of microbes in our digestive tract) can help us stay healthy and positively influence our mood. This microbiome does best from us eating a wide range of plant foods. Growing something new in your garden every year is a good idea. Tasting foods you might not have tasted before can help you to stay healthy and happy.



### 5. Space for Growth

Vegetables grow to different sizes. It's good to make a list of all the plants you want to grow and find out what size they will grow to (at harvest for your annuals).

This will help you understand how much space you need for growing your food.