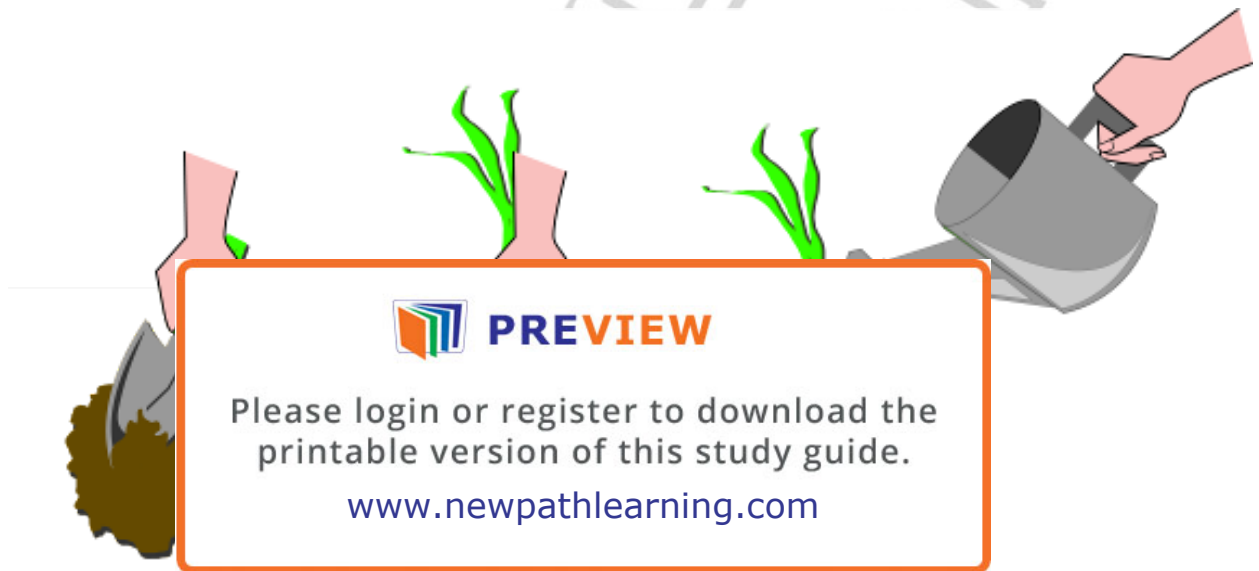


HOW DO PLANTS GROW?

What a Plant Needs to Grow

Plants need many essential things in order to grow, such as: water, air, nutrients, sunlight, and warm temperature. Plants need their space too! If a plant grows too close to other plants, it may not grow healthy and strong, because the plants may compete over the available water, nutrients, and space in the soil for their roots to grow.



 **PREVIEW**

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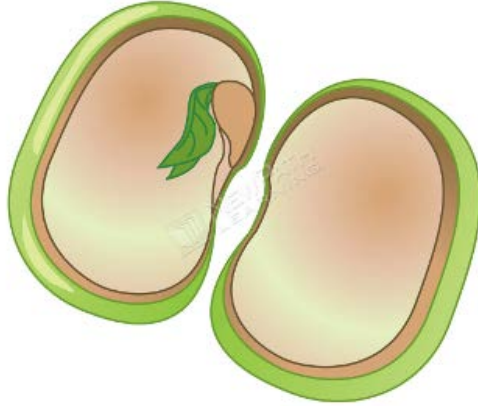
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Lesson Checkpoint: What does a plant need to grow?

While a plant needs the essential things in order to grow, if they get TOO much of a good thing, they can die. For instance, if a plant gets too much water, it can die.

In the beginning...

Most plants begin as a seed. A seed is a tiny plant, an embryo, in a little package.



A seed has a seed coat which protects the seed for harmful things, such as cold temperatures. Plant seeds can have thick or thin seed coats.

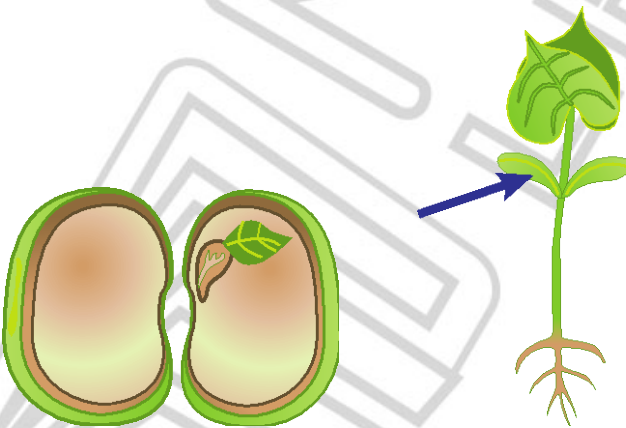


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A **cotyledon** is a seed leaf. It stays in the seed until the plant turns green...

the seed. It is the first leaf to appear, and it is usually the largest leaf.



Lesson Checkpoint:
What is a cotyledon?

The seeds of a plant contain everything it needs to form the leaves, the stem, and the roots of a plant. Seeds also contain a food supply which is used to help the new plant grow and develop.

A seed stays inactive and doesn't start growing until the conditions surrounding it are just right for it to start growing. Seeds get to other places by the wind, water, animals, and even people.

Seeds are also found in the **pod** of a plant. A pod is a fruit that when ripe is dry and opens to release its seeds. Some pods contain few seeds while others contain many seeds.

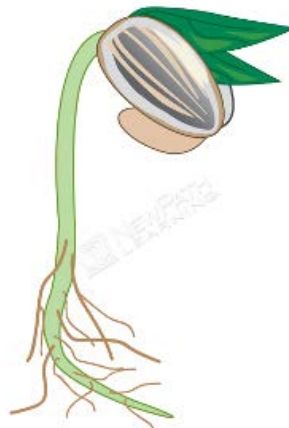
Seeds can be found in the fruit of a plant or tree too.



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Germination is the process by which the plant embryo inside a seed grows and a seedling grows above soil.



A **seedling** is a young plant that is in its early stages of growth.

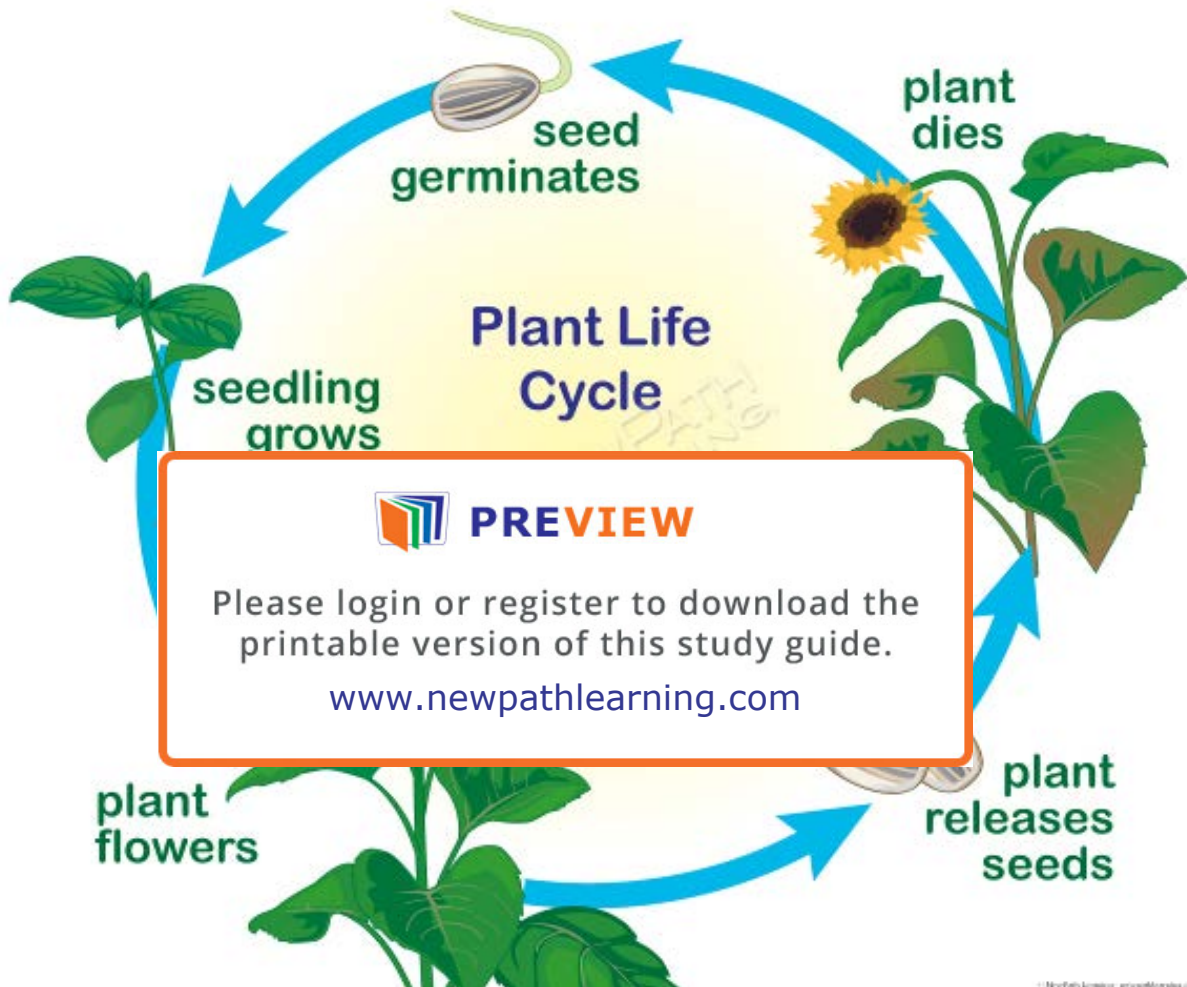


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Plants Have Different Life Cycles

A flowering plant's life cycle describes how long a plant takes to grow, flower, set seed, and die.



Annual plants grow, flower, produce seeds, and die **all in the same year** whereas a perennial plant lives for three or more years.

Seedless Plants

Plants that do not have flowers, such as ferns for example, do not make seeds. They produce spores instead.

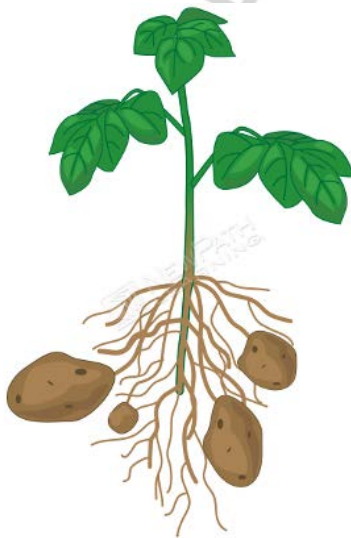


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Other way

A **tuber** is a thickened part of a plant that has buds from which a new plant can grow. A potato is an example of a tuber.



A **bulb** is a special underground stem that is a plant in a small package that contains its own food supply needed for growth.



 **PREVIEW**

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A **rhizome** then new f

roots and



Lesson Checkpoint:

What are 4 ways plants develop without seeds?