

What is Germination?

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Germination is a process in which a seed or spore awakens from dormancy and starts to sprout. Many people study this process in action in science classes in their childhood by growing seeds such as beans or peas in the classroom, and a quick trip outside will probably reveal at least a few examples, especially in the spring. This process is critical to the growth of new plants, and it can be quite fascinating to watch from start to finish.

Both seeds and [spores](#) experience periods of dormancy. Dormancy is often influenced by external factors, such as temperature and light availability, with seeds and spores being programmed to remain dormant if conditions are unfavorable for growth. People can manipulate these conditions to force germination or dormancy, as when people grow spring bulbs inside during the winter. The dormancy stage may also be programmed into the seed or spore, which means that it will not germinate in favorable conditions until the internal clock determines that the time for growing has arrived.

In order to sprout, light levels, [oxygen](#) availability, temperature, and moisture levels must all be suitable. The end of dormancy triggers a cascade of reactions that ultimately ends in the projection of the roots and radicle or growing tip of the developing plant. The radicle forces its way out of the protective coating and works its way up towards the light. In the early stages, the [nutrients](#) stored in the seed or spore supply the energy the young plant needs, and in the later stages, roots extended into the soil collect nutrients, and the plant begins photosynthesizing energy as it reaches the surface of the soil.

Seeds can remain dormant for quite a long time, depending on the species, with some examples as old as 10,000 years germinating successfully. As a general rule, the older seeds are, the less likely they are to sprout. Small, withered seeds are also less likely to be able to grow. For gardeners and farmers, the process is critical, as failure to germinate could become a serious problem.

Gardeners with seeds sitting around who are curious to know about whether or not the seeds will grow can perform a simple test by taking ten seeds and sealing them in a plastic bag with a moist paper towel. The bag can be kept at room temperature for one to two weeks to see if the seeds sprout. If eight to ten sprout, the seeds are in good shape, and they can be planted normally. If six to seven seeds sprout, the seeds should be packed close together when they are planted, and if five or fewer sprout, the seeds should be discarded.

Though this test works well for many common types of seeds, it is important to remember that all seeds have their specific germination period, which can vary by months or even years. Also, some seeds naturally need to be scarred

or treated with hot water before they will sprout, so gardeners should be sure to do a little research on the seeds before testing them to determine their natural growing conditions.



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