



**Leaving Cert Agricultural
Science**

Free Notes

Germination



Germination: occurs when a seed develops into a new plant

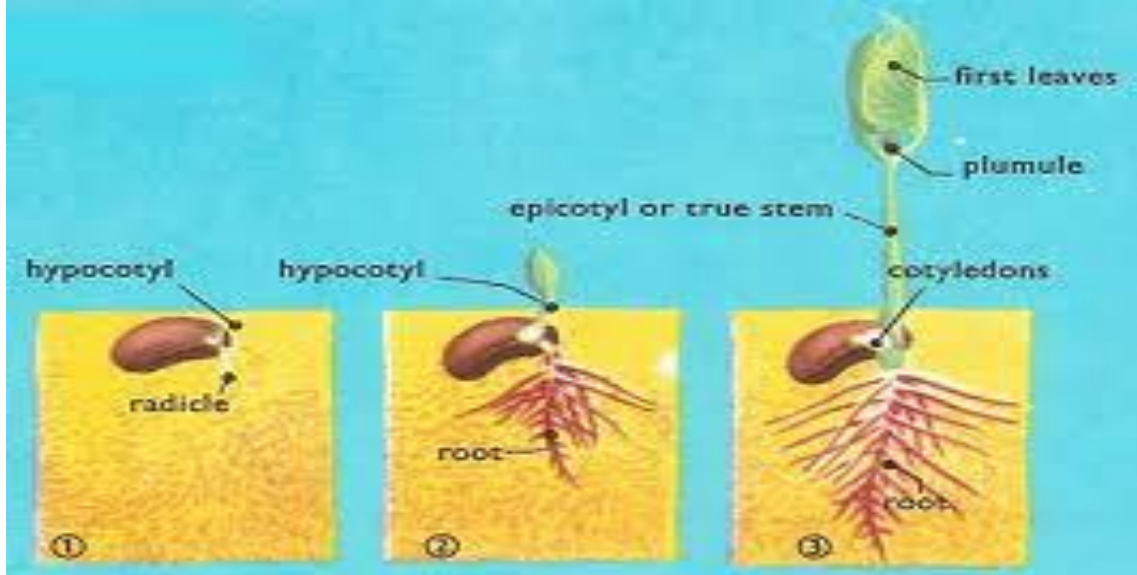
- ✚ There are 3 main conditions that effect germination
 - 1) Warmth
 - 2) Oxygen
 - 3) Moisture
- ✚ If any one of the above factors is absent, germination of a seed will not occur.
- ✚ In this stage of plant reproduction, the embryo of the new plant is maintained within the seed.
- ✚ The embryo is supplied with a source of food energy and this is called the **endosperm**.

- ✚ There are 2 types of seeds: **endospermic and non endospermic seeds**.
- ✚ **Endospermic seeds:** food is still present when the seed is developed. Example: castor oil seed.
- ✚ **Non endospermic seeds:** The food is completely used up when the seed has developed.
Ex: broad bean seed.
- ✚ The outside coating of a seed is called the **Testa**.

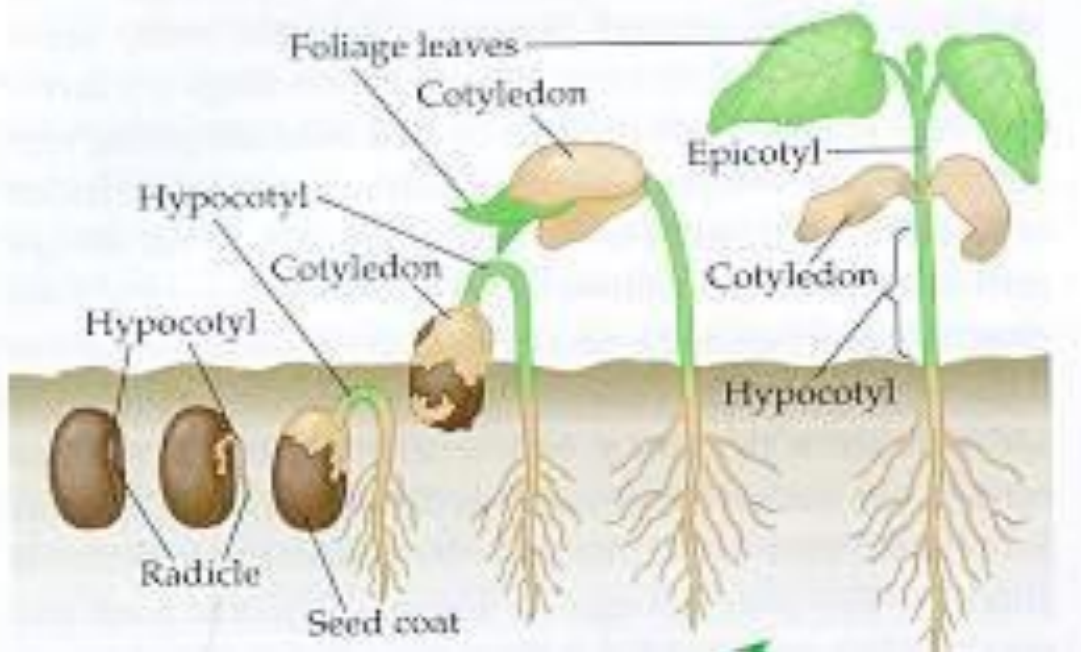
- ✚ The embryo is made up of the **radicle** or future root and the **plumule** or future shoot. The **endosperm cells** divide many times and absorb the nucellus. This is the nutrition (mainly fats, oils and starch) for the embryo.
- ✚ The **cotyledons** are the seeds that contain a food supply.
- ✚ Plants with **one cotyledon are called a monocotyledon and a plant with two cotyledons is called a dicotyledon**.

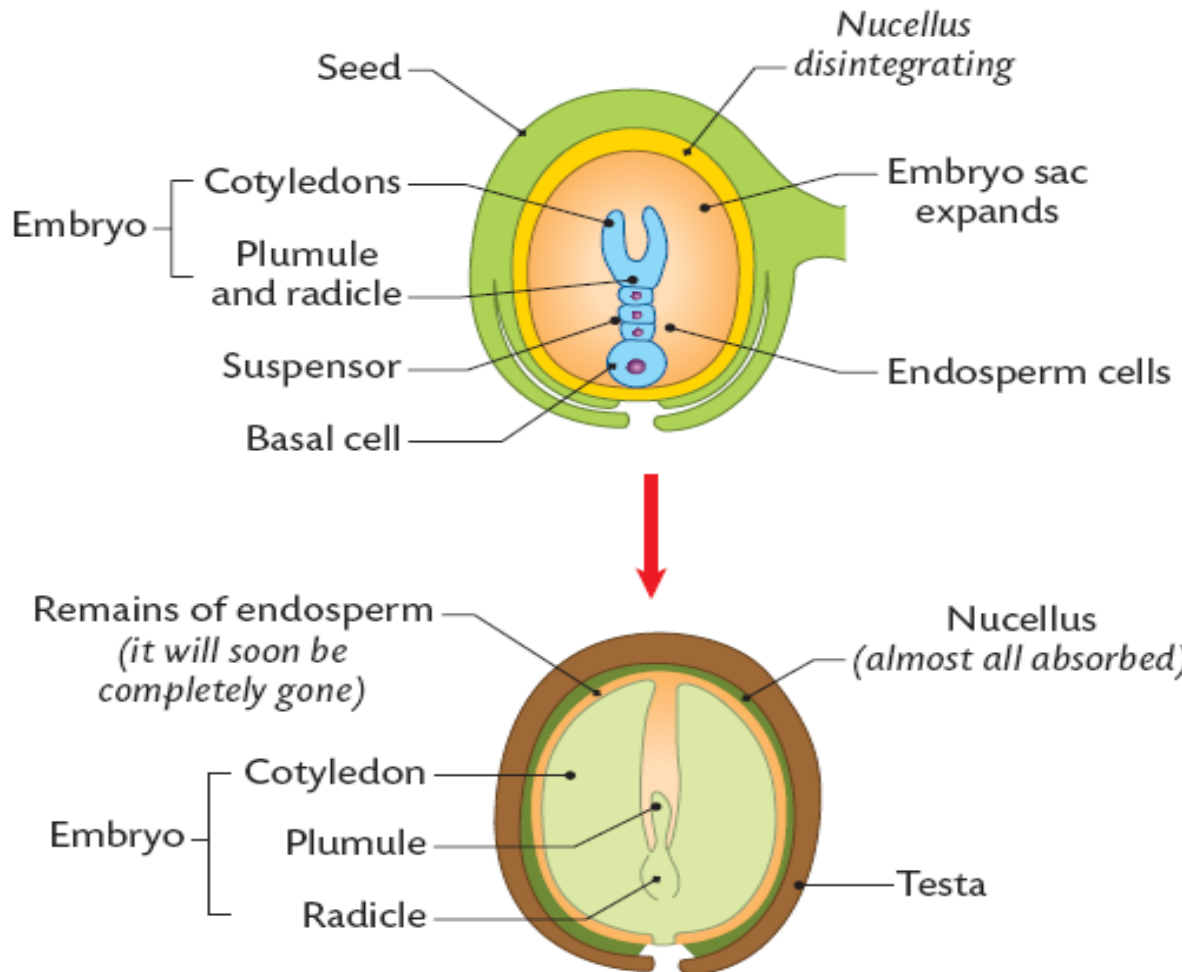
- ✚ There are TWO TYPES OF GERMINATION.

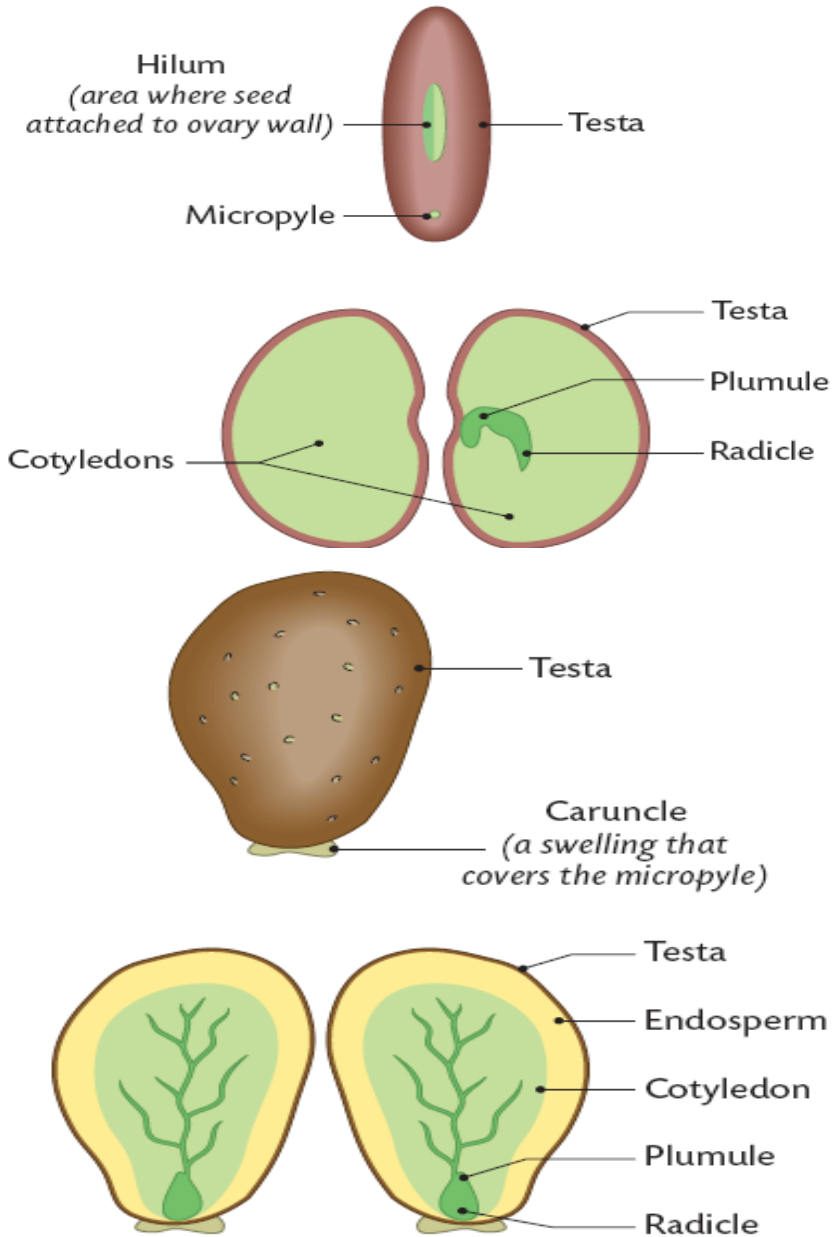
- A) **Hypogeal** germination: where the cotyledons stay under the ground (broad bean seed)



- B) **Epigeal** germination: where the cotyledons go above the ground. (sun flower seeds)







A)

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