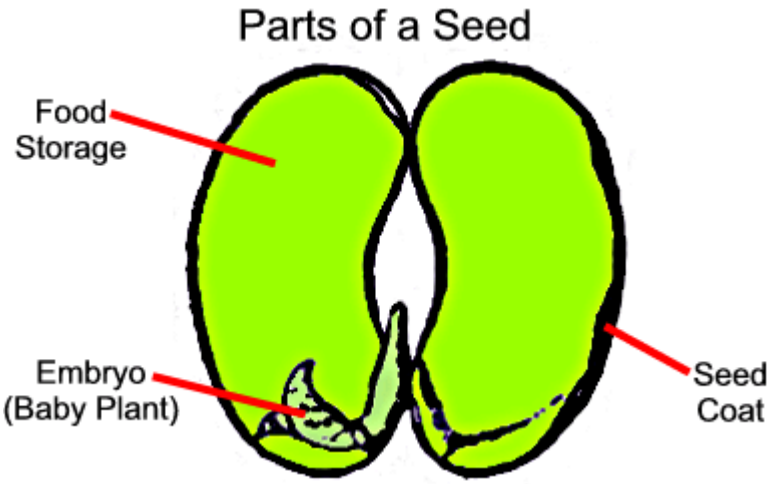
Do seeds contain a baby plant?

Seeds are the beginnings of a new plant, with the sole purpose of reproducing.



Seed Coat

The outer covering of a seed is called the seed coat. Seed coats help protect the embryo from injury and also from drying out. Seed coats can be thin and soft as in beans or thick and hard as in locust or coconut seeds.

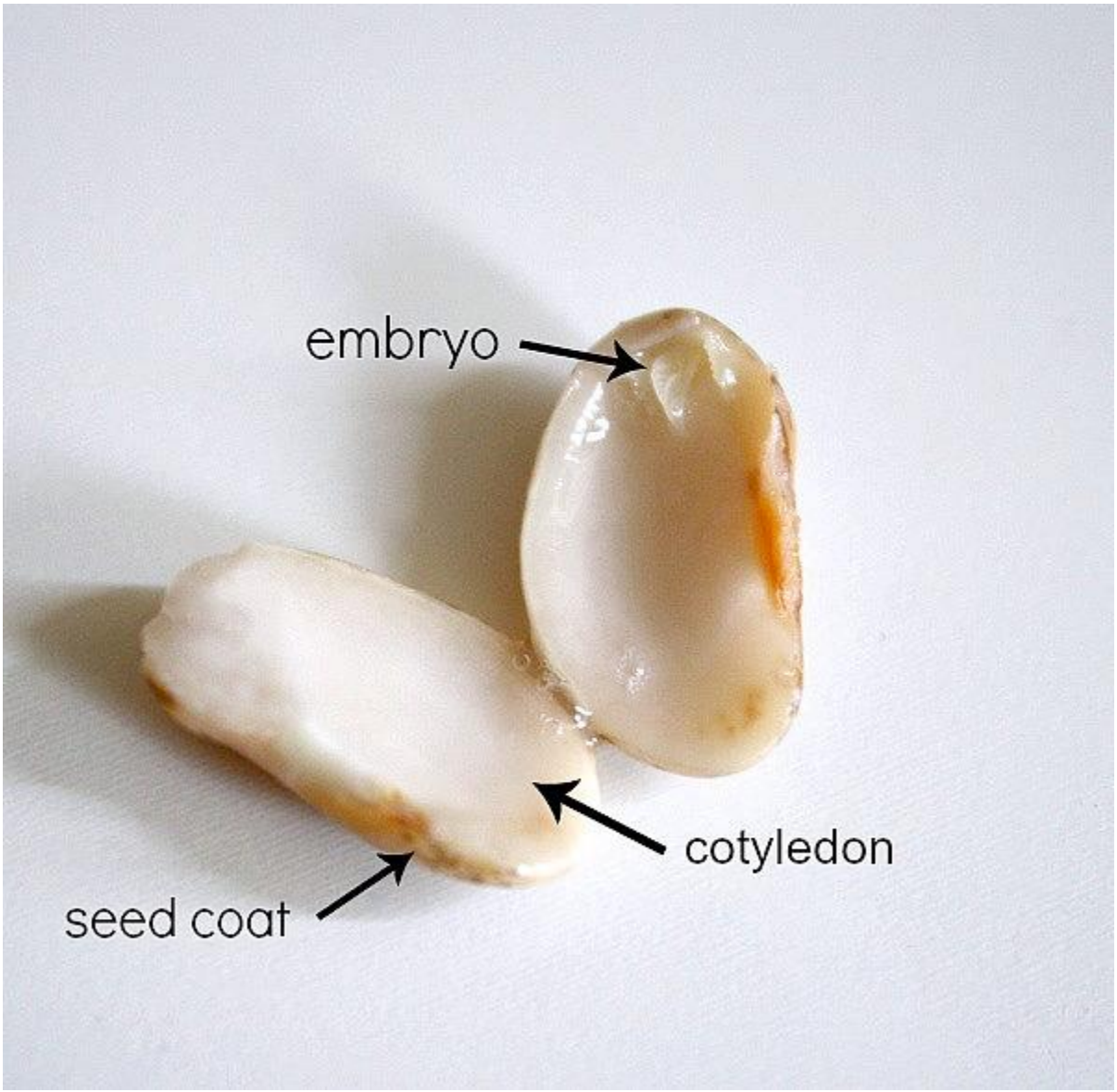
Embryo

The embryo is the central station and most important part of a seed. Within the embryo consist all the cells needed to develop into a mature plant.

Endosperm

A temporary food supply, is packed around the embryo in the form of special leaves called cotyledons or seed leaves. These generally are the first parts visible when the seed germinates.

The cotyledon provides nourishment to the various parts of the embryo during germination.


embryo
cotyledon
seed coat

A bean is the seed of a bean plant. When the seed germinates, or starts to grow, small parts inside the seed grow into the root and stem. Most of the seed is used for food by the young plant. When the plant grows green leaves it begins to make its own food by photosynthesis.

Germination

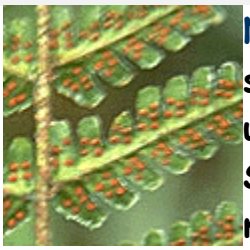
Seeds remain dormant or inactive until conditions are right for germination. All seeds need water, oxygen, and proper temperature in order to germinate. Some seeds require proper light also. Some germinate better in full light while others require darkness to germinate.

When a seed is exposed to the proper conditions, water and oxygen are taken in through the seed coat. The embryo's cells start to enlarge. Then the seed coat breaks open and a root or radicle emerges first, followed by the shoot or plumule that contains the leaves and stem.

Many things can cause poor germination. Overwatering causes the plant to not have enough oxygen. Planting seeds too deeply causes them to use all of their stored energy before reaching the soil surface. Dry conditions mean the plant doesn't have enough moisture to start the germination process and keep it going.

Some seed coats are so hard that water and oxygen cannot get through until the coat breaks down. Soaking or scratching the seeds will help break down the seed coat. Morning glories and locust seeds are examples. Other seeds need to be exposed to proper temperatures. Apple seeds will not germinate unless they are held at cold temperatures for a period of time.

Nonflowering Plants



Nonflowering plants like ferns reproduce by "seed-like" structures called spores. Spores are usually found on the undersides of leaves and look like tiny tufts of velvet. Spores are ripe when they easily fall off the leaf. You may want to try to germinate them but it takes a long time for germination and for a plant to develop.

Germination Vocabulary

1. Embryo: baby plant (animals start as embryos too)
2. Germinate: begin to grow
3. Spore: small, seed-like structures