

Work sheet 05010: Flowering plant lifecycle

Is the megasporocyte haploid or diploid?

A. The megasporocyte is a diploid cell (it will later undergo meiosis to form a megaspore).

Four cells each containing half the genetic material of the original dividing cell are created following which process of cell division?

A. Haploid cells are created by meiosis (they contain one copy of each chromosome).

What is the other process that creates an identical copy of the original cell?

A. The process that creates copies of the original cell is cell mitosis.

Is the megaspore haploid or diploid?

A. The megaspore is haploid and grows to form the gametophyte.

Is the embryo sac the gametophyte?

A. Yes.

Are the integuments haploid gametophyte or diploid maternal tissue?

A. Integuments are diploid maternal tissue and form a protective layer around the gametophyte.

Is the egg cell haploid or diploid?

A. The egg cell is haploid (part of the gametophyte).

After fertilisation is the zygote haploid or diploid?

A. The zygote that is formed after fertilisation is diploid as it contains both sets of chromosomes from the 2 haploid gamete cells.

In flowering plants double fertilisation occurs, where one male nucleus combines with generally two of the nuclei in the gametophyte. This creates an endosperm with what type of tissue: haploid (n), diploid (2n) or triploid (3n)?

A. The endosperm is triploid (3n).

During seed development

- the zygote develops into an embryo
- the integuments develop into the seed COAT or TESTA
- the ovary develops into a FRUIT
- the endosperm provides a food reserve to the developing EMBRYO _____ .
- the embryo develops COTYLEDONS (seed leaves), an EPICOTYL (shoot meristem) and a RADICLE (primary root meristem and root).

Why do seeds need to be dispersed from the parent plant?

A. Seeds need to be dispersed from the parent plant so that it doesn't compete with the parent plant for light, water and nutrients.

How are seeds dispersed: give three different examples of vectors that you know of.

Insects, ants, birds, bats, mammals, water, wind, ballistic, carried on fur, eaten.

What is the purpose of seed dormancy?

A. To delay germination until the seed receives stimuli that indicate that the conditions are likely to be suitable for seedling survival.

What do seeds require to germinate if they are not dormant? W_____, _____ and a suitable temperature to support metabolism.

A. Water, oxygen

What is a seedling reliant on to support all its energy and nutrient needs before it emerges from the soil surface?

A. Storage reserves in the endosperm and cotyledons.

When the seedling emerges from the soil surface and has used up all seed reserves what processes must it rapidly initiate in order to survive?

A. One - Photosynthesis to produce carbohydrates and energy. Two - Transpiration to acquire nutrients from the soil.

Would you consider a weed such as a dandelion daisy to be r or K selected?

A. The dandelion daisy is an R strategist whereby it places a lot of resources into the reproduction

What about a mallee *Eucalyptus* that can grow in a desert environment for several thousand years?

A. The mallee eucalyptus is a K strategist it only produces a few seeds a year but it uses most of its resources for structures and storage to ensure survival through times of stress.