

Reproduction

Advantage of asexual reproduction

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Advantage of sexual reproduction

Reproduction

**Roles of meiosis and fusion of gametes
in a sexual life cycle**

Reproduction

**Prime difference between male and
female sexes**

Reproduction

**Functions of the epididymis and
seminal vesicle**

Reproduction

**Functions of the oviduct and
endometrium**

Reproduction

Source and role of FSH

Reproduction

**Positive feedback in the menstrual
cycle**

Offspring have new gene combinations, giving the variation needed for adaptation to a changed environment.

Produces genetically identical offspring of a parent already adapted to an existing environment.

The male gamete travels to the female gamete, so it is smaller with less food reserves than the egg, and many more are produced.

Meiosis breaks up parental combinations of alleles and halves the chromosome number; fusion of gametes (fertilization) produces new combinations and restores diploid.

Oviduct: carries the egg to the uterus; site of fertilization. Endometrium: blood-rich uterus lining where the embryo implants.

Epididymis: stores sperm while they mature. Seminal vesicle: secretes fluid with fructose and mucus into semen.

High oestradiol before ovulation stimulates the pituitary to release more LH (and FSH): the LH surge triggers ovulation.

Anterior pituitary. Stimulates follicle development and oestradiol secretion by follicle cells.

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Role of progesterone in the cycle

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Final stage of fertilization in humans

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Two hormonal steps at the start of IVF

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Where are the gametes of a flowering plant?

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Why is reproduction in a hermaphrodite plant still sexual?

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Two features of an insect-pollinated flower and their functions

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Three methods that promote cross-pollination

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How does self-incompatibility work?

Nuclear membranes of sperm and egg nuclei dissolve; all condensed chromosomes join one mitosis, producing two diploid nuclei.

Secreted by the corpus luteum; maintains the endometrium and inhibits FSH and LH (negative feedback).

Male gametes inside pollen grains; female gametes (egg cells) inside ovules in the ovary.

Normal secretion of hormones is suspended (down-regulation), then artificial doses of FSH induce superovulation.

Large coloured, scented petals attract insects; nectaries give a sugary reward; sticky stigma catches pollen from insects.

Haploid male and female gametes still fuse at fertilization, giving a zygote with a new combination of alleles.

Pollen carrying an S allele matching the receiving plant is rejected: it fails to germinate or its tube stops growing, so gametes come from different plants.

Pollen and stigma mature at different times; separate male and female flowers or plants; pollen carried between plants by animals or wind.

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Why is inbreeding a disadvantage?

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Seed dispersal versus pollination

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**Mobilization of food reserves in
germination**

Dispersal moves seeds away from the parent after fertilization; pollination moves pollen from anther to stigma before fertilization.

It decreases genetic diversity and vigour, as harmful recessive alleles become homozygous more often.

Water uptake; gibberellin stimulates amylase production; starch digested to sugars, proteins to amino acids; transported to the growing embryo.