

Asexual and sexual reproduction

Define asexual reproduction.

Asexual and sexual reproduction

Give three examples of asexual reproduction.

Asexual and sexual reproduction **Supplement**

Give one advantage and one disadvantage of asexual reproduction in crop production.

Asexual and sexual reproduction

Define sexual reproduction.

Asexual and sexual reproduction

Define fertilisation.

Asexual and sexual reproduction **Supplement**

Are the nuclei of gametes and zygotes haploid or diploid?

Asexual and sexual reproduction **Supplement**

Why is variation an advantage of sexual reproduction in the wild?

Sexual reproduction in plants

State the functions of the petals and sepals.

Binary fission in bacteria; runners in strawberry plants; tubers in potato plants (also bulbs, spores).

A process resulting in the production of genetically identical offspring from one parent.

A process involving the fusion of the nuclei of two gametes to form a zygote and the production of offspring that are genetically different from each other.

Advantage: uniform crop with the same desirable features. Disadvantage: all plants equally susceptible to the same disease.

Gamete nuclei are haploid. The zygote nucleus is diploid.

The fusion of the nuclei of gametes.

Petals attract insects. Sepals protect the flower in the bud.

If the environment changes or a new disease appears, some individuals may survive and reproduce.

Sexual reproduction in plants

What are the functions of the anther and the filament?

Sexual reproduction in plants

State the functions of the stigma, style, ovary and ovule.

Sexual reproduction in plants

Describe the anthers and stigmas of a wind-pollinated flower.

Sexual reproduction in plants

How do pollen grains of wind-pollinated flowers differ from those of insect-pollinated flowers?

Sexual reproduction in plants

Define pollination.

Sexual reproduction in plants

When does fertilisation occur in a flowering plant?

Sexual reproduction in plants

Give two adaptations of an insect-pollinated flower.

Sexual reproduction in plants

What conditions do seeds need to germinate?

Stigma receives pollen; style holds up the stigma; ovary contains the ovules; ovule contains the egg cell.

The anther produces pollen grains. The filament holds the anther up.

Wind-pollinated pollen is smaller, lighter and smooth. Insect-pollinated pollen is larger and sticky or spiky.

Anthers hang outside the flower; stigmas are large and feathery and hang outside the flower.

When a pollen nucleus fuses with a nucleus in an ovule.

The transfer of pollen grains from an anther to a stigma.

Water, oxygen and a suitable temperature.

Large, brightly coloured petals; nectar; sticky stigma inside the flower.

Sexual reproduction in plants **Supplement**

Define self-pollination.

Sexual reproduction in plants **Supplement**

Define cross-pollination.

Sexual reproduction in plants **Supplement**

Compare the effects of self-pollination and cross-pollination on a population.

Sexual reproduction in plants **Supplement**

Describe the growth of the pollen tube.

Sexual reproduction in plants

In a germination investigation, why is the water boiled, cooled and covered with oil?

Sexual reproduction in plants

Why should all the tubes in a germination investigation be kept in the dark?

Sexual reproduction in humans

State the function of the scrotum.

Sexual reproduction in humans

What does the prostate gland do?

The transfer of pollen grains from the anther of a flower to the stigma of a flower on a different plant of the same species.

The transfer of pollen grains from the anther of a flower to the stigma of the same flower or a different flower on the same plant.

It grows from the pollen grain down the style into the ovule, where the pollen nucleus fuses with the egg cell nucleus.

Cross-pollination: more variation, better able to respond to environmental change, but more reliant on pollinators. Self-pollination: less variation, less able to respond, less reliant on pollinators.

So light is the same for every tube. The cold tube is in a dark fridge, so light would otherwise be a second variable.

Boiling removes dissolved oxygen. The oil stops oxygen from the air dissolving back in. This tests whether seeds need oxygen.

It adds fluid to the sperm to make semen.

It holds the testes outside the body, where it is cooler than body temperature.

Sexual reproduction in humans

State the function of the oviduct.

Sexual reproduction in humans

What is the cervix?

Sexual reproduction in humans

Describe fertilisation in humans.

Sexual reproduction in humans

Why do sperm have many mitochondria?

Sexual reproduction in humans

What do the enzymes in the acrosome do?

Sexual reproduction in humans

Why does the jelly coat of an egg cell change at fertilisation?

Sexual reproduction in humans

Compare sperm and egg cells: numbers.

Sexual reproduction in humans

What is an embryo, and what happens to it after fertilisation?

A ring of muscle at the opening of the uterus.

It carries the egg cell from the ovary to the uterus. Fertilisation usually happens here.

They release energy by respiration so the flagellum can move the sperm.

The fusion of the nuclei from a male gamete (sperm) and a female gamete (egg cell).

So no other sperm can enter. Only one sperm nucleus fuses with the egg nucleus.

They digest the jelly coat so the sperm nucleus can enter the egg cell.

A ball of cells formed from the zygote. It implants into the lining of the uterus.

Millions of sperm are made. Usually one egg cell is released each month.

Sexual reproduction in humans

State the function of amniotic fluid.

Sexual reproduction in humans **Supplement**

Which substances pass from the mother to the fetus at the placenta?

Sexual reproduction in humans **Supplement**

Which substances pass from the fetus to the mother at the placenta?

Sexual reproduction in humans **Supplement**

What can cross the placenta and affect the fetus?

Sex hormones in humans

Which hormone is made in the testes, and what does it do at puberty?

Sex hormones in humans

Which hormone is made in the ovaries, and what does it do at puberty?

Sex hormones in humans

What happens in the menstrual cycle at about day 14?

Sex hormones in humans

What happens to the uterus lining during menstruation?

Oxygen and dissolved nutrients such as glucose and amino acids.

It protects the fetus from knocks and bumps.

Some pathogens and toxins.

Carbon dioxide and excretory products such as urea.

Oestrogen. It causes female secondary sexual characteristics, such as breast development and wider hips.

Testosterone. It causes male secondary sexual characteristics, such as facial hair and a deeper voice.

It breaks down and is lost through the vagina with blood.

Ovulation: an egg cell is released from an ovary.

Sex hormones in humans **Supplement**

Where are oestrogen and progesterone made in pregnancy?

Sex hormones in humans **Supplement**

State the roles of FSH and LH.

Sex hormones in humans **Supplement**

State the roles of oestrogen and progesterone in the cycle.

Sexually transmitted infections

Describe a sexually transmitted infection (STI).

Sexually transmitted infections

What is HIV, and what may it lead to?

Sexually transmitted infections

Describe the methods of transmission of HIV.

Sexually transmitted infections

How do condoms help to control the spread of STIs?

FSH makes an egg cell mature and stimulates oestrogen production. LH causes ovulation.

In the placenta. In the menstrual cycle they are made in the ovaries.

An infection that is transmitted through sexual contact.

Oestrogen repairs the uterus lining and inhibits FSH. Progesterone maintains the lining and inhibits FSH and LH.

Sexual contact, sharing needles or other contact with infected blood, and from an infected mother to her baby.

A pathogen (virus) that causes an STI. HIV infection may lead to AIDS.

They are a barrier that stops body fluids passing between partners.