

Definitions and Concepts for CAIE Biology IGCSE

Topic 16: Reproduction

*Definitions in **bold** are for supplement only*

Abstinence - Deliberately refraining from having sexual intercourse.

Acquired immunodeficiency syndrome (AIDS) - A disease which occurs when HIV destroys a given proportion of lymphocytes and the immune system is no longer functional.

Amniotic fluid - The liquid surrounding the embryo in the amniotic sac that protects the fetus and acts as a shock absorber.

Amniotic sac - A thin, transparent bag which holds the developing fetus and amniotic fluid.

Antenatal care - Healthcare provision during pregnancy. This includes dietary advice and guidance related to the dangers of alcohol and smoking.

Anther - The pollen-bearing structure of the stamen.

Artificial insemination (AI) - The insertion of semen directly into the uterus without sexual intercourse.

Asexual reproduction - A form of reproduction involving a single parent that creates genetically identical offspring.

Barrier method - A type of contraception that prevents the sperm and egg meeting e.g. condoms, femidoms, diaphragms.

Birth - The emergence of a baby from the uterus.

Bottle-feeding - The feeding of a baby with milk from a bottle.

Breastfeeding - The feeding of a baby with milk from a woman's breast. Breastfeeding has a number of advantages including the transfer of antibodies to the baby and the provision of milk free from bacteria. It also offers emotional and psychological benefits to both mother and baby.

Carpel - The female part of the plant consisting of a stigma, style and ovary.

Cervical mucus - Mucus secreted by glands found in and around the cervix and the lining of the vagina. The consistency of cervical mucus can be used by women to indicate their fertile period.

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Cervix - A narrow opening into the uterus that protects the fetus.

Contraception - A method or device used to prevent pregnancy.

Contraceptive implant - A small, flexible plastic tube inserted under the skin in the upper arm. It slowly releases progesterone into the bloodstream to prevent pregnancy.

Contraceptive injection - An injection that releases progesterone into the bloodstream to prevent pregnancy.

Contraceptive pill - A contraceptive taken orally that contains chemicals which act similarly to oestrogen and progesterone.

Corpus luteum - A temporary endocrine structure, formed from the remains of the follicle, that secretes progesterone.

Cross-pollination - A type of pollination in which pollen is transferred from an anther of one plant to a stigma of a different plant. This results in plants with greater genetic diversity.

Egg cell - A specialised female sex cell involved in reproduction. It has a haploid nucleus, a large amount of cytoplasm rich in fats and proteins, and is surrounded by a jelly coat. Also known as an ovum.

Fertilisation - The fusion of the nucleus of male and female gametes. It restores the full chromosome number.

Fertility drugs - Drug prescribed to women who do not ovulate regularly. They stimulate the secretion of more FSH and LH, triggering egg production and ovulation.

Fetus - An embryo after eight weeks of development.

Follicle-stimulating hormone (FSH) - A hormone secreted by the pituitary gland that binds to follicle cells, stimulating them to mature and secrete oestrogen.

Gametes - Sex cells (sperm and egg cells) with half the usual number of chromosomes. **The nuclei of gametes are haploid.**

Germination - The process by which a plant grows from a seed.

Human immunodeficiency virus (HIV) - An infectious virus that is spread by direct contact with infected body fluids. **It destroys lymphocytes, impairing the ability to produce antibodies and weakening the immune system.** HIV may lead to AIDS.

Implantation - The early stage of pregnancy in which the embryo adheres and sinks into the wall of the uterus.

Insect-pollinated flower - A type of flower that relies on insects to transfer pollen grains between flowers.



Intrauterine device (IUD) - A plastic and copper T-shaped device inserted into the uterus to prevent pregnancy. The copper alters the consistency of cervical mucus, making it difficult for sperm to enter the uterus.

Intrauterine system (IUS) - A plastic device (T-shaped) inserted into the uterus that slowly releases progesterone to prevent pregnancy.

In vitro fertilisation (IVF) - **The fertilisation of an egg using sperm outside of the body. The zygote is allowed to grow and the resulting embryo is transferred to the uterus.**

Labour - The process of giving birth to a baby involving the breakage of the amnion, contraction of the uterine muscles, cervical dilation, passage through the vagina, tying and cutting of the umbilical cord and delivery of the placenta.

Laparotomy - A surgical procedure for female sterilisation in which the oviducts are tied, blocked, or cut, preventing sperm from reaching the ova.

Luteinising hormone (LH) - **A hormone secreted by the pituitary gland that initiates ovulation and stimulates the development of the remains of the follicle into a corpus luteum.**

Menstrual cycle - The monthly cycle in women that involves the development of the uterus lining, ovulation, maintenance of the uterus lining and its shedding.

Nicotine - **A chemical present in tobacco smoke which, during pregnancy, may increase the risk of miscarriage.**

Oestrogen - A female sex hormone released by the ovaries that is involved in the development of the female secondary sexual characteristics. It also causes the growth and repair of the uterus lining in the menstrual cycle. **High levels of oestrogen stimulate a surge in LH production.**

Ovary (human) - An organ in the female reproductive system that produces egg cells in follicles.

Ovary (flower) - Part of the carpel that holds the ovules and following fertilisation, develops into the fruit.

Oviducts - The tubes that transport egg cells from the ovaries to the uterus. They are the site of fertilisation.

Penis - The male sex organ that penetrates the vagina and releases sperm.

Petals - Structures that surround the reproductive parts of a flower. They are often brightly coloured and fragrant to attract insects.

Placenta - A temporary organ attached to the lining of the uterus during pregnancy. It allows the exchange of nutrients and waste products between the mother and fetus via the umbilical cord.



Placenta - A temporary organ attached to the lining of the uterus during pregnancy. It has a variety of roles including the exchange of gases, nutrients and excretory products between fetal and maternal blood, hormonal control, and serving as a barrier to pathogens and toxins.

Pollen grain - A single granule of pollen that contains the male gamete. In wind-pollinated plants, grains are small and produced in large numbers, whereas in insect-pollinated plants, they are large, sticky and produced in fewer numbers.

Pollen tube - A hollow tube that grows from a pollen grain to the embryo sac in the ovule after pollination. It delivers the male gametes.

Pollination - The deposition of pollen onto a stigma from an anther.

Progesterone - A female sex hormone secreted by the corpus luteum that maintains the uterus lining. It also inhibits FSH and LH release.

Prostate gland - A gland located between the bladder and the penis that secretes an alkaline fluid to neutralise vaginal acidity.

Rubella - An infection (known as the German measles) caused by the Rubella virus. Pregnant women who contract rubella are at risk of a miscarriage or still-birth.

Scrotum - A pouch of skin that holds the testes and maintains an optimum temperature for sperm production.

Self-pollination - A type of pollination in which pollen is transferred from an anther of a plant to a stigma of the same plant. This results in plants with less genetic diversity.

Sepals - Modified leaves that surround and protect the flower when it is in the bud.

Sexually transmitted infections (STI) - A group of infections (e.g. HIV) that are transmitted via bodily fluids through sexual contact or intercourse.

Sexual reproduction - A form of reproduction involving the fusion of male and female gametes to form a zygote. It creates genetic variation.

Sperm cell - A specialised male sex cell involved in reproduction. It consists of a head containing the acrosome and haploid nucleus, a midpiece containing many mitochondria and a flagellum.

Sperm duct - The tube that transfers sperm from the epididymis during ejaculation.

Stamen - The male part of the plant consisting of an anther and a filament. It is involved in the production of male gametes in the form of pollen grains.

Stigma - The sticky structure of the carpel that receives pollen grains.

Testes - A pair of organs in the male reproductive system that produce sperm and testosterone.



Testosterone - A male sex hormone released by the testes that is involved in the development of the male secondary sexual characteristics.

Umbilical cord - A tube containing blood vessels that connects the fetus to the placenta.

Urethra - The tube responsible for the transfer of urine during urination (in both males and females) and semen during ejaculation (in males).

Uterus - The organ in the female reproductive system in which the embryo develops.

Vagina - The muscular canal that extends from the cervix to the outside of the body. During sexual intercourse it stimulates the penis to ejaculate.

Vasectomy - A surgical procedure for male sterilisation in which the sperm ducts are tied or cut, preventing the exit of sperm from the testes.

Wind-pollinated flower - A type of flower that relies on wind to transfer pollen grains between flowers.

Zygote - A cell formed via the fusion of a male and female gamete. **The nucleus of a zygote is diploid.**

