

Reproduction

Asexual and sexual

Asexual reproduction

One parent Genetically identical offspring No gametes

Examples

Binary fission Runners Tubers Bulbs

Asexual: advantages and disadvantages **Supplement**

Quick, one parent Uniform crop No variation
Disease risk

Sexual reproduction

Fusion of gamete nuclei Zygote formed
Offspring genetically different

Fertilisation

Fusion of nuclei of gametes

Haploid and diploid **Supplement**

Gametes haploid Zygote diploid

Sexual: advantages and disadvantages **Supplement**

Variation Adapts to change Two parents needed
Slower

Plant reproduction

Flower parts

Sepal and petal Stamen: anther, filament
Carpel: stigma, style, ovary Ovule

Insect-pollinated flower

Bright petals Nectar Sticky pollen Anthers inside

Wind-pollinated flower

Dull petals Anthers hang outside Feathery stigma
Light smooth pollen

Pollination

Pollen from anther to stigma

Fertilisation

Pollen nucleus fuses with ovule nucleus

Pollen tube **Supplement**

Grows down style Enters ovule

Self and cross-pollination **Supplement**

Same plant or different plant Variation
Reliance on pollinators

Germination

Water Oxygen Suitable temperature

Reproduction in humans

Male system

Testes Scrotum Sperm duct Prostate gland
Urethra and penis

Female system

Ovaries Oviducts Uterus Cervix Vagina

Sperm adaptations

Flagellum Mitochondria Acrosome enzymes

Egg adaptations

Energy stores Jelly coat changes

Fertilisation to fetus

Nuclei fuse Zygote Embryo implants Fetus

Fetus support

Placenta Umbilical cord Amniotic sac and fluid

Placenta exchange **Supplement**

Nutrients and oxygen in Urea and CO₂ out
Pathogens and toxins cross

Sex hormones

Testosterone (testes)

Facial hair Voice deepens Muscles develop

Oestrogen (ovaries)

Breasts develop Wider hips Cycle starts

Menstrual cycle

Menstruation Lining repair Ovulation day 14
Lining maintained

FSH and LH **Supplement**

FSH: egg matures LH: ovulation

Oestrogen and progesterone **Supplement**

Repair lining Maintain lining Inhibit FSH and LH

Pregnancy hormones **Supplement**

Made by placenta Lining maintained

STIs

STI definition

Spread by sexual contact

HIV

Pathogen Causes an STI May lead to AIDS

HIV transmission

Sexual contact Infected blood and needles
Mother to baby

Control of spread

Condoms No shared needles Screen blood
Test and treat