

Grade 12 Life Sciences: Human Reproduction Study Guide

Grade 12 | Life Sciences | Study Guide | 2024

Free Study Resources for South African Matric Learners

1. Male Reproductive System

- Testes: produce sperm (spermatogenesis) and testosterone
- Epididymis: sperm stored and matured
- Vas deferens: tube carrying sperm to urethra
- Seminal vesicles: produce fluid rich in fructose (energy for sperm)
- Prostate gland: alkaline secretion neutralises acid in urethra
- Urethra: carries urine and semen (not simultaneously)

2. Female Reproductive System

- Ovaries: produce eggs (oogenesis) and hormones (oestrogen, progesterone)
- Fallopian tubes (oviducts): site of fertilisation; cilia move egg toward uterus
- Uterus: site of implantation and fetal development; muscular wall (myometrium)
- Endometrium: inner lining; thickens each cycle for implantation
- Cervix: lower opening of uterus
- Vagina: birth canal; receives sperm

3. The Menstrual Cycle (28 days)

- Days 1-5: Menstruation - endometrium shed; low oestrogen and progesterone
- Days 1-13: Follicular phase - FSH stimulates follicle growth; oestrogen rises
- Day 14: Ovulation - LH surge triggers release of egg from follicle
- Days 14-28: Luteal phase - corpus luteum produces progesterone; maintains endometrium
- If no fertilisation: corpus luteum degenerates; progesterone falls -> menstruation

Hormonal Control

FSH:	stimulates follicle development; oestrogen production
LH:	triggers ovulation; stimulates corpus luteum
Oestrogen:	thickens endometrium; triggers LH surge
Progesterone:	maintains endometrium; prevents further ovulation

4. Fertilisation & Development

Fertilisation: sperm meets egg in fallopian tube -> zygote formed (46 chromosomes)

Cleavage: zygote divides mitotically -> morula -> blastocyst

Implantation: blastocyst embeds in endometrium (~Day 7)

Placenta: organ for exchange of nutrients, gases, wastes between mother and fetus

HCG: secreted by embryo; maintains corpus luteum; basis of pregnancy test

5. Contraception Methods

- Barrier methods: condom (also prevents STIs), diaphragm
- Hormonal: pill (oestrogen+progesterone prevents ovulation), injection, implant
- Intrauterine device (IUD): prevents implantation
- Sterilisation: tubal ligation (female), vasectomy (male) - permanent

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Natural family planning: avoiding sex during fertile period

TIP Oestrogen alone would cause endometrium to thicken uncontrolled. Progesterone stabilises and maintains the endometrium. Together in the pill, they suppress FSH and LH to prevent ovulation.