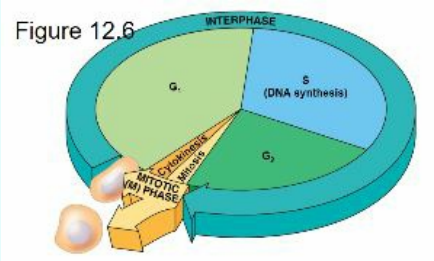
AP bio Unit 4 Cheat Sheet

by NoelleEvelyn via cheatography.com/168075/cs/35155/

Cell cycle phases

G1	The cell grows and does it's job
G0	Cell nondividing, could resume division
S	DNA replicated
G2	Prepares for division by making organelles
M-phase	Division
Cytokinesis	Cell membrane divides

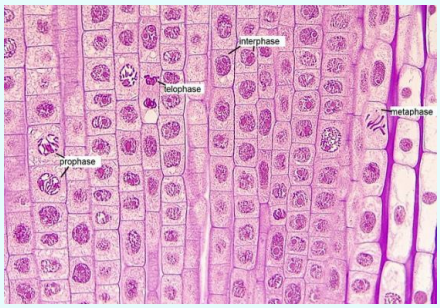
Cell cycle



Mitosis

Prophase	Chromatin starts to condense, nuclear envelope dissolves, mitotic spindle forms, centrioles divide in animal cells
Promet-aphase	Cells start to move to middle, 2 complete spindles at poles
Metaphase (2n)	Chromosomes line up on metaphase plate, spindle attaches to kinetochore at centromere
Anaphase (2n)	Chromatid pulled apart at centromere, migrate to cell poles by kinetochore
Telophase	Chromosomes decondense, nuclear envelope reforms, cells start seperating

Mitosis



Hormones

Testosterone	Male determining hormone
Estrogen	Peaks before LH and FSH, leads other to peak
LH	Stimulates follicular growth and ovulation
FSH	Stimulates follicular growth and ovulation
Progesterone	Promote thickening in endometrium

Stages of Human development

Zygote	When sperm meets egg, Fertilized egg
Embryo	Cells that will develop into baby, Beginning stages, cells differentiate
Fetus	Developing baby in Uterus

Formation of Zygote

1	Ovulation
2	Conception
3	Cleavage
4	Cleavage continues
5	Implantation in uterus

3 germ layers

Endoderm	Inner layer, lines digestive tract
Mesoderm	Space between endo and exoderm, ex: muscular and skeletal system
Ectoderm	Outer layer, ex: skin and nerves

Stages of birth

1	Dilation of cervix
2	Expulsion/delivery of baby
3	Delivery of placenta

Labor Hormones

Oxytocin	Increases during labor
Positive feedback	simulates uterus to contract
Positive feedback	simulates placenta to make prostaglandins which simulate more contractions

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Basics of cell signaling

1	Reception-Oxytocin received
2	Transduction-Oxytocin passed through molecules of signal transduction pathway
3	Response-Contraction of Uterus

Male reproductive system

Scrotum	Holds testes, regulates temperature for sperm
Testis	Produce sperm and testosterone, sperm manufactured in testis
Epididymis	Sperm stored to mature
Vas deference	Passageway for sperm and place for sperm storeage
Bulbourethral gland	Secrets fluid that protects sperm from acid in urethra
Rectum	
Seminal vesicle	Secretes fluid that nourishes and enables sperm to move
Bladder	
Prostate gland	Secretes alkaline found in male urethra
.Urethra	Semen and urine pass through to leave the body
Penis	Male organ for sexual intercourse, reproduction and urination

Female reproductive system

Ovary	Store and release eggs and produce estrogen and progesterone
Fillopain tubes	Site of fertilization
Bladder	
Urethra	opening of blatter
Vagina	Empty passage way, leads from vaginal opening to uterus
Cervix	Opening of uterus, usually plugged by mucus
Rectum	

Cell regulation

Cyclin	CDK on switch made in increasing amounts in interphase
No cyclin=	No mitosis
CDK	cyclin dependent kinase
Proto-oncogenes	Simulate cell division, accelerator, mutated versions always on
Tumor suppressor genes	Inhibit cell division, break, mutated versions always off

Checkpoints

G1	Most important- determines if cell should replicated DNA

Cancer-Uncontrolled cell division

Apoptosis	Programmed cell death

Stages of cancer

1	Tumor grows from single cell
2	Cancer cells invade neighboring tissue
3	Cancer cells spread through lymph and blood vessels to other parts of body
4	Cancer cells may survive and establish new tumor

Forms of DNA

Chromosome	Tightly coiled DNA, made of 2 sister chromatid
Chromatid	1/2 chromosome
Tetrads	2 pairs homologous chromosomes next to each other
Centromere	Spindle fibers attach via kinetochore
Daughter chromosomes	Separated sister chromatid

Meiosis 1

Prophase 1	Chromosomes condense, homologous pair connect to each other (synapsis) -> tetrads
Metaphase 1	Tetrads align at metaphase plate
Anaphase 1	Homologous pairs separate, sister chromatid still attached

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Meiosis 1 (cont)

Telophase 1	Cell divides into 2 cells

Meiosis 2

Prophase 2	Chromosomes of 2 sister chromatid begin to condense
Metaphase 2	Chromosomes line up on metaphase plate
Anaphase 2	Sister chromatid separate
Telophase 2	Starts dividing into 4 haploid cells

Meiosis

Sperm	Produces 4 sperm, prioritizes quantity
Egg	Creates 1 egg, quality over quantity, discarded eggs become polar bodies

Cytokinesis

Animals	Contractile ring of microfilaments pinches the cell in 2, creates a cleavage furrow
Plant	Vesicles from each cell bring materials over to create cell wall of plant, creates cell plate between 2 cells

Increase genetic diversity

Crossing over	DNA exchange between homologous pairs at chiasma
Indepe-ndent assortment	During metaphase 1, one set of traits doesn't depend on another, each gamete has one of many combin-ations

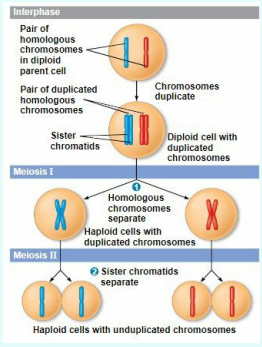
Asexual vs Sexual reproduction

Asexual	Quick, doesn't take care of young, no diversity
Sexual	Long process, non self-sufficient, diversity

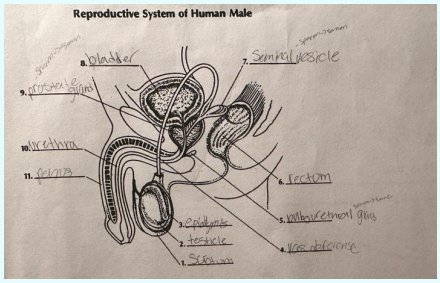
Fertilization

Acrosomal reaction	Sperm breaks down to enter egg
Cortical reaction	Egg releases calcium ions to prevent polyspermy

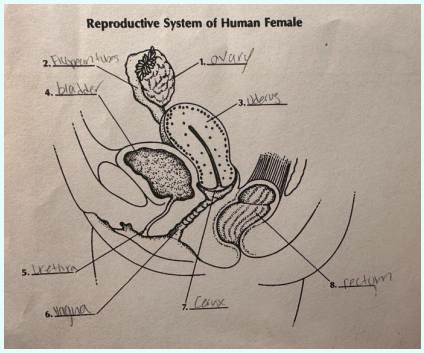
Meiosis



Male reproductive system



Female reproductive system



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