Terms

zygote	cell that develops into offspring
embryo	unprotected or unhatched off spring
genetic diversity	inherited genetic differences in a species
sustainability	ability of environment to keep supporting its organisms into future
reproduction	ensures life exists beyond its present gen. and species exist in future

DNA

Chromatin	Condensed form of DNA
Nitrogen bases	"steps of DNA"; a with t, c with g
Chromosomes	condensed chromatin for reproduction
Homolog pairs	chromes that are the same shape, size, have same genetic info in same spot; one from ea. parent

DNA replication

During late interphase, Dna unwinds with enzyme and bases are paired with new bases.

Asexual Reproduction

binary fission	mitosis in prokaryotes
budding	buds in multicelluar can detach through repeated mitosis and form separate org.
frag.	part of multicelluar breaks off due to injury and becomes separate org.
vegetative.	stems, leaves, or roots are used to asex. repro.
spore	spores grow into new org.

Cancer (from mutations in cell cycle)

Cancer cells have large nuclei, no use, they attract blood vessels and become tumours, and can metastasize

MITOSIS

prophase	nuclear membrane disappears, fibres attach to centromeres	
metaphase	chromes align on equator	
anaphase	fibers pull sister chromatids to poles	
telophase	fibres disappear and membrane reforms around each set	
(cytokinesis)	cell contents are divided into 2 cells	cleavage furrow or cell plate

Embryo Develop (first 8 wks)

morula	end of week one	ball of cells
blastula	end of week two	hollow ball of cells, cell can develop to any kind
gastrula	3 distinct layers of cells (**DIFFERENTIATION**)	ecto: skin/ nerves, mes: muscles/bones, end: lungs/liver/digestive system lining

Asexual v. Sexual

lots of offspring quickly, large **colonies** can form to out-compete, lots=many may survive if conditions change, less energy	disease/mute=death, compete for food and space, bad condition=wiped out
genetic diversity, ext: little energy to mate, more offspring can exist after disaster, int: more protect and care	int: more energy/risk to mate, fewer produced, ext: gams,embryos, offs are unprotect

Fertilization: Pros and Cons

external	very little energy mate, lots of offspring, spread widely in evrionment (less comp.)	many gametes die, many eggs aren't fertilized, offspring are unprotected
internal	embryo protected, offspring's parents will protect	more energy, fewer zygotes, more energy to raise

Fetal Devlopment

differentiation	formation of organs/tissue from gastrula	
1st tri	0-12 wks	development of all organ systems
2nd tri	12-24	rapid growth (12-16); fetal movements felt
3rd tri	24-38	continued growth (**brain**)

MEIOSIS

prophase	spindle fibres form and push centris. to poles, homolo chromosomes are paired	cross over
metaphase	homolo chromosomes align on 2 sides of equator	
anaphase	homolo chromosome pairs separate to opposite poles	assort
telophase	2 nuclei form, after 2 cells form	

Stages of Sexual Repro.

mating	egg and sperm come together at same time and place
fertilization	gametes fuse to make zygote
development	embryo develops