Asexual vs. 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 protection and care	int: more energy/risk to mate, fewer produced, ext: gams,embryos, offs are unprotected

DNA

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

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.
veg.	stems, leaves, or roots are used to asex. repro.
spores	spores grow into new org.

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

Mitosis

Interphase	Cell grows and develops/ DNA replication
Prophase	Spindle fibres attach to centromeres/nuclear membrane disappears
Metaphase	Chromosomes align at equator
Anaphase	Sister chromatids pulled to poles
Telophase	Fibres disappear/ nuclear membrane re-appears
Cytokenisis	contents of cell evenly divides

DNA replication

During late interphase Dna unwinds with enzymes/ bases are paired with new bases.

Meiosis

Prophase 1	Homo chromes pair	(crossing over)
Metaphase 1	Homo chromes align on opposite sides of equator	
Anaphase 1	Homo chromes pulled to opposite poles	(Indep. assortment)
Telophase 1/2	Cell divides into 2 then 4 cells	

Anything that's homologous is in meiosis1. Otherwise, it's the same as mitosis.

1st 8 weeks of embryo development

morula	week 1 (end)	ball of cells
blastula	week 2 (end)	hollow ball of cells, cell can develop to any kind
gastrula	3 layers of cells (differentiation)	ecto: skin/ nerves, mes: muscles/bones, end: lungs/liver/digestive system lining

endo+ecto=meso

stages of sexual reproduction

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