

Sperm vs egg

	Ovum	Sperm
Number of chromosomes	Haploid cell. 23 chromosomes	Haploid cell. 23 chromosomes
Production	Normally occurs on the 14th day	Production and maturity takes about 70 - 72 days
Gonad	Ovaries	Testes
Movement	Swept along by currents created by the cilia	Contains mitochondrion producing energy, and a tail to allow active movement
Life span	48 hrs from ovulation	72 hrs in female reproductive tract
Number Released	1 per ovulation	Millions during ejaculation
Total number	Birth: 1-2 million immature eggs. By puberty: 400 000 remain	Produced continuously from adolescence to old age

Sexual vs asexual

	Asexual	Sexual
Method of reproduction	- Budding eg yeast, hydra - Fission eg sea anemone - Fragmentation & regeneration eg some worms - Vegetative propagation eg potatoes, ginger shoots	- Fusing nuclei of egg and sperm - fricklefracking - external fertilisation
Type of offspring	Genetically similar	Genetically dissimilar
Adaptability to changing environment	Cannot adapt, species could be killed off BUT genes that are suited to the environment will be passed down	Adaptable
No. of parents	1	2

Replication vs transcription vs translation

	Replication	Transcription	Translation
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Synthesis	Synthesises DNA	Synthesises RNA	Synthesises polypeptide
Building Block	Deoxyribonucleotides	Ribonucleotides	Amino acids
Template	DNA strand		mRNA strand
Bonds formed	Phosphodiester between deoxyribonucleotides	Phosphoester between ribonucleotides	Peptide bonds between amino acids
Location of occurrence		Nucleus	Ribosomes in cytoplasm

DNA vs RNA

DNA		RNA
Shares 3 common bases - A, C and G Have pentose sugar		
Contains thymine (T)	1. Type of base	Contains uracil (U)
No hydroxyl group (H only)	2. Structure of pentose sugar	Hydroxyl group (OH)
Double stranded	3. Number of strands	Single stranded

Mitosis vs Meiosis

Stage	Mitosis	Meiosis I	Meiosis II
Similarities	• Preceded by one round of DNA replication. • Only in eukaryotic cells. • Use spindle fibres to separate chromatids from each other. • Cytokinesis occurs after or during telophase.		
Difference	Produces 2 daughter cells	Synapsis of homologous chromosomes at chiasma occurs	Produces 4 daughter cells
	Occurs in somatic cells	Occurs in cells in sexual cycle	
	No. of chromosomes remain diploid	Chromosome no. becomes haploid.	
Metaphase	Chromosomes align at	Tetrads align at the	Chromosomes align at

	the metaphase plate	metaphase plane	the metaphase plate
Anaphase	Sister chromatids separate	Homologous chromosomes separate	Sister chromatids separate
	Centromeres separate	Centromeres are not separated	Centromeres separate

Continuous variation vs discontinuous (probably won't be tested)

Continuous	Discontinuous
Deals with a spectrum of phenotypes, ranging from one extremity to another	Deals with a few clear-cut phenotypes
Modified by environmental conditions eg. greater exposure of skin to sunlight will produce a greater skin colour	Not modified by environmental changes
Controlled by many genes	Controlled by a few genes
Genes show additive effects eg. the more "dark" genes you have, the darker you are	Genes do not show additive effect
eg. skin/hair/eye colour, length of little finger	eg. Blood type