

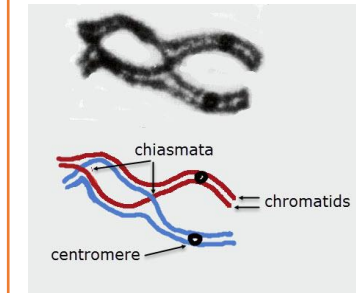
Meiosis

- Homologous chromosomes are _____
- Chiasmata are _____
- Non-sister chromatids are _____
- Independent assortment of alleles occurs because of random orientation of _____
- During anaphase spindle fibres are responsible for _____
- A difference between meiosis I and meiosis II is _____

Arrange the following chromosomes movements from meiosis in the right order:

- Double stranded chromosomes line up on the spindle
- Homologous chromosomes separate as they move to opposite poles of the cell
- Centromeres split & single stranded chromosomes move to opposite poles of the cell
- Pairs of homologous chromosomes form tetrads
- Homologous chromosomes line up on the equator of the spindle
- Nuclear membrane forms and four haploid cells are produced.

Annotate the diagram to explain how crossing over increase variation?



Dihybrid Inheritance

Gene locus (pl. loci) is _____

Unlinked genes segregate independently because they are found on different _____

Discrete variation in a phenotype can be identified because there are few _____

Continuous variation is when the phenotype varies _____ or there are many _____

Polygenic characteristics have phenotypes which show continuous _____

Human height is an example of a _____

Dihybrid crosses can have 4 x 4 Punnett square. Eg. AaBb x AaBb

	AB	Ab	aB	ab
AB	AABB	AABb		
Ab				
aB				
ab				

If one parent is homozygous then one row is enough. AaBb x AABB

	AB	Ab	aB	ab
AB	AABB	AABb		

AABB only has one possible type of gamete "AB"

In a cross between a brown rabbit with long fur and a white rabbit with short fur there were 4 phenotypes of offspring

- White short fur
- Brown short fur
- White long fur
- Brown long fur

Which are recombinants, explain why..

Linkage notation

Morgan did some crosses with Drosophila flies. He crossed ebony body, scarlet eyed flies (eess) with wild type (genotype EESS) Because both the alleles are on chromosome 3 he used "linkage notation" Complete a punnet square using this notation.

$\frac{es}{es} \times \frac{ES}{ES}$

Legend
 E= allele for wildtype body
 e= allele for ebony body
 S= wild type allele - red eyes
 s= allele for scarlet eyes

Recombinant phenotypes would be _____ and _____

Explain why recombinant phenotypes would be lower in number than normal medelian ratios with linked genes.

Why is it also likely that these will always be some recombinants, even with linked genes?

Chi-squared test can be used to see if there is a significant difference between observed and expected values. Explain why you have to look up a probability once X² has been calculated?

Gene pools

A "gene pool" is _____

Evolution involves allele frequencies changing in time. Explain why.

Compare the 3 methods of reproductive isolation below.

Cause of reproductive isolation	How it works.
Geographical	
Behavioural	
Temporal	

• Explain how natural selection can be 'stabilizing'

• Describe what happens in a gene pool exposed to directional selection

• What is disruptive selection? _____

Explain how reproductive isolation leads to speciation?

