Mendel's 2nd Law: _____

_____
_____

- How does meiosis explain Mendel's 1st Law?

_____
_____

- How does meiosis explain Mendel's 2nd Law?

_____
_____

Chromosomal theory of inheritance

_____

What 2 things support the chromosomal theory of inheritance and how?

1. _____
   _____
   _____
2. _____
   _____
   _____

Lecture 3

- What is the molecular explanation for Incomplete dominance?

_____
_____

- Define "overdominance". What is it otherwise known as? Give an example.

_____
_____
_____

Fill in the table stating which allele is dominant or recessive or whether they are incomplete or co-dominant.

Phenotypes at Different Levels of Analysis	**Normal** **AA**	**Carrier** **AS**	**Diseased** **SS**	Dominance Relations at Each Level of Analysis
B-Globin polypeptide production				
RBC Shape @ Sea Level	Normal	Normal	Sickled Cells Present	
RBC Concentration @ Sea Level	Normal	Normal	Lower	
RBC Shape @ High Altitude	Normal	Sickled Cells Present	Severe sickling	
RBC Concentration @ High Altitudes	Normal	Lower	Very Low, Anaemia	
Susceptibility to Malaria	Normal Susceptibility	Resistant	Resistant	

List some things which mode of inheritance depends on:

1. _____
   _____
2. _____
   _____
3. _____
   _____

Sometimes opinion on whether a trait shows complete dominance of not depends on how closely we examine. Use an example to explain:

_____
_____
_____
_____

Define **polymorphic**

_____
_____

Define **monomorphic**

_____
_____

What is the molecular explanation of the **ABO blood groups**:

_____
_____
_____
_____
_____
_____

Define a **lethal allele**:

_____
_____

Define **Pleiotropy** and provide an example:

_____
_____
_____
_____

Define **penetrance** and list <u>one example</u> of a trait that shows varied penetrance

_____
_____

What does a disease which shows 80% penetrance mean?

_____
_____

Define **expressivity** and list <u>one example</u> of a trait that shows varied expressivity.

_____
_____

Give 2 examples of effects of environment on temperature.

1. _____
   _____
   _____
   _____

2. _____
   _____
   _____
   _____

Define **sex-influenced** traits. Does this mean it is 'sex-linked'? Explain.

_____
_____
_____
_____

Define **sex-limited** traits.

_____
_____

Define the principle behind the **complementation test**.

_____
_____
_____
_____

Lecture 4

Define **complementary gene action**.

_____
_____
_____

What phenotypic ratio does it produce? _____

Define **recessive epistatis**

_____
_____
_____

What phenotypic ratio does it produce? _____
How does the Bobay phenotype relate to recessive epistasis?

_____
_____
_____

Define **dominant epistasis**

_____
_____
_____

What phenotypic ratio does it produce? _____

Why did Sturtevant's map have different distances between distant genes compared to adding up the shorter intervening distances?

What is a trihybrid test cross?

How can you use a trihybrid test cross to:

1. Figure out the chromosomal order of three linked genes?

2. Identify the double recombinants?

3. Change (correct) the distance calculations using the double recombinants?

4. Calculate interference? (And what is interference?)

5. What is the advantage of a trihybrid cross over a dihybrid cross?

6. Can you map genes even if the recessive alleles are in repulsion phase?

Lecture 8: DNA Markers & Molecular Mapping

Define **SNPs**: _____

What is a micro-/mini- satellite? _____

Distinguish between:
Micro-satellites: _____

Mini-satellites: _____

What is the difference between an RFLP and a satellite DNA marker?

_____

_____

_____

Fill in the table

	Genes	**SNPs**	**Satellites**
Number detected			
Ease of scoring			
Number of 'alleles'			
Level of polymorphism			

Which is more common, useful?

_____

_____

_____