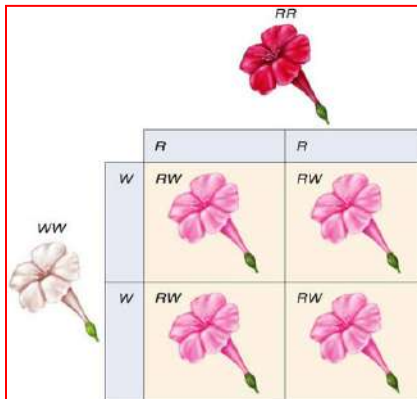


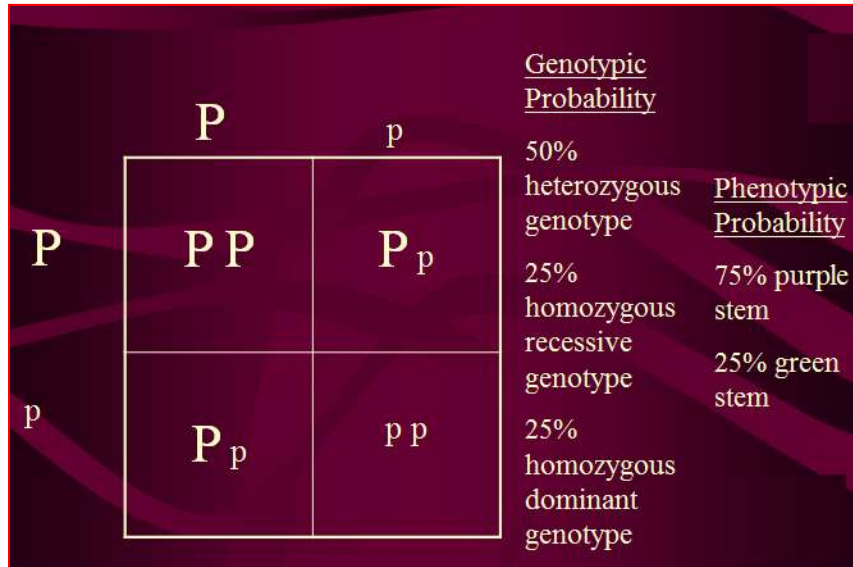
## SB2 Genetics Review Test Study Guide

1. What is DNA made of? **Nucleotides (sugar, phosphate, bases)**
2. What base is found in RNA but not DNA? **Uracil, ribose sugars**
3. AGTCA is DNA that transcribes what RNA? **UCAGU**
4. Replicate the following DNA – ACT GAC CTA **TGA CUG GAU**
5. Transcribe the same piece of DNA from #4. **UGA CUG GAU**
6. Look up the amino acids translated from your answer in #5. **Stop Leucine Aspartic Acid**
7. What molecule is made during transcription? **mRNA**
8. Where does replication and transcription take place in a cell? **Nucleus**
9. Which gender has the greater chance of inheriting a sex linked (X-linked) trait? Why? **Males because it is carried on an X chromosome and male s only have to get one affected allele**
10. Which allele is present in a heterozygous genotype? **Dominant and recessive**
11. What can allow an organism to increase their chances of survival? **Adaptation from mutations**
12. Cross a red and white flower to show how pink flowers may form.



13. What two factors control phenotypes? **Genes and environment**

14. Cross two heterozygous genotypes. Compare the genotypic and phenotypic ratios.



15. Why are some traits recessive but still show up over many generations without completely disappearing? **They are carried by heterozygotes (hybrids)**

16. If a disorder does not show up much in a pedigree then would you think it is recessive or dominant? **recessive**

17. Nondisjunction causes trisomy. How? Compare chromosome numbers. **Instead of 2 chromosomes on the 21st pair site there will be three since the chromosomes did not separate as they were supposed to during cell division**

18. Chromosomes can exchange DNA (genes) and increase genetic variation by **Crossing Over**.

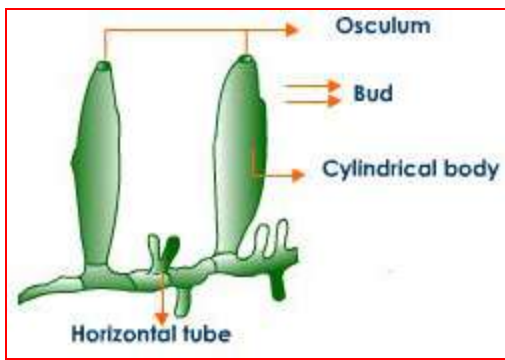
19. Compare the types of mutations.

<b>Deletion</b>	Genetic material is removed or deleted. A few bases can be deleted (as shown on the left) or it can be complete or partial loss of a chromosome (shown on right).
<b>Frameshift</b>	The insertion or deletion of a number of bases that is not a multiple of 3. This alters the reading frame of the gene and frequently results in a premature stop codon and protein truncation.
<b>Insertion</b>	When genetic material is put into another region of DNA. This may be the insertion of 1 or more bases, or it can be part of one chromosome being inserted into another, non-homologous chromosome.
<b>Point</b>	A single base change in DNA sequence. A point mutation may be silent, missense, or nonsense.
<b>Silent</b>	A change in the genetic sequence that does not change the protein sequence. This can occur because of redundancy in the genetic code where an amino acid may be encoded for by multiple codons.

20. Which form of reproduction gives greater genetic variation (more combinations of genes)? **sexual reproduction**

21. How do bacteria reproduce? (ex. binary fission) **asexual reproduction**

22. List an example of asexual reproduction that leads to identical organisms in sponges.



23. How is genetic engineering important to agriculture?

Plant biologists have used DNA technology to produce plants with many desirable traits. These include increased disease resistance, herbicide resistance, and increased nutritional content.

24. How is genetic engineering important to medicine?

The Human genome mapped out all genes on every human chromosome to determine which traits and diseases that they control.

25. How is genetic engineering important to forensics?

Police labs use DNA technology to identify people through a process known as DNA fingerprinting and Polymerase chain reaction (PCR).