**Semester 2 (Biology) Review Booklet**

|  |  |  |
| --- | --- | --- |
|  | Title | What should be on each page |
| Page 1 | DNA | * Draw a DNA molecule and label the following structures

NucleotideDeoxyribose sugarNitrogenous base Adenine, thymine, guanine, cytosineHydrogen bondPhosphate |
| Page 2 | DNA Replication | * Draw a DNA molecule and show how it replicates by drawing the replication fork. Include and label the following structures

Replication forkDNA polymeraseHelicaseNew complimentary bonding pairsNitrogenous bases Adenine, thymine, guanine, cytosine |
| Page 3 | Mitosis  | * Draw each stage of mitosis and label what the DNA is called in each stage
* Label each stage of mitosis
* What’s the goal of mitosis?
 |
| Page 4 | Meiosis | * Draw each stage of meiosis. Include independent assortment, law of segregation, crossing over.
* Identify homologous pairs, chromatids, and single and double stranded chromosomes throughout.
* What’s the goal of Meiosis I? Meiosis II? (think about diploid (2n) and haploid (n).
 |
| Page 5 | Genetics | * Monohybrid cross (punnett square) of a heterozygous mom and homozygous recessive dad.
* Give phenotypic and genotypic ratio of offspring (from above cross).
* Brown eyes and red hair are dominant traits over blue eyes and blond hair. Perform a dihybrid cross between one heterozygous and one homozygous recessive parent.
* Give phenotypic ratio of offspring (from above cross).
 |
| Page 6 | Protein Synthesis | * Take the template DNA strand 🡪 ATGCCGTAATCGGAGTCT

demonstrate * transcription and
* translation. Give final amino acid sequence.
* Using the above DNA sequence, write the point mutations that would give a nonsense, silent, and missense mutation.
* This means that you should have three DNA sequences that are different from the one above
 |
| Page 7 (back of booklet) | Evolution | * State the 3 requirement for evolution
* One example of Natural selection
* One example of artificial selection
* Give three pieces of evidence that support the theory of evolution
 |