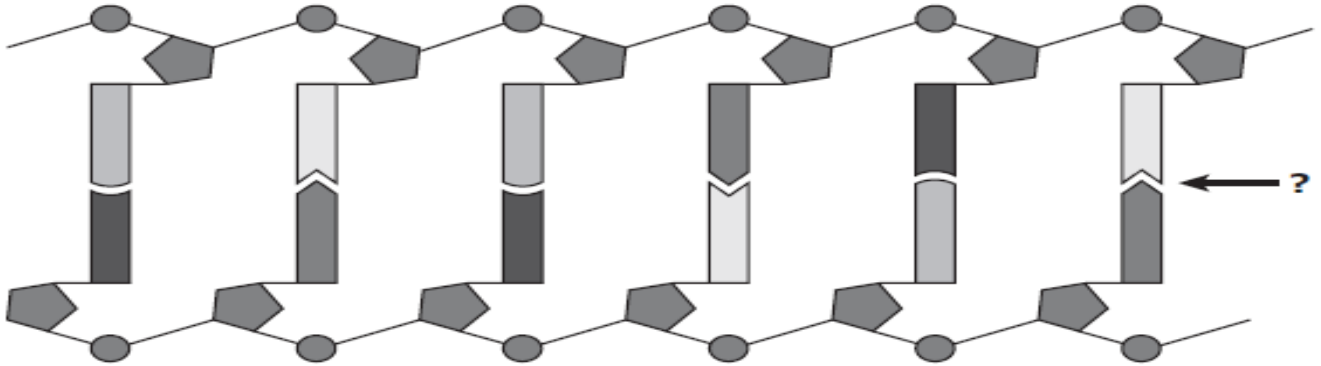


### 3<sup>rd</sup> Nine Weeks Final Exam Review

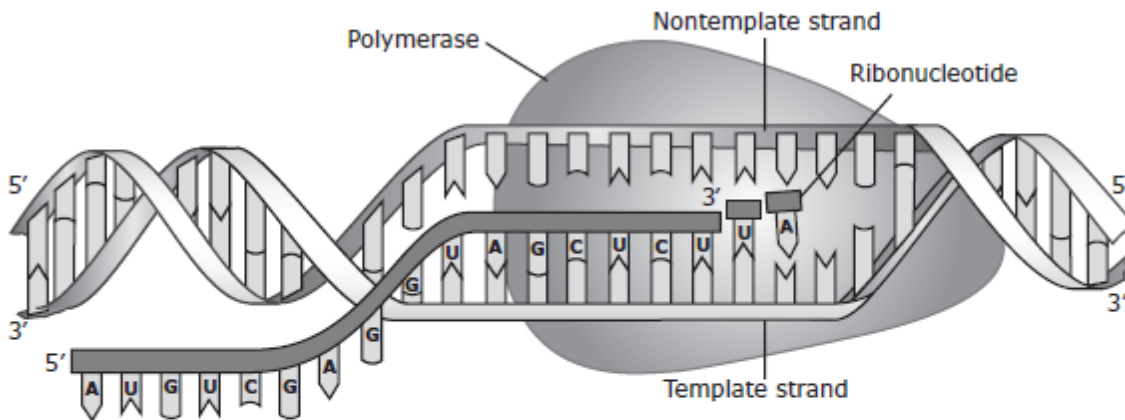
1. DNA bases vary widely, why are the sequences in DNA are important?
2. How does DNA in cells determine an organism's complex traits?
3. Label each part of the DNA model shown below.



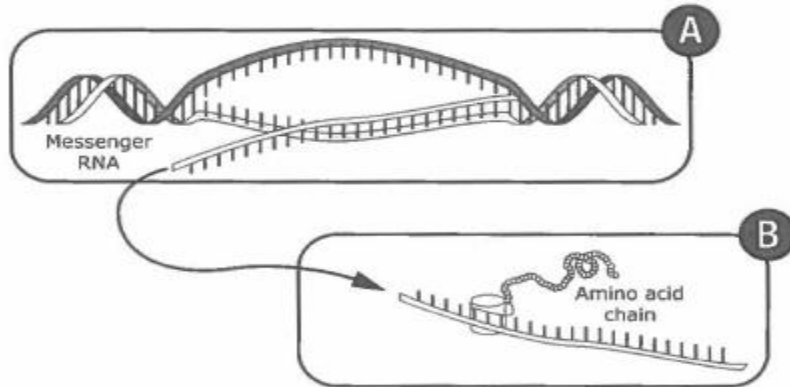
4. Write the amino acid sequence for the following mRNA molecule. USE A CODON CHART

5' AUGGUAAACGACAAUCC 3'

5. What is the name of the molecule that is being produced below?



6. Name the different parts of the DNA molecule.
7. Name the process and location of A and B below.



8. In mice, black fur is dominant to brown fur. What phenotypic ratio results from a cross between two heterozygous mice with black fur?
9. In the 1860's, Gregor Mendel performed numerous dihybrid crosses between pea plants. In guinea pigs the allele for black fur (B) is dominant over the allele for brown fur (b), and the allele for short fur (F) is dominant over the allele for long fur (f). What percentage of the offspring from a BBff x bbFf cross would be expected to be heterozygous for both traits?
10. Sexual reproduction in animals depends on the production of gametes. Which process produces gametes in animals?
11. What is the significance of crossing over? Explain in detail.
12. The law of independent assortment states that genes assort independent of each other during the production of gametes. This means that genes or the traits they produce are not necessarily passed on together. An exception to this rule is when traits are located closely together, they sometimes are passed on together to offspring. What is this called?
13. In cocker spaniels, the allele for a black coat color (B) is dominant over the allele for a brown coat color (b). If a brown cocker spaniel is crossed with a heterozygous black cocker spaniel, which genotypic ratios can be expected?
14. Prior to meiosis, a cell contains 20 pairs of chromosomes. How many chromosomes will each of the gametes have after meiosis is complete?
15. Mitosis produces two daughter cells which are genetically identical. Meiosis produces four haploid gametes who are not genetically identical. Because the daughter cells are haploid, meiosis is also known as\_\_\_\_\_.