

Unit Outline – Genetics

Morales Biology

Unit Goal: To understand the mechanisms of heredity in organisms.

Vocabulary: (Words with an asterisk (*) are only mandatory for Honors)

- | | | |
|--------------------|---------------------------|------------------------------------|
| 1. Nucleotide | 20. Homologous chromosome | 39. Phenotype |
| 2. Double helix | *21. Autosome | 40. Dominant |
| 3. Base pairing | *22. Sex chromosome | 41. Recessive |
| 4. Replication | *23. Sexual reproduction | 42. Punnett square |
| 5. DNA polymerase | *24. Fertilization | *43. Monohybrid cross |
| *6. Central dogma | 25. Diploid | *44. Testcross |
| *7. RNA | 26. Haploid | *45. Dihybrid cross |
| 8. Transcription | 27. Meiosis | *46. Law of independent assortment |
| *9. RNA polymerase | 28. Trait | 47. Probability |
| 10. mRNA | 29. Genetics | *48. Carrier |
| *11. rRNA | *30. Purebred | *49. Sex-linked genes |
| *12. tRNA | *31. Cross | *50. X chromosome inactivation |
| 13. Translation | *32. Law of segregation | *51. Incomplete dominance |
| 14. Codon | 33. Gene | *52. Codominance |
| *15. Stop codon | 34. Allele | *53. Polygenic trait |
| *16. Start codon | 35. Homozygous | 54. Pedigree |
| *17. Anticodon | 36. Heterozygous | *55. Karyotype |
| *18. Somatic cell | 37. Genome | |
| 19. Gamete | 38. Genotype | |

Homework: All notes should be Cornell Notes with margin questions and summary. The summary should focus on answering the focusing question below.

Topic/Focusing Question	Assignment	Vocabulary	Due Date
What is the structure of DNA? How does DNA store energy?	CN 8.2 Vocabulary	1-3 1. Nucleotide 2. Double helix 3. Base pairing	4/22-23
How is the structure of DNA related to its function?	CN 8.3 Vocabulary	4-5 4. Replication 5. DNA polymerase	4/24-27
How does transcription make RNA from DNA?	CN 8.4 Vocabulary	6-12 6. Central dogma 7. RNA 8. Transcription 9. RNA polymerase 10. mRNA 11. rRNA 12. tRNA	4/28-29
TURN OVER FOR REST OF UNIT OUTLINE			

How does translation make protein from RNA?	CN 8.5 Vocabulary	13-17 13. Translation 14. Codon 15. Stop codon 16. Start codon 17. Anticodon	4/30-5/1
How does meiosis relate to sexual reproduction? What did Mendel's research show about the inheritance of traits?	6.1 and 6.3 (not 6.2) Vocabulary	18-32 18. Somatic cell 19. Gamete 20. Homologous chromosome 21. Autosome 22. Sex chromosome 23. Sexual reproduction 24. Fertilization 25. Diploid 26. Haploid 27. Meiosis 28. Trait 29. Genetics 30. Purebred 31. Cross 32. Law of segregation	5/4-5
What is the relationship between genes and traits? How do Punnett squares show patterns of probabilities?	6.4 and 6.5 Vocabulary	33-47 33. Gene 34. Allele 35. Homozygous 36. Heterozygous 37. Genome 38. Genotype 39. Phenotype 40. Dominant 41. Recessive 42. Punnett square 43. Monohybrid cross 44. Testcross 45. Dihybrid cross 46. Law of independent assortment 47. Probability	5/6-7
How does the location of genes affect the expression of traits? How do your alleles control how you look? What is the relationship between genotype and phenotype?	7.1 (and 7.2*) Vocabulary	48-53 48. Carrier 49. Sex-linked genes 50. X chromosome inactivation 51. Incomplete dominance 52. Codominance 53. Polygenic trait	5/8-11
How can you trace your alleles through your family tree?	7.4 Vocabulary	54-55 54. Pedigree 55. Karyotype	5/12-13

Assessments:

- QUIZ 4/30-5/1 (DNA to PROTEIN)
- UNIT TEST 5/18-5/19 (HEREDITY, including material from quiz)