|  |
| --- |
| **Learning Goals: Genetics, DNA, and Cell Processes** |
| **Guiding Question**:How do scientists explain the similarities and variation in different organisms over time? |
| Content GoalsStudents will be able to:* Use a Punnett square to determine possible characteristics in offspring
* Describe the structure and function of DNA (phosphate, sugar, and base)
* Describe the structure and function of RNA (similarities and differences between DNA and RNA)
* Explain how DNA information is transcribed: *transcription*
* Explain how DNA information is translated to make proteins: *translation*
* Describe the phases of the cell cycle and mitosis
* Identify the steps of DNA replication
* Describe the phases of meiosis
* Compare and contrast mitosis and meiosis
* Explain the cause and effect of mutations in DNA
* Describe how biotechnology has impacted medical treatments, criminal justice, and food supply
* Explain how DNA processes and environmental factors both play a significant role in causing variation within species and between species
 | Skills GoalsStudents will be able to:* Identify topic of text
* Summarize main idea in text
* Summarize supporting statements used to develop the main idea
* Present data in well-organized tables
* Present data in informative graphs
* Include properly referenced quote in paragraph
* Write APA citation for source used
 |
| **Organizing Ideas** (Big Ideas and Links between Big Ideas)Students will understand:- how DNA is replicated in new cells or passed on to offspring- how DNA can vary from one generation to the next- how information in DNA results in protein synthesis |
| **Assessment** – How will I know if students have mastered content, skills, and big ideas?- Summary and analysis of scientific article- Student-generated data tables and graphs- Individual assessments such as tests and quizzes |

|  |
| --- |
| **Key Vocabulary** |
| **Trait****Allele****Dominant****Recessive****Genotype****Phenotype** **Heterozygous****Homozygous****Chromosome****DNA****Nucleotide****Bases (A,T, G, C)** | **Protein****RNA****Transcription****Translation****Codon****Amino acid****Mitosis****Interphase** **Prophase****Metaphase****Anaphase****Telophase** | **Meiosis****Homologous chromosomes****Diploid****Haploid****Gamete****Zygote****Crossing over****Karyotype****GMO****Cloning** |

 