# GENETICS OUTLINE

<table>
<thead>
<tr>
<th>Unit Name</th>
<th>Objectives/Goals</th>
<th>Activities/Timeline</th>
</tr>
</thead>
</table>
| **CELL DIVISION**             | - Explain what a cell is and how it operates  
  • Identify the stages of cell division  
  • Differentiate between prokaryotes and eukaryotes  
  • Explain how mitosis is different from Meiosis  
  • Describe how Meiosis relates to reproduction                                                                 | • Cell cycle Diagram Analogy  
  • Mitosis Stages Anagram  
  • Mitosis Story  
  • Mueller Cell Growth Story  
  • 2-3 Weeks                                                                                                           |
| **MITOSIS**                   |                                                                                                                                                                                                                |                                               |
| **MEIOSIS**                   |                                                                                                                                                                                                                |                                               |
| **Mendel's Law of Inheritance** | - Define Genes, Alleles, and Traits  
  - Explain and apply the Law of Dominance  
  - Construct and analyze 1 and 2 Factor Crosses (Punnett Squares)  
  - Explain exceptions to the Law of Dominance                                                                 | - What’s My Face Lab  
  - Punnett Story Problem Competition  
  - Probability Dice Game  
  - 3-4 weeks                                                                                                           |
| **DNA RNA THE GENETIC CODE**  | - Explain how DNA is the blueprint for your genes and traits  
  • Describe the structure of DNA  
  • Demonstrate how RNA is used during DNA Replication                                                                 | - Gumdrop DNA Model Lab  
  - Genetic Code Hangman Activity                                                                                     |
# GENETICS OUTLINE

| MUTATIONS, CANCER, GENETIC DISORDERS & COUNSELING | - Construct and analyze pedigrees to predict genetic traits or disorders your family could possess  
- Describe difference between X-linked and Y-linked traits and how each occurs  
- Explain how mutations occur and can be repaired  
- Identify causes of Cancer and how it can be treated  
- Use Karyotypes to determine if an individual possesses a genetic disorder  
| - Build your own Protein Activity  
- 3 weeks |

| REAL LIFE APPLICATIONS OF GENETICS | - Gene Therapy (how does it work and does it work?)  
- Solving Cold Case Files with DNA  
- Genetically Modified Foods  
- Paternity Testing???  
- Ethical Genetic Debates (Cloning and Stem Cell Research)  
- Crime Solving Simulation  
- Testing G.M. Foods  
- Debating Applications of Genetics  
| - 5 weeks |
GENETICS OUTLINE