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| **Following the Big Ideas** | |
| **Big Idea 1** | Inheritance of genes within a population is a cornerstone of a species ability to change over time |
| **Big Idea 3** | Gregor Mendel’s scientific approach allowed him to establish the basic principles of heredity |

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| **Essential Questions** |
| * What is the relationship between genes are their passage from parent to offspring to natural selection and evolution? * How does the behavior of chromosomes during meiosis explain Mendel’s laws of segregation and independent assortment? * How does an understanding of Mendelian genetics help us understand the link between genes and human disorders? |

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| **Vocabulary** | | |
| 1. Character 2. Trait 3. P generation 4. F1 generation 5. F2 generation | 1. Dominant 2. Recessive 3. Monohybrid Cross 4. Dihybrid cross 5. Complete dominance | 1. Incomplete dominance 2. Codominance 3. Pleiotropy 4. Epistasis 5. Polygenic inheritanc |

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| **Chapter Outline and Reading Guide** | |
| **Section 1**   1. In the 1800s the most widely favored explanation of genetics was “blending.” Explain the concept of blending, and then describe how Mendel’s “particulate” (gene) hypothesis was different. 2. One of the keys to success for Mendel was his selection of pea plants. Explain how using pea plants allowed Mendel to control mating; that is, how did this approach let Mendel be positive about the exact characteristics of each parent? 3. Mendel’s model consists of four concepts. Describe each concept. Connect these concepts to the ideas of meiosis   **Section 2**   1. Summarize the rules for determine the statistics of inheritance in your own words. 2. What is probably of a couple having a girl, a boy, a girl, and a boy in that order? Explain your work. | **Section 3**   1. Make a triple venn diagram and compare and contrast complete, incomplete and codominance. 2. Dominant alleles are not necessarily more common than recessive alleles in the gene pool. Explain why this is true. 3. Explain what is meant when a gene is said to have multiple alleles. Blood groups are an excellent human example of this. 4. Question 2 in the Concept Check 11.3 is a blood type problem. Complete it and show your work. 5. You are expected to have a general knowledge of the pattern of inheritance and the common symptoms of a number of genetic disorders. Provide this information for the disorders listed below.    1. cystic fibrosis:    2. sickle-cell disease:    3. achondroplasia:    4. Huntington’s disease: |

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| **After You Have Read…** |

* Gregor Mendel proposed his ideas of inheritance in the 1800’s. Meiosis was not observed by scientists until the early 1900’s. Do Gregor Mendel’s ideas align with the principles of meiosis. Justify your answer.
* Punnett squares are used to determine the likelihood of different genes being expressed based on dominant and recessive traits. What are the limitations to using Punnett squares?