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| *SBI 3U – Genetic Processes – Mendelian Genetics* | |
| **Curriculum Expectations**:  D2.1 Use appropriate terminology related to genetic processes  D3.2 Explain the concepts of DNA, genes, chromosomes, alleles, mitosis, and meiosis, and how they account for the transmission of hereditary characteristics according to Mendelian  laws of inheritance  D3.3 Explain the concepts of genotype, phenotype, dominance, incomplete dominance,  codominance, recessiveness, and sex linkage according to Mendelian laws of inheritance  D2.3 Use the Punnett square method to solve basic genetics problems involving monohybrid crosses,  incomplete dominance, codominance, dihybrid crosses, and sex-linked genes  D2.4 Investigate, through ~~laboratory inquiry or~~ computer simulation, monohybrid and dihybrid crosses, and use the Punnett square method and probability rules to analyse the qualitative and quantitative data ~~and determine the parent genotype~~ | |
| **Learning Goals – Students will be able to**:   1. Explain how genes, DNA and chromosomes account for the transmission of hereditary characteristics 2. Use a computer simulation to review Mendel’s laws of inheritance and conduct monohybrid and dihybrid crosses 3. Model the offspring of a potential cross of monohybrid, dihybrid and sex-linked genes that may display dominance, recessiveness, incomplete dominance or codominance 4. Use appropriate terminology related to genetic processes to explain traits displayed by their offspring in a rapid review | |
| **Glossary** | |
| DNA  Genes  Chromosomes  Alleles  Mitosis  Meiosis  Dominant  Recessive  Punnett square | Genotype  Phenotype  Homozygous  Heterozygous  Monohybrid Cross  Dihybrid Cross  Incomplete dominance  Codominance  Sex-linked genes |
| **Assessment Evidence:**  Computer simulation  Model creation  Rapid review | **Evaluation**:  Worksheet with traits of model offspring  Questions on Unit Test |
| **Learning Plan**:   1. Genes Review (Bill Nye the Science Guy and Things you should know about genetics videos) 2. Computer simulation of Punnett square crosses and genetics review 3. Playdough model offspring 4. Rapid review of terminology and traits | |
| **References:**  <http://www.youtube.com/watch?v=zrDkJ3AazSo-> Bill Nye Video  <http://www.youtube.com/watch?v=bVk0twJYL6Y> -18 Things You Should Know about Genes Video  <http://www.sumanasinc.com/webcontent/animations/content/mendel/mendel.swf> - Genetics Review Activity  <http://www.biologycorner.com/lesson-plans/genetics/> - Genetics lesson plans and practice problems | |