



It Must Be Genetic

<p align="center">Unit Outcomes</p> <p>At the end of this unit, your student should be able to:</p>	<p align="center">Key Vocabulary</p> <p>Terms to deepen the student's understanding</p>
<ul style="list-style-type: none"> ✓ Describe why asexual reproduction produces offspring identical to the parent. ✓ Describe the possible genetic make-up of an offspring created from sexual reproduction. ✓ Differentiate the genetic make-up of an offspring when it is created sexually and asexually. ✓ Analyze Punnett squares to predict the probability of genetic traits. ✓ Create and solve Punnett squares to predict the probability of genetic traits. ✓ Create and analyze Pedigrees to trace genetic traits within a family. ✓ Determine how environment and lifestyle choices can impact biological inheritance and survival. ✓ Describe ways genetic diseases can be inherited. 	<ul style="list-style-type: none"> ✓ Fertilization ✓ Meiosis ✓ Budding ✓ Mitosis ✓ Sexual Reproduction ✓ Asexual Reproduction ✓ Gene ✓ Gamete ✓ Genetics ✓ Traits ✓ Dominant ✓ Recessive ✓ Phenotype ✓ Genotype ✓ Selective Breeding ✓ Allele ✓ Heredity ✓ Punnett Squares ✓ Pedigree ✓ Inheritance ✓ Biological Inheritance ✓ Environmental Factors ✓ Genetic Disease
<p align="center">Key Standards Addressed</p> <p>Connections to Common Core/NC Essential Standards</p>	<p align="center">Where This Unit Fits</p> <p>Connections to prior and future learning</p>
<p>7.L.2.1 – Explain why offspring that result from sexual reproduction (fertilization and meiosis) have greater variation than offspring that result from asexual reproduction (budding and mitosis).</p> <p>7.L.2.2 – Infer patterns of heredity using information from Punnett squares and pedigree analysis.</p> <p>7.L.2.3 – Explain the impact of the environment and lifestyle choices on biological inheritance (to include common genetic diseases) and survival.</p>	<p>Coming into this unit, students should have a strong foundation in:</p> <ul style="list-style-type: none"> ✓ Recognizing that there is variation among related individuals. ✓ Explaining why organisms differ from or are similar to their parents based on the characteristics of the organism. ✓ Giving examples of likenesses that are inherited and some that are not. ✓ Identifying ways in which plants and animals closely resemble their parents in observed appearance and ways they are different. <p>This unit builds to the following future skills and concepts:</p> <ul style="list-style-type: none"> ✓ Explain the role of meiosis in sexual reproduction and genetic variation. ✓ Predict offspring ratios based on a variety of inheritance patterns (including: dominance, co-dominance, incomplete dominance, multiple alleles, and sex-linked traits). ✓ Explain how mutations in DNA that result from interactions with the environment (i.e. radiation and chemicals) or new combinations in existing genes lead to changes in function and phenotype. ✓ Explain how the environment can influence the expression of genetic traits.



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Additional Resources	“Learning Checks”
<p>Materials to support understanding and enrichment</p> <ul style="list-style-type: none">✓ ck12.org (Cell Division, Reproduction and DNA)✓ ck12.org (Genetics)✓ ck12.org (Genetic Disorders)✓ Study Jams✓ Discovery Ed (Science Tech Book – Mendel and Heredity)✓ Edheads (Genetic Disorders - Sickle Cell)✓ Khan Academy (Heredity and Genetics)	<p>Questions Parents Can Use to Assess Understanding</p> <ul style="list-style-type: none">✓ How are characteristics of living things passed on to future generations?✓ Why is there more variation in offspring that result from sexual reproduction than asexual reproduction?✓ How are patterns of heredity predicted?✓ Why would someone use a Punnett square?✓ Why would someone use a pedigree?✓ How do the choices you make and your environment affect your survival and the survival of your species?