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|  | **Standards** | **Cross Cutting Concepts** | **Core Ideas** | **Science and Engineering Practices** | **Anchoring Phenomenon** |
| **1st TRIMESTER** | **Patterns in Living Systems**

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| **SB1.**a,c,d,e; **SB4.**a,b; **SB5.b**  |

**Structure & Function of Molecular Genetics**

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| **SB1.**a,b,c; **SB2.**a,b,c; **SB3.**c; **SB4.**c; **SB6.**a,c  |

**Patterns of Heredity & Selection**

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| **SB1.**b; **SB2.**b; **SB3.**a,b,c; **SB5.**a,e; **SB6.**b,d  |

**Stability & Change in Populations Over Time**

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| **SB1.**a; **SB4.**a,c; **SB5.**a,e; **SB6.**a,b,c,d,e  |

**Stability & Change in Ecosystems**

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| **SB1.**e; **SB2.**c; **SB5.**a,b,c,d,e; **SB6.**a,b  |

**Sickle Cell Capstone****All Biology GSE Standards** |

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|  Patterns  Matter and energy  Structure and function  |

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|  Structure and function  Systems and system models  Cause and effect  |

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|  Patterns  Scale, proportion, and quantity  Systems and system models  |

 Cause and effect  Stability and change  Patterns

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|  Scale, proportion, and quantity  Matter and energy  Stability and change  |

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|  Evolution  Endosymbiosis  Photosynthesis  Cellular respiration  Kingdoms and clades  Cell organelles (structure and function)  Cell membrane  Cellular transport  Macromolecules

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|  Cell structures and organelles  Cellular reproduction (binary fission, mitosis, meiosis)  Macromolecules  Cancer  Structure of DNA  DNA replication  Synthesizing proteins  Gene mutations  Enzymes  Viruses vs living organisms

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|  Sexual reproduction (binary fission, mitosis, meiosis)  Mendel’s laws  Karyotypes  Chromosomal mutations  Dihybrid crosses  Non-Mendelian genetics

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|  Evolution of viruses  Viruses vs living organisms  Antibiotic resistance  Genetic drift  Speciation  Pattern of biodiversity  Speciation  Fossil evidence  Cell structures and organelles Photosynthesis  Cellular respiration  Biotechnology  Biodiversity (population size, carrying capacity, limiting factors, keystone species)  Energy flow  Cycling of matter  Environmental stability and change  Ecosystems  Diversity and speciation  Evolution All |

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| ● Construct explanations ● Engage in argument from evidence ● Plan & carry out Investigations ● Develop & use models  |

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|  ● Develop and use models ● Engage in argument from evidence ● Construct explanations ● Ask questions  |

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| ● Use mathematics and computational thinking ● Ask questions ● Engage in argument from evidence ● Construct explanations ● Engage in argument from evidence ● Analyze and interpret data ● Develop and use models  |
| ● Plan and carry out investigations ● Analyze and interpret data ● Construct explanations ● Develop and use models ● Engage in argument from evidence  |

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| Protists are a challenging group to classify. *Teacher Background:* <https://goo.gl/acXhSK> |

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| Sickle cell disease may be reversed by gene therapy. *Teacher Background:* <https://goo.gl/Q7FQvX> |

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|  Siblings do not look like each other or their parents.  |

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| Antibiotics use may lead to resistance in bacteria. *Teacher Background:* <https://goo.gl/sFi9h1>Human activities can cause major shifts in ecosystems. *Teacher Background:* <https://goo.gl/0s2RjV> |

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| Write a scientific paper explaining the causes of Sickle cell anemia and its prognosis.  |

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| **2nd TRIMESTER** |
|  **3rd TRIMESTER**  |

**Laurens County Schools Biology Curriculum Map**



(15 days)