



## GSE High School Biology Curriculum Map

These are bundles of core ideas from the Georgia Standards of Excellence related to an anchoring phenomenon.

This document is part of a framework that includes lessons and resources.

Instructional Segment	Stability & Change in Populations Over Time	Patterns in Living Systems	Structure & Function of Molecular Genetics	Patterns of Heredity & Selection	Stability & Change in Ecosystems	Sickle Cell Capstone
<b>Estimated Time</b>	6 weeks	8 weeks	8 weeks	6 weeks	7 weeks	1 week
<b>Crosscutting Concepts</b>	<ul style="list-style-type: none"> <li>• Cause and effect</li> <li>• Stability and change</li> <li>• Patterns</li> </ul>	<ul style="list-style-type: none"> <li>• Patterns</li> <li>• Matter and energy</li> <li>• Structure and function</li> </ul>	<ul style="list-style-type: none"> <li>• Structure and function</li> <li>• Systems and system models</li> <li>• Cause and effect</li> </ul>	<ul style="list-style-type: none"> <li>• Patterns</li> <li>• Scale, proportion, and quantity</li> <li>• Systems and system models</li> </ul>	<ul style="list-style-type: none"> <li>• Scale, proportion, and quantity</li> <li>• Matter and energy</li> <li>• Stability and change</li> </ul>	All
<b>Anchoring Phenomenon</b>	<b>Year-Long Phenomenon: Sickle cell is a heritable genetic mutation that evolved in response to interactions in ecosystems.</b> <a href="https://goo.gl/Q7FQvX">https://goo.gl/Q7FQvX</a>					
	Antibiotics use may lead to resistance in bacteria. <i>Teacher Background:</i> <a href="https://goo.gl/sFi9h1">https://goo.gl/sFi9h1</a>	Protists are a challenging group to classify. <i>Teacher Background:</i> <a href="https://goo.gl/acXhSK">https://goo.gl/acXhSK</a>	Sickle cell disease may be reversed by gene therapy. <i>Teacher Background:</i> <a href="https://goo.gl/Q7FOvX">https://goo.gl/Q7FOvX</a>	Siblings do not look like each other or their parents.	Human activities can cause major shifts in ecosystems. <i>Teacher Background:</i> <a href="https://goo.gl/0s2RjV">https://goo.gl/0s2RjV</a>	Write a scientific paper explaining the causes of Sickle cell anemia and its prognosis.
<b>Core Ideas</b>	<ul style="list-style-type: none"> <li>• Evolution of viruses</li> <li>• Viruses vs living organisms</li> <li>• Antibiotic resistance</li> <li>• Genetic drift</li> <li>• Speciation</li> <li>• Pattern of biodiversity</li> <li>• Speciation</li> <li>• Fossil evidence</li> <li>• Cell structures and organelles</li> </ul>	<ul style="list-style-type: none"> <li>• Evolution</li> <li>• Endosymbiosis</li> <li>• Photosynthesis</li> <li>• Cellular respiration</li> <li>• Kingdoms and clades</li> <li>• Cell organelles (structure and function)</li> <li>• Cell membrane</li> <li>• Cellular transport</li> <li>• Macromolecules</li> </ul>	<ul style="list-style-type: none"> <li>• Cell structures and organelles</li> <li>• Cellular reproduction (binary fission, mitosis, meiosis)</li> <li>• Macromolecules</li> <li>• Cancer</li> <li>• Structure of DNA</li> <li>• DNA replication</li> <li>• Synthesizing proteins</li> <li>• Gene mutations</li> <li>• Enzymes</li> <li>• Viruses vs living organisms</li> </ul>	<ul style="list-style-type: none"> <li>• Sexual reproduction (binary fission, mitosis, meiosis)</li> <li>• Mendel's laws</li> <li>• Karyotypes</li> <li>• Chromosomal mutations</li> <li>• Dihybrid crosses</li> <li>• Non-Mendelian genetics</li> </ul>	<ul style="list-style-type: none"> <li>• Photosynthesis</li> <li>• Cellular respiration</li> <li>• Biotechnology</li> <li>• Biodiversity (population size, carrying capacity, limiting factors, keystone species)</li> <li>• Energy flow</li> <li>• Cycling of matter</li> <li>• Environmental stability and change</li> <li>• Ecosystems</li> <li>• Diversity and speciation</li> <li>• Evolution</li> </ul>	All
<b>Science and Engineering Practices</b>	<b>Obtain, Evaluate, &amp; Communicate Information</b>					
	<ul style="list-style-type: none"> <li>• Construct explanations</li> <li>• Engage in argument from evidence</li> <li>• Analyze and interpret data</li> <li>• Develop and use models</li> </ul>	<ul style="list-style-type: none"> <li>• Construct explanations</li> <li>• Engage in argument from evidence</li> <li>• Plan &amp; carry out Investigations</li> <li>• Develop &amp; use models</li> </ul>	<ul style="list-style-type: none"> <li>• Develop and use models</li> <li>• Engage in argument from evidence</li> <li>• Construct explanations</li> <li>• Ask questions</li> </ul>	<ul style="list-style-type: none"> <li>• Use mathematics and computational thinking</li> <li>• Ask questions</li> <li>• Engage in argument from evidence</li> </ul>	<ul style="list-style-type: none"> <li>• Plan and carry out investigations</li> <li>• Analyze and interpret data</li> <li>• Construct explanations</li> <li>• Develop and use models</li> <li>• Engage in argument from evidence</li> </ul>	All
<b>GSE</b>	<b>SB1.a; SB4.a,c; SB5.a,e; SB6.a,b,c,d,e</b>	<b>SB1.a,c,d,e; SB4.a,b; SB5.b</b>	<b>SB1.a,b,c; SB2.a,b,c; SB3.c; SB4.c; SB6.a,c</b>	<b>SB1.b; SB2.b; SB3.a,b,c; SB5.a,e; SB6.b,d</b>	<b>SB1.e; SB2.c; SB5.a,b,c,d,e; SB6.a,b</b>	All