HENRY COUNTY SCHOOLS
Biology Curriculum Map

First Semester

	STANDARDS/ CONTENT	ESSENTIAL QUESTIONS	SKILLS	ASSESSMENTS	RESOURCES
2 Weeks	**Unit 1: Introduction of Biology** SCSh1 SCSh2 SCSh3 SCSh4 SCSh5 SCSh6 SCSh7 SCSh8	1. What are the characteristics of life? 2. What are the major themes in biology? 3. What are standard safety practices? 4. How does biology impact? 5. What are the key components to experimental design? 6. What are the correct procedures for using scientific apparatus?	• Measurement* • Experimental design • Microscope use • Data analysis • Formal lab write-up		*Text* Ch. 1 Biology in the 21st Century *EOCT Coach* Lessons 1-8

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2 Weeks	**Unit 2 Chemistry of Life** **SB1.b.c.d**	Unit 2 1. How are atoms, compounds, & molecules related? 2. How do the unique properties of H_2O affect life? 3. What are the properties, structures & functions of organic macromolecules? 4. How do enzymes function as catalysts? 5. How do environmental factors affect enzymes?	Unit 2 • Evaluate properties of H_2O in a lab setting with an emphasis on living systems. • Synthesizing & breaking down organic macromolecules. • Modeling macromolecule functions & relating them to biological systems. • Demonstrate enzyme activity in a lab setting. • Demonstrate analysis skills of enzymatic reactions		*Text* Ch. 2 Chemistry of Life *EOCT Coach* Lessons 9-13

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6 Weeks	**Unit 3: Cells** **SB.1.a, SB1.d, SB.3 a,**	Unit 3 1. How do cell structures & functions contribute to the maintenance of homeostasis? 2. How is energy cycled in living organisms (ie: cellular respiration & photosynthesis)	Unit 3 • Describe the functions of cell organelles • Describe the biochemical pathways of photosynthesis & cellular respiration. • Predict the movement of water for a cell placed in various solutions		*Text* Ch. 3 Cell Structure & Function Ch. 4: Cells & Energy *EOCT Coach* Lessons 14-18

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6 Weeks	**Unit 4: Genetics** **SB1.a, SB1.b, SB2.a-e** Order of Content DNA Structure Replication Protein Synthesis Mitosis Meiosis Genetics	Unit 4 1. What are the pros and cons of sexual and asexual reproduction 2. How is DNA organized in prokaryotic and eukaryotic cells? 3. What are the differences between DNA & RNA? 4. What is the role of DNA in heredity (DNA-RNA-to proteins)? 5. What is the relationship between changes in DNA & the potential appearance of new traits (types of mutation)? 6. What are factors that can cause changes on DNA?	Unit 4 • Analyze the advantages of sexual & asexual reproduction in various situations • DNA organization • Identify the role of DNA in cell reproduction • Compare & contrast RNA & DNA • Analyze the roles of DNA & RNA in protein synthesis • Identify types of mutations & give examples • Compare & contrast chromosome mutations & genetic mutation • Create & interpret Punnett/squares to determine genotypic & phenotypic ratios		*Text* Ch. 8 From DNA to Proteins Ch 5 (mitosis) Ch. 6.1, 6.2, 6.6 Meiosis Ch. 6.3, 6.4, 6.5, Mendel and Genetics Ch. 7 Extending Mendelian Genetics *EOCT Coach* Lessons 19-25

HENRY COUNTY SCHOOLS
Biology Curriculum Map
2008-2009
Second Semester

	STANDARDS/ CONTENT	ESSENTIAL QUESTIONS	SKILLS	ASSESSMENTS	RESOURCES
2 Weeks	**Unit 5: Biotechnology** **SB2. f**	1. How is DNA technology used in medicine, agriculture, and forensics?	• Modeling methods of DNA technology. • Use of karyotypes to identify genetic disorders		Ch. 9 Biotechnology
2 Weeks	**Unit 6: Evolution** **SB5.a-e**	How has the theory of evolution impacted current understanding of biodiversity? How are populations affected by environmental pressures? What is the role of natural selection in biological evolution? What types of evidence are used to support evolution? What role does evolution play in biological resistance?	Apply and examine the principles of natural selection in populations. Trace the development of the theory of evolution. Identify and differentiate between the different types of selection. Interpret diagrammatic representations of phylogeny. Evaluate the evidence used to support the theory of evolution (embryology, homology, fossil record, biochemical, and genetic evidence)		*Text* Ch. 10 Principles of Evolution Ch. 11 The Evolution of Populations Ch. 12 The History of Life *EOCT Coach* **Lessons 39-43**

1 Week	**Unit 8: Classification** **SB3.b.c**	**How have scientists arrived at the modern system of taxonomy?** **What are the characteristics of organisms in the six kingdom classification system?**	Use a dichotomous key to identify organisms. Apply the levels of taxonomy to determine relatedness or organisms. Differentiate between the six kingdoms.		*Text* Ch 17 The Tree of Life *EOCT Coach* Lesson 28-29

HENRY COUNTY SCHOOLS
Biology Curriculum Map
2008-2009
Second Semester

6 Weeks	**Unit 7: Ecology** SB4.a-f SB3.a	**Unit 7** **How are nutrients and energy cycled through an ecosystem?** **How are hierarchical levels of ecology interrelated?** **How do organisms show interdependence in an ecosystem?** **How do human activities impact the environment?** **How do environmental conditions shape successional changes in an ecosystem?** **What adaptations do organisms exhibit in response to stressful environmental conditions?** **What are the differences between the ecological landscapes (biomes)?**	**Unit 7** Evaluate the interdependence of an ecosystem. Model the hierarchical levels of ecology. Differentiate between types of symbiotic relationships. Compare the characteristics of major biomes. Relate adaptations to the survival of organisms. Analyze the transfer of energy and matter through an ecosystem. Sequence the changes that occur in an ecosystem during primary and secondary succession.		*Text* Ch.13 Principles of Ecology Ch. 14 Interactions in Ecosystems Ch. 15 The Biosphere Ch. 16 Human Impact on Ecosystems *EOCT Coach* Lessons 31-38

HENRY COUNTY SCHOOLS
Biology Curriculum Map
2008-2009
Second Semester

	STANDARDS/ CONTENT	ESSENTIAL QUESTIONS	SKILLS	ASSESSMENTS	RESOURCES
6 Weeks	**Unit 9: Organisms** **SB3.b-d**	**What are the various ways that organisms obtain energy?** **What are the mechanisms for energy conversion in organisms?** **How do viruses compare to living organisms?** **What are identifying characteristics of distinct groups of organisms?** **What evolutionary changes are observed in various groups of organisms?**	Identify how energy is obtained by an organism. Recognize the increasing complexity of organisms, progressing from a cell to an organism. Recognize evolutionary relationships between organisms. Compare and contrast viruses with living organisms.		Text Select content from Ch.18-27 EOCT Coach Lessons 28, 30