Cornwall-Lebanon School District Curriculum Overview

Honors Biology—Grade 9

length of time in weeks	Concepts & Competencies	Common Assessments	Academic Standards (PA Core if applicable)
Unit 1 — 2	**Characteristics of Life** Students will explain the characteristics of life. Students will describe relationships between structure and function at biological levels of organization. Students will be able to explain mechanisms that permit organisms to maintain biological balance between the internal and external environment.	➢ Homeostasis Lab ➢ Unit Quiz	Bio.A.1.1 Bio.A.1.2 Bio.A.4.2
Unit 2 — 3	**Biochemistry** Students will be able to describe how the unique properties of water support life on earth. Students will be able to describe and interpret relationships between structure and function at various levels of biochemical organization. Students will be able to explain how enzymes regulate biochemical reactions within a cell.	➢ Water Lab ➢ Biomolecules Lab ➢ Enzyme Lab ➢ Unit Test	Bio.A.2.1 Bio.A.2.2 Bio.A.2.3
Unit 3 — 4	**Cells and Bioenergetics** Students will be able to describe how membrane bound organelles facilitate the transport of materials within a cell. Students will be able to identify and describe the cell structures involved in processing energy. Students will be able to identify and describe how organisms obtain and transform energy for their life processes.	➢ Cell Lab ➢ Photosynthesis Lab ➢ Cellular Respiration Lab ➢ Unit Test	Bio.A.4.1.3 Bio.A.3.1 Bio.A.3.2
Unit 4 — 2	**Cell Membrane** Students will be able to identify and describe the cell structures involved in the transport of materials into and out of and throughout a cell	➢ Diffusion and Osmosis Lab ➢ Unit Test	Bio.A.4.1

Unit 5 — 2	**DNA and Protein Synthesis** Students will be able to explain how genetic information is inherited. Students will be able to explain the process of protein synthesis. Students will be able to explain how genetic information is expressed	➢ DNA Extraction Lab ➢ Unit Test	Bio.B.1.2 Bio.B.2.2 Bio.B.2.3
Unit 6 — 4	**Cell Cycle** Students will be able to describe the three stages of the cell cycle: interphase, nuclear division, and cytokinesis. Students will be able to explain how genetic information is inherited.	➢ Cell Cycle Project ➢ Unit Test	Bio.B.1.1 Bio.B.1.2
Unit 7 — 5	**Genetics** Students will be able to compare Mendelian and non-Mendelian patterns of inheritance. Students will be able to apply scientific thinking, processes, tools and technologies in the study of genetics.	➢ Human Traits Lab ➢ Punnett Square Quiz ➢ Electrophoresis Activity ➢ Unit Test on Punnett Squares ➢ Unit Test on Biotechnology	Bio.B.2.1 Bio.B.2.4
Unit 8 — 3	**Evolution** Students will be able to explain the mechanisms of evolution. Students will be able to analyze the sources of evidence for biological evolution. Students will be able to apply scientific thinking, processes, tools and technologies in the study of evolution.	➢ Natural Selection Lab ➢ Mechanisms of Genetics Lab ➢ Unit Test	Bio.B.3.1 Bio.B.3.2 Bio.B.3.3
Unit 9 — 4	**Ecology** Students will be able to describe ecological levels of organizations in the biosphere. Students will be able to describe interactions and relationships in an ecosystem.	➢ Ecology Simulation Activities ➢ Ecology Population Activities ➢ Food Web Activity ➢ Unit Test	Bio.B.4.1 Bio.B.4.2
Unit 10 — 2	**Human Body Unit** Students will be able to describe relationships between structure and function at biological levels of organization. Students will be able to explain mechanism that permit organisms to maintain biological balance between their internal and external environments.	➢ Frog Dissection ➢ Unit Test	Bio.A.1.1 Bio.A.1.2 Bio.A.4.2
Unit 11 — 5	**Bacteria and Viruses** Students will be able to explain the characteristics common to all organisms. Students will be able to explain mechanisms that permit organisms to maintain balance between their internal and external environments.	➢ Bacteria Culture Lab ➢ Virus Activity ➢ Unit Test	Bio.A.1.1 Bio.A.4.2