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**Quarter 1: Curriculum Map for Biology**

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| TN Standards | Embedded Standards | Learning Outcomes | Adopted Resources | Supplemental Resources |
| **Unit 1 –Designing and Conducting an Experiment -2 Weeks** | | | |  |
| CLE 3210.Inq.1Recognize that science is a progressive endeavor that reevaluates and extends what is already accepted.  CLE 3210.Inq.2Design and conduct scientific investigations to explore new phenomena, verify previous results, test how well a theory predicts, and compare opposing theories.  CLE 3210.Inq.3Use appropriate tools and technology to collect precise and accurate data.  CLE 3210.Inq.4Apply qualitative and quantitative measures to analyze data and draw conclusions that are free of bias.  CLE 3210.Inq.5Compare experimental evidence and conclusions with those drawn by others about the same testable question.  CLE 3210.Inq.6Communicate and defend scientific findings.  CLE 3210.T/E.2Differentiate among elements  of the engineering design cycle: design constraints, model building, testing, evaluating, modifying, and retesting.  CLE 3210.T/E.3 Explain the relationship between the properties of a material and the use of the material in the application of a technology. | CLE 3210.T/E.1Explore the impact of technology on social, political, and economic systems.  CLE 3210.T/E.2Differentiate among elements of the  engineering  design cycle: design constraints, model building, testing, evaluating, modifying, and retesting.  CLE 3210.T/E.3Explain the relationship between the properties of a material and the use of the material in the application of a technology.  CLE 3210. Math.1Understand the mathematical principles associated with the science of biology.  CLE 3210. Math.2  Utilize appropriate mathematical equations and processes to understand biological concepts. | SPI3210.T/E.1 Distinguish among tools and procedures best suited to conduct a specified scientific inquiry.  SPI 3210 Inq.1 Select a description or scenario that reevaluates and/or extends a scientific finding.  SPI 32310.T/E.2 Evaluate the overall benefit to cost ratio of a new technology.  SPI 3210 Inq.2 Analyze the components of a properly designed scientific investigation.  SPI 3210 Inq.3 Determine appropriate tools to gather precise and accurate data.  SPI 3210 Inq. 4 Evaluate the accuracy and precision of data.  SPI 3210.T/E.4 Use design principles to determine how a new technology will improve the quality of life for an intended audience.  SPI 3210 Inq. 5 Defend a conclusion based on scientific evidence.  SPI 3210 Inq. 6 Determine why a conclusion is free of bias.  SPI 3210 Inq. 7 Compare conclusions that offer different, but acceptable explanations for the same set of experimental data. | Prentice Hall Text:  Ch 1 (pp. 3-14, 23-33)  Labs and Activities  SE Inquiry Activity- Can your procedure be replicated? p. 2.  SE Chapter Labs- Using a Compound Microscope p.29.  SE Issues in Biology-  When Scientists have a Conflict of Interest p.23.  SE Analyzing Data-Bacterial Reproduction p27. | Access Excellence:  Beginning Statistical Inquires into the Scientific Method: Jelly-Side-Down-  [www.accessexcellence.org/AE/AEC/AEF/1996/brekke\_method.php](http://www.accessexcellence.org/AE/AEC/AEF/1996/brekke_method.php)  Biology Junction – good site to access  (<http://www.biologyjunction.com>  Activities and Labs  Inquiry based Labs  Can you catch more fish with Fluorescent Lures?  The Biology Corner.com  (This site has many places to access)  <http://www.biologycorner.com/bio1/>  WatchKnowLearn.org.-  (Free educational videos)  <http://watchknowlearn.org>  Nova: Percy Julian: Forgotten Scientific Processes – can be accessed from this website |
| TN Standards | Embedded Standards | Learning Outcomes | Adopted Resources | Supplemental Resources |
| **Unit 2 – Biochemistry and Cells-5 Weeks** | | | |  |
| CLE 3210.1.2Distinguish among the structure and function of the four major organic macromolecules found in living things.  CLE 3210.1.3Describe how enzymes regulate chemical reactions in the body.  CLE 3210.1.1Compare the structure and function of cellular organelles in both prokaryotic and eukaryotic cells.  CLE 3210.1.5  Compare different models to explain the movement of materials into and out of cells. | CLE 3210.Inq.3 Use appropriate tools and technology to collect precise and accurate data.  CLE 3210.Inq.4. Apply qualitative and quantitative measures to analyze data and draw conclusions  CLE 3210.Inq.6 Communicate and defend scientific findings.  CLE 3210.Math2 Utilize appropriate mathematical equations and processes to understand biological concepts.  CLE3210.Math1 Understand the mathematical principles associated with the science of biology | SPI 3210.1.3Distinguish among proteins, carbohydrates, lipids, and nucleic acids.  SPI 3210.1.4Identify positive tests for carbohydrates, lipids, and proteins.  SPI 3210.1.5Identify how enzymes control chemical reactions in the body.  SPI 3210.1.2 Distinguish between prokaryotic and eukaryotic cells  SPI 3210.1.1Identify the cellular organelles associated with major cell processes**.**  SPI 3210.1.7Predict the movement of water and other molecules across selectively permeable membranes.  SPI 3210.1.8Compare and contrast active and passive transport | Prentice Hall Text: Ch 2 (pp.34-59).  Labs and Activities  SE Inquiry Activity-  Do large and small molecules behave exactly alike? p. 34.  SE Quick Lab-  Are foods acidic or basic? p. 42.  SE Chapter Lab-  Investigating the Effect of Temperature on Enzyme Activity pp. 54-55.  SE Analyzing Data-  How does pH affect an enzyme? p. 51.  Lab Manual A  Chapter 2 Lab  Prentice Hall Text:  Ch 7 (pp.168-199)  SE Inquire Activity-  What is a cell? p.168.  SE Quick Lab-  How can you make a model of a cell? p.180.  SE Quick Lab-  How can you model permeability in cells? p187.  SE Analyzing Data-  Crossing the Cell Membrane p.188.  SE Chapter Lab- Investigating Cell Structures and Processes p. 194-195.  Lab Manual A  Chapter 7 Lab | Biology Junction – good site to access  (<http://www.biologyjunction.com>  Activities and Labs  Dinah Zike’s foldables-  Properties of Water Booklet Foldable  Macromolecule Foldable  Enzyme Foldable  Tonicity of Cells & Solutions Foldable  Access Excellence-EnzymeRxnRates/Toothpickase  <http://www.accessexcellence.org/AE/ATG/data/released/0166-PeggySkinner/index.php>  BioFlix Tour of an Animal Cell mpg  <http://wpscms.pearsoncmg.com/pls_125613953X_campbell_essentials_4/190/48877/12512710.cw/index.html>  BioFlix Membrane Transport mpg  <http://vimeopro.com/avalonfilms/bioflix/video/93666163>  Brain Pop- Cells  <https://www.brainpop.com/science/cellularlifeandgenetics/cells/>  Plant and Animal Cell Coloring  <http://www.biologycorner.com/bio1/> |