Unit 10: Cell Biology, Molecular Biology, DNA

Big Idea:

- Knowledge of cellular structure and growth, coupled with manipulation of DNA allows for recombinant DNA technology and application

Essential Questions:

1. What is basic cell structure of pro and eukaryotic organisms?
2. How can bacteria be safely cultured in the laboratory?
3. What are basic microbiological techniques?
4. What is the structure of DNA and how does it code for traits?
5. How are restriction enzymes used in biotechnology?

Vocabulary: Prokaryote, Eukaryote, antibiotics, gram-positive, gram-negative, growth media, Petri dish, serial dilution, stem cells, molecular biology, genetics double helix, transcription, translation, recombinant DNA, restriction, enzymes, electrophoresis

NGSS Priority Standards:

HS-LS1-1 Construct an explanation based on evidence for how the structure of DNA determines the structure of proteins which carry out the essential functions of life through systems of specialized cells.

HS-LS3-1 Ask questions to clarify relationships about the role of DNA and chromosomes in coding the instructions for characteristic traits passed from parents to offspring.

Common Core Math and ELA
Common Core State Standards Connections:
ELA/Literacy -

RST.11-12.1 Cite specific textual evidence to support analysis of science and technical texts, attending to important distinctions the author makes and to any gaps or inconsistencies in the account.

WHST.9-12.9 Draw evidence from informational texts to support analysis, reflection, and research.

Mathematics

MP.2 Reason abstractly an quantitatively