

CV Guarantee
(CP Biology/9-10)

Big Idea: Students can analyze and cite texts, data, and figures to form written conclusions.

Standard:

NGSS-SEP-4 Scientific investigations produce data that must be analyzed in order to derive meaning. Because data patterns and trends are not always obvious, scientists use a range of tools—including tabulation, graphical interpretation, visualization, and statistical analysis—to identify the significant features and patterns in the data. Scientists identify sources of error in the investigations and calculate the degree of certainty in the results. Modern technology makes the collection of large data sets much easier, providing secondary sources for analysis.

CCSS.ELA-LITERACY.RST.9-10.1 Cite specific textual evidence to support analysis of science and technical texts, attending to the precise details of explanations or descriptions.

CCSS.ELA-LITERACY.RST.9-10.2 Determine the central ideas or conclusions of a text; trace the text’s explanation or depiction of a complex process, phenomenon, or concept; provide an accurate summary of the text.

Timeline:

All Year

Key Vocabulary:

- Cite
- Synthesis
- Interpret
- Data
- Analyze

- Chart
- Graph
- Range

Vocabulary Activities:

Quizlet
NewsELA

Knowledge

- Explain the main point of an article, graph, or chart.
- Cite evidence from the article to support a point of view or the main point.

Reasoning

- Compare and contrast multiple texts points of view or purpose.
 - Distinguish between points that give concrete evidence and

Performance Skills

- Write a summary of multiple texts that cite evidence to support the main points.
- Explain or present the main points of multiple texts or charts.

Product Examples

- Written summary or essay
- Presentation
- Graphs and charts

<ul style="list-style-type: none"> ● Read a graph, chart or data set and explain the purpose and summarize the meaning. 	<p>points that need more support.</p> <ul style="list-style-type: none"> ● Determine the point of a graph, chart, or data set and whether or not the presentation is skewed. ● Compare and contrast chart, graphs, and data sets. 	<ul style="list-style-type: none"> ● Create a chart or graph that accurately supports a data set. ● Create a chart or graph that skews the presentation of the to make a specific point. 	
<p>Resources: www.NewsELA.com</p>			

CV Guarantee
(CP Biology/9-10)

<p>Big Idea: Students can read a written lab report and follow the instructions accurately.</p>	
<p>Standard:</p> <p>NGSS-SEP3- Planning and Carrying Out Investigations: Scientists and engineers plan and carry out investigations in the field or laboratory, working collaboratively as well as individually. Their investigations are systematic and require clarifying what counts as data and identifying variables or parameters.</p> <p>CCSS.ELA-LITERACY.RST.9-10.3 Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks, attending to special cases or exceptions defined in the text.</p>	<p>Timeline:</p> <p>All year</p>

Key Vocabulary: <ul style="list-style-type: none"> ● Investigation ● Procedure ● Experiment ● Control ● Independent Variable ● Dependent Variable ● Microscope 	<ul style="list-style-type: none"> ● Objective lens ● Stage ● Diaphragm ● Ocular lens ● Arm ● Base ● Nosepiece 	Vocabulary Activities: <ul style="list-style-type: none"> ● Diagram Labeling ● Microscope vocabulary and labeling quiz ● Quizlet 	
Knowledge	Reasoning	Performance Skills	Product Examples

<ul style="list-style-type: none"> ● Understand scientific language ● Understand instructions for procedure. ● Understand basic laboratory skills. ● Recognize when errors have been made based on prior knowledge and expected results. 	<ul style="list-style-type: none"> ● Determine key data to record. <ul style="list-style-type: none"> ● Analyze and interpret data, in order to come up with appropriate conclusions. ● Decide appropriate lab equipment to utilize. 	<ul style="list-style-type: none"> ● Read lab document individually. ● Ask clarification questions regarding procedure and outcomes. ● Perform lab skills accurately. ● Create an appropriate data table for the given lab. 	<ul style="list-style-type: none"> ● Recorded lab data ● Lab conclusions ● Formal Lab Report
Resources:			

CV Guarantee
(CP Biology/9-10)

Big Idea: Students can read, annotate and synthesize scientific articles.

Standard:

CCSS.ELA-LITERACY.RST.11-12.2
Determine the central ideas or conclusions of a text; summarize complex concepts, processes, or information presented in a text by paraphrasing them in simpler but still accurate terms.

CCSS.ELA-LITERACY.RST.11-12.5
Analyze how the text structures information or ideas into categories or hierarchies, demonstrating understanding of the information or ideas.

CCSS.ELA-LITERACY.RST.11-12.9
Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.

Timeline:

All year

Key Vocabulary:

- Synthesize
- Claim
- Author
- Conclusion
- Contrast

Vocabulary Activities:

- Quizlet
- NewsELA

Knowledge

- Recognize credible sources to be used for introduction.
- Understand background information in regards to the article/text

Reasoning

- Analyze text for key points to highlight.
- Make connections between multiple texts.
- Analyze and interpret texts, in order evaluate meaning and importance.

Performance Skills

- Annotate articles
 - Correctly cite author and article title in writing.
- Use scientific language in writing.
 - Summarize scientific texts to concisely express meaning.
- Compare and contrast multiple scientific texts.

Product Examples

- Summary
- Essay
- Short answer on Exam

Resources:

www.NewsELA.com

**CV Guarantee
(CP Biology/9-10)**

Big Idea: Conduct and compose a formal lab write up.			
Standard: Plan and conduct an investigation individually and collaboratively to produce data to serve as the basis for evidence, and in the design: decide on types, how much, and accuracy of data needed to produce reliable measurements and consider limitations on the precision of the data (e.g., number of trials, cost, risk, time), and refine the design accordingly. (HS-LS1-3) (HS-PS3-4) CCSS.ELA-LITERACY.RST.9-10.7 Translate quantitative or technical information expressed in words in a text into visual form (e.g., a table or chart) and translate information expressed visually or mathematically (e.g., in an equation) into words. CCSS.ELA-LITERACY.RST.9-10.3 Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks, attending to special cases or exceptions defined in the text.		Timeline: September-November	
Key Vocabulary: <ul style="list-style-type: none"> ● Introduction ● Objective ● Hypothesis ● Procedures ● Independent variable ● Dependent variable ● Control groups 	<ul style="list-style-type: none"> ● Results ● Data ● Figure ● Table ● Conclusion ● Discussion ● References 	Vocabulary Activities: <ul style="list-style-type: none"> ● Quizlet 	
Knowledge	Reasoning	Performance Skills	Product Examples
<ul style="list-style-type: none"> ● Understand formatting of a formal lab reporting guideline. ● Understand academic and content specific 	<ul style="list-style-type: none"> ● Determine necessary information for background that will assist reader. ● Analyze data to determine important 	<ul style="list-style-type: none"> ● Summarize background information to concisely demonstrate purpose of given lab. ● Create a well written hypothesis that is 	<ul style="list-style-type: none"> ● Produce a complete and accurate formal lab report based on formal lab report guidelines.

<p>vocabulary in creating a formal lab report.</p> <ul style="list-style-type: none"> ● Recognize credible sources to be used for introduction. 	<p>findings and comparisons to include in results.</p> <ul style="list-style-type: none"> ● Analyze and interpret results, in order to come up with appropriate conclusions. ● Decide appropriate lab equipment to utilize. ● 	<p>falsifiable in third person.</p> <ul style="list-style-type: none"> ● Write concise and descriptive procedures that complete and clear. ● Create a data table that clearly displays information in a visually pleasing and descriptive manner. ● Cite evidence from the experiment to support conclusions. 	<ul style="list-style-type: none"> ● Produce individual section of formal lab reports based on student data.
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Resources:

CV Guarantee (CP Biology/9-10)

<p>Big Idea: Cell Structure and Function</p>		
<p>Standard: 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.</p> <p>LS1.A: Structure and Function</p> <ul style="list-style-type: none"> ● <u>Systems of specialized cells within organisms help them perform the essential functions of life. (HS-LS1-1)</u> 	<p>Timeline:</p> <p>4 weeks</p>	
<p>Key Vocabulary:</p> <p>Key Vocabulary:</p> <ul style="list-style-type: none"> ● Atoms ● Molecules ● Cells ● Organism ● Eukaryote ● Prokaryote ● cell structure ● Organelles ● cvtoolasm 	<ul style="list-style-type: none"> ● cell wall Nucleus plant cell animal cell microscope, diaphragm, aperture Focus stage clips stage 	<p>Vocabulary Activities:</p> <ul style="list-style-type: none"> ● Quizlet

Knowledge	Reasoning	Performance Skills	Product Examples
<p>Understand the structure and function of cells</p> <p>Define the organelles of a cell and their role in the cell</p> <p>Recognize the differences between plant and animal cells</p>	<p>Compare and contrast Prokaryotes and Eukaryotes</p> <p>Compare and contrast the structure of an animal cell to a plant cell</p>	<p>Investigate a cell and determine how cell organelles operate similar to that of a city</p> <p>Observe cells through a microscope</p>	<p>● Design and produce their own cell with its organelles and their jobs in the cell</p> <p>Draw out a cell and it's major functioning organelles</p>
<p>Resources: https://www.cellsalive.com/</p>			

**CV Guarantee
(CP Biology/9-10)**

<p>Big Idea: Students can accurately predict the probability of a genetic trait appearing in offspring based on previous generations' genotypes.</p>			
<p>Standard: HS.LS4.3- Biological Evolution: Unity and Diversity Apply concepts of statistics and probability to support explanations that organisms with an advantageous heritable trait tend to increase in proportion to organisms lacking this trait.</p> <p>HS-LS1-4 Use a model to illustrate the role of cellular division (mitosis and meiosis) and differentiation in producing and maintaining complex organisms.</p>		<p>Timeline: 4 weeks</p>	
<p>Key Vocabulary:</p> <ul style="list-style-type: none"> ● Heterozygous ● Homozygous ● Dominant ● Recessive ● Offspring 	<ul style="list-style-type: none"> ● Punnett Square ● Gene ● DNA ● Chromosome ● Meiosis 	<p>Vocabulary Activities:</p> <ul style="list-style-type: none"> ● Quizlet 	
Knowledge	Reasoning	Performance Skills	Product Examples

<ul style="list-style-type: none"> • Understand how pedigrees are used to determine the mode of inheritance of genetic diseases. • Recognize that in order for cellular division to occur, exact copies of the DNA must be transferred to the resulting daughter cells. • Recognize that chromosomes in reproductive cells contain numerous genes that carry traits through the generations. 	<ul style="list-style-type: none"> • Analyze pedigrees to calculate the probability of inheriting a trait or disease. • Analyze genotype to determine phenotype. 	<ul style="list-style-type: none"> • Determine and compare the experimental probability and the theoretical probability of inheriting a trait. • Draw and analyze pedigree charts to illustrate passage of a trait through generations. • Demonstrate the processes of mitosis and meiosis. 	<ul style="list-style-type: none"> • Produce a punnett square and pedigree. • Model the inheritance of genetic diseases.
<p>Resources: http://www.indiana.edu/~oso/lessons/Genetics/Drosophila.html https://learn.genetics.utah.edu/</p>			

**CV Guarantee
(CP Biology/9-10)**

<p>Big Idea: DNA stores all the genetic information for an organism and is need to create proteins that form cell structures and complete function.</p>	
<p>Standard: 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.</p> <p>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.</p> <p>HS-LS1.A All cells contain genetic information in the form of DNA molecules. Genes are regions in the DNA that contain the instructions that code for the formation of proteins.</p>	<p>Timeline: 5 weeks</p>

<p>Key Vocabulary:</p> <ul style="list-style-type: none"> ● Deoxyribonucleic Acid ● Ribonucleic Acid ● Ribosome ● mRNA ● tRNA ● Amino Acid ● Protein 	<ul style="list-style-type: none"> ● DNA Helicase ● DNA Ligase ● DNA Polymerase ● Nucleic Acid ● Nucleotide ● Pentose Sugar ● Phosphate ● Nitrogenous Base 	<p>Vocabulary Activities:</p> <ul style="list-style-type: none"> ● Quizlet ● Poster ● Models
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Knowledge	Reasoning	Performance Skills	Product Examples
<ul style="list-style-type: none"> ● Describe the structure of DNA. ● Explain the process of transcription. ● Explain the process of translation. ● Understand that in DNA replication nucleotides must be placed in the 5' to 3' direction. ● Understand that the order of the nucleotides is what holds the information in a gene. 	<ul style="list-style-type: none"> ● Describe the difference between RNA and DNA. ● Create an analogy to relate the building of a protein to something basic in life. ● Explain why DNA spirals by examining a model. 	<ul style="list-style-type: none"> ● Draw or create a basic model of DNA. ● Present or explain the different parts of DNA. ● Illustrate the created of an amino acid when given a sequence of DNA. ● Write a paragraph that explain the importance of nucleotide order and explain what happens when the order is changed. 	<ul style="list-style-type: none"> ● Model ● Diagram ● Presentation ● Written Paragraph

<ul style="list-style-type: none"> ● Understand the different types of mutations. 			
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<p>Resources:</p> <p>https://www2.le.ac.uk/projects/vgec/schoolsandcolleges/topics/gene-expression-regulation/resources</p> <p>https://learn.genetics.utah.edu/</p>
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CV Guarantee
(CP Biology/9-10)

Big Idea: Plants and animals use differing processes to obtain energy from their surroundings. Plants use photosynthesis and animals perform cellular respiration.

Standard:

HS-LS1-5 Use a model to illustrate how photosynthesis transforms light energy into stored chemical energy.
 HS-LS1-6 Construct and revise an explanation based on evidence for how carbon, hydrogen, and oxygen from sugar molecules may combine with other elements to form amino acids and/or other large carbon-based molecules.
 HS-LS1-7 Use a model to illustrate that cellular respiration is a chemical process whereby the bonds of food molecules and oxygen molecules are broken and the bonds in new compounds are formed resulting in a net transfer of energy.

Timeline:

4 weeks

Key Vocabulary:

- ATP (Adenosine Triphosphate)
- Photon
- Chloroplast
- Chlorophyll
- Mitochondria
- Membrane

Vocabulary Activities:

- Quizlet
- Poster

Knowledge

- Matter and energy cycle through ecosystems.
- Plants absorb nutrients and sunlight to create carbohydrates.
- Animals consume plants to absorb needed nutrients which must be converted into a usable form.
- The process of photosynthesis converts light energy to stored chemical energy by converting carbon dioxide plus water into

Reasoning

- Examine a model of stored energy in biomass to describe the transfer of energy from one trophic level to another and that matter and energy are conserved as matter cycles and energy flows through ecosystems.
 - Differentiate between photosynthesis and cellular respiration.

Performance Skills

- Develop a model to illustrate the role of photosynthesis and cellular respiration in the cycling of carbon. ● Construct an explanation based on evidence for the cycling of matter and flow of energy in aerobic and anaerobic conditions.

Product Examples

- Poster
- Presentation
- Graphic Organizer
- Written paragraph

<p>sugars plus released oxygen.</p> <ul style="list-style-type: none"> Cellular respiration is a process in which the bonds of food molecules and oxygen molecules are broken down to create ATP. 			
<p>Resources:</p>			

**CV Guarantee
(Biology Science/9-12)**

<p>Big Idea: Matter and energy cycle through the environment by changing form to be continuously reused in an ecosystem.</p>			
<p>Standard:</p> <p>HSLs-2-3 Construct and revise an explanation based on evidence for the cycling of matter and flow of energy in aerobic and anaerobic conditions.</p> <p>HSLs-2-4 Use mathematical representations to support claims for the cycling of matter and flow of energy among organisms in an ecosystem.</p> <p>HSLs-2-4 Develop a model to illustrate the role of photosynthesis and cellular respiration in the cycling of carbon among the biosphere, atmosphere, hydrosphere, and geosphere.</p>		<p>Timeline:</p> <p>February-4 weeks</p>	
<p>Key Vocabulary:</p> <ul style="list-style-type: none"> Ecosystem Geochemical Cycles Ecology Ecosystem Organism Population Community Biome Biosphere Exponential growth Logistic growth 	<ul style="list-style-type: none"> Population density Carrying capacity Limiting factors Density-dependent Density-independent Abiotic Biotic Immigration Emigration Stable ecosystem 	<p>Vocabulary Activities:</p> <ul style="list-style-type: none"> Quizlet Poster 	
<p>Knowledge</p>	<p>Reasoning</p>	<p>Performance Skills</p>	<p>Product Examples</p>

<ul style="list-style-type: none"> • Explain the difference between logistic and exponential population growth. • Cite specific examples of each type of limiting factor. • Explain what a stable ecosystem is. 	<ul style="list-style-type: none"> • Interpret a cladogram in order to make statements about relationships between organisms. • Infer how a population's growth would be affected by a change in the availability (increase or 	<ul style="list-style-type: none"> • Calculate a population's density. • Interpret a graph that shows how a population's size has changed over time. • Create a poster to describe the specific stages in each geochemical cycle 	<ul style="list-style-type: none"> • Ecosystem cladogram • Geochemical Poster • Paragraph
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<ul style="list-style-type: none"> • Describe the three types of survivorship curves. • Classify limiting factors as density-dependent, density-independent, biotic, or abiotic. • Explain the difference between immigration and emigration. 	<p>decrease) of any limiting factor.</p>	<p>(water, carbon, and nitrogen cycles.)</p>	
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Resources:

CV Guarantee (CP Biology/ 9-10)

<p>Big Idea: Organisms maintain homeostasis by regulating internal functions within certain limits.</p>	
<p>Standard: HS-LS1-1 Systems of specialized cells within organisms help them perform the essential functions of life. HS-LS1-3 Plan and conduct an investigation to provide evidence that feedback mechanisms maintain homeostasis. HS-LS1-7 Use a model to illustrate that cellular respiration is a chemical process whereby the bonds of food molecules and oxygen molecules are broken and the bonds in new compounds are formed resulting in a net transfer of energy.</p>	<p>Timeline: 3 weeks</p>

Key Vocabulary: <ul style="list-style-type: none"> ● Homeostasis ● Metabolism ● Calorie ● ATP (Adenosine Triphosphate) 	<ul style="list-style-type: none"> ● Feedback ● Anaerobic ● Aerobic ● Enzyme ● Catalyst 	Vocabulary Activities: Quizlet	
Knowledge	Reasoning	Performance Skills	Product Examples
<ul style="list-style-type: none"> ● Understand that feedback mechanisms maintain a living system's internal conditions within certain limits. ● Recognize that factors in the environment, such as climate or temperature, affect the body's ability to utilize biological resources and maintain homeostasis. ● Describe the structure and function of the organs in the digestive system. 	<ul style="list-style-type: none"> ● Estimate how long the body can last without food, water, or oxygen. <ul style="list-style-type: none"> ● Analyze energy inputs and outputs in the body to assess overall health. ● Decide whether systems will implement positive or negative feedback to maintain homeostasis. 	<ul style="list-style-type: none"> ● List and describe the human body systems that create, process, and distribute food, water, and oxygen. ● Diagram how energy is stored in ATP. ● Draw and outline the path that food takes as it travels down the digestive tract. 	<ul style="list-style-type: none"> ● Presentation on each system and how it contributes to homeostasis. <ul style="list-style-type: none"> ● Model the interaction between enzymes and their corresponding substrates.
Resources:			

