

Main Criteria: Cogent Education's Interactive Cases
Secondary Criteria: Utah State Core Curriculum
Subject: Science
Grades: 9, 10, 11, 12



Title	Common Among States	Utah State Core Curriculum	Utah State Core Curriculum	Utah State Core Curriculum	Utah State Core Curriculum
Action Potential -	UT	<p>UT.1. - Biology: Intended Learning Outcome: Use Science Process and Thinking Skills.</p> <p>1.a. - Observe objects, events and patterns and record both qualitative and quantitative information.</p> <p>1.e. - Plan and conduct experiments in which students may: Identify a problem; Formulate research questions and hypotheses; Predict results of investigations based upon prior data; Identify variables and describe the relationships between them; Plan procedures to control independent variables; Collect data on the dependent variable(s); Select the appropriate format (e.g., graph, chart, diagram) and use it to summarize the data obtained; Analyze data, check it for accuracy and construct reasonable conclusions; Prepare written and oral reports of investigations.</p> <p>1.f. - Distinguish between factual statements and inferences.</p> <p>1.h. - Construct models, simulations and metaphors to describe and explain natural phenomena.</p> <p>1.i. - Use mathematics as a precise method for showing relationships.</p> <p>1.j. - Form alternative hypotheses to explain a problem.</p> <p>UT.2. - Biology: Intended Learning Outcome: Manifest Scientific Attitudes and Interests.</p> <p>2.a. - Voluntarily read and study books and other materials about science.</p> <p>2.b. - Raise questions about objects, events and processes that can be answered through scientific investigation.</p> <p>UT.3. - Biology: Intended Learning Outcome: Demonstrate Understanding of Science Concepts, Principles and Systems.</p> <p>3.a. - Know and explain science information specified for the subject being studied.</p> <p>3.c. - Apply principles and concepts of science to explain various phenomena.</p> <p>3.d. - Solve problems by applying science principles and procedures.</p> <p>UT.4. - Biology: Intended Learning Outcome: Communicate Effectively Using Science Language and Reasoning.</p> <p>4.a. - Provide relevant data to support their inferences and conclusions.</p> <p>4.d. - Use reference sources to obtain information and cite the sources.</p> <p>4.e. - Use mathematical language and reasoning to communicate information.</p> <p>UT.6. - Biology: Intended Learning Outcome: Demonstrate Understanding of the Nature of Science.</p> <p>6.c. - Science findings are based upon evidence.</p> <p>6.d. - Understand that science conclusions are tentative and therefore never final. Understandings based upon these conclusions are subject to revision in light of new evidence.</p> <p>6.e. - Understand that scientific conclusions are based on the assumption that natural laws operate today as they did in the past and that they will continue to do so in the future.</p> <p>6.h. - Understand that scientific inquiry is characterized by a common set of values that include logical thinking, precision, open-mindedness, objectivity, skepticism, replicability of results and honest and ethical reporting of findings. These values function as criteria in distinguishing between science and non-science.</p> <p>UT.II. - Biology: Students will understand that all organisms are composed of one or more cells that are made of molecules, come from preexisting cells, and perform life functions.</p> <p>II.1. - Describe the fundamental chemistry of living cells.</p> <p>II.1.d. - Explain the role of enzymes in cell chemistry.</p>	<p>UT.1. - Biology: Intended Learning Outcome: Use Science Process and Thinking Skills.</p> <p>1.a. - Observe objects, events and patterns and record both qualitative and quantitative information.</p> <p>1.e. - Plan and conduct experiments in which students may: Identify a problem; Formulate research questions and hypotheses; Predict results of investigations based upon prior data; Identify variables and describe the relationships between them; Plan procedures to control independent variables; Collect data on the dependent variable(s); Select the appropriate format (e.g., graph, chart, diagram) and use it to summarize the data obtained; Analyze data, check it for accuracy and construct reasonable conclusions; Prepare written and oral reports of investigations.</p> <p>1.f. - Distinguish between factual statements and inferences.</p> <p>1.h. - Construct models, simulations and metaphors to describe and explain natural phenomena.</p> <p>1.i. - Use mathematics as a precise method for showing relationships.</p> <p>1.j. - Form alternative hypotheses to explain a problem.</p> <p>UT.2. - Biology: Intended Learning Outcome: Manifest Scientific Attitudes and Interests.</p> <p>2.a. - Voluntarily read and study books and other materials about science.</p> <p>2.b. - Raise questions about objects, events and processes that can be answered through scientific investigation.</p> <p>UT.3. - Biology: Intended Learning Outcome: Demonstrate Understanding of Science Concepts, Principles and Systems.</p> <p>3.a. - Know and explain science information specified for the subject being studied.</p> <p>3.c. - Apply principles and concepts of science to explain various phenomena.</p> <p>3.d. - Solve problems by applying science principles and procedures.</p> <p>UT.4. - Biology: Intended Learning Outcome: Communicate Effectively Using Science Language and Reasoning.</p> <p>4.a. - Provide relevant data to support their inferences and conclusions.</p> <p>4.d. - Use reference sources to obtain information and cite the sources.</p> <p>4.e. - Use mathematical language and reasoning to communicate information.</p> <p>UT.6. - Biology: Intended Learning Outcome: Demonstrate Understanding of the Nature of Science.</p> <p>6.c. - Science findings are based upon evidence.</p> <p>6.d. - Understand that science conclusions are tentative and therefore never final. 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<p>UT.III. - Biology: Students will understand the relationship between structure and function of organs and organ systems.</p> <p>III.2. - Describe the relationship between structure and function of organ systems in plants and animals.</p> <p>III.2.a. - Relate the function of an organ to the function of an organ system.</p> <p>III.2.b. - Describe the structure and function of various organ systems (i.e., digestion, respiration, circulation, protection and support, nervous) and how these systems contribute to homeostasis of the organism.</p> <p>III.2.c. - Examine the relationships of organ systems within an organism (e.g., respiration to circulation, leaves to roots) and describe the relationship of structure to function in the relationship.</p> <p>III.2.e. - Compare the structure and function of organ systems in one organism to the structure and function in another organism (e.g., chicken to sheep digestive system; fern to peach reproductive system).</p> <p>UT.CC.RST.9-10. - Reading Standards for Literacy in Science and Technical Subjects - Key Ideas and Details</p> <p>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.</p> <p>RST.9-10.5. - Analyze the structure of the relationships among concepts in a text, including relationships among key terms (e.g., force, friction, reaction force, energy).</p> <p>RST.9-10.10. - By the end of grade 10, read and comprehend science/technical texts in the grades 9-10 text complexity band independently and proficiently.</p> <p>UT.CC.WHST.9-10. - Writing Standards for Literacy in Science and Technical Subjects</p> <p>WHST.9-10.1. - Write arguments focused on discipline-specific content.</p> <p>WHST.9-10.1(a) - Introduce precise claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that establishes clear relationships among the claim(s), counterclaims, reasons, and evidence.</p> <p>WHST.9-10.1(b) - Develop claim(s) and counterclaims fairly, supplying data and evidence for each while pointing out the strengths and limitations of both claim(s) and counterclaims in a discipline-appropriate form and in a manner that anticipates the audience's knowledge level and concerns.</p> <p>WHST.9-10.1(c) - Use words, phrases, and clauses to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims.</p> <p>WHST.9-10.1(e) - Provide a concluding statement or section that follows from or supports the argument presented.</p> <p>WHST.9-10.2. - Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.</p> <p>WHST.9-10.2(a) - Introduce a topic and organize ideas, concepts, and information to make important connections and distinctions; 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In science and technical subjects, students must be able to write precise enough descriptions of the step-by-step procedures they use in their investigations or technical work that others can replicate them and (possibly) reach the same results.</p> <p>WHST.9-10.4. - Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.</p>	<p>WHST.9-10.2(b) - Develop the topic with well-chosen, relevant, and sufficient facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic.</p> <p>WHST.9-10.2(c) - Use varied transitions and sentence structures to link the major sections of the text, create cohesion, and clarify the relationships among ideas and concepts.</p> <p>WHST.9-10.2(f) - Provide a concluding statement or section that follows from and supports the information or explanation presented (e.g., articulating implications or the significance of the topic).</p> <p>WHST.9-10.3. - (See note; not applicable as a separate requirement)</p> <p>WHST.9-10.3(a) - Note: Students' narrative skills continue to grow in these grades. 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In science and technical subjects, students must be able to write precise enough descriptions of the step-by-step procedures they use in their investigations or technical work that others can replicate them and (possibly) reach the same results.</p> <p>WHST.11-12.4. - Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.</p>	<p>WHST.11-12.2(a) - Introduce a topic and organize complex ideas, concepts, and information so that each new element builds on that which precedes it to create a unified whole; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.</p> <p>WHST.11-12.2(b) - Develop the topic thoroughly by selecting the most significant and relevant facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic.</p> <p>WHST.11-12.2(c) - Use varied transitions and sentence structures to link the major sections of the text, create cohesion, and clarify the relationships among complex ideas and concepts.</p> <p>WHST.11-12.2(d) - Use precise language, domain-specific vocabulary and techniques such as metaphor, simile, and analogy to manage the complexity of the topic; convey a knowledgeable stance in a style that responds to the discipline and context as well as to the expertise of likely readers.</p> <p>WHST.11-12.2(e) - Provide a concluding statement or section that follows from and supports the information or explanation provided (e.g., articulating implications or the significance of the topic).</p> <p>WHST.11-12.3. - (See note; not applicable as a separate requirement)</p> <p>WHST.11-12.3(a) - Note: Students' narrative skills continue to grow in these grades. The Standards require that students be able to incorporate narrative elements effectively into arguments and informative/explanatory texts. In science and technical subjects, students must be able to write precise enough descriptions of the step-by-step procedures they use in their investigations or technical work that others can replicate them and (possibly) reach the same results.</p> <p>WHST.11-12.4. - Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.</p>
Cellular Respiration -	UT	<p>UT.1. - Biology: Intended Learning Outcome: Use Science Process and Thinking Skills.</p> <p>1.a. - Observe objects, events and patterns and record both qualitative and quantitative information.</p> <p>1.e. - Plan and conduct experiments in which students may: Identify a problem; Formulate research questions and hypotheses; Predict results of investigations based upon prior data; Identify variables and describe the relationships between them; Plan procedures to control independent variables; Collect data on the dependent variable(s); Select the appropriate format (e.g., graph, chart, diagram) and use it to summarize the data obtained; Analyze data, check it for accuracy and construct reasonable conclusions; Prepare written and oral reports of investigations.</p> <p>1.f. - Distinguish between factual statements and inferences.</p> <p>1.h. - Construct models, simulations and metaphors to describe and explain natural phenomena.</p> <p>1.i. - Use mathematics as a precise method for showing relationships.</p> <p>1.j. - Form alternative hypotheses to explain a problem.</p> <p>UT.2. - Biology: Intended Learning Outcome: Manifest Scientific Attitudes and Interests.</p> <p>2.a. - Voluntarily read and study books and other materials about science.</p> <p>2.b. - Raise questions about objects, events and processes that can be answered through scientific investigation.</p>	<p>UT.1. - Biology: Intended Learning Outcome: Use Science Process and Thinking Skills.</p> <p>1.a. - Observe objects, events and patterns and record both qualitative and quantitative information.</p> <p>1.e. - Plan and conduct experiments in which students may: Identify a problem; Formulate research questions and hypotheses; Predict results of investigations based upon prior data; Identify variables and describe the relationships between them; Plan procedures to control independent variables; Collect data on the dependent variable(s); Select the appropriate format (e.g., graph, chart, diagram) and use it to summarize the data obtained; Analyze data, check it for accuracy and construct reasonable conclusions; Prepare written and oral reports of investigations.</p> <p>1.f. - Distinguish between factual statements and inferences.</p> <p>1.h. - Construct models, simulations and metaphors to describe and explain natural phenomena.</p> <p>1.i. - Use mathematics as a precise method for showing relationships.</p> <p>1.j. - Form alternative hypotheses to explain a problem.</p> <p>UT.2. - Biology: Intended Learning Outcome: Manifest Scientific Attitudes and Interests.</p> <p>2.a. - Voluntarily read and study books and other materials about science.</p> <p>2.b. - Raise questions about objects, events and processes that can be answered through scientific investigation.</p>	<p>UT.1. - Biology: Intended Learning Outcome: Use Science Process and Thinking Skills.</p> <p>1.a. - Observe objects, events and patterns and record both qualitative and quantitative information.</p> <p>1.e. - Plan and conduct experiments in which students may: Identify a problem; 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UT.3. - Biology: Intended Learning Outcome: Demonstrate Understanding of Science Concepts, Principles and Systems.
3.a. - Know and explain science information specified for the subject being studied.
3.c. - Apply principles and concepts of science to explain various phenomena.
3.d. - Solve problems by applying science principles and procedures.
UT.4. - Biology: Intended Learning Outcome: Communicate Effectively Using Science Language and Reasoning.
4.a. - Provide relevant data to support their inferences and conclusions.
4.d. - Use reference sources to obtain information and cite the sources.
4.e. - Use mathematical language and reasoning to communicate information.
UT.6. - Biology: Intended Learning Outcome: Demonstrate Understanding of the Nature of Science.
6.c. - Science findings are based upon evidence.
6.d. - Understand that science conclusions are tentative and therefore never final. Understandings based upon these conclusions are subject to revision in light of new evidence.
6.e. - Understand that scientific conclusions are based on the assumption that natural laws operate today as they did in the past and that they will continue to do so in the future.
6.h. - Understand that scientific inquiry is characterized by a common set of values that include logical thinking, precision, open-mindedness, objectivity, skepticism, replicability of results and honest and ethical reporting of findings. These values function as criteria in distinguishing between science and non-science.
UT.II. - Biology: Students will understand that all organisms are composed of one or more cells that are made of molecules, come from preexisting cells, and perform life functions.
II.1. - Describe the fundamental chemistry of living cells.
II.1.b. - Identify the function of the four major macromolecules (i.e., carbohydrates, proteins, lipids, nucleic acids).
II.1.d. - Explain the role of enzymes in cell chemistry.
II.2. - Describe the flow of energy and matter in cellular function.
II.2.b. - Illustrate the cycling of matter and the flow of energy through photosynthesis (e.g., by using light energy to combine CO₂ and H₂O to produce oxygen and sugars) and respiration (e.g., by releasing energy from sugar and O₂ to produce CO₂ and H₂O).
II.2.c. - Measure the production of one or more of the products of either photosynthesis or respiration.
II.3. - Investigate the structure and function of cells and cell parts.
II.3.c. - Describe how the transport of materials in and out of cells enables cells to maintain homeostasis (i.e., osmosis, diffusion, active transport).
UT.III. - Biology: Students will understand the relationship between structure and function of organs and organ systems.
III.2. - Describe the relationship between structure and function of organ systems in plants and animals.
III.2.a. - Relate the function of an organ to the function of an organ system.
III.2.b. - Describe the structure and function of various organ systems (i.e., digestion, respiration, circulation, protection and support, nervous) and how these systems contribute to homeostasis of the organism.
III.2.c. - Examine the relationships of organ systems within an organism (e.g., respiration to circulation, leaves to roots) and describe the relationship of structure to function in the relationship.

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3.d. - Solve problems by applying science principles and procedures.
UT.4. - Biology: Intended Learning Outcome: Communicate Effectively Using Science Language and Reasoning.
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4.d. - Use reference sources to obtain information and cite the sources.
4.e. - Use mathematical language and reasoning to communicate information.
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<p>III.2.e. - Compare the structure and function of organ systems in one organism to the structure and function in another organism (e.g., chicken to sheep digestive system; fern to peach reproductive system).</p> <p>UT.CC.RST.9-10. - Reading Standards for Literacy in Science and Technical Subjects - Key Ideas and Details</p> <p>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.</p> <p>RST.9-10.5. - Analyze the structure of the relationships among concepts in a text, including relationships among key terms (e.g., force, friction, reaction force, energy).</p> <p>RST.9-10.10. - By the end of grade 10, read and comprehend science/technical texts in the grades 9-10 text complexity band independently and proficiently.</p> <p>UT.CC.WHST.9-10. - Writing Standards for Literacy in Science and Technical Subjects</p> <p>WHST.9-10.1. - Write arguments focused on discipline-specific content.</p> <p>WHST.9-10.1(a) - Introduce precise claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that establishes clear relationships among the claim(s), counterclaims, reasons, and evidence.</p> <p>WHST.9-10.1(b) - Develop claim(s) and counterclaims fairly, supplying data and evidence for each while pointing out the strengths and limitations of both claim(s) and counterclaims in a discipline-appropriate form and in a manner that anticipates the audience's knowledge level and concerns.</p> <p>WHST.9-10.1(c) - Use words, phrases, and clauses to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims.</p> <p>WHST.9-10.1(e) - Provide a concluding statement or section that follows from or supports the argument presented.</p> <p>WHST.9-10.2. - Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.</p> <p>WHST.9-10.2(a) - Introduce a topic and organize ideas, concepts, and information to make important connections and distinctions; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.</p> <p>WHST.9-10.2(b) - Develop the topic with well-chosen, relevant, and sufficient facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic.</p> <p>WHST.9-10.2(c) - Use varied transitions and sentence structures to link the major sections of the text, create cohesion, and clarify the relationships among ideas and concepts.</p> <p>WHST.9-10.2(f) - Provide a concluding statement or section that follows from and supports the information or explanation presented (e.g., articulating implications or the significance of the topic).</p>	<p>III.2.e. - Compare the structure and function of organ systems in one organism to the structure and function in another organism (e.g., chicken to sheep digestive system; fern to peach reproductive system).</p> <p>UT.CC.RST.9-10. - Reading Standards for Literacy in Science and Technical Subjects - Key Ideas and Details</p> <p>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.</p> <p>RST.9-10.5. - Analyze the structure of the relationships among concepts in a text, including relationships among key terms (e.g., force, friction, reaction force, energy).</p> <p>RST.9-10.10. - By the end of grade 10, read and comprehend science/technical texts in the grades 9-10 text complexity band independently and proficiently.</p> <p>UT.CC.WHST.9-10. - Writing Standards for Literacy in Science and Technical Subjects</p> <p>WHST.9-10.1. - Write arguments focused on discipline-specific content.</p> <p>WHST.9-10.1(a) - Introduce precise claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that establishes clear relationships among the claim(s), counterclaims, reasons, and evidence.</p> <p>WHST.9-10.1(b) - Develop claim(s) and counterclaims fairly, supplying data and evidence for each while pointing out the strengths and limitations of both claim(s) and counterclaims in a discipline-appropriate form and in a manner that anticipates the audience's knowledge level and concerns.</p> <p>WHST.9-10.1(c) - Use words, phrases, and clauses to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims.</p> <p>WHST.9-10.1(e) - Provide a concluding statement or section that follows from or supports the argument presented.</p> <p>WHST.9-10.2. - Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.</p> <p>WHST.9-10.2(a) - Introduce a topic and organize ideas, concepts, and information to make important connections and distinctions; 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Diffusion -	UT	<p>UT.1. - Biology: Intended Learning Outcome: Use Science Process and Thinking Skills.</p> <p>1.a. - Observe objects, events and patterns and record both qualitative and quantitative information.</p> <p>1.e. - Plan and conduct experiments in which students may: Identify a problem; Formulate research questions and hypotheses; Predict results of investigations based upon prior data; Identify variables and describe the relationships between them; Plan procedures to control independent variables; Collect data on the dependent variable(s); Select the appropriate format (e.g., graph, chart, diagram) and use it to summarize the data obtained; Analyze data, check it for accuracy and construct reasonable conclusions; Prepare written and oral reports of investigations.</p> <p>1.f. - Distinguish between factual statements and inferences.</p> <p>1.h. - Construct models, simulations and metaphors to describe and explain natural phenomena.</p> <p>1.i. - Use mathematics as a precise method for showing relationships.</p> <p>1.j. - Form alternative hypotheses to explain a problem.</p> <p>UT.2. - Biology: Intended Learning Outcome: Manifest Scientific Attitudes and Interests.</p> <p>2.b. - Raise questions about objects, events and processes that can be answered through scientific investigation.</p> <p>UT.3. - Biology: Intended Learning Outcome: Demonstrate Understanding of Science Concepts, Principles and Systems.</p> <p>3.a. - Know and explain science information specified for the subject being studied.</p> <p>3.c. - Apply principles and concepts of science to explain various phenomena.</p> <p>3.d. - Solve problems by applying science principles and procedures.</p> <p>UT.4. - Biology: Intended Learning Outcome: Communicate Effectively Using Science Language and Reasoning.</p> <p>4.a. - Provide relevant data to support their inferences and conclusions.</p> <p>4.d. - Use reference sources to obtain information and cite the sources.</p> <p>4.e. - Use mathematical language and reasoning to communicate information.</p>	<p>UT.1. - Biology: Intended Learning Outcome: Use Science Process and Thinking Skills.</p> <p>1.a. - Observe objects, events and patterns and record both qualitative and quantitative information.</p> <p>1.e. - Plan and conduct experiments in which students may: Identify a problem; 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<p>UT.6. - Biology: Intended Learning Outcome: Demonstrate Understanding of the Nature of Science.</p> <p>6.c. - Science findings are based upon evidence.</p> <p>6.d. - Understand that science conclusions are tentative and therefore never final. Understandings based upon these conclusions are subject to revision in light of new evidence.</p> <p>6.e. - Understand that scientific conclusions are based on the assumption that natural laws operate today as they did in the past and that they will continue to do so in the future.</p> <p>6.h. - Understand that scientific inquiry is characterized by a common set of values that include logical thinking, precision, open-mindedness, objectivity, skepticism, replicability of results and honest and ethical reporting of findings. These values function as criteria in distinguishing between science and non-science.</p> <p>UT.II. - Biology: Students will understand that all organisms are composed of one or more cells that are made of molecules, come from preexisting cells, and perform life functions.</p> <p>II.1. - Describe the fundamental chemistry of living cells.</p> <p>II.1.b. - Identify the function of the four major macromolecules (i.e., carbohydrates, proteins, lipids, nucleic acids).</p> <p>II.1.c. - Explain how the properties of water (e.g., cohesion, adhesion, heat capacity, solvent properties) contribute to maintenance of cells and living organisms.</p> <p>II.3. - Investigate the structure and function of cells and cell parts.</p> <p>II.3.a. - Explain how cells divide from existing cells.</p> <p>II.3.c. - Describe how the transport of materials in and out of cells enables cells to maintain homeostasis (i.e., osmosis, diffusion, active transport).</p> <p>UT.III. - Biology: Students will understand the relationship between structure and function of organs and organ systems.</p> <p>III.2. - Describe the relationship between structure and function of organ systems in plants and animals.</p> <p>III.2.a. - Relate the function of an organ to the function of an organ system.</p> <p>III.2.b. - Describe the structure and function of various organ systems (i.e., digestion, respiration, circulation, protection and support, nervous) and how these systems contribute to homeostasis of the organism.</p> <p>III.2.c. - Examine the relationships of organ systems within an organism (e.g., respiration to circulation, leaves to roots) and describe the relationship of structure to function in the relationship.</p> <p>UT.CC.RST.9-10. - Reading Standards for Literacy in Science and Technical Subjects - Key Ideas and Details</p> <p>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.</p> <p>UT.CC.WHST.9-10. - Writing Standards for Literacy in Science and Technical Subjects</p> <p>WHST.9-10.1. - Write arguments focused on discipline-specific content.</p> <p>WHST.9-10.1(a) - Introduce precise claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that establishes clear relationships among the claim(s), counterclaims, reasons, and evidence.</p> <p>WHST.9-10.1(b) - Develop claim(s) and counterclaims fairly, supplying data and evidence for each while pointing out the strengths and limitations of both claim(s) and counterclaims in a discipline-appropriate form and in a manner that anticipates the audience's knowledge level and concerns.</p>	<p>UT.6. - Biology: Intended Learning Outcome: Demonstrate Understanding of the Nature of Science.</p> <p>6.c. - Science findings are based upon evidence.</p> <p>6.d. - Understand that science conclusions are tentative and therefore never final. 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The Standards require that students be able to incorporate narrative elements effectively into arguments and informative/explanatory texts. In science and technical subjects, students must be able to write precise enough descriptions of the step-by-step procedures they use in their investigations or technical work that others can replicate them and (possibly) reach the same results.</p> <p>WHST.9-10.4. - Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.</p>	<p>WHST.9-10.1(c) - Use words, phrases, and clauses to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims.</p> <p>WHST.9-10.1(e) - Provide a concluding statement or section that follows from or supports the argument presented.</p> <p>WHST.9-10.2. - Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.</p> <p>WHST.9-10.2(a) - Introduce a topic and organize ideas, concepts, and information to make important connections and distinctions; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.</p> <p>WHST.9-10.2(b) - Develop the topic with well-chosen, relevant, and sufficient facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic.</p> <p>WHST.9-10.2(c) - Use varied transitions and sentence structures to link the major sections of the text, create cohesion, and clarify the relationships among ideas and concepts.</p> <p>WHST.9-10.2(f) - Provide a concluding statement or section that follows from and supports the information or explanation presented (e.g., articulating implications or the significance of the topic).</p> <p>WHST.9-10.3. - (See note; not applicable as a separate requirement)</p> <p>WHST.9-10.3(a) - Note: Students' narrative skills continue to grow in these grades. The Standards require that students be able to incorporate narrative elements effectively into arguments and informative/explanatory texts. In science and technical subjects, students must be able to write precise enough descriptions of the step-by-step procedures they use in their investigations or technical work that others can replicate them and (possibly) reach the same results.</p> <p>WHST.9-10.4. - Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.</p>	<p>WHST.11-12.1(b) - Develop claim(s) and counterclaims fairly and thoroughly, supplying the most relevant data and evidence for each while pointing out the strengths and limitations of both claim(s) and counterclaims in a discipline-appropriate form that anticipates the audience's knowledge level, concerns, values, and possible biases.</p> <p>WHST.11-12.1(c) - Use words, phrases, and clauses as well as varied syntax to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims.</p> <p>WHST.11-12.1(e) - Provide a concluding statement or section that follows from or supports the argument presented.</p> <p>WHST.11-12.2. - Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.</p> <p>WHST.11-12.2(a) - Introduce a topic and organize complex ideas, concepts, and information so that each new element builds on that which precedes it to create a unified whole; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.</p> <p>WHST.11-12.2(b) - Develop the topic thoroughly by selecting the most significant and relevant facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic.</p> <p>WHST.11-12.2(c) - Use varied transitions and sentence structures to link the major sections of the text, create cohesion, and clarify the relationships among complex ideas and concepts.</p> <p>WHST.11-12.2(d) - Use precise language, domain-specific vocabulary and techniques such as metaphor, simile, and analogy to manage the complexity of the topic; convey a knowledgeable stance in a style that responds to the discipline and context as well as to the expertise of likely readers.</p> <p>WHST.11-12.2(e) - Provide a concluding statement or section that follows from and supports the information or explanation provided (e.g., articulating implications or the significance of the topic).</p> <p>WHST.11-12.3. - (See note; not applicable as a separate requirement)</p> <p>WHST.11-12.3(a) - Note: Students' narrative skills continue to grow in these grades. The Standards require that students be able to incorporate narrative elements effectively into arguments and informative/explanatory texts. In science and technical subjects, students must be able to write precise enough descriptions of the step-by-step procedures they use in their investigations or technical work that others can replicate them and (possibly) reach the same results.</p> <p>WHST.11-12.4. - Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.</p>	<p>WHST.11-12.1(b) - Develop claim(s) and counterclaims fairly and thoroughly, supplying the most relevant data and evidence for each while pointing out the strengths and limitations of both claim(s) and counterclaims in a discipline-appropriate form that anticipates the audience's knowledge level, concerns, values, and possible biases.</p> <p>WHST.11-12.1(c) - Use words, phrases, and clauses as well as varied syntax to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims.</p> <p>WHST.11-12.1(e) - Provide a concluding statement or section that follows from or supports the argument presented.</p> <p>WHST.11-12.2. - Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.</p> <p>WHST.11-12.2(a) - Introduce a topic and organize complex ideas, concepts, and information so that each new element builds on that which precedes it to create a unified whole; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.</p> <p>WHST.11-12.2(b) - Develop the topic thoroughly by selecting the most significant and relevant facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic.</p> <p>WHST.11-12.2(c) - Use varied transitions and sentence structures to link the major sections of the text, create cohesion, and clarify the relationships among complex ideas and concepts.</p> <p>WHST.11-12.2(d) - Use precise language, domain-specific vocabulary and techniques such as metaphor, simile, and analogy to manage the complexity of the topic; convey a knowledgeable stance in a style that responds to the discipline and context as well as to the expertise of likely readers.</p> <p>WHST.11-12.2(e) - Provide a concluding statement or section that follows from and supports the information or explanation provided (e.g., articulating implications or the significance of the topic).</p> <p>WHST.11-12.3. - (See note; not applicable as a separate requirement)</p> <p>WHST.11-12.3(a) - Note: Students' narrative skills continue to grow in these grades. 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Filtration -	UT	<p>UT.1. - Biology: Intended Learning Outcome: Use Science Process and Thinking Skills.</p> <p>1.a. - Observe objects, events and patterns and record both qualitative and quantitative information.</p>	<p>UT.1. - Biology: Intended Learning Outcome: Use Science Process and Thinking Skills.</p> <p>1.a. - Observe objects, events and patterns and record both qualitative and quantitative information.</p>	<p>UT.1. - Biology: Intended Learning Outcome: Use Science Process and Thinking Skills.</p> <p>1.a. - Observe objects, events and patterns and record both qualitative and quantitative information.</p>	<p>UT.1. - Biology: Intended Learning Outcome: Use Science Process and Thinking Skills.</p> <p>1.a. - Observe objects, events and patterns and record both qualitative and quantitative information.</p>

<p>1.e. - Plan and conduct experiments in which students may: Identify a problem; Formulate research questions and hypotheses; Predict results of investigations based upon prior data; Identify variables and describe the relationships between them; Plan procedures to control independent variables; Collect data on the dependent variable(s); Select the appropriate format (e.g., graph, chart, diagram) and use it to summarize the data obtained; Analyze data, check it for accuracy and construct reasonable conclusions; Prepare written and oral reports of investigations.</p> <p>1.f. - Distinguish between factual statements and inferences.</p> <p>1.h. - Construct models, simulations and metaphors to describe and explain natural phenomena.</p> <p>1.i. - Use mathematics as a precise method for showing relationships.</p> <p>1.j. - Form alternative hypotheses to explain a problem.</p> <p>UT.2. - Biology: Intended Learning Outcome: Manifest Scientific Attitudes and Interests.</p> <p>2.a. - Voluntarily read and study books and other materials about science.</p> <p>2.b. - Raise questions about objects, events and processes that can be answered through scientific investigation.</p> <p>UT.3. - Biology: Intended Learning Outcome: Demonstrate Understanding of Science Concepts, Principles and Systems.</p> <p>3.a. - Know and explain science information specified for the subject being studied.</p> <p>3.c. - Apply principles and concepts of science to explain various phenomena.</p> <p>3.d. - Solve problems by applying science principles and procedures.</p> <p>UT.4. - Biology: Intended Learning Outcome: Communicate Effectively Using Science Language and Reasoning.</p> <p>4.a. - Provide relevant data to support their inferences and conclusions.</p> <p>4.d. - Use reference sources to obtain information and cite the sources.</p> <p>4.e. - Use mathematical language and reasoning to communicate information.</p> <p>UT.6. - Biology: Intended Learning Outcome: Demonstrate Understanding of the Nature of Science.</p> <p>6.c. - Science findings are based upon evidence.</p> <p>6.d. - Understand that science conclusions are tentative and therefore never final. Understandings based upon these conclusions are subject to revision in light of new evidence.</p> <p>6.e. - Understand that scientific conclusions are based on the assumption that natural laws operate today as they did in the past and that they will continue to do so in the future.</p> <p>6.h. - Understand that scientific inquiry is characterized by a common set of values that include logical thinking, precision, open-mindedness, objectivity, skepticism, replicability of results and honest and ethical reporting of findings. These values function as criteria in distinguishing between science and non-science.</p> <p>UT.II. - Biology: Students will understand that all organisms are composed of one or more cells that are made of molecules, come from preexisting cells, and perform life functions.</p> <p>II.3. - Investigate the structure and function of cells and cell parts.</p> <p>II.3.c. - Describe how the transport of materials in and out of cells enables cells to maintain homeostasis (i.e., osmosis, diffusion, active transport).</p> <p>UT.III. - Biology: Students will understand the relationship between structure and function of organs and organ systems.</p> <p>III.2. - Describe the relationship between structure and function of organ systems in plants and animals.</p> <p>III.2.a. - Relate the function of an organ to the function of an organ system.</p>	<p>1.e. - Plan and conduct experiments in which students may: Identify a problem; Formulate research questions and hypotheses; Predict results of investigations based upon prior data; Identify variables and describe the relationships between them; Plan procedures to control independent variables; Collect data on the dependent variable(s); Select the appropriate format (e.g., graph, chart, diagram) and use it to summarize the data obtained; Analyze data, check it for accuracy and construct reasonable conclusions; Prepare written and oral reports of investigations.</p> <p>1.f. - Distinguish between factual statements and inferences.</p> <p>1.h. - Construct models, simulations and metaphors to describe and explain natural phenomena.</p> <p>1.i. - Use mathematics as a precise method for showing relationships.</p> <p>1.j. - Form alternative hypotheses to explain a problem.</p> <p>UT.2. - Biology: Intended Learning Outcome: Manifest Scientific Attitudes and Interests.</p> <p>2.a. - Voluntarily read and study books and other materials about science.</p> <p>2.b. - Raise questions about objects, events and processes that can be answered through scientific investigation.</p> <p>UT.3. - Biology: Intended Learning Outcome: Demonstrate Understanding of Science Concepts, Principles and Systems.</p> <p>3.a. - Know and explain science information specified for the subject being studied.</p> <p>3.c. - Apply principles and concepts of science to explain various phenomena.</p> <p>3.d. - Solve problems by applying science principles and procedures.</p> <p>UT.4. - Biology: Intended Learning Outcome: Communicate Effectively Using Science Language and Reasoning.</p> <p>4.a. - Provide relevant data to support their inferences and conclusions.</p> <p>4.d. - Use reference sources to obtain information and cite the sources.</p> <p>4.e. - Use mathematical language and reasoning to communicate information.</p> <p>UT.6. - Biology: Intended Learning Outcome: Demonstrate Understanding of the Nature of Science.</p> <p>6.c. - Science findings are based upon evidence.</p> <p>6.d. - Understand that science conclusions are tentative and therefore never final. 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<p>III.2.b. - Describe the structure and function of various organ systems (i.e., digestion, respiration, circulation, protection and support, nervous) and how these systems contribute to homeostasis of the organism.</p> <p>III.2.c. - Examine the relationships of organ systems within an organism (e.g., respiration to circulation, leaves to roots) and describe the relationship of structure to function in the relationship.</p> <p>UT.CC.RST.9-10. - Reading Standards for Literacy in Science and Technical Subjects - Key Ideas and Details</p> <p>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.</p> <p>RST.9-10.5. - Analyze the structure of the relationships among concepts in a text, including relationships among key terms (e.g., force, friction, reaction force, energy).</p> <p>RST.9-10.10. - By the end of grade 10, read and comprehend science/technical texts in the grades 9-10 text complexity band independently and proficiently.</p> <p>UT.CC.WHST.9-10. - Writing Standards for Literacy in Science and Technical Subjects</p> <p>WHST.9-10.1. - Write arguments focused on discipline-specific content.</p> <p>WHST.9-10.1(a) - Introduce precise claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that establishes clear relationships among the claim(s), counterclaims, reasons, and evidence.</p> <p>WHST.9-10.1(b) - Develop claim(s) and counterclaims fairly, supplying data and evidence for each while pointing out the strengths and limitations of both claim(s) and counterclaims in a discipline-appropriate form and in a manner that anticipates the audience's knowledge level and concerns.</p> <p>WHST.9-10.1(c) - Use words, phrases, and clauses to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims.</p> <p>WHST.9-10.1(e) - Provide a concluding statement or section that follows from or supports the argument presented.</p> <p>WHST.9-10.2. - Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.</p> <p>WHST.9-10.2(a) - Introduce a topic and organize ideas, concepts, and information to make important connections and distinctions; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.</p> <p>WHST.9-10.2(b) - Develop the topic with well-chosen, relevant, and sufficient facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic.</p> <p>WHST.9-10.2(c) - Use varied transitions and sentence structures to link the major sections of the text, create cohesion, and clarify the relationships among ideas and concepts.</p>	<p>III.2.b. - Describe the structure and function of various organ systems (i.e., digestion, respiration, circulation, protection and support, nervous) and how these systems contribute to homeostasis of the organism.</p> <p>III.2.c. - Examine the relationships of organ systems within an organism (e.g., respiration to circulation, leaves to roots) and describe the relationship of structure to function in the relationship.</p> <p>UT.CC.RST.9-10. - Reading Standards for Literacy in Science and Technical Subjects - Key Ideas and Details</p> <p>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.</p> <p>RST.9-10.5. - Analyze the structure of the relationships among concepts in a text, including relationships among key terms (e.g., force, friction, reaction force, energy).</p> <p>RST.9-10.10. - By the end of grade 10, read and comprehend science/technical texts in the grades 9-10 text complexity band independently and proficiently.</p> <p>UT.CC.WHST.9-10. - Writing Standards for Literacy in Science and Technical Subjects</p> <p>WHST.9-10.1. - Write arguments focused on discipline-specific content.</p> <p>WHST.9-10.1(a) - Introduce precise claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that establishes clear relationships among the claim(s), counterclaims, reasons, and evidence.</p> <p>WHST.9-10.1(b) - Develop claim(s) and counterclaims fairly, supplying data and evidence for each while pointing out the strengths and limitations of both claim(s) and counterclaims in a discipline-appropriate form and in a manner that anticipates the audience's knowledge level and concerns.</p> <p>WHST.9-10.1(c) - Use words, phrases, and clauses to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims.</p> <p>WHST.9-10.1(e) - Provide a concluding statement or section that follows from or supports the argument presented.</p> <p>WHST.9-10.2. - Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.</p> <p>WHST.9-10.2(a) - Introduce a topic and organize ideas, concepts, and information to make important connections and distinctions; 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Membrane Potential -	UT	<p>UT.1. - Biology: Intended Learning Outcome: Use Science Process and Thinking Skills.</p> <p>1.a. - Observe objects, events and patterns and record both qualitative and quantitative information.</p> <p>1.e. - Plan and conduct experiments in which students may: Identify a problem; Formulate research questions and hypotheses; Predict results of investigations based upon prior data; Identify variables and describe the relationships between them; Plan procedures to control independent variables; Collect data on the dependent variable(s); Select the appropriate format (e.g., graph, chart, diagram) and use it to summarize the data obtained; Analyze data, check it for accuracy and construct reasonable conclusions; Prepare written and oral reports of investigations.</p> <p>1.f. - Distinguish between factual statements and inferences.</p> <p>1.h. - Construct models, simulations and metaphors to describe and explain natural phenomena.</p> <p>1.i. - Use mathematics as a precise method for showing relationships.</p> <p>1.j. - Form alternative hypotheses to explain a problem.</p> <p>UT.2. - Biology: Intended Learning Outcome: Manifest Scientific Attitudes and Interests.</p> <p>2.a. - Voluntarily read and study books and other materials about science.</p> <p>2.b. - Raise questions about objects, events and processes that can be answered through scientific investigation.</p> <p>UT.3. - Biology: Intended Learning Outcome: Demonstrate Understanding of Science Concepts, Principles and Systems.</p> <p>3.a. - Know and explain science information specified for the subject being studied.</p> <p>3.c. - Apply principles and concepts of science to explain various phenomena.</p> <p>3.d. - Solve problems by applying science principles and procedures.</p> <p>UT.4. - Biology: Intended Learning Outcome: Communicate Effectively Using Science Language and Reasoning.</p>	<p>UT.1. - Biology: Intended Learning Outcome: Use Science Process and Thinking Skills.</p> <p>1.a. - Observe objects, events and patterns and record both qualitative and quantitative information.</p> <p>1.e. - Plan and conduct experiments in which students may: Identify a problem; 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<p>4.a. - Provide relevant data to support their inferences and conclusions.</p> <p>4.d. - Use reference sources to obtain information and cite the sources.</p> <p>4.e. - Use mathematical language and reasoning to communicate information.</p> <p>UT.6. - Biology: Intended Learning Outcome: Demonstrate Understanding of the Nature of Science.</p> <p>6.c. - Science findings are based upon evidence.</p> <p>6.d. - Understand that science conclusions are tentative and therefore never final. Understandings based upon these conclusions are subject to revision in light of new evidence.</p> <p>6.e. - Understand that scientific conclusions are based on the assumption that natural laws operate today as they did in the past and that they will continue to do so in the future.</p> <p>6.h. - Understand that scientific inquiry is characterized by a common set of values that include logical thinking, precision, open-mindedness, objectivity, skepticism, replicability of results and honest and ethical reporting of findings. These values function as criteria in distinguishing between science and non-science.</p> <p>UT.II. - Biology: Students will understand that all organisms are composed of one or more cells that are made of molecules, come from preexisting cells, and perform life functions.</p> <p>II.1. - Describe the fundamental chemistry of living cells.</p> <p>II.1.d. - Explain the role of enzymes in cell chemistry.</p> <p>UT.III. - Biology: Students will understand the relationship between structure and function of organs and organ systems.</p> <p>III.2. - Describe the relationship between structure and function of organ systems in plants and animals.</p> <p>III.2.a. - Relate the function of an organ to the function of an organ system.</p> <p>III.2.b. - Describe the structure and function of various organ systems (i.e., digestion, respiration, circulation, protection and support, nervous) and how these systems contribute to homeostasis of the organism.</p> <p>III.2.c. - Examine the relationships of organ systems within an organism (e.g., respiration to circulation, leaves to roots) and describe the relationship of structure to function in the relationship.</p> <p>III.2.e. - Compare the structure and function of organ systems in one organism to the structure and function in another organism (e.g., chicken to sheep digestive system; fern to peach reproductive system).</p> <p>UT.CC.RST.9-10. - Reading Standards for Literacy in Science and Technical Subjects - Key Ideas and Details</p> <p>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.</p> <p>RST.9-10.5. - Analyze the structure of the relationships among concepts in a text, including relationships among key terms (e.g., force, friction, reaction force, energy).</p> <p>RST.9-10.10. - By the end of grade 10, read and comprehend science/technical texts in the grades 9-10 text complexity band independently and proficiently.</p> <p>UT.CC.WHST.9-10. - Writing Standards for Literacy in Science and Technical Subjects</p> <p>WHST.9-10.1. - Write arguments focused on discipline-specific content.</p> <p>WHST.9-10.1(a) - Introduce precise claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that establishes clear relationships among the claim(s), counterclaims, reasons, and evidence.</p>	<p>4.a. - Provide relevant data to support their inferences and conclusions.</p> <p>4.d. - Use reference sources to obtain information and cite the sources.</p> <p>4.e. - Use mathematical language and reasoning to communicate information.</p> <p>UT.6. - Biology: Intended Learning Outcome: Demonstrate Understanding of the Nature of Science.</p> <p>6.c. - Science findings are based upon evidence.</p> <p>6.d. - Understand that science conclusions are tentative and therefore never final. 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In science and technical subjects, students must be able to write precise enough descriptions of the step-by-step procedures they use in their investigations or technical work that others can replicate them and (possibly) reach the same results.</p> <p>WHST.9-10.4 - Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.</p>	<p>WHST.9-10.1(b) - Develop claim(s) and counterclaims fairly, supplying data and evidence for each while pointing out the strengths and limitations of both claim(s) and counterclaims in a discipline-appropriate form and in a manner that anticipates the audience's knowledge level and concerns.</p> <p>WHST.9-10.1(c) - Use words, phrases, and clauses to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims.</p> <p>WHST.9-10.1(e) - Provide a concluding statement or section that follows from or supports the argument presented.</p> <p>WHST.9-10.2 - Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.</p> <p>WHST.9-10.2(a) - Introduce a topic and organize ideas, concepts, and information to make important connections and distinctions; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.</p> <p>WHST.9-10.2(b) - Develop the topic with well-chosen, relevant, and sufficient facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic.</p> <p>WHST.9-10.2(c) - Use varied transitions and sentence structures to link the major sections of the text, create cohesion, and clarify the relationships among ideas and concepts.</p> <p>WHST.9-10.2(f) - Provide a concluding statement or section that follows from and supports the information or explanation presented (e.g., articulating implications or the significance of the topic).</p> <p>WHST.9-10.3 - (See note; not applicable as a separate requirement)</p> <p>WHST.9-10.3(a) - Note: Students' narrative skills continue to grow in these grades. 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In science and technical subjects, students must be able to write precise enough descriptions of the step-by-step procedures they use in their investigations or technical work that others can replicate them and (possibly) reach the same results.</p> <p>WHST.9-10.4 - Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.</p>	<p>WHST.11-12.1(a) - Introduce precise, knowledgeable claim(s), establish the significance of the claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that logically sequences the claim(s), counterclaims, reasons, and evidence.</p> <p>WHST.11-12.1(b) - Develop claim(s) and counterclaims fairly and thoroughly, supplying the most relevant data and evidence for each while pointing out the strengths and limitations of both claim(s) and counterclaims in a discipline-appropriate form that anticipates the audience's knowledge level, concerns, values, and possible biases.</p> <p>WHST.11-12.1(c) - Use words, phrases, and clauses as well as varied syntax to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims.</p> <p>WHST.11-12.1(e) - Provide a concluding statement or section that follows from or supports the argument presented.</p> <p>WHST.11-12.2 - Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.</p> <p>WHST.11-12.2(a) - Introduce a topic and organize complex ideas, concepts, and information so that each new element builds on that which precedes it to create a unified whole; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.</p> <p>WHST.11-12.2(b) - Develop the topic thoroughly by selecting the most significant and relevant facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic.</p> <p>WHST.11-12.2(c) - Use varied transitions and sentence structures to link the major sections of the text, create cohesion, and clarify the relationships among complex ideas and concepts.</p> <p>WHST.11-12.2(d) - Use precise language, domain-specific vocabulary and techniques such as metaphor, simile, and analogy to manage the complexity of the topic; convey a knowledgeable stance in a style that responds to the discipline and context as well as to the expertise of likely readers.</p> <p>WHST.11-12.2(e) - Provide a concluding statement or section that follows from and supports the information or explanation provided (e.g., articulating implications or the significance of the topic).</p> <p>WHST.11-12.3 - (See note; not applicable as a separate requirement)</p> <p>WHST.11-12.3(a) - Note: Students' narrative skills continue to grow in these grades. The Standards require that students be able to incorporate narrative elements effectively into arguments and informative/explanatory texts. In science and technical subjects, students must be able to write precise enough descriptions of the step-by-step procedures they use in their investigations or technical work that others can replicate them and (possibly) reach the same results.</p> <p>WHST.11-12.4 - Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.</p>	<p>WHST.11-12.1(a) - Introduce precise, knowledgeable claim(s), establish the significance of the claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that logically sequences the claim(s), counterclaims, reasons, and evidence.</p> <p>WHST.11-12.1(b) - Develop claim(s) and counterclaims fairly and thoroughly, supplying the most relevant data and evidence for each while pointing out the strengths and limitations of both claim(s) and counterclaims in a discipline-appropriate form that anticipates the audience's knowledge level, concerns, values, and possible biases.</p> <p>WHST.11-12.1(c) - Use words, phrases, and clauses as well as varied syntax to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims.</p> <p>WHST.11-12.1(e) - Provide a concluding statement or section that follows from or supports the argument presented.</p> <p>WHST.11-12.2 - Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.</p> <p>WHST.11-12.2(a) - Introduce a topic and organize complex ideas, concepts, and information so that each new element builds on that which precedes it to create a unified whole; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.</p> <p>WHST.11-12.2(b) - Develop the topic thoroughly by selecting the most significant and relevant facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic.</p> <p>WHST.11-12.2(c) - Use varied transitions and sentence structures to link the major sections of the text, create cohesion, and clarify the relationships among complex ideas and concepts.</p> <p>WHST.11-12.2(d) - Use precise language, domain-specific vocabulary and techniques such as metaphor, simile, and analogy to manage the complexity of the topic; convey a knowledgeable stance in a style that responds to the discipline and context as well as to the expertise of likely readers.</p> <p>WHST.11-12.2(e) - Provide a concluding statement or section that follows from and supports the information or explanation provided (e.g., articulating implications or the significance of the topic).</p> <p>WHST.11-12.3 - (See note; not applicable as a separate requirement)</p> <p>WHST.11-12.3(a) - Note: Students' narrative skills continue to grow in these grades. 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Membrane Transport -	UT	<p>UT.1 - Biology: Intended Learning Outcome: Use Science Process and Thinking Skills.</p>	<p>UT.1 - Biology: Intended Learning Outcome: Use Science Process and Thinking Skills.</p>	<p>UT.1 - Biology: Intended Learning Outcome: Use Science Process and Thinking Skills.</p>	<p>UT.1 - Biology: Intended Learning Outcome: Use Science Process and Thinking Skills.</p>

<p>1.a. - Observe objects, events and patterns and record both qualitative and quantitative information.</p> <p>1.e. - Plan and conduct experiments in which students may: Identify a problem; Formulate research questions and hypotheses; Predict results of investigations based upon prior data; Identify variables and describe the relationships between them; Plan procedures to control independent variables; Collect data on the dependent variable(s); Select the appropriate format (e.g., graph, chart, diagram) and use it to summarize the data obtained; Analyze data, check it for accuracy and construct reasonable conclusions; Prepare written and oral reports of investigations.</p> <p>1.f. - Distinguish between factual statements and inferences.</p> <p>1.h. - Construct models, simulations and metaphors to describe and explain natural phenomena.</p> <p>1.i. - Use mathematics as a precise method for showing relationships.</p> <p>1.j. - Form alternative hypotheses to explain a problem.</p> <p>UT.2. - Biology: Intended Learning Outcome: Manifest Scientific Attitudes and Interests.</p> <p>2.a. - Voluntarily read and study books and other materials about science.</p> <p>2.b. - Raise questions about objects, events and processes that can be answered through scientific investigation.</p> <p>UT.3. - Biology: Intended Learning Outcome: Demonstrate Understanding of Science Concepts, Principles and Systems.</p> <p>3.a. - Know and explain science information specified for the subject being studied.</p> <p>3.c. - Apply principles and concepts of science to explain various phenomena.</p> <p>3.d. - Solve problems by applying science principles and procedures.</p> <p>UT.4. - Biology: Intended Learning Outcome: Communicate Effectively Using Science Language and Reasoning.</p> <p>4.a. - Provide relevant data to support their inferences and conclusions.</p> <p>4.d. - Use reference sources to obtain information and cite the sources.</p> <p>4.e. - Use mathematical language and reasoning to communicate information.</p> <p>UT.6. - Biology: Intended Learning Outcome: Demonstrate Understanding of the Nature of Science.</p> <p>6.c. - Science findings are based upon evidence.</p> <p>6.d. - Understand that science conclusions are tentative and therefore never final. Understandings based upon these conclusions are subject to revision in light of new evidence.</p> <p>6.e. - Understand that scientific conclusions are based on the assumption that natural laws operate today as they did in the past and that they will continue to do so in the future.</p> <p>6.h. - Understand that scientific inquiry is characterized by a common set of values that include logical thinking, precision, open-mindedness, objectivity, skepticism, replicability of results and honest and ethical reporting of findings. These values function as criteria in distinguishing between science and non-science.</p> <p>UT.II. - Biology: Students will understand that all organisms are composed of one or more cells that are made of molecules, come from preexisting cells, and perform life functions.</p> <p>II.1. - Describe the fundamental chemistry of living cells.</p> <p>II.1.b. - Identify the function of the four major macromolecules (i.e., carbohydrates, proteins, lipids, nucleic acids).</p> <p>II.1.d. - Explain the role of enzymes in cell chemistry.</p> <p>UT.III. - Biology: Students will understand the relationship between structure and function of organs and organ systems.</p> <p>III.2. - Describe the relationship between structure and function of organ systems in plants and animals.</p>	<p>1.a. - Observe objects, events and patterns and record both qualitative and quantitative information.</p> <p>1.e. - Plan and conduct experiments in which students may: Identify a problem; Formulate research questions and hypotheses; Predict results of investigations based upon prior data; Identify variables and describe the relationships between them; Plan procedures to control independent variables; Collect data on the dependent variable(s); Select the appropriate format (e.g., graph, chart, diagram) and use it to summarize the data obtained; Analyze data, check it for accuracy and construct reasonable conclusions; Prepare written and oral reports of investigations.</p> <p>1.f. - Distinguish between factual statements and inferences.</p> <p>1.h. - Construct models, simulations and metaphors to describe and explain natural phenomena.</p> <p>1.i. - Use mathematics as a precise method for showing relationships.</p> <p>1.j. - Form alternative hypotheses to explain a problem.</p> <p>UT.2. - Biology: Intended Learning Outcome: Manifest Scientific Attitudes and Interests.</p> <p>2.a. - Voluntarily read and study books and other materials about science.</p> <p>2.b. - Raise questions about objects, events and processes that can be answered through scientific investigation.</p> <p>UT.3. - Biology: Intended Learning Outcome: Demonstrate Understanding of Science Concepts, Principles and Systems.</p> <p>3.a. - Know and explain science information specified for the subject being studied.</p> <p>3.c. - Apply principles and concepts of science to explain various phenomena.</p> <p>3.d. - Solve problems by applying science principles and procedures.</p> <p>UT.4. - Biology: Intended Learning Outcome: Communicate Effectively Using Science Language and Reasoning.</p> <p>4.a. - Provide relevant data to support their inferences and conclusions.</p> <p>4.d. - Use reference sources to obtain information and cite the sources.</p> <p>4.e. - Use mathematical language and reasoning to communicate information.</p> <p>UT.6. - Biology: Intended Learning Outcome: Demonstrate Understanding of the Nature of Science.</p> <p>6.c. - Science findings are based upon evidence.</p> <p>6.d. - Understand that science conclusions are tentative and therefore never final. 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include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.</p> <p>WHST.9-10.2(b) - Develop the topic with well-chosen, relevant, and sufficient facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic.</p>	<p>III.2.a. - Relate the function of an organ to the function of an organ system.</p> <p>III.2.b. - Describe the structure and function of various organ systems (i.e., digestion, respiration, circulation, protection and support, nervous) and how these systems contribute to homeostasis of the organism.</p> <p>III.2.c. - Examine the relationships of organ systems within an organism (e.g., respiration to circulation, leaves to roots) and describe the relationship of structure to function in the relationship.</p> <p>III.2.e. - Compare the structure and function of organ systems in one organism to the structure and function in another organism (e.g., chicken to sheep digestive system; 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include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.</p> <p>WHST.9-10.2(b) - Develop the topic with well-chosen, relevant, and sufficient facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic.</p>	<p>III.2.a. - Relate the function of an organ to the function of an organ system.</p> <p>III.2.b. - Describe the structure and function of various organ systems (i.e., digestion, respiration, circulation, protection and support, nervous) and how these systems contribute to homeostasis of the organism.</p> <p>III.2.c. - Examine the relationships of organ systems within an organism (e.g., respiration to circulation, leaves to roots) and describe the relationship of structure to function in the relationship.</p> <p>III.2.e. - Compare the structure and function of organ systems in one organism to the structure and function in another organism (e.g., chicken to sheep digestive system; fern to peach reproductive system).</p> <p>UT.CC.RST.11-12. - Reading Standards for Literacy in Science and Technical Subjects - Key Ideas and Details</p> <p>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.</p> <p>RST.11-12.5. - Analyze how the text structures information or ideas into categories or hierarchies, demonstrating understanding of the information or ideas.</p> <p>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.</p> <p>RST.11-12.10. - By the end of grade 12, read and comprehend science/technical texts in the grades 11-12 text complexity band independently and proficiently.</p> <p>UT.CC.WHST.11-12. - Writing Standards for Literacy in Science and Technical Subjects</p> <p>WHST.11-12.1. - Write arguments focused on discipline-specific content.</p> <p>WHST.11-12.1(a) - Introduce precise, knowledgeable claim(s), establish the significance of the claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that logically sequences the claim(s), counterclaims, reasons, and evidence.</p> <p>WHST.11-12.1(b) - Develop claim(s) and counterclaims fairly and thoroughly, supplying the most relevant data and evidence for each while pointing out the strengths and limitations of both claim(s) and counterclaims in a discipline-appropriate form that anticipates the audience's knowledge level, concerns, values, and possible biases.</p> <p>WHST.11-12.1(c) - Use words, phrases, and clauses as well as varied syntax to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims.</p> <p>WHST.11-12.1(e) - Provide a concluding statement or section that follows from or supports the argument presented.</p> <p>WHST.11-12.2. - Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.</p> <p>WHST.11-12.2(a) - Introduce a topic and organize complex ideas, concepts, and information so that each new element builds on that which precedes it to create a unified whole; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.</p>	<p>III.2.a. - Relate the function of an organ to the function of an organ system.</p> <p>III.2.b. - Describe the structure and function of various organ systems (i.e., digestion, respiration, circulation, protection and support, nervous) and how these systems contribute to homeostasis of the organism.</p> <p>III.2.c. - Examine the relationships of organ systems within an organism (e.g., respiration to circulation, leaves to roots) and describe the relationship of structure to function in the relationship.</p> <p>III.2.e. - Compare the structure and function of organ systems in one organism to the structure and function in another organism (e.g., chicken to sheep digestive system; fern to peach reproductive system).</p> <p>UT.CC.RST.11-12. - Reading Standards for Literacy in Science and Technical Subjects - Key Ideas and Details</p> <p>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.</p> <p>RST.11-12.5. - Analyze how the text structures information or ideas into categories or hierarchies, demonstrating understanding of the information or ideas.</p> <p>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.</p> <p>RST.11-12.10. - By the end of grade 12, read and comprehend science/technical texts in the grades 11-12 text complexity band independently and proficiently.</p> <p>UT.CC.WHST.11-12. - Writing Standards for Literacy in Science and Technical Subjects</p> <p>WHST.11-12.1. - Write arguments focused on discipline-specific content.</p> <p>WHST.11-12.1(a) - Introduce precise, knowledgeable claim(s), establish the significance of the claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that logically sequences the claim(s), counterclaims, reasons, and evidence.</p> <p>WHST.11-12.1(b) - Develop claim(s) and counterclaims fairly and thoroughly, supplying the most relevant data and evidence for each while pointing out the strengths and limitations of both claim(s) and counterclaims in a discipline-appropriate form that anticipates the audience's knowledge level, concerns, values, and possible biases.</p> <p>WHST.11-12.1(c) - Use words, phrases, and clauses as well as varied syntax to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims.</p> <p>WHST.11-12.1(e) - Provide a concluding statement or section that follows from or supports the argument presented.</p> <p>WHST.11-12.2. - Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.</p> <p>WHST.11-12.2(a) - Introduce a topic and organize complex ideas, concepts, and information so that each new element builds on that which precedes it to create a unified whole; 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In science and technical subjects, students must be able to write precise enough descriptions of the step-by-step procedures they use in their investigations or technical work that others can replicate them and (possibly) reach the same results.</p> <p>WHST.9-10.4. - Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.</p>	<p>WHST.9-10.2(c) - Use varied transitions and sentence structures to link the major sections of the text, create cohesion, and clarify the relationships among ideas and concepts.</p> <p>WHST.9-10.2(f) - Provide a concluding statement or section that follows from and supports the information or explanation presented (e.g., articulating implications or the significance of the topic).</p> <p>WHST.9-10.3. - (See note; not applicable as a separate requirement)</p> <p>WHST.9-10.3(a) - Note: Students' narrative skills continue to grow in these grades. 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Nitrogen Cycle -	UT	<p>UT.1. - Biology: Intended Learning Outcome: Use Science Process and Thinking Skills.</p> <p>1.a. - Observe objects, events and patterns and record both qualitative and quantitative information.</p> <p>1.e. - Plan and conduct experiments in which students may: Identify a problem; Formulate research questions and hypotheses; Predict results of investigations based upon prior data; Identify variables and describe the relationships between them; Plan procedures to control independent variables; Collect data on the dependent variable(s); Select the appropriate format (e.g., graph, chart, diagram) and use it to summarize the data obtained; Analyze data, check it for accuracy and construct reasonable conclusions; Prepare written and oral reports of investigations.</p> <p>1.f. - Distinguish between factual statements and inferences.</p> <p>1.h. - Construct models, simulations and metaphors to describe and explain natural phenomena.</p> <p>1.i. - Use mathematics as a precise method for showing relationships.</p> <p>1.j. - Form alternative hypotheses to explain a problem.</p> <p>UT.2. - Biology: Intended Learning Outcome: Manifest Scientific Attitudes and Interests.</p> <p>2.a. - Voluntarily read and study books and other materials about science.</p> <p>2.b. - Raise questions about objects, events and processes that can be answered through scientific investigation.</p> <p>UT.3. - Biology: Intended Learning Outcome: Demonstrate Understanding of Science Concepts, Principles and Systems.</p> <p>3.a. - Know and explain science information specified for the subject being studied.</p> <p>3.c. - Apply principles and concepts of science to explain various phenomena.</p>	<p>UT.1. - Biology: Intended Learning Outcome: Use Science Process and Thinking Skills.</p> <p>1.a. - Observe objects, events and patterns and record both qualitative and quantitative information.</p> <p>1.e. - Plan and conduct experiments in which students may: Identify a problem; 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<p>3.d. - Solve problems by applying science principles and procedures.</p> <p>UT.4. - Biology: Intended Learning Outcome: Communicate Effectively Using Science Language and Reasoning.</p> <p>4.a. - Provide relevant data to support their inferences and conclusions.</p> <p>4.d. - Use reference sources to obtain information and cite the sources.</p> <p>4.e. - Use mathematical language and reasoning to communicate information.</p> <p>UT.6. - Biology: Intended Learning Outcome: Demonstrate Understanding of the Nature of Science.</p> <p>6.c. - Science findings are based upon evidence.</p> <p>6.d. - Understand that science conclusions are tentative and therefore never final. 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<p>UT.V. - Earth Systems Science: Students will understand that Earth's atmosphere interacts with and is altered by the lithosphere, hydrosphere, and biosphere.</p> <p>V.1. - Describe how matter in the atmosphere cycles through other Earth systems.</p> <p>V.1.b. - Diagram the nitrogen cycle and provide examples of human actions that affect this cycle (e.g., fertilizers, crop rotation, fossil fuel combustion).</p> <p>UT.CC.RST.9-10. - Reading Standards for Literacy in Science and Technical Subjects - Key Ideas and Details</p> <p>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.</p> <p>RST.9-10.5. - Analyze the structure of the relationships among concepts in a text, including relationships among key terms (e.g., force, friction, reaction force, energy).</p> <p>RST.9-10.10. - By the end of grade 10, read and comprehend science/technical texts in the grades 9-10 text complexity band independently and proficiently.</p> <p>UT.CC.WHST.9-10. - Writing Standards for Literacy in Science and Technical Subjects</p> <p>WHST.9-10.1. - Write arguments focused on discipline-specific content.</p> <p>WHST.9-10.1(a) - Introduce precise claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that establishes clear relationships among the claim(s), counterclaims, reasons, and evidence.</p> <p>WHST.9-10.1(b) - Develop claim(s) and counterclaims fairly, supplying data and evidence for each while pointing out the strengths and limitations of both claim(s) and counterclaims in a discipline-appropriate form and in a manner that anticipates the audience's knowledge level and concerns.</p> <p>WHST.9-10.1(c) - Use words, phrases, and clauses to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims.</p> <p>WHST.9-10.1(e) - Provide a concluding statement or section that follows from or supports the argument presented.</p> <p>WHST.9-10.2. - Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.</p> <p>WHST.9-10.2(a) - Introduce a topic and organize ideas, concepts, and information to make important connections and distinctions; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.</p> <p>WHST.9-10.2(b) - Develop the topic with well-chosen, relevant, and sufficient facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic.</p> <p>WHST.9-10.2(c) - Use varied transitions and sentence structures to link the major sections of the text, create cohesion, and clarify the relationships among ideas and concepts.</p>	<p>UT.V. - Earth Systems Science: Students will understand that Earth's atmosphere interacts with and is altered by the lithosphere, hydrosphere, and biosphere.</p> <p>V.1. - Describe how matter in the atmosphere cycles through other Earth systems.</p> <p>V.1.b. - Diagram the nitrogen cycle and provide examples of human actions that affect this cycle (e.g., fertilizers, crop rotation, fossil fuel combustion).</p> <p>UT.CC.RST.9-10. - Reading Standards for Literacy in Science and Technical Subjects - Key Ideas and Details</p> <p>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.</p> <p>RST.9-10.5. - Analyze the structure of the relationships among concepts in a text, including relationships among key terms (e.g., force, friction, reaction force, energy).</p> <p>RST.9-10.10. - By the end of grade 10, read and comprehend science/technical texts in the grades 9-10 text complexity band independently and proficiently.</p> <p>UT.CC.WHST.9-10. - Writing Standards for Literacy in Science and Technical Subjects</p> <p>WHST.9-10.1. - Write arguments focused on discipline-specific content.</p> <p>WHST.9-10.1(a) - Introduce precise claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that establishes clear relationships among the claim(s), counterclaims, reasons, and evidence.</p> <p>WHST.9-10.1(b) - Develop claim(s) and counterclaims fairly, supplying data and evidence for each while pointing out the strengths and limitations of both claim(s) and counterclaims in a discipline-appropriate form and in a manner that anticipates the audience's knowledge level and concerns.</p> <p>WHST.9-10.1(c) - Use words, phrases, and clauses to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims.</p> <p>WHST.9-10.1(e) - Provide a concluding statement or section that follows from or supports the argument presented.</p> <p>WHST.9-10.2. - Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.</p> <p>WHST.9-10.2(a) - Introduce a topic and organize ideas, concepts, and information to make important connections and distinctions; 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include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.</p> <p>WHST.11-12.2(b) - Develop the topic thoroughly by selecting the most significant and relevant facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic.</p>	<p>UT.V. - Earth Systems Science: Students will understand that Earth's atmosphere interacts with and is altered by the lithosphere, hydrosphere, and biosphere.</p> <p>V.1. - Describe how matter in the atmosphere cycles through other Earth systems.</p> <p>V.1.b. - Diagram the nitrogen cycle and provide examples of human actions that affect this cycle (e.g., fertilizers, crop rotation, fossil fuel combustion).</p> <p>UT.CC.RST.11-12. - Reading Standards for Literacy in Science and Technical Subjects - Key Ideas and Details</p> <p>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.</p> <p>RST.11-12.5. - Analyze how the text structures information or ideas into categories or hierarchies, demonstrating understanding of the information or ideas.</p> <p>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.</p> <p>RST.11-12.10. - By the end of grade 12, read and comprehend science/technical texts in the grades 11-12 text complexity band independently and proficiently.</p> <p>UT.CC.WHST.11-12. - Writing Standards for Literacy in Science and Technical Subjects</p> <p>WHST.11-12.1. - Write arguments focused on discipline-specific content.</p> <p>WHST.11-12.1(a) - Introduce precise, knowledgeable claim(s), establish the significance of the claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that logically sequences the claim(s), counterclaims, reasons, and evidence.</p> <p>WHST.11-12.1(b) - Develop claim(s) and counterclaims fairly and thoroughly, supplying the most relevant data and evidence for each while pointing out the strengths and limitations of both claim(s) and counterclaims in a discipline-appropriate form that anticipates the audience's knowledge level, concerns, values, and possible biases.</p> <p>WHST.11-12.1(c) - Use words, phrases, and clauses as well as varied syntax to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims.</p> <p>WHST.11-12.1(e) - Provide a concluding statement or section that follows from or supports the argument presented.</p> <p>WHST.11-12.2. - Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.</p> <p>WHST.11-12.2(a) - Introduce a topic and organize complex ideas, concepts, and information so that each new element builds on that which precedes it to create a unified whole; 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Osmosis -	UT	<p>UT.1. - Biology: Intended Learning Outcome: Use Science Process and Thinking Skills.</p> <p>1.a. - Observe objects, events and patterns and record both qualitative and quantitative information.</p> <p>1.e. - Plan and conduct experiments in which students may: Identify a problem; Formulate research questions and hypotheses; Predict results of investigations based upon prior data; Identify variables and describe the relationships between them; Plan procedures to control independent variables; Collect data on the dependent variable(s); Select the appropriate format (e.g., graph, chart, diagram) and use it to summarize the data obtained; Analyze data, check it for accuracy and construct reasonable conclusions; Prepare written and oral reports of investigations.</p> <p>1.f. - Distinguish between factual statements and inferences.</p> <p>1.h. - Construct models, simulations and metaphors to describe and explain natural phenomena.</p> <p>1.i. - Use mathematics as a precise method for showing relationships.</p> <p>1.j. - Form alternative hypotheses to explain a problem.</p> <p>UT.2. - Biology: Intended Learning Outcome: Manifest Scientific Attitudes and Interests.</p> <p>2.a. - Voluntarily read and study books and other materials about science.</p> <p>2.b. - Raise questions about objects, events and processes that can be answered through scientific investigation.</p> <p>UT.3. - Biology: Intended Learning Outcome: Demonstrate Understanding of Science Concepts, Principles and Systems.</p> <p>3.a. - Know and explain science information specified for the subject being studied.</p> <p>3.c. - Apply principles and concepts of science to explain various phenomena.</p> <p>3.d. - Solve problems by applying science principles and procedures.</p> <p>UT.4. - Biology: Intended Learning Outcome: Communicate Effectively Using Science Language and Reasoning.</p>	<p>UT.1. - Biology: Intended Learning Outcome: Use Science Process and Thinking Skills.</p> <p>1.a. - Observe objects, events and patterns and record both qualitative and quantitative information.</p> <p>1.e. - Plan and conduct experiments in which students may: Identify a problem; 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<p>4.a. - Provide relevant data to support their inferences and conclusions.</p> <p>4.d. - Use reference sources to obtain information and cite the sources.</p> <p>4.e. - Use mathematical language and reasoning to communicate information.</p> <p>UT.6. - Biology: Intended Learning Outcome: Demonstrate Understanding of the Nature of Science.</p> <p>6.c. - Science findings are based upon evidence.</p> <p>6.d. - Understand that science conclusions are tentative and therefore never final. Understandings based upon these conclusions are subject to revision in light of new evidence.</p> <p>6.e. - Understand that scientific conclusions are based on the assumption that natural laws operate today as they did in the past and that they will continue to do so in the future.</p> <p>6.h. - Understand that scientific inquiry is characterized by a common set of values that include logical thinking, precision, open-mindedness, objectivity, skepticism, replicability of results and honest and ethical reporting of findings. These values function as criteria in distinguishing between science and non-science.</p> <p>UT.II. - Biology: Students will understand that all organisms are composed of one or more cells that are made of molecules, come from preexisting cells, and perform life functions.</p> <p>II.1. - Describe the fundamental chemistry of living cells.</p> <p>II.1.c. - Explain how the properties of water (e.g., cohesion, adhesion, heat capacity, solvent properties) contribute to maintenance of cells and living organisms.</p> <p>II.3. - Investigate the structure and function of cells and cell parts.</p> <p>II.3.a. - Explain how cells divide from existing cells.</p> <p>II.3.c. - Describe how the transport of materials in and out of cells enables cells to maintain homeostasis (i.e., osmosis, diffusion, active transport).</p> <p>UT.III. - Biology: Students will understand the relationship between structure and function of organs and organ systems.</p> <p>III.2. - Describe the relationship between structure and function of organ systems in plants and animals.</p> <p>III.2.b. - Describe the structure and function of various organ systems (i.e., digestion, respiration, circulation, protection and support, nervous) and how these systems contribute to homeostasis of the organism.</p> <p>UT.CC.RST.9-10. - Reading Standards for Literacy in Science and Technical Subjects - Key Ideas and Details</p> <p>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.</p> <p>RST.9-10.5. - Analyze the structure of the relationships among concepts in a text, including relationships among key terms (e.g., force, friction, reaction force, energy).</p> <p>RST.9-10.10. - By the end of grade 10, read and comprehend science/technical texts in the grades 9-10 text complexity band independently and proficiently.</p> <p>UT.CC.WHST.9-10. - Writing Standards for Literacy in Science and Technical Subjects</p> <p>WHST.9-10.1. - Write arguments focused on discipline-specific content.</p> <p>WHST.9-10.1(a) - Introduce precise claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that establishes clear relationships among the claim(s), counterclaims, reasons, and evidence.</p>	<p>4.a. - Provide relevant data to support their inferences and conclusions.</p> <p>4.d. - Use reference sources to obtain information and cite the sources.</p> <p>4.e. - Use mathematical language and reasoning to communicate information.</p> <p>UT.6. - Biology: Intended Learning Outcome: Demonstrate Understanding of the Nature of Science.</p> <p>6.c. - Science findings are based upon evidence.</p> <p>6.d. - Understand that science conclusions are tentative and therefore never final. 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The Standards require that students be able to incorporate narrative elements effectively into arguments and informative/explanatory texts. In science and technical subjects, students must be able to write precise enough descriptions of the step-by-step procedures they use in their investigations or technical work that others can replicate them and (possibly) reach the same results.</p> <p>WHST.9-10.4 - Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.</p>	<p>WHST.9-10.1(b) - Develop claim(s) and counterclaims fairly, supplying data and evidence for each while pointing out the strengths and limitations of both claim(s) and counterclaims in a discipline-appropriate form and in a manner that anticipates the audience's knowledge level and concerns.</p> <p>WHST.9-10.1(c) - Use words, phrases, and clauses to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims.</p> <p>WHST.9-10.1(e) - Provide a concluding statement or section that follows from or supports the argument presented.</p> <p>WHST.9-10.2 - Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.</p> <p>WHST.9-10.2(a) - Introduce a topic and organize ideas, concepts, and information to make important connections and distinctions; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.</p> <p>WHST.9-10.2(b) - Develop the topic with well-chosen, relevant, and sufficient facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic.</p> <p>WHST.9-10.2(c) - Use varied transitions and sentence structures to link the major sections of the text, create cohesion, and clarify the relationships among ideas and concepts.</p> <p>WHST.9-10.2(f) - Provide a concluding statement or section that follows from and supports the information or explanation presented (e.g., articulating implications or the significance of the topic).</p> <p>WHST.9-10.3 - (See note; not applicable as a separate requirement)</p> <p>WHST.9-10.3(a) - Note: Students' narrative skills continue to grow in these grades. 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In science and technical subjects, students must be able to write precise enough descriptions of the step-by-step procedures they use in their investigations or technical work that others can replicate them and (possibly) reach the same results.</p> <p>WHST.11-12.4 - Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.</p>	<p>WHST.11-12.1(a) - Introduce precise, knowledgeable claim(s), establish the significance of the claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that logically sequences the claim(s), counterclaims, reasons, and evidence.</p> <p>WHST.11-12.1(b) - Develop claim(s) and counterclaims fairly and thoroughly, supplying the most relevant data and evidence for each while pointing out the strengths and limitations of both claim(s) and counterclaims in a discipline-appropriate form that anticipates the audience's knowledge level, concerns, values, and possible biases.</p> <p>WHST.11-12.1(c) - Use words, phrases, and clauses as well as varied syntax to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims.</p> <p>WHST.11-12.1(e) - Provide a concluding statement or section that follows from or supports the argument presented.</p> <p>WHST.11-12.2 - Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.</p> <p>WHST.11-12.2(a) - Introduce a topic and organize complex ideas, concepts, and information so that each new element builds on that which precedes it to create a unified whole; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.</p> <p>WHST.11-12.2(b) - Develop the topic thoroughly by selecting the most significant and relevant facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic.</p> <p>WHST.11-12.2(c) - Use varied transitions and sentence structures to link the major sections of the text, create cohesion, and clarify the relationships among complex ideas and concepts.</p> <p>WHST.11-12.2(d) - Use precise language, domain-specific vocabulary and techniques such as metaphor, simile, and analogy to manage the complexity of the topic; convey a knowledgeable stance in a style that responds to the discipline and context as well as to the expertise of likely readers.</p> <p>WHST.11-12.2(e) - Provide a concluding statement or section that follows from and supports the information or explanation provided (e.g., articulating implications or the significance of the topic).</p> <p>WHST.11-12.3 - (See note; not applicable as a separate requirement)</p> <p>WHST.11-12.3(a) - Note: Students' narrative skills continue to grow in these grades. 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1.e. - Plan and conduct experiments in which students may: Identify a problem; Formulate research questions and hypotheses; Predict results of investigations based upon prior data; Identify variables and describe the relationships between them; Plan procedures to control independent variables; Collect data on the dependent variable(s); Select the appropriate format (e.g., graph, chart, diagram) and use it to summarize the data obtained; Analyze data, check it for accuracy and construct reasonable conclusions; Prepare written and oral reports of investigations.
1.f. - Distinguish between factual statements and inferences.
1.h. - Construct models, simulations and metaphors to describe and explain natural phenomena.
1.i. - Use mathematics as a precise method for showing relationships.
1.j. - Form alternative hypotheses to explain a problem.
UT.2. - Biology: Intended Learning Outcome: Manifest Scientific Attitudes and Interests.
2.a. - Voluntarily read and study books and other materials about science.
2.b. - Raise questions about objects, events and processes that can be answered through scientific investigation.
UT.3. - Biology: Intended Learning Outcome: Demonstrate Understanding of Science Concepts, Principles and Systems.
3.a. - Know and explain science information specified for the subject being studied.
3.c. - Apply principles and concepts of science to explain various phenomena.
3.d. - Solve problems by applying science principles and procedures.
UT.4. - Biology: Intended Learning Outcome: Communicate Effectively Using Science Language and Reasoning.
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UT.1. - Biology: Students will understand that living organisms interact with one another and their environment.
I.1. - Summarize how energy flows through an ecosystem.
I.1.d. - Compare the relative energy output expended by an organism in obtaining food to the energy gained from the food (e.g., hummingbird - energy expended hovering at a flower compared to the amount of energy gained from the nectar, coyote - chasing mice to the energy gained from catching one, energy expended in migration of birds to a location with seasonal abundance compared to energy gained by staying in a cold climate with limited food).
I.2. - Explain relationships between matter cycles and organisms.

1.a. - Observe objects, events and patterns and record both qualitative and quantitative information.
1.e. - Plan and conduct experiments in which students may: Identify a problem; Formulate research questions and hypotheses; Predict results of investigations based upon prior data; Identify variables and describe the relationships between them; Plan procedures to control independent variables; Collect data on the dependent variable(s); Select the appropriate format (e.g., graph, chart, diagram) and use it to summarize the data obtained; Analyze data, check it for accuracy and construct reasonable conclusions; Prepare written and oral reports of investigations.
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I.2. - Explain relationships between matter cycles and organisms.

1.a. - Observe objects, events and patterns and record both qualitative and quantitative information.
1.e. - Plan and conduct experiments in which students may: Identify a problem; Formulate research questions and hypotheses; Predict results of investigations based upon prior data; Identify variables and describe the relationships between them; Plan procedures to control independent variables; Collect data on the dependent variable(s); Select the appropriate format (e.g., graph, chart, diagram) and use it to summarize the data obtained; Analyze data, check it for accuracy and construct reasonable conclusions; Prepare written and oral reports of investigations.
1.f. - Distinguish between factual statements and inferences.
1.h. - Construct models, simulations and metaphors to describe and explain natural phenomena.
1.i. - Use mathematics as a precise method for showing relationships.
1.j. - Form alternative hypotheses to explain a problem.
UT.2. - Biology: Intended Learning Outcome: Manifest Scientific Attitudes and Interests.
2.a. - Voluntarily read and study books and other materials about science.
2.b. - Raise questions about objects, events and processes that can be answered through scientific investigation.
UT.3. - Biology: Intended Learning Outcome: Demonstrate Understanding of Science Concepts, Principles and Systems.
3.a. - Know and explain science information specified for the subject being studied.
3.c. - Apply principles and concepts of science to explain various phenomena.
3.d. - Solve problems by applying science principles and procedures.
UT.4. - Biology: Intended Learning Outcome: Communicate Effectively Using Science Language and Reasoning.
4.a. - Provide relevant data to support their inferences and conclusions.
4.d. - Use reference sources to obtain information and cite the sources.
4.e. - Use mathematical language and reasoning to communicate information.
UT.6. - Biology: Intended Learning Outcome: Demonstrate Understanding of the Nature of Science.
6.c. - Science findings are based upon evidence.
6.d. - Understand that science conclusions are tentative and therefore never final. Understandings based upon these conclusions are subject to revision in light of new evidence.
6.e. - Understand that scientific conclusions are based on the assumption that natural laws operate today as they did in the past and that they will continue to do so in the future.
6.h. - Understand that scientific inquiry is characterized by a common set of values that include logical thinking, precision, open-mindedness, objectivity, skepticism, replicability of results and honest and ethical reporting of findings. These values function as criteria in distinguishing between science and non-science.
UT.1. - Biology: Students will understand that living organisms interact with one another and their environment.
I.1. - Summarize how energy flows through an ecosystem.
I.1.d. - Compare the relative energy output expended by an organism in obtaining food to the energy gained from the food (e.g., hummingbird - energy expended hovering at a flower compared to the amount of energy gained from the nectar, coyote - chasing mice to the energy gained from catching one, energy expended in migration of birds to a location with seasonal abundance compared to energy gained by staying in a cold climate with limited food).
I.2. - Explain relationships between matter cycles and organisms.

<p>I.2.c. - Distinguish between inference and evidence in a newspaper, magazine, journal, or Internet article that addresses an issue related to human impact on cycles of matter in an ecosystem and determine the bias in the article.</p> <p>I.2.d. - Evaluate the impact of personal choices in relation to the cycling of matter within an ecosystem (e.g., impact of automobiles on the carbon cycle, impact on landfills of processed and packaged foods).</p> <p>I.3. - Describe how interactions among organisms and their environment help shape ecosystems.</p> <p>I.3.b. - Formulate and test a hypothesis specific to the effect of changing one variable upon another in a small ecosystem.</p> <p>I.3.e. - Research and evaluate local and global practices that affect ecosystems.</p> <p>UT.II. - Biology: Students will understand that all organisms are composed of one or more cells that are made of molecules, come from preexisting cells, and perform life functions.</p> <p>II.1. - Describe the fundamental chemistry of living cells.</p> <p>II.1.b. - Identify the function of the four major macromolecules (i.e., carbohydrates, proteins, lipids, nucleic acids).</p> <p>II.1.c. - Explain how the properties of water (e.g., cohesion, adhesion, heat capacity, solvent properties) contribute to maintenance of cells and living organisms.</p> <p>II.1.d. - Explain the role of enzymes in cell chemistry.</p> <p>II.2. - Describe the flow of energy and matter in cellular function.</p> <p>II.2.b. - Illustrate the cycling of matter and the flow of energy through photosynthesis (e.g., by using light energy to combine CO₂ and H₂O to produce oxygen and sugars) and respiration (e.g., by releasing energy from sugar and O₂ to produce CO₂ and H₂O).</p> <p>II.2.c. - Measure the production of one or more of the products of either photosynthesis or respiration.</p> <p>II.3. - Investigate the structure and function of cells and cell parts.</p> <p>II.3.c. - Describe how the transport of materials in and out of cells enables cells to maintain homeostasis (i.e., osmosis, diffusion, active transport).</p> <p>UT.VI. - Earth Systems Science: Students will understand the source and distribution of energy on Earth and its effects on Earth systems.</p> <p>VI.1. - Describe the transformation of solar energy into heat and chemical energy on Earth and eventually the radiation of energy to space.</p> <p>VI.1.b. - Describe the pathways for converting and storing light energy as chemical energy (e.g., light energy converted to chemical energy stored in plants, plants become fossil fuel).</p> <p>UT.CC.RST.9-10. - Reading Standards for Literacy in Science and Technical Subjects - Key Ideas and Details</p> <p>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.</p> <p>RST.9-10.5. - Analyze the structure of the relationships among concepts in a text, including relationships among key terms (e.g., force, friction, reaction force, energy).</p> <p>RST.9-10.10. - By the end of grade 10, read and comprehend science/technical texts in the grades 9-10 text complexity band independently and proficiently.</p> <p>UT.CC.WHST.9-10. - Writing Standards for Literacy in Science and Technical Subjects</p> <p>WHST.9-10.1. - Write arguments focused on discipline-specific content.</p>	<p>I.2.c. - Distinguish between inference and evidence in a newspaper, magazine, journal, or Internet article that addresses an issue related to human impact on cycles of matter in an ecosystem and determine the bias in the article.</p> <p>I.2.d. - Evaluate the impact of personal choices in relation to the cycling of matter within an ecosystem (e.g., impact of automobiles on the carbon cycle, impact on landfills of processed and packaged foods).</p> <p>I.3. - Describe how interactions among organisms and their environment help shape ecosystems.</p> <p>I.3.b. - Formulate and test a hypothesis specific to the effect of changing one variable upon another in a small ecosystem.</p> <p>I.3.e. - Research and evaluate local and global practices that affect ecosystems.</p> <p>UT.II. - Biology: Students will understand that all organisms are composed of one or more cells that are made of molecules, come from preexisting cells, and perform life functions.</p> <p>II.1. - Describe the fundamental chemistry of living cells.</p> <p>II.1.b. - Identify the function of the four major macromolecules (i.e., carbohydrates, proteins, lipids, nucleic acids).</p> <p>II.1.c. - Explain how the properties of water (e.g., cohesion, adhesion, heat capacity, solvent properties) contribute to maintenance of cells and living organisms.</p> <p>II.1.d. - Explain the role of enzymes in cell chemistry.</p> <p>II.2. - Describe the flow of energy and matter in cellular function.</p> <p>II.2.b. - Illustrate the cycling of matter and the flow of energy through photosynthesis (e.g., by using light energy to combine CO₂ and H₂O to produce oxygen and sugars) and respiration (e.g., by releasing energy from sugar and O₂ to produce CO₂ and H₂O).</p> <p>II.2.c. - Measure the production of one or more of the products of either photosynthesis or respiration.</p> <p>II.3. - Investigate the structure and function of cells and cell parts.</p> <p>II.3.c. - Describe how the transport of materials in and out of cells enables cells to maintain homeostasis (i.e., osmosis, diffusion, active transport).</p> <p>UT.VI. - Earth Systems Science: Students will understand the source and distribution of energy on Earth and its effects on Earth systems.</p> <p>VI.1. - Describe the transformation of solar energy into heat and chemical energy on Earth and eventually the radiation of energy to space.</p> <p>VI.1.b. - Describe the pathways for converting and storing light energy as chemical energy (e.g., light energy converted to chemical energy stored in plants, plants become fossil fuel).</p> <p>UT.CC.RST.9-10. - Reading Standards for Literacy in Science and Technical Subjects - Key Ideas and Details</p> <p>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.</p> <p>RST.9-10.5. - Analyze the structure of the relationships among concepts in a text, including relationships among key terms (e.g., force, friction, reaction force, energy).</p> <p>RST.9-10.10. - By the end of grade 10, read and comprehend science/technical texts in the grades 9-10 text complexity band independently and proficiently.</p> <p>UT.CC.WHST.9-10. - Writing Standards for Literacy in Science and Technical Subjects</p> <p>WHST.9-10.1. - Write arguments focused on discipline-specific content.</p>	<p>I.2.c. - Distinguish between inference and evidence in a newspaper, magazine, journal, or Internet article that addresses an issue related to human impact on cycles of matter in an ecosystem and determine the bias in the article.</p> <p>I.2.d. - Evaluate the impact of personal choices in relation to the cycling of matter within an ecosystem (e.g., impact of automobiles on the carbon cycle, impact on landfills of processed and packaged foods).</p> <p>I.3. - Describe how interactions among organisms and their environment help shape ecosystems.</p> <p>I.3.b. - Formulate and test a hypothesis specific to the effect of changing one variable upon another in a small ecosystem.</p> <p>I.3.e. - Research and evaluate local and global practices that affect ecosystems.</p> <p>UT.II. - Biology: Students will understand that all organisms are composed of one or more cells that are made of molecules, come from preexisting cells, and perform life functions.</p> <p>II.1. - Describe the fundamental chemistry of living cells.</p> <p>II.1.b. - Identify the function of the four major macromolecules (i.e., carbohydrates, proteins, lipids, nucleic acids).</p> <p>II.1.c. - Explain how the properties of water (e.g., cohesion, adhesion, heat capacity, solvent properties) contribute to maintenance of cells and living organisms.</p> <p>II.1.d. - Explain the role of enzymes in cell chemistry.</p> <p>II.2. - Describe the flow of energy and matter in cellular function.</p> <p>II.2.b. - Illustrate the cycling of matter and the flow of energy through photosynthesis (e.g., by using light energy to combine CO₂ and H₂O to produce oxygen and sugars) and respiration (e.g., by releasing energy from sugar and O₂ to produce CO₂ and H₂O).</p> <p>II.2.c. - Measure the production of one or more of the products of either photosynthesis or respiration.</p> <p>II.3. - Investigate the structure and function of cells and cell parts.</p> <p>II.3.c. - Describe how the transport of materials in and out of cells enables cells to maintain homeostasis (i.e., osmosis, diffusion, active transport).</p> <p>UT.VI. - Earth Systems Science: Students will understand the source and distribution of energy on Earth and its effects on Earth systems.</p> <p>VI.1. - Describe the transformation of solar energy into heat and chemical energy on Earth and eventually the radiation of energy to space.</p> <p>VI.1.b. - Describe the pathways for converting and storing light energy as chemical energy (e.g., light energy converted to chemical energy stored in plants, plants become fossil fuel).</p> <p>UT.CC.RST.11-12. - Reading Standards for Literacy in Science and Technical Subjects - Key Ideas and Details</p> <p>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.</p> <p>RST.11-12.5. - Analyze how the text structures information or ideas into categories or hierarchies, demonstrating understanding of the information or ideas.</p> <p>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.</p> <p>RST.11-12.10. - By the end of grade 12, read and comprehend science/technical texts in the grades 11-12 text complexity band independently and proficiently.</p> <p>UT.CC.WHST.11-12. - Writing Standards for Literacy in Science and Technical Subjects</p>	<p>I.2.c. - Distinguish between inference and evidence in a newspaper, magazine, journal, or Internet article that addresses an issue related to human impact on cycles of matter in an ecosystem and determine the bias in the article.</p> <p>I.2.d. - Evaluate the impact of personal choices in relation to the cycling of matter within an ecosystem (e.g., impact of automobiles on the carbon cycle, impact on landfills of processed and packaged foods).</p> <p>I.3. - Describe how interactions among organisms and their environment help shape ecosystems.</p> <p>I.3.b. - Formulate and test a hypothesis specific to the effect of changing one variable upon another in a small ecosystem.</p> <p>I.3.e. - Research and evaluate local and global practices that affect ecosystems.</p> <p>UT.II. - Biology: Students will understand that all organisms are composed of one or more cells that are made of molecules, come from preexisting cells, and perform life functions.</p> <p>II.1. - Describe the fundamental chemistry of living cells.</p> <p>II.1.b. - Identify the function of the four major macromolecules (i.e., carbohydrates, proteins, lipids, nucleic acids).</p> <p>II.1.c. - Explain how the properties of water (e.g., cohesion, adhesion, heat capacity, solvent properties) contribute to maintenance of cells and living organisms.</p> <p>II.1.d. - Explain the role of enzymes in cell chemistry.</p> <p>II.2. - Describe the flow of energy and matter in cellular function.</p> <p>II.2.b. - Illustrate the cycling of matter and the flow of energy through photosynthesis (e.g., by using light energy to combine CO₂ and H₂O to produce oxygen and sugars) and respiration (e.g., by releasing energy from sugar and O₂ to produce CO₂ and H₂O).</p> <p>II.2.c. - Measure the production of one or more of the products of either photosynthesis or respiration.</p> <p>II.3. - Investigate the structure and function of cells and cell parts.</p> <p>II.3.c. - Describe how the transport of materials in and out of cells enables cells to maintain homeostasis (i.e., osmosis, diffusion, active transport).</p> <p>UT.VI. - Earth Systems Science: Students will understand the source and distribution of energy on Earth and its effects on Earth systems.</p> <p>VI.1. - Describe the transformation of solar energy into heat and chemical energy on Earth and eventually the radiation of energy to space.</p> <p>VI.1.b. - Describe the pathways for converting and storing light energy as chemical energy (e.g., light energy converted to chemical energy stored in plants, plants become fossil fuel).</p> <p>UT.CC.RST.11-12. - Reading Standards for Literacy in Science and Technical Subjects - Key Ideas and Details</p> <p>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.</p> <p>RST.11-12.5. - Analyze how the text structures information or ideas into categories or hierarchies, demonstrating understanding of the information or ideas.</p> <p>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.</p> <p>RST.11-12.10. - By the end of grade 12, read and comprehend science/technical texts in the grades 11-12 text complexity band independently and proficiently.</p> <p>UT.CC.WHST.11-12. - Writing Standards for Literacy in Science and Technical Subjects</p>
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<p>WHST.9-10.1(a) - Introduce precise claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that establishes clear relationships among the claim(s), counterclaims, reasons, and evidence.</p> <p>WHST.9-10.1(b) - Develop claim(s) and counterclaims fairly, supplying data and evidence for each while pointing out the strengths and limitations of both claim(s) and counterclaims in a discipline-appropriate form and in a manner that anticipates the audience's knowledge level and concerns.</p> <p>WHST.9-10.1(c) - Use words, phrases, and clauses to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims.</p>	<p>WHST.9-10.1(a) - Introduce precise claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that establishes clear relationships among the claim(s), counterclaims, reasons, and evidence.</p> <p>WHST.9-10.1(b) - Develop claim(s) and counterclaims fairly, supplying data and evidence for each while pointing out the strengths and limitations of both claim(s) and counterclaims in a discipline-appropriate form and in a manner that anticipates the audience's knowledge level and concerns.</p> <p>WHST.9-10.1(c) - Use words, phrases, and clauses to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims.</p>	<p>WHST.11-12.1. - Write arguments focused on discipline-specific content.</p> <p>WHST.11-12.1(a) - Introduce precise, knowledgeable claim(s), establish the significance of the claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that logically sequences the claim(s), counterclaims, reasons, and evidence.</p> <p>WHST.11-12.1(b) - Develop claim(s) and counterclaims fairly and thoroughly, supplying the most relevant data and evidence for each while pointing out the strengths and limitations of both claim(s) and counterclaims in a discipline-appropriate form that anticipates the audience's knowledge level, concerns, values, and possible biases.</p> <p>WHST.11-12.1(c) - Use words, phrases, and clauses as well as varied syntax to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims.</p>	<p>WHST.11-12.1. - Write arguments focused on discipline-specific content.</p> <p>WHST.11-12.1(a) - Introduce precise, knowledgeable claim(s), establish the significance of the claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that logically sequences the claim(s), counterclaims, reasons, and evidence.</p> <p>WHST.11-12.1(b) - Develop claim(s) and counterclaims fairly and thoroughly, supplying the most relevant data and evidence for each while pointing out the strengths and limitations of both claim(s) and counterclaims in a discipline-appropriate form that anticipates the audience's knowledge level, concerns, values, and possible biases.</p> <p>WHST.11-12.1(c) - Use words, phrases, and clauses as well as varied syntax to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims.</p>
<p>WHST.9-10.1(e) - Provide a concluding statement or section that follows from or supports the argument presented.</p>	<p>WHST.9-10.1(e) - Provide a concluding statement or section that follows from or supports the argument presented.</p>	<p>WHST.11-12.1(e) - Provide a concluding statement or section that follows from or supports the argument presented.</p>	<p>WHST.11-12.1(e) - Provide a concluding statement or section that follows from or supports the argument presented.</p>
<p>WHST.9-10.2. - Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.</p> <p>WHST.9-10.2(a) - Introduce a topic and organize ideas, concepts, and information to make important connections and distinctions; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.</p> <p>WHST.9-10.2(b) - Develop the topic with well-chosen, relevant, and sufficient facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic.</p>	<p>WHST.9-10.2. - Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.</p> <p>WHST.9-10.2(a) - Introduce a topic and organize ideas, concepts, and information to make important connections and distinctions; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.</p> <p>WHST.9-10.2(b) - Develop the topic with well-chosen, relevant, and sufficient facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic.</p>	<p>WHST.11-12.2. - Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.</p> <p>WHST.11-12.2(a) - Introduce a topic and organize complex ideas, concepts, and information so that each new element builds on that which precedes it to create a unified whole; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.</p>	<p>WHST.11-12.2. - Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.</p> <p>WHST.11-12.2(a) - Introduce a topic and organize complex ideas, concepts, and information so that each new element builds on that which precedes it to create a unified whole; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.</p>
<p>WHST.9-10.2(c) - Use varied transitions and sentence structures to link the major sections of the text, create cohesion, and clarify the relationships among ideas and concepts.</p>	<p>WHST.9-10.2(c) - Use varied transitions and sentence structures to link the major sections of the text, create cohesion, and clarify the relationships among ideas and concepts.</p>	<p>WHST.11-12.2(b) - Develop the topic thoroughly by selecting the most significant and relevant facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic.</p>	<p>WHST.11-12.2(b) - Develop the topic thoroughly by selecting the most significant and relevant facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic.</p>
<p>WHST.9-10.2(f) - Provide a concluding statement or section that follows from and supports the information or explanation presented (e.g., articulating implications or the significance of the topic).</p>	<p>WHST.9-10.2(f) - Provide a concluding statement or section that follows from and supports the information or explanation presented (e.g., articulating implications or the significance of the topic).</p>	<p>WHST.11-12.2(c) - Use varied transitions and sentence structures to link the major sections of the text, create cohesion, and clarify the relationships among complex ideas and concepts.</p>	<p>WHST.11-12.2(c) - Use varied transitions and sentence structures to link the major sections of the text, create cohesion, and clarify the relationships among complex ideas and concepts.</p>
<p>WHST.9-10.3. - (See note; not applicable as a separate requirement)</p>	<p>WHST.9-10.3. - (See note; not applicable as a separate requirement)</p>	<p>WHST.11-12.2(d) - Use precise language, domain-specific vocabulary and techniques such as metaphor, simile, and analogy to manage the complexity of the topic; convey a knowledgeable stance in a style that responds to the discipline and context as well as to the expertise of likely readers.</p>	<p>WHST.11-12.2(d) - Use precise language, domain-specific vocabulary and techniques such as metaphor, simile, and analogy to manage the complexity of the topic; convey a knowledgeable stance in a style that responds to the discipline and context as well as to the expertise of likely readers.</p>
<p>WHST.9-10.3(a) - Note: Students' narrative skills continue to grow in these grades. The Standards require that students be able to incorporate narrative elements effectively into arguments and informative/explanatory texts. In science and technical subjects, students must be able to write precise enough descriptions of the step-by-step procedures they use in their investigations or technical work that others can replicate them and (possibly) reach the same results.</p>	<p>WHST.9-10.3(a) - Note: Students' narrative skills continue to grow in these grades. The Standards require that students be able to incorporate narrative elements effectively into arguments and informative/explanatory texts. In science and technical subjects, students must be able to write precise enough descriptions of the step-by-step procedures they use in their investigations or technical work that others can replicate them and (possibly) reach the same results.</p>	<p>WHST.11-12.2(e) - Provide a concluding statement or section that follows from and supports the information or explanation provided (e.g., articulating implications or the significance of the topic).</p>	<p>WHST.11-12.2(e) - Provide a concluding statement or section that follows from and supports the information or explanation provided (e.g., articulating implications or the significance of the topic).</p>
<p>WHST.9-10.4. - Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.</p>	<p>WHST.9-10.4. - Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.</p>	<p>WHST.11-12.3. - (See note; not applicable as a separate requirement)</p>	<p>WHST.11-12.3. - (See note; not applicable as a separate requirement)</p>
<p>WHST.9-10.3(a) - Note: Students' narrative skills continue to grow in these grades. The Standards require that students be able to incorporate narrative elements effectively into arguments and informative/explanatory texts. In science and technical subjects, students must be able to write precise enough descriptions of the step-by-step procedures they use in their investigations or technical work that others can replicate them and (possibly) reach the same results.</p>	<p>WHST.9-10.3(a) - Note: Students' narrative skills continue to grow in these grades. The Standards require that students be able to incorporate narrative elements effectively into arguments and informative/explanatory texts. In science and technical subjects, students must be able to write precise enough descriptions of the step-by-step procedures they use in their investigations or technical work that others can replicate them and (possibly) reach the same results.</p>	<p>WHST.11-12.3(a) - Note: Students' narrative skills continue to grow in these grades. The Standards require that students be able to incorporate narrative elements effectively into arguments and informative/explanatory texts. In science and technical subjects, students must be able to write precise enough descriptions of the step-by-step procedures they use in their investigations or technical work that others can replicate them and (possibly) reach the same results.</p>	<p>WHST.11-12.3(a) - Note: Students' narrative skills continue to grow in these grades. The Standards require that students be able to incorporate narrative elements effectively into arguments and informative/explanatory texts. In science and technical subjects, students must be able to write precise enough descriptions of the step-by-step procedures they use in their investigations or technical work that others can replicate them and (possibly) reach the same results.</p>

				WHST.11-12.4. - Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.	WHST.11-12.4. - Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
Synaptic Transmission -	UT	<p>UT.1. - Biology: Intended Learning Outcome: Use Science Process and Thinking Skills.</p> <p>1.a. - Observe objects, events and patterns and record both qualitative and quantitative information.</p> <p>1.e. - Plan and conduct experiments in which students may: Identify a problem; Formulate research questions and hypotheses; Predict results of investigations based upon prior data; Identify variables and describe the relationships between them; Plan procedures to control independent variables; Collect data on the dependent variable(s); Select the appropriate format (e.g., graph, chart, diagram) and use it to summarize the data obtained; Analyze data, check it for accuracy and construct reasonable conclusions; Prepare written and oral reports of investigations.</p> <p>1.f. - Distinguish between factual statements and inferences.</p> <p>1.h. - Construct models, simulations and metaphors to describe and explain natural phenomena.</p> <p>1.i. - Use mathematics as a precise method for showing relationships.</p> <p>1.j. - Form alternative hypotheses to explain a problem.</p> <p>UT.2. - Biology: Intended Learning Outcome: Manifest Scientific Attitudes and Interests.</p> <p>2.a. - Voluntarily read and study books and other materials about science.</p> <p>2.b. - Raise questions about objects, events and processes that can be answered through scientific investigation.</p> <p>UT.3. - Biology: Intended Learning Outcome: Demonstrate Understanding of Science Concepts, Principles and Systems.</p> <p>3.a. - Know and explain science information specified for the subject being studied.</p> <p>3.c. - Apply principles and concepts of science to explain various phenomena.</p> <p>3.d. - Solve problems by applying science principles and procedures.</p> <p>UT.4. - Biology: Intended Learning Outcome: Communicate Effectively Using Science Language and Reasoning.</p> <p>4.a. - Provide relevant data to support their inferences and conclusions.</p> <p>4.d. - Use reference sources to obtain information and cite the sources.</p> <p>4.e. - Use mathematical language and reasoning to communicate information.</p> <p>UT.6. - Biology: Intended Learning Outcome: Demonstrate Understanding of the Nature of Science.</p> <p>6.c. - Science findings are based upon evidence.</p> <p>6.d. - Understand that science conclusions are tentative and therefore never final. Understandings based upon these conclusions are subject to revision in light of new evidence.</p> <p>6.e. - Understand that scientific conclusions are based on the assumption that natural laws operate today as they did in the past and that they will continue to do so in the future.</p> <p>6.h. - Understand that scientific inquiry is characterized by a common set of values that include logical thinking, precision, open-mindedness, objectivity, skepticism, replicability of results and honest and ethical reporting of findings. These values function as criteria in distinguishing between science and non-science.</p> <p>UT.II. - Biology: Students will understand that all organisms are composed of one or more cells that are made of molecules, come from preexisting cells, and perform life functions.</p> <p>II.1. - Describe the fundamental chemistry of living cells.</p> <p>II.1.d. - Explain the role of enzymes in cell chemistry.</p> <p>UT.III. - Biology: Students will understand the relationship between structure and function of organs and organ systems.</p>	<p>UT.1. - Biology: Intended Learning Outcome: Use Science Process and Thinking Skills.</p> <p>1.a. - Observe objects, events and patterns and record both qualitative and quantitative information.</p> <p>1.e. - Plan and conduct experiments in which students may: Identify a problem; Formulate research questions and hypotheses; Predict results of investigations based upon prior data; Identify variables and describe the relationships between them; Plan procedures to control independent variables; Collect data on the dependent variable(s); Select the appropriate format (e.g., graph, chart, diagram) and use it to summarize the data obtained; Analyze data, check it for accuracy and construct reasonable conclusions; Prepare written and oral reports of investigations.</p> <p>1.f. - Distinguish between factual statements and inferences.</p> <p>1.h. - Construct models, simulations and metaphors to describe and explain natural phenomena.</p> <p>1.i. - Use mathematics as a precise method for showing relationships.</p> <p>1.j. - Form alternative hypotheses to explain a problem.</p> <p>UT.2. - Biology: Intended Learning Outcome: Manifest Scientific Attitudes and Interests.</p> <p>2.a. - Voluntarily read and study books and other materials about science.</p> <p>2.b. - Raise questions about objects, events and processes that can be answered through scientific investigation.</p> <p>UT.3. - Biology: Intended Learning Outcome: Demonstrate Understanding of Science Concepts, Principles and Systems.</p> <p>3.a. - Know and explain science information specified for the subject being studied.</p> <p>3.c. - Apply principles and concepts of science to explain various phenomena.</p> <p>3.d. - Solve problems by applying science principles and procedures.</p> <p>UT.4. - Biology: Intended Learning Outcome: Communicate Effectively Using Science Language and Reasoning.</p> <p>4.a. - Provide relevant data to support their inferences and conclusions.</p> <p>4.d. - Use reference sources to obtain information and cite the sources.</p> <p>4.e. - Use mathematical language and reasoning to communicate information.</p> <p>UT.6. - Biology: Intended Learning Outcome: Demonstrate Understanding of the Nature of Science.</p> <p>6.c. - Science findings are based upon evidence.</p> <p>6.d. - Understand that science conclusions are tentative and therefore never final. 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<p>III.2. - Describe the relationship between structure and function of organ systems in plants and animals.</p> <p>III.2.a. - Relate the function of an organ to the function of an organ system.</p> <p>III.2.b. - Describe the structure and function of various organ systems (i.e., digestion, respiration, circulation, protection and support, nervous) and how these systems contribute to homeostasis of the organism.</p> <p>III.2.c. - Examine the relationships of organ systems within an organism (e.g., respiration to circulation, leaves to roots) and describe the relationship of structure to function in the relationship.</p> <p>III.2.e. - Compare the structure and function of organ systems in one organism to the structure and function in another organism (e.g., chicken to sheep digestive system; fern to peach reproductive system).</p> <p>UT.CC.RST.9-10. - Reading Standards for Literacy in Science and Technical Subjects - Key Ideas and Details</p> <p>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.</p> <p>RST.9-10.5. - Analyze the structure of the relationships among concepts in a text, including relationships among key terms (e.g., force, friction, reaction force, energy).</p> <p>RST.9-10.10. - By the end of grade 10, read and comprehend science/technical texts in the grades 9-10 text complexity band independently and proficiently.</p> <p>UT.CC.WHST.9-10. - Writing Standards for Literacy in Science and Technical Subjects</p> <p>WHST.9-10.1. - Write arguments focused on discipline-specific content.</p> <p>WHST.9-10.1(a) - Introduce precise claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that establishes clear relationships among the claim(s), counterclaims, reasons, and evidence.</p> <p>WHST.9-10.1(b) - Develop claim(s) and counterclaims fairly, supplying data and evidence for each while pointing out the strengths and limitations of both claim(s) and counterclaims in a discipline-appropriate form and in a manner that anticipates the audience's knowledge level and concerns.</p> <p>WHST.9-10.1(c) - Use words, phrases, and clauses to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims.</p> <p>WHST.9-10.1(e) - Provide a concluding statement or section that follows from or supports the argument presented.</p> <p>WHST.9-10.2. - Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.</p> <p>WHST.9-10.2(a) - Introduce a topic and organize ideas, concepts, and information to make important connections and distinctions; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.</p> <p>WHST.9-10.2(b) - Develop the topic with well-chosen, relevant, and sufficient facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic.</p>	<p>III.2. - Describe the relationship between structure and function of organ systems in plants and animals.</p> <p>III.2.a. - Relate the function of an organ to the function of an organ system.</p> <p>III.2.b. - Describe the structure and function of various organ systems (i.e., digestion, respiration, circulation, protection and support, nervous) and how these systems contribute to homeostasis of the organism.</p> <p>III.2.c. - Examine the relationships of organ systems within an organism (e.g., respiration to circulation, leaves to roots) and describe the relationship of structure to function in the relationship.</p> <p>III.2.e. - Compare the structure and function of organ systems in one organism to the structure and function in another organism (e.g., chicken to sheep digestive system; 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fern to peach reproductive system).</p> <p>UT.CC.RST.11-12. - Reading Standards for Literacy in Science and Technical Subjects - Key Ideas and Details</p> <p>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.</p> <p>RST.11-12.5. - Analyze how the text structures information or ideas into categories or hierarchies, demonstrating understanding of the information or ideas.</p> <p>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.</p> <p>RST.11-12.10. - By the end of grade 12, read and comprehend science/technical texts in the grades 11-12 text complexity band independently and proficiently.</p> <p>UT.CC.WHST.11-12. - Writing Standards for Literacy in Science and Technical Subjects</p> <p>WHST.11-12.1. - Write arguments focused on discipline-specific content.</p> <p>WHST.11-12.1(a) - Introduce precise, knowledgeable claim(s), establish the significance of the claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that logically sequences the claim(s), counterclaims, reasons, and evidence.</p> <p>WHST.11-12.1(b) - Develop claim(s) and counterclaims fairly and thoroughly, supplying the most relevant data and evidence for each while pointing out the strengths and limitations of both claim(s) and counterclaims in a discipline-appropriate form that anticipates the audience's knowledge level, concerns, values, and possible biases.</p> <p>WHST.11-12.1(c) - Use words, phrases, and clauses as well as varied syntax to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims.</p> <p>WHST.11-12.1(e) - Provide a concluding statement or section that follows from or supports the argument presented.</p> <p>WHST.11-12.2. - Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.</p> <p>WHST.11-12.2(a) - Introduce a topic and organize complex ideas, concepts, and information so that each new element builds on that which precedes it to create a unified whole; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.</p>	<p>III.2. - Describe the relationship between structure and function of organ systems in plants and animals.</p> <p>III.2.a. - Relate the function of an organ to the function of an organ system.</p> <p>III.2.b. - Describe the structure and function of various organ systems (i.e., digestion, respiration, circulation, protection and support, nervous) and how these systems contribute to homeostasis of the organism.</p> <p>III.2.c. - Examine the relationships of organ systems within an organism (e.g., respiration to circulation, leaves to roots) and describe the relationship of structure to function in the relationship.</p> <p>III.2.e. - Compare the structure and function of organ systems in one organism to the structure and function in another organism (e.g., chicken to sheep digestive system; fern to peach reproductive system).</p> <p>UT.CC.RST.11-12. - Reading Standards for Literacy in Science and Technical Subjects - Key Ideas and Details</p> <p>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.</p> <p>RST.11-12.5. - Analyze how the text structures information or ideas into categories or hierarchies, demonstrating understanding of the information or ideas.</p> <p>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.</p> <p>RST.11-12.10. - By the end of grade 12, read and comprehend science/technical texts in the grades 11-12 text complexity band independently and proficiently.</p> <p>UT.CC.WHST.11-12. - Writing Standards for Literacy in Science and Technical Subjects</p> <p>WHST.11-12.1. - Write arguments focused on discipline-specific content.</p> <p>WHST.11-12.1(a) - Introduce precise, knowledgeable claim(s), establish the significance of the claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that logically sequences the claim(s), counterclaims, reasons, and evidence.</p> <p>WHST.11-12.1(b) - Develop claim(s) and counterclaims fairly and thoroughly, supplying the most relevant data and evidence for each while pointing out the strengths and limitations of both claim(s) and counterclaims in a discipline-appropriate form that anticipates the audience's knowledge level, concerns, values, and possible biases.</p> <p>WHST.11-12.1(c) - Use words, phrases, and clauses as well as varied syntax to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims.</p> <p>WHST.11-12.1(e) - Provide a concluding statement or section that follows from or supports the argument presented.</p> <p>WHST.11-12.2. - Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.</p> <p>WHST.11-12.2(a) - Introduce a topic and organize complex ideas, concepts, and information so that each new element builds on that which precedes it to create a unified whole; 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	<p>WHST.9-10.2(c) - Use varied transitions and sentence structures to link the major sections of the text, create cohesion, and clarify the relationships among ideas and concepts.</p> <p>WHST.9-10.2(f) - Provide a concluding statement or section that follows from and supports the information or explanation presented (e.g., articulating implications or the significance of the topic).</p> <p>WHST.9-10.3. - (See note; not applicable as a separate requirement)</p> <p>WHST.9-10.3(a) - Note: Students' narrative skills continue to grow in these grades. The Standards require that students be able to incorporate narrative elements effectively into arguments and informative/explanatory texts. In science and technical subjects, students must be able to write precise enough descriptions of the step-by-step procedures they use in their investigations or technical work that others can replicate them and (possibly) reach the same results.</p> <p>WHST.9-10.4. - Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.</p>	<p>WHST.9-10.2(c) - Use varied transitions and sentence structures to link the major sections of the text, create cohesion, and clarify the relationships among ideas and concepts.</p> <p>WHST.9-10.2(f) - Provide a concluding statement or section that follows from and supports the information or explanation presented (e.g., articulating implications or the significance of the topic).</p> <p>WHST.9-10.3. - (See note; not applicable as a separate requirement)</p> <p>WHST.9-10.3(a) - Note: Students' narrative skills continue to grow in these grades. The Standards require that students be able to incorporate narrative elements effectively into arguments and informative/explanatory texts. 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The Standards require that students be able to incorporate narrative elements effectively into arguments and informative/explanatory texts. In science and technical subjects, students must be able to write precise enough descriptions of the step-by-step procedures they use in their investigations or technical work that others can replicate them and (possibly) reach the same results.</p> <p>WHST.11-12.4. - Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.</p>	<p>WHST.11-12.2(b) - Develop the topic thoroughly by selecting the most significant and relevant facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic.</p> <p>WHST.11-12.2(c) - Use varied transitions and sentence structures to link the major sections of the text, create cohesion, and clarify the relationships among complex ideas and concepts.</p> <p>WHST.11-12.2(d) - Use precise language, domain-specific vocabulary and techniques such as metaphor, simile, and analogy to manage the complexity of the topic; convey a knowledgeable stance in a style that responds to the discipline and context as well as to the expertise of likely readers.</p> <p>WHST.11-12.2(e) - Provide a concluding statement or section that follows from and supports the information or explanation provided (e.g., articulating implications or the significance of the topic).</p> <p>WHST.11-12.3. - (See note; not applicable as a separate requirement)</p> <p>WHST.11-12.3(a) - Note: Students' narrative skills continue to grow in these grades. 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