

**Main Criteria:** Cogent Education's Interactive Cases

**Secondary Criteria:** Michigan Curriculum Standards

**Subject:** Science

**Grades:** 9, 10, 11, 12



Title	Common Among States	Michigan Curriculum Standards	Michigan Curriculum Standards	Michigan Curriculum Standards	Michigan Curriculum Standards
Action Potential -	MI	<p>MI.B1. - Biology: Inquiry, Reflection, and Social Implications: Students will understand the nature of science and demonstrate an ability to practice scientific reasoning by applying it to the design, execution, and evaluation of scientific investigations. Students will demonstrate their understanding that scientific knowledge is gathered through various forms of direct and indirect observations and the testing of this information by methods including, but not limited to, experimentation.</p> <p>B1.1. - Scientific Inquiry</p> <p>B1.1A. - Generate new questions that can be investigated in the laboratory or field.</p> <p>B1.1B. - Evaluate the uncertainties or validity of scientific conclusions using an understanding of sources of measurement error, the challenges of controlling variables, accuracy of data analysis, logic of argument, logic of experimental design, and/or the dependence on underlying assumptions.</p> <p>B1.1D. - Identify patterns in data and relate them to theoretical models.</p> <p>B1.1E. - Describe a reason for a given conclusion using evidence from an investigation.</p> <p>B1.1g. - Use empirical evidence to explain and critique the reasoning used to draw a scientific conclusion or explanation.</p> <p>B1.1h. - Design and conduct a systematic scientific investigation that tests a hypothesis. Draw conclusions from data presented in charts or tables.</p> <p>B1.2. - Scientific Reflection and Social Implications</p> <p>B1.2A. - Critique whether or not specific questions can be answered through scientific investigations.</p> <p>B1.2C. - Develop an understanding of a scientific concept by accessing information from multiple sources. Evaluate the scientific accuracy and significance of the information.</p> <p>B1.2h. - Describe the distinctions between scientific theories, laws, hypotheses, and observations.</p> <p>MI.B2. - Biology: Organization and Development of Living Systems: Students describe the general structure and function of cells. They can explain that all living systems are composed of cells and that organisms may be unicellular or multicellular.</p> <p>L2.p1. - Cells (prerequisite)</p> <p>L2.p1B. - Explain the importance of both water and the element carbon to cells. (prerequisite)</p> <p>L2.p1D. - Explain how the systems in a multicellular organism work together to support the organism. (prerequisite)</p> <p>L2.p2. - Cell Function (prerequisite)</p> <p>L2.p2A. - Describe how organisms sustain life by obtaining, transporting, transforming, releasing, and eliminating matter and energy. (prerequisite)</p> <p>L2.p5. - Common Elements (prerequisite)</p> <p>L2.p5B. - Identify the most common complex molecules that make up living organisms. (prerequisite)</p> <p>B2.2. - Organic Molecules</p> <p>B2.2A. - Explain how carbon can join to other carbon atoms in chains and rings to form large and complex molecules.</p> <p>B2.2x. - Proteins</p>	<p>MI.B1. - Biology: Inquiry, Reflection, and Social Implications: Students will understand the nature of science and demonstrate an ability to practice scientific reasoning by applying it to the design, execution, and evaluation of scientific investigations. 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<p>B2.2f. - Explain the role of enzymes and other proteins in biochemical functions (e.g., the protein hemoglobin carries oxygen in some organisms, digestive enzymes, and hormones).</p> <p>B2.3. - Maintaining Environmental Stability</p> <p>B2.3B. - Describe how the maintenance of a relatively stable internal environment is required for the continuation of life.</p> <p>B2.3x. - Homeostasis</p> <p>B2.3d. - Identify the general functions of the major systems of the human body (digestion, respiration, reproduction, circulation, excretion, protection from disease, and movement, control, and coordination) and describe ways that these systems interact with each other.</p> <p>B2.3e. - Describe how human body systems maintain relatively constant internal conditions (temperature, acidity, and blood sugar).</p> <p>B2.3g. - Compare the structure and function of a human body system or subsystem to a nonliving system (e.g., human joints to hinges, enzyme and substrate to interlocking puzzle pieces).</p> <p>B2.5. - Living Organism Composition</p> <p>B2.5B. - Explain how major systems and processes work together in animals and plants, including relationships between organelles, cells, tissues, organs, organ systems, and organisms. Relate these to molecular functions.</p> <p>B2.5x. - Energy Transfer</p> <p>B2.5g. - Compare and contrast plant and animal cells.</p> <p>B2.5h. - Explain the role of cell membranes as a highly selective barrier (diffusion, osmosis, and active transport).</p> <p>B2.6x. - Internal/External Cell Regulation</p> <p>B2.6a. - Explain that the regulatory and behavioral responses of an organism to external stimuli occur in order to maintain both short- and long-term equilibrium.</p> <p>MI.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>MI.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>B2.2f. - Explain the role of enzymes and other proteins in biochemical functions (e.g., the protein hemoglobin carries oxygen in some organisms, digestive enzymes, and hormones).</p> <p>B2.3. - Maintaining Environmental Stability</p> <p>B2.3B. - Describe how the maintenance of a relatively stable internal environment is required for the continuation of life.</p> <p>B2.3x. - Homeostasis</p> <p>B2.3d. - Identify the general functions of the major systems of the human body (digestion, respiration, reproduction, circulation, excretion, protection from disease, and movement, control, and coordination) and describe ways that these systems interact with each other.</p> <p>B2.3e. - Describe how human body systems maintain relatively constant internal conditions (temperature, acidity, and blood sugar).</p> <p>B2.3g. - Compare the structure and function of a human body system or subsystem to a nonliving system (e.g., human joints to hinges, enzyme and substrate to interlocking puzzle pieces).</p> <p>B2.5. - Living Organism Composition</p> <p>B2.5B. - Explain how major systems and processes work together in animals and plants, including relationships between organelles, cells, tissues, organs, organ systems, and organisms. 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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. 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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(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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Cellular Respiration -	MI	<p>MI.B1. - Biology: Inquiry, Reflection, and Social Implications: Students will understand the nature of science and demonstrate an ability to practice scientific reasoning by applying it to the design, execution, and evaluation of scientific investigations. Students will demonstrate their understanding that scientific knowledge is gathered through various forms of direct and indirect observations and the testing of this information by methods including, but not limited to, experimentation.</p> <p>B1.1. - Scientific Inquiry</p> <p>B1.1A. - Generate new questions that can be investigated in the laboratory or field.</p> <p>B1.1B. - Evaluate the uncertainties or validity of scientific conclusions using an understanding of sources of measurement error, the challenges of controlling variables, accuracy of data analysis, logic of argument, logic of experimental design, and/or the dependence on underlying assumptions.</p> <p>B1.1D. - Identify patterns in data and relate them to theoretical models.</p> <p>B1.1E. - Describe a reason for a given conclusion using evidence from an investigation.</p> <p>B1.1g. - Use empirical evidence to explain and critique the reasoning used to draw a scientific conclusion or explanation.</p> <p>B1.1h. - Design and conduct a systematic scientific investigation that tests a hypothesis. Draw conclusions from data presented in charts or tables.</p> <p>B1.2. - Scientific Reflection and Social Implications</p> <p>B1.2A. - Critique whether or not specific questions can be answered through scientific investigations.</p> <p>B1.2C. - Develop an understanding of a scientific concept by accessing information from multiple sources. Evaluate the scientific accuracy and significance of the information.</p> <p>B1.2h. - Describe the distinctions between scientific theories, laws, hypotheses, and observations.</p> <p>MI.B2. - Biology: Organization and Development of Living Systems: Students describe the general structure and function of cells. They can explain that all living systems are composed of cells and that organisms may be unicellular or multicellular.</p> <p>L2.p1. - Cells (prerequisite)</p> <p>L2.p1D. - Explain how the systems in a multicellular organism work together to support the organism. (prerequisite)</p> <p>L2.p2. - Cell Function (prerequisite)</p> <p>L2.p2A. - Describe how organisms sustain life by obtaining, transporting, transforming, releasing, and eliminating matter and energy. (prerequisite)</p> <p>L2.p3. - Plants as Producers (prerequisite)</p> <p>L2.p3A. - Explain the significance of carbon in organic molecules. (prerequisite)</p> <p>L2.p4. - Animals as Consumers (prerequisite)</p> <p>L2.p4B. - Explain how an organism obtains energy from the food it consumes. (prerequisite)</p> <p>L2.p5. - Common Elements (prerequisite)</p> <p>L2.p5B. - Identify the most common complex molecules that make up living organisms. (prerequisite)</p> <p>B2.1. - Transformation of Matter and Energy in Cells</p> <p>B2.1A. - Explain how cells transform energy (ultimately obtained from the sun) from one form to another through the processes of photosynthesis and respiration. Identify the reactants and products in the general reaction of photosynthesis.</p> <p>B2.1B. - Compare and contrast the transformation of matter and energy during photosynthesis and respiration.</p> <p>B2.2. - Organic Molecules</p>	<p>MI.B1. - Biology: Inquiry, Reflection, and Social Implications: Students will understand the nature of science and demonstrate an ability to practice scientific reasoning by applying it to the design, execution, and evaluation of scientific investigations. 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Relate these to molecular functions.</p> <p>B2.5D. - Describe how individual cells break down energy-rich molecules to provide energy for cell functions.</p> <p>B2.5x. - Energy Transfer</p> <p>B2.5e. - Explain the interrelated nature of photosynthesis and cellular respiration in terms of ATP synthesis and degradation.</p> <p>B2.5f. - Relate plant structures and functions to the process of photosynthesis and respiration.</p> <p>B2.5g. - Compare and contrast plant and animal cells.</p> <p>B2.5h. - Explain the role of cell membranes as a highly selective barrier (diffusion, osmosis, and active transport).</p> <p>B2.6x. - Internal/External Cell Regulation</p> <p>B2.6a. - Explain that the regulatory and behavioral responses of an organism to external stimuli occur in order to maintain both short- and long-term equilibrium.</p> <p>B2.r6b. - Explain that complex interactions among the different kinds of molecules in the cell cause distinct cycles of activities, such as growth and division. Note that cell behavior can also be affected by molecules from other parts of the organism, such as hormones. (recommended)</p> <p>MI.B3. - Biology: Interdependence of Living Systems and the Environment: Students describe the processes of photosynthesis and cellular respiration and how energy is transferred through food webs. They recognize and analyze the consequences of the dependence of organisms on environmental resources and the interdependence of organisms in ecosystems.</p> <p>B3.1. - Photosynthesis and Respiration</p>	<p>B2.2A. - Explain how carbon can join to other carbon atoms in chains and rings to form large and complex molecules.</p> <p>B2.2C. - Describe the composition of the four major categories of organic molecules (carbohydrates, lipids, proteins, and nucleic acids).</p> <p>B2.2D. - Explain the general structure and primary functions of the major complex organic molecules that compose living organisms.</p> <p>B2.2x. - Proteins</p> <p>B2.2f. - Explain the role of enzymes and other proteins in biochemical functions (e.g., the protein hemoglobin carries oxygen in some organisms, digestive enzymes, and hormones).</p> <p>B2.3. - Maintaining Environmental Stability</p> <p>B2.3B. - Describe how the maintenance of a relatively stable internal environment is required for the continuation of life.</p> <p>B2.3x. - Homeostasis</p> <p>B2.3d. - Identify the general functions of the major systems of the human body (digestion, respiration, reproduction, circulation, excretion, protection from disease, and movement, control, and coordination) and describe ways that these systems interact with each other.</p> <p>B2.3e. - Describe how human body systems maintain relatively constant internal conditions (temperature, acidity, and blood sugar).</p> <p>B2.3g. - Compare the structure and function of a human body system or subsystem to a nonliving system (e.g., human joints to hinges, enzyme and substrate to interlocking puzzle pieces).</p> <p>B2.4. - Cell Specialization</p> <p>B2.4e. - Explain how cellular respiration is important for the production of ATP (build on aerobic vs. anaerobic).</p> <p>B2.5. - Living Organism Composition</p> <p>B2.5B. - Explain how major systems and processes work together in animals and plants, including relationships between organelles, cells, tissues, organs, organ systems, and organisms. 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Note that cell behavior can also be affected by molecules from other parts of the organism, such as hormones. (recommended)</p> <p>MI.B3. - Biology: Interdependence of Living Systems and the Environment: Students describe the processes of photosynthesis and cellular respiration and how energy is transferred through food webs. They recognize and analyze the consequences of the dependence of organisms on environmental resources and the interdependence of organisms in ecosystems.</p> <p>B3.1. - Photosynthesis and Respiration</p>	<p>B2.2A. - Explain how carbon can join to other carbon atoms in chains and rings to form large and complex molecules.</p> <p>B2.2C. - Describe the composition of the four major categories of organic molecules (carbohydrates, lipids, proteins, and nucleic acids).</p> <p>B2.2D. - Explain the general structure and primary functions of the major complex organic molecules that compose living organisms.</p> <p>B2.2x. - Proteins</p> <p>B2.2f. - Explain the role of enzymes and other proteins in biochemical functions (e.g., the protein hemoglobin carries oxygen in some organisms, digestive enzymes, and hormones).</p> <p>B2.3. - Maintaining Environmental Stability</p> <p>B2.3B. - Describe how the maintenance of a relatively stable internal environment is required for the continuation of life.</p> <p>B2.3x. - Homeostasis</p> <p>B2.3d. - Identify the general functions of the major systems of the human body (digestion, respiration, reproduction, circulation, excretion, protection from disease, and movement, control, and coordination) and describe ways that these systems interact with each other.</p> <p>B2.3e. - Describe how human body systems maintain relatively constant internal conditions (temperature, acidity, and blood sugar).</p> <p>B2.3g. - Compare the structure and function of a human body system or subsystem to a nonliving system (e.g., human joints to hinges, enzyme and substrate to interlocking puzzle pieces).</p> <p>B2.4. - Cell Specialization</p> <p>B2.4e. - Explain how cellular respiration is important for the production of ATP (build on aerobic vs. anaerobic).</p> <p>B2.5. - Living Organism Composition</p> <p>B2.5B. - Explain how major systems and processes work together in animals and plants, including relationships between organelles, cells, tissues, organs, organ systems, and organisms. Relate these to molecular functions.</p> <p>B2.5D. - Describe how individual cells break down energy-rich molecules to provide energy for cell functions.</p> <p>B2.5x. - Energy Transfer</p> <p>B2.5e. - Explain the interrelated nature of photosynthesis and cellular respiration in terms of ATP synthesis and degradation.</p> <p>B2.5f. - Relate plant structures and functions to the process of photosynthesis and respiration.</p> <p>B2.5g. - Compare and contrast plant and animal cells.</p> <p>B2.5h. - Explain the role of cell membranes as a highly selective barrier (diffusion, osmosis, and active transport).</p> <p>B2.6x. - Internal/External Cell Regulation</p> <p>B2.6a. - Explain that the regulatory and behavioral responses of an organism to external stimuli occur in order to maintain both short- and long-term equilibrium.</p> <p>B2.r6b. - Explain that complex interactions among the different kinds of molecules in the cell cause distinct cycles of activities, such as growth and division. Note that cell behavior can also be affected by molecules from other parts of the organism, such as hormones. (recommended)</p> <p>MI.B3. - Biology: Interdependence of Living Systems and the Environment: Students describe the processes of photosynthesis and cellular respiration and how energy is transferred through food webs. They recognize and analyze the consequences of the dependence of organisms on environmental resources and the interdependence of organisms in ecosystems.</p> <p>B3.1. - Photosynthesis and Respiration</p>
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<p>B3.1B. - Illustrate and describe the energy conversions that occur during photosynthesis and respiration.</p> <p>B3.1C. - Recognize the equations for photosynthesis and respiration and identify the reactants and products for both.</p> <p>B3.1D. - Explain how living organisms gain and use mass through the processes of photosynthesis and respiration.</p> <p>B3.1e. - Write the chemical equation for photosynthesis and cellular respiration and explain in words what they mean.</p> <p>MI.C3. - Chemistry: Energy Transfer and Conservation: Students apply the First and Second Laws of Thermodynamics to explain and predict most chemical phenomena.</p> <p>C3.2x. - Enthalpy</p> <p>C3.2a. - Describe the energy changes in photosynthesis and in the combustion of sugar in terms of bond breaking and bond making.</p> <p>MI.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>MI.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>B3.1B. - Illustrate and describe the energy conversions that occur during photosynthesis and respiration.</p> <p>B3.1C. - Recognize the equations for photosynthesis and respiration and identify the reactants and products for both.</p> <p>B3.1D. - Explain how living organisms gain and use mass through the processes of photosynthesis and respiration.</p> <p>B3.1e. - Write the chemical equation for photosynthesis and cellular respiration and explain in words what they mean.</p> <p>MI.C3. - Chemistry: Energy Transfer and Conservation: Students apply the First and Second Laws of Thermodynamics to explain and predict most chemical phenomena.</p> <p>C3.2x. - Enthalpy</p> <p>C3.2a. - Describe the energy changes in photosynthesis and in the combustion of sugar in terms of bond breaking and bond making.</p> <p>MI.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>MI.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>B3.1B. - Illustrate and describe the energy conversions that occur during photosynthesis and respiration.</p> <p>B3.1C. - Recognize the equations for photosynthesis and respiration and identify the reactants and products for both.</p> <p>B3.1D. - Explain how living organisms gain and use mass through the processes of photosynthesis and respiration.</p> <p>B3.1e. - Write the chemical equation for photosynthesis and cellular respiration and explain in words what they mean.</p> <p>MI.C3. - Chemistry: Energy Transfer and Conservation: Students apply the First and Second Laws of Thermodynamics to explain and predict most chemical phenomena.</p> <p>C3.2x. - Enthalpy</p> <p>C3.2a. - Describe the energy changes in photosynthesis and in the combustion of sugar in terms of bond breaking and bond making.</p> <p>MI.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>MI.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>B3.1B. - Illustrate and describe the energy conversions that occur during photosynthesis and respiration.</p> <p>B3.1C. - Recognize the equations for photosynthesis and respiration and identify the reactants and products for both.</p> <p>B3.1D. - Explain how living organisms gain and use mass through the processes of photosynthesis and respiration.</p> <p>B3.1e. - Write the chemical equation for photosynthesis and cellular respiration and explain in words what they mean.</p> <p>MI.C3. - Chemistry: Energy Transfer and Conservation: Students apply the First and Second Laws of Thermodynamics to explain and predict most chemical phenomena.</p> <p>C3.2x. - Enthalpy</p> <p>C3.2a. - Describe the energy changes in photosynthesis and in the combustion of sugar in terms of bond breaking and bond making.</p> <p>MI.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>MI.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>
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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. 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.11-12.2(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.11-12.2(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>
Diffusion -	MI	<p>MI.B1. - Biology: Inquiry, Reflection, and Social Implications: Students will understand the nature of science and demonstrate an ability to practice scientific reasoning by applying it to the design, execution, and evaluation of scientific investigations. Students will demonstrate their understanding that scientific knowledge is gathered through various forms of direct and indirect observations and the testing of this information by methods including, but not limited to, experimentation.</p> <p>B1.1. - Scientific Inquiry</p> <p>B1.1A. - Generate new questions that can be investigated in the laboratory or field.</p> <p>B1.1B. - Evaluate the uncertainties or validity of scientific conclusions using an understanding of sources of measurement error, the challenges of controlling variables, accuracy of data analysis, logic of argument, logic of experimental design, and/or the dependence on underlying assumptions.</p> <p>B1.1D. - Identify patterns in data and relate them to theoretical models.</p> <p>B1.1E. - Describe a reason for a given conclusion using evidence from an investigation.</p>	<p>MI.B1. - Biology: Inquiry, Reflection, and Social Implications: Students will understand the nature of science and demonstrate an ability to practice scientific reasoning by applying it to the design, execution, and evaluation of scientific investigations. Students will demonstrate their understanding that scientific knowledge is gathered through various forms of direct and indirect observations and the testing of this information by methods including, but not limited to, experimentation.</p> <p>B1.1. - Scientific Inquiry</p> <p>B1.1A. - Generate new questions that can be investigated in the laboratory or field.</p> <p>B1.1B. - Evaluate the uncertainties or validity of scientific conclusions using an understanding of sources of measurement error, the challenges of controlling variables, accuracy of data analysis, logic of argument, logic of experimental design, and/or the dependence on underlying assumptions.</p> <p>B1.1D. - Identify patterns in data and relate them to theoretical models.</p> <p>B1.1E. - Describe a reason for a given conclusion using evidence from an investigation.</p>	<p>MI.B1. - Biology: Inquiry, Reflection, and Social Implications: Students will understand the nature of science and demonstrate an ability to practice scientific reasoning by applying it to the design, execution, and evaluation of scientific investigations. Students will demonstrate their understanding that scientific knowledge is gathered through various forms of direct and indirect observations and the testing of this information by methods including, but not limited to, experimentation.</p> <p>B1.1. - Scientific Inquiry</p> <p>B1.1A. - Generate new questions that can be investigated in the laboratory or field.</p> <p>B1.1B. - Evaluate the uncertainties or validity of scientific conclusions using an understanding of sources of measurement error, the challenges of controlling variables, accuracy of data analysis, logic of argument, logic of experimental design, and/or the dependence on underlying assumptions.</p> <p>B1.1D. - Identify patterns in data and relate them to theoretical models.</p> <p>B1.1E. - Describe a reason for a given conclusion using evidence from an investigation.</p>	<p>MI.B1. - Biology: Inquiry, Reflection, and Social Implications: Students will understand the nature of science and demonstrate an ability to practice scientific reasoning by applying it to the design, execution, and evaluation of scientific investigations. Students will demonstrate their understanding that scientific knowledge is gathered through various forms of direct and indirect observations and the testing of this information by methods including, but not limited to, experimentation.</p> <p>B1.1. - Scientific Inquiry</p> <p>B1.1A. - Generate new questions that can be investigated in the laboratory or field.</p> <p>B1.1B. - Evaluate the uncertainties or validity of scientific conclusions using an understanding of sources of measurement error, the challenges of controlling variables, accuracy of data analysis, logic of argument, logic of experimental design, and/or the dependence on underlying assumptions.</p> <p>B1.1D. - Identify patterns in data and relate them to theoretical models.</p> <p>B1.1E. - Describe a reason for a given conclusion using evidence from an investigation.</p>

<p>B1.1g. - Use empirical evidence to explain and critique the reasoning used to draw a scientific conclusion or explanation.</p> <p>B1.1h. - Design and conduct a systematic scientific investigation that tests a hypothesis. Draw conclusions from data presented in charts or tables.</p> <p>B1.2. - Scientific Reflection and Social Implications</p> <p>B1.2A. - Critique whether or not specific questions can be answered through scientific investigations.</p> <p>B1.2C. - Develop an understanding of a scientific concept by accessing information from multiple sources. Evaluate the scientific accuracy and significance of the information.</p> <p>B1.2h. - Describe the distinctions between scientific theories, laws, hypotheses, and observations.</p> <p>MI.B2. - Biology: Organization and Development of Living Systems: Students describe the general structure and function of cells. They can explain that all living systems are composed of cells and that organisms may be unicellular or multicellular.</p> <p>L2.p1. - Cells (prerequisite)</p> <p>L2.p1B. - Explain the importance of both water and the element carbon to cells. (prerequisite)</p> <p>L2.p1C. - Describe growth and development in terms of increase in cell number, cell size, and/or cell products. (prerequisite)</p> <p>L2.p2. - Cell Function (prerequisite)</p> <p>L2.p2A. - Describe how organisms sustain life by obtaining, transporting, transforming, releasing, and eliminating matter and energy. (prerequisite)</p> <p>L2.p2B. - Describe the effect of limiting food to developing cells. (prerequisite)</p> <p>L2.p3. - Plants as Producers (prerequisite)</p> <p>L2.p3A. - Explain the significance of carbon in organic molecules. (prerequisite)</p> <p>L2.p5. - Common Elements (prerequisite)</p> <p>L2.p5A. - Recognize the six most common elements in organic molecules (C, H, N, O, P, S). (prerequisite)</p> <p>L2.p5B. - Identify the most common complex molecules that make up living organisms. (prerequisite)</p> <p>L2.p5C. - Predict what would happen if essential elements were withheld from developing cells. (prerequisite)</p> <p>B2.1. - Transformation of Matter and Energy in Cells</p> <p>B2.1C. - Explain cell division, growth, and development as a consequence of an increase in cell number, cell size, and/or cell products.</p> <p>B2.2. - Organic Molecules</p> <p>B2.2A. - Explain how carbon can join to other carbon atoms in chains and rings to form large and complex molecules.</p> <p>B2.2B. - Recognize the six most common elements in organic molecules (C, H, N, O, P, S).</p> <p>B2.2C. - Describe the composition of the four major categories of organic molecules (carbohydrates, lipids, proteins, and nucleic acids).</p> <p>B2.2D. - Explain the general structure and primary functions of the major complex organic molecules that compose living organisms.</p> <p>B2.3. - Maintaining Environmental Stability</p> <p>B2.3A. - Describe how cells function in a narrow range of physical conditions, such as temperature and pH (acidity), to perform life functions.</p> <p>B2.3B. - Describe how the maintenance of a relatively stable internal environment is required for the continuation of life.</p> <p>B2.3x. - Homeostasis</p>	<p>B1.1g. - Use empirical evidence to explain and critique the reasoning used to draw a scientific conclusion or explanation.</p> <p>B1.1h. - Design and conduct a systematic scientific investigation that tests a hypothesis. Draw conclusions from data presented in charts or tables.</p> <p>B1.2. - Scientific Reflection and Social Implications</p> <p>B1.2A. - Critique whether or not specific questions can be answered through scientific investigations.</p> <p>B1.2C. - Develop an understanding of a scientific concept by accessing information from multiple sources. Evaluate the scientific accuracy and significance of the information.</p> <p>B1.2h. - Describe the distinctions between scientific theories, laws, hypotheses, and observations.</p> <p>MI.B2. - Biology: Organization and Development of Living Systems: Students describe the general structure and function of cells. They can explain that all living systems are composed of cells and that organisms may be unicellular or multicellular.</p> <p>L2.p1. - Cells (prerequisite)</p> <p>L2.p1B. - Explain the importance of both water and the element carbon to cells. (prerequisite)</p> <p>L2.p1C. - Describe growth and development in terms of increase in cell number, cell size, and/or cell products. (prerequisite)</p> <p>L2.p2. - Cell Function (prerequisite)</p> <p>L2.p2A. - Describe how organisms sustain life by obtaining, transporting, transforming, releasing, and eliminating matter and energy. (prerequisite)</p> <p>L2.p2B. - Describe the effect of limiting food to developing cells. (prerequisite)</p> <p>L2.p3. - Plants as Producers (prerequisite)</p> <p>L2.p3A. - Explain the significance of carbon in organic molecules. (prerequisite)</p> <p>L2.p5. - Common Elements (prerequisite)</p> <p>L2.p5A. - Recognize the six most common elements in organic molecules (C, H, N, O, P, S). (prerequisite)</p> <p>L2.p5B. - Identify the most common complex molecules that make up living organisms. (prerequisite)</p> <p>L2.p5C. - Predict what would happen if essential elements were withheld from developing cells. (prerequisite)</p> <p>B2.1. - Transformation of Matter and Energy in Cells</p> <p>B2.1C. - Explain cell division, growth, and development as a consequence of an increase in cell number, cell size, and/or cell products.</p> <p>B2.2. - Organic Molecules</p> <p>B2.2A. - Explain how carbon can join to other carbon atoms in chains and rings to form large and complex molecules.</p> <p>B2.2B. - Recognize the six most common elements in organic molecules (C, H, N, O, P, S).</p> <p>B2.2C. - Describe the composition of the four major categories of organic molecules (carbohydrates, lipids, proteins, and nucleic acids).</p> <p>B2.2D. - Explain the general structure and primary functions of the major complex organic molecules that compose living organisms.</p> <p>B2.3. - Maintaining Environmental Stability</p> <p>B2.3A. - Describe how cells function in a narrow range of physical conditions, such as temperature and pH (acidity), to perform life functions.</p> <p>B2.3B. - Describe how the maintenance of a relatively stable internal environment is required for the continuation of life.</p> <p>B2.3x. - Homeostasis</p>	<p>B1.1g. - Use empirical evidence to explain and critique the reasoning used to draw a scientific conclusion or explanation.</p> <p>B1.1h. - Design and conduct a systematic scientific investigation that tests a hypothesis. 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Note that cell behavior can also be affected by molecules from other parts of the organism, such as hormones. (recommended)</p> <p>MI.CC.RST.9-10. - Reading Standards for Literacy in Science and Technical Subjects</p> <p>- 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>MI.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>B2.3d. - Identify the general functions of the major systems of the human body (digestion, respiration, reproduction, circulation, excretion, protection from disease, and movement, control, and coordination) and describe ways that these systems interact with each other.</p> <p>B2.3e. - Describe how human body systems maintain relatively constant internal conditions (temperature, acidity, and blood sugar).</p> <p>B2.5. - Living Organism Composition</p> <p>B2.5A. - Recognize and explain that macromolecules such as lipids contain high energy bonds.</p> <p>B2.5x. - Energy Transfer</p> <p>B2.5g. - Compare and contrast plant and animal cells.</p> <p>B2.5h. - Explain the role of cell membranes as a highly selective barrier (diffusion, osmosis, and active transport).</p> <p>B2.6x. - Internal/External Cell Regulation</p> <p>B2.6a. - Explain that the regulatory and behavioral responses of an organism to external stimuli occur in order to maintain both short- and long-term equilibrium.</p> <p>B2.r6b. - Explain that complex interactions among the different kinds of molecules in the cell cause distinct cycles of activities, such as growth and division. 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(recommended)</p> <p>MI.CC.RST.11-12. - Reading Standards for Literacy in Science and Technical Subjects</p> <p>- 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.11-12.9. - 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>MI.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>B2.3d. - Identify the general functions of the major systems of the human body (digestion, respiration, reproduction, circulation, excretion, protection from disease, and movement, control, and coordination) and describe ways that these systems interact with each other.</p> <p>B2.3e. - Describe how human body systems maintain relatively constant internal conditions (temperature, acidity, and blood sugar).</p> <p>B2.5. - Living Organism Composition</p> <p>B2.5A. - Recognize and explain that macromolecules such as lipids contain high energy bonds.</p> <p>B2.5x. - Energy Transfer</p> <p>B2.5g. - Compare and contrast plant and animal cells.</p> <p>B2.5h. - Explain the role of cell membranes as a highly selective barrier (diffusion, osmosis, and active transport).</p> <p>B2.6x. - Internal/External Cell Regulation</p> <p>B2.6a. - Explain that the regulatory and behavioral responses of an organism to external stimuli occur in order to maintain both short- and long-term equilibrium.</p> <p>B2.r6b. - Explain that complex interactions among the different kinds of molecules in the cell cause distinct cycles of activities, such as growth and division. 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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>
Filtration -	MI	<p>MI.B1. - Biology: Inquiry, Reflection, and Social Implications: Students will understand the nature of science and demonstrate an ability to practice scientific reasoning by applying it to the design, execution, and evaluation of scientific investigations. Students will demonstrate their understanding that scientific knowledge is gathered through various forms of direct and indirect observations and the testing of this information by methods including, but not limited to, experimentation.</p> <p>B1.1. - Scientific Inquiry</p> <p>B1.1A. - Generate new questions that can be investigated in the laboratory or field.</p> <p>B1.1B. - Evaluate the uncertainties or validity of scientific conclusions using an understanding of sources of measurement error, the challenges of controlling variables, accuracy of data analysis, logic of argument, logic of experimental design, and/or the dependence on underlying assumptions.</p> <p>B1.1D. - Identify patterns in data and relate them to theoretical models.</p> <p>B1.1E. - Describe a reason for a given conclusion using evidence from an investigation.</p>	<p>MI.B1. - Biology: Inquiry, Reflection, and Social Implications: Students will understand the nature of science and demonstrate an ability to practice scientific reasoning by applying it to the design, execution, and evaluation of scientific investigations. Students will demonstrate their understanding that scientific knowledge is gathered through various forms of direct and indirect observations and the testing of this information by methods including, but not limited to, experimentation.</p> <p>B1.1. - Scientific Inquiry</p> <p>B1.1A. - Generate new questions that can be investigated in the laboratory or field.</p> <p>B1.1B. - Evaluate the uncertainties or validity of scientific conclusions using an understanding of sources of measurement error, the challenges of controlling variables, accuracy of data analysis, logic of argument, logic of experimental design, and/or the dependence on underlying assumptions.</p> <p>B1.1D. - Identify patterns in data and relate them to theoretical models.</p> <p>B1.1E. - Describe a reason for a given conclusion using evidence from an investigation.</p>	<p>MI.B1. - Biology: Inquiry, Reflection, and Social Implications: Students will understand the nature of science and demonstrate an ability to practice scientific reasoning by applying it to the design, execution, and evaluation of scientific investigations. Students will demonstrate their understanding that scientific knowledge is gathered through various forms of direct and indirect observations and the testing of this information by methods including, but not limited to, experimentation.</p> <p>B1.1. - Scientific Inquiry</p> <p>B1.1A. - Generate new questions that can be investigated in the laboratory or field.</p> <p>B1.1B. - Evaluate the uncertainties or validity of scientific conclusions using an understanding of sources of measurement error, the challenges of controlling variables, accuracy of data analysis, logic of argument, logic of experimental design, and/or the dependence on underlying assumptions.</p> <p>B1.1D. - Identify patterns in data and relate them to theoretical models.</p> <p>B1.1E. - Describe a reason for a given conclusion using evidence from an investigation.</p>	<p>MI.B1. - Biology: Inquiry, Reflection, and Social Implications: Students will understand the nature of science and demonstrate an ability to practice scientific reasoning by applying it to the design, execution, and evaluation of scientific investigations. Students will demonstrate their understanding that scientific knowledge is gathered through various forms of direct and indirect observations and the testing of this information by methods including, but not limited to, experimentation.</p> <p>B1.1. - Scientific Inquiry</p> <p>B1.1A. - Generate new questions that can be investigated in the laboratory or field.</p> <p>B1.1B. - Evaluate the uncertainties or validity of scientific conclusions using an understanding of sources of measurement error, the challenges of controlling variables, accuracy of data analysis, logic of argument, logic of experimental design, and/or the dependence on underlying assumptions.</p> <p>B1.1D. - Identify patterns in data and relate them to theoretical models.</p> <p>B1.1E. - Describe a reason for a given conclusion using evidence from an investigation.</p>

<p>B1.1g. - Use empirical evidence to explain and critique the reasoning used to draw a scientific conclusion or explanation.</p> <p>B1.1h. - Design and conduct a systematic scientific investigation that tests a hypothesis. Draw conclusions from data presented in charts or tables.</p> <p>B1.2. - Scientific Reflection and Social Implications</p> <p>B1.2A. - Critique whether or not specific questions can be answered through scientific investigations.</p> <p>B1.2C. - Develop an understanding of a scientific concept by accessing information from multiple sources. Evaluate the scientific accuracy and significance of the information.</p> <p>B1.2h. - Describe the distinctions between scientific theories, laws, hypotheses, and observations.</p> <p>MI.B2. - Biology: Organization and Development of Living Systems: Students describe the general structure and function of cells. They can explain that all living systems are composed of cells and that organisms may be unicellular or multicellular.</p> <p>L2.p1. - Cells (prerequisite)</p> <p>L2.p1B. - Explain the importance of both water and the element carbon to cells. (prerequisite)</p> <p>L2.p1D. - Explain how the systems in a multicellular organism work together to support the organism. (prerequisite)</p> <p>L2.p2. - Cell Function (prerequisite)</p> <p>L2.p2A. - Describe how organisms sustain life by obtaining, transporting, transforming, releasing, and eliminating matter and energy. (prerequisite)</p> <p>B2.3. - Maintaining Environmental Stability</p> <p>B2.3B. - Describe how the maintenance of a relatively stable internal environment is required for the continuation of life.</p> <p>B2.3x. - Homeostasis</p> <p>B2.3d. - Identify the general functions of the major systems of the human body (digestion, respiration, reproduction, circulation, excretion, protection from disease, and movement, control, and coordination) and describe ways that these systems interact with each other.</p> <p>B2.3e. - Describe how human body systems maintain relatively constant internal conditions (temperature, acidity, and blood sugar).</p> <p>B2.5. - Living Organism Composition</p> <p>B2.5B. - Explain how major systems and processes work together in animals and plants, including relationships between organelles, cells, tissues, organs, organ systems, and organisms. Relate these to molecular functions.</p> <p>B2.5x. - Energy Transfer</p> <p>B2.5g. - Compare and contrast plant and animal cells.</p> <p>B2.5h. - Explain the role of cell membranes as a highly selective barrier (diffusion, osmosis, and active transport).</p> <p>B2.6x. - Internal/External Cell Regulation</p> <p>B2.6a. - Explain that the regulatory and behavioral responses of an organism to external stimuli occur in order to maintain both short- and long-term equilibrium.</p> <p>MI.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>B1.1g. - Use empirical evidence to explain and critique the reasoning used to draw a scientific conclusion or explanation.</p> <p>B1.1h. - Design and conduct a systematic scientific investigation that tests a hypothesis. 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<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>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>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.11-12.9. - 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>MI.CC.WHST.9-10. - Writing Standards for Literacy in Science and Technical Subjects</p>	<p>MI.CC.WHST.9-10. - Writing Standards for Literacy in Science and Technical Subjects</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>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>WHST.9-10.1. - Write arguments focused on discipline-specific content.</p>	<p>WHST.9-10.1. - Write arguments focused on discipline-specific content.</p>	<p>MI.CC.WHST.11-12. - Writing Standards for Literacy in Science and Technical Subjects</p>	<p>MI.CC.WHST.11-12. - Writing Standards for Literacy in Science and Technical Subjects</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(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.11-12.1. - Write arguments focused on discipline-specific content.</p>	<p>WHST.11-12.1. - Write arguments focused on discipline-specific content.</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(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.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(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.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(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(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(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.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(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(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.9-10.2. - Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.</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.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(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(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.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. - Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.</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(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(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(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(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.11-12.3. - (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>
Membrane Potential -	MI	<p>MI.B1. - Biology: Inquiry, Reflection, and Social Implications: Students will understand the nature of science and demonstrate an ability to practice scientific reasoning by applying it to the design, execution, and evaluation of scientific investigations. Students will demonstrate their understanding that scientific knowledge is gathered through various forms of direct and indirect observations and the testing of this information by methods including, but not limited to, experimentation.</p> <p>B1.1. - Scientific Inquiry</p> <p>B1.1A. - Generate new questions that can be investigated in the laboratory or field.</p> <p>B1.1B. - Evaluate the uncertainties or validity of scientific conclusions using an understanding of sources of measurement error, the challenges of controlling variables, accuracy of data analysis, logic of argument, logic of experimental design, and/or the dependence on underlying assumptions.</p> <p>B1.1D. - Identify patterns in data and relate them to theoretical models.</p> <p>B1.1E. - Describe a reason for a given conclusion using evidence from an investigation.</p> <p>B1.1g. - Use empirical evidence to explain and critique the reasoning used to draw a scientific conclusion or explanation.</p> <p>B1.1h. - Design and conduct a systematic scientific investigation that tests a hypothesis. Draw conclusions from data presented in charts or tables.</p> <p>B1.2. - Scientific Reflection and Social Implications</p> <p>B1.2A. - Critique whether or not specific questions can be answered through scientific investigations.</p> <p>B1.2C. - Develop an understanding of a scientific concept by accessing information from multiple sources. Evaluate the scientific accuracy and significance of the information.</p> <p>B1.2h. - Describe the distinctions between scientific theories, laws, hypotheses, and observations.</p> <p>MI.B2. - Biology: Organization and Development of Living Systems: Students describe the general structure and function of cells. They can explain that all living systems are composed of cells and that organisms may be unicellular or multicellular.</p> <p>L2.p1. - Cells (prerequisite)</p> <p>L2.p1D. - Explain how the systems in a multicellular organism work together to support the organism. (prerequisite)</p> <p>L2.p2. - Cell Function (prerequisite)</p> <p>L2.p2A. - Describe how organisms sustain life by obtaining, transporting, transforming, releasing, and eliminating matter and energy. (prerequisite)</p> <p>L2.p5. - Common Elements (prerequisite)</p> <p>L2.p5B. - Identify the most common complex molecules that make up living organisms. (prerequisite)</p> <p>B2.2. - Organic Molecules</p>	<p>MI.B1. - Biology: Inquiry, Reflection, and Social Implications: Students will understand the nature of science and demonstrate an ability to practice scientific reasoning by applying it to the design, execution, and evaluation of scientific investigations. 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<p>B2.2A. - Explain how carbon can join to other carbon atoms in chains and rings to form large and complex molecules.  B2.2x. - Proteins  B2.2f. - Explain the role of enzymes and other proteins in biochemical functions (e.g., the protein hemoglobin carries oxygen in some organisms, digestive enzymes, and hormones).  B2.3. - Maintaining Environmental Stability  B2.3B. - Describe how the maintenance of a relatively stable internal environment is required for the continuation of life.  B2.3x. - Homeostasis  B2.3d. - Identify the general functions of the major systems of the human body (digestion, respiration, reproduction, circulation, excretion, protection from disease, and movement, control, and coordination) and describe ways that these systems interact with each other.  B2.3e. - Describe how human body systems maintain relatively constant internal conditions (temperature, acidity, and blood sugar).  B2.3g. - Compare the structure and function of a human body system or subsystem to a nonliving system (e.g., human joints to hinges, enzyme and substrate to interlocking puzzle pieces).</p>	<p>B2.2A. - Explain how carbon can join to other carbon atoms in chains and rings to form large and complex molecules.  B2.2x. - Proteins  B2.2f. - Explain the role of enzymes and other proteins in biochemical functions (e.g., the protein hemoglobin carries oxygen in some organisms, digestive enzymes, and hormones).  B2.3. - Maintaining Environmental Stability  B2.3B. - Describe how the maintenance of a relatively stable internal environment is required for the continuation of life.  B2.3x. - Homeostasis  B2.3d. - Identify the general functions of the major systems of the human body (digestion, respiration, reproduction, circulation, excretion, protection from disease, and movement, control, and coordination) and describe ways that these systems interact with each other.  B2.3e. - Describe how human body systems maintain relatively constant internal conditions (temperature, acidity, and blood sugar).  B2.3g. - Compare the structure and function of a human body system or subsystem to a nonliving system (e.g., human joints to hinges, enzyme and substrate to interlocking puzzle pieces).</p>	<p>B2.2A. - Explain how carbon can join to other carbon atoms in chains and rings to form large and complex molecules.  B2.2x. - Proteins  B2.2f. - Explain the role of enzymes and other proteins in biochemical functions (e.g., the protein hemoglobin carries oxygen in some organisms, digestive enzymes, and hormones).  B2.3. - Maintaining Environmental Stability  B2.3B. - Describe how the maintenance of a relatively stable internal environment is required for the continuation of life.  B2.3x. - Homeostasis  B2.3d. - Identify the general functions of the major systems of the human body (digestion, respiration, reproduction, circulation, excretion, protection from disease, and movement, control, and coordination) and describe ways that these systems interact with each other.  B2.3e. - Describe how human body systems maintain relatively constant internal conditions (temperature, acidity, and blood sugar).  B2.3g. - Compare the structure and function of a human body system or subsystem to a nonliving system (e.g., human joints to hinges, enzyme and substrate to interlocking puzzle pieces).</p>	<p>B2.2A. - Explain how carbon can join to other carbon atoms in chains and rings to form large and complex molecules.  B2.2x. - Proteins  B2.2f. - Explain the role of enzymes and other proteins in biochemical functions (e.g., the protein hemoglobin carries oxygen in some organisms, digestive enzymes, and hormones).  B2.3. - Maintaining Environmental Stability  B2.3B. - Describe how the maintenance of a relatively stable internal environment is required for the continuation of life.  B2.3x. - Homeostasis  B2.3d. - Identify the general functions of the major systems of the human body (digestion, respiration, reproduction, circulation, excretion, protection from disease, and movement, control, and coordination) and describe ways that these systems interact with each other.  B2.3e. - Describe how human body systems maintain relatively constant internal conditions (temperature, acidity, and blood sugar).  B2.3g. - Compare the structure and function of a human body system or subsystem to a nonliving system (e.g., human joints to hinges, enzyme and substrate to interlocking puzzle pieces).</p>
<p>B2.5. - Living Organism Composition  B2.5B. - Explain how major systems and processes work together in animals and plants, including relationships between organelles, cells, tissues, organs, organ systems, and organisms. Relate these to molecular functions.  B2.5x. - Energy Transfer  B2.5g. - Compare and contrast plant and animal cells.  B2.5h. - Explain the role of cell membranes as a highly selective barrier (diffusion, osmosis, and active transport).  B2.6x. - Internal/External Cell Regulation  B2.6a. - Explain that the regulatory and behavioral responses of an organism to external stimuli occur in order to maintain both short- and long-term equilibrium.  MI.CC.RST.9-10. - Reading Standards for Literacy in Science and Technical Subjects  - Key Ideas and Details  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.  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).  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>B2.5. - Living Organism Composition  B2.5B. - Explain how major systems and processes work together in animals and plants, including relationships between organelles, cells, tissues, organs, organ systems, and organisms. Relate these to molecular functions.  B2.5x. - Energy Transfer  B2.5g. - Compare and contrast plant and animal cells.  B2.5h. - Explain the role of cell membranes as a highly selective barrier (diffusion, osmosis, and active transport).  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MI.CC.RST.11-12. - Reading Standards for Literacy in Science and Technical Subjects  - Key Ideas and Details  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.  RST.11-12.5. - Analyze how the text structures information or ideas into categories or hierarchies, demonstrating understanding of the information or ideas.  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.  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>B2.5. - Living Organism Composition  B2.5B. - Explain how major systems and processes work together in animals and plants, including relationships between organelles, cells, tissues, organs, organ systems, and organisms. Relate these to molecular functions.  B2.5x. - Energy Transfer  B2.5g. - Compare and contrast plant and animal cells.  B2.5h. - Explain the role of cell membranes as a highly selective barrier (diffusion, osmosis, and active transport).  B2.6x. - Internal/External Cell Regulation  B2.6a. - Explain that the regulatory and behavioral responses of an organism to external stimuli occur in order to maintain both short- and long-term equilibrium.  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<p>MI.CC.WHST.9-10. - Writing Standards for Literacy in Science and Technical Subjects  WHST.9-10.1. - Write arguments focused on discipline-specific content.  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.  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>MI.CC.WHST.9-10. - Writing Standards for Literacy in Science and Technical Subjects  WHST.9-10.1. - Write arguments focused on discipline-specific content.  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.  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>MI.CC.WHST.11-12. - Writing Standards for Literacy in Science and Technical Subjects  WHST.11-12.1. - Write arguments focused on discipline-specific content.  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>MI.CC.WHST.11-12. - Writing Standards for Literacy in Science and Technical Subjects  WHST.11-12.1. - Write arguments focused on discipline-specific content.  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.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.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. 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Membrane Transport - MI	<p>MI.B1. - Biology: Inquiry, Reflection, and Social Implications: Students will understand the nature of science and demonstrate an ability to practice scientific reasoning by applying it to the design, execution, and evaluation of scientific investigations. Students will demonstrate their understanding that scientific knowledge is gathered through various forms of direct and indirect observations and the testing of this information by methods including, but not limited to, experimentation.</p> <p>B1.1. - Scientific Inquiry</p> <p>B1.1A. - Generate new questions that can be investigated in the laboratory or field.</p> <p>B1.1B. - Evaluate the uncertainties or validity of scientific conclusions using an understanding of sources of measurement error, the challenges of controlling variables, accuracy of data analysis, logic of argument, logic of experimental design, and/or the dependence on underlying assumptions.</p> <p>B1.1D. - Identify patterns in data and relate them to theoretical models.</p> <p>B1.1E. - Describe a reason for a given conclusion using evidence from an investigation.</p> <p>B1.1g. - Use empirical evidence to explain and critique the reasoning used to draw a scientific conclusion or explanation.</p> <p>B1.1h. - Design and conduct a systematic scientific investigation that tests a hypothesis. Draw conclusions from data presented in charts or tables.</p> <p>B1.2. - Scientific Reflection and Social Implications</p> <p>B1.2A. - Critique whether or not specific questions can be answered through scientific investigations.</p> <p>B1.2C. - Develop an understanding of a scientific concept by accessing information from multiple sources. Evaluate the scientific accuracy and significance of the information.</p> <p>B1.2h. - Describe the distinctions between scientific theories, laws, hypotheses, and observations.</p> <p>MI.B2. - Biology: Organization and Development of Living Systems: Students describe the general structure and function of cells. They can explain that all living systems are composed of cells and that organisms may be unicellular or multicellular.</p> <p>L2.p1. - Cells (prerequisite)</p> <p>L2.p1B. - Explain the importance of both water and the element carbon to cells. (prerequisite)</p> <p>L2.p1D. - Explain how the systems in a multicellular organism work together to support the organism. (prerequisite)</p> <p>L2.p2. - Cell Function (prerequisite)</p> <p>L2.p2A. - Describe how organisms sustain life by obtaining, transporting, transforming, releasing, and eliminating matter and energy. (prerequisite)</p> <p>L2.p3. - Plants as Producers (prerequisite)</p> <p>L2.p3A. - Explain the significance of carbon in organic molecules. (prerequisite)</p> <p>L2.p5. - Common Elements (prerequisite)</p> <p>L2.p5B. - Identify the most common complex molecules that make up living organisms. 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	<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.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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Nitrogen Cycle –	MI	<p>MI.B1. - Biology: Inquiry, Reflection, and Social Implications: Students will understand the nature of science and demonstrate an ability to practice scientific reasoning by applying it to the design, execution, and evaluation of scientific investigations. Students will demonstrate their understanding that scientific knowledge is gathered through various forms of direct and indirect observations and the testing of this information by methods including, but not limited to, experimentation.</p> <p>B1.1. - Scientific Inquiry</p> <p>B1.1A. - Generate new questions that can be investigated in the laboratory or field.</p> <p>B1.1B. - Evaluate the uncertainties or validity of scientific conclusions using an understanding of sources of measurement error, the challenges of controlling variables, accuracy of data analysis, logic of argument, logic of experimental design, and/or the dependence on underlying assumptions.</p> <p>B1.1D. - Identify patterns in data and relate them to theoretical models.</p> <p>B1.1E. - Describe a reason for a given conclusion using evidence from an investigation.</p> <p>B1.1g. - Use empirical evidence to explain and critique the reasoning used to draw a scientific conclusion or explanation.</p> <p>B1.1h. - Design and conduct a systematic scientific investigation that tests a hypothesis. Draw conclusions from data presented in charts or tables.</p> <p>B1.2. - Scientific Reflection and Social Implications</p> <p>B1.2A. - Critique whether or not specific questions can be answered through scientific investigations.</p> <p>B1.2C. - Develop an understanding of a scientific concept by accessing information from multiple sources. Evaluate the scientific accuracy and significance of the information.</p> <p>B1.2h. - Describe the distinctions between scientific theories, laws, hypotheses, and observations.</p> <p>MI.B2. - Biology: Organization and Development of Living Systems: Students describe the general structure and function of cells. They can explain that all living systems are composed of cells and that organisms may be unicellular or multicellular.</p> <p>L2.p1. - Cells (prerequisite)</p> <p>L2.p1B. - Explain the importance of both water and the element carbon to cells. (prerequisite)</p> <p>L2.p2. - Cell Function (prerequisite)</p> <p>L2.p2A. - Describe how organisms sustain life by obtaining, transporting, transforming, releasing, and eliminating matter and energy. (prerequisite)</p> <p>L2.p2B. - Describe the effect of limiting food to developing cells. (prerequisite)</p> <p>L2.p3. - Plants as Producers (prerequisite)</p> <p>L2.p3A. - Explain the significance of carbon in organic molecules. (prerequisite)</p> <p>L2.p5. - Common Elements (prerequisite)</p> <p>L2.p5B. - Identify the most common complex molecules that make up living organisms. (prerequisite)</p> <p>L2.p5C. - Predict what would happen if essential elements were withheld from developing cells. (prerequisite)</p> <p>B2.2. - Organic Molecules</p> <p>B2.2A. - Explain how carbon can join to other carbon atoms in chains and rings to form large and complex molecules.</p> <p>B2.2C. - Describe the composition of the four major categories of organic molecules (carbohydrates, lipids, proteins, and nucleic acids).</p>	<p>MI.B1. - Biology: Inquiry, Reflection, and Social Implications: Students will understand the nature of science and demonstrate an ability to practice scientific reasoning by applying it to the design, execution, and evaluation of scientific investigations. 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Note that cell behavior can also be affected by molecules from other parts of the organism, such as hormones. (recommended)</p> <p>MI.B3. - Biology: Interdependence of Living Systems and the Environment: Students describe the processes of photosynthesis and cellular respiration and how energy is transferred through food webs. They recognize and analyze the consequences of the dependence of organisms on environmental resources and the interdependence of organisms in ecosystems.</p> <p>L3.p2. - Relationships Among Organisms (prerequisite)</p> <p>L3.p2B. - Describe common ecological relationships between and among species and their environments (competition, territory, carrying capacity, natural balance, population, dependence, survival, and other biotic and abiotic factors). (prerequisite)</p> <p>L3.p3. - Factors Influencing Ecosystems (prerequisite)</p> <p>L3.p3C. - Explain how biotic and abiotic factors cycle in an ecosystem (water, carbon, oxygen, and nitrogen). (prerequisite)</p> <p>B3.3. - Element Recombination</p> <p>B3.3b. - Describe environmental processes (e.g., the carbon and nitrogen cycles) and their role in processing matter crucial for sustaining life.</p> <p>B3.4. - Changes in Ecosystems</p> <p>B3.4C. - Examine the negative impact of human activities.</p> <p>MI.C3. - Chemistry: Energy Transfer and Conservation: Students apply the First and Second Laws of Thermodynamics to explain and predict most chemical phenomena.</p> <p>C3.2x. - Enthalpy</p> <p>C3.2a. - Describe the energy changes in photosynthesis and in the combustion of sugar in terms of bond breaking and bond making.</p> <p>MI.E2. - Earth Science: Earth Systems: Students describe the interactions within and between Earth systems. Students will explain how both fluids (water cycle) and solids (rock cycle) move within Earth systems and how these movements form and change their environment.</p> <p>E2.3. - Biogeochemical Cycles</p> <p>E2.3c. - Explain how the nitrogen cycle is part of the Earth system.</p> <p>MI.CC.RST.9-10. - Reading Standards for Literacy in Science and Technical Subjects</p> <p>- Key Ideas and Details</p>	<p>B2.2D. - Explain the general structure and primary functions of the major complex organic molecules that compose living organisms.</p> <p>B2.2x. - Proteins</p> <p>B2.2f. - Explain the role of enzymes and other proteins in biochemical functions (e.g., the protein hemoglobin carries oxygen in some organisms, digestive enzymes, and hormones).</p> <p>B2.3. - Maintaining Environmental Stability</p> <p>B2.3A. - Describe how cells function in a narrow range of physical conditions, such as temperature and pH (acidity), to perform life functions.</p> <p>B2.3B. - Describe how the maintenance of a relatively stable internal environment is required for the continuation of life.</p> <p>B2.3C. - Explain how stability is challenged by changing physical, chemical, and environmental conditions as well as the presence of disease agents.</p> <p>B2.6x. - Internal/External Cell Regulation</p> <p>B2.r6b. - Explain that complex interactions among the different kinds of molecules in the cell cause distinct cycles of activities, such as growth and division. 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Note that cell behavior can also be affected by molecules from other parts of the organism, such as hormones. (recommended)</p> <p>MI.B3. - Biology: Interdependence of Living Systems and the Environment: Students describe the processes of photosynthesis and cellular respiration and how energy is transferred through food webs. They recognize and analyze the consequences of the dependence of organisms on environmental resources and the interdependence of organisms in ecosystems.</p> <p>L3.p2. - Relationships Among Organisms (prerequisite)</p> <p>L3.p2B. - Describe common ecological relationships between and among species and their environments (competition, territory, carrying capacity, natural balance, population, dependence, survival, and other biotic and abiotic factors). (prerequisite)</p> <p>L3.p3. - Factors Influencing Ecosystems (prerequisite)</p> <p>L3.p3C. - Explain how biotic and abiotic factors cycle in an ecosystem (water, carbon, oxygen, and nitrogen). (prerequisite)</p> <p>B3.3. - Element Recombination</p> <p>B3.3b. - Describe environmental processes (e.g., the carbon and nitrogen cycles) and their role in processing matter crucial for sustaining life.</p> <p>B3.4. - Changes in Ecosystems</p> <p>B3.4C. - Examine the negative impact of human activities.</p> <p>MI.C3. - Chemistry: Energy Transfer and Conservation: Students apply the First and Second Laws of Thermodynamics to explain and predict most chemical phenomena.</p> <p>C3.2x. - Enthalpy</p> <p>C3.2a. - Describe the energy changes in photosynthesis and in the combustion of sugar in terms of bond breaking and bond making.</p> <p>MI.E2. - Earth Science: Earth Systems: Students describe the interactions within and between Earth systems. 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<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.9-10.1. - Cite specific textual evidence to support analysis of science and technical texts, attending to the precise details of explanations or descriptions.</p>	<p>RST.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.11-12.1. - 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.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). 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>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). 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>RST.11-12.5. - Analyze how the text structures information or ideas into categories or hierarchies, demonstrating understanding of the information or ideas. 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.11-12.5. - Analyze how the text structures information or ideas into categories or hierarchies, demonstrating understanding of the information or ideas. 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>MI.CC.WHST.9-10. - Writing Standards for Literacy in Science and Technical Subjects</p>	<p>MI.CC.WHST.9-10. - Writing Standards for Literacy in Science and Technical Subjects</p>	<p>MI.CC.WHST.11-12. - Writing Standards for Literacy in Science and Technical Subjects</p>	<p>MI.CC.WHST.11-12. - Writing Standards for Literacy in Science and Technical Subjects</p>
<p>WHST.9-10.1. - Write arguments focused on discipline-specific content. 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. 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. 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. - Write arguments focused on discipline-specific content. 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. 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. 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. 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. 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. 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. 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. 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. 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. 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. 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. 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. 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. 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. 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.9-10.4. - Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.</p>	<p>WHST.9-10.3(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.11-12.2(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.11-12.2(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>
Osmosis -	MI	<p>MI.B1. - Biology: Inquiry, Reflection, and Social Implications: Students will understand the nature of science and demonstrate an ability to practice scientific reasoning by applying it to the design, execution, and evaluation of scientific investigations. Students will demonstrate their understanding that scientific knowledge is gathered through various forms of direct and indirect observations and the testing of this information by methods including, but not limited to, experimentation.</p> <p>B1.1. - Scientific Inquiry</p> <p>B1.1A. - Generate new questions that can be investigated in the laboratory or field.</p> <p>B1.1B. - Evaluate the uncertainties or validity of scientific conclusions using an understanding of sources of measurement error, the challenges of controlling variables, accuracy of data analysis, logic of argument, logic of experimental design, and/or the dependence on underlying assumptions.</p> <p>B1.1D. - Identify patterns in data and relate them to theoretical models.</p> <p>B1.1E. - Describe a reason for a given conclusion using evidence from an investigation.</p> <p>B1.1g. - Use empirical evidence to explain and critique the reasoning used to draw a scientific conclusion or explanation.</p> <p>B1.1h. - Design and conduct a systematic scientific investigation that tests a hypothesis. Draw conclusions from data presented in charts or tables.</p> <p>B1.2. - Scientific Reflection and Social Implications</p> <p>B1.2A. - Critique whether or not specific questions can be answered through scientific investigations.</p> <p>B1.2C. - Develop an understanding of a scientific concept by accessing information from multiple sources. Evaluate the scientific accuracy and significance of the information.</p> <p>B1.2h. - Describe the distinctions between scientific theories, laws, hypotheses, and observations.</p> <p>MI.B2. - Biology: Organization and Development of Living Systems: Students describe the general structure and function of cells. They can explain that all living systems are composed of cells and that organisms may be unicellular or multicellular.</p> <p>L2.p1. - Cells (prerequisite)</p> <p>L2.p1B. - Explain the importance of both water and the element carbon to cells. 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<p>L2.p1C. - Describe growth and development in terms of increase in cell number, cell size, and/or cell products. (prerequisite)</p> <p>L2.p2. - Cell Function (prerequisite)</p> <p>L2.p2A. - Describe how organisms sustain life by obtaining, transporting, transforming, releasing, and eliminating matter and energy. (prerequisite)</p> <p>B2.1. - Transformation of Matter and Energy in Cells</p> <p>B2.1C. - Explain cell division, growth, and development as a consequence of an increase in cell number, cell size, and/or cell products.</p> <p>B2.3. - Maintaining Environmental Stability</p> <p>B2.3B. - Describe how the maintenance of a relatively stable internal environment is required for the continuation of life.</p> <p>B2.3x. - Homeostasis</p> <p>B2.3e. - Describe how human body systems maintain relatively constant internal conditions (temperature, acidity, and blood sugar).</p> <p>B2.5x. - Energy Transfer</p> <p>B2.5g. - Compare and contrast plant and animal cells.</p> <p>B2.5h. - Explain the role of cell membranes as a highly selective barrier (diffusion, osmosis, and active transport).</p> <p>B2.6x. - Internal/External Cell Regulation</p> <p>B2.6a. - Explain that the regulatory and behavioral responses of an organism to external stimuli occur in order to maintain both short- and long-term equilibrium.</p> <p>B2.r6b. - Explain that complex interactions among the different kinds of molecules in the cell cause distinct cycles of activities, such as growth and division. Note that cell behavior can also be affected by molecules from other parts of the organism, such as hormones. (recommended)</p> <p>MI.CC.RST.9-10. - Reading Standards for Literacy in Science and Technical Subjects</p> <p>- 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>MI.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>L2.p1C. - Describe growth and development in terms of increase in cell number, cell size, and/or cell products. (prerequisite)</p> <p>L2.p2. - Cell Function (prerequisite)</p> <p>L2.p2A. - Describe how organisms sustain life by obtaining, transporting, transforming, releasing, and eliminating matter and energy. (prerequisite)</p> <p>B2.1. - Transformation of Matter and Energy in Cells</p> <p>B2.1C. - Explain cell division, growth, and development as a consequence of an increase in cell number, cell size, and/or cell products.</p> <p>B2.3. - Maintaining Environmental Stability</p> <p>B2.3B. - Describe how the maintenance of a relatively stable internal environment is required for the continuation of life.</p> <p>B2.3x. - Homeostasis</p> <p>B2.3e. - Describe how human body systems maintain relatively constant internal conditions (temperature, acidity, and blood sugar).</p> <p>B2.5x. - Energy Transfer</p> <p>B2.5g. - Compare and contrast plant and animal cells.</p> <p>B2.5h. - Explain the role of cell membranes as a highly selective barrier (diffusion, osmosis, and active transport).</p> <p>B2.6x. - Internal/External Cell Regulation</p> <p>B2.6a. - Explain that the regulatory and behavioral responses of an organism to external stimuli occur in order to maintain both short- and long-term equilibrium.</p> <p>B2.r6b. - Explain that complex interactions among the different kinds of molecules in the cell cause distinct cycles of activities, such as growth and division. 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Note that cell behavior can also be affected by molecules from other parts of the organism, such as hormones. (recommended)</p> <p>MI.CC.RST.11-12. - Reading Standards for Literacy in Science and Technical Subjects</p> <p>- 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>MI.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>L2.p1C. - Describe growth and development in terms of increase in cell number, cell size, and/or cell products. (prerequisite)</p> <p>L2.p2. - Cell Function (prerequisite)</p> <p>L2.p2A. - Describe how organisms sustain life by obtaining, transporting, transforming, releasing, and eliminating matter and energy. (prerequisite)</p> <p>B2.1. - Transformation of Matter and Energy in Cells</p> <p>B2.1C. - Explain cell division, growth, and development as a consequence of an increase in cell number, cell size, and/or cell products.</p> <p>B2.3. - Maintaining Environmental Stability</p> <p>B2.3B. - Describe how the maintenance of a relatively stable internal environment is required for the continuation of life.</p> <p>B2.3x. - Homeostasis</p> <p>B2.3e. - Describe how human body systems maintain relatively constant internal conditions (temperature, acidity, and blood sugar).</p> <p>B2.5x. - Energy Transfer</p> <p>B2.5g. - Compare and contrast plant and animal cells.</p> <p>B2.5h. - Explain the role of cell membranes as a highly selective barrier (diffusion, osmosis, and active transport).</p> <p>B2.6x. - Internal/External Cell Regulation</p> <p>B2.6a. - Explain that the regulatory and behavioral responses of an organism to external stimuli occur in order to maintain both short- and long-term equilibrium.</p> <p>B2.r6b. - Explain that complex interactions among the different kinds of molecules in the cell cause distinct cycles of activities, such as growth and division. Note that cell behavior can also be affected by molecules from other parts of the organism, such as hormones. 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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(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(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(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>
Photosynthesis -	MI	<p>MI.B1. - Biology: Inquiry, Reflection, and Social Implications: Students will understand the nature of science and demonstrate an ability to practice scientific reasoning by applying it to the design, execution, and evaluation of scientific investigations. Students will demonstrate their understanding that scientific knowledge is gathered through various forms of direct and indirect observations and the testing of this information by methods including, but not limited to, experimentation.</p> <p>B1.1. - Scientific Inquiry</p>	<p>MI.B1. - Biology: Inquiry, Reflection, and Social Implications: Students will understand the nature of science and demonstrate an ability to practice scientific reasoning by applying it to the design, execution, and evaluation of scientific investigations. Students will demonstrate their understanding that scientific knowledge is gathered through various forms of direct and indirect observations and the testing of this information by methods including, but not limited to, experimentation.</p> <p>B1.1. - Scientific Inquiry</p>	<p>MI.B1. - Biology: Inquiry, Reflection, and Social Implications: Students will understand the nature of science and demonstrate an ability to practice scientific reasoning by applying it to the design, execution, and evaluation of scientific investigations. Students will demonstrate their understanding that scientific knowledge is gathered through various forms of direct and indirect observations and the testing of this information by methods including, but not limited to, experimentation.</p> <p>B1.1. - Scientific Inquiry</p>	<p>MI.B1. - Biology: Inquiry, Reflection, and Social Implications: Students will understand the nature of science and demonstrate an ability to practice scientific reasoning by applying it to the design, execution, and evaluation of scientific investigations. Students will demonstrate their understanding that scientific knowledge is gathered through various forms of direct and indirect observations and the testing of this information by methods including, but not limited to, experimentation.</p> <p>B1.1. - Scientific Inquiry</p>



<p>B1.1A. - Generate new questions that can be investigated in the laboratory or field.</p> <p>B1.1B. - Evaluate the uncertainties or validity of scientific conclusions using an understanding of sources of measurement error, the challenges of controlling variables, accuracy of data analysis, logic of argument, logic of experimental design, and/or the dependence on underlying assumptions.</p> <p>B1.1D. - Identify patterns in data and relate them to theoretical models.</p> <p>B1.1E. - Describe a reason for a given conclusion using evidence from an investigation.</p> <p>B1.1g. - Use empirical evidence to explain and critique the reasoning used to draw a scientific conclusion or explanation.</p> <p>B1.1h. - Design and conduct a systematic scientific investigation that tests a hypothesis. Draw conclusions from data presented in charts or tables.</p> <p>B1.2. - Scientific Reflection and Social Implications</p> <p>B1.2A. - Critique whether or not specific questions can be answered through scientific investigations.</p> <p>B1.2C. - Develop an understanding of a scientific concept by accessing information from multiple sources. Evaluate the scientific accuracy and significance of the information.</p> <p>B1.2h. - Describe the distinctions between scientific theories, laws, hypotheses, and observations.</p> <p>MI.B2. - Biology: Organization and Development of Living Systems: Students describe the general structure and function of cells. They can explain that all living systems are composed of cells and that organisms may be unicellular or multicellular.</p> <p>L2.p1. - Cells (prerequisite)</p> <p>L2.p1B. - Explain the importance of both water and the element carbon to cells. (prerequisite)</p> <p>L2.p1D. - Explain how the systems in a multicellular organism work together to support the organism. (prerequisite)</p> <p>L2.p2. - Cell Function (prerequisite)</p> <p>L2.p2A. - Describe how organisms sustain life by obtaining, transporting, transforming, releasing, and eliminating matter and energy. (prerequisite)</p> <p>L2.p2B. - Describe the effect of limiting food to developing cells. (prerequisite)</p> <p>L2.p3. - Plants as Producers (prerequisite)</p> <p>L2.p3A. - Explain the significance of carbon in organic molecules. (prerequisite)</p> <p>L2.p4. - Animals as Consumers (prerequisite)</p> <p>L2.p4B. - Explain how an organism obtains energy from the food it consumes. (prerequisite)</p> <p>L2.p5. - Common Elements (prerequisite)</p> <p>L2.p5B. - Identify the most common complex molecules that make up living organisms. (prerequisite)</p> <p>L2.p5C. - Predict what would happen if essential elements were withheld from developing cells. (prerequisite)</p> <p>B2.1. - Transformation of Matter and Energy in Cells</p> <p>B2.1A. - Explain how cells transform energy (ultimately obtained from the sun) from one form to another through the processes of photosynthesis and respiration. Identify the reactants and products in the general reaction of photosynthesis.</p> <p>B2.1B. - Compare and contrast the transformation of matter and energy during photosynthesis and respiration.</p> <p>B2.2. - Organic Molecules</p> <p>B2.2A. - Explain how carbon can join to other carbon atoms in chains and rings to form large and complex molecules.</p>	<p>B1.1A. - Generate new questions that can be investigated in the laboratory or field.</p> <p>B1.1B. - Evaluate the uncertainties or validity of scientific conclusions using an understanding of sources of measurement error, the challenges of controlling variables, accuracy of data analysis, logic of argument, logic of experimental design, and/or the dependence on underlying assumptions.</p> <p>B1.1D. - Identify patterns in data and relate them to theoretical models.</p> <p>B1.1E. - Describe a reason for a given conclusion using evidence from an investigation.</p> <p>B1.1g. - Use empirical evidence to explain and critique the reasoning used to draw a scientific conclusion or explanation.</p> <p>B1.1h. - Design and conduct a systematic scientific investigation that tests a hypothesis. 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Draw conclusions from data presented in charts or tables.</p> <p>B1.2. - Scientific Reflection and Social Implications</p> <p>B1.2A. - Critique whether or not specific questions can be answered through scientific investigations.</p> <p>B1.2C. - Develop an understanding of a scientific concept by accessing information from multiple sources. Evaluate the scientific accuracy and significance of the information.</p> <p>B1.2h. - Describe the distinctions between scientific theories, laws, hypotheses, and observations.</p> <p>MI.B2. - Biology: Organization and Development of Living Systems: Students describe the general structure and function of cells. They can explain that all living systems are composed of cells and that organisms may be unicellular or multicellular.</p> <p>L2.p1. - Cells (prerequisite)</p> <p>L2.p1B. - Explain the importance of both water and the element carbon to cells. (prerequisite)</p> <p>L2.p1D. - Explain how the systems in a multicellular organism work together to support the organism. (prerequisite)</p> <p>L2.p2. - Cell Function (prerequisite)</p> <p>L2.p2A. - Describe how organisms sustain life by obtaining, transporting, transforming, releasing, and eliminating matter and energy. (prerequisite)</p> <p>L2.p2B. - Describe the effect of limiting food to developing cells. (prerequisite)</p> <p>L2.p3. - Plants as Producers (prerequisite)</p> <p>L2.p3A. - Explain the significance of carbon in organic molecules. (prerequisite)</p> <p>L2.p4. - Animals as Consumers (prerequisite)</p> <p>L2.p4B. - Explain how an organism obtains energy from the food it consumes. (prerequisite)</p> <p>L2.p5. - Common Elements (prerequisite)</p> <p>L2.p5B. - Identify the most common complex molecules that make up living organisms. (prerequisite)</p> <p>L2.p5C. - Predict what would happen if essential elements were withheld from developing cells. (prerequisite)</p> <p>B2.1. - Transformation of Matter and Energy in Cells</p> <p>B2.1A. - Explain how cells transform energy (ultimately obtained from the sun) from one form to another through the processes of photosynthesis and respiration. Identify the reactants and products in the general reaction of photosynthesis.</p> <p>B2.1B. - Compare and contrast the transformation of matter and energy during photosynthesis and respiration.</p> <p>B2.2. - Organic Molecules</p> <p>B2.2A. - Explain how carbon can join to other carbon atoms in chains and rings to form large and complex molecules.</p>	<p>B1.1A. - Generate new questions that can be investigated in the laboratory or field.</p> <p>B1.1B. - Evaluate the uncertainties or validity of scientific conclusions using an understanding of sources of measurement error, the challenges of controlling variables, accuracy of data analysis, logic of argument, logic of experimental design, and/or the dependence on underlying assumptions.</p> <p>B1.1D. - Identify patterns in data and relate them to theoretical models.</p> <p>B1.1E. - Describe a reason for a given conclusion using evidence from an investigation.</p> <p>B1.1g. - Use empirical evidence to explain and critique the reasoning used to draw a scientific conclusion or explanation.</p> <p>B1.1h. - Design and conduct a systematic scientific investigation that tests a hypothesis. 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<p>B2.2C. - Describe the composition of the four major categories of organic molecules (carbohydrates, lipids, proteins, and nucleic acids).</p> <p>B2.2D. - Explain the general structure and primary functions of the major complex organic molecules that compose living organisms.</p> <p>B2.2x. - Proteins</p> <p>B2.2f. - Explain the role of enzymes and other proteins in biochemical functions (e.g., the protein hemoglobin carries oxygen in some organisms, digestive enzymes, and hormones).</p> <p>B2.3. - Maintaining Environmental Stability</p> <p>B2.3C. - Explain how stability is challenged by changing physical, chemical, and environmental conditions as well as the presence of disease agents.</p> <p>B2.5. - Living Organism Composition</p> <p>B2.5B. - Explain how major systems and processes work together in animals and plants, including relationships between organelles, cells, tissues, organs, organ systems, and organisms. 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Note that cell behavior can also be affected by molecules from other parts of the organism, such as hormones. (recommended)</p> <p>B2.6d. - Explain how higher levels of organization result from specific complex interactions of smaller units and that their maintenance requires a constant input of energy as well as new material. (recommended)</p> <p>MI.B3. - Biology: Interdependence of Living Systems and the Environment: Students describe the processes of photosynthesis and cellular respiration and how energy is transferred through food webs. They recognize and analyze the consequences of the dependence of organisms on environmental resources and the interdependence of organisms in ecosystems.</p> <p>B3.1. - Photosynthesis and Respiration</p> <p>B3.1B. - Illustrate and describe the energy conversions that occur during photosynthesis and respiration.</p> <p>B3.1C. - Recognize the equations for photosynthesis and respiration and identify the reactants and products for both.</p> <p>B3.1D. - Explain how living organisms gain and use mass through the processes of photosynthesis and respiration.</p> <p>B3.1e. - Write the chemical equation for photosynthesis and cellular respiration and explain in words what they mean.</p> <p>B3.1f. - Summarize the process of photosynthesis.</p> <p>B3.4. - Changes in Ecosystems</p> <p>B3.4C. - Examine the negative impact of human activities.</p> <p>B3.4x. - Human Impact</p> <p>B3.4d. - Describe the greenhouse effect and list possible causes.</p>	<p>B2.2C. - Describe the composition of the four major categories of organic molecules (carbohydrates, lipids, proteins, and nucleic acids).</p> <p>B2.2D. - Explain the general structure and primary functions of the major complex organic molecules that compose living organisms.</p> <p>B2.2x. - Proteins</p> <p>B2.2f. - Explain the role of enzymes and other proteins in biochemical functions (e.g., the protein hemoglobin carries oxygen in some organisms, digestive enzymes, and hormones).</p> <p>B2.3. - Maintaining Environmental Stability</p> <p>B2.3C. - Explain how stability is challenged by changing physical, chemical, and environmental conditions as well as the presence of disease agents.</p> <p>B2.5. - Living Organism Composition</p> <p>B2.5B. - Explain how major systems and processes work together in animals and plants, including relationships between organelles, cells, tissues, organs, organ systems, and organisms. 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<p>B3.4e. - List the possible causes and consequences of global warming.</p> <p>MI.C3. - Chemistry: Energy Transfer and Conservation: Students apply the First and Second Laws of Thermodynamics to explain and predict most chemical phenomena.</p> <p>C3.2x. - Enthalpy</p> <p>C3.2a. - Describe the energy changes in photosynthesis and in the combustion of sugar in terms of bond breaking and bond making.</p> <p>MI.CC.RST.9-10. - Reading Standards for Literacy in Science and Technical Subjects</p> <p>- 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>MI.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>B3.4e. - List the possible causes and consequences of global warming.</p> <p>MI.C3. - Chemistry: Energy Transfer and Conservation: Students apply the First and Second Laws of Thermodynamics to explain and predict most chemical phenomena.</p> <p>C3.2x. - Enthalpy</p> <p>C3.2a. - Describe the energy changes in photosynthesis and in the combustion of sugar in terms of bond breaking and bond making.</p> <p>MI.CC.RST.9-10. - Reading Standards for Literacy in Science and Technical Subjects</p> <p>- 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>MI.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>B3.4e. - List the possible causes and consequences of global warming.</p> <p>MI.C3. - Chemistry: Energy Transfer and Conservation: Students apply the First and Second Laws of Thermodynamics to explain and predict most chemical phenomena.</p> <p>C3.2x. - Enthalpy</p> <p>C3.2a. - Describe the energy changes in photosynthesis and in the combustion of sugar in terms of bond breaking and bond making.</p> <p>MI.CC.RST.11-12. - Reading Standards for Literacy in Science and Technical Subjects</p> <p>- 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>MI.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>B3.4e. - List the possible causes and consequences of global warming.</p> <p>MI.C3. - Chemistry: Energy Transfer and Conservation: Students apply the First and Second Laws of Thermodynamics to explain and predict most chemical phenomena.</p> <p>C3.2x. - Enthalpy</p> <p>C3.2a. - Describe the energy changes in photosynthesis and in the combustion of sugar in terms of bond breaking and bond making.</p> <p>MI.CC.RST.11-12. - Reading Standards for Literacy in Science and Technical Subjects</p> <p>- 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>MI.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. 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.11-12.2(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.11-12.2(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>
Synaptic Transmission - MI		<p>MI.B1. - Biology: Inquiry, Reflection, and Social Implications: Students will understand the nature of science and demonstrate an ability to practice scientific reasoning by applying it to the design, execution, and evaluation of scientific investigations. Students will demonstrate their understanding that scientific knowledge is gathered through various forms of direct and indirect observations and the testing of this information by methods including, but not limited to, experimentation.</p> <p>B1.1. - Scientific Inquiry</p> <p>B1.1A. - Generate new questions that can be investigated in the laboratory or field.</p> <p>B1.1B. - Evaluate the uncertainties or validity of scientific conclusions using an understanding of sources of measurement error, the challenges of controlling variables, accuracy of data analysis, logic of argument, logic of experimental design, and/or the dependence on underlying assumptions.</p> <p>B1.1D. - Identify patterns in data and relate them to theoretical models.</p> <p>B1.1E. - Describe a reason for a given conclusion using evidence from an investigation.</p> <p>B1.1g. - Use empirical evidence to explain and critique the reasoning used to draw a scientific conclusion or explanation.</p> <p>B1.1h. - Design and conduct a systematic scientific investigation that tests a hypothesis. Draw conclusions from data presented in charts or tables.</p> <p>B1.2. - Scientific Reflection and Social Implications</p>	<p>MI.B1. - Biology: Inquiry, Reflection, and Social Implications: Students will understand the nature of science and demonstrate an ability to practice scientific reasoning by applying it to the design, execution, and evaluation of scientific investigations. 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<p>B1.2A. - Critique whether or not specific questions can be answered through scientific investigations.</p> <p>B1.2C. - Develop an understanding of a scientific concept by accessing information from multiple sources. Evaluate the scientific accuracy and significance of the information.</p> <p>B1.2h. - Describe the distinctions between scientific theories, laws, hypotheses, and observations.</p> <p>MI.B2. - Biology: Organization and Development of Living Systems: Students describe the general structure and function of cells. They can explain that all living systems are composed of cells and that organisms may be unicellular or multicellular.</p> <p>L2.p1. - Cells (prerequisite)</p> <p>L2.p1B. - Explain the importance of both water and the element carbon to cells. (prerequisite)</p> <p>L2.p2. - Cell Function (prerequisite)</p> <p>L2.p2A. - Describe how organisms sustain life by obtaining, transporting, transforming, releasing, and eliminating matter and energy. (prerequisite)</p> <p>L2.p5. - Common Elements (prerequisite)</p> <p>L2.p5B. - Identify the most common complex molecules that make up living organisms. (prerequisite)</p> <p>B2.2. - Organic Molecules</p> <p>B2.2A. - Explain how carbon can join to other carbon atoms in chains and rings to form large and complex molecules.</p> <p>B2.2x. - Proteins</p> <p>B2.2f. - Explain the role of enzymes and other proteins in biochemical functions (e.g., the protein hemoglobin carries oxygen in some organisms, digestive enzymes, and hormones).</p> <p>B2.3. - Maintaining Environmental Stability</p> <p>B2.3B. - Describe how the maintenance of a relatively stable internal environment is required for the continuation of life.</p> <p>B2.3x. - Homeostasis</p> <p>B2.3d. - Identify the general functions of the major systems of the human body (digestion, respiration, reproduction, circulation, excretion, protection from disease, and movement, control, and coordination) and describe ways that these systems interact with each other.</p> <p>B2.3e. - Describe how human body systems maintain relatively constant internal conditions (temperature, acidity, and blood sugar).</p> <p>B2.3g. - Compare the structure and function of a human body system or subsystem to a nonliving system (e.g., human joints to hinges, enzyme and substrate to interlocking puzzle pieces).</p> <p>B2.5. - Living Organism Composition</p> <p>B2.5B. - Explain how major systems and processes work together in animals and plants, including relationships between organelles, cells, tissues, organs, organ systems, and organisms. Relate these to molecular functions.</p> <p>B2.5x. - Energy Transfer</p> <p>B2.5g. - Compare and contrast plant and animal cells.</p> <p>B2.5h. - Explain the role of cell membranes as a highly selective barrier (diffusion, osmosis, and active transport).</p> <p>B2.6x. - Internal/External Cell Regulation</p> <p>B2.6a. - Explain that the regulatory and behavioral responses of an organism to external stimuli occur in order to maintain both short- and long-term equilibrium.</p> <p>MI.CC.RST.9-10. - Reading Standards for Literacy in Science and Technical Subjects</p> <p>- Key Ideas and Details</p>	<p>B1.2A. - Critique whether or not specific questions can be answered through scientific investigations.</p> <p>B1.2C. - Develop an understanding of a scientific concept by accessing information from multiple sources. 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Evaluate the scientific accuracy and significance of the information.</p> <p>B1.2h. - Describe the distinctions between scientific theories, laws, hypotheses, and observations.</p> <p>MI.B2. - Biology: Organization and Development of Living Systems: Students describe the general structure and function of cells. They can explain that all living systems are composed of cells and that organisms may be unicellular or multicellular.</p> <p>L2.p1. - Cells (prerequisite)</p> <p>L2.p1B. - Explain the importance of both water and the element carbon to cells. (prerequisite)</p> <p>L2.p2. - Cell Function (prerequisite)</p> <p>L2.p2A. - Describe how organisms sustain life by obtaining, transporting, transforming, releasing, and eliminating matter and energy. (prerequisite)</p> <p>L2.p5. - Common Elements (prerequisite)</p> <p>L2.p5B. - Identify the most common complex molecules that make up living organisms. (prerequisite)</p> <p>B2.2. - Organic Molecules</p> <p>B2.2A. - Explain how carbon can join to other carbon atoms in chains and rings to form large and complex molecules.</p> <p>B2.2x. - Proteins</p> <p>B2.2f. - Explain the role of enzymes and other proteins in biochemical functions (e.g., the protein hemoglobin carries oxygen in some organisms, digestive enzymes, and hormones).</p> <p>B2.3. - Maintaining Environmental Stability</p> <p>B2.3B. - Describe how the maintenance of a relatively stable internal environment is required for the continuation of life.</p> <p>B2.3x. - Homeostasis</p> <p>B2.3d. - Identify the general functions of the major systems of the human body (digestion, respiration, reproduction, circulation, excretion, protection from disease, and movement, control, and coordination) and describe ways that these systems interact with each other.</p> <p>B2.3e. - Describe how human body systems maintain relatively constant internal conditions (temperature, acidity, and blood sugar).</p> <p>B2.3g. - Compare the structure and function of a human body system or subsystem to a nonliving system (e.g., human joints to hinges, enzyme and substrate to interlocking puzzle pieces).</p> <p>B2.5. - Living Organism Composition</p> <p>B2.5B. - Explain how major systems and processes work together in animals and plants, including relationships between organelles, cells, tissues, organs, organ systems, and organisms. Relate these to molecular functions.</p> <p>B2.5x. - Energy Transfer</p> <p>B2.5g. - Compare and contrast plant and animal cells.</p> <p>B2.5h. - Explain the role of cell membranes as a highly selective barrier (diffusion, osmosis, and active transport).</p> <p>B2.6x. - Internal/External Cell Regulation</p> <p>B2.6a. - Explain that the regulatory and behavioral responses of an organism to external stimuli occur in order to maintain both short- and long-term equilibrium.</p> <p>MI.CC.RST.11-12. - Reading Standards for Literacy in Science and Technical Subjects</p> <p>- Key Ideas and Details</p>
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<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.9-10.1. - Cite specific textual evidence to support analysis of science and technical texts, attending to the precise details of explanations or descriptions.</p>	<p>RST.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.11-12.1. - 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.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). 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>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). 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>RST.11-12.5. - Analyze how the text structures information or ideas into categories or hierarchies, demonstrating understanding of the information or ideas. 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.11-12.5. - Analyze how the text structures information or ideas into categories or hierarchies, demonstrating understanding of the information or ideas. 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>MI.CC.WHST.9-10. - Writing Standards for Literacy in Science and Technical Subjects</p>	<p>MI.CC.WHST.9-10. - Writing Standards for Literacy in Science and Technical Subjects</p>	<p>MI.CC.WHST.11-12. - Writing Standards for Literacy in Science and Technical Subjects</p>	<p>MI.CC.WHST.11-12. - Writing Standards for Literacy in Science and Technical Subjects</p>
<p>WHST.9-10.1. - Write arguments focused on discipline-specific content. 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. 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. 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. - Write arguments focused on discipline-specific content. 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. 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. 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. 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. 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. 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. 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. 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. 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. 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. 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. 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. 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. 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. 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.9-10.4. - Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.</p>	<p>WHST.9-10.3(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.11-12.2(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.11-12.2(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>
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