

<p><b>1</b></p> <p><b>Clarifying language added</b></p>	<p><b>Human Anatomy Introduction</b>  The Human Anatomy High School Supplemental SEEd standards explore the structure, function, and interactions of tissues, organs, and organ systems found in complex animals including humans. Students develop and use models to illustrate anatomical structures and regions of the body. Students construct explanations of how the integumentary, skeletal and muscular systems make support, protection, and movement possible. Students analyze and interpret data to understand how the endocrine and nervous systems make information processing possible. Students ask questions about the relationships between the cardiovascular, respiratory, digestive, and urinary systems. Students obtain, evaluate, and communicate information about the reproductive system’s role in the growth and development of humans.</p>	<p><b>Human Anatomy</b>  The Human Anatomy <b>and Physiology</b> High School Supplemental SEEd standards explore structure, function, and interactions of tissues, organs, and organ systems found in <b>humans. <del>complex animals including humans.</del></b> Students develop and use models to illustrate anatomical structures and regions of the <b>human</b> body. Students construct explanations of how the integumentary, skeletal and muscular systems make support, protection, and movement possible. Students analyze and interpret data to understand how the endocrine and nervous systems make information processing possible. Students ask questions about the relationships between the cardiovascular, respiratory, digestive, and urinary systems. Students obtain, evaluate, and communicate information about the <b>male and female reproductive systems that make conception, development, and birth of human life possible. <del>reproductive system’s role in the growth and development of humans.</del></b></p>
<p><b>2</b></p> <p><b>Clarifying language from Standards and</b></p>	<p><b>Standard HUMA.1.1 Develop and use models</b> to demonstrate the orientation of anatomical <u>structures</u> and regions of the human body. Emphasize how orientation and location within the</p>	<p><b>Standard HUMA.1.1 Develop and use models</b> to demonstrate the orientation of anatomical <u>structures</u> and regions of the human body. Emphasize how <b>size</b>, orientation, and location</p>

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<b>Assessment Committee.</b>	human body supports the function of the anatomical structures.	within the human body supports the function of the anatomical structures.
<b>3</b> <b>Added in Standards and Assessment Committee- Nutrition</b>	<b>Standard HUMA.2.4 Engage in argument from evidence</b> about how the integumentary, skeletal, and muscular <u>systems</u> make support, protection, and movement possible. Emphasize the homeostatic mechanisms, as well as the effects of and responses to aging, diseases, and disorders	Standard HUMA.2.4 Engage in argument from evidence about how the integumentary, skeletal, and muscular systems make support, protection, and movement possible. Emphasize the homeostatic mechanisms, as well as the effects of and responses to <b>nutrition</b> , aging, diseases, and disorders.
<b>4</b> <b>Clarify language from Standards and Assessment Committee.</b>	<b>Standard HUMA.3.2 Analyze and interpret data</b> to explain how the hormones of the endocrine system regulate physical and chemical processes to maintain a <u>stable</u> internal environment. Emphasize both positive and negative feedback mechanisms. Examples of mechanisms could be heart rate, blood sugar, childbirth, temperature, and growth.	<b>Analyze and interpret data</b> to explain how the hormones of the endocrine system regulate physical and chemical processes to maintain a <u>stable</u> internal environment, <b>support general health, promote growth and development throughout the lifespan</b> . Emphasize both positive and negative feedback mechanisms. Examples of <b>feedback</b> mechanisms could be heart rate, blood sugar, childbirth, temperature, and growth.
<b>5</b> <b>Added in Standards and Assessment Committee- Nutrition</b>	<b>Standard HUMA.3.3 Construct an explanation</b> about how the <u>cause and effect</u> relationship of the endocrine and nervous systems makes information processing (detection, interpretation and response) possible. Emphasize homeostatic mechanisms, as well as the effects of and responses to aging, diseases, and disorders.	<b>Standard HUMA.3.3 Construct an explanation</b> about how the <u>cause and effect</u> relationship of the endocrine and nervous systems makes information processing (detection, interpretation and response) possible. Emphasize homeostatic mechanisms, <b>as well as the and their effects of and responses to on-and</b>

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		responses to nutrition aging, diseases, and disorders.
<b>6</b> <b>Obtain, evaluate, and communicate is better aligned with this standard. (Summarize information, gather, read and evaluate scientific information, communicate this information.)</b>	<b>Standard HUMA.4.2 Engage in argument from evidence</b> to explain the relationship between the structure and function of the digestive and urinary systems as they utilize <u>matter</u> to derive <u>energy</u> and eliminate waste.	Standard HUMA.4.2 <b>Obtain, Evaluate and communicate information about Engage in argument from evidence to explain</b> the relationship between the structure and function of the digestive and urinary systems as they utilize food ( <u>matter</u> ) to derive <u>energy</u> , obtain essential nutrients, and eliminate waste.
<b>7</b> <b>Added in Standards and Assessment Committee- Nutrition</b>	<b>Standard HUMA.4.3 Ask questions to construct an explanation</b> about the interdependence of the cardiovascular, respiratory, urinary, and digestive <u>systems</u> . Emphasize homeostatic mechanisms, as well as the effects of and responses to aging, diseases, and disorders.	Standard HUMA.4.3 <b>Ask questions to construct an explanation</b> about the interdependence of the cardiovascular, respiratory, urinary, and digestive <u>systems</u> . Emphasize homeostatic mechanisms, as well as the effects of and responses to <b>nutrition</b> aging, diseases, and disorders.
<b>8</b> <b>Clarifying language recommended</b>	<b>Standard HUMA.5.1 Obtain, evaluate, and communicate information</b> about how the structures of the reproductive system provide a <u>stable</u> yet <u>changing</u>	<b>Standard HUMA.5.1 Obtain, evaluate, and communicate information</b> about how the structures of the <b>male and</b>

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<p>during the full board meeting in May and part from Standards and Assessment Committee.</p>	<p>environment to allow for the production of egg and sperm, fertilization, and the development of offspring. Emphasize the role of hormones in this process.</p>	<p>female reproductive system provide a <u>stable</u> yet <u>changing</u> environment to allow for the production of egg and sperm, fertilization, <del>and</del> <u>implantation</u>, <del>and fertilization of ovum</del> and the development of <u>human fetus offspring</u>. Emphasize the role of hormones in <u>the male and female reproductive</u> <del>this</del> process.</p>
<p>9 Clarifying language recommended during the full board meeting in May and part from Standards and Assessment Committee</p>	<p><b>Standard HUMA.5.2 Develop and use models</b> to describe the <u>scale, proportion, and quantity</u> of matter in the stages of human embryology and gestation. Emphasize the embryological changes through the different stages of development.</p>	<p><b>Standard HUMA.5.2 Develop and use models</b> to describe <del>the scale, proportion, and quantity, the stability and change, of matter in</del> in the stages of human embryology and gestation, <u>including fertilization and embryo and fetal development</u>. Emphasize the embryological changes through the different stages of development.</p>
<p>10 Added in Standards and Assessment Committee- Nutrition</p>	<p><b>Standard HUMA.5.3 Ask questions</b> about how the reproductive system uses <u>matter and energy</u> to make growth and development possible. Emphasize homeostatic mechanisms, as well as the effects of and responses to aging, diseases, and disorders.</p>	<p><b>Standard HUMA.5.3 Ask questions</b> about how the reproductive system uses <u>matter and energy</u> to make growth and development possible. Emphasize homeostatic mechanisms, as well as the effects of and responses to <u>nutrition</u>, aging, diseases, and disorders.</p>
<p>11 National Weather Service mission includes the protection of life and property.</p>	<p><b>Geology Introduction</b>  The Geology High School Supplemental SEEd standards explore matter and energy that form the rocks, minerals, and formations found in Earth. Students carry out investigations to identify and classify different minerals and rocks. Students ask questions to evaluate what can be</p>	<p>The Geology High School Supplemental SEEd standards explore matter and energy that form the rocks, minerals, and formations found in Earth. Students carry out investigations to identify and classify different minerals and rocks. Students ask questions to evaluate what can</p>

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<p><a href="#">About the NWS (weather.gov)</a></p>	<p>learned from the geologic record. Students develop and use models of the Earth and its interior. Students obtain, evaluate, and communicate information to understand Earth's surface processes. Students analyze and interpret data about the interaction between humans and the Earth in an attempt to mitigate geologic hazards.</p>	<p>be learned from the geologic record. Students develop and use models of the Earth and its interior. Students obtain, evaluate, and communicate information to understand Earth's surface processes. Students analyze and interpret data about the interaction between humans and the Earth in an attempt to mitigate geologic hazards, <b>minimize property damage and protection of life.</b></p>
<p><b>12</b>  Align with introduction.</p>	<p><b>Strand 5 Summary</b> Humanity relies on the resources contained within Earth. The extraction of resources from Earth impacts the geologic systems. Technology can be designed and used to mitigate geologic hazards.</p>	<p><b>Strand 5 Summary</b> Humanity relies on the resources contained within Earth. The extraction of resources from Earth impacts the geologic systems. Technology can be designed and used to mitigate geologic hazards, <b>minimize property damage and protection of life.</b></p>
<p><b>13</b>  Alignment and the reason why we design solutions: to minimize property damage and protection of life.</p>	<p><b>Standard GEOL.5.2 Evaluate design solutions</b> which have a <u>structure and function</u> to mitigate geologic hazards. <i>Define the problem, identify criteria and constraints, analyze available data on proposed solutions, and determine an optimal solution.</i></p>	<p><b>Standard GEOL.5.2 Evaluate design solutions</b> which have a <u>structure and function</u> to mitigate geologic hazards, <b>minimize property damage and protection of life.</b> For example earthquakes, volcanoes, floods, landslides, Define the problem, identify criteria and constraints, analyze available data on proposed solutions, and determine an optimal solution.</p>
<p><b>14</b>  Scale proportion and quantity are related to analyzing and interpreting data.</p>	<p><b>Standard GENE.2.4 Construct an explanation</b> how the <u>scale, proportion, and quantity</u> of random occurrences affect the genetic makeup of a population. Emphasize that random genetic variation within a</p>	<p><b>Standard GENE.2.4 Analyze and Interpret Data Construct an explanation</b> to <b>investigate</b> how the <u>scale, proportion, and quantity</u> of</p>

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<p><b>It includes statistical probability to make valid and reliable scientific claims.</b></p>	<p>population and natural selection pressures both impact evolutionary change.</p>	<p>random occurrences affect the genetic makeup of a population. Emphasize that random genetic variation within a population and natural selection pressures both impact evolutionary change.</p>
<p><b>15 Ethics associated with genetics.</b></p>	<p><b>Strand 3 Summary</b> Technology has been applied in numerous fields including agriculture, medicine, and industry. The completion of the Human Genome project has led to advances in the area of genomics. Biotechnology has been used to identify and modify genes that have had an effect on humankind.</p>	<p><b>Strand 3 summary</b> has been applied in numerous fields including agriculture, medicine, and industry. The completion of the Human Genome project has led to advances in the area of genomics. Biotechnology has been used to identify and modify genes <b>which may be used for a variety of valid outcomes, but may also raise ethical issues concerning research and application</b> that have had an effect on humankind</p>
<p><b>16 Ethics associated with genetics.</b></p>	<p><b>Standard GENE.3.1 Engage in argument from evidence</b> about how the <u>structure and function</u> of biotechnology is used to modify genes in a way that can affect humankind. Emphasize technologies’ affect on agriculture, medicine, and industry. Examples of technology could include GMOs, cloning, diagnosing and treating genetic disorders, and CRISPR</p>	<p>Standard GENE.3.1 <b>Engage in argument from evidence</b> about how the <u>structure and function</u> of biotechnology is used to modify genes in a way that can affect humankind <b>including application potential ethical concerns.</b> Emphasize technologies’ affect on agriculture, medicine, and industry. Examples of technology could include GMOs, cloning, diagnosing and treating genetic disorders, and CRISPR.</p>
<p><b>17 Ethics associated with genetics</b></p>	<p><b>Standard GENE.3.3 Analyze and interpret data</b> to evaluate different <b>designed solutions</b> where biotechnology uses <u>matter and energy</u> to identify and/or modify the structure and function of genes in order to solve a problem. <i>Define the problem, identify criteria and constraints, analyze</i></p>	<p>Standard GENE.3.3 <b>Analyze and interpret data</b> to evaluate different designed solutions where biotechnology uses <u>matter and energy</u> to identify and/or modify the structure and function of genes in order to solve a problem. Define the problem,</p>

	<i>available data on proposed solutions, and determine an optimal solution.</i>	identify criteria and constraints, analyze available data on proposed solutions, <b>evaluate potential ethical concerns</b> and determine an optimal solution.
	<b>Marine Biology</b>	
<b>18</b> <b>Aligned language. Removed negative language</b>	The Marine Biology/Oceanography High School Supplemental SEEd standards explore the organisms, interactions, and processes that affect living things in the ocean. Students develop and use a model to describe the characteristics, properties and influences of the ocean and seawater. Students analyze and interpret data about marine life to classify them into different marine phyla and to determine their relationships within marine ecosystems. Students ask questions about the interaction between humans and the ocean in an attempt to reduce negative human effects on the ocean.	The Marine Biology/Oceanography High School Supplemental SEEd standards explore the organisms, interactions, and processes that affect living things in the ocean. Students develop and use a model to describe the characteristics, properties and influences of the ocean and seawater. Students analyze and interpret data about marine life to classify them into different marine phyla and to determine their relationships within marine ecosystems. Students ask questions <b>to obtain, evaluate, and communicate information</b> about the interaction between humans and the ocean. <del>in an attempt to reduce negative human effects on the ocean.</del>
<b>19</b> <b>Marine life is in the current draft. It aligns with the language in MBIO 2.2</b>	<b>Strand 2 Summary</b> The earliest life on earth originated from the ocean. Early life in the ocean relied on chemosynthesis and photosynthesis to produce energy. A wide variety of marine life now exists in a variety of marine ecosystems which can be classified based on their characteristics. Energy and matter flow within and between different marine ecosystems.	<b>Scientific theories state that</b> the earliest life on earth originated from the ocean. <b>Marine</b> life in the ocean relies on chemosynthesis and photosynthesis to produce energy. A wide variety of marine life now exists in a variety of marine ecosystems which can be classified based on their characteristics. Energy flows and matter cycles within and between different marine ecosystems.
<b>20</b>		

<p><b>Language Alignment</b></p>	<p><b>Standard MBIO.2.5</b>  <b>Obtain, evaluate, and communicate</b> about the <u>stable and change</u> of relationships between biotic and abiotic factors in marine ecosystems. Examples of ecosystems could include estuaries, coral reefs, kelp forests, the open ocean, and the deep ocean.</p>	<p><b>2.5 Obtain, evaluate, and communicate</b>  <b>information</b> regarding <del>about</del> the <u>stability e and change</u> of relationships between biotic and abiotic factors in marine ecosystems. Examples of ecosystems could include estuaries, coral reefs, kelp forests, the open ocean, and the deep ocean</p>
<p><b>21 Alignment with the introduction.</b></p>	<p><b>Standard MBIO.3.2</b>  <b>Engage in argument based on evidence</b> about how human activities <u>affect</u> marine ecosystems. Examples of human activities could include the extraction of resources, transportation and recreation.</p>	<p><b>Standard MBIO.3.2</b>  <b>Engage in argument based on evidence</b> about how human activities <u>may affect</u> marine ecosystems. Examples of human activities could include the extraction of resources, transportation and recreation</p>
<p><b>22 Simplified language</b></p>	<p><b>Standard MBIO.3.4 Design a solution</b> in the form of a sustainability plan that impacts individual, city, or regional contribution (<u>changes</u>) to marine environmental systems. <i>Define the problem, identify criteria and constraints, develop possible solutions using models, analyze data to make improvements from iteratively testing solutions, and optimize a solution.</i> Emphasize the role that an individual living in Utah plays in the plan as well as how market forces and societal demands influence personal choices.</p>	<p><b>Standard MBIO.3.4 Design a solution</b> in the form of a sustainability plan that impacts individual, city, or regional contributions <b>including Utah</b> (<u>changes</u>) to marine environmental systems. <i>Define the problem, identify criteria and constraints, develop possible solutions using models, analyze data to make improvements from iteratively testing solutions, and optimize a solution.</i> <del>Emphasize the role that an individual living in Utah plays in the plan as well as how market forces and societal</del></p>



<p><b>23</b></p> <p><b>Engineering language alignment.</b></p>	<p><b>Strand METR.1: The structure of Earth’s atmosphere</b>  The atmosphere has different layers and composition which can be identified from its properties. Observable changes in solar radiation affect both the atmosphere and the surface of Earth.</p> <p><b>Standard METR.1.1</b>  <b>Construct an explanation</b> describing the properties and <u>structure</u> of the atmospheric layers. Emphasize the properties of temperature, density, chemical composition, pressure, humidity, and moisture.</p>	<p><b>Strand METR.1: The structure and function of Earth’s atmosphere</b>  The atmosphere has different layers and composition which can be identified from its properties. Observable changes in solar radiation affect both the atmosphere and the surface of Earth.</p> <p><b>METR.1.1 Construct an explanation</b> describing the properties, <u>structure</u> and <b>function</b> of the atmospheric layers. Emphasize the properties of temperature, density, chemical composition, pressure, humidity, and moisture</p>
<p><b>24</b></p> <p><b>Motion from Standards and Assessment Committee.</b></p>	<p><b>Standard METR.1.3</b>  <b>Obtain, evaluate, and communicate</b> what happens to solar radiation (<u>energy</u>) as it moves through the atmosphere and interacts with Earth’s surface (<u>matter</u>). Emphasize the role of the greenhouse effect.</p>	<p><b>METR.1.3 Obtain, evaluate, and communicate</b> what happens to solar radiation (<u>energy</u>) as it moves through the atmosphere and interacts with Earth’s surface (<u>matter</u>). Emphasize the role of the greenhouse effect <b>on supporting life.</b></p>
<p><b>25</b></p> <p>National Weather Service mission includes the protection of life and property.  <a href="http://www.weather.gov">About the NWS (weather.gov)</a></p>	<p><b>Strand METR.3: System interactions between society and climate</b>  Various climate systems are present across the world with a variety of characteristics and conditions. Weather, climate, and society interact and affect each other. Changes in climate can have a variety of causes and effects. Technology and regulation can aid in reducing the impacts of climate change</p>	<p><b>Strand METR.3: System interactions between society, Earth’s climates and weather.</b></p> <p>Various climate systems are present across the world with a variety of characteristics and conditions. Weather, climate, and society interact and affect each other. Changes in climate can have a variety of causes and effects. Technology and</p>

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		<p>regulation can aid in minimizing property damage and protection of life and in reducing the impacts of climate change and weather. (Any systematic change in the long-term statistics of climate elements (such as temperature, pressure, or winds) sustained over several decades or longer).</p> <p>Include reference. American Meteorology Society, <a href="https://www.ametsoc.org/glossary/Climate-change-Glossary-of-Meteorology">glossary Climate change - Glossary of Meteorology (ametsoc.org)</a></p>
<p><b>26</b></p> <p>“hazardous weather” is the term used by scientist in this area.</p>	<p><b>Standard METR.3.2 Engage in argument from evidence</b> to identify the <u>patterns</u> that exist in the relationships between weather, climate, and society. Examples could include urban heat island, smog formation, air pollution, air quality, stratospheric ozone.</p>	<p>Standard METR.3.2 <b>Engage in argument from evidence</b> to identify the <u>patterns</u> that exist in the relationships between weather, climate, and society. Examples could include <b>hazardous weather</b>, urban heat island, smog formation, air pollution, air quality, stratospheric ozone.</p>
<p><b>27</b></p> <p>These cycles should be taught- changed to “Emphasize” in place of “Example”.</p>	<p><b>Standard METR.3.4 Plan and carry out an investigation</b> to determine the natural and human caused factors that produce <u>changes</u> in global climate. Examples could include Milankovitch and ENSO cycles, greenhouse gasses, and changes in physical geography</p>	<p>METR.3.4 <b>Plan and carry out an investigation</b> to determine the natural and human caused factors that produce <u>changes</u> in global climate. <b>Emphasize</b> Milankovitch and ENSO cycles, greenhouse gasses, and changes in physical geography.</p>
<p><b>28</b></p> <p>Aligned with introduction and</p>	<p><b>Standard METR.3.5 Evaluate proposed designed solutions</b> intended to reduce (<u>effect</u>) the impacts of climate change. <i>Define the problem,</i></p>	<p>Standard METR.3.5 Evaluate proposed <b>designed solutions</b> intended to <b>minimize property damage and protection of life by</b></p>

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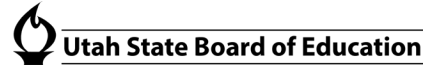
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<p><b>added</b>  <b>“hazardous weather”</b></p>	<p><i>identify criteria and constraints, analyze available data on proposed solutions, and determine an optimal solution.</i></p>	<p><b>reducing</b> (effect) the impacts of climate change <b>and hazardous weather</b>. Define the problem, identify criteria and constraints, analyze available data on proposed solutions, and determine an optimal solution.</p>
<p><b>29</b>  <b>Adds greater clarity to the standards for educators and the public.</b>  <b>Thank you USBE Staff.</b></p>	<p><b>Motion to add SEEd Standards Appendix K-12 Progressions</b></p> <p><a href="#">SEEd Standards Appendix .pdf - Google Drive</a></p>	

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