

MPSD SCIENCE SKILLS BY WEEK

4th Grade Science

Date	Standard/Skill	Instructional Video Resources
Q1.1	The Nature of Science: Science and Engineering Practices	https://mpb.pbslearningmedia.org/subject/s/science/practices-and-nature-of-science/
Q1.2 - Q1.3	The Human Body: L.4.1.1 - <i>Students will discover general system function as they relate to human organ systems and identify organs that work together to create organ systems.</i> L.4.1.2 - <i>Students will indicate the nature of relationships between organ systems.</i> L.4.1.3 - <i>Students will construct models of organ systems to demonstrate interrelated function.</i>	https://youtu.be/gEUu-A2wfSE
Q1.4 - Q1.5	Health and Medicine: L.4.1.4 - <i>Students will research and communicate how noninfectious diseases and infectious diseases disrupt function of the body system.</i>	https://www.youtube.com/watch?v=lkhsgLnFLGA
Q1.6 - Q1.7	Life Cycles: L.4.2.1 - <i>Students will compare and contrast life cycles of familiar plants and animals.</i>	https://www.youtube.com/watch?v=7hSnpkGyXx4

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	<p>L.4.2.2 - <i>Students will develop and use models to explain diverse life cycles.</i></p>	
Q2.1	<p>Heat and Energy: P.4.6A.1 - <i>Students will compare how different processes create heat.</i></p> <p>P.4.6A.2 - <i>Students will conduct investigations to identify insulators and conductors of electricity</i></p>	<p>https://www.youtube.com/watch?v=U3ee3rSg7xs</p> <p>https://youtu.be/qIF90dhqGPY</p>
Q2.2 - Q2.3	<p>Electrical Energy: P.4.6A.4 - <i>Students will make models that show the path of electricity in a simple circuit.</i></p> <p>P.4.6A.5 - <i>Students will research the contributions of scientists to electricity using informational text and technology.</i></p> <p>P.4.6A.3 - <i>Students will make models that show how heat and electrical energy can be changed into another form of energy.</i></p>	<p>https://youtu.be/HOFp8bHTN30</p> <p>https://www.youtube.com/watch?v=BmxQdq0RYGo</p> <p>https://youtu.be/20Vb6hILQSg</p>
Q2.4 - Q2.5	<p>Light Energy: P.4.6B.1 - <i>Students will use evidence to show that white light is made up of different colors.</i></p>	<p>https://www.youtube.com/watch?v=m4t7gTmBK3g</p> <p>https://youtu.be/9VsI0Iom3S0</p>

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	<p>P.4.6B.2 - <i>Students will explain how seeing objects is related to light.</i></p> <p>P.4.6B.3 - <i>Students will make models that show how light travels and behaves when it hits certain objects.</i></p> <p>P.4.6B.1 - <i>Students will conduct investigations to explain how light behaves when it hits clear, semi-clear, and cloudy materials.</i></p>	<p>https://youtu.be/GgxcvfIVxDM</p> <p>https://youtu.be/P6Uihn8V3h4</p>
Q2.6 - Q2.7	<p>Sound Energy:</p> <p>P.4.6C.1 - <i>Students will conduct investigations to test how different factors affect sound.</i></p> <p>P.4.6C.2 - <i>Students will interpret data that shows how changes in vibration affect pitch and volume of sound.</i></p>	<p>https://youtu.be/_xZZt99MzY</p> <p>https://youtu.be/yMLTF_0PAQw</p>
Q3.1	<p>Water Cycle:</p> <p>E.4.9A.1 - <i>Students will make models to show how the sun's energy drives the water cycle.</i></p> <p>E.4.9C.2 - <i>Students will make models of natural processes to explain how water affects shoreline.</i></p>	<p>https://youtu.be/TWb4KIM2vts</p> <p>https://youtu.be/y0C5sQ_NWs8?list=PLGGxWz1RNCqngkvqPECgr1jccOihCXRhE</p>
Q3.2 - Q3.4	<p>Weather:</p> <p>E.4.9B.1 - <i>Students will predict changes in weather over time by using data.</i></p>	<p>https://youtu.be/9NZz-EeveJ8</p>

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	<p>E.4.9B.2 - <i>Students will use maps and data to explain regional differences in climate.</i></p> <p>E.4.9C.5 - <i>Students will research information about severe weather events and how humans can reduce their impact.</i></p>	<p>https://youtu.be/YbAWny7FV3w</p> <p>https://youtu.be/QVZExLO0MWA</p>
Q3.5	<p>Natural Processes:</p> <p>E.4.9C.1 - <i>Students will predict and describe how natural processes affect Earth's surface.</i></p>	<p>https://youtu.be/H2h6uXIL8gl</p>
Q3.6 - Q3.7	<p>Human Impact on the Environment:</p> <p>E.4.9C.3 - <i>Students will use evidence to explain how human activities affect land, ocean, and air on Earth.</i></p> <p>E.4.9C.4 - <i>Students will research and explain how air, land, and water interact and support life on Earth.</i></p> <p>E.4.10.1 - <i>Students will compare the energy created and pollution caused by nonrenewable resources like coal, oil, and wood.</i></p> <p>E.4.10.2 - <i>Students will research various forms of clean, renewable energy sources.</i></p>	<p>https://youtu.be/5eTCZ9L834s</p> <p>https://youtu.be/rAlFaqXTvDA</p> <p>https://www.youtube.com/watch?v=thdKsEA-llo</p> <p>https://youtu.be/1kUE0BZtTRc</p>

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5th Grade Science

Date	Standard/Skill	Instructional Video Resources
Q1.1	The Nature of Science: Science and Engineering Practices	https://mpb.pbslearningmedia.org/subject/s/science/practices-and-nature-of-science/
Q1.2 - Q1.3	Photosynthesis: L.5.3A.1 - <i>Students will communicate the basic process of photosynthesis that is used by plants.</i> L.5.3A.2 - <i>Students will analyze environments that do not receive direct sunlight and devise explanations as to how photosynthesis occurs.</i>	https://youtu.be/uixA8ZXx0KU https://youtu.be/6kUm_I7bLYw https://www.youtube.com/watch?v=w83yyLUr5-U
Q1.4 - Q1.6	Energy Flow in Ecosystems: L.5.3B.1 - <i>Students will obtain information regarding the characteristics of different ecosystems and the organisms they support.</i> L.5.3B.2 - <i>Students will develop and use a food chain model to classify organisms as producers, consumers, or decomposers and trace the flow of energy.</i> L.5.3B.3 - <i>Students will interpret models of food webs to justify what effects the removal or the addition of a species would have on a specific population.</i>	https://www.youtube.com/watch?v=5jBV9vJmXZI https://youtu.be/T5XhbhqOL_c https://www.youtube.com/watch?v=5811e!DNo4Q

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	<p>L.5.3B.4 - <i>Students will explain human positions in food webs and our potential impacts on these systems.</i></p>	
<p>Q1.7</p>	<p>Human Interaction with Earth: E.5.10.1 - <i>Students will identify ways to conserve Earth's resources.</i></p>	<p>https://www.youtube.com/watch?v=b_VegbTblzg</p>
<p>Q2.1 - Q2.2</p>	<p>Astronomy: E.5.8A.1 - <i>Students will make scale models of the solar system.</i></p> <p>E.5.8B.4 - <i>Students will research how our understanding of the solar system has evolved over time (geocentric vs. heliocentric universe).</i></p> <p>E.5.8A.2 - <i>Students will use evidence to understand why the sun appears brighter than other stars in the sky.</i></p> <p>E.5.8A.3 - <i>Students will describe how constellations appear to move throughout the seasons (identify Ursa Major, Ursa Minor, and Orion).</i></p>	<p>https://youtu.be/libKVRa01L8</p> <p>https://www.youtube.com/watch?v=khlzr6610cQ</p> <p>https://youtu.be/Zo-sKzMWYFA</p> <p>https://youtu.be/1sZ15SUEs9w</p>
<p>Q2.3 - Q2.5</p>	<p>Earth, Sun, and Moon: E.5.8B.1 - <i>Students will explain the lunar cycle and its appearance from Earth.</i></p>	<p>https://youtu.be/wz01pTvuMa0</p> <p>https://youtu.be/AQ5vty8f9Xc</p> <p>https://youtu.be/l64YwNI1wr0</p>

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	<p>E.5.8B.2 - <i>Students will use models to explain how the position of Earth, Sun, and Moon contribute to units of time (day, month, year), eclipses, and seasons.</i></p> <p>E.5.8B.3 - <i>Students will use models of explain how tilt, revolution, and angle of sunlight result in seasonal changes on Earth.</i></p>	<p>https://youtu.be/rVE8PFYlwSM</p> <p>https://youtu.be/_QcgDiF1a14</p> <p>https://youtu.be/b25g4nZTHvM</p>
Q2.6 - Q2.7	<p>Properties of Matter:</p> <p>P.4.6B.1 - <i>Students will use evidence to show that white light is made up of different colors.</i></p>	<p>https://www.youtube.com/watch?v=m4t7gTmBK3g</p>
Q3.1 - Q3.2	<p>Mixtures and Solutions:</p> <p>P.5.5B.1 - <i>Students will describe what happens to characteristics of substances in mixtures and solutions.</i></p> <p>P.5.5B.2 - <i>Students will determine that concentration of solution is related to the amount of particles mixed in the liquid.</i></p> <p>P.5.5B.3 - <i>Students will identify different variables that affect how quickly particles dissolve in a solution.</i></p>	<p>https://youtu.be/jA0PzbiYPUM</p> <p>https://youtu.be/qL5-lcc_TfY</p>
Q3.3 - Q3.4	<p>Chemical and Physical Changes:</p>	<p>https://www.youtube.com/watch?v=3IHHOiTdmK4</p>

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	<p>P.5.5C.1 - <i>Students will identify the results of common chemical changes that make new substances.</i></p> <p>P.5.5C.2 - <i>Students will identify the results of physical changes as reversible.</i></p> <p>P.5.5C.3 - <i>Students will demonstrate that when two substances are mixed, the total weight of the new mixture does not change.</i></p>	<p>https://youtu.be/BOr76Zx48QM</p> <p>https://youtu.be/t8a2Ys8a6r4</p>
<p>Q3.5 - Q3.7</p>	<p>Newton's Laws of Motion:</p> <p>P.5.6.1 - <i>Students will describe the effect of gravity on an object.</i></p> <p>P.5.6.2 - <i>Students will predict the position, direction, and speed of an object using data.</i></p> <p>P.5.6.3 - <i>Students will use models to explain how forces affect an object's motion.</i></p> <p>P.5.6.4 - <i>Students will conduct investigations to test how forces affect speed and direction of an object.</i></p> <p>P.5.6.5 - <i>Students will predict how force, mass, and friction affect an object's potential and kinetic energy.</i></p>	<p>https://youtu.be/aA_mqSzbkM0</p> <p>https://www.youtube.com/watch?v=08BFCZJDn9w</p> <p>https://www.youtube.com/watch?v=qu_P4IbmV_I</p> <p>https://www.youtube.com/watch?v=e1IzB36aHD4</p>

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6th Grade Science

Date	Standard/Skill	Instructional Video Resources
Q1.1	The Nature of Science: Science and Engineering Practices	https://mpb.pbslearningmedia.org/subject/s/science/practices-and-nature-of-science/
Q1.2 - Q1.3	<p>Ecosystems:</p> <p>L.6.3.1 - <i>Students will explain differences between biotic (living) and abiotic (non-living) factors and why organisms need both to survive.</i></p> <p>L.6.3.2 - <i>Students will describe the levels of organization in nature and characteristics of each (species, populations, communities, ecosystems, biomes, biosphere).</i></p> <p>L.6.3.3 - <i>Students will research how changes in environments lead to population changes within ecosystems.</i></p> <p>L.6.3.4 - <i>Students will describe the types of relationships in communities (predation, competition, cooperation, symbiosis).</i></p> <p>L.6.3.5 - <i>Students will develop models of food chains, webs, and pyramids to show how energy moves in ecosystems (producers, consumers, decomposers).</i></p>	<p>https://youtu.be/E1pp_7-yTN4</p> <p>https://youtu.be/bWA12z6Jzps</p> <p>https://youtu.be/rNjPI84sApQ</p> <p>https://youtu.be/MuKs9o1s8h8?list=PLigWv1KPe11Zfl2bGmkccg8ffvKkZITph</p> <p>https://youtu.be/Vtb3l8VzIfg?list=PLigWv1KPe11Zfl2bGmkccg8ffvKkZITph</p>

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<p>Q1.4 - Q1.7</p>	<p>Cells to Kingdoms:</p> <p>L.6.1.1 -Students will distinguish between living and nonliving things, including viruses and bacteria.</p> <p>L.6.1.2 - Students will obtain and communicate evidence to support the cell theory.</p> <p>L.6.1.3 - Students will develop and use models to explain how specific cellular components function together to support the life of prokaryotic and eukaryotic organisms.</p> <p>L.6.1.4 - Students will compare and contrast different cells in order to classify them as a protist, fungus, plant, or animal.</p> <p>L.6.1.5 - Students will provide evidence that organisms are unicellular or multicellular.</p> <p>L.6.1.6 - Students will develop and use models to show cellular hierarchy.</p> <p>L.6.4.1 - Students will compare and contrast modern classification techniques to the historical practices used by scientists such as Aristotle and Carolus Linnaeus.</p> <p>L.6.4.2 - Students will use classification methods to explore diversity of organisms in Kingdoms and demonstrate that organisms have shared structural and behavioral characteristics.</p> <p>L.6.4.3 - Students will analyze and interpret data from observations to describe how fungi obtain energy and respond to stimuli.</p> <p>L.6.4.4 - Students will conduct investigations using a microscope or multimedia source to compare characteristics of protists (euglena, paramecium, amoeba) and the methods used to obtain energy and move through their environment.</p> <p>L.6.4.5 - Students will use research to support that bacteria and viruses can be both helpful and harmful to other organisms and the environment.</p>	<p>https://www.youtube.com/watch?v=YZ8m945EwEA</p> <p>https://www.youtube.com/watch?v=KuJqqiATlqw</p> <p>https://www.youtube.com/watch?v=8llzKri08kk</p> <p>https://www.youtube.com/watch?v=1hrkwJ_HuR0</p> <p>https://www.youtube.com/watch?v=EtWknf1gzKo</p> <p>https://www.youtube.com/watch?v=InvIMl opu2A</p> <p>https://www.youtube.com/watch?v=aH5ST8gmSCU</p> <p>https://www.youtube.com/watch?v=Hws8NXySjPM</p> <p>https://www.youtube.com/watch?v=kQdRVq0b9Bk</p>
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Q2.1- Q2.4	<p>Newton's Laws of Motion: P.6.6.1 - <i>Students will use an engineering design process to create or improve safety devices by applying Newton's Laws of Motion.</i></p> <p>P.6.6.2 - <i>Students will use mathematical computation and diagrams to calculate the sum of forces acting on various objects.</i></p> <p>P.6.6.3 - <i>Students will investigate and communicate ways to manipulate applied/frictional forces to improve movement of objects on various surfaces.</i></p> <p>P.6.6.4 - <i>Students will compare and contrast magnetic, electrical, frictional, and gravitational forces.</i></p> <p>P.6.6.5 - <i>Students will conduct investigations to predict and explain the motion of an object according to its position, direction, speed, and acceleration.</i></p> <p>P.6.6.7 - <i>Students will determine the relationships between the concepts of potential, kinetic, and thermal energy.</i></p>	<p>https://youtu.be/aA_mqSzbkM0</p> <p>https://www.youtube.com/watch?v=08BFCZJDn9w</p> <p>https://www.youtube.com/watch?v=qu_P4IbmV_I</p> <p>https://www.youtube.com/watch?v=e1lzB36aHD4</p> <p>https://www.youtube.com/watch?v=ASZv3tIK56k</p>
Q2.5 - Q2.7	<p>The Solar System: E.6.8.1 - <i>Students will research theories to explain how the universe was formed.</i></p>	<p>https://www.youtube.com/watch?v=HdPzOWILrbe</p>

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	<p>E.6.8.2 - <i>Students will use models and graphs to explain how the universe is organized from smallest to largest parts.</i></p> <p>E.6.8.3 - <i>Students will explore how scientists study our solar system's position in the universe.</i></p> <p>E.6.8.4 - <i>Students will use models to compare characteristics and movements of objects in the solar system (planets, moons, asteroids, comets, and meteors).</i></p> <p>E.6.8.5 - <i>Students will explain how gravity affects movement in the solar system and affects tides on Earth.</i></p> <p>E.6.8.6 - <i>Students will use models to explain events related to the movement of the Sun, Earth, and Moon.</i></p> <p>E.6.8.7 - <i>Students will predict how features of the Sun's surface affects the Earth.</i></p>	<p>https://www.youtube.com/watch?v=i93Z7zIjQ7I</p> <p>https://www.youtube.com/watch?v=ZoSmRqWSnFs</p> <p>https://www.youtube.com/watch?v=zjqUS9CXVac</p> <p>https://www.youtube.com/watch?v=TRAbZxQHIVw</p> <p>https://www.youtube.com/watch?v=TLCw_M3VtaA&t=1s</p> <p>https://www.youtube.com/watch?v=2HoTK_Gqi2Q</p>
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7th Grade Science

Date	Standard/Skill	Instructional Video Resources
Q1.1	The Nature of Science: Science and Engineering Practices	https://mpb.pbslearningmedia.org/subject/s/science/practices-and-nature-of-science/
Q1.2 - Q1.3	<p>Life on Earth:</p> <p>L.7.3.1 - Students will analyze diagrams to provide evidence of the importance of the cycling of water, oxygen, carbon, and nitrogen through ecosystems to organisms.</p> <p>L.7.3.2 - Students will analyze and interpret data to explain how the processes of photosynthesis, and cellular respiration work together to meet the needs of plants and animals.</p> <p>L.7.3.3 - Students will use models to describe how food molecules are processed through chemical reactions using oxygen to form new molecules.</p> <p>L.7.3.4 - Students will explain how disruptions in cycles affect biodiversity and ecosystem services which are needed to sustain human life on Earth.</p> <p>L.7.3.5 - Students will design solutions for sustaining the health of ecosystems to maintain biodiversity and the resources needed by humans for survival.</p>	<p>https://www.youtube.com/watch?v=NGW5Iv4ygTU</p> <p>https://www.youtube.com/watch?v=n0uABllfj44</p> <p>https://www.youtube.com/watch?v=V5hrDFo8Vk</p> <p>https://www.youtube.com/watch?v=xDSFIRunlrU</p>
Q1.4 - Q1.5	The Periodic Table: P.7.5C.1 - Students will develop and use models that	https://youtu.be/P-wDdFyeLpM

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	<p>explain the structure of an atom.</p> <p>P.7.5C.2 - Students will use informational text to sequence the major discoveries leading to the current atomic model.</p> <p>P.7.5C.3 - Students will collect, organize, and interpret data from investigations to identify and analyze the relationships between the physical and chemical properties of elements, atoms, molecules, compounds, solutions, and mixtures.</p> <p>P.7.5C.4 - Students will predict the properties and interactions of elements using the periodic table (metals, non-metals, reactivity, and conductors).</p> <p>P.7.5C.5 - Students will describe concepts used to construct chemical formulas (e.g., CH₄, H₂O) to determine the number of atoms in a chemical formula.</p> <p>P.7.5C.6 - Students will make predictions to explain how bonds form between groups of elements using the Periodic Table.</p>	<p>https://youtu.be/1StzvGFX4_c</p> <p>https://youtu.be/m_tbuuwpaT4</p> <p>https://youtu.be/PKA4CZwbZWU</p> <p>https://youtu.be/dggHWvFJ8Xs</p> <p>https://youtu.be/e1albbVqrU4</p>
<p>Q1.6 - Q1.7</p>	<p>Physical and Chemical Properties</p> <p>P.7.5A.1 - <i>Students will collect and evaluate qualitative data to describe substances using physical properties (state, boiling/melting point, density, heat/electrical conductivity, color, and magnetic properties).</i></p> <p>P.7.5A.2 - <i>Students will analyze and interpret</i></p>	<p>https://www.youtube.com/watch?v=U5lwg mYr36U</p> <p>https://www.youtube.com/watch?v=kV9my ArRDSO</p>

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	<p><i>qualitative data to describe substances using chemical properties (the ability to burn or rust).</i></p> <p>P.7.5A.3 - <i>Students will compare and contrast chemical and physical properties (e.g., combustion, oxidation, pH, solubility, reaction with water).</i></p> <p>P.7.5B.1 - <i>Students will make predictions about the effect of temperature and pressure on the relative motion of atoms and molecules.</i></p> <p>P.7.5B.2 - <i>Students will use evidence from multiple scientific investigations to communicate the relationships between pressure, volume, density, and temperature of a gas.</i></p> <p>P.7.5B.3 - <i>Students will ask questions to explain how density of matter (observable in various objects) is affected by a change in heat and/or pressure.</i></p>	<p>https://www.youtube.com/watch?v=nISemv2fLN8</p> <p>https://www.youtube.com/watch?v=Jy7n7_8B8DE</p>
<p>Q2.1- Q2.3</p>	<p>Chemical Reactions:</p> <p>P.7.5D.1 - <i>Students will predict outcomes of common chemical reactions and identify reactants and products.</i></p> <p>P.7.5D.2 - <i>Students will identify signs that a chemical reaction has happened (cooking, burning, rusting, rotting, photosynthesis, cellular respiration)</i></p>	<p>https://youtu.be/a7PZDEeqjU</p> <p>https://www.youtube.com/watch?v=JSiBS_SFKRwE</p>

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<p>Q2.4 - Q2.5</p>	<p>Law of Conservation of Matter: P.7.5E.1 - <i>Students will show that mass is not changed in a chemical reaction and study Lavoisier's discovery.</i></p> <p>P.7.5E.2 - <i>Students will explain why some mass appears to be lost when reactions happen in open spaces.</i></p> <p>P.7.5E.3 - <i>Students will show differences in the number of atoms in balanced and unbalanced chemical equations.</i></p>	<p>https://www.youtube.com/watch?v=YaGB3pf2pmg</p> <p>https://www.youtube.com/watch?v=2S6e11NBwiw</p> <p>https://youtu.be/4jISjQvdyhs</p>
<p>Q2.6 - Q2.7</p>	<p>Earth's Tilt E.7.9C.1/E.7.9C.2 - <i>Students will use models to show how Earth's tilt causes seasons and differences in the amount of direct sunlight parts of Earth receives.</i></p>	<p>https://www.youtube.com/watch?v=b25g4nZTHvM</p>
<p>Q3.1 - Q3.3</p>	<p>Weather and Climate: E.7.9A.1 - <i>Students will determine differences between weather and climate based on weather patterns.</i></p> <p>E.7.9A.2 - <i>Students will explain weather conditions due to the movement of water and air masses.</i></p>	<p>https://www.youtube.com/watch?v=YbAWny7FV3w</p> <p>https://www.youtube.com/watch?v=Dwb5Mr0JUnM</p> <p>https://www.youtube.com/watch?v=mWqFg21X2tE</p>

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	<p>E.7.9A.3 - <i>Students will predict weather patterns and conditions from weather maps and satellite/radar data.</i></p> <p>E.7.9A.4 - <i>Students will explain how climate is determined by global position and landforms.</i></p> <p>E.7.9A.5 - <i>Students will use models to explain how weather and climate are related to the movement of Sun's energy on Earth.</i></p> <p>E.7.9A.6 - <i>Students will use models to explain what weather results from movement of air masses, pressure systems, and fronts.</i></p> <p>E.7.9A.7 - <i>Students will interpret topographic maps and predict how land features affect weather patterns.</i></p>	<p>https://www.youtube.com/watch?v=p9HnW0AV13k</p> <p>https://www.youtube.com/watch?v=E-5rieCUPuc</p> <p>https://www.youtube.com/watch?v=bd7DcVnrSL8&disable_polymer=true</p>
<p>Q3.4 - Q3.5</p>	<p>Climate Change:</p> <p>E.7.9B.1 - <i>Students will research and discuss current evidence explaining climate change.</i></p> <p>E.7.9B.2 - <i>Students will explain the relationship between carbon dioxide in the atmosphere and the Greenhouse effect.</i></p> <p>E.7.9B.3 - <i>Students will use evidence to explain if climate change is natural or caused by humans.</i></p>	<p>https://www.youtube.com/watch?v=Dbjk0Ihx95w</p> <p>https://www.youtube.com/watch?v=oJAbATJCugs</p> <p>https://www.youtube.com/watch?v=EtW2rrLHs08</p>

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8th Grade Science

Date	Standard/Skill	Instructional Video Resources
Q1.1	The Nature of Science: Science and Engineering Practices	https://mpb.pbslearningmedia.org/subject/s/science/practices-and-nature-of-science/
Q1.2 - Q1.4	<p>Waves:</p> <p>P.8.6.1 - Students will collect, organize, and interpret data about the characteristics of sound and light waves to construct explanations about the relationship between matter and energy.</p> <p>P.8.6.2 - Students will investigate research-based mechanisms for capturing and converting wave energy (frequency, amplitude, wavelength, and speed) into electrical energy.</p> <p>P.8.6.3 - Students will conduct simple investigations about the performance of waves to describe their behavior as they interact with various materials.</p> <p>P.8.6.4 - Students will use scientific processes to plan and conduct controlled investigations to conclude sound is a wave phenomenon that is characterized by amplitude and frequency.</p> <p>P.8.6.5 - Students will conduct scientific investigations that describe the behavior of sound when resonance changes.</p> <p>P.8.6.6 - Obtain and evaluate scientific information to explain the relationship between seeing color and the transmission, absorption, or reflection of light waves by various materials.</p>	<p>https://www.youtube.com/watch?v=sB8w2FvPsBA</p> <p>https://www.youtube.com/watch?v=1NJHH A9bp5Y</p> <p>https://www.youtube.com/watch?v=IRBfpBPELmE&t=36s&disable_polymer=true</p> <p>https://www.youtube.com/watch?v=qV4IR9EWGIY</p> <p>https://www.youtube.com/watch?v=kxLcwIMYmr0</p>

MPSD SCIENCE SKILLS BY WEEK

	<p>P.8.6.7 - <i>Students will research the historical significance of wave technology to explain how digitized tools have evolved to encode and transmit information.</i></p> <p>P.8.6.8 - <i>Students will compare and contrast the behavior of sound and light waves to determine which types of waves need a medium for transmission.</i></p>	
<p>Q1.5 - Q1.6</p>	<p>Sexual vs. Asexual Reproduction</p> <p>L.8.2A.1 - <i>Students will obtain and communicate information about the relationship of genes, chromosomes, and DNA, and construct explanations comparing their relationship to inherited characteristics.</i></p> <p>L.8.2A.2 - <i>Students will create a diagram of mitosis and explain its role in asexual reproduction, which results in offspring with identical genetic information.</i></p> <p>L.8.2A.3 - <i>Students will construct explanations of how genetic information is transferred during meiosis.</i></p> <p>L.8.2A.4 - <i>Students will engage in discussion using models and evidence to explain that sexual reproduction produces offspring that have a new combination of genetic information different from either parent.</i></p> <p>L.8.2A.5 - <i>Students will compare and contrast advantages and disadvantages of asexual and sexual reproduction</i></p>	<p>https://www.youtube.com/watch?v=fcGDUcGjcyk</p> <p>https://www.youtube.com/watch?v=47A9-pNSYRw</p> <p>https://www.youtube.com/watch?v=f-lDPgEfAHI&disable_polymer=true</p> <p>https://www.youtube.com/watch?v=VzDMG7ke69g</p>

MPSD SCIENCE SKILLS BY WEEK

<p>Q1.7</p>	<p>Genes and Mutations L.8.2C.1 - Students will communicate through diagrams that chromosomes contain many distinct genes and that each gene holds the instructions for the production of specific proteins, which in turn affects the traits of the individual.</p> <p>L.8.2C.2 - Students will construct scientific arguments from evidence to support claims about the potentially harmful, beneficial, or neutral effects of genetic mutations on organisms.</p>	<p>https://www.youtube.com/watch?v=C8OL1MTbGpU</p> <p>https://www.youtube.com/watch?v=hywRdDVR76A</p> <p>https://www.youtube.com/watch?v=AasJozWauaQ</p>
<p>Q2.1- Q2.3</p>	<p>Inherited and Acquired Characteristics: L.8.2B.1 - <i>Students will use evidence to show how environments and genes affect the growth of an organism (nature vs. nurture).</i></p> <p>L.8.2B.2 - <i>Students will explain Mendel's basic principles of heredity.</i></p> <p>L.8.2B.3- <i>Students will use Punnett Squares to predict how traits are passed from parents to offspring.</i></p> <p>L.8.2B.4 - <i>Students will research the impact and fairness of changing traits in organisms (selective breeding, genetic engineering)</i></p>	<p>https://youtu.be/Mehz7tCxjSE</p> <p>https://youtu.be/znWCgqIC-s8</p> <p>https://www.youtube.com/watch?v=y6rGht8s9E8</p> <p>https://youtu.be/fHS-OY9XDZc</p>

MPSD SCIENCE SKILLS BY WEEK

<p>Q2.4 - Q2.5</p>	<p>Natural Selection: L.8.4A.1 - <i>Students will explain Darwin's principles of natural selection.</i></p> <p>L.8.4A.2 - <i>Students will use natural selection to explain how genes, environment, diet, and other organisms are related to growth, survival, and reproduction of organisms.</i></p>	<p>https://youtu.be/vnktXHBvE8s</p> <p>https://www.youtube.com/watch?v=oK0e3BcEKEE</p>
<p>Q2.6 - Q2.7</p>	<p>Common Ancestry: L.8.4B.1 - <i>Students will explain how natural selection leads to increases or decreases of traits in a population over time.</i></p> <p>L.8.4B.2 - <i>Students will explain how differences between organisms increase chances of surviving in specific environments.</i></p> <p>L.8.4B.3 - <i>Students will describe that new species can form when a population is separated and evolves new mutations.</i></p> <p>L.8.4B.4 - <i>Students will use pictures to compare and contrast similar body structures and development from birth of different organisms to show evidence of evolution.</i></p>	<p>https://www.youtube.com/watch?v=BBi7Golyoog</p> <p>https://www.youtube.com/watch?v=GK_vRtHJZu4&list=PLAlbwjELiOCiE0BxmMSujlL6SPuVwCYCs</p> <p>https://www.youtube.com/watch?v=udZUaNKXbJA</p> <p>https://www.youtube.com/watch?v=GhHOjC4oxh8</p> <p>https://www.youtube.com/watch?v=V15KKXfj2Mg</p>

MPSD SCIENCE SKILLS BY WEEK

<p>Q3.1 - Q3.2</p>	<p>Earth's History: P.5.5C.1 - <i>Students will identify the results of common chemical changes that make new substances.</i></p>	
<p>Q3.3 - Q3.4</p>	<p>Geological Events: E.8.9A.1 - <i>Students will discuss how cycles of matter are related to the convection beneath Earth's surface.</i></p> <p>E.8.9A.2 - <i>Students will research and debate theories of plate tectonics and draw conclusions about movement of Earth's surface throughout history.</i></p> <p>E.8.9A.3 - <i>Students will use rocks, fossils, land, and water patterns as evidence of Earth's plates moving over time.</i></p> <p>E.8.9A.4 - <i>Students will research how constructive and destructive processes on Earth have changed Earth's surface at different rates.</i></p> <p>E.8.9A.5 - <i>Students will use models to demonstrate convergent and divergent plate movement.</i></p> <p>E.8.9A.6 - <i>Students will conduct investigations to explore chemical and physical processes involved in creating types of soil.</i></p>	<p>https://www.youtube.com/watch?v=x37DJLcJ0dl</p> <p>https://www.youtube.com/watch?v=zbtAXW-2nz0</p> <p>https://www.youtube.com/watch?v=KB7HzF2O3Kg&disable_polymer=true</p> <p>https://www.youtube.com/watch?v=edb7FMcGrAE</p> <p>https://www.youtube.com/watch?v=fwFLc9ah5sE</p> <p>https://www.youtube.com/watch?v=_e4PVA7Hc9E</p>

MPSD SCIENCE SKILLS BY WEEK

<p>Q3.5</p>	<p>Natural Hazards: E.8.9B.1 - <i>Students will research and map various types of natural hazards and determine their impact on society.</i></p> <p>E.8.9B.2 - <i>Students will compare and contrast technologies that predict natural hazards and determine effectiveness.</i></p>	<p>https://www.youtube.com/watch?v=n73qtEojP_Y</p> <p>https://www.youtube.com/watch?v=sJsJk46Cv1M</p>
<p>Q3.6 - Q3.7</p>	<p>Reducing Human Impact on the Environment: E.8.10.1 - <i>Students will research renewable and nonrenewable resources and propose ways to decrease need for nonrenewable resources.</i></p> <p>E.8.10.2 - <i>Students will research and propose ways to decrease human impact on the environment.</i></p> <p>E.8.10.3 - <i>Students will use evidence to discuss advantages and disadvantages of technology used in renewable energy sources.</i></p>	<p>https://www.youtube.com/watch?v=xzzybh8_Ago&index=4&list=PL3-lma1DdaCNL5uYYJixELFu9oC7XUaJi</p> <p>https://www.youtube.com/watch?v=RnvCbquYeIM</p> <p>https://www.youtube.com/watch?v=KIG0xk93J-E</p>

MPSD SCIENCE SKILLS BY WEEK

Biology I (Traditional - Middle School)

Date	Standard/Skill	Instructional Video Resources
Q1.1 - Q1.2	Foundations of Biology: Science and Engineering Practices	https://mpb.pbslearningmedia.org/subject/s/science/practices-and-nature-of-science/ https://www.khanacademy.org/science/high-school-biology/hs-biology-foundations
Q1.3 - Q1.4	Chemistry of Life: BIO 1A.1 - <i>Develop criteria to differentiate between living and non-living things.</i> BIO 1A.2 - <i>Describe the tenets of cell theory and the contributions of Schwann, Hooke, Schleiden, and Virchow.</i> BIO 1A.3 - <i>Using specific examples, explain how cells can be organized into complex tissues, organs, and organ systems in multicellular organisms.</i> BIO 1A.4 - <i>Use evidence from current scientific literature to support whether a virus is living or non-living.</i> BIO 1B.1 - <i>Develop and use models to compare and contrast the structure and function of carbohydrates, lipids, proteins, and nucleic acids (DNA and RNA) in organisms.</i> BIO 1B.2 - <i>Design and conduct an experiment to determine how enzymes react given various</i>	https://www.khanacademy.org/science/high-school-biology/hs-biology-foundations https://www.khanacademy.org/science/high-school-biology/hs-cells

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	<p><i>environmental conditions. Analyze, interpret, graph, and present data to explain how those changing conditions affect the enzyme activity and the rate of the reactions that take place in biological organisms.</i></p>	
<p>Q1.5 - Q1.7</p>	<p>Cells as a System:</p> <p>BIO 1C.1 - <i>Develop and use models to explore how specialized structures within cells interact to carry out the functions necessary for organism survival.</i></p> <p>BIO 1C.2 - <i>Investigate to compare and contrast prokaryotic cells and eukaryotic cells, and plant, animal, and fungal cells.</i></p> <p>BIO 1C.3 - <i>Contrast the structure of viruses with that of cells, and explain why viruses must use living cells to reproduce.</i></p> <p>BIO 2.1 - <i>Use models to demonstrate that ATP and ADP are cycled within a cell as a means to transfer energy.</i></p> <p>BIO 2.2 - <i>Develop models of the major reactants and products of photosynthesis to demonstrate the transformation of light energy into stored chemical energy in cells. Emphasize the chemical processes in which bonds are broken and energy is released, and new bonds are formed and energy is stored.</i></p> <p>BIO 2.3 - <i>Develop models of the major reactants and products of cellular respiration (aerobic and anaerobic) to demonstrate the transformation of the chemical energy stored in food to the available energy of ATP. Emphasize the chemical processes in which bonds are broken and energy is released, and new bonds are formed and energy is stored.</i></p>	<p>https://www.khanacademy.org/science/high-school-biology/hs-reproduction-and-cell-division</p> <p>https://www.khanacademy.org/science/high-school-biology/hs-energy-and-transport</p>

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	<p>BIO 2.4 - <i>Conduct scientific investigations or computer simulations to compare aerobic and anaerobic cellular respiration in plants and animals, using real world examples.</i></p>	
<p>Q2.1- Q2.2</p>	<p>Cell Cycle and Meiosis:</p> <p>BIO 1E.1 - <i>Construct models to explain how the processes of cell division and cell differentiation produce and maintain complex multicellular organisms.</i></p> <p>BIO 1E.2 - <i>Identify and describe the changes that occur in a cell during replication. Explore problems that might occur if the cell does not progress through the cycle correctly (cancer).</i></p> <p>BIO 1E. 3 - <i>Relate the processes of cellular reproduction to asexual reproduction in simple organisms. Explain why the DNA of the daughter cells is the same as the parent cell.</i></p> <p>BIO 3A.1 - <i>Model sex cell formation (meiosis) and combination (fertilization) to demonstrate the maintenance of chromosome number through each generation in sexually reproducing populations. Explain why the DNA of the daughter cells is different from the DNA of the parent cell.</i></p> <p>BIO 3A.2 - <i>Compare and contrast mitosis and meiosis in terms of reproduction.</i></p> <p>BIO 3A.3 - <i>Investigate chromosomal abnormalities</i></p>	<p>https://www.khanacademy.org/science/high-school-biology/hs-reproduction-and-cell-division</p>

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	<p><i>that might arise from errors in meiosis and how these abnormalities are identified.</i></p>	
<p>Q2.3 - Q2.4</p>	<p>Mendelian and Non-Mendelian Genetics:</p> <p>BIO 3B.1 - <i>Demonstrate Mendel’s law of dominance and segregation using mathematics to predict phenotypic and genotypic ratios by constructing Punnett Squares with both homozygous and heterozygous allele pairs.</i></p> <p>BIO 3B.2 - <i>Illustrate Mendel’s law of independent assortment using Punnett Squares and/or the product rule of probability to analyze monohybrid crosses.</i></p> <p>BIO 3B.3 - <i>Investigate traits that follow non-Mendelian inheritance patterns.</i></p> <p>BIO 3B.4 - <i>Analyze and interpret data regarding Mendelian and complex genetic traits to determine patterns of inheritance and disease risk.</i></p>	<p>https://www.khanacademy.org/science/high-school-biology/hs-classical-genetics</p>
<p>Q2.5 - Q2.7</p>	<p>DNA and RNA:</p> <p>BIO 3C.1 - <i>Develop and use models to explain the relationship between DNA, genes, and chromosomes in coding the instructions for the traits transferred from parent to offspring.</i></p> <p>BIO 3C.2 - <i>Evaluate the mechanisms of transcription and translation in protein synthesis.</i></p> <p>BIO 3C.3 - <i>Use models to predict how various changes in the nucleotide sequence (e.g., point mutations, deletions, and additions) will affect the</i></p>	<p>https://www.khanacademy.org/science/high-school-biology/hs-molecular-genetics</p>

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	<p><i>resulting protein product and the subsequent inherited trait.</i></p> <p>BIO 3C.4 - <i>Research and identify how DNA technology benefits society. Engage in scientific argument from evidence over the ethical issues surrounding the use of DNA technology.</i></p>	
Q3.1 - Q3.3	<p>Interdependence of Organisms and their Environments:</p> <p>BIO 5.1 - <i>Illustrate levels of ecological hierarchy, including organism, population, community, ecosystem, biome, and biosphere.</i></p> <p>BIO 5.2 - <i>Analyze models of the cycling of matter (e.g., carbon, nitrogen, phosphorus, and water) between abiotic and biotic factors in an ecosystem and evaluate the ability of these cycles to maintain the health and sustainability of the ecosystem.</i></p> <p>BIO 5.3 - <i>Analyze and interpret quantitative data to construct an explanation for the effects of greenhouse gases on the carbon dioxide cycle and global climate.</i></p> <p>BIO 5.4 - <i>Develop and use models to describe the flow of energy and amount of biomass through food chains, food webs, and food pyramids.</i></p> <p>BIO 5.5 - <i>Evaluate symbiotic relationships (e.g., mutualism, parasitism, and commensalism) and</i></p>	<p>https://www.khanacademy.org/science/high-school-biology/hs-ecology</p>

MPSD SCIENCE SKILLS BY WEEK

	<p><i>other coevolutionary (e.g., predator-prey, cooperation, competition, and mimicry) relationships within specific environments.</i></p> <p>BIO 5.6 - <i>Analyze and interpret population data, both density-dependent and density-independent, to define limiting factors. Use graphical representations (growth curves) to illustrate the carrying capacity within ecosystems.</i></p> <p>BIO 5.7 - <i>Investigate and evaluate factors involved in primary and secondary ecological succession using local, real world examples.</i></p>	
Q3.4 - Q3.5	<p>Theories of Evolution:</p> <p>BIO 4.1 - <i>Use models to differentiate between organic and chemical evolution, illustrating the steps leading to aerobic heterotrophs and photosynthetic autotrophs.</i></p> <p>BIO 4.2 - <i>Evaluate empirical evidence of common ancestry and biological evolution, including comparative anatomy, fossil record, molecular/biochemical similarities, and biogeographic distribution.</i></p> <p>BIO 4.5 - <i>Use Darwin's Theory to explain how genetic variation, competition, overproduction, and unequal reproductive success acts as driving forces of natural selection and evolution.</i></p>	<p>https://www.khanacademy.org/science/high-school-biology/hs-evolution</p>
Q3.6 - Q3.7	<p>Application of Evolution and Taxonomy:</p> <p>BIO 4.3 - <i>Construct cladograms/phylogenetic trees to illustrate relatedness between species.</i></p>	<p>https://www.khanacademy.org/science/high-school-biology/hs-evolution</p>

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	<p>BIO 4.4 - <i>Design models and use simulations to investigate the interaction between changing environments and genetic variation in natural selection leading to adaptations in populations and differential success of populations.</i></p> <p>BIO 4.6 - <i>Construct explanations for the mechanisms of speciation (e.g. geographic and reproductive isolation).</i></p>	
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MPSD SCIENCE SKILLS BY WEEK

Biology I (Block- High School)

Date	Standard/Skill	Instructional Video Resources
Q1.1	Foundations of Biology:	https://mpb.pbslearningmedia.org/subject/s/science/practices-and-nature-of-science/ https://www.khanacademy.org/science/high-school-biology/hs-biology-foundations
Q1.2 - Q1.4	<p>Cells as a System:</p> <p>BIO 1A.1 - <i>Develop criteria to differentiate between living and non-living things.</i></p> <p>BIO 1A.2 - <i>Describe the tenets of cell theory and the contributions of Schwann, Hooke, Schleiden, and Virchow.</i></p> <p>BIO 1A.3 - <i>Using specific examples, explain how cells can be organized into complex tissues, organs, and organ systems in multicellular organisms.</i></p> <p>BIO 1A.4 - <i>Use evidence from current scientific literature to support whether a virus is living or non-living.</i></p> <p>BIO 1B.1 - <i>Develop and use models to compare and contrast the structure and function of carbohydrates, lipids, proteins, and nucleic acids (DNA and RNA) in organisms.</i></p> <p>BIO 1B.2 - <i>Design and conduct an experiment to determine how enzymes react given various</i></p>	https://www.khanacademy.org/science/high-school-biology/hs-biology-foundations https://www.khanacademy.org/science/high-school-biology/hs-cells https://www.khanacademy.org/science/high-school-biology/hs-reproduction-and-cell-division https://www.khanacademy.org/science/high-school-biology/hs-energy-and-transport https://www.khanacademy.org/science/high-school-biology/hs-molecular-genetics

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environmental conditions. Analyze, interpret, graph, and present data to explain how those changing conditions affect the enzyme activity and the rate of the reactions that take place in biological organisms.

BIO 1C.1 - *Develop and use models to explore how specialized structures within cells interact to carry out the functions necessary for organism survival.*

BIO 1C.2 - *Investigate to compare and contrast prokaryotic cells and eukaryotic cells, and plant, animal, and fungal cells.*

BIO 1C.3 - *Contrast the structure of viruses with that of cells, and explain why viruses must use living cells to reproduce.*

BIO 1E.1 - *Construct models to explain how the processes of cell division and cell differentiation produce and maintain complex multicellular organisms.*

BIO 1E.2 - *Identify and describe the changes that occur in a cell during replication. Explore problems that might occur if the cell does not progress through the cycle correctly (cancer).*

BIO 1E.3 - *Relate the processes of cellular reproduction to asexual reproduction in simple organisms. Explain why the DNA of the daughter cells is the same as the parent cell.*

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Q1.5 - Q1.6	<p>Energy Transfer:</p> <p>BIO 2.1 - <i>Use models to demonstrate that ATP and ADP are cycled within a cell as a means to transfer energy.</i></p> <p>BIO 2.2 - <i>Develop models of the major reactants and products of photosynthesis to demonstrate the transformation of light energy into stored chemical energy in cells. Emphasize the chemical processes in which bonds are broken and energy is released, and new bonds are formed and energy is stored.</i></p> <p>BIO 2.3 - <i>Develop models of the major reactants and products of cellular respiration (aerobic and anaerobic) to demonstrate the transformation of the chemical energy stored in food to the available energy of ATP. Emphasize the chemical processes in which bonds are broken and energy is released, and new bonds are formed and energy is stored.</i></p> <p>BIO 2.4 - <i>Conduct scientific investigations or computer simulations to compare aerobic and anaerobic cellular respiration in plants and animals, using real world examples.</i></p>	<p>https://www.khanacademy.org/science/high-school-biology/hs-energy-and-transport</p>
Q1.7 - Q1.8	<p>Interdependence of Organisms and their Environments:</p> <p>BIO 5.1 - <i>Illustrate levels of ecological hierarchy, including organism, population, community, ecosystem, biome, and biosphere.</i></p> <p>BIO 5.2 - <i>Analyze models of the cycling of matter</i></p>	<p>https://www.khanacademy.org/science/high-school-biology/hs-ecology</p>

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	<p><i>(e.g., carbon, nitrogen, phosphorus, and water) between abiotic and biotic factors in an ecosystem and evaluate the ability of these cycles to maintain the health and sustainability of the ecosystem.</i></p> <p>BIO 5.3 - <i>Analyze and interpret quantitative data to construct an explanation for the effects of greenhouse gases on the carbon dioxide cycle and global climate.</i></p> <p>BIO 5.4 - <i>Develop and use models to describe the flow of energy and amount of biomass through food chains, food webs, and food pyramids.</i></p> <p>BIO 5.5 - <i>Evaluate symbiotic relationships (e.g., mutualism, parasitism, and commensalism) and other coevolutionary (e.g., predator-prey, cooperation, competition, and mimicry) relationships within specific environments.</i></p> <p>BIO 5.6 - <i>Analyze and interpret population data, both density-dependent and density-independent, to define limiting factors. Use graphical representations (growth curves) to illustrate the carrying capacity within ecosystems.</i></p> <p>BIO 5.7 - <i>Investigate and evaluate factors involved in primary and secondary ecological succession using local, real world examples.</i></p>	
Q2.1- Q2.4	<p>Reproduction and Heredity: BIO 3A.1 - <i>Model sex cell formation (meiosis) and</i></p>	<p>https://www.khanacademy.org/science/high-school-biology/hs-reproduction-and-cell</p>

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	<p><i>combination (fertilization) to demonstrate the maintenance of chromosome number through each generation in sexually reproducing populations. Explain why the DNA of the daughter cells is different from the DNA of the parent cell.</i></p> <p>BIO 3A.2 - <i>Compare and contrast mitosis and meiosis in terms of reproduction.</i></p> <p>BIO 3A.3 - <i>Investigate chromosomal abnormalities that might arise from errors in meiosis and how these abnormalities are identified.</i></p> <p>BIO 3B.1 - <i>Demonstrate Mendel's law of dominance and segregation using mathematics to predict phenotypic and genotypic ratios by constructing Punnett Squares with both homozygous and heterozygous allele pairs.</i></p> <p>BIO 3B.2 - <i>Illustrate Mendel's law of independent assortment using Punnett Squares and/or the product rule of probability to analyze monohybrid crosses.</i></p> <p>BIO 3B.3 - <i>Investigate traits that follow non-Mendelian inheritance patterns.</i></p> <p>BIO 3B.4 - <i>Analyze and interpret data regarding Mendelian and complex genetic traits to determine patterns of inheritance and disease risk.</i></p> <p>BIO 3C.1 - <i>Develop and use models to explain the relationship between DNA, genes, and chromosomes</i></p>	<p><u>-division</u></p> <p><u>https://www.khanacademy.org/science/high-school-biology/hs-classical-genetics</u></p> <p><u>https://www.khanacademy.org/science/high-school-biology/hs-molecular-genetics</u></p>
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MPSD SCIENCE SKILLS BY WEEK

	<p><i>in coding the instructions for the traits transferred from parent to offspring.</i></p> <p>BIO 3C.2 - <i>Evaluate the mechanisms of transcription and translation in protein synthesis.</i></p> <p>BIO 3C.3 - <i>Use models to predict how various changes in the nucleotide sequence (e.g., point mutations, deletions, and additions) will affect the resulting protein product and the subsequent inherited trait.</i></p> <p>BIO 3C.4 - <i>Research and identify how DNA technology benefits society. Engage in scientific argument from evidence over the ethical issues surrounding the use of DNA technology.</i></p>	
<p>Q2.5 - Q2.6</p>	<p>Adaptations and Evolution:</p> <p>BIO 4.1 - <i>Use models to differentiate between organic and chemical evolution, illustrating the steps leading to aerobic heterotrophs and photosynthetic autotrophs.</i></p> <p>BIO 4.2 - <i>Evaluate empirical evidence of common ancestry and biological evolution, including comparative anatomy, fossil record, molecular/biochemical similarities, and biogeographic distribution.</i></p> <p>BIO 4.3 - <i>Construct cladograms/phylogenetic trees to illustrate relatedness between species.</i></p> <p>BIO 4.4 - <i>Design models and use simulations to</i></p>	<p>https://www.khanacademy.org/science/high-school-biology/hs-evolution</p>

MPSD SCIENCE SKILLS BY WEEK

	<p><i>investigate the interaction between changing environments and genetic variation in natural selection leading to adaptations in populations and differential success of populations.</i></p> <p>BIO 4.5 - <i>Use Darwin's Theory to explain how genetic variation, competition, overproduction, and unequal reproductive success acts as driving forces of natural selection and evolution.</i></p> <p>BIO 4.6 - <i>Construct explanations for the mechanisms of speciation (e.g. geographic and reproductive isolation).</i></p>	
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