Science – Seventh Grade 2020-21
First Quarter

Week 1, Aug 4-7 (3-day week) **Physical/Earth Science Pre-Assessment** **Set up science journals**	
Week 2, Aug 10-14 **7.PS1.1** Develop and use models to illustrate the structure of atoms, including the subatomic particles with their relative positions and charge.	**DCI: Atomic structure/subatomic particles** **CCC: Patterns** **SEP: Developing and using models**
Week 3, Aug 17-21 **7.PS1.2** Compare and contrast elemental molecules and compound molecules.	**DCI: Elements and compounds** **CCC: Structure and function** **SEP: Developing and using models**
Week 4, Aug 24-28 **7.PS1.3** Classify matter as pure substance or mixtures based on composition.	**DCI: Pure substances and mixtures** **CCC: Stability and change** **SEP: Engaging in argument from evidence**
Week 5, Aug 31-Sept 4 **UNIT ASSESSMENT (7.PS1.1-3)** **7.PS1.4** Analyze and interpret chemical reactions to determine if the total number of atoms in the reactants and products support the Law of Conservation of Mass.	**DCI: Law of Conservation of Mass** **CCC: Energy and matter** **SEP: Constructing explanations & designing solutions**
Week 6, Sept 8-11 (4-day week) **7.PS1.4 Continued**	
Week 7, Sept 14-18 **7.PS1.5** Use the periodic table as a model to analyze and interpret evidence relating to physical and chemical properties to identify a sample of matter.	**DCI: Using the periodic table to determine physical and chemical properties of matter** **CCC: Patterns** **SEP: Developing and using models**
Week 8, Sept 21-25 **7.PS1.6** Create and interpret models of substances whose atoms represent the states of matter with respect to temperature and pressure.	**DCI: The temperature and pressure of different states of matter** **CCC: Cause and effect** **SEP: Developing and using models**
Week 9, Sept 28-Oct 2 **UNIT ASSESSMENT (7.PS1.4-6)**	

Science – Seventh Grade 2020-21
Second Quarter

Week 1, Oct 12-16 **Life Science Pre-Assessment** **7.LS1.1** Develop and construct models that identify and explain the structure and function of major cell organelles as they contribute to the life activities of the cell and organism.	**DCI: The contribution of major cell organelles to life activities** **CCC: Structure and function** **SEP: Developing and using models**
Week 2, Oct 19-23 **7.LS1.2** Conduct an investigation to demonstrate how the cell membrane maintains homeostasis through the process of passive transport.	**DCI: Homeostasis of the cell membrane through passive transport** **CCC: Energy and matter** **SEP: Constructing explanations & designing solutions**
Week 3, Oct 26-30 **Assessment (7.LS1.1-2)** **7.LS1.3** Evaluate evidence that cells have structural similarities and differences in organisms across kingdoms. ***(focus on cellular differences in Kingdoms)***	**DCI: Structural similarities and differences in organisms across kingdoms** **CCC: Energy and matter** **SEP: Construction explanations and designing solutions**
Week 4, Nov 2-6 (4-day week) **7.LS1.4** Diagram the hierarchical organization of multicellular organisms from cells to organism.	**DCI: Hierarchy of multicellular organisms** **CCC: Systems and system models** **SEP: Developing and using models**
Week 5, Nov 9-13 **7.LS1.5** Explain that the body is a system comprised of subsystems that maintain equilibrium and support life through digestion, respiration, excretion, circulation, sensation (nervous and integumentary), and locomotion (musculoskeletal).	**DCI: Organ systems' support of life and equilibrium maintenance** **CCC: Stability and change** **SEP: Constructing explanations and designing solutions**
Week 6, Nov 16-20 **Assessment (7.LS1.3-5)** **7.LS1.6** Develop an argument based on empirical evidence and scientific reasoning to explain how behavioral and structural adaptations in animals and plants affect the probability of survival and reproductive success.	**DCI: Survival and reproductive success due to behavioral and structural adaptations of plants and animals** **CCC: Cause and effect** **SEP: Engaging in argument from evidence**

Pacing Modified May 5, 2020

Week 7, Nov 23-24 (2-day week) **7.LS1.6 Continued**	
Week 8, Nov 30-Dec 4 **7.LS1.7** Evaluate and communicate evidence that compares and contrasts the advantages and disadvantages of sexual and asexual reproduction. **7.LS1.8** Construct an explanation demonstrating that the function of mitosis for multicellular organisms is for growth and repair through the production of genetically identical daughter cells.	**DCI: Advantages and disadvantages of sexual and asexual reproduction** **CCC: Cause and effect** **SEP: Obtaining, evaluating, and communicating information** **DCI: Function and result of mitosis** **CCC: Energy and matter** **SEP: Constructing explanations and designing solutions**
Week 9, Dec 7-11 **7.LS1.8** Continued **7.ETS2.1** Examine a problem from the medical field pertaining to biomaterials and design a solution taking into consideration the criteria, constraints, and relevant scientific principles of the problem that may limit possible solutions.	**DCI: Problems involving biomaterials in the medical field** **CCC: Structure and function** **SEP: Asking questions (for science) and defining problems (for engineering)**
Week 10, Dec 14-18 **Assessment (7.LS1.6-8, ETS2.1)** **Check Point Assessment 1**	

Science – Seventh Grade 2020-21
Third Quarter

Week 1, Jan 5-8 (4-day week) **7.LS1.9** Construct a scientific explanation based on compiled evidence for the processes of photosynthesis, cellular respiration, and anaerobic respiration in the cycling of matter and flow of energy into and out of organisms.	**DCI: Photosynthesis, cellular respiration, and photosynthesis** **CCC: Energy and matter** **SEP: Constructing explanations and designing solutions**
Week 2, Jan 11-15 **7.LS1.9 Continued** **7.LS2.1** Develop a model to depict the cycling of matter, including the flow of energy among biotic and abiotic parts of an ecosystem.	**DCI: Cycling of matter, including the flow of energy among biotic and abiotic parts of an ecosystem** **CCC: Energy and matter** **SEP: Constructing explanations and designing solutions**
Week 3, Jan 19-22 (4-day week) **7.ESS3.1** Graphically represent the composition of the atmosphere as a mixture of gases and discuss the potential for atmospheric change. **7.ESS3.2** Engage in a scientific argument through graphing and translating data regarding human activity and climate	**DCI: Atmospheric composition and the potential for atmospheric change** **CCC: Structure and function** **SEP: Using mathematics and computational thinking** **DCI: Human activity and climate** **CCC: Patterns** **SEP: Engaging in argument from evidence**
Week 4, Jan 25-Jan 29 **7.ESS3.2 Continued** **Assessment (7.LS1.9, 7.LS2.1, 7.ESS3.1-2)**	
Week 5, Feb 1-5 **7.LS3.1** Hypothesize that the impact of structural changes to genes (i.e., mutations) located on chromosomes may result in harmful, beneficial, or neutral effects to the structure and function of the organism. 1. ***DNA/Genes/Chromosomes*** 2. ***Genotype vs Phenotype*** 3. ***Mutations: Benefit vs. Harm***	**DCI: Harmful, beneficial, and neutral effects of structural changes to genes (i.e., mutations)** **CCC: Structure and function** **SEP: Developing and using models**

Week 6, Feb 8-11 (4-day week) **7.LS3.1 Continued** **7.LS3.2** Distinguish between mitosis & meiosis & compare the resulting daughter cells.	**DCI: Results of mitosis and meiosis** **CCC: Cause and effect** **SEP: Developing and using models**
Week 7, Feb 16-19 (4-day week) **7.LS3.2 Continued**	
Week 8, Feb 22-26 **7.LS3.3** Predict the probability of individual dominant and recessive alleles to be transmitted from each parent to offspring during sexual reproduction and represent the phenotypic and genotypic patterns using ratios.	**DCI: Transmission of dominant and recessive alleles during sexual reproduction** **CCC: Cause and effect** **SEP: Using mathematics and computational thinking**
Week 9, Mar 1-5 **Unit Assessment (7.LS3.1-3)** **Check Point Assessment 2**	

Science – Seventh Grade 2020-21
Fourth Quarter

Week 1, Mar 15-19 **PBL/Project/Enrichment - Physical Science standards**	
Week 2, Mar 22-26 **PBL/Project/Enrichment - Physical Science standards**	
Week 3, Mar 29-Apr 1 (4-Day Week) **PBL/Project/Enrichment - Life/Earth & Human Activity Science standards**	
Week 4, Apr 6-9 (4-Day Week) **PBL/Project/Enrichment - Life Science standards**	
Week 5, Apr 12-16 **STEM PBL/Project/Enrichment**	
Week 6, Apr 19-Apr 23 **STEM PBL/Project/Enrichment**	
Week 7, Apr 26-30 **STEM PBL/Project/Enrichment**	
Week 8, May 3-7 **STEM PBL/Project/Enrichment**	
Week 9, May 10-14 **STEM PBL/Project/Enrichment**	
Week 10, May 17-21 **STEM PBL/Project/Enrichment**	
Week 11, May 24-26 **STEM PBL/Project/Enrichment**	

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