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Sixth Grade Science Pacing Guide 2023-2024

Sixth Grade			
First Term	**Second Term**	**Third Term**	**Fourth Term**
August 7, 2023- October 10, 2023	**October 11, 2023- December 21, 2023**	**January 9, 2024- March 22, 2024**	**March 25, 2024- May 29, 2024**
L.6.1 L.6.1.1 L.6.1.2 L.6.1.3 L.6.1.4 L.6.1.5 L.6.1.6 **L.6.3** L.6.3.1 L.6.3.2 L.6.3.3 L.6.3.4 L.6.3.5	**L.6.4** L.6.4.1 L.6.4.2 L.6.4.3 L.6.4.4 L.6.4.5 **P.6.6** P.6.6.1 P.6.6.2 P.6.6.3 P.6.6.4	**P.6.6** P.6.6.5 P.6.6.6 P.6.6.7 **E.6.8** E.6.8.1 E.6.8.2 E.6.8.3	**E.6.8** E.6.8.4 E.6.8.5 E.6.8.6 E.6.8.7

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Content Area	Science	Grade Level	6th Grade
Term One: August 7 - October 10, 2023			
Instructional Days 46	**MS College and Career Readiness Standards**	**Instructional Resources**	**Assessment Resources**
	L.6.1.1 Use argument supported by evidence in order to distinguish between living and non-living things, including viruses and bacteria. **L.6.1.2** Obtain and communicate evidence to support the cell theory. **L.6.1.3** Develop and use models to explain how specific cellular components (cell wall, cell membrane, nucleus, chloroplast, vacuole, and mitochondria) function together to support the life of prokaryotic and eukaryotic organisms to include plants, animals, fungi, protists, and bacteria (not to include biochemical function of cells or cell part). **L.6.1.4** Compare and contrast different cells in order to classify them as a protist, fungus, plant, or animal. **L.6.1.5** Provide evidence that organisms are unicellular or multicellular. **L.6.1.6** Develop and use models to show relationships among the increasing complexity of multicellular organisms (cells, tissues, organs, organ systems, organisms) and how they serve the needs of the organism.	• Lesson Plan Template • McGraw- Hill • MDE Instructional Planning Guides for Science • MDE Framework • L.6.1.1 Lesson Plan • 6th Grade Resources and Activities	• ELS • MDE Updated Assessment Blueprints • 2019-2020 Grade 8 Science Sample Items with Key • 2020-2021 Grade 8 Science Sample Items with Key • 2021-2022 Grade 8 Science Sample Items with Key • 2021-2022 Grade 8

	L.6.3.1 Use scientific reasoning to explain differences between biotic and abiotic factors that demonstrate what living organisms need to survive. **L.6.3.2** Develop and use models to describe the levels of organization within ecosystems (species, populations, communities, ecosystems, and biomes). **L.6.3.3** Analyze cause and effect relationships to explore how changes in the physical environment (limiting factors, natural disasters) can lead to population changes within an ecosystem. **L.6.3.4** Investigate organism interactions in a competitive or mutually beneficial relationship (predation, competition, cooperation, or symbiotic relationships). **L.6.3.5** Develop and use food chains, webs, and pyramids to analyze how energy is transferred through an ecosystem from producers (autotrophs) to consumers (heterotrophs, including humans) to decomposers.		Science Sample Items with Key (online version)
Academic Vocabulary			
Bacteria, Cell Membrane, Cell Wall, Chloroplast, Endoplasmic Reticulum, Eukaryote, Golgi Bodies, Mitochondria, Prokaryote, Ribosomes, Vacuole, Viruses, Protist, Fungus, Unicellular, Multicellular, Organism, Tissue, Organ System, Adaptation, Archaebacteria, Dichotomous Key Diversity, Eubacteria, Kingdom Animalia, Kingdom Archaea, Kingdom Bacteria, Kingdom Fungi, Kingdom Plantae, Kingdom Protista, Kingdom System, Kingdoms, Stimuli, Taxonomy			
District Term 1 Benchmark Assessment October 2-12, 2023			
Term Two: October 11 – December 21, 2023			
Instructional Days 44	**MS College and Career Readiness Standards**	**Instructional Resources**	**Assessment Resources**

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	L.6.4.1 Compare and contrast modern classification techniques (e.g., analyzing genetic material) to the historical practices used by scientists such as Aristotle and Carolus Linnaeus. **L.6.4.2** Use classification methods to explore the diversity of organisms in kingdoms (animals, plants, fungi, protists, bacteria). Support claims that organisms have shared structural and behavioral characteristics. **L.6.4.3** Analyze and interpret data from observations to describe how fungi obtain energy and respond to stimuli (e.g., bread mold, rotting plant material). **L.6.4.4** Conduct investigations using a microscope or multimedia source to compare the characteristics of protists (euglena, paramecium, amoeba) and the methods they use to obtain energy and move through their environment (e.g., pond water). **L.6.4.5** Engage in scientific arguments to support claims that bacteria (Archaebacteria and Eubacteria) and viruses can be both helpful and harmful to other organisms and the environment. **P.6.6.1** Use an engineering design process to create or improve safety devices (e.g., seat belts, car seats, helmets) by applying Newton's Laws of motion. Use an engineering design process to define the problem, design, construct, evaluate, and improve the safety device.* **P.6.6.2** Use mathematical computation and diagrams to calculate the sum of forces acting on various objects.	• Lesson Plan Template • McGraw- Hill • MDE Instructional Planning Guides for Science • MDE Framework • L.6.1.1 Lesson Plan • 6th Grade Resources and Activities	• ELS • MDE Updated Assessment Blueprints • 2019-2020 Grade 8 Science Sample Items with Key • 2020-2021 Grade 8 Science Sample Items with Key • 2021-2022 Grade 8 Science Sample Items with Key • 2021-2022 Grade 8 Science Sample Items with Key (online version)

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	P.6.6.3 Investigate and communicate ways to manipulate applied/frictional forces to improve movement of objects on various surfaces (e.g., athletic shoes, wheels on cars). **P.6.6.4** Compare and contrast magnetic, electric, frictional, and gravitational forces.		
Academic Vocabulary			
Adaptation, Archaebacteria, Dichotomous Key Diversity, Eubacteria, Kingdom Animalia, Kingdom Archaea, Kingdom Bacteria, Kingdom Fungi, Kingdom Plantae, Kingdom Protista, Kingdom System, Kingdoms, Stimuli, Taxonomy, Balance Forces, Collide, Force, Friction, Inertia, Motion, Newton's Law of Action-Reaction, Newton's Law of Force & Acceleration, Newton's Law of Inertia, Reaction, Unbalanced Forces			
District First Semester Benchmark Assessment December 11-21, 2023			
Term Three: January 9 - March 22, 2024			
Instructional Days 45	**MS College and Career Readiness Standards**	**Instructional Resources**	**Assessment Resources**
	P.6.6.5 Conduct investigations to predict and explain the motion of an object according to its position, direction, speed, and acceleration. **P.6.6.6** Investigate forces (gravity, friction, drag, lift, thrust) acting on objects (e.g., airplane, bicycle helmets). Use data to explain the differences between the forces in various environments. **P.6.6.7** Determine the relationships between the concepts of potential, kinetic, and thermal energy. **E.6.8.1** Obtain, evaluate, and summarize past and present theories and evidence to explain the formation and composition of the universe.	• Lesson Plan Template • McGraw- Hill • MDE Instructional Planning Guides for Science • MDE Framework • L.6.1.1 Lesson Plan • 6th Grade Resources and Activities	• ELS • MDE Updated Assessment Blueprints • 2019-2020 Grade 8 Science Sample Items with Key • 2020-2021 Grade 8 Science Sample

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	E.6.8.2 Use graphical displays or models to explain the hierarchical structure (stars, galaxies, galactic clusters) of the universe. **E.6.8.3** Evaluate modern techniques used to explore our solar system's position in the universe.		• Items with Key • 2021-2022 Grade 8 Science Sample Items with Key • 2021-2022 Grade 8 Science Sample Items with Key (online version)
Academic Vocabulary			
Acceleration, Distance, Drag, Electrical Force, Friction, Gravitational Force, Investigate, Lift, Magnetic Force, Magnetic Attraction, Net Force, Speed, Thrust, Asteroids, Comet, Galaxy, Gravitational Pull, Gravity, Moon, Orbit, Planet, Relative Position, Solar System, Star, Sun, Universe			
District Final Benchmark Assessment February 26-March 8, 2024			
Term Four: March 25 – May 29, 2024			
Instructional Days 45	**MS College and Career Readiness Standards**	**Instructional Resources**	**Assessment Resources**
	E.6.8.4 Obtain and evaluate information to model and compare the characteristics and movements of objects in the solar system (including planets, moons, asteroids, comets, and meteors). **E.6.8.5** Construct explanations for how gravity affects the motion of objects in the solar system and tides on Earth.	• Lesson Plan Template • McGraw- Hill • MDE Instructional Planning Guides for Science • MDE Framework	• ELS • MDE Updated Assessment Blueprints • 2019-2020 Grade 8

	E.6.8.6 Design models representing motions within the Sun-Earth-Moon system to explain phenomena observed from the Earth's surface (positions of celestial bodies, day and year, moon phases, solar and lunar eclipses, and tides). **E.6.8.7** Analyze and interpret data from the surface features of the Sun (e.g., photosphere, corona, sunspots, prominences, and solar flares) to predict how these features may affect Earth.	• MDE Updated Assessment Blueprints • L.6.1.1 Lesson Plan • 6th Grade Resources and Activities	• Science Sample Items with Key • 2020-2021 Grade 8 Science Sample Items with Key • 2021-2022 Grade 8 Science Sample Items with Key • 2021-2022 Grade 8 Science Sample Items with Key (online version)
Academic Vocabulary			
Asteroid Belt, Celestial Objects, Inner Planet, Meteor, Orbital Path, Outer Planet, High Tide, Low Tide, Lunar Cycle, Lunar Eclipse, Neap Tides, Solar Eclipse, Spring Tides, Tides			
End-of-Year Assessments			