GRADE 8

QUARTER ONE: MOTION, ENERGY, ENERGY TRANSFER

MS-PE-PS2-1: Apply Newton's Third Law to design a solution to a problem involving the motion of two colliding objects.*
MS-PE-PS2-2: Plan an investigation to provide evidence that the change in an object's motion depends on the sum of the forces on the object and the mass of the object.
MS-PE-PS3-1: Construct and interpret graphical displays of data to describe the relationships of kinetic energy to the mass of an object and to the speed of an object.
HS-PE-PS2-3: Apply scientific and engineering ideas to design, evaluate, and refine a device that minimizes the force on a macroscopic object during a collision.*
MS-PE-PS3-2: Develop a model to describe that when the arrangement of objects interacting at a distance changes, different amounts of potential energy are stored in the system.
MS-PE-PS3-5: Construct, use, and present arguments to support the claim that when the kinetic energy of an object changes, energy is transferred to or from the object.
HS-PE-PS2-1: Analyze data to support the claim that Newton's second law of motion describes the mathematical relationship among the net force on a macroscopic object, its mass, and its acceleration.

QUARTER TWO: SPACE SYSTEMS & EARTH HISTORY

MS-PE-PS2-4: Construct and present arguments using evidence to support the claim that gravitational interactions are attractive and depend on the masses of interacting objects.
MS-PE-PS2-5: Conduct an investigation and evaluate the experimental design to provide evidence that fields exist between objects exerting forces on each other even though the objects are not in contact.(gravity)
MS-PE-ESS1-1: Develop and use a model of the Earth-sun-moon system to describe the cyclic patterns of lunar phases, eclipses of the sun and moon, and seasons.
MS-PE-ESS1-2: Develop and use a model to describe the role of gravity in the motions within galaxies and the solar system.
MS-PE-ESS1-3: Analyze and interpret data to determine scale properties of objects in the solar system.
HS-PE-ESS1-4: Use mathematical or computational representations to predict the motion of orbiting objects in the solar system.
HS-PE-ESS1-6: Apply scientific reasoning and evidence from ancient Earth materials, meteorites, and other planetary surfaces to construct an account of Earth's formation and early history.
MS-PE-ESS1-4: Construct a scientific explanation based on evidence from rock strata for how the geologic time scale is used to organize Earth's 4.6-billion-year-old history.

QUARTER THREE: EARTH CHANGES: WEATHERING & PLATE TECTONICS

8 MS-PE-ESS2-3: Analyze and interpret data on the distribution of fossils and rocks, continental shapes, and seafloor structures to provide evidence of the past plate motions.
8 MS-PE-ESS2-1: Develop a model to describe the cycling of Earth's materials and the flow of energy that drives this process.
8 HS-PE-ESS2-1: Develop a model to illustrate how Earth's internal and surface processes operate at different spatial and temporal scales to form continental and ocean-floor features.
8 HS-PE-ESS1-5: Evaluate evidence of the past and current movements of continental and oceanic crust and the theory of plate tectonics to explain the ages of crustal rocks.
8 MS-PE-ESS2-2: Construct an explanation based on evidence for how geoscience processes have changed Earth's surface at varying time and spatial scales.
8 HS-PE-ESS2-5: Plan and conduct an investigation of the properties of water and its effects on Earth materials and surface processes**.**

(NGSS TEST IN SPRING)

QUARTER FOUR: WAVES (Earthquakes/EM)

MS-PE-PS4-1: Use mathematical representations to describe a simple model for waves that includes how the amplitude of a wave is related to the energy in a wave.

MS-PE-PS4-2: Develop and use a model to describe that waves are reflected, absorbed, or transmitted through various materials.

MS-PE-PS2-3: Ask questions about data to determine the factors that affect the strength of electric and magnetic forces.

MS-PE-PS2-5: Conduct an investigation and evaluate the experimental design to provide evidence that fields exist between objects exerting forces on each other even though the objects are not in contact.(electric/magnetic)s

MS-PE-ESS3-2: Analyze and interpret data on natural hazards to forecast future catastrophic events and inform the development of technologies to mitigate their effects.

Science & Engineering Practices

1. Asking questions (for science) and defining problems (for engineering)
2. Developing and using models
3. Planning and carrying out investigations
4. Analyzing and interpreting data
5. Using mathematics and computational thinking.
6. Constructing explanations (for science) and designing solutions (for engineering)
7. Engaging in argument from evidence
8. Obtaining, evaluating, and communicating information

Engineering Performance Tasks (Throughout)

MS-PE-ETS1-2: Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.
MS-PE-ETS1-3: Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success.
MS-PE-ETS1-4: Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.

NGSS Practices Rubrics, Grade 8 Curr Folder, Grade 8 Gizmos, Grade 8 Interim NGSS Assessments, Grade 8 NGSS Unwrapped