|  | **NGSS Life** | **MI Life** | **NGSS ESS** | **MI ESS** | **NGSS Physical** | **MI Physical** | **Engineering****Design NGSS** |
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| **HS** |  |  |  |  |  |  |  |
| **HS** | **HS.SF** Structure and Function **HS.IVT** Inheritance and Variation of Traits **HS.MEOE** Matter and Energy in Organisms and Ecosystems **HS.IRE** Interdependent Relationships in Ecosystems **HS.NSE** Natural Selection and Evolution | **B2 Organization and Development of Living Systems** (Transformation of Matter and Energy in Cells; Organic Molecules; Maintaining Environmental Stability; Cell Specialization; Living Organism Composition) **B3 Interdependence of Living Systems and the Environment**(Photosynthesis and Respiration; Ecosystems; Element Recombination; Changes in Ecosystems; Populations)**B4 Genetics (**Genetics and Inherited Traits; DNA;Cell Division – Mitosis and Meiosis)**B5. Evolution and Biodiversity** (Theory of Evolution; Molecular Evidence; Natural Selection) | **HS.SS** Space Systems **HS.HE** History of Earth **HS.ES** Earth’s Systems **HS.WC** Weather and Climate **HS.HI** Human Impacts | **E2 Earth Systems** (Earth Systems Overview; Energy in Earth Systems; Biogeochemical Cycles; Resources and Human Impacts on Earth Systems)**E3 Solid Earth** (Advanced Rock Cycle; Interior of the Earth; Plate Tectonics Theory; Earthquakes and Volcanoes)**E4 Fluid Earth** (Hydrogeology; Oceans and Climate; Severe Weather)**E5 The Earth in Space and Time (**The Earth in Space;The Sun; Earth History and Geologic Time; Climate Change) | **HS.SPM** Structure and Properties of Matter **HS.CR** Chemical Reactions | **C2 Forms of Energy** C2.2 Molecules in Motion**C3 Energy Transfer and** **Conservation** (Heating Impacts; Endothermic and Exothermic Reactions)**C4 Properties of Matter**  (Nomenclature; Properties of Substances; Atomic Structure; Periodic Table; Neutral Atoms, Ions, and Isotopes)**C5 Properties of Matter**  (Chemical Changes, Phase Change/Diagrams, Chemical Bonds — Trends, Acids and Bases, Carbon Chemistry) | **HS Engineering Design** |
| **HS.FI** Forces and Interactions **HS.E** Energy **HS.WER** Waves and Electromagnetic Radiation | **P2 Motion of Objects** (Position; Time; Velocity)**P3 Forces and Motion** (Basic Forces in Nature; Net Forces; Newton’s Third Law; Forces and Acceleration; Gravitational Interactions; Electric Charges)**P4 Forms of Energy and Energy Transformations** (Energy Transfer; Energy Transformation; Kinetic and Potential Energy; Wave Characteristics; Mechanical Wave Propagation; Electromagnetic Waves; Wave Behavior –Reflection and Refraction; Nature of Light; Current Electricity –Circuits; Nuclear Reactions) |  |
| **8** |  |  |  |  |  |  |  |
| **MS****6-8** | **MS.SFIP** Structure, Function and Information Processing**MS.MEOE** Matter and Energy in Organisms and Ecosystems **MS.IRE** Interdependent Relationships in Ecosystems **MS.NSA** Natural Selection and Adaptations**MS.GDRO** Growth, Development, and Reproduction of Organisms  | **6.OL Organization of Living Things** (Producers, Consumers, and Decomposers)**7.OL Organization of Living Things** (Cell Functions;Growth and Development;Photosynthesis)**6.EC Ecosystems** (Interactions of Organisms;Relationships of Organisms;Biotic and Abiotic Factors;Environmental Impact of Organisms)**7.HE Heredity** (Reproduction) | **MS.SS** Space Systems **MS.HE** History of Earth **MS.ES** Earth’s Systems **MS.WC** Weather and Climate **MS.HI** Human Impacts | **6.ST Earth in Space and Time (**Fossils; Geologic Time)**6.SE Solid Earth (**Soil;Rock Formation;Plate Tectonics;Magnetic Field of Earth)**7.ES Earth Systems** (Solar Energy; Human Consequences; Weather and Climate; Water Cycle)**7.FE Fluid Earth** (Atmosphere) | **MS.SPM** Structure and Properties of Matter**MS.CR** Chemical Reactions**MS.FI** Forces and Interactions**MS.EN** Energy**MS.WER** Waves and Electromagnetic Radiation

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 | **6.CM Changes in Matter** (Changes in State)**7.PM Properties of Matter**(Chemical Properties;Elements and Compounds)**7.CM Changes in Matter** (Chemical Changes)**6.EN Energy** (Kinetic and Potential Energy;Energy Transfer)**7.EN Energy** (Waves and Energy;Energy Transfer;Solar Energy Effects) | **MS Engineering Design** |
| **7** |  |  |  |  |  |  |  |
| **6** |  |  |  |  |   |  |  |
| **5** | **5.MEOE** Matter and Energy in Organisms and Ecosystems | **5.OL Organization of Living Things** (Animal Systems)**5.HE** **Heredity** (Inherited and Acquired Traits)**5.EV** **Evolution**(Species Adaptation and Survival; Relationships Among Organisms) | **5.ES** Earth’s Systems **5.SS** Space Systems: Stars and the Solar System  | **5.ES Earth Systems** (Seasons)**5.EST** **Earth in Space and Time** (Solar System; Solar System Motion) | **5.SPM** Structure and Properties of Matter | **5.FM Force and Motion**(Force Interactions, Force, Speed) | **3-5 Engineering Design** |
| **4** | **4.SFIP** Structure, Function, and Information Processing | **4.OL Organization of Living Things (**Life Requirements)**4.EV Evolution (**Survival)**4.EC Ecosystems** (Interactions; Changed Environment Effects) | **4.ES** Earth’s Systems: Processes that Shape the Earth | **4.ST Earth in Space and Time (**Characteristics of Objects in the Sky;Patterns of Objects in the Sky; Fossils) | **4.E** Energy **4.W** Waves:Waves and Information | **4. EN Energy (**Forms of Energy;Energy and Temperature;Electrical Circuits)**4.PM Properties of Matter** (Physical Properties; States of Matter; Magnets;Conductive and Reflective Properties)**4.CM Changes in Matter**(Changes in State) |  |
| **3** | **3.IRE** Interdependent Relationships in Ecosystems **3.IVT** Inheritance and Variation of Traits: Life Cycles and Traits | **3.OL Organization of Living Things (**Structures and Functions;Classification)**3.EV Evolution (**Environmental Adaptation) | **3.WC** Weather and Climate  | **3.ES Earth Systems** (Natural Resources;Human Impact)**3.SE Solid Earth (**Earth Materials;Surface Changes;Using Earth Materials) | **3.FI** Forces and Interactions  | **3.FM Force and Motion** (Gravity; Force; Speed)**3.EN Energy** (Forms of Energy;Light Properties;Sound)**3.PM Properties of Matter**(Conductive and Reflective Properties) |  |
| **2** | **2.IRE** Interdependent Relationships in Ecosystems | **2.OL Organization of Living Things (**Life Requirements;Life Cycles)**2.HE Heredity** (Observable Characteristics) | **2.ES** Earth’s Systems: Processes that Shape the Earth  | **2.SE Solid Earth** (Surface Changes)**2.FE Fluid Earth (**Water;Water Movement) | **2.SPM** Structure and Properties of Matter  | **2.PM Properties of Matter** (Physical Properties;Material Composition) | **K-2 Engineering Design** |
| **1** | **1.SFIP** Structure, Function and Information Processing | **1.OL Organization of Living Things (**Life Requirements;Life Cycles)**1.HE Heredity (**Observable Characteristics) | **1.SS** Space Systems: Patterns and Cycles | **1.ES Earth Systems** (Solar Energy; Weather;Weather Measurement)**1.SE Solid Earth** (Earth Materials) | **1.W** Waves: Light and Sound | **1.PM Properties of Matter (**Physical Properties;States of Matter; Magnets) |  |
| **K** | **K.IRE** Interdependent Relationships in Ecosystems: Animals, Plants, and Their Environment | **K.OL Organization of Living Things** (Life Requirements) | **K.WC** Weather and Climate | **K.SE Solid Earth** (Earth Materials) | **K.FI** Forces and Interactions: Pushes and Pulls | **K.FM Force and Motion**(Position; Gravity; Force) |  |

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