Walnut Creek Intermediate 7th Grade Quarterly Syllabus

Quarter 1 – Earth's Systems

These are the Next Generation Science Standards covered in the unit:

MS-ESS2-1. Develop a model to describe the cycling of Earth's materials and the flow of energy that drives this process.

MS-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.

MS-ESS2-2. Construct an explanation based on evidence for how geoscience processes have changed Earth's surface at varying time and spatial scales

MS-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.

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

Quarter 2 – Earth and Human Activity

These are the Next Generation Science Standards covered in the unit:

MS-ESS3-1. Construct a scientific explanation based on evidence for how the uneven distributions of Earth's mineral, energy, and groundwater resources are the result of past and current geoscience processes.

MS-PS1-3. Gather and make sense of information to describe that synthetic materials come from natural resources and impact society.

MS-ESS3-4. Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resource impact Earth's systems.

Quarter 3 – Ecosystems

These are the Next Generation Science Standards covered in the unit:

MS-LS2-2. Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems.

MS-LS2-3. Develop a model to describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem.

MS-LS2-1. Analyze and interpret data to provide evidence for the effects of resource availability on organisms and populations of organisms in an ecosystem.

MS-LS2-4. Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.

MS-LS2-5. Evaluate competing design solutions for maintaining biodiversity and ecosystem services.

Quarter 4 – Matter and Its Interactions

MS-PS1-1. Develop models to describe the atomic composition of simple molecules and extended structures.

MS-PS1-4. Develop a model that predicts and describes changes in particle motion, temperature, and state of a pure substance when thermal energy is added or removed.

MS-PS1-2. Analyze and interpret data on the properties of substances before and after the substances interact to determine if a chemical reaction has occurred.

MS-PS1-5. Develop and use a model to describe how the total number of atoms does not change in a chemical reaction and thus mass is conserved.

MS-PS1-6. Undertake a design project to construct, test, and modify a device that either releases or absorbs thermal energy by chemical processes.

MS-LS1-6. Construct a scientific explanation based on evidence for the role of photosynthesis in the cycling of matter and flow of energy into and out of organisms.

MS-LS1-7. Develop a model to describe how food is rearranged through chemical reactions forming new molecules that support growth and/or release energy as this matter moves through an organism.

Integrated throughout the year - Engineering Design

These are the Next Generation Science Standards covered throughout the year:

MS-ETS1-1. Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.

MS-ETS1-2. Evaluate competing design solutions using a systematic process to determine how well they

meet the criteria and constraints of the problem.

MS-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-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.

- Schedule may vary