Thomas Edison Energysmart Charter School
7th Grade Science Unit Plan
2015-2016

ALL UNITS - HOMEWORK:
Each Unit in Science will have homework assignments from _____

ALL UNITS - QUIZZES: Please anticipate at least 3 quizzes and 2 tests for a unit - mid assessment as well as unit assessment for each unit. The quizzes will not be announced as far in advance as tests.

PROJECTS: At the end of each marking period, students will be given a project aligning with the unit s that they did.

ALL DATES LISTED ARE TENTATIVE

Unit Plan 1 : September - October **Title:** Structure and Properties of matter **SLO:** ● Identify unknown substances based on data regarding their physical and chemical properties. ● Predict the physical and chemical properties of elements based on their positions on the Periodic Table. ● Develop models to describe the atomic composition of simple molecules and extended structures. ● 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 ● Gather and make sense of information to describe that synthetic materials come from natural resources and impact society.	**Major Resources:** Foss Chemical Interaction **Project for Unit 1:**

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Unit Plan 2 - Nov - Dec **Title: Chemical Reactions** **SLO:** ● Design qualitative investigations to differentiate between physical and chemical changes in matter. ● Analyze and interpret data on the properties of substances before and after the substances interact to determine if a chemical reaction has occurred. ● 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 ● Compare the properties of reactants with the properties of the products when two or more substances are combined and react chemically. ● Undertake a design project to construct, test, and modify a device that either releases or absorbs thermal energy by chemical processes.	**Major Resources:** Foss Chemical Interaction **Project for Unit 2:**

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Unit Plan 3 - Jan - Feb **Title: Matter and Energy in Organism and in Ecosystem** **SLO:** ● Create a representation the process by which plants, algae and many microorganisms use the energy from light to make sugars (food) from carbon dioxide from the atmosphere and water. ● 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 ● 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. ● Analyze and interpret data to provide evidence for the effects of resource availability on organisms and populations of organisms in an ecosystem. ● Develop a model to describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem. ● Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations	**Major Resources:** Living System Kit **Project for Unit 3:**

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Unit Plan 4 - March - April **Title: Interdependent Relationships in Ecosystems** **SLO:** ● Describe how one population of organisms may affect other plants and/or animals in an ecosystem. ● Predict the impact of humans altering biotic and abiotic factors has on an ecosystem. ● Model the effect of positive and negative changes in population size on a symbiotic pairing. ● Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems. ● Evaluate competing design solutions for maintaining biodiversity and ecosystem services	**Major Resources:** **Project for Unit 4:**

Unit Plan 5 - May - June **Title: Earth's System (Water and Climate)** **SLO:** ● Analyze the characteristics of Earth materials before and after chemical and physical changes that occur during Earth's processes, including the direction of any matter flow. ● Using a systems model, explain how energy from the Sun is transformed or transferred in biological, hydrological, and meteorological systems ● Develop a model to describe the cycling of Earth's	**Major Resources:** Pearson Interactive Science Foss **Project for Unit 5:** STEM Project

materials and the flow of energy that drives this process. ● Develop a conceptual model to describe the multiple pathways that water cycles through Earth's systems driven by energy from the sun and the force of gravity. ● Analyze and interpret data to deduce the mechanisms that resulted in a variety of rock formations. ● 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.	