This tool serves to help us analyze the gaps in our curriculum as we move to the new standards. The 8th grade OCCT ideal percentage of items aids in the vertical alignment to inform pacing that allows our students to gain the skills and knowledge needed to be successful as they move from grade-to-grade. Thank you to Katelyn Prager from Jefferson Middle School for her help and collaboration in the development of this tool.

Current-PASS (2011) Standards- Tested through 2015-16	**New Oklahoma Academic Standards- To be tested 2016-17**	**8th Grade OCCT Correlation**
Science Processes	**Science Practices**	
P1.0-Observe and Measure P2.0-Classify P3.0-Experimental design P4.0-Interpret and Communicate P5-0-Inquiry	1. Asking Questions and Defining Problems 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 and Designing Solutions 7. Engaging in Argument from Evidence 8. Obtaining, Evaluating, and Communicating Evidence	✓ **P1.0-18-24%** ✓ **P2.0-16-20%** ✓ **P3.0-33-38%** ✓ **P4.0-27-31%**
Standard 1: Properties and Physical Properties in Matter – Physical characteristics of objects can be described using shape, size, and mass whereas the materials from which objects are made can be described using color and texture. The student will engage in investigations that integrate the process standards and lead to the discovery of the following objectives: 1. Matter has physical properties that can be measured (e.g., mass, volume, temperature, color, texture, and density). Physical changes of a substance do not alter the chemical nature of a substance (e.g., phase changes of water, sanding wood). 2. Mixtures can be classified as homogeneous or heterogeneous and can be separated by physical means.	**Matter and Its Interactions-** ➢ ***Core Idea- Structure and Properties of Matter:*** **MS-PS1-1**: Develop models to describe the atomic composition of simple molecules and extended structures. ➢ ***Core Idea-Chemical Reactions*** **MS-PS1-2:** Analyze and interpret data on the properties of substances interact to determine if a chemical reaction has occurred.	**19%** Properties and ***Chemical*** Changes in Matter
	Energy ➢ ***Core Idea- Conservation of Energy and Energy Transfer*** **MS-PS3-6**: 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.	**Not currently tested**

PASS Standards- Tested through 2015-16	Oklahoma Academic Standards- To be tested 2016-17	8th Grade OCCT Correlation
Standard 2: Structure and Function in Living Systems – Living systems at all levels of organization demonstrate the complementary nature of structure and function. The student will engage in investigations that integrate the process standards and lead to the discovery of the following objectives: 1. Living systems are organized by levels of complexity (i.e. cells, tissues, organs, systems). 2. Specialized structures perform specific functions at all levels of complexity (e.g., leaves on trees, wings on birds, organelles in cells).		
Standard 3: Reproduction and Heredity – Reproduction is the process by which organisms give rise to offspring. Heredity is the passing of traits to offspring. All organisms must be able to grow and reproduce. The student will engage in investigations that integrate the process standards and lead to the discovery of the following objectives: 1. Characteristics of an organism result from inheritance and from interactions with the environment (e.g., genes, chromosomes, DNA, inherited traits, cell division). 2. Similarities among organisms are found in anatomical features, which can be used to infer the degree of relatedness among organisms.	**From Molecules to Organisms: Structures and Processes** ➢ ***Core Idea-Growth and Development of Organisms*** MS-LS1-4: Use arguments based on empirical evidence and scientific reasoning to support an explanation for how characteristic animal behaviors and specialized plant structures affect the probability of successful reproduction of animals and plants respectively. MS-LS1-5: Construct a scientific explanation based on evidence for how environmental and genetic factors influence the growth of organisms. **Heredity: Inheritance and Variation of Traits** ➢ ***Core Ideas: Inheritance of Traits, Variation of Traits*** MS-LS3-1: Develop and use a model to describe why structural changes to genes (mutations) located on chromosomes may affect proteins and may result in harmful, beneficial, or neutral effects to the structure and function of the organisms. MS-LS3-2: Develop and use a model to describe why asexual reproduction results in offspring with identical genetic information and sexual reproduction results in offspring with genetic variation.	**17%** **Diversity and Adaptations of Organisms**

See PASS Standard 3 (previous page)	**Biological Unity and Diversity** ➢ ***Core Idea: Evidence of Common Ancestry and Diversity*** **MS-LS4-3**: Analyze displays of pictorial data to compare patterns of similarities in the embryological development across multiple species to identify relationships not evident in the fully formed anatomy. ➢ ***Core Idea: Natural Selection*** **MS-LS4-4**: Construct an explanation based on evidence that describes how genetic variations of traits in a population increase some individuals' probability of surviving and reproducing in a specific environment. **MS-LS4-5**: Gather and synthesize information about the technologies that have changed the way humans influence the inheritance of desired traits in organisms. ➢ ***Core Idea: Adaptation*** **MS-LS4-6**: Use mathematical representations to support explanations of how natural selection may lead to increases and decreases of specific traits in populations over time.	
Standard 4: Behavior and Regulations – All organisms must be able to maintain stable internal conditions while living in a constantly changing external environment. Behavioral response is a set of actions determined in part by heredity and in part by experience. The student will engage in investigations that integrate the process standards and lead to the discovery of the following objectives: 1. Living organisms strive to maintain a constant internal environment (i.e., homeostasis). **2.** Living organisms have physical and/or behavioral responses to external stimuli (e.g., hibernation, migration, and geotropism).	**From Molecules to Organisms: Structures and Processes** ➢ ***Core Idea: Information Processing*** **MS-LS1-8:** Gather and synthesize information that sensory receptors respond to stimuli by sending messages to the brain for immediate behavior or storage as memories.	**17%** **Diversity and Adaptations of Organisms**

PASS Standards- Tested through 2015-16	Oklahoma Academic Standards- To be tested 2016-17	8th Grade OCCT Correlation
Standard 5: Structures of the Earth and the Solar System – The earth is mostly rock, three-fourths of its surface is covered by a relatively thin layer of water, and the entire planet is surrounded by a relatively thin blanket of air, and is able to support life. The student will engage in investigations that integrate the process standards and lead to the discovery of the following objectives: 1. Global patterns of atmospheric movement influence local weather such as oceans' effect on climate (e.g., sea breezes, land breezes, ocean currents). Clouds, formed by the condensation of water vapor, affect local weather and climate. **2.** The solid crust of the earth consists of separate plates that move very slowly pressing against one another in some places and pulling apart in other places (i.e., volcanoes, earthquakes, mountain creation).	**Earth's Systems** MS-ESS2-5: Collect data to provide evidence for how the motions and complex interactions of air masses results in changes in weather conditions. MS-ESS2-6: Develop and use a model to describe how unequal heating and rotation of the Earth causes patterns of atmospheric and oceanic circulation that determine regional climates.	**27%**
Standard 6: Earth and the Solar System – The earth is the third planet from the sun in a system that includes the moon, the sun, seven other planets and their moons, and smaller objects (e.g., asteroids, comets, dwarf planets). The student will engage in investigations that integrate the process standards and lead to the discovery of the following objectives: 1. Most objects in the solar system are in regular and predictable motion. Those motions explain such phenomena as the day, the year, phases of the moon, and eclipses. 2. Seasons result from variations in the amount of the sun's energy hitting the surface, due to the tilt of the earth's rotation on its axis and the length of the day. The relationship of motion of the Sun, Earth, and Earth's Moon is a result of the force of gravity.	**Earth's Place in the Universe** MS-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-ESS1-2: Develop and use a model to describe the role of gravity in the motions within galaxies and the solar system. MS-ESS1-3: Analyze and interpret data to determine scale properties of objects in the solar system. **Motion and Stability: Forces and Interactions** MS-PS2-4: Construct and present arguments using evidence to support the claim that gravitational interactions are attractive and depend on the masses of objects.	

Crosscutting Concepts aligned to the new OASS Standards*- These represent common threads that should be embedded throughout the course.*

Patterns

- Macroscopic patterns are related to the nature of microscopic and atomic level structure. (MS-PS1-2)
- Graphs, charts, and images can be used to identify patterns in data. (MS-LS4-3)
- Patterns can be used to identify cause-and-effect relationships. (MS-ESS1-1)

Cause and Effect

- Phenomena may have more than one cause, and some cause and effect relationships in systems can only be described using probability. (MS-LS1-4, MS-LS1-5, MS-LS4-4, MS-LS4-5, MS-LS4-6)
- Cause and effect relationships may be used to predict phenomena in natural systems (or designed systems). (MS-LS1-8, MS-ESS2-5)

Energy and Matter

- Energy may take different forms (e.g. energy in fields, thermal energy, and energy of motion). (MS-PS3-6, MS-LS3-2)

Systems and System Models

- Models can be used to represent systems and their interactions. (MS-ESS1-2)
- Models can be used to represent systems and their interactions—such as inputs, processes and outputs—and energy, matter, and information flows within systems. (MS-PS2-4, MS-ESS2-6)

Scale, Proportion, and Quantity

- Time, space, and energy phenomena can be observed at various scales using models to study systems that are too large or too small. (MS-PS1-1, MS-ESS1-3)

Structure and Function

- Complex and microscopic structures and systems can be visualized, modeled, and used to describe how their function depends on the shapes, composition, and relationships among its parts, therefore complex natural structures/systems can be analyzed to determine how they function. (MS-LS3-1)