

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	8 <sup>th</sup> Grade OCCT % and Ideal # of Test Items
<b>Science/Inquiry Processes</b>	<b>Science and Engineering Practices</b>	
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%
<p><b>C1.0- :Properties and Chemical Changes in Matter - Physical characteristics of objects can be described using shape, size, and mass. The materials from which objects are made can be described using color, texture, and hardness. These properties can be used to distinguish and separate one substance from another.</b></p> <p><b>C1.1.</b> Substances react chemically with other substances to form new substances with different characteristics (e.g., oxidation, combustion, acid/base reactions).</p> <p><b>C1.2.</b> Matter has physical properties that can be measured (i.e., mass, volume, temperature, color, texture, density, and hardness) and chemical properties. In chemical reactions and physical changes, matter is conserved (e.g., compare and contrast physical and chemical changes).</p>	<p style="text-align: center;"><b><u>Matter and Its Interactions-</u></b></p> <p>➤ <b>Core Idea- Structure and Properties of Matter:</b>  <b>MS-PS1-3:</b> Gather and make sense of information to describe that synthetic materials come from natural resources and impact society.</p> <p>➤ <b>Core Idea-Chemical Reactions</b>  <b>MS-PS1-5:</b> 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.  <b>MS-PS1-6:</b> Undertake a design project to construct, test, and modify a device that either releases or absorbs thermal energy by chemical processes.</p> <p style="text-align: center;"><b><u>From Molecules to Organisms: Structure and Processes</u></b></p> <p>➤ <b>Core Idea-Organization for Matter and Energy Flow in Organisms</b>  <b>MS-LS1-7:</b> 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.</p>	<p style="text-align: center;"><b>19%</b></p> <p style="text-align: center;"><b>8 questions</b></p> <p>➤ 4-chemical reactions                      ➤ 4-conservation of matter</p>

Current-PASS (2011) Standards-Tested through 2015-16	New Oklahoma Academic Standards-To be tested 2016-17	8 <sup>th</sup> Grade OCCT % and Ideal # of Test Items
	<p><b><u>Waves and Their Applications in Technologies for Information</u></b></p> <p>➤ <b>Core Ideas- Wave Properties, Electromagnetic Radiation</b></p> <p><b>MS-PS4-1:</b> 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.</p> <p><b>MS-PS4-2:</b> Develop and use a model to describe that waves are reflected, absorbed, or transmitted through various materials.</p> <p><b>MS-PS4-3:</b> Integrate qualitative scientific and technical information to support the claim that digitized signals (sent as wave pulses) are a more reliable way to encode and transmit information.</p>	<p><i>Not tested through PASS- Will be tested in 2016-17</i></p>
<p><b>C3.0: Diversity and Adaptations of Organisms – Millions of species of animals, plants, and microorganisms are alive today. Although different species might look dissimilar, the unity among organisms becomes apparent from an analysis of internal and external structures. Adaptation involves the selection of naturally occurring variations in populations. The student will engage in investigations that integrate the process standards and lead to the discovery of the following objectives:</b></p> <p><b>C3.1.</b> By classifying organisms, biologists consider details of internal and external structure to infer the degree of relatedness among organisms (i.e., kingdom, phylum, class, order, family, genus, and species).</p> <p><b>C3.2</b> Organisms have a great variety of internal and external structures that enable them to survive in a specific habitat (e.g., echolocation, seed dispersal).</p>	<p><b><u>MS-LS-Biological Unity and Diversity</u></b></p> <p>➤ <b>Core Idea- Evidence of Common Ancestry and Diversity:</b></p> <p><b>MS-LS4-2:</b> Apply scientific ideas to construct an explanation for the anatomical similarities and differences among modern organisms and between modern and fossil organisms to infer ancestral relationships.</p>	<p><b>17%</b></p> <p><b>7 Questions</b></p> <p>➤ 3- Classification</p> <p>➤ 4-Internal and External Structures</p>

Current-PASS (2011) Standards- Tested through 2015-16	New Oklahoma Academic Standards- To be tested 2016-17	8 <sup>th</sup> Grade OCCT % and Ideal # of Test Items
<p><b>C4.0: Structures and Forces of the Earth and Solar System –</b> 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:</p> <p><b>C4.1.</b> Landforms result from constructive forces such as crustal deformation, volcanic eruption, and deposition of sediment and destructive forces such as weathering and erosion.</p> <p><b>C4.2.</b> The formation, weathering, sedimentation, and reformation of rock constitute a continuing “rock cycle” in which the total amount of material stays the same as its form changes.</p> <p><b>C4.3.</b> Atmospheric and ocean circulation patterns affect weather on a global scale</p>	<p style="text-align: center;"><u>Earth’s Systems</u></p> <p>➤ <b>Core Idea- Earth’s Materials and Systems</b></p> <p><b>MS-ESS2-1:</b> Develop a model to describe the cycling of Earth’s materials and the flow of energy that drives this process.  <b>MS-ESS2-2:</b> Construct an explanation based on evidence for how geoscience processes have changed Earth’s surface at varying time and spatial scales.</p> <p style="text-align: center;"><u>Earth and Human Activity</u></p> <p>➤ <b>Core Ideas-Natural Resources, Natural Hazards</b></p> <p><b>MS-ESS3-1:</b> 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.  <b>MS-ESS3-2:</b> Analyze and interpret data on natural hazards to forecast future catastrophic events and inform the development of technologies to mitigate their effects.</p>	<p style="text-align: center;"><b>27%</b></p> <p style="text-align: center;"><b>11 Questions</b></p> <p>➤ <b>4- Landforms result from forces</b>          ➤ <b>3-4- Rock Cycle</b>          ➤ <b>3-4- Global Weather Patterns</b></p>

Current-PASS (2011) Standards- Tested through 2015-16	New Oklahoma Academic Standards- To be tested 2016-17	8 <sup>th</sup> Grade OCCT % and Ideal # of Test Items
<p><b>C5.0: Earth’s History - The Earth’s history involves periodic changes in the structures of the earth over time.</b></p> <p><b>C5.1.</b> Earth’s history has been punctuated by occasional catastrophic events (e.g., the impact of asteroids or comets, enormous volcanic eruptions, periods of continental glaciation, and the rise and fall of sea level).</p> <p><b>C5.2.</b> Fossils provide important evidence of how life and environmental conditions have changed (e.g., Law of Superposition, index fossil, geologic time period, extinction).</p>	<p style="text-align: center;"><u><b>MS-LS-Biological Unity and Diversity</b></u></p> <p>➤ <b>Core Idea- Evidence of Common Ancestry and Diversity:</b>  <b>MS-LS4-1:</b> Analyze and interpret data for patterns in the fossil record that document the existence diversity, extinction, and change of life forms throughout the history of life on Earth under the assumption that natural laws operate today as in the past.  <b>MS-LS4-2:</b> Apply scientific ideas to construct an explanation for the anatomical similarities and differences among modern organisms and between modern and fossil organisms to infer ancestral relationships.</p> <p style="text-align: center;"><u><b>Earth’s Place in the Universe</b></u></p> <p>➤ <b>Core Idea- History of Planet Earth</b>  <b>MS-ESS1-4:</b> Construct a scientific explanation based on evidence from rock strata for how the geologic time scale is used to organize Earth’s geologic history.</p> <p style="text-align: center;"><u><b>Earth’s Systems</b></u></p> <p>➤ <b>Core Idea-Plate Tectonics and Large Scale Interactions- The History of the Earth</b>  <b>MS-ESS2-3:</b> Analyze and interpret data on the distribution of fossils and rocks, continental shapes, and seafloor structures to provide evidence of the past plate motions.</p> <p style="text-align: center;"><u><b>Earth and Human Activity</b></u></p> <p>➤ <b>Core Ideas-Natural Resources, Natural Hazards</b>  <b>MS-ESS3-1:</b> 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.  <b>MS-ESS3-2:</b> Analyze and interpret data on natural hazards to forecast future catastrophic events and inform the development of technologies to mitigate their effects.</p>	<p style="text-align: center;"><b>18%</b></p> <p style="text-align: center;"><b>7-8 Questions</b></p> <p>➤ 3-4- Catastrophic Events                  ➤ 3-4 Fossil Evidence</p>

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

**Patterns**

- Graphs and charts can be used to identify patterns in data. (MS-PS4-1, MS-LS4-1, MS-ESS3-2)
- Patterns can be used to identify cause and effect relationships (MS-LS4-2)
- Patterns in rates of change and other numerical relationships can provide information about natural systems. (MS-ESS2-3)

**Cause and Effect**

- Cause and effect relationships may be used to predict phenomena in natural or designed systems. (MS-ESS3-1, MS-ESS3-4)

**Energy and Matter**

- Matter is conserved because atoms are conserved in physical and chemical processes. (MS-PS1-5, MS-LS1-7)
- The transfer of energy can be tracked as energy flows through a designed or natural system. (MS-PS1-6)

**Systems and System Models**

- Models can be used to represent systems and their interactions – such as inputs, processes and outputs-and energy and matter flows within systems. (MS-PS2-1)

**Stability and Change**

- Explanations of stability and change in natural or designed systems can be constructed by examining the changes over time and forces at different scales. (MS-PS2-2, MS-ESS2-1)

**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-ESS1-4, MS-ESS2-2)

**Structure and Function**

- Structures can be designed to serve particular functions by taking into account properties of different materials (and how materials can be shaped and used). (MS-PS1-3, MS-PS4-2, MS-PS4-3)