

## Crosswalk: Previous versus New Science (5-8) Program Standards

### General Information about this Revision:

- » Added detail and demonstration of application of knowledge.
- » Previous 14 standards were consolidated into 11 new standards.
- » Standards were updated to reflect the elements detailed in the new Kansas College and Career Ready Science Standards, including: 1) science and engineering practices, 2) disciplinary core ideas, and 3) crosscutting concepts.
- » Standards were updated to emphasize teaching science for conceptual understanding.

The new science education standards are significantly different enough from previous standards that a direct standard to standard crosswalk is not helpful. In the chart below, the previous standards are presented in the first column for reference purposes. The new standards are presented in the middle column with notations to the right.

PREVIOUS STANDARDS	NEW STANDARDS	WHAT CHANGED?
<p>The teacher of science demonstrates an understanding of the nature of inquiry and the ability necessary to help students do scientific inquiry. <b>(Previous Standard 4)</b></p> <p>The teacher of science demonstrates an understanding of and an ability to teach science effectively. <b>(Previous Standard 9)</b></p> <p>The teacher of science enacts a science curriculum that integrates content within the sciences and among other disciplines. <b>(Previous Standard 10)</b></p> <p>The teacher of science designs and manages safe and supportive learning environments. <b>(Previous Standard 13)</b></p> <p>The teacher of science improves teaching through ongoing professional practice. <b>(Previous Standard 14)</b></p>	<p><b>Standard 1: Content Pedagogy:</b> Effective science teachers understand how students learn and develop science and engineering concepts and practices. They incorporate disciplinary core ideas, scientific and engineering practices, and crosscutting concepts into instruction.</p> <p><b>Standard 2: Learning Environments:</b> Teachers work with students and others to create and manage environments that support learning.</p>	<ul style="list-style-type: none"> <li>• Added clarity to the nature of scientific inquiry by detailing specific practices and concepts.</li> <li>• Added significant detail in aligning effective instruction of scientific inquiry for diverse students.</li> <li>• Added detail in emphasizing student construction of knowledge.</li> <li>• Separated “safe” and “supportive” elements of learning environments (see new Standard 3 below).</li> </ul>

PREVIOUS STANDARDS	NEW STANDARDS	WHAT CHANGED?
<p>The teacher of science designs and manages safe and supportive learning environments. <b>(Previous Standard 13)</b></p>	<p><b>Standard 3: Safety:</b> Effective teachers of science demonstrate and implement safety procedures, material safety practices, and the ethical treatment and use of living organisms (appropriate to their area of licensure).</p>	<ul style="list-style-type: none"> <li>• Focus on safety, with added detail.</li> </ul>
<p>The teacher of science assess students' educational progress through a variety of methods. <b>(Previous Standard 12)</b></p> <p>The teacher of science demonstrates an understanding of science as a human endeavor, of the nature of science, and of science from historical perspectives. <b>(Previous Standard 6)</b></p>	<p><b>Standard 4: Impact on Student Learning:</b> Science teachers provide evidence that students' understanding of disciplinary core ideas, science and engineering practices, and crosscutting concepts have increased in sophistication as a result of instruction. Candidates provide evidence representative of the entire population they teach.</p>	<ul style="list-style-type: none"> <li>• Emphasis on formative and summative assessments.</li> <li>• Emphasis on aligning student learning with the practices of science as a human endeavor.</li> </ul>
<p>The teacher of science improves teaching through ongoing professional practice. <b>(Previous Standard 14)</b></p>	<p><b>Standard 5: Professional Knowledge and Skills:</b> Effective science teachers are aware of and engage in professional development opportunities to continually improve their knowledge and understanding of science content and pedagogy. They conduct themselves as part of the science education community.</p>	
<p>The teacher of science understands how to relate science to the daily lives and interests of students and to a larger framework of human endeavor and understanding. <b>(Previous Standard 11)</b></p> <p>The teacher of science demonstrates an understanding of the basic relationships between science and technology and the knowledge of when and how technology can be used to solve problems. <b>(Previous Standard 5)</b></p>	<p><b>Standard 6: Engineering, Technology, and the Applications of Science:</b> The teacher demonstrates an understanding of concepts and practices of engineering, technology, and the applications of science in developing instruction for students.</p>	<ul style="list-style-type: none"> <li>• Highlights engineering design and applied science to solve problems.</li> <li>• Emphasis on making authentic connections among engineering, technology, science, and society</li> </ul>

<p>The teacher of science demonstrates an understanding of science as a human endeavor, of the nature of science, and of science from historical perspectives. <b>(Previous Standard 6)</b></p> <p>The teacher of science demonstrates an understanding of science in personal and social perspectives. <b>(Previous Standard 8)</b></p>		
PREVIOUS STANDARDS	NEW STANDARDS	WHAT CHANGED?
<p>The teacher of science demonstrates an understanding of physical science. <b>(Previous Standard 1)</b></p>	<p><b>Standard 7: Middle Level Physical Science:</b> The teacher of middle school science can demonstrate an understanding of concepts and practices of physical science in developing instruction for students, including knowledge of atomic structure, molecular structure, states of matter, chemical reactions, energy, motion and stability of objects, forces, and waves.</p>	<ul style="list-style-type: none"> <li>• Includes integration of physical science concepts with science and engineering practices, and with crosscutting concepts.</li> <li>• Additional detail added to Content Knowledge and Professional Skills indicators.</li> </ul>
<p>The teacher of science demonstrates an understanding of life science. <b>(Previous Standard 2)</b></p>	<p><b>Standard 8: Middle Level Life Science:</b> The teacher of middle school science can demonstrate an understanding of concepts and practices of biological science in developing instruction for students, including knowledge of cell theory, structure and function of organisms, populations of organisms, biodiversity, ecosystems, genetics, and evolution.</p>	<ul style="list-style-type: none"> <li>• Includes integration of life science concepts with science and engineering practices, and with crosscutting concepts.</li> <li>• Additional detail added to Content Knowledge and Professional Skills indicators.</li> </ul>

<p>The teacher of science demonstrates an understanding of earth and space science. <b>(Previous Standard 3)</b></p>	<p><b>Standard 9: Middle Level Earth and Space Science:</b> The teacher of middle school science can demonstrate an understanding of concepts and practices of earth and space science in developing instruction for students, including knowledge of the universe and solar system, Earth’s geologic history and processes, Earth’s structure and processes, water cycle, weather and climate, natural resources, natural hazards and catastrophes, and human influences on Earth’s systems.</p>	<ul style="list-style-type: none"> <li>• Includes integration of earth and space science concepts with science and engineering practices, and with crosscutting concepts.</li> <li>• Additional detail added to Content Knowledge and Professional Skills indicators.</li> </ul>
PREVIOUS STANDARDS	NEW STANDARDS	WHAT CHANGED?
<p>The teacher of science demonstrates an understanding of the concepts and processes unifying science domains. <b>(Previous Standard 7)</b></p> <p>The teacher of science demonstrates an understanding of science as a human endeavor, of the nature of science, and of science from historical perspectives. <b>(Previous Standard 6)</b></p> <p>The teacher of science enacts a science curriculum that integrates content within the sciences and among other disciplines. <b>(Previous Standard 10)</b></p>	<p><b>Standard 10: Middle Level Unifying Concepts / Interdisciplinary Perspectives:</b> The teacher of middle school science can demonstrate an understanding and be able to infuse into science teaching the crosscutting concepts of science and the interdisciplinary perspectives among the sciences.</p>	