

**Certification Examinations for Oklahoma Educators (CEOE)
Framework Development Correlation Table**

The Framework Development Correlation Table provides information about possible alignment of some of the knowledge and skills contained within the CEOE framework for a test field with other conceptualizations of the knowledge and skills of a field. It was produced using Oklahoma and educator association standards documents that were publicly available at the time of framework development. In the preparation of the Correlation Table, the alignment of a CEOE test competency with standards documents was indicated if the content of a standard was covered, in whole or in part, by the CEOE test competency. For some CEOE test competencies, multiple standards from Oklahoma, or other documents were aligned with the content of a CEOE test competency. An indication of alignment in the Correlation Table does not necessarily imply complete congruence of the content of a CEOE test competency with the standard.

Matrix Showing Match between Oklahoma Full-Subject Matter Competencies for Middle Level Science and CEOE Competencies

Oklahoma Subject Matter Competencies	CEOE Competencies
1.0 Is able to plan an inquiry-based science program for students using as a framework Oklahoma's core curriculum, <i>Priority Academic Student Skills</i> . In doing this, he/she:	
1.1 Develops a framework of year-long and short-term goals for students.	0005 (OPTE) The teacher plans instruction based upon curriculum goals, knowledge of the teaching/learning process, subject matter, students' abilities and differences, and the community, and adapts instruction based upon assessment and reflection.
1.2 Understands curriculum design to meet the interests, knowledge, understanding, abilities, and experiences of students.	0002 (OPTE) The teacher understands that students vary in their approaches to learning and creates instructional opportunities that are adaptable to individual differences of learners. 0005 (OPTE) The teacher plans instruction based upon curriculum goals, knowledge of the teaching/learning process, subject matter, students' abilities and differences, and the community, and adapts instruction based upon assessment and reflection.
1.3 Selects teaching and assessment strategies that support the development of student understanding and encourage a	0002 (OPTE) The teacher understands that students vary in their approaches to learning and creates instructional opportunities that are adaptable to

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community of science learners.	<p data-bbox="919 264 1317 296">individual differences of learners.</p> <p data-bbox="824 331 1386 562">0003 (OPTE) The teacher uses best practices related to motivation and behavior to create learning environments that encourage positive social interaction, self-motivation, and active engagement in learning, thus providing opportunities for success.</p> <p data-bbox="824 663 1386 894">0004 (OPTE) The teacher understands the process of continuous lifelong learning, the concept of making learning enjoyable, and the need for a willingness to change when the change leads to greater student learning and development.</p> <p data-bbox="824 932 1386 1163">0005 (OPTE) The teacher plans instruction based upon curriculum goals, knowledge of the teaching/learning process, subject matter, students' abilities and differences, and the community, and adapts instruction based upon assessment and reflection.</p> <p data-bbox="824 1201 1386 1432">0006 (OPTE) The teacher understands curriculum integration processes and uses a variety of instructional strategies to encourage students' development of critical thinking, problem solving, and performance skills and effective use of technology.</p> <p data-bbox="824 1470 1386 1667">0008 (OPTE) The teacher understands and uses a variety of assessment strategies to evaluate and modify the teaching/learning process ensuring the continuous intellectual, social, and physical development of the learner.</p>
1.4 Works with colleagues within and across disciplines and grade levels.	0012 (OPTE) The teacher fosters positive interaction with school colleagues, parents/families, and organizations in the community to actively engage them in support of students' learning and

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	well-being.
2.0 Is able to guide and facilitate learning. In doing this, he/she:	
2.1 Focuses and supports inquiries while interacting with students.	<p>0003 (OPTE) The teacher uses best practices related to motivation and behavior to create learning environments that encourage positive social interaction, self-motivation, and active engagement in learning, thus providing opportunities for success.</p> <p>0004 (OPTE) The teacher understands the process of continuous lifelong learning, the concept of making learning enjoyable, and the need for a willingness to change when the change leads to greater student learning and development.</p> <p>0006 (OPTE) The teacher understands curriculum integration processes and uses a variety of instructional strategies to encourage students' development of critical thinking, problem solving, and performance skills and effective use of technology.</p> <p>0007 (OPTE) The teacher develops a knowledge of and uses a variety of effective communication techniques to foster active inquiry, collaboration, and supportive interaction in the classroom.</p>
2.2 Facilitates discussion among students about scientific ideas.	<p>0006 (OPTE) The teacher understands curriculum integration processes and uses a variety of instructional strategies to encourage students' development of critical thinking, problem solving, and performance skills and effective use of technology.</p> <p>0007 (OPTE) The teacher develops a knowledge of and uses a variety of effective communication techniques to foster active inquiry, collaboration, and supportive interaction in the classroom.</p>

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<p>2.3 Challenges students to accept and share responsibility for their own learning.</p>	<p>0004 (OPTE) The teacher understands the process of continuous lifelong learning, the concept of making learning enjoyable, and the need for a willingness to change when the change leads to greater student learning and development.</p> <p>0006 (OPTE) The teacher understands curriculum integration processes and uses a variety of instructional strategies to encourage students' development of critical thinking, problem solving, and performance skills and effective use of technology.</p>
<p>2.4 Recognizes and responds to student diversity and encourages all students to participate fully in science learning.</p>	<p>0002 (OPTE) The teacher understands that students vary in their approaches to learning and creates instructional opportunities that are adaptable to individual differences of learners.</p> <p>0005 (OPTE) The teacher plans instruction based upon curriculum goals, knowledge of the teaching/learning process, subject matter, students' abilities and differences, and the community, and adapts instruction based upon assessment and reflection.</p> <p>0006 (OPTE) The teacher understands curriculum integration processes and uses a variety of instructional strategies to encourage students' development of critical thinking, problem solving, and performance skills and effective use of technology.</p>
<p>2.5 Encourages and models the skills of scientific inquiry, as well as the curiosity, openness to new ideas and data, and questioning that characterizes science.</p>	<p>0004 (OPTE) The teacher understands the process of continuous lifelong learning, the concept of making learning enjoyable, and the need for a willingness to change when the change leads to greater student learning and development.</p>

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3.0 Is able to engage in ongoing assessment of their teaching and of student learning. In doing this, he/she:	
3.1 Uses multiple methods and systematically gathers data about student understanding and ability.	0008 (OPTE) The teacher understands and uses a variety of assessment strategies to evaluate and modify the teaching/learning process ensuring the continuous intellectual, social, and physical development of the learner.
3.2 Analyzes assessment data to guide teaching.	0008 (OPTE) The teacher understands and uses a variety of assessment strategies to evaluate and modify the teaching/learning process ensuring the continuous intellectual, social, and physical development of the learner.
3.3 Guides students in the evaluation of their work.	0008 (OPTE) The teacher understands and uses a variety of assessment strategies to evaluate and modify the teaching/learning process ensuring the continuous intellectual, social, and physical development of the learner.
3.4 Uses student data, observations of teaching, and interaction with colleagues to reflect on and improve teaching practice.	0010 (OPTE) The teacher evaluates the effects of his/her choices and actions on others (students, parents, and other professionals in the learning community), modifies those actions when needed, and actively seeks opportunities for continued professional growth.
3.5 Uses student assessment information and classroom observation to report student achievement to students and parents.	0008 (OPTE) The teacher understands and uses a variety of assessment strategies to evaluate and modify the teaching/learning process ensuring the continuous intellectual, social, and physical development of the learner.
4.0 Is able to design and manage learning environments that provide students with the time, space, and resources needed for developing science skills. In doing this, he/she:	
4.1 Structures the time so that	0004 (OPTE) The teacher understands the

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<p>students are able to engage in extended investigations.</p>	<p>process of continuous lifelong learning, the concept of making learning enjoyable, and the need for a willingness to change when the change leads to greater student learning and development.</p> <p>0005 (OPTE) The teacher plans instruction based upon curriculum goals, knowledge of the teaching/learning process, subject matter, students' abilities and differences, and the community, and adapts instruction based upon assessment and reflection.</p>
<p>4.2 Creates a setting for student work that is flexible and supportive of science inquiry.</p>	<p>0002 (OPTE) The teacher understands that students vary in their approaches to learning and creates instructional opportunities that are adaptable to individual differences of learners.</p> <p>0003 (OPTE) The teacher uses best practices related to motivation and behavior to create learning environments that encourage positive social interaction, self-motivation, and active engagement in learning, thus providing opportunities for success.</p> <p>0004 (OPTE) The teacher understands the process of continuous lifelong learning, the concept of making learning enjoyable, and the need for a willingness to change when the change leads to greater student learning and development.</p> <p>0005 (OPTE) The teacher plans instruction based upon curriculum goals, knowledge of the teaching/learning process, subject matter, students' abilities and differences, and the community, and adapts instruction based upon assessment and reflection.</p> <p>0006 (OPTE) The teacher understands curriculum integration processes and uses a variety of instructional strategies</p>

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	<p>to encourage students' development of critical thinking, problem solving, and performance skills and effective use of technology.</p> <p>0007 (OPTE) The teacher develops a knowledge of and uses a variety of effective communication techniques to foster active inquiry, collaboration, and supportive interaction in the classroom.</p>
<p>4.3 Ensures a safe working environment.</p>	<p>0005 Understand equipment, materials, and chemicals used in scientific investigations; and apply procedures for their proper, safe, and legal use.</p>
<p>4.4 Makes the available science tools, materials, media, and technological resources accessible to students.</p>	<p>0005 Understand equipment, materials, and chemicals used in scientific investigations; and apply procedures for their proper, safe, and legal use.</p> <p>0006 (OPTE) The teacher understands curriculum integration processes and uses a variety of instructional strategies to encourage students' development of critical thinking, problem solving, and performance skills and effective use of technology.</p>
<p>4.5 Identifies and uses resources outside the school.</p>	<p>0012 (OPTE) The teacher fosters positive interaction with school colleagues, parents/families, and organizations in the community to actively engage them in support of students' learning and well-being.</p>
<p>4.6 Engages students in designing the learning environment.</p>	<p>0003 (OPTE) The teacher uses best practices related to motivation and behavior to create learning environments that encourage positive social interaction, self-motivation, and active engagement in learning, thus providing opportunities for success.</p> <p>0004 (OPTE) The teacher understands the process of continuous lifelong learning, the concept of making learning enjoyable, and the need for a</p>

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	willingness to change when the change leads to greater student learning and development.
5.0 Is able to develop communities of science learners that reflect the intellectual rigor of scientific inquiry and the climate conducive to science learning. In doing this, he/she:	
5.1 Respects the diverse needs, skills, and experiences of all students.	<p>0002 (OPTE) The teacher understands that students vary in their approaches to learning and creates instructional opportunities that are adaptable to individual differences of learners.</p> <p>0005 (OPTE) The teacher plans instruction based upon curriculum goals, knowledge of the teaching/learning process, subject matter, students' abilities and differences, and the community, and adapts instruction based upon assessment and reflection.</p> <p>0007 (OPTE) The teacher develops a knowledge of and uses a variety of effective communication techniques to foster active inquiry, collaboration, and supportive interaction in the classroom.</p>
5.2 Enables students to have a significant voice in decisions about the content and context of their work and prepares students to take responsibility for learning.	<p>0003 (OPTE) The teacher uses best practices related to motivation and behavior to create learning environments that encourage positive social interaction, self-motivation, and active engagement in learning, thus providing opportunities for success.</p> <p>0004 (OPTE) The teacher understands the process of continuous lifelong learning, the concept of making learning enjoyable, and the need for a willingness to change when the change leads to greater student learning and development.</p>
5.3 Encourages collaboration among students.	0006 (OPTE) The teacher understands curriculum integration processes and

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	<p>uses a variety of instructional strategies to encourage students' development of critical thinking, problem solving, and performance skills and effective use of technology.</p> <p>0007 (OPTE) The teacher develops a knowledge of and uses a variety of effective communication techniques to foster active inquiry, collaboration, and supportive interaction in the classroom.</p>
<p>5.4 Structures and facilitates ongoing formal and informal discussion based on a shared understanding of rules of scientific discourse.</p>	<p>0003 Understand the process of scientific inquiry and the role of observation and experimentation in explaining natural phenomena.</p> <p>0006 (OPTE) The teacher understands curriculum integration processes and uses a variety of instructional strategies to encourage students' development of critical thinking, problem solving, and performance skills and effective use of technology.</p> <p>0007 (OPTE) The teacher develops a knowledge of and uses a variety of effective communication techniques to foster active inquiry, collaboration, and supportive interaction in the classroom.</p>
<p>5.5 Models and emphasizes the skills and value of scientific inquiry.</p>	<p>0003 Understand the process of scientific inquiry and the role of observation and experimentation in explaining natural phenomena.</p>
<p>6.0 Is able to develop conceptual understanding for science content using the process skills listed in Oklahoma's core curriculum, <i>Priority Academic Student Skills</i>, in grades 5 through 9.</p>	<p>0003 Understand the process of scientific inquiry and the role of observation and experimentation in explaining natural phenomena.</p> <p>0004 Understand principles of measurement and the process of gathering, organizing, reporting, and interpreting scientific data.</p> <p>0005 Understand equipment, materials, and chemicals used in scientific investigations; and apply procedures</p>

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	for their proper, safe, and legal use.
7.0 Is able to use a variety of instructional strategies and utilizes integrated and interdisciplinary curriculum.	<p>0001 Understand the relationships and common themes that connect mathematics, science, and technology.</p> <p>0006 (OPTE) The teacher understands curriculum integration processes and uses a variety of instructional strategies to encourage students' development of critical thinking, problem solving, and performance skills and effective use of technology.</p>
8.0 Is able to teach with a broad understanding of all content areas and understands the interaction between the sciences and the process skills.	All Middle Level Science Competencies
9.0 Unifying Concepts:	
9.1 System, order, and organization.	0001 Understand the relationships and common themes that connect mathematics, science, and technology.
9.2 Evidence, models, and explanation.	<p>0001 Understand the relationships and common themes that connect mathematics, science, and technology.</p> <p>0003 Understand the process of scientific inquiry and the role of observation and experimentation in explaining natural phenomena.</p> <p>0004 Understand principles of measurement and the process of gathering, organizing, reporting, and interpreting scientific data.</p> <p>0011 Understand the structure and nature of matter.</p> <p>0017 Understand geology and geologic history.</p>
9.3 Constancy, change, equilibrium, and measurement.	0001 Understand the relationships and common themes that connect mathematics, science, and technology.

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	<p>0004 Understand principles of measurement and the process of gathering, organizing, reporting, and interpreting scientific data.</p> <p>0007 Understand characteristics of life and basic life processes.</p> <p>0008 Understand genetics and biological adaptation.</p> <p>0009 Understand populations, communities, ecosystems, and biomes.</p> <p>0018 Understand water and the hydrosphere.</p>
9.4 Form and function.	<p>0006 Understand basic concepts of cell biology.</p> <p>0007 Understand characteristics of life and basic life processes.</p> <p>0008 Understand genetics and biological adaptation.</p> <p>0011 Understand the structure and nature of matter.</p> <p>0017 Understand geology and geologic history.</p> <p>0020 Understand basic astronomy.</p>
9.5 Abilities of technological design.	0001 Understand the relationships and common themes that connect mathematics, science, and technology.
9.6 Understanding about science and technology.	0001 Understand the relationships and common themes that connect mathematics, science, and technology.
9.7 Science as a human endeavor.	<p>0002 Understand the historical and contemporary contexts of the study of science.</p> <p>0003 Understand the process of scientific inquiry and the role of observation and experimentation in explaining natural</p>

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	phenomena.
9.8 Nature of science.	0001 Understand the relationships and common themes that connect mathematics, science, and technology. 0002 Understand the historical and contemporary contexts of the study of science. 0003 Understand the process of scientific inquiry and the role of observation and experimentation in explaining natural phenomena. 0004 Understand principles of measurement and the process of gathering, organizing, reporting, and interpreting scientific data.
9.9 Nature of scientific knowledge.	0002 Understand the historical and contemporary contexts of the study of science. 0003 Understand the process of scientific inquiry and the role of observation and experimentation in explaining natural phenomena. 0004 Understand principles of measurement and the process of gathering, organizing, reporting, and interpreting scientific data.
9.10 History of science.	0002 Understand the historical and contemporary contexts of the study of science.
9.11 Historical perspectives.	0002 Understand the historical and contemporary contexts of the study of science.
9.12 Personal health.	0007 Understand characteristics of life and basic life processes. 0008 Understand genetics and biological

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	adaptation.
9.13 Personal and community health.	0007 Understand characteristics of life and basic life processes. 0008 Understand genetics and biological adaptation. 0010 Understand the effect of humans on the environment.
9.14 Population, resources, and environments.	0009 Understand populations, communities, ecosystems, and biomes. 0010 Understand the effect of humans on the environment.
9.15 Population growth.	0009 Understand populations, communities, ecosystems, and biomes.
9.16 Natural hazards.	0017 Understand geology and geologic history. 0019 Understand the earth's atmosphere, weather, and climate.
9.17 Natural resources.	0010 Understand the effect of humans on the environment. 0017 Understand geology and geologic history. 0018 Understand water and the hydrosphere.
9.18 Risk and benefits.	0002 Understand the historical and contemporary contexts of the study of science. 0010 Understand the effect of humans on the environment.
9.19 Environmental quality.	0010 Understand the effect of humans on the environment.
9.20 Natural and human-induced hazards.	0010 Understand the effect of humans on the environment. 0017 Understand geology and geologic

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	<p>history.</p> <p>0019 Understand the earth's atmosphere, weather, and climate.</p>
<p>9.21 Science and technology in society.</p>	<p>0001 Understand the relationships and common themes that connect mathematics, science, and technology.</p> <p>0002 Understand the historical and contemporary contexts of the study of science.</p>
<p>9.22 Science and technology in local, national, and global challenges.</p>	<p>0002 Understand the historical and contemporary contexts of the study of science.</p> <p>0003 Understand the process of scientific inquiry and the role of observation and experimentation in explaining natural phenomena.</p> <p>0010 Understand the effect of humans on the environment.</p>
<p>10.0 Earth/Space Science:</p>	
<p>10.1 Structure of the earth system.</p>	<p>0017 Understand geology and geologic history.</p>
<p>10.2 Earth's history.</p>	<p>0017 Understand geology and geologic history.</p>
<p>10.3 Earth in the solar system.</p>	<p>0020 Understand basic astronomy.</p>
<p>10.4 Energy in the Earth system.</p>	<p>0017 Understand geology and geologic history.</p> <p>0018 Understand water and the hydrosphere.</p> <p>0019 Understand the earth's atmosphere, weather, and climate.</p> <p>0020 Understand basic astronomy.</p>
<p>10.5 Geochemical cycles.</p>	<p>0017 Understand geology and geologic history.</p>

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	0018 Understand water and the hydrosphere.
10.6 The universe and Earth's system.	0020 Understand basic astronomy.
10.7 Properties of earth materials.	0017 Understand geology and geologic history.
11.0 Physical Science:	
11.1 Properties and changes of properties in matter.	0011 Understand the structure and nature of matter. 0012 Understand physical and chemical changes and chemical reactions.
11.2 Motion and force.	0013 Understand the basic concepts of force, work, and motion.
11.3 Transfer of energy.	0014 Understand energy and its forms and transformations.
11.4 The structure of atoms.	0011 Understand the structure and nature of matter.
11.5 Structure and properties of matter.	0011 Understand the structure and nature of matter.
11.6 Chemical reactions.	0012 Understand physical and chemical changes and chemical reactions.
11.7 Conservation of energy.	0014 Understand energy and its forms and transformations.
11.8 Light, heat, electricity, and magnetism.	0014 Understand energy and its forms and transformations. 0015 Understand waves, sound, and light. 0016 Understand electricity, magnets, and electromagnetism.
12.0 Life Science:	
12.1 Structure and function in living systems.	0006 Understand basic concepts of cell biology. 0007 Understand characteristics of life and basic life processes.

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	0008 Understand genetics and biological adaptation.
12.2 Reproduction and heredity.	0008 Understand genetics and biological adaptation.
12.3 Regulation and behavior.	0007 Understand characteristics of life and basic life processes. 0009 Understand populations, communities, ecosystems, and biomes.
12.4 Population and ecosystem.	0009 Understand populations, communities, ecosystems, and biomes.
12.5 Diversity and adaption of organisms.	0008 Understand genetics and biological adaptation.
12.6 The cell.	0006 Understand basic concepts of cell biology.
12.7 The molecular basis of heredity.	0008 Understand genetics and biological adaptation.
12.8 Biological adaption.	0008 Understand genetics and biological adaptation.
12.9 The interdependence of organisms.	0009 Understand populations, communities, ecosystems, and biomes.
12.10 Matter, energy, and organization in living systems.	0006 Understand basic concepts of cell biology. 0007 Understand characteristics of life and basic life processes. 0009 Understand populations, communities, ecosystems, and biomes.
12.11 Behavior of organisms.	0007 Understand characteristics of life and basic life processes. 0009 Understand populations, communities, ecosystems, and biomes.