

**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 Full Subject Matter Competencies for Physical Sciences 6–12 and CEOE Competencies for Chemistry**

Oklahoma Subject Matter Competencies	CEOE Competencies
<b>Unifying Concepts</b>	
a. System, Order, and Organization	0001 Connections among science, mathematics, and technology  0008 Organization of the periodic table  0011 Principles of thermodynamics and calorimetry  0015 Nomenclature and structure of organic compounds  0017 Principles of chemical equilibrium
b. Evidence, Models, and Explanation	0001 Connections among science, mathematics, and technology  0004 Processes of collecting, organizing, and analyzing scientific data  0006 Chemical and physical properties of, and changes in, matter  0007 Models of atomic structure, principles of quantum theory, and properties of subatomic particles  0013 Atomic bonds and their effects on the properties of substances  0014 Types and characteristics of molecular interaction and their influence on

Oklahoma Subject Matter Competencies	CEOE Competencies
	properties of substances
c. Constancy, Change, Equilibrium, and Measurement	0001 Connections among science, mathematics, and technology 0003 The process of scientific inquiry and experimentation 0004 Processes of collecting, organizing, and analyzing scientific data 0006 Chemical and physical properties of, and changes in, matter 0009 Kinetic molecular theory, the nature of phase changes, and the gas laws 0010 Process of nuclear transformation 0012 Energy relationships in chemical bonding and chemical reactions 0016 Factors that affect, and methods of measuring, reaction rates 0017 Principles of chemical equilibrium 0019 Redox reactions and electrochemistry 0020 The nature of organic reactions 0021 The mole concept 0022 The relationship between the mole concept and chemical formulas 0023 Quantitative relationships expressed in chemical equations
d. Form and Function	0008 Organization of the periodic table 0013 Atomic bonds and their effects on the properties of substances 0014 Types and characteristics of molecular interaction and their influence on properties of substances 0015 Nomenclature and structure of organic

Oklahoma Subject Matter Competencies	CEOE Competencies
	compounds
e. Abilities of Technological Design	0001 Connections among science, mathematics, and technology 0005 Proper use of equipment, materials, and chemicals in chemistry 0019 Redox reactions and electrochemistry 0026 The uses and hazards of nuclear reactions
f. Understanding about Science and Technology	0001 Connections among science, mathematics, and technology 0002 Historical and contemporary contexts of the study of chemistry 0003 The process of scientific inquiry and experimentation 0004 Processes of collecting, organizing, and analyzing scientific data 0005 Proper use of equipment, materials, and chemicals in chemistry 0025 Industrial and household chemistry 0026 The uses and hazards of nuclear reactions
g. Science as a Human Endeavor	0002 Historical and contemporary contexts of the study of chemistry 0003 The process of scientific inquiry and experimentation 0026 The uses and hazards of nuclear reactions
h. Nature of Science	0001 Connections among science, mathematics, and technology 0002 Historical and contemporary contexts of the study of chemistry 0003 The process of scientific inquiry and

Oklahoma Subject Matter Competencies	CEOE Competencies
	<p>experimentation</p> <p>0004 Processes of collecting, organizing, and analyzing scientific data</p> <p>0005 Proper use of equipment, materials, and chemicals in chemistry</p>
i. Nature of Scientific Knowledge	<p>0001 Connections among science, mathematics, and technology</p> <p>0002 Historical and contemporary contexts of the study of chemistry</p> <p>0003 The process of scientific inquiry and experimentation</p> <p>0004 Processes of collecting, organizing, and analyzing scientific data</p>
j. History of Science	<p>0002 Historical and contemporary contexts of the study of chemistry</p> <p>0003 The process of scientific inquiry and experimentation</p> <p>0007 Models of atomic structure, principles of quantum theory, and properties of subatomic particles</p>
k. Historical Perspective	<p>0002 Historical and contemporary contexts of the study of chemistry</p> <p>0007 Models of atomic structure, principles of quantum theory, and properties of subatomic particles</p>
l. Personal Health	<p>0005 Proper use of equipment, materials, and chemicals in chemistry</p> <p>0025 Industrial and household chemistry</p> <p>0026 The uses and hazards of nuclear reactions</p>

Oklahoma Subject Matter Competencies	CEOE Competencies
m. Personal and Community Health	0002 Historical and contemporary contexts of the study of chemistry 0025 Industrial and household chemistry 0026 The uses and hazards of nuclear reactions
n. Population, Resources, and Environments	0025 Industrial and household chemistry 0026 The uses and hazards of nuclear reactions
o. Population Growth	0002 Historical and contemporary contexts of the study of chemistry
p. Natural Hazards	0010 Process of nuclear transformation 0025 Industrial and household chemistry 0026 The uses and hazards of nuclear reactions
q. Natural Resources	0010 Process of nuclear transformation 0025 Industrial and household chemistry 0026 The uses and hazards of nuclear reactions
r. Risk and Benefits	0002 Connections among science, mathematics, and technology 0003 The process of scientific inquiry and experimentation 0005 Proper use of equipment, materials, and chemicals in chemistry 0026 The uses and hazards of nuclear reactions

Oklahoma Subject Matter Competencies	CEOE Competencies
s. Environmental Quality	0002 Historical and contemporary contexts of the study of chemistry 0025 Industrial and household chemistry 0026 The uses and hazards of nuclear reactions
t. Natural and Human Induced Hazards	0002 Historical and contemporary contexts of the study of chemistry 0003 The process of scientific inquiry and experimentation 0010 Process of nuclear transformation 0025 Industrial and household chemistry 0026 The uses and hazards of nuclear reactions
u. Science and Technology in Society	0002 Historical and contemporary contexts of the study of chemistry 0003 The process of scientific inquiry and experimentation 0025 Industrial and household chemistry 0026 The uses and hazards of nuclear reactions
v. Science and Technology in Local, National, and Global Challenges	0002 Historical and contemporary contexts of the study of chemistry 0003 The process of scientific inquiry and experimentation 0025 Industrial and household chemistry 0026 The uses and hazards of nuclear reactions

Oklahoma Subject Matter Competencies	CEOE Competencies
<b>Chemistry</b>	
a. Properties and Changes of Properties in Matter	0006 Chemical and physical properties of, and changes in, matter 0009 Kinetic molecular theory, the nature of phase changes, and the gas laws 0010 Process of nuclear transformation 0016 Factors that affect, and methods of measuring, reaction rates 0017 Principles of chemical equilibrium 0018 Theories, principles, and applications of acid-base chemistry 0019 Redox reactions and electrochemistry 0020 The nature of organic reactions 0024 Properties of solutions and colloidal suspensions, and factors that affect solubility
b. Motion and Force	0007 Models of atomic structure, principles of quantum theory, and properties of subatomic particles 0009 Kinetic molecular theory, the nature of phase changes, and the gas laws 0013 Atomic bonds and their effects on the properties of substances

Oklahoma Subject Matter Competencies	CEOE Competencies
c. Transfer of Energy	0007 Models of atomic structure, principles of quantum theory, and properties of subatomic particles  0009 Kinetic molecular theory, the nature of phase changes, and the gas laws  0010 Process of nuclear transformation  0011 Principles of thermodynamics and calorimetry  0012 Energy relationships in chemical bonding and chemical reactions
d. The Structure of Atoms	0007 Models of atomic structure, principles of quantum theory, and properties of subatomic particles  0008 Organization of the periodic table  0010 Process of nuclear transformation  0013 Atomic bonds and their effects on the properties of substances
e. Structure and Properties of Matter	0006 Chemical and physical properties of, and changes in, matter  0007 Models of atomic structure, principles of quantum theory, and properties of subatomic particles  0008 Organization of the periodic table  0010 Process of nuclear transformation  0013 Atomic bonds and their effects on the properties of substances  0014 Types and characteristics of molecular interaction and their influence on properties of substances  0015 Nomenclature and structure of organic compounds

Oklahoma Subject Matter Competencies	CEOE Competencies
f. Chemical Reactions	0011 Principles of thermodynamics and calorimetry 0012 Energy relationships in chemical bonding and chemical reactions 0016 Factors that affect, and methods of measuring, reaction rates 0017 Principles of chemical equilibrium 0018 Theories, principles, and applications of acid-base chemistry 0019 Redox reactions and electrochemistry 0020 The nature of organic reactions
g. Conservation of Energy	0009 Kinetic molecular theory, the nature of phase changes, and the gas laws 0011 Principles of thermodynamics and calorimetry 0012 Energy relationships in chemical bonding and chemical reactions