

Alignment of OAE Middle Grades Science Assessment Framework with Ohio-specified Standards

This alignment study identifies the national and/or Ohio educational standards that are addressed in whole or in part by each competency of the assessment framework. An indication of alignment does not necessarily imply complete congruence of the content of an OAE test competency with the relevant standard. The information in this document is subject to change if revisions are made to the assessment framework. Any changes will fully supersede the information contained in this document.

Competencies		Ohio Educational Preparation Standards	Ohio Educator Standards	Ohio Student Standards
Science (4-9)		NSTA 2012 Standards for Science Teacher Preparation: Secondary Science Content Analysis Form	Ohio Standards for the Teaching Profession	Ohio Revised Science Standards and Model Curriculum: Grades K-8 and High School
<u>Nature of Science</u>				
0001	Understand principles and procedures of scientific inquiry.	Biology: A.9, B.19, C.35-36 Chemistry: A.12, B.27, C.39 Earth/Space: A.10, B.21, C.38-39 Physics: A.10, B.21, C.34	2	Science Inquiry and Application
0002	Understand the history and nature of science.	Biology: B.18, C.20-34 Chemistry: A.15, C.28-38 Earth/Space: B.20, C.22-37 Physics: B.20, C.23-33	2	Science Inquiry and Application

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Science (4-9)		NSTA 2012 Standards for Science Teacher Preparation: Secondary Science Content Analysis Form	Ohio Standards for the Teaching Profession	Ohio Revised Science Standards and Model Curriculum: Grades K-8 and High School
0003	Understand the relationships between science, technology, engineering, mathematics, and society.	Biology: A.10, A.17 Chemistry: A.13, B.26 Earth/Space: A.12 Physics: A.11, B.19, B.22	2	Science Inquiry and Application
<u>Physical Science</u>				
0004	Understand the properties and characteristics of matter.	Chem: A.1; A.3-A.4; A8; Phys: A.7	2	Gr. 4: Electricity, Heat, and Matter Phys. Sci: Classification of Matter; Atoms; Periodic Trends of the Elements; Reactions of Matter (Nuclear Reactions)
0005	Understand physical and chemical changes in matter.	Chem: A.2-A.4; A.6-8	2	Gr. 4: Electricity, Heat, and Matter Gr. 7: Conservation of Mass and Energy Phys. Sci: Bonding and Compounds; Reactions of Matter (Chemical Reactions)

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0006	Understand the characteristics and transformations of different forms of energy.	Chem: A.4; Earth/Space Sci: A.5 Phys: A.1; A.4-A.6; A.9	2	Gr. 4: Electricity, Heat, and Matter Gr. 5: Light, Sound, and Motion Gr. 7: Conservation of Mass and Energy Gr. 8: Forces and Motion Phys. Sci: Conservation of Energy; Transfer and Transformation of Energy Phys. Sci: Electricity
0007	Understand relationships between force, mass, and motion.	Phys: A.1-A.3	2	Gr. 6: Matter and Motion Gr. 8: Forces and Motion Phys. Sci: Motion; Forces; Dynamics; Thermal Energy; Conservation of Energy
0008	Understand characteristics and properties of mechanical and electromagnetic waves.	Phys: A.8	2	Gr. 4: Electricity, Heat, and Matter Gr. 5: Light, Sound, and Motion Phys. Sci: Waves
<u>Life Science</u>				
0009	Understand the characteristics, organization, and processes of cells.	Bio: A.1; A.8	2	Gr. 6: Cellular to Multicellular Gr. 7: Cycles of Matter and Flow of Energy Bio: Cells

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0010	Understand characteristics and life processes of living organisms.	Bio: A.2; A.8	2	Gr. 4: Earth's Living History Gr. 6: Cellular to Multicellular Gr. 7: Cycles of Matter and Flow of Energy Bio: Diversity and Interdependence of Life
0011	Understand the concepts and principles related to genetics, the theory of evolution, and the classification of organisms.	Bio: A.2-A.3; A.5, ; A.7; A.12-A.13	2	Gr. 4: Earth's Living History Gr. 6: Cellular to Multicellular Gr. 8: Species and Reproduction Bio: Heredity; Evolution
0012	Understand characteristics of different biomes, relationships between organisms, population dynamics, and the flow of matter and energy through ecosystems.	Bio: A.1; A.3-A.4 A.9	2	Gr. 4: Earth's Living History Gr. 5: Interactions within Ecosystems Gr. 7: Cycles of Matter and Energy Bio: Diversity and Interdependence of Life

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<u>Earth and Space Science</u>				
0013	Understand the history of Earth, characteristics of Earth materials and resources, and the geologic processes that shape Earth.	Earth/Space Sci: A.1-A.5; A.11	2	Gr. 4: Earth's Living History Gr. 4: Earth's Surface Gr. 5: Cycles and Patterns in the Solar System (includes Earth Systems) Gr. 6: Rocks, Minerals, and Soil Gr. 8: Physical Earth Phys. Geol: Minerals; Igneous, Metamorphic, and Sedimentary Rocks; Earth's History; Plate Tectonics; Earth's Resources; Glacial Geology; Env. Sci: Earth's Resources
0014	Understand characteristics and properties of the hydrosphere.	Earth/Space Sci: A.3; A.5-A.6; A.11	2	Gr. 4: Earth's Surface Gr. 5: Cycles and Patterns in the Solar System (includes Earth Systems) Gr. 6: Rocks, Minerals, and Soil Gr. 7: Cycles and Patterns of Earth and the Moon (includes Hydrologic Cycle) Env. Sci: Earth Systems

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0015	Understand Earth's atmosphere, weather, and climate.	Earth/Space Sci: A.3; A.5-A.7; A.11	2	Gr. 5: Cycles and Patterns in the Solar System (includes Earth Systems) Gr. 7: Cycles and Patterns of Earth and the Moon (includes Hydrologic Cycle) Env. Sci: Earth Systems
0016	Understand characteristics of the solar system and the universe.	Earth/Space Sci: A.8- A.9	2	Gr. 5: Cycles and Patterns in the Solar System (includes Earth Systems) Gr. 7: Cycles and Patterns of Earth and the Moon (includes Relative Position and Movement of Earth, Sun, and Moon) Phys. Sci: The Universe