New Mexico Public Education Department

Assessment Blueprint

Science: Grade 8

End-of-Course (EoC) Exam

Version 002

Spring 2015

Purpose Statement

Science: Grade 8 EoC

The Science: Grade 8 End-of-Course Exam is intended to be administered at the end of the eighth grade year as a summative assessment that integrates content that aligns with sixth, seventh, and eighth grade New Mexico Science Standards. By incorporating Earth and Space Science, Life Science, and Physical Science (STARS codes 1708 and 1709), the assessment should facilitate vertical alignment of content knowledge, skills, and applications within middle school science curricula to better prepare students for success in high school courses. Scores are reported to teachers, school, district, and state levels for the purpose of curriculum review, student grades, and the optional use for the Educator Effectiveness System.

Blueprint Table—Science: Grade 8

Based on NM Grades 6–8 Science Standards

Standard/ Content ID	Content Statement
Gr6-I-I-I-1	Examine the reasonableness of data supporting a proposed scientific explanation.
Gr6-I-I-II-2	Understand that scientific investigations use common processes that include the collection of relevant data and observations, accurate measurements, the identification and control of variables, and logical reasoning to formulate hypotheses and explanations.
Gr6-II-III-II-4	Describe the composition (i.e., nitrogen, oxygen, water vapor) and strata of Earth's atmosphere, and differences between the atmosphere of Earth and those of other planets.
Gr7-I-I-I-2	Use models to explain the relationships between variables being investigated.
Gr7-II-I-I-3	Identify characteristics of radioactivity, including: • decay in time of some elements to others • release of energy, and • damage to cells
Gr7-II-I-I-4	Describe how substances react chemically in characteristic ways to form new substances (compounds) with different properties (e.g., carbon and oxygen combine to form carbon dioxide in respiration).
Gr7-II-II-I-3	Explain how individuals of species that exist together interact with their environment to create an ecosystem (e.g., populations, communities, niches, habitats, food webs).
Gr7-II-II-I-7	Know how to classify organisms: domain, kingdom, phylum, class, order, family, genus; species.
Gr7-II-II-II-6	Know that hereditary information is contained in genes that are located in chromosomes, including: • determination of traits by genes • traits determined by one or many genes • more than one trait sometimes influenced by a single gene
Gr7-II-II-III-3	Understand that many basic functions of organisms are carried out in cells, including: • growth and division to produce more cells (mitosis) • specialized functions of cells (e.g., reproduction, nerve-signal transmission, digestion, excretion, movement, transport of oxygen).

Standard/ Content ID	Content Statement
Gr7-II-II-III-4	Compare the structure and processes of plant cells and animal cells.
Gr7-II-II-III-5	Describe how some cells respond to stimuli (e.g., light, heat, pressure, gravity).
Gr8-I-I-I	Use scientific methods to develop questions, design and conduct experiments using appropriate technologies, analyze and evaluate results, make predictions, and communicate findings.
Gr8-I-I-I-1	Evaluate the accuracy and reproducibility of data and observations.
Gr8-I-I-I-2	Use a variety of technologies to gather, analyze and interpret scientific data.
Gr8-II-I-I-1	Know how to use density, boiling point, freezing point, conductivity, and color to identify various substances.
Gr8-II-I-I-2	Distinguish between metals and non-metals.
Gr8-II-I-I-3	Understand the differences among elements, compounds, and mixtures by: • classification of materials as elements, compounds, or mixtures • interpretation of chemical formulas • separation of mixtures into compounds by methods including evaporation, filtration, screening, magnetism.
Gr8-II-I-I-4	Identify the protons, neutrons, and electrons within an atom and describe their locations (i.e., in the nucleus or in motion outside the nucleus).
Gr8-II-I-I-6	Know that compounds are made of two or more elements, but not all sets of elements can combine to form compounds
Gr8-II-I-I-8	Describe various familiar physical and chemical changes that occur naturally (e.g., snow melting, photosynthesis, rusting, burning).
Gr8-II-I-I-9	Identify factors that influence the rate at which chemical reactions occur (e.g., temperature, concentration).
Gr8-II-I-II-1	Know that energy exists in many forms and that when energy is transformed some energy is usually converted to heat.

Standard/ Content ID	Content Statement
Gr8-II-I-II-4	Know that electrical energy is the flow of electrons through electrical conductors that connect sources of electrical energy to points of use, including: • electrical current paths through parallel and series circuits • production of electricity by fossil-fueled and nuclear power plants, wind generators, geothermal plants, and solar cells • use of electricity by appliances and equipment (e.g., calculators, hair dryers, light bulbs, motors).
Gr8-II-II-II-1	Understand that living organisms are made mostly of molecules consisting of a limited number of elements (e.g., carbon, hydrogen, nitrogen, oxygen).
Gr8-II-II-III-2	Explain that photosynthesis in green plants captures the energy from the sun and stores it chemically.
Gr8-II-II-III-3	Describe how chemical substances can influence cellular activity (e.g., pH).
Gr8-II-III-I	Describe how the concepts of energy, matter, and force can be used to explain the observed behavior of the solar system, the universe, and their structures.
Gr8-II-III-II	Describe the structure of Earth and its atmosphere and explain how energy, matter, and forces shape Earth's systems.

Science 8th EoC Reporting Category Alignment Framework					
		DOK (Item # by DOK)			
Reporting Category	Standard	1	2	3	Grand Total
1	I.I.I		5, 6		2
	I.I.I.1		1	7	2
	I.I.I.2	4, 8			2
	I.I.II.2		2, 3		2
2	II.III.II.4	9			1
	II.III.I.3		10		1
	II.III.II.1	11			1
	II.III.II.2	12	13		2
3	II.II.I.3		15		1
	II.II.I.7	14			1
	II.II.II.1	23			1
	II.II.II.6		17	16	2
	II.II.III.3	19	18		2
	II.II.III.4	21	20		2
	II.II.III.5		22		1
4	II.I.I.2		25	26	2
	II.I.I.3	24	27, 28, 29		4
5	II.I.I.4	30, 31, 32, 33	34, 35		6
	II.I.I.6	38			1
6	II.I.I.8	36, 37			2
	II.I.I.9	39	40, 41		3
7	II.I.II.1	43			1
	II.I.II.4	42	44		2
	II.II.III.2	45, 46			2
	Grand Total				46