

Alternate Science Testing Structure

The testing structure for science reflects both the number of operational assessment items and the number of field test assessment items.

Grade	Administration Window*
6-8	Multiple untimed sessions <ul style="list-style-type: none"> 24 multiple choice items (20 operational items and 4 field test item)

* Teachers may administer the assessment in as many sessions as necessary throughout the entire administration window.

TCAP Grades 6-8 Alternate Science Blueprints

The blueprints reflect only operational assessment items.

Grade 6			
Content		# of items	% of test
Physical Science		5-7	25%-35%
6.PS3.1	Analyze the properties and compare the sources of kinetic, elastic potential, gravitational potential, electric potential, chemical, and thermal energy.		
6.PS3.3	Analyze and interpret data to show the relationship between kinetic energy and the mass of an object in motion and its speed.		
6.PS3.4	Conduct an investigation to demonstrate the way that heat (thermal energy) moves among objects through radiation, conduction, or convection.		
Life Science		9-11	45%-55%
6.LS2.2	Determine the impact of competitive, symbiotic, and predatory interactions in an ecosystem.		
6.LS2.3	Draw conclusions about the transfer of energy through a food web and energy pyramid in an ecosystem.		
6.LS2.4	Using evidence from climate data, draw conclusions about the patterns of abiotic and biotic factors in different biomes, specifically the tundra, taiga, deciduous forest, desert, grasslands, rainforest, marine, and freshwater ecosystems.		
6.LS2.6	Research the ways in which an ecosystem has changed over time in response to changes in physical conditions, population balances, human interactions, and natural catastrophes.		
6.LS4.1	Explain how changes in biodiversity would impact ecosystem stability and natural resources.		
Earth and Space Science		3-5	15%-25%
6.ESS2.5	Analyze and interpret data from weather conditions, weather maps, satellites, and radar to predict probable local weather patterns and conditions.		
6.ESS3.1	Differentiate between renewable and nonrenewable resources by asking questions about their availability and sustainability.		

Grade 7		
Content	# of items	% of test
Physical Science	5-7	25%-35%
7.PS1.3	Classify matter as pure substances or mixtures based on composition.	
7.PS1.4	Analyze and interpret chemical reactions to determine if the total number of atoms in the reactants and products support the Law of Conservation of Mass.	
7.PS1.6	Create and interpret models of substances whose atoms represent the states of matter with respect to temperature and pressure.	
Life Science	13-15	65%-75%
7.LS1.1	Develop and construct models that identify and explain the structure and function of major cell organelles as they contribute to the life activities of the cell and organism.	
7.LS1.4	Diagram the hierarchical organization of multicellular organisms from cells to organism.	
7.LS1.5	Explain that the body is a system comprised of subsystems that maintain equilibrium and support life through digestion, respiration, excretion, circulation, sensation (nervous and integumentary) and locomotion (musculoskeletal).	
7.LS1.9	Construct a scientific explanation based on compiled evidence for the processes of photosynthesis, cellular respiration, and anaerobic respiration in the cycling of matter and flow of energy into and out of organisms.	
7.LS2.1	Develop a model to depict the cycling of matter, including carbon and oxygen, including the flow of energy among biotic and abiotic parts of an ecosystem.	
7.LS3.2	Distinguish between mitosis and meiosis and compare the resulting daughter cells.	
7.LS3.3	Predict the probability of individual dominant and recessive alleles to be transmitted from each parent to offspring during sexual reproduction and represent the phenotypic and genotypic patterns using ratios.	

Grade 8

Content		# of items	% of test
Physical Science		7-9	35%-45%
8.PS2.3	Create a demonstration of an object in motion and describe the position, force, and direction of the object.		
8.PS2.4	Plan and conduct an investigation to provide evidence that the change in an object's motion depends on the sum of the forces on the object and the mass of the object.		
8.PS2.5	Evaluate and interpret that for every force exerted on an object there is an equal force exerted in the opposite direction.		
8.PS4.1	Develop and use models to represent the basic properties of waves including frequency, amplitude, wavelength and speed.		
Life Science		3-5	15%-25%
8.LS4.1	Analyze and interpret data for patterns in the fossil record that document the existence, diversity, extinction, and change in life forms throughout Earth's history.		
8.LS4.4	Develop a scientific explanation of how natural selection plays a role in determining the survival of a species in a changing environment.		
Earth and Space Science		7-9	35%-45%
8.ESS1.2	Explain the role of gravity in the formation of our sun and planets. Extend this explanation to address gravity's effect on the motion of celestial objects in our solar system and Earth's ocean tides.		
8.ESS2.3	Describe the relationship between the processes and forces that create igneous, sedimentary, and metamorphic rocks.		
8.ESS2.5	Construct a scientific explanation using data that explains the gradual process of plate tectonics accounting for A) the distribution of fossils on different continents, B) the occurrence of earthquakes, and C) continental and ocean floor features (including mountains, volcanoes, faults, and trenches).		
8.ESS3.1	Interpret data to explain that Earth's mineral, fossil fuel, and groundwater resources are unevenly distributed as a result of geologic processes.		