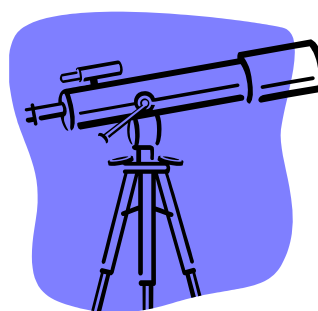
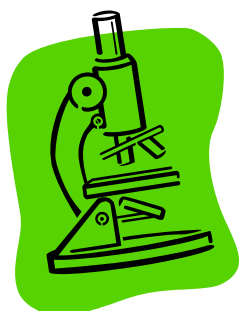




Summary of Results from Science TAKS Administration – Spring 2009



Texas Assessment of Knowledge and Skills (TAKS)

Grade 5 – Grade 8 – Grade 11 (Exit-level)

Grade 5	All Students – Percent Met Standard	84%
	All Students – Percent Commended Performance	43%
Grade 8	All Students – Percent Met Standard	72%
	All Students – Percent Commended Performance	24%
Grade 11 (Exit Level)	All Students – Percent Met Standard	85%
	All Students – Percent Commended Performance	19%

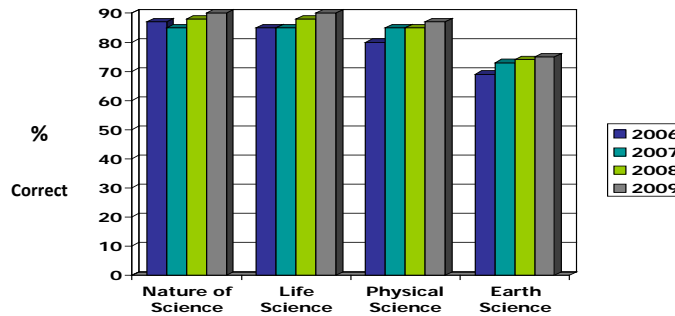
The Texas Assessment of Knowledge and Skills (TAKS) test is designed to measure the extent to which a student has learned and is able to apply the defined knowledge and skills at each tested grade level. Every TAKS test is directly aligned to the Texas Essential Knowledge and Skills (TEKS). All of the science TEKS can be found at <http://ritter.tea.state.tx.us/rules/tac/chapter112/index.html>. Students have shown steady growth in science performance during the past four years.

It is the intent of this document to highlight the specific Student Expectations from the 2009 TAKS results that indicate a performance level less than 80% correct response statewide for grade 5; or a performance level less than 70% correct response statewide for grades 8 and 11.

Fifth grade students have increased their performance on the science TAKS during the past four years. High performance of over 80% correct on most objectives of the science TAKS is evident. Of all four science TAKS objectives, the concepts found within Earth Science are the lowest area of performance statewide. In regard to demographics, efforts need to be made to close the gap between gender performance and among ethnicity performance.

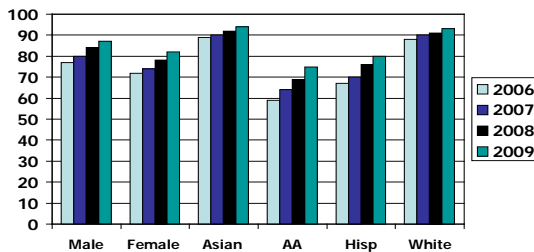
5th Grade TAKS Items % Correct by Objectives

All Students: From Spring 2006 - 2009



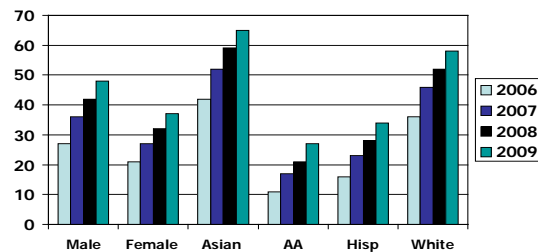
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**2009 Demographic Summary
Grade 5 - Percent Met Standard**



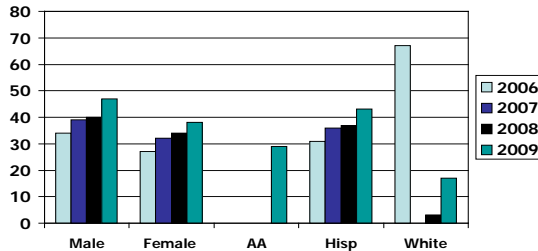
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**2009 Demographic Summary
Grade 5 - Percent Commended**



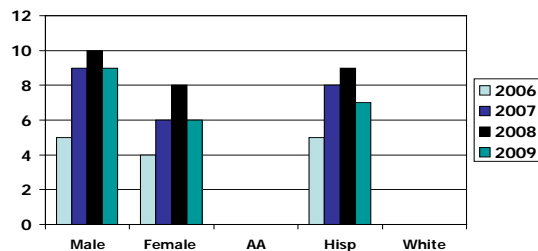
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**2009 Demographic Summary
Grade 5 Spanish - Percent Met Standard**



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**2009 Demographic Summary
Grade 5 Spanish - Percent Commended**



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5th Grade Science TAKS – Statewide Spring 2009 Results by Objective *Student Expectations (SEs) Falling Below 80% Correct Response*

The first number of each Student Expectation (SE) refers to the grade level.
If two or three test items were used for an SE, all percentages are listed (e.g. "77/93/95%").
At the end of each description is a reference to the question number from the April 2009 science TAKS for grade 5.

Objective 1: The student will demonstrate an understanding of the nature of science.

<u>SE</u>	<u>%</u>	<u>Description</u>
5.4A	74/92/93%	collect and analyze information using tools including calculators, microscopes, [cameras, sound recorders, computers,] hand lenses, rulers, thermometers, compasses, balances, [hot plates,] meter sticks, timing devices, magnets, collecting nets, and safety goggles (Questions 22, 6, 37)

Objective 2: The student will demonstrate an understanding of the life sciences.

<u>SE</u>	<u>%</u>	<u>Description</u>
2.9B	78%	compare and give examples of the ways living organisms depend on each other and on their environments (Question 16)

Objective 3: The student will demonstrate an understanding of the physical sciences.

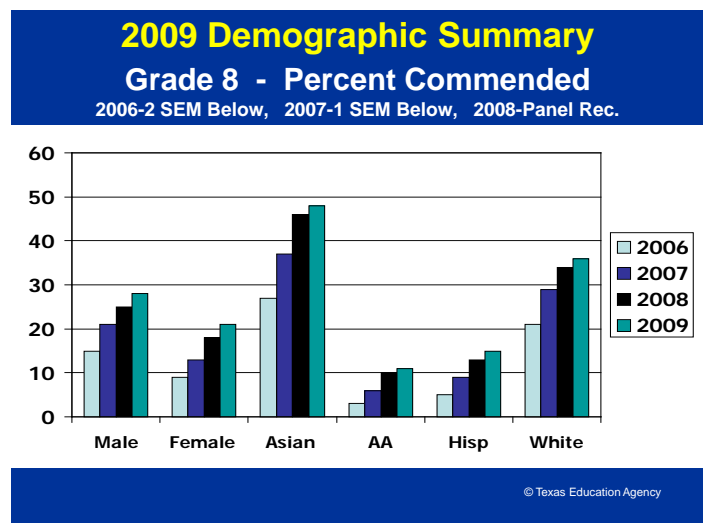
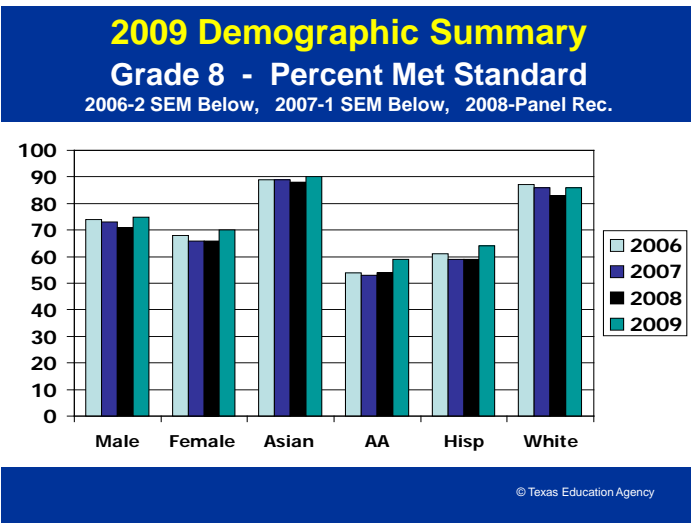
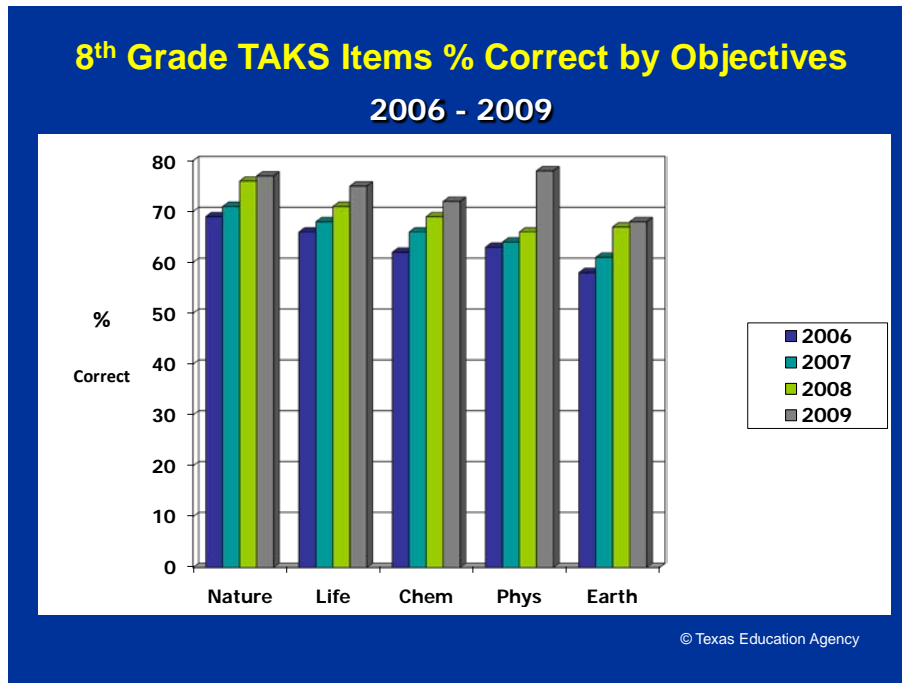
<u>SE</u>	<u>%</u>	<u>Description</u>
5.5A	67%	describe some cycles, structures, and processes that are found in a simple system (Question 19)

Objective 4: The student will demonstrate an understanding of the earth sciences.

<u>SE</u>	<u>%</u>	<u>Description</u>
5.5B	72%	describe some interactions that occur in a simple system (Question 28)
5.6B	69/79%	identify the significance of the water, carbon, and nitrogen cycles (Questions 25, 13)
5.11B	77%	draw conclusions about "what happened before" using data such as from tree-growth rings and sedimentary rock sequences (Question 23)
3.11A	71%	identify and describe the importance of earth materials including rocks, soil, water, and gases of the atmosphere in the local area and classify them as renewable, non-renewable, or inexhaustible resources (Question 21)
3.11D	77%	describe the characteristics of the Sun (Question 18)
4.11A	67%	test properties of soils including texture, capacity to retain water, and ability to support life (Question 15)
5.12C	75%	identify the physical characteristics of the Earth and compare them to the physical characteristics of the moon (Question 26)

SPECIAL NOTE: The Texas Essential Knowledge and Skills (TEKS) in elementary school science are to be taught prior to the 5th grade science Texas Assessment of Knowledge and Skills (TAKS). All of the elementary school science TEKS can be found at <http://ritter.tea.state.tx.us/rules/tac/chapter112/index.html>. The subset of the elementary school science TEKS that are eligible on the 5th grade science TAKS can be found at <http://ritter.tea.state.tx.us/student.assessment/taks/booklets/science/g5e.pdf>. Students have shown steady growth in science performance during the past four years. It is the intent of this document to highlight the specific student expectations from the 2009 TAKS results that indicate a performance level less than 80% correct response statewide.

Eighth grade students have increased their performance on the science TAKS during the past four years. Substantial growth in the area of physics performance was made during the spring 2009 administration. Of all five science TAKS objectives, the concepts of Earth and Space Systems are the lowest area of performance statewide. In regard to demographics, efforts need to be made to close the gap between gender performance and among ethnicity performance.



8th Grade Science TAKS – Statewide Spring 2009 Results by Objective Student Expectations (SEs) Falling Below 70% Correct Response

Objective 1: The student will demonstrate an understanding of the nature of science.

<u>SE</u>	<u>%</u>	<u>Description</u>
8.2D	65%	communicate valid conclusions (Question 16)
8.3A	54%	analyze, review, and critique scientific explanations, including hypotheses and theories, as to their strengths and weaknesses using scientific evidence and information (Question 14)
8.3B	57%	draw inferences based on data [related to promotional materials] for products and services (Questions 28)

Objective 2: The student will demonstrate an understanding of living systems and the environment.

<u>SE</u>	<u>%</u>	<u>Description</u>
7.12D	57%	observe and describe the role of ecological succession in ecosystems (Question 26)
8.11B	65%	distinguish between inherited traits and other characteristics that result from interactions with the environment (Question 32)
8.11C	66%	make predictions about possible outcomes of various genetic combinations of inherited characteristics (Question 42)

Objective 3: The student will demonstrate an understanding of the structures and properties of matter.

<u>SE</u>	<u>%</u>	<u>Description</u>
7.7C	54%	recognize that compounds are composed of elements (Question 36)
8.10A	56%	illustrate interactions between matter and energy including specific heat (Question 23)

Objective 4: The student will demonstrate an understanding of motion, forces, and energy.

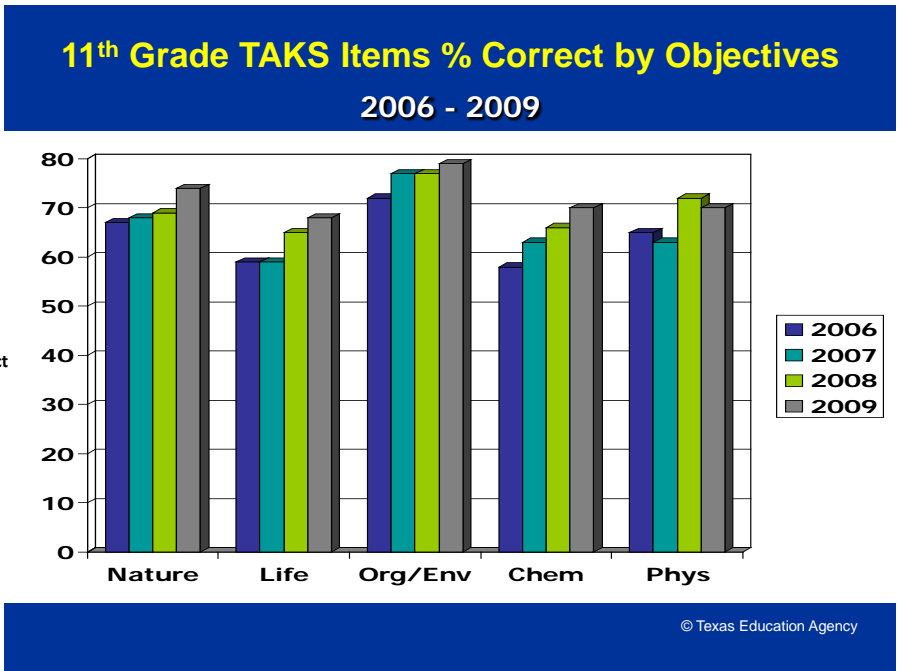
<u>SE</u>	<u>%</u>	<u>Description</u>
8.7B	67%	recognize that waves are generated and can travel through different media (Question 25)

Objective 5: The student will demonstrate an understanding of earth and space systems.

<u>SE</u>	<u>%</u>	<u>Description</u>
7.13B	57%	relate the Earth's movement and the moon's orbit to the observed cyclical phases of the moon (Question 21)
7.14B	57%	analyze effects of regional erosional deposition and weathering (Question 24)
8.10B	57%	describe interactions among solar, weather, and ocean systems (Question 27)
8.12A	61%	analyze and predict the sequence of events in the lunar and rock cycles (Question 31)
8.14B	53%	analyze how natural or human events may have contributed to the extinction of some species (Question 18)
8.14C	68%	describe how human activities have modified soil, water, and air quality (Question 9)

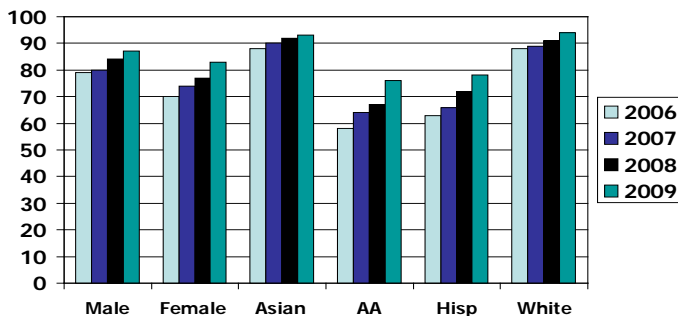
SPECIAL NOTE: The Texas Essential Knowledge and Skills (TEKS) in middle school science are to be taught prior to the 8th grade science Texas Assessment of Knowledge and Skills (TAKS). All of the middle school science TEKS can be found at <http://ritter.tea.state.tx.us/rules/tac/chapter112/index.html>. The subset of the middle school science TEKS that are eligible on the middle school science TAKS can be found at <http://ritter.tea.state.tx.us/student.assessment/taks/booklets/science/g8e.pdf>. Students have shown steady growth in science performance during the past four years. It is the intent of this document to highlight the specific student expectations from the 2009 TAKS results that indicate a performance level less than 70% correct response statewide.

Overall, eleventh grade students have increased their performance on the science TAKS during the past four years. Students have performed best on the TAKS objective pertaining to the interdependence of organisms and the environment. Of all five science TAKS objectives, the concepts of biology pertaining to the organization of living systems are the lowest area of performance statewide. In regard to demographics, efforts need to be made to close the gap between gender performance and among ethnicity performance.



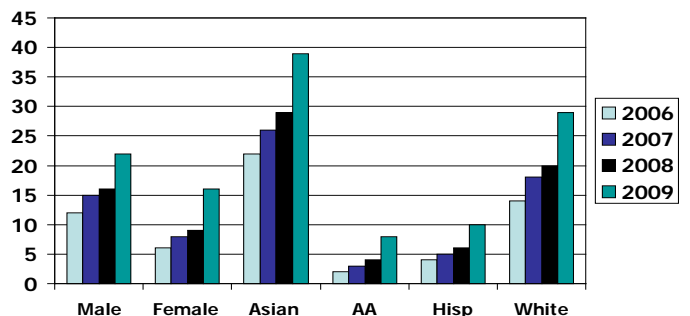
Objectives listed in chart above: (1) "Nature" - Nature of Science, (2) "Life" - Organization of Living Systems, (3) "Org/Env" - Interdependence of Organisms and the Environment, (4) "Chem" - Structures and Properties of Matter, and (5) "Phys" - Motion, Forces, and Energy.

2009 Demographic Summary Grade 11 - Percent Met Standard



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2009 Demographic Summary Grade 11 - Percent Commended



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11th Grade Exit-level Science TAKS – Statewide Spring 2009 Results by Objective Student Expectations (SEs) Falling Below 70% Correct Response

A Student Expectation (SE) with “BIO” refers to Biology. An SE with “IPC” refers to Integrated Physics and Chemistry (IPC).
If two test items were used for an SE, both percentages are listed (e.g. “66/80%”).

Objective 1: The student will demonstrate an understanding of the nature of science.

SE	%	Description
BIO 1A	54%	demonstrate safe practices during field and laboratory investigations (Question 23)
BIO 2C	66/80%	organize, analyze, evaluate, make inferences, and predict trends from data (Questions 66, 7))
BIO 2D	58%	communicate valid conclusions (Question 38)
IPC 3A	65/68%	analyze, review, [and critique] scientific explanations, including hypotheses and theories, as to their strengths and weaknesses using scientific evidence and information (Questions 49, 9)
IPC 3B	67/86%	draw inferences based on data related to [promotional materials for] products and services (Questions 51, 42)

Objective 2: The student will demonstrate an understanding of the organization of living systems.

SE	%	Description
BIO 4B	47%	investigate and identify cellular processes including homeostasis, permeability, energy production, transportation of molecules, disposal of wastes, function of cellular parts, and synthesis of new molecules (Question 29)
BIO 6A	54%	describe components of deoxyribonucleic acid (DNA), and illustrate how information for specifying the traits of an organism is carried in the DNA (Question 16)
BIO 6B	48%	explain replication, transcription, and translation using models of DNA and ribonucleic acid (RNA) (Question 36)

Objective 3: The student will demonstrate an understanding of the interdependence of organisms and the environment.

SE	%	Description
BIO 7B	57%	illustrate the results of natural selection in speciation, diversity, phylogeny, adaptation, behavior, and extinction (Question 43)

Objective 4: The student will demonstrate an understanding of the structures and properties of matter.

SE	%	Description
IPC 7A	53/55%	investigate and identify properties of fluids including density, viscosity, & buoyancy (Questions 27, 35)
IPC 8C	44/85%	investigate and identify the law of conservation of mass (Questions 30, 54)
IPC 9A	59/68%	relate the structure of water to its function [as the universal solvent] (Questions 34, 21))
IPC 9B	63%	relate the concentration of ions in a solution to physical and chemical properties such as pH, electrolytic behavior, and reactivity (Question 13)

Objective 5: The student will demonstrate an understanding of motion, forces, and energy.

SE	%	Description
IPC 4B	68/90%	investigate and describe [applications of] Newton's laws such as in vehicle restraints, sports activities, geological processes, and satellite orbits (Questions 48, 8)
IPC 4D	55%	investigate and demonstrate [mechanical advantage and] efficiency of various machines such as levers, motors, wheels and axles, pulleys, and ramps. (Question 25)
IPC 5B	44%	demonstrate wave interactions including interference, polarization, reflection, refraction, and resonance within various materials (Question 33)
IPC 6A	60/74%	describe the law of conservation of energy (Questions 28, 18)
IPC 6B	55%	investigate and demonstrate the movement of heat through solids, liquids, and gases by convection, conduction, and radiation (Question 26)

SPECIAL NOTE: The Texas Essential Knowledge and Skills (TEKS) for high school science can be found at <http://ritter.tea.state.tx.us/rules/tac/chapter112/index.html>. The subset of the high school science TEKS that are eligible on the 11th grade exit-level science TAKS can be found at <http://ritter.tea.state.tx.us/student.assessment/taks/booklets/science/g11e.pdf>. Students have shown steady growth in science performance during the past four years. It is the intent of this document to highlight the specific student expectations from the 2009 TAKS results that indicate a performance level less than 70% correct response statewide.