Texas Essential Knowledge and Skills

Compared with

ACT's
EPAS® Assessments

Abridged Version

ACT

September 13, 2004

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Executive Summary

The Texas Essential Knowledge and Skills (hereafter Texas document) were compared to ACT's Educational Planning and Assessment System® (EPAS®) in the curricular areas of English, reading, mathematics, and science. The match also included a comparison of the ACT Assessment Writing® Test to the Texas Essential Knowledge and Skills that addressed writing.

This document reports the findings of two specific match processes. First, trained ACT content specialists compared the Texas document with the skills and understandings measured in the three EPAS programs—EXPLORE®, PLAN®, and the ACT Assessment®. The EPAS comparison involved three steps: identifying the Texas Essential Knowledge and Skills assessed on the EPAS tests, identifying the EPAS Standards for Transition® that correspond to the Texas document, and identifying the EPAS Standards for Transition that are absent from the Texas document. Second, trained ACT content specialists compared the Texas Essential Knowledge and Skills that addressed writing expectations to the new ACT Assessment Writing Test.

As summarized in the table on the next page, ACT's review revealed a stronger match between the Texas Grade 8 reading knowledge and skills (56%) than the match to the student expectations (39%) as compared to the test specifications of the EXPLORE Reading Test. The match between the PLAN and the ACT Assessment Reading Tests and the knowledge and skills for the Grades 9–12 courses was strong at 71%. The student expectation match for the same courses came in just under the half way mark.

The match between the Texas English Language Arts knowledge and skills for Grade 8 was very strong at 80%, whereas the analysis of the match between the student expectations and the EXPLORE English Test was less (41%). The match of the knowledge and skills for the six high school courses that addressed English Language Arts (writing) posted an excellent match of 75% with the match to the student expectations coming in just short of the half-way mark. Since the ACT Assessment Writing Test was designed for Grades 11 and 12, that test was matched to English III, IV, and Research and Technical Writing. A strong match can be reported as each of the knowledge and skills expectations and just under two-thirds of the student expectations were addressed by the ACT Assessment Writing Test.

The Texas Grade 8 mathematics knowledge and skills posts an excellent match of 94% and the student expectations also post a strong match of 90% with the EXPLORE Mathematics Test. Three of the 4 high school courses, Algebra I, Algebra II, and Precalculus post extremely strong matches for both the knowledge and skills and the student expectations ranging from an excellent 92% to 100% match rates with the PLAN and the ACT Assessment Mathematics Tests. Geometric Structure did not post as rich a match, however still strong with 70% for knowledge and skills and 76% for student expectations.

The Texas Grade 8 science concepts (i.e., 8.6 through 8.14) were a total match (100%) to the EXPLORE Science Test. Of the process skills, 3 of the 5 essential knowledge and skills matched and just under half of the student expectations were a match. Each of the 8 high school courses shared the same process skills and just slightly under half were identified as a match to the PLAN and the ACT Assessment Science Tests. The content knowledge and skills were a total match and the student expectations matched at 99% (i.e., 217/219).

Content Area	Grade	Percent		Grade Levels	Percent		Grade	Percent	Grade Levels	Percent
		Knowledge & Skills	**Student Expectations**		**Knowledge & Skills**	**Student Expectations**				
					Percentage of Texas Essential Knowledge and Skills covered by the EPAS tests			**Percentage of EPAS Standards for Transition covered by Texas Essential Knowledge and Skills**		
Reading	8	56%	39%	9–12	82%	44%	8	100%	9–12	100%
English (writing)	8	80%	41%	9–12	English Tests 71% / 45% — Writing Test 100% / 64%		8	94%	9–12	100%
Mathematics	8	94%	93%	9–12	93%	92%	8	95%	9–12	98%
Science	8	Content 8.6–8.14 100% / 100% — Process Skills: 8.2–8.4 100% / 58%		9–12	Content 100% / 99% — Process Skills 100% / 48%		8	100%	9–12	100%

Language Arts

The Texas Essential Knowledge and Skills for English Language Arts and Reading used in this report are from Grade 8 (including the elective credit reading class) and eight high school courses: English I; English II; English III; English IV; Reading I, II, III; Literary Genres; Creative and Imaginative Writing; and Research and Technical Writing. The 1998 Texas essential knowledge and skills and student expectations were examined to determine the level of match with the test specifications for the EXPLORE, PLAN, and ACT Assessment Reading and English Tests, and their respective sets of the Standards for Transition. In addition, the writing knowledge and skills and student expectations from three courses: English III, English IV, and Research and Technical Writing, were compared to the soon to be released (February 2005) optional ACT Assessment Writing Test.

The Texas document is organized using the knowledge and skills as major headings for each grade or course title. The knowledge and skills are further defined by student expectations. The number of knowledge and skills categories varies as do the number of student expectations. A note to the reader: not all of the high school English Language Arts and Reading courses were included in this match as the respective course content is not included in the PLAN or the ACT Assessment English and Reading Tests specifications (e.g., Media Literacy – Speech, Humanities, Debate, Advanced Broadcast Journalism).

The knowledge and skill statements that are not measured by the EXPLORE, PLAN, or the ACT Assessment English and Reading Tests fall into five categories, they are: listening, speaking, viewing, and representing; expectations that require research; examination of one's own and other cultures; study strategies; and word recognition skills.

In addition, certain knowledge and skills and student expectations within the Grade 8 document and the 8 high school courses were not considered in the match process for reasons beyond the test specification issue. The expectations could not be overtly measured; however, the knowledge and skills represented were those that students must bring to the testing situation. For

these expectations, a performance component or a teacher observation would be required to report progress and/or the expectations were not amenable to the multiple-choice format.

Reading

The Grade 8 reading match process represents an examination of 6 of the knowledge and skills categories (8.7 through 8.12) and from the elective reading course 3 of the 5 sets of knowledge and skills (numbers 2, 3, and 4). More than half of the knowledge and skills expectations were a match to the EXPLORE Reading Test. Twenty-two of the 57 (39%) student expectations were identified as a match. ACT's line by line examination of the Grade 8 Texas reading document was conservative and matches were declared for content that could be measured and overtly reported upon. The Texas document included numerous student expectations that described capabilities students must bring to an assessment situation, i.e., knowledge and skills that contribute to a successful education process; these are difficult to measure outside of the day-to-day classroom. Using knowledge and skill 8.10 for the example— in order for students to comprehend reading selections they must use a variety of strategies. Some of those strategies include drawing upon their own knowledge and experience to comprehend, establish and adjust the purpose for reading, or monitor their own comprehension and make modifications. The authors of the Texas document deserve praise for delineating such expectations for their educators and students.

Reading components were examined from the following 6 high school courses: English I, English II; English III; English IV; Reading I, II, III; and Literary Genres. The match was very strong as 27 of the 33 (82%) of the knowledge and skill statements were a match to the PLAN and the ACT Assessment Reading Tests. The number of student expectations that matched was less at 44%. As in Grade 8, the high school students are expected to respond with more advanced strategies (e.g., construct images such as graphic organizers or read silently with comprehension for a sustained period of time). The student expectations also call for students to demonstrate academic growth in ways that cannot be measured using a multiple-choice format (e.g., research word origins, interpret the possible influences of the historical context on a literary work, and analyze written reviews and compare to his/or responses).

EXPLORE, PLAN, and the ACT Assessment Reading Tests Standards for Transition

The Standards for Transition translate the EXPLORE, PLAN, and ACT Assessment scores into concise statements about what students are likely to know and be able to do and offer guidance about what students are ready to learn next.

All of the EXPLORE (grade 8), PLAN (grades 9–10), and the ACT Assessment (grades 11–12) Reading Tests Standards for Transition are present in the Texas Essential Knowledge and Skills for English Language Arts and Reading. The Standards for Transition, highlighted in total to indicate the complete match, are presented by strand and score range in Appendix C. Perhaps, of even greater interest located in Appendix A, the reader can review the listing of the Texas Essential Knowledge and Skills for English Language Arts and Reading (in column 1) with a verbatim listing of the Standards for Transition that match each of the Texas reading knowledge and skills and student expectations in column 2.

English (Writing)

The English (writing) match for Grade 8 involved knowledge and skills 8.15 through 8.19. The knowledge and skills were a very strong 80% match. The student expectations matched at 41%. The strongest matches were in the writing/grammar/usage (8.17) and the writing/processes (8.18) knowledge and skills. The majority of the student expectations that did not match called for students to write for specific audiences and purposes, attend to penmanship, apply conventions (capitalization, spelling), use prewriting strategies, or use technology, none of which are measured by the EXPLORE English Test.

The match for the Grades 9–12 writing is also strong at 71%. Six courses were used in the match: English I, II, III, IV, Creative and Imaginative Writing, and Research and Technical Writing. The first statement of knowledge and skills in English I, II, III, and IV is not a match as it calls for students to write in a variety of forms, however, the student expectations provide more detail and more than half are a match. The student expectations in all 6 courses post a good match at 45%. Mirroring Grade 8, the student expectations that do not match are topics not tested by PLAN or the ACT Assessment English Test (e.g., use of technology, use prewriting strategies to generate ideas, use a style manual) or require performance over a period of time (e.g., refine pieces to publish, compose increasingly more involved sentences, analyze and discuss published pieces as writing models, or frequently refine selected pieces to publish).

The results of the English (writing) match are delineated in Appendix A. The Texas Essential Knowledge and Skills for English Language Arts and Reading are duplicated in column 1. All of the highlighted material is a match to the EXPLORE, PLAN, or the ACT Assessment English Tests specifications.

Grades 9–12 Writing Strand Match to the ACT Assessment Writing Test

The ACT Assessment Writing Test addresses a writer's ability to take and articulate a position on an issue, to maintain a clear focus on the position throughout the essay, to explain a position by using supporting evidence and logical reasoning, to organize ideas logically, and to communicate clearly in writing. The reader will note that the Texas writing knowledge and skills and student expectations excerpted from English III, English IV, and Research and Technical Writing are a 100% match to the ACT Assessment Writing Test. The student expectations also post a good 64% match.

EXPLORE, PLAN, and the ACT Assessment English Tests Standards for Transition

There are 6 strands in the English Test Standards for Transition that represent related areas of knowledge and skills in 6 score ranges. All of the Standards for Transition are cumulative. Ninety-four percent of the EXPLORE Standards for Transition were identified in the Texas Grade 8 English knowledge and skills. Only 3 Standards for Transition could not be located in the Grade 8 document: the three standards were those located in the two highest score ranges of the Sentence Structure and Formation (SST) strand. The Standards for Transition match for Grades 9–12 is richer than Grade 8 as 100% of the Standards for Transition were located in the 6 high school courses.

Appendix B presents the summary of the EXPLORE, PLAN, and the ACT Assessment English Standards for Transition.

Mathematics

The Texas Essential Knowledge and Skills for Mathematics used in this report are from Grade 8 and 5 high school courses for Grades 9–12. The 1998 Texas knowledge and skills and performance descriptions (used in 3 of the high school courses) or student expectations (used at grade 8 and 2 of the high school courses) were examined to determine the level of match with the test specifications for the EXPLORE, PLAN, and ACT Assessment Mathematics Tests.

The knowledge and skills for Grade 8 are organized around 6 strands with each strand further defined by student expectations. The content of each of the high school courses is also presented in the essential knowledge and skills format and is then further defined by a few or many performance descriptors/student expectations.

Fifteen of the 16 Grade 8 knowledge and skills provided an excellent 94% match to the test specifications of the EXPLORE Mathematics Test. Only the content in 8.6 dealing with transformational geometry to develop spatial sense was not considered a concrete match. Thirty-nine of the 42 student expectations posted an equally strong match at 93%. The 3 student expectations that were not a match required students to evaluate for reasonableness and validity and to graph – all requiring performance and more suited to a classroom-level evaluation.

Considering all 5 high school courses the overall match was just as strong as the Grade 8 match. Thirty-eight of the 41 essential knowledge and skills matched (93%) and 147 of the 160 performance descriptors produced a 92% match. In descending order the matches for knowledge and skills followed by performance descriptors (i.e., 100% & 100%) are: Algebra I 100% & 100%; Algebra II 100% & 98%; Precalculus 100% & 95%; Mathematics Models and Applications 100% & 92%; and Geometry 70% & 76%.

The strength of this match fully supports the robust alignment between the Texas knowledge and skills and the EXPLORE, PLAN, and ACT Assessment Mathematics Tests.

EXPLORE, PLAN, and the ACT Assessment Mathematics Tests Standards for Transition

There are 8 strands in the EXPLORE Mathematics Test Standards for Transition. All of the standards in 6 of the strands were located in the Texas Grade 8 mathematics document. One standard in the Equations and Inequalities (EQI) strand (Identify solutions to simple quadratic equations) and one from Graphical Representations (GRE) (Exhibit knowledge of vertical and horizontal lines and of their point of intersection) could not be identified in the Grade 8 knowledge and skills or student expectations. The match was a robust 95% and the 2 standards were identified in the high school course content.

Upon examination of Appendix C, the reader will note there are 9 strands in the PLAN/ACT Assessment Mathematics Test Standards for Transition document. The ninth strand, Functions, applies only to the ACT Assessment Mathematics Test, as do the standards in the 33–36 score range, and 3 other standards marked with an asterisk in the Numbers: Concepts & Properties (NCP & 602.) and Graphical Representations (GRE 604.). Every standard in 7 of the 9 strands

was identified in the Texas high school courses. Only 2 standards, one in Properties of Plane Figures (PPF 703.) and one in Measurement (MEA 701.) could not be identified in the Texas document. The overall match was an excellent 98%.

Science

The Texas Essential Knowledge and Skills for Science used in this report are from Grade 8 and 8 courses from Grades 9–12. The 1998 Texas science document was examined to determine the level of match with the test specifications for the EXPLORE, PLAN, and the ACT Assessment Science Tests. Each course (including grade 8) is defined by essential knowledge and skills serving as major headings and further described by student expectations. Each course first presents from 3 to 5 scientific processes, which are followed by science concept headings, which are also further defined by student expectations.

The EXPLORE, PLAN, and the ACT Assessment Science Tests are designed to assess the thinking skills, processes, and strategies students have acquired in school science courses. These process skills are measured using sets of scientific information that are drawn from the areas of biology, chemistry, physics, and Earth/space science.

The Texas scientific processes statements focus on how science is done and the implications of science. The first scientific process statement for each course, "The student conducts field and laboratory investigations using safe, environmentally appropriate, and ethical practices" was not included in this match process, as the expectations require a performance component that cannot be measured using a multiple-choice format. Nor was the fifth scientific process for Grade 8 considered in this match as it addresses the relationships between science and technology and technology is not addressed in the EXPLORE Science Test. The balance of the scientific processes knowledge and skills statements matched the EXPLORE, PLAN, and the ACT Assessment Science Tests. Seven of the 12 student expectations for grade 8 matched (58%). The high school courses student expectations match ranged from 44% to 55%.

The Texas science concepts focus on science content and that content is used in the stimulus materials that appear in the EXPLORE, PLAN, and the ACT Assessment Science Tests. There is a 100% match for every knowledge and skill statement for Grade 8 and the 8 high school courses and the EXPLORE, PLAN, and the ACT Assessment Science Tests. Of the 219 student expectations only 2 did not match for a robust 99%.

EXPLORE, PLAN, and the ACT Assessment Science Standards for Transition

All of the EXPLORE (grade 8), PLAN, and the ACT Assessment (grades 9–12) Science Test Standards for Transition are encompassed by the scientific processes knowledge and skills and student expectations. The richness of the match is displayed in Appendix D, where the Standards for Transition that are a match are highlighted and are presented by strand and score range.

Appendix A

EXPLORE, PLAN, and ACT Assessment
Reading Standards for Transition

      Appendix A illustrates the agreement between the Texas knowledge and skills for reading and the EXPLORE, PLAN and the ACT Reading Standards for Transition. The EXPLORE Reading Standards for Transition that are <mark>highlighted</mark> were judged as being subsumed in Texas' essential knowledge and skills—Grade 8. The PLAN and the ACT Assessment Reading Standards for Transition that are <mark>highlighted</mark> were judged as being subsumed in Texas' knowledge and skills—Grades 9–12. The EXPLORE score scale is 1–25, the PLAN score scale is 1–32, and the ACT Assessment score scale is 1–36.

      The highlights are based on ACT's interpretation of the Texas Essential Knowledge and Skills for reading. In judging each statement, ACT looked for corresponding skills in the Texas document at the corresponding grade level or below that was either an explicitly stated skill or an implied prerequisite skill.

EXPLORE Reading Test Standards for Transition by Strand and Score Range

The statements below describe what students who score in the specified score ranges are *likely* to know and to be able to do.

	Main Ideas (MID)	Significant Details (SDE)	Sequence of Events (SOE)	Comparative Relationships (CRE)
13–15	Draw simple conclusions about people and events in uncomplicated literary narratives	Locate specific facts (e.g., names, dates, events) clearly stated in a passage	Determine when (e.g., first, last, before, after) or if an event occurred in uncomplicated passages	
16–19	Draw simple conclusions about the main points and people in uncomplicated passages	Locate simple details at the sentence and paragraph level in uncomplicated passages		Identify relationships between principal characters in uncomplicated literary narratives
20–23	Draw simple conclusions using details that support the main points of more challenging passages	Locate important details in uncomplicated passages	Order simple sequences of events in uncomplicated literary narratives	Identify comparative relationships between ideas and people in uncomplicated passages
24–25	Identify a clear main idea in any paragraph or paragraphs in uncomplicated passages Infer the main idea of some paragraphs in more challenging passages Summarize basic events and ideas in more challenging passages	Locate and interpret minor or subtly stated details in uncomplicated passages Discern which details, though they may appear in different sections throughout a passage, support important points in more challenging passages	Order sequences of events in uncomplicated passages	Have a sound grasp of relationships between people and ideas in uncomplicated passages Identify clearly established relationships between characters and ideas in more challenging literary narratives

Descriptions of the EXPLORE Reading Passages

Uncomplicated Literary Narratives refers to excerpts from essays, short stories, and novels that tend to use simple language and structure, have a clear purpose and a familiar style, present straightforward interactions between characters, and employ only a limited number of literary devices such as metaphor, simile, or hyperbole.

More Challenging Literary Narratives refers to excerpts from essays, short stories, and novels that tend to make moderate use of figurative language, have a more intricate structure and messages conveyed with some subtlety, and may feature somewhat complex interactions between characters.

	Cause-Effect Relationships (CER)	**Meanings of Words (MOW)**	**Generalizations (GEN)**	**Author's Voice and Method (AVM)**
13–15	Recognize cause-effect relationships explicitly described within a single sentence in a passage	Understand the implication of a familiar word and of simple descriptive language	Make simple generalizations about the main character in uncomplicated literary narratives	Recognize a clear intent by an author or narrator in uncomplicated literary narratives
16–19	Recognize clearly stated cause-effect relationships within a single paragraph in uncomplicated literary narratives	Use context clues to understand basic figurative language	Make simple generalizations about the main points and characters in uncomplicated literary narratives	Recognize clear relationships between a part of a passage and the whole passage or another part in uncomplicated passages
20–23	Identify clearly stated cause-effect relationships in uncomplicated passages	Use context clues to define some words and interpret some figurative language in uncomplicated passages	Make more specific generalizations about people and ideas in uncomplicated passages	Make generalizations about the author's or narrator's attitude toward his or her subject in uncomplicated passages Understand the overall approach taken by an author or narrator, including point of view, in uncomplicated informational passages
24–25	Identify subtly stated cause-effect relationships in uncomplicated passages Identify clearly stated cause-effect relationships in more challenging passages	Use context clues to determine the appropriate meaning of multiple-meaning words or phrases in uncomplicated passages	Make subtle generalizations about characters in uncomplicated literary narratives Make generalizations about people and situations in more challenging passages	Understand the overall approach taken by an author or narrator, including point of view, in uncomplicated literary narratives

EXPLORE Reading Test Standards for Transition by Strand and Score Range *(continued)*

Uncomplicated Informational Passages refers to materials that tend to contain a limited amount of data, address basic concepts using familiar language and conventional organizational patterns, have a clear purpose, and are written to be accessible.

More Challenging Informational Passages refers to materials that tend to present concepts that are not always stated explicitly and that are accompanied or illustrated by more—and more detailed—supporting data, include some difficult context-dependent words, and are written in a somewhat more demanding and less accessible style.

PLAN/ACT Assessment Reading Test Standards for Transition by Strand and Score Range

The statements below describe what students who score in the specified score ranges are *likely* to know and to be able to do.

	Main Ideas (MID)	Significant Details (SDE)	Sequence of Events (SOE)	Comparative Relationships (CRE)
13–15	Draw simple conclusions about people and events in uncomplicated literary narratives	Locate specific facts (e.g., names, dates, events) clearly stated in a passage	Determine when (e.g., first, last, before, after) or if an event occurred in uncomplicated passages	
16–19	Draw simple conclusions about the main points and people in uncomplicated passages	Locate simple details at the sentence and paragraph level in uncomplicated passages		Identify relationships between principal characters in uncomplicated literary narratives
20–23	Draw simple conclusions using details that support the main points of more challenging passages	Locate important details in uncomplicated passages	Order simple sequences of events in uncomplicated literary narratives	Identify comparative relationships between ideas and people in uncomplicated passages
24–27	Identify a clear main idea in any paragraph or paragraphs in uncomplicated passages Infer the main idea of some paragraphs in more challenging passages Summarize basic events and ideas in more challenging passages	Locate and interpret minor or subtly stated details in uncomplicated passages Discern which details, though they may appear in different sections throughout a passage, support important points in more challenging passages	Order sequences of events in uncomplicated passages	Have a sound grasp of relationships between people and ideas in uncomplicated passages Identify clearly established relationships between characters and ideas in more challenging literary narratives
28–32	Infer the main idea of a passage, paragraph, or paragraphs in more challenging passages Summarize events and ideas in virtually any passage	Locate and interpret minor or subtly stated details in more challenging passages Use details from different sections of some complex informational passages to support a specific point or argument	Order sequences of events as they occur in more challenging passages	Reveal an understanding of the dynamics between people and ideas in more challenging passages
33–36 *	Identify main ideas of passages and paragraphs in complex passages	Locate and interpret minor or subtly stated details in complex passages Locate and interpret important details and facts that support any idea or argument in complex passages	Order sequences of events in complex passages	Make comparisons, conclusions, and generalizations that reveal a feeling for the subtleties in relationships between people and ideas in virtually any passage

Descriptions of the PLAN/ACT Assessment Reading Passages

Uncomplicated Literary Narratives refers to excerpts from essays, short stories, and novels that tend to use simple language and structure, have a clear purpose and a familiar style, present straightforward interactions between characters, and employ only a limited number of literary devices such as metaphor, simile, or hyperbole.

More Challenging Literary Narratives refers to excerpts from essays, short stories, and novels that tend to make moderate use of figurative language, have a more intricate structure and messages conveyed with some subtlety, and may feature somewhat complex interactions between characters.

Complex Literary Narratives refers to excerpts from essays, short stories, and novels that tend to make generous use of ambiguous language and literary devices, feature complex and subtle interactions between characters, often contain challenging context-dependent vocabulary, and typically contain messages and/or meanings that are not explicit but are embedded in the passage.

*Statements apply to ACT Assessment only

	Cause-Effect Relationships (CER)	Meanings of Words (MOW)	Generalizations (GEN)	Author's Voice and Method (AVM)
13–15	Recognize cause-effect relationships explicitly described within a single sentence in a passage	Understand the implication of a familiar word and of simple descriptive language	Make simple generalizations about the main character in uncomplicated literary narratives	Recognize a clear intent by an author or narrator in uncomplicated literary narratives
16–19	Recognize clearly stated cause-effect relationships within a single paragraph in uncomplicated literary narratives	Use context clues to understand basic figurative language	Make simple generalizations about the main points and characters in uncomplicated literary narratives	Recognize clear relationships between a part of a passage and the whole passage or another part in uncomplicated passages
20–23	Identify clearly stated cause-effect relationships in uncomplicated passages	Use context clues to define some words and interpret some figurative language in uncomplicated passages	Make more specific generalizations about people and ideas in uncomplicated passages	Make generalizations about the author's or narrator's attitude toward his or her subject in uncomplicated passages Understand the overall approach taken by an author or narrator, including point of view, in uncomplicated informational passages
24–27	Identify subtly stated cause-effect relationships in uncomplicated passages Identify clearly stated cause-effect relationships in more challenging passages	Use context clues to determine the appropriate meaning of multiple-meaning words or phrases in uncomplicated passages	Make subtle generalizations about characters in uncomplicated literary narratives Make generalizations about people and situations in more challenging passages	Understand the overall approach taken by an author or narrator, including point of view, in uncomplicated literary narratives
28–32	Identify implied or subtly stated cause-effect relationships in more challenging passages	Determine the appropriate meanings of words, phrases, or statements from figurative or somewhat technical contexts	Use information from different sections of more challenging passages to make generalizations about people and situations	Understand how one part of a passage functions in relation to the whole passage or another part in uncomplicated passages Understand the overall approach taken by an author or narrator, including point of view, in virtually any passage
33–36 *	Identify implied, subtle, or complex cause-effect relationships in virtually any passage	Determine, even in situations where the language is richly figurative and the vocabulary is difficult, the meanings of context-dependent words, phrases, or statements in virtually any passage	Make complex or subtle generalizations about people, ideas, and situa-tions, often by synthesizing information from different portions of the passage Understand and generalize about portions of a complex literary narrative that use a range of literary devices	Understand how one part of a passage functions in relation to the whole passage or another part when the relationship is subtle or complex Identify and then generalize about an author's or narrator's attitude or point of view toward his or her subject in virtually any passage

Uncomplicated Informational Passages refers to materials that tend to contain a limited amount of data, address basic concepts using familiar language and conventional organizational patterns, have a clear purpose, and are written to be accessible.

More Challenging Informational Passages refers to materials that tend to present concepts that are not always stated explicitly and that are accom-panied or illustrated by more—and more detailed—supporting data, include some difficult context-dependent words, and are written in a somewhat more demanding and less accessible style.

Complex Informational Passages refers to materials that tend to include a sizable amount of data, present difficult concepts that are embedded (not explicit) in the text, use demanding words and phrases whose meaning must be determined from context, and are likely to include intricate explanations of processes or events.

*Statements apply to ACT Assessment only

Appendix B

EXPLORE, PLAN, and the ACT
English Standards for Transition

Appendix B illustrates the agreement between Texas Essential Knowledge and Skills for English and the EXPLORE, PLAN and the ACT English Standards for Transition. The EXPLORE English Standards for Transition that are <mark>highlighted</mark> were judged as being subsumed in the Texas document—Grade 8. The PLAN and the ACT English Standards for Transition that are <mark>highlighted</mark> were judged as being subsumed in Texas' writing knowledge and skills—Grades 9–12. The EXPLORE score scale is 1–25, the PLAN score scale is 1–32, and the ACT Assessment score scale is 1–36.

The highlights are based on ACT's interpretation of Texas' knowledge and skills for writing. In judging each statement, ACT looked for corresponding skills in the Texas document at the corresponding grade level or below that was either an explicitly stated skill or an implied prerequisite skill.

	Topic Development in Terms of Purpose and Focus (TOD)	Organization, Unity, and Coherence (OUC)	Word Choice in Terms of Style, Tone, Clarity, and Economy (WCH)
13–15		Recognize blatantly illogical conjunctive adverbs	Revise sentences to correct awkward and confusing arrangements of sentence elements Revise ambiguous pronouns that create obvious sense problems (e.g., meaning or logic)
16–19	Identify the basic purpose or role of a specified phrase or sentence Delete obviously irrelevant material from an essay	Select the most logical place to add a sentence in a paragraph	Delete obviously synonymous and wordy material in a sentence Revise expressions that violate the essay's tone Revise phrases to provide the most specific detail
20–23	Identify the main theme or topic of a straightforward piece of writing Determine relevancy when presented with a variety of sentence-level details	Use a conjunctive adverb or phrase to express a straightforward logical relationship, such as chronology Decide the most logical place to add a sentence in an essay Add a sentence that introduces a simple paragraph	Delete redundant material when information is repeated in different parts of speech (e.g., "alarmingly startled") Use the word or phrase most consistent with the style and tone of a fairly straightforward essay Determine the clearest and most logical conjunction to link clauses
24–25	Identify the focus of a simple essay, applying that knowledge to add a sentence that sharpens that focus or to determine if an essay has met a specified goal Delete material primarily because it disturbs the flow and development of the paragraph Add a sentence to introduce or summarize the essay and to accomplish a fairly straightforward purpose such as illustrating a given statement	Use conjunctive adverbs or phrases to create subtle logical connections between sentences, such as cause-effect Rearrange the sentences in a fairly uncomplicated paragraph for the sake of logic Provide a transition between paragraphs when the essay is fairly straightforward	Revise a phrase that is redundant in terms of the meaning and logic of the entire sentence Identify and correct vague pronoun references Use the word or phrase most appropriate in terms of the content of the sentence and tone of the essay

EXPLORE English Test Standards for Transition by Strand and Score Range

The statements below describe what students who score in the specified score ranges are *likely* to know and to be able to do.

	Sentence Structure and Formation (SST)	Conventions of Usage (COU)	Conventions of Punctuation (COP)
	EXPLORE English Test Standards for Transition by Strand and Score Range		
13–15	Use conjunctions or punctuation to join simple clauses Revise shifts in verb tense between simple clauses in a sentence or between simple adjoining sentences	Solve such basic usage problems as whether to use a comparative or a superlative adjective and which word to use in such pairs as *past* or *passed*	Delete commas that create basic sense problems (e.g., between two parts of a compound noun, between verb and direct object)
16–19	Use punctuation or conjunctions to coordinate uncomplicated sentences and to avoid awkward-sounding fused sentences or sentence fragments Correct glaringly inappropriate shifts in verb tense or voice	Solve such basic grammatical problems as whether to use an adverb or an adjective form, how to form comparative and superlative adjectives, how to ensure straightforward subject-verb and pronoun-antecedent agreement, and when to use the contraction *it's*	Provide appropriate punctuation in straightforward situations (e.g., items in a series) Delete commas that disturb the sentence flow (e.g., between modifier and modified element)
20–23	Recognize and correct marked disturbances of sentence flow and structure (e.g., participial phrase fragments, missing relative pronouns, dangling or misplaced modifiers)	Identify the past and past participle forms of irregular but commonly used verbs and identify when prepositions are idiomatically appropriate to their context Ensure that a verb agrees with its subject when there is some text between the two	Use commas to set off simple parenthetical phrases Delete unnecessary commas when an incorrect reading of the sentence suggests a pause that should be punctuated (e.g., between verb and direct object clause)
24–25	Revise to avoid faulty placement of phrases and faulty coordination and subordination of clauses in sentences with subtle structural problems Maintain consistent verb tense and pronoun person on the basis of the preceding clause or sentence	Ensure that a pronoun agrees with its antecedent when the two occur in separate clauses or sentences Identify the correct past and past participle forms of irregular and infrequently used verbs and form present-perfect verbs by using *have* rather than *of*	Use punctuation to set off complex parenthetical phrases Recognize and delete unnecessary commas based on a careful reading of the entire sentence (e.g., between the elements of a compound subject or a compound verb) Use apostrophes to indicate simple possessive nouns Recognize inappropriate uses of colons and semicolons

	Topic Development in Terms of Purpose and Focus (TOD)	Organization, Unity, and Coherence (OUC)	Word Choice in Terms of Style, Tone, Clarity, and Economy (WCH)

PLAN/ACT Assessment English Test Standards for Transition by Strand and Score Range

The statements below describe what students who score in the specified score ranges are *likely* to know and to be able to do.

	Topic Development in Terms of Purpose and Focus (TOD)	Organization, Unity, and Coherence (OUC)	Word Choice in Terms of Style, Tone, Clarity, and Economy (WCH)
13–15		Recognize blatantly illogical conjunctive adverbs	Revise sentences to correct awkward and confusing arrangements of sentence elements Revise ambiguous pronouns that create obvious sense problems (e.g., meaning or logic)
16–19	Identify the basic purpose or role of a specified phrase or sentence Delete obviously irrelevant material from an essay	Select the most logical place to add a sentence in a paragraph	Delete obviously synonymous and wordy material in a sentence Revise expressions that violate the essay's tone Revise phrases to provide the most specific detail
20–23	Identify the main theme or topic of a straightforward piece of writing Determine relevancy when presented with a variety of sentence-level details	Use a conjunctive adverb or phrase to express a straightforward logical relationship, such as chronology Decide the most logical place to add a sentence in an essay Add a sentence that introduces a simple paragraph	Delete redundant material when information is repeated in different parts of speech (e.g., "alarmingly startled") Use the word or phrase most consistent with the style and tone of a fairly straightforward essay Determine the clearest and most logical conjunction to link clauses
24–27	Identify the focus of a simple essay, applying that knowledge to add a sentence that sharpens that focus or to determine if an essay has met a specified goal Delete material primarily because it disturbs the flow and development of the paragraph Add a sentence to introduce or summarize the essay and to accomplish a fairly straightforward purpose such as illustrating a given statement	Use conjunctive adverbs or phrases to create subtle logical connections between sentences, such as cause-effect Rearrange the sentences in a fairly uncomplicated paragraph for the sake of logic Provide a transition between paragraphs when the essay is fairly straightforward	Revise a phrase that is redundant in terms of the meaning and logic of the entire sentence Identify and correct vague pronoun references Use the word or phrase most appropriate in terms of the content of the sentence and tone of the essay
28–32	Identify both the focus and purpose of a fairly involved essay, applying that knowledge to determine the rhetorical effect of a new or existing sentence, or the need to add supporting detail or delete plausible but irrelevant material Add a sentence to accomplish a subtle purpose such as emphasis and to express meaning through connotation	Make sophisticated distinctions concerning the logical use of conjunctive adverbs or phrases, particularly when signaling a shift between paragraphs Rearrange sentences to improve the logic and coherence of a complex paragraph Add a sentence to introduce or conclude a fairly complex paragraph	Correct redundant material that involves sophisticated vocabulary and sounds acceptable as conversational English (e.g., "an aesthetic viewpoint" versus "the outlook of an aesthetic viewpoint") Correct vague and wordy or clumsy and confusing writing containing sophisticated language
33–36 *	Determine whether a complex essay has accomplished a specific purpose Add a phrase or sentence to accomplish a complex purpose, often expressed in terms of the main focus of the essay	Consider the need for introductory sentences or transitions, basing decisions on a thorough understanding of both the logic and rhetorical effect of the paragraph and essay	Delete redundant material that involves subtle concepts or that is redundant in terms of the paragraph as a whole

*Statements apply to ACT Assessment only

	Sentence Structure and Formation (SST)	Conventions of Usage (COU)	Conventions of Punctuation (COP)
13–15	Use conjunctions or punctuation to join simple clauses Revise shifts in verb tense between simple clauses in a sentence or between simple adjoining sentences	Solve such basic usage problems as whether to use a comparative or a superlative adjective and which word to use in such pairs as *past* or *passed*	Delete commas that create basic sense problems (e.g., between two parts of a compound noun, between verb and direct object)
16–19	Use punctuation or conjunctions to coordinate uncomplicated sentences and to avoid awkward-sounding fused sentences or sentence fragments Correct glaringly inappropriate shifts in verb tense or voice	Solve such basic grammatical problems as whether to use an adverb or an adjective form, how to form comparative and superlative adjectives, how to ensure straightforward subject-verb and pronoun-antecedent agreement, and when to use the contraction *it's*	Provide appropriate punctuation in straightforward situations (e.g., items in a series) Delete commas that disturb the sentence flow (e.g., between modifier and modified element)
20–23	Recognize and correct marked disturbances of sentence flow and structure (e.g., participial phrase fragments, missing relative pronouns, dangling or misplaced modifiers)	Identify the past and past participle forms of irregular but commonly used verbs and identify when prepositions are idiomatically appropriate to their context Ensure that a verb agrees with its subject when there is some text between the two	Use commas to set off simple parenthetical phrases Delete unnecessary commas when an incorrect reading of the sentence suggests a pause that should be punctuated (e.g., between verb and direct object clause)
24–27	Revise to avoid faulty placement of phrases and faulty coordination and subordination of clauses in sentences with subtle structural problems Maintain consistent verb tense and pronoun person on the basis of the preceding clause or sentence	Ensure that a pronoun agrees with its antecedent when the two occur in separate clauses or sentences Identify the correct past and past participle forms of irregular and infrequently used verbs and form present-perfect verbs by using *have* rather than *of*	Use punctuation to set off complex parenthetical phrases Recognize and delete unnecessary commas based on a careful reading of the entire sentence (e.g., between the elements of a compound subject or a compound verb) Use apostrophes to indicate simple possessive nouns Recognize inappropriate uses of colons and semicolons
28–32	Use sentence-combining techniques, effectively avoiding problematic comma splices, run-on sentences, and sentence fragments, especially in sentences containing compound subjects or verbs Maintain a consistent and logical use of verb tense and pronoun person on the basis of information in the paragraph or essay as a whole	Correctly use reflexive pronouns, the possessive pronouns *its* and *your*, and the relative pronoun *who* rather than *whom* Ensure that a verb agrees with its subject in unusual situations (e.g., when the subject-verb order is inverted or when the subject is an indefinite pronoun)	Use commas to set off a nonessential/nonrestrictive appositive or clause Deal with multiple punctuation problems (e.g., compound sentences containing unnecessary commas and phrases that may or may not be parenthetical) Use an apostrophe to show possession, especially with irregular plural nouns Use a semicolon to indicate a relationship between closely related independent clauses
33–36 *	Work comfortably with long sentences and complex clausal relationships within sentences, avoiding weak conjunctions between independent clauses and maintaining parallel structure between clauses	Provide idiomatically and contextually appropriate prepositions following verbs in situations involving sophisticated language or ideas Ensure that a verb agrees with its subject when a phrase or clause between the two suggests a different number for the verb	Use a colon to introduce an example or an elaboration

*Statements apply to ACT Assessment only

Appendix C

EXPLORE, PLAN, and the ACT Assessment
Mathematics Standards for Transition

Appendix C illustrates the agreement between the Texas Essential Knowledge and Skills for Mathematics and the EXPLORE, PLAN, and the ACT Mathematics Standards for Transition. The EXPLORE Mathematics Standards for Transition that are <mark>highlighted</mark> were judged as being subsumed in the Texas document—Grade 8. The PLAN and the ACT Assessment Mathematics Standards for Transition that are <mark>highlighted</mark> were judged as being subsumed in the Texas document—Grades 9–12.

The EXPLORE score scale is 1–25, the PLAN score scale is 1–32, and the ACT Assessment score scale is 1–36. The EXPLORE and PLAN Mathematics Test Standards for Transition have a total of 8 strands and the ACT Assessment Standards for Transition have 9 strands. The additional strand, Functions, appears only on the ACT Assessment Mathematics Standards for Transition.

EXPLORE Mathematics Test Standards for Transition by Strand and Score Range

The statements below describe what students who score in the specified score ranges are *likely* to know and to be able to do.

	Basic Operations & Applications (BOA)	Probability, Statistics, & Data Analysis (PSD)	Numbers: Concepts & Properties (NCP)	Algebraic Expressions (AEX)
13–15	Perform one-operation computation with whole numbers and decimals Solve problems in one or two steps using whole numbers Perform common conversions (e.g., inches to feet or hours to minutes) Find equivalent values of coins	Perform a simple computation using information from a table or chart		Exhibit knowledge of basic expressions (e.g., identify an expression for a total as *b* + *g*)
16–19	Solve routine one-step arithmetic problems (using whole numbers, fractions, and decimals) such as single-step percent and calculate a simple average of whole numbers Solve some routine two-step arithmetic problems	Read tables and graphs Perform computations on data from tables and graphs Use the relationship between the probability of an event and the probability of its complement	Recognize one-digit factors of a number Identify a digit's place value	Substitute whole numbers for unknown quantities to evaluate expressions
20–23	Solve routine two-step or three-step arithmetic problems involving concepts such as rate and proportion, tax added, percentage off, computing an average with negative integers, and computing with a given average	Translate from one representation of data to another (e.g., a bar graph to a circle graph) Determine the probability of a simple event	Exhibit knowledge of elementary number concepts including rounding, the ordering of decimals, pattern identification, absolute value, primes, and greatest common factor	Manipulate basic algebraic expressions (e.g., substitute integers for unknown quantities, add and subtract simple algebraic expressions, and perform straightforward word-to-symbol translations)
24–25	Solve multistep arithmetic problems that involve planning or converting units of measure (e.g., feet per second to miles per hour)	Manipulate data from tables and graphs Compute straightforward probabilities for common situations	Work problems involving scientific notation, ordering fractions, numerical factors, least common multiple, and square roots Square numbers	Write expressions with a single variable for common pre-algebra settings (e.g., rate and distance problems and problems that can be solved by using proportions)

	EXPLORE Mathematics Test Standards for Transition by Strand and Score Range *(continued)*			
	Equations & Inequalities (EQI)	**Graphical Representations (GRE)**	**Properties of Plane Figures (PPF)**	**Measurement (MEA)**
13–15	Solve equations in the form $x + a = b$, where a and b are whole numbers or decimals	Identify the location of a point with a positive coordinate on the number line		Estimate or calculate the length of a line segment based on other lengths given on a geometric figure
16–19	Solve one-step equations having integer or decimal answers	Locate points on the number line and in the first quadrant		Compute the perimeter of polygons when all side lengths are given Compute the area of rectangles when whole number dimensions are given
20–23	Solve routine first-degree equations	Locate points in the coordinate plane Exhibit knowledge of vertical and horizontal lines and of their point of intersection	Exhibit knowledge of basic angle properties and special sums of angle measures (e.g., 90°, 180°, and 360°)	Compute the area and perimeter of triangles and rectangles in simple problems Use geometric formulas when all necessary information is given
24–25	Solve real-world problems using first-degree equations Identify solutions to simple quadratic equations Write equations and inequalities with a single variable for common pre-algebra settings (e.g., rate and distance problems and problems that can be solved by using proportions)		Use several angle properties to find an unknown angle measure	Compute areas and circumferences of circles after identifying necessary information Compute areas of rectangles and triangles when one or more additional simple steps are required

PLAN/ACT Assessment Mathematics Test Standards for Transition by Strand and Score Range

The statements below describe what students who score in the specified score ranges are *likely* to know and to be able to do.

	Basic Operations & Applications (BOA)	Probability, Statistics, & Data Analysis (PSD)	Numbers: Concepts & Properties (NCP)	Algebraic Expressions (AEX)
13–15	Perform one-operation computation with whole numbers and decimals Solve problems in one or two steps using whole numbers Perform common conversions (e.g., inches to feet or hours to minutes) Find equivalent values of coins	Perform a simple computation using information from a table or chart		Exhibit knowledge of basic expressions (e.g., identify an expression for a total as $b + g$)
16–19	Solve routine one-step arithmetic problems (using whole numbers, fractions, and decimals) such as single-step percent and calculate a simple average of whole numbers Solve some routine two-step arithmetic problems	Read tables and graphs Perform computations on data from tables and graphs Use the relationship between the probability of an event and the probability of its complement	Recognize one-digit factors of a number Identify a digit's place value	Combine like terms (e.g., $2x + 5x$) Substitute whole numbers for unknown quantities to evaluate expressions
20–23	Solve routine two-step or three-step arithmetic problems involving concepts such as rate and proportion, tax added, percentage off, computing an average with negative integers, and computing with a given average	Translate from one representation of data to another (e.g., a bar graph to a circle graph) Determine the probability of a simple event Exhibit knowledge of simple counting techniques	Exhibit knowledge of elementary number concepts including rounding, the ordering of decimals, pattern identification, absolute value, primes, and greatest common factor	Manipulate basic algebraic expressions (e.g., substitute integers for unknown quantities, add and subtract simple algebraic expressions, multiply two binomials, and perform straightforward word-to-symbol translations)
24–27	Solve multistep arithmetic problems that involve planning or converting units of measure (e.g., feet per second to miles per hour)	Manipulate data from tables and graphs Use Venn diagrams in counting Compute straightforward probabilities for common situations	Work problems involving positive integer exponents, scientific notation, ordering fractions, numerical factors, least common multiple, square roots, and cube roots Determine when an expression is undefined Square numbers and expressions Exhibit some knowledge of the complex numbers *	Factor simple quadratics (e.g., the difference of squares and perfect square trinomials) Add, subtract, and multiply polynomials Write expressions with a single variable for common pre-algebra settings (e.g., rate and distance problems and problems that can be solved by using proportions)
28–32	Solve word problems containing several rates, proportions, or percentages	Interpret and use information from figures, tables, and graphs, including graphs in the coordinate plane Apply counting techniques Compute a probability when the event and/or sample space are not given or obvious	Apply the rules of exponents and number properties—often in a new context—to solve problems that involve even/odd numbers, positive/negative integers, factors/multiples, and prime factorizations Multiply two complex numbers *	Manipulate expressions Write expressions for common algebra settings
33–36 *	Solve complex arithmetic problems involving percent of increase or decrease and problems requiring integration of several concepts from pre-algebra and/or pre-geometry (e.g., comparing percentages or averages, using several ratios, and finding ratios in geometry settings)	Analyze and draw conclusions based on information from figures, tables, and graphs, including graphs in the coordinate plane Exhibit knowledge of conditional and joint probability	Draw conclusions based on number concepts, algebraic properties, and/or relationships between expressions and numbers Exhibit knowledge of logarithms and geometric sequences Apply properties of complex numbers	Write expressions that require planning and/or manipulating to accurately model a situation

*Statements apply to ACT Assessment only

	Equations & Inequalities (EQI)	Graphical Representations (GRE)	Properties of Plane Figures (PPF)	Measurement (MEA)	Functions (FUN) *
13–15	Solve equations in the form $x + a = b$, where a and b are whole numbers or decimals	Identify the location of a point with a positive coordinate on the number line		Estimate or calculate the length of a line segment based on other lengths given on a geometric figure	
16–19	Solve one-step equations having integer or decimal answers	Locate points on the number line and in the first quadrant		Compute the perimeter of polygons when all side lengths are given Compute the area of rectangles when whole number dimensions are given	
20–23	Solve routine first-degree equations	Comprehend the concept of length on the number line Locate points in the coordinate plane Exhibit knowledge of vertical and horizontal lines and of their point of intersection Exhibit knowledge of slope	Exhibit knowledge of basic angle properties and special sums of angle measures (e.g., 90°, 180°, and 360°)	Compute the area and perimeter of triangles and rectangles in simple problems Use geometric formulas when all necessary information is given	Work with function notation in evaluating simple quadratic functions at integer values
24–27	Solve real-world problems using first-degree equations Solve first-degree inequalities that do not require reversing the inequality sign Identify solutions to simple quadratic equations Write equations and inequalities with a single variable for common pre-algebra settings (e.g., rate and distance problems and problems that can be solved by using proportions)	Identify the graph of a linear inequality on the number line Determine the slope of a line from points or equations Match linear graphs with their equations Find the midpoint of a line segment	Use properties of isosceles triangles Recognize Pythagorean triples Use several angle properties to find an unknown angle measure	Compute areas and circumferences of circles after identifying necessary information Compute areas of rectangles and triangles when one or more additional simple steps are required Compute the perimeter of simple composite geometric figures with unknown side lengths	Work with function notation in evaluating polynomial functions at integer values Express the sine, cosine, and tangent of an angle in a right triangle as a ratio of given side lengths
28–32	Manipulate equations Write equations and inequalities for common algebra settings Solve absolute value and quadratic equations Solve linear inequalities that require reversing the inequality sign Find solutions to systems of linear equations	Match number line graphs with solution sets of linear inequalities Use the distance formula Use properties of parallel and perpendicular lines to determine an equation of a line or coordinates of a point Recognize special characteristics of parabolas and circles (e.g., the vertex of a parabola and the center or radius of a circle) *	Apply properties of 30°-60°-90°, 45°-45°-90°, similar, and congruent triangles Use the Pythagorean theorem	Use relationships involving area, perimeter, and volume of geometric figures to compute another measure	Evaluate composite functions at integer values Apply basic trigonometric ratios to solve right-triangle problems
33–36 *	Solve simple absolute value inequalities Write equations and inequalities that require planning, manipulating, and/or solving	Match number line graphs with solution sets of simple quadratic inequalities Identify characteristics of graphs based on a set of conditions or on a general equation such as $y = ax^2 + c$ Solve problems integrating multiple algebraic and/or geometric concepts	Draw conclusions based on a set of conditions Solve multistep geometry problems that involve integrating concepts, planning, visualization, and/or making connections with other content areas Use relationships among angles, arcs, and distances in a circle	Use scale factors to determine the magnitude of a size change Compute the area of composite geometric figures when planning or visualization is required	Write an expression for the composite of two simple functions Use trigonometric concepts and basic identities to solve problems Exhibit knowledge of unit circle trigonometry Match graphs of basic trigonometric functions with their equations

*Statements apply to ACT Assessment only

Appendix D

EXPLORE, PLAN, and the ACT Assessment
Science Standards for Transition

    Appendix D illustrates the agreement between the Texas Essential Knowledge and Skills and the EXPLORE, PLAN, and the ACT Science Standards for Transition. The EXPLORE Science Standards for Transition that are <mark>highlighted</mark> were judged as being subsumed in the Texas document—Grade 8. The PLAN and the ACT Science Standards for Transition that are <mark>highlighted</mark> were judged as being subsumed in the Texas document—Grades 9–12. The EXPLORE score scale is 1–25, the PLAN score scale is 1–32, and the ACT Assessment score scale is 1–36.

    The highlights are based on ACT's interpretation of the Texas Essential Knowledge and Skills for Science. In judging each statement, ACT looked for corresponding skills in the Texas document at the corresponding grade level or below that was either an explicitly stated skill or an implied prerequisite skill.

	Interpretation of Data (IOD)	Scientific Investigation (SIN)	Evaluation of Experiments, Models, and Assertions (EMA)
13–15	Select a single piece of textual (nonnumerical) information from a table Select the highest/lowest value from a specified column or row in a table Select a single data point from a simple table, graph, or diagram		
16–19	Select data from a simple table, graph, or diagram (e.g., a table or graph with two or three variables; a food web) Identify basic features from a table or graph (e.g., headings, units of measurement, axis labels) Understand basic scientific terminology Find basic information in a brief body of text Identify a direct relationship between variables in a simple table, graph, or diagram		
20–23	Compare data from a simple table, graph, or diagram Determine whether a relationship exists between two variables Identify an inverse relationship between variables in a simple table, graph, or diagram Translate information (data or text) into graphic form Select data from a complex table, graph, or diagram (e.g., a table or graph with more than three variables)	Understand simple lab procedures Identify the control in an experiment	
24–25	Compare data from a complex table, graph, or diagram Interpolate between data points in a table or graph Identify or use a simple mathematical relationship that exists between data Identify a direct or inverse relationship between variables in a complex table, graph, or diagram Compare or combine data from two simple data sets Combine new, simple information (data or text) with given information (data or text)	Understand moderately complex lab procedures Understand simple experimental designs	Select a simple hypothesis, prediction, or conclusion that is supported by one or more data sets or viewpoints Identify strengths and weaknesses in one or more viewpoints Identify similarities and differences in two or more viewpoints Identify key issues or assumptions in an argument or viewpoint Determine whether new information supports or weakens a viewpoint or hypothesis

Science Standards for Transition are measured in the context of science topics students encounter in science courses. These topics may include:

Life Science/Biology	Physical Science/Chemistry, Physics	Earth & Space Science
• Animal behavior • Animal development & growth • Body Systems • Cell Structure and processes • Ecology • Evolution • Genetics • Homeostasis • Life cycles • Molecular basis of heredity • Origin of Life • Photosynthesis • Plant development, growth & structure • Populations • Taxonomy	• Atomic nucleus • Atomic structure • Chemical bonding, equations, nomenclature, reactions • Elements, Compounds, mixtures • Electrical circuits and force • Forces and motions • Gravitation • Heat and work • Heat transfer • Kinetic & Potential Energy • Magnetism • Momentum • Periodic properties • Properties of Solutions • States, classes & properties of matter • Sounds and Light • Waves	• Earth atmosphere • Earth's resources • Earthquakes & volcanoes • Fossils & geological time • Galaxies & the universe • Geochemical cycles • Groundwater • Human impacts on the environment • Lakes, rivers, oceans • Mass movements • Plate tectonics • Rocks, minerals • Solar system • Stars • Water cycle • Weather & climate • Weathering & erosion

PLAN/ACT Assessment Science Standards for Transition by Strand and Score Range

	Interpretation of Data (IOD)	Scientific Investigation (SIN)	Evaluation of Experiments, Models, and Assertions (EMA)
13–15	Select a single piece of textual (nonnumerical) information from a table Select the highest/lowest value from a specified column or row in a table Select a single data point from a simple table, graph, or diagram		
16–19	Select data from a simple table, graph, or diagram (e.g., a table or graph with two or three variables; a food web) Identify basic features from a table or graph (e.g., headings, units of measurement, axis labels) Understand basic scientific terminology Find basic information in a brief body of text Identify a direct relationship between variables in a simple table, graph, or diagram		
20–23	Compare data from a simple table, graph, or diagram Determine whether a relationship exists between two variables Identify an inverse relationship between variables in a simple table, graph, or diagram Translate information (data or text) into graphic form Select data from a complex table, graph, or diagram (e.g., a table or graph with more than three variables)	Understand simple lab procedures Identify the control in an experiment	
24–27	Compare data from a complex table, graph, or diagram Interpolate between data points in a table or graph Identify or use a simple mathematical relationship that exists between data Identify a direct or inverse relationship between variables in a complex table, graph, or diagram Compare or combine data from two simple data sets Combine new, simple information (data or text) with given information (data or text)	Understand moderately complex lab procedures Understand simple experimental designs	Select a simple hypothesis, prediction, or conclusion that is supported by one or more data sets or viewpoints Identify strengths and weaknesses in one or more viewpoints Identify similarities and differences in two or more viewpoints Identify key issues or assumptions in an argument or viewpoint Determine whether new information supports or weakens a viewpoint or hypothesis
28–32	Identify or use a complex mathematical relationship that exists between data Extrapolate from data points in a table or graph Compare or combine given text with data from tables, graphs, or diagrams	Understand complex lab procedures Determine the hypothesis for an experiment Understand moderately complex experimental designs Identify an alternate method for testing a hypothesis	Select a complex hypothesis, prediction, or conclusion that is supported by a data set or viewpoint Select a set of data or a viewpoint that supports or contradicts a hypothesis, prediction, or conclusion Predict the most likely or least likely result based on a given viewpoint
33–36 *	Compare or combine data from two complex data sets Combine new, complex information (data or text) with given information (data or text)	Understand precision and accuracy issues Predict how modifying an experiment or study (adding a new trial or changing a variable) will affect results Identify new information that could be collected from a new experiment or by modifying an existing experiment	Select a complex hypothesis, prediction, or conclusion that is supported by two or more data sets or viewpoints Determine why given information (data or text) supports or contradicts a hypothesis or conclusion

Science Standards for Transition are measured in the context of science topics students encounter in science courses. These topics may include:

Life Science/Biology	Physical Science/Chemistry, Physics	Earth & Space Science
• Animal behavior • Animal development & growth • Body Systems • Cell Structure and processes • Ecology • Evolution • Genetics • Homeostasis • Life cycles • Molecular basis of heredity • Origin of Life • Photosynthesis • Plant development, growth & structure • Populations • Taxonomy	• Atomic nucleus • Atomic structure • Chemical bonding, equations, nomenclature, reactions • Elements, Compounds, mixtures • Electrical circuits and force • Forces and motions • Gravitation • Heat and work • Heat transfer • Kinetic & Potential Energy • Magnetism • Momentum • Periodic properties • Properties of Solutions • States, classes & properties of matter • Sounds and Light • Waves	• Earth atmosphere • Earth's resources • Earthquakes & volcanoes • Fossils & geological time • Galaxies & the universe • Geochemical cycles • Groundwater • Human impacts on the environment • Lakes, rivers, oceans • Mass movements • Plate tectonics • Rocks, minerals • Solar system • Stars • Water cycle • Weather & climate • Weathering & erosion

* Statements apply to ACT Assessment only