State of Texas Assessments of Academic Readiness (STAAR®)
Incorporating Process Standards

The process standards in the Texas Essential Knowledge and Skills (TEKS) for mathematics, science, and social studies describe ways in which students are expected to engage with the content. These skills should be incorporated into the teaching of the TEKS when possible so that students can attain a greater depth of understanding of complex content.

For the STAAR program, process standards in mathematics, science, and social studies will be incorporated into test questions that are written to address content standards within the TEKS. More detailed information about incorporating the process standards in STAAR mathematics, science, and social studies assessments is provided below.

STAAR Mathematics Assessments

The student expectations addressing **mathematical process standards** are a central part of the TEKS for mathematics. In the STAAR mathematics assessments for grades 3–8, as well as for algebra, there is not a separate reporting category for process skills. Instead, multiple process skills will be incorporated into test questions from the content reporting categories. Because all math questions incorporate at least one process skill and most questions will incorporate multiple process skills, the mathematical process standards will not be reported. Only the content standards will be available when student expectations are reported for an administered test.

Three process skills included in the **mathematical process standards** strand of the TEKS are listed below as examples.

5.1 **Mathematical process standards.** The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to
  (F) analyze mathematical relationships to connect and communicate mathematical ideas.

7.1 **Mathematical process standards.** The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to
  (E) create and use representations to organize, record, and communicate mathematical ideas.

A.1 **Mathematical process standards.** The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to
  (D) communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate.

Test Question from STAAR Grade 4 Mathematics

Mrs. Taylor wants to pour 8 quarts of juice into 16 glasses. Each glass holds one pint. Does Mrs. Taylor have enough juice to fill 16 glasses?

A   *No, because there are 4 quarts in 1 gallon and 16 ÷ 4 = 4*
B   *No, because there are 4 quarts in 1 gallon and 4 × 16 = 64*
C*   *Yes, because there are 2 pints in 1 quart and 2 × 8 = 16*
D   *Yes, because there are 2 pints in 1 quart and 8 ÷ 2 = 4*

This test question assesses a content student expectation.

> 4.8(B)—convert measurements within the same measurement system, customary or metric, from a smaller unit into a larger unit or a larger unit into a smaller unit when given other equivalent measures represented in a table

This test question also incorporates multiple process student expectations.

> 4.1(A)—apply mathematics to problems arising in everyday life, society, and the workplace
> 4.1(B)—use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution
> 4.1(C)—select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems
> 4.1(G)—display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication

Test Question from STAAR Grade 7 Mathematics

Of the 250 sheep in a flock, 34% are white. What is the total number of white sheep in the flock?

A*   *85*
B   *216*
C   *165*
D   *Not here*

This test question assesses a content student expectation.

> 7.4(D)—solve problems involving ratios, rates, and percents, including multi-step problems involving percent increase and percent decrease, and financial literacy problems

This test question also incorporates multiple process student expectations.

> 7.1(A)—apply mathematics to problems arising in everyday life, society, and the workplace
> 7.1(B)—use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution

7.1(F)—analyze mathematical relationships to connect and communicate mathematical ideas

Test Question from STAAR Algebra I

A college student needs 11 classes that are worth a total of 40 credits in order to complete her degree. The college offers both 4-credit classes and 3-credit classes. Which system of equations can be used to determine f, *the number of 4-credit classes the student can take to complete her degree, and* h, *the number of 3-credit classes?*

A f + h = *40*
   *4*h + *3*f = *11*

B f + h = *11*
   *4*h + *3*f = *40*

C f + h = *40*
   *4*f + *3*h = *11*

*D** f + h = *11*
   *4*f + *3*h = *40*

This test question assesses a content student expectation.

A.2(I)—write systems of two linear equations given a table of values, a graph, and a verbal description

This test question also incorporates multiple process student expectations.

A.1(A)—apply mathematics to problems arising in everyday life, society, and the workplace
A.1(B)—use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution
A.1(D)—communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate
A.1(F)—analyze mathematical relationships to connect and communicate mathematical ideas

STAAR Science Assessments

The student expectations addressing **scientific processes** are an integral part of the TEKS for science. In the STAAR science assessments, there is not a separate reporting category for process skills. Instead, these skills will be incorporated into at least 40% of the test from the content reporting categories. When student expectations are reported for an administered test, both content and process student expectations will be reported for science test questions that measure a content student expectation and incorporate a process student expectation.

Three process skills included in the **scientific processes** strand of the TEKS are listed below as examples.

5.3 **Scientific investigation and reasoning.** The student uses critical thinking and scientific problem solving to make informed decisions. The student is expected to
(B) evaluate the accuracy of the information related to promotional materials for products and services such as nutritional labels.

8.2 **Scientific investigation and reasoning.** The student uses scientific inquiry methods during laboratory and field investigations. The student is expected to
(C) collect and record data using the International System of Units (SI) and qualitative means such as labeled drawings, writing, and graphic organizers.

B.1 **Scientific processes.** The student, for at least 40% of instructional time, conducts laboratory and field investigations using safe, environmentally appropriate, and ethical practices. The student is expected to
(A) demonstrate safe practices during laboratory and field investigations.

Test Question from STAAR Grade 5 Science

A student uses a spring scale to pull a 50-gram block horizontally across a wood desk. Then the student pulls the block the same distance across surfaces of carpet, sandpaper, and glass.
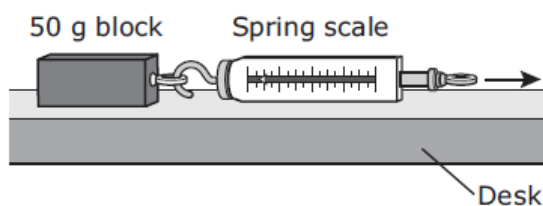
Which question is this investigation most likely designed to answer?

A   *How do blocks of different sizes react to force?*
B*   *How do different surfaces affect the amount of force needed to move a block?*
C   *How do blocks affect spring scales?*
D   *How does the mass of a block change when it is pulled across a desk?*

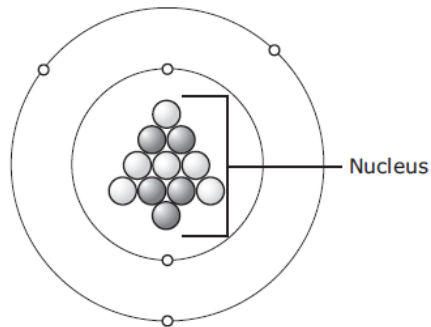This test question assesses a content student expectation.

    5.6(D)—design an experiment that tests the effect of force on an object

This test question also incorporates a process student expectation.

> 5.2(B)—ask well-defined questions, formulate testable hypotheses, and select and use appropriate equipment and technology

Test Question from STAAR Grade 8 Science

A model of an atom is shown below.

An atom of which element is represented by this model?

A*   *Boron (B)*
B   *Carbon (C)*
C   *Neon (Ne)*
D   *Sodium (Na)*

This test question assesses a content student expectation.

> 8.5(B)—identify that protons determine an element's identity and valence electrons determine its chemical properties, including reactivity

This test question also incorporates a process student expectation.

> 8.3(B)—use models to represent aspects of the natural world such as an atom, a molecule, space, or a geologic feature

STAAR Social Studies Assessments

The student expectations addressing **social studies skills** are an integral part of the TEKS for social studies. In the STAAR social studies assessments, there is not a separate reporting category for process skills. Instead, these skills will be incorporated into at least 30% of the test from the content reporting categories. When student expectations are reported for an administered test, both content and process student expectations will be reported for social studies test questions that measure a content student expectation and incorporate a process student expectation.

Two process skills included in the **social studies skills** strand of the TEKS are listed below as examples.

8.29　**Social studies skills.** The student applies critical-thinking skills to organize and use information acquired through established research methodologies from a variety of valid sources, including electronic technology. The student is expected to
(D)　identify points of view from the historical context surrounding an event and the frame of reference which influenced the participants.

H.30　**Social studies skills.** The student communicates in written, oral, and visual forms. The student is expected to
(B)　use correct social studies terminology to explain historical concepts.

Test Question from STAAR Grade 8 Social Studies

> *Black Codes* was a name given to laws passed by southern governments established during the presidency of Andrew Johnson. These laws imposed severe restrictions on freedmen, such as prohibiting their right to vote, forbidding them to sit on juries, and limiting their right to testify against white men. They were also forbidden from carrying weapons in public places and working in certain occupations.
>
> *—National Archives and Records Administration,*
> *http://www.archives.gov (accessed July 14, 2010)*

Southern states passed the codes described in this excerpt in order to —

A*　　limit the effects of the Reconstruction Amendments
B　　increase the labor supply for factory jobs in the North
C　　decrease the number of northern representatives in Congress
D　　improve relations with the Democratic Party

This test question assesses a content student expectation.

　　8.9(C)—explain the economic, political, and social problems during Reconstruction and evaluate their impact on different groups

This test question also incorporates a process student expectation.

　　8.29(B)—analyze information by sequencing, categorizing, identifying cause-and-effect relationships, comparing, contrasting, finding the main idea, summarizing, making generalizations and predictions, and drawing inferences and conclusions
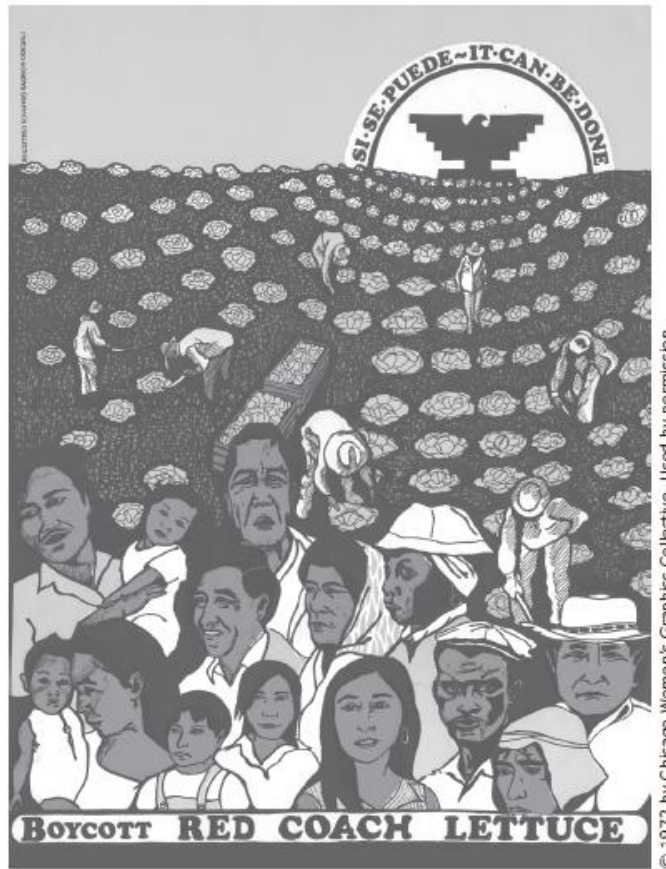
The 1972 poster depicts an organization originally formed to advocate —

A   publicly funded health care for children
B*   better economic treatment of migrant workers
C   a retirement system for farm laborers
D   equal employment opportunities for women

This test question assesses a content student expectation.

> H.26(A)—explain actions taken by people to expand economic opportunities and political rights, including those for racial, ethnic, and religious minorities as well as women, in American society

This test question also incorporates a process student expectation.

> H.29(H)—use appropriate skills to analyze and interpret social studies information such as maps, graphs, presentations, speeches, lectures, and political cartoons

Additional examples of STAAR test questions that assess content and incorporate process skills from the TEKS can be found in the released STAAR test questions on the TEA website at http://tea.texas.gov/student.assessment/STAAR_Released_Test_Questions/.