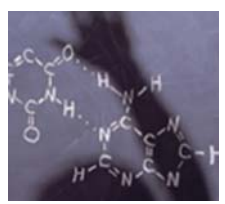
lead4ward

Grade 7 Science

STAAR Field Guide





STAAR

The State of Texas of Assessment of Academic Readiness (STAAR) is based on the Texas Essential Knowledge and Skills (TEKS). Most of the state standards, if they are eligible for assessment in a multiple choice/short answer format, will be assessed on STAAR.

STAAR is designed as a vertical system. Just as the TEKS are structured in a vertically aligned manner, so is STAAR. Learning from one grade level is aligned with learning at the next grade level. Some skills are developed over the course of a student's educational career from kindergarten through high school, while other skills and learning may begin at a particular grade level and serve as the foundation for later learning. STAAR is an assessment of academic readiness. In other words, we can sum up the variation between the current assessment program (TAKS) and STAAR by reframing the questions we are asking.

TAKS: TAKS was designed to help teachers answer this question:

- Did students learn what they were supposed to learn in the current year's grade?

STAAR: STAAR is designed to ensure that teachers answer these questions:

- Did students learn what they were supposed to learn in the current year's grade?
- Are students ready for the next grade?
- And are they also ready for the grade after that?

So what's the big deal about that shift? Fundamentally, it requires that teachers relook at curriculum and instruction in a very different way than they have under previous assessment systems (TABS, TEAMS, TAAS, TAKS). Not only are teachers required to have a deep understanding of the content of the grade level they are teaching, but they must also be firmly grounded in how the content of that current grade level prepares students for subsequent grade levels. Overemphasis on grade level attainment ONLY may create a context where teachers in subsequent grade levels have to reteach foundational skills to accommodate for the gap created by the lack of appropriate emphasis earlier. It may require students "unlearn" previous ways of conceptualizing content and essentially start all over.

STAAR: focus, clarity, depth

[The TEKS] are designed to prepare students to succeed in college, in careers and to compete globally. However, consistent with a growing national consensus regarding the need to provide a more clearly articulated K–16 education program that focuses on fewer skills and addresses those skills in a deeper manner (TEA).

STAAR is designed around three concepts: focus, clarity, and depth:

Focus: STAAR will focus on grade level standards that are critical for that grade level and the ones to follow.

Clarity: STAAR will assess the eligible TEKS at a level of specificity that allow students to demonstrate mastery.

Depth: STAAR will assess the eligible TEKS at a higher cognitive level and in novel contexts.

STAAR: the assessed curriculum – readiness, supporting, and process standards

A key concept that underpins the design of STAAR is that all standards (TEKS) do not play the same role in student learning. Simply stated, some standards (TEKS) have greater priority than others – they are so vital to the current grade level or content area that they must be learned to a level of mastery to ensure readiness (success) in the next grade levels. Other standards are important in helping to support learning, to maintain a previously learned standard, or to prepare students for a more complex standard taught at a later grade.

By assessing the TEKS that are most critical to the content area in a more rigorous ways, STAAR will better measure the academic performance of students as they progress from elementary to middle to high school. Based on educator committee recommendations, for each grade level or course, TEA has identified a set of readiness standards - the TEKS which help students develop deep and enduring understanding of the concepts in each content area. The remaining knowledge and skills are considered supporting standards and will be assessed less frequently, but still play a very important role in learning.

Readiness standards have the following characteristics:

- They are essential for success in the current grade or course.
- They are important for preparedness for the next grade or course.
- They support college and career readiness.
- They necessitate in-depth instruction.
- They address broad and deep ideas.

Supporting standards have the following characteristics:

- Although introduced in the current grade or course, they may be emphasized in a subsequent year.
- Although reinforced in the current grade or course, they may be emphasized in a previous year.
- They play a role in preparing students for the next grade or course but not a central role.
- They address more narrowly defined ideas.

STAAR assesses the eligible TEKS at the level at which the TEKS were written.

STAAR is a more rigorous assessment than TAKS (and TAAS, TEAMS, TABS before that). The level of rigor is connected with the cognitive level identified in the TEKS themselves. Simply stated, STAAR will measure the eligible TEKS at the level at which they are written.

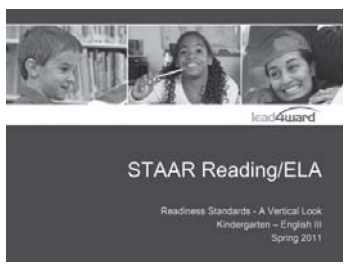
The rigor of items will be increased by
- assessing content and skills at a greater depth and higher level of cognitive complexity
- assessing more than one student expectation in a test item

The rigor of the tests will be increased by
- assessing fewer, yet more focused student expectations and assessing them multiple times and in more complex ways
- including a greater number of rigorous items on the test, thereby increasing the overall test difficulty

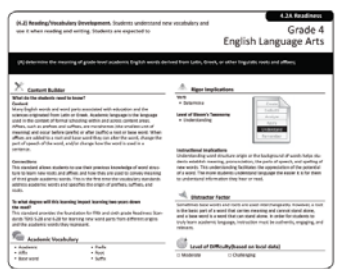
About the STAAR Field Guide

The STAAR Field Guide for Teachers is designed as a tool to help teachers prepare for instruction. The tools and resources in this guide are designed to supplement local curriculum documents by helping teachers understand how the design and components of STAAR are connected to the scope and sequence of instruction. In order to help students attain even higher levels of learning as assessed on STAAR, teachers need to plan for increasing levels of rigor. This guide contains the following components:

STAAR Grade Level Snapshot – one page overview of the standards assessed on STAAR, how those standards are classified (readiness, supporting, or process), the reporting categories around which those standards are clustered, and the number of items that will be on the test from each reporting category and from each type of standard.



STAAR Readiness Standards: A Vertical Look – a vertical look at the readiness standards in grade bands to show the progression of the assessment between grade levels



STAAR Readiness and Supporting Standards Analysis Sheets– overviews of the nature of each readiness and supporting standard assessed on STAAR, designed to be used in planning to build teacher content knowledge and ensure that current grade level instruction reinforces previous learning and prepares students for future grade levels.

STAAR-Curriculum Planning Worksheet – a tool to organize the pages in this guide to be used in planning and professional development

Steps to Success

1. Download the TEA Documents to add to your STAAR Teacher Field Guide
   - STAAR Blueprint
   - Assessed Curriculum Documents
   - STAAR Test Design
   - STAAR Reference Materials

2. Review the STAAR Snapshot for your course/grade level and content area
   - Note the readiness standards
   - With your team, explore why those TEKS are classified as readiness standards – which criteria do they meet
   - Review the supporting standards and note any that may have played a larger role on TAKS

3. Review the STAAR Readiness Standards: A Vertical Look
   - Discuss how the readiness standards connect between grade levels
   - Explore the specific differences between the aligned readiness standards at each grade level

4. Review the components of the STAAR Readiness and Supporting Standards Analysis Sheets
   - Use the samples on pages 6 and 7 to explore the analysis sheets
   - Add additional information based on the discussion on the team

5. Create STAAR-Curriculum Planning Packets for each unit or grading period
   - Collect either the Scope and Sequence document (if it includes the TEKS standards for each unit of instruction) OR Unit Plan documents (where the TEKS standards are bundled together into units of instruction)
   - The STAAR Field Guide is arranged by standard type (readiness or supporting) in numeric order of the standards. You may need to photocopy certain pages/standards if they are repeated throughout multiple units.
   - Use the scope and sequence or unit plan documents to identify the TEKS taught in each unit/grading period
   - Compile the STAAR Readiness and Supporting Standards Analysis Sheets that correspond to the TEKS each unit/grading period
   - After the pages/standards are sorted into their appropriate unit, create a method of organizing the documents (binder, folder, file, etc).

6. Plan for instruction
   - Collect the curriculum documents used for planning
   - Use the STAAR- Curriculum Planning Worksheet as you plan each unit. The worksheet provides guiding questions and reflection opportunities to aide you in maximizing the material in the STAAR Field Guide.
   - Determine where the team needs additional learning
   - Evaluate instructional materials
   - Review the plan for appropriate levels of rigor

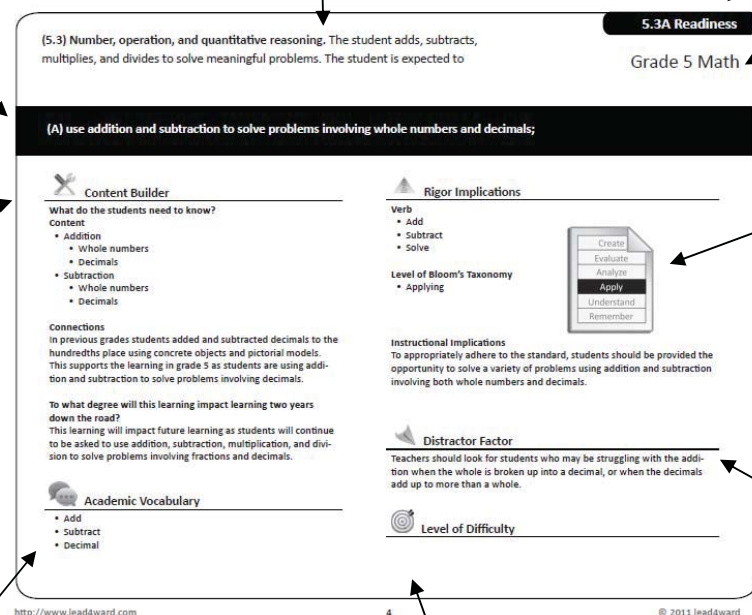
How to read
STAAR Readiness Standards analysis pages

Standard and Indication of "Readiness" or "Supporting"

Texas Essential Knowledge and Skills Statement

Student Expectation

Grade and Subject



Content Builder- The basics of the content within the standard are extracted in a bulleted list. Connections to prior learning/other standards are explained. Future implications of mastery of this standard are described to assist in understanding the impact of this learning in the future.

Rigor Implications- Uses the verb(s) from the Student Expectation to indicate the cognitive complexity of the standard and which level of Bloom's Taxonomy should be addressed during instruction, Instructional implications are also highlighted.

Distractor Factor - Alerts teachers to areas where students traditionally struggle, have misconceptions, or may need reinforcement.

Academic Vocabulary- Vocabulary words are extracted directly from the standard and/or associated with the instruction of the content within the standard.

Level of Difficulty- Standards are labeled either Challenging or Moderate. This determination is made by the campus using previous year data.

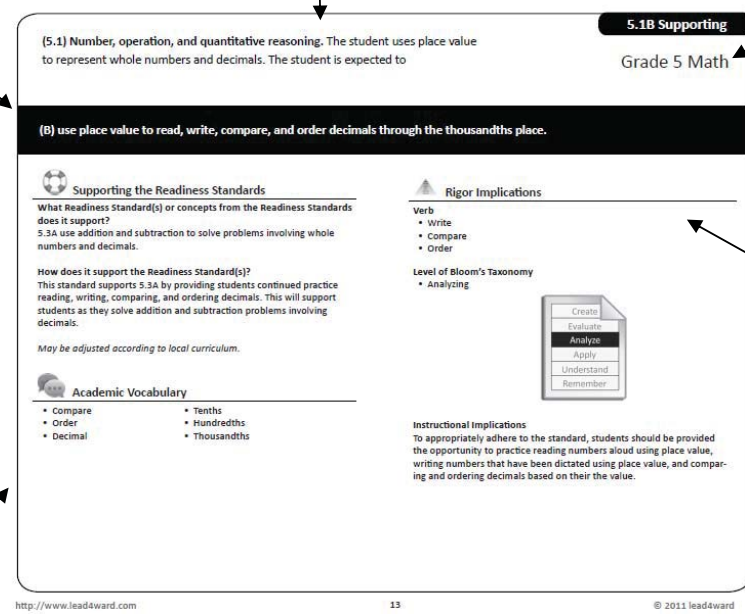
How to read
STAAR Supporting Standards analysis pages

Standard and Indication of "Readiness" or "Supporting"

Texas Essential Knowledge and Skills Statement

Student Expectation

Grade and Subject



Supporting the Readiness Standards - Most supporting standards support a readiness standard in the current grade level. This section discusses the relationships of the standards that are often taught together.

Rigor Implications- Uses the verb(s) from the Student Expectation to indicate the cognitive complexity of the standard and which level of Bloom's Taxonomy should be addressed during instruction, Instructional implications are also highlighted.

Academic Vocabulary- Words are extracted directly from the standard and/or associated with the instruction of the content within the standard.

Curriculum – STAAR Planning Worksheet

Course/Grade Level _____

Content Area _____

Grading Period/Unit _____

Readiness Standards	

Supporting Standards	

Action Steps	Guiding Questions & Notes
Read each analysis page.	What stands out? How many of the standards are a "Challenging" level of difficulty? How many of the standards are a high level of rigor (above apply on Bloom's Taxonomy)?
Content Builder (Readiness Standards only)	What other connections could you add to this section? Write them on your analysis pages! This content important for students' future learning. How will you assess retention?
Supporting the Readiness Standards (Supporting Standards only)	How can you use this information as you plan lessons? Do the supporting standards match with the readiness standards in your unit bundle? If not, arrange them according to your curriculum. Address the questions again "Which Readiness Standards does it support? How does it support the Readiness Standard(s)?"

Curriculum – STAAR Planning Worksheet

Action Steps	Guiding Questions & Notes
Vocabulary	What strategies will you use to ensure mastery of the vocabulary for each standard in this unit? What is your plan if students do not master the vocabulary?
Use the *Distractor Factor*	How can you address the information in the Distractor Factor section? From your teaching experience, is there anything you would add to this? Write it on your analysis pages!
Reflection	How have you taught this content in the past? How will you teach it differently this year? How will you utilize the readiness and supporting standards for formative and summative assessment?

Reporting Category	Readiness Standards	Supporting Standards
1 Matter and Energy	7.5.A recognize that radiant energy from the Sun is transformed into chemical energy through the process of photosynthesis 7.5.C diagram the flow of energy through living systems, including food chains, food webs, and energy pyramids^	7.5.B demonstrate and explain the cycling of matter within living systems such as in the decay of biomass in a compost bin 7.6.A identify that organic compounds contain carbon and other elements such as hydrogen, oxygen, phosphorus, nitrogen, or sulfur^ 7.6.B distinguish between physical and chemical changes in matter in the digestive system^ 7.6.C recognize how large molecules are broken down into smaller molecules such as carbohydrates can be broken down into sugars
2 Force, Motion, and Energy	7.7.A contrast situations where work is done with different amounts of force to situations where no work is done such as moving a box with a ramp and without a ramp, or standing still^	7.7.B illustrate the transformation of energy within an organism such as the transfer from chemical energy to heat and thermal energy in digestion 7.7.C demonstrate and illustrate forces that affect motion in everyday life such as emergence of seedlings, turgor pressure, and geotropism
3 Earth and Space	7.8.A predict and describe how different types of catastrophic events impact ecosystems such as floods, hurricanes, or tornadoes 7.9.A analyze the characteristics of objects in our solar system that allow life to exist such as the proximity of the Sun, presence of water, and composition of the atmosphere	7.8.B analyze the effects of weathering, erosion, and deposition on the environment in ecoregions of Texas 7.8.C model the effects of human activity on groundwater and surface water in a watershed^ 7.9.B identify the accommodations, considering the characteristics of our solar system, that enabled manned space exploration
4 Organisms and Environments	7.10.A observe and describe how different environments, including microhabitats in schoolyards and biomes, support different varieties of organisms* 7.11.B explain variation within a population or species by comparing external features, behaviors, or physiology of organisms that enhance their survival such as migration, hibernation, or storage of food in a bulb 7.12.A investigate and explain how internal structures of organisms have adaptations that allow specific functions such as gills in fish, hollow bones in birds, or xylem in plants 7.12.D differentiate between structure and function in plant and animal cell organelles, including cell membrane, cell wall, nucleus, cytoplasm, mitochondrion, chloroplast, and vacuole^ 7.14.B compare the results of uniform or diverse offspring from sexual reproduction or asexual reproduction^	7.10.B describe how biodiversity contributes to the sustainability of an ecosystem^ 7.10.C observe, record, and describe the role of ecological succession such as in a microhabitat of a garden with weeds^ 7.11.A examine organisms or their structures such as insects or leaves and use dichotomous keys for identification^ 7.11.C identify some changes in genetic traits that have occurred over several generations through natural selection and selective breeding such as the Galapagos Medium Ground Ginch (Geospiza fortis) or domestic animals^ 7.12.B identify the main functions of the systems of the human organism, including the circulatory, respiratory, skeletal, muscular, digestive, excretory, reproductive, integumentary, nervous, and endocrine systems^ 7.12.C recognize levels of organization in plants and animals, including cells, tissues, organs, organ systems, and organisms 7.12.E compare the functions of a cell to the functions of organisms such as waste removal 7.12.F recognize that according to cell theory all organisms are composed of cells and cells carry on similar functions such as extracting energy from food to sustain life^ 7.13.A investigate how organisms respond to external stimuli found in the environment such as phototropism and fight or flight 7.13.B describe and relate responses in organisms that may result from internal stimuli such as wilting in plants and fever or vomiting in animals that allow them to maintain balance 7.14.A define heredity as the passage of genetic instructions from one generation to the next generation 7.14.C recognize that inherited traits of individuals are governed in the genetic material found in the genes within chromosomes in the nucleus^

Process Standards (Scientific investigation and Reasoning Skills)

7.1.A demonstrate safe practices during laboratory and field investigations as outlined in the Texas Safety Standards
7.1.B practice appropriate use and conservation of resources, including disposal, reuse, or recycling of materials
7.2.A plan and implement comparative and descriptive investigations by making observations, asking well-defined questions, and using appropriate equipment and technology
7.2.B design and implement experimental investigations by making observations, asking well-defined questions, formulating testable hypotheses, and using appropriate equipment and technology
7.2.C collect and record data using the International System of Units (SI) and qualitative means such as labeled drawings, writing, and graphic organizers
7.2.D construct tables and graphs, using repeated trials and means, to organize data and identify patterns
7.2.E analyze data to formulate reasonable explanations, communicate valid conclusions supported by the data, and predict trends
7.3.A in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student
7.3.B use models to represent aspects of the natural world such as human body systems and plant and animal cells
7.3.C identify advantages and limitations of models such as size, scale, and properties, and materials
7.3.D relate the impact of research on scientific thought and society, including the history of science and contributions of scientists as related to the content
7.4.A use appropriate tools to collect, record, and analyze information, including life science models, hand lens, stereoscopes, microscopes, beakers, Petri dishes, microscope slides, graduated cylinders, test tubes, meter sticks, metric rulers, metric tape measures, timing devices, hot plates, balances, thermometers, calculators, water test kits, computers, temperature and pH probes, collecting nets, insect traps, globes, digital cameras, journals/notebooks and other equipment as needed to teach the curriculum
7.4.B use preventative safety equipment, including chemical splash goggles, aprons, and gloves and be prepared to use emergency safety equipment, including an eye/face wash, a fire blanket, and a fire extinguisher

*** = Aligned with STAAR Assessed Curriculum at Grade 8**
^ = Student Expectation specifically included in STAAR Assessed Curriculum at Grade 8 (classified as a Readiness or Supporting Standard in Grade 7 based on its characteristics as part of the Grade 7 Science curriculum)

NOTE: ***The classification of standards on this TEKS Snapshot represents the reviewed and synthesized input of a sample of Texas Science teachers. This TEKS Snapshot DOES NOT represent a publication of the Texas Education Agency. District curriculum materials may reflect other classifications.***

(7.5) Matter and energy. The student knows that interactions occur between matter and energy. The student is expected to:

Grade 7 Science

(A) Recognize that radiant energy from the Sun is transformed into chemical energy through the process of photosynthesis.

Content Builder

What do the students need to know?

Content

- Recognize that radiant energy (sunlight) is transformed into chemical energy.
- Recognize the equation for photosynthesis.
- Recognize the components of the process of photosynthesis.

Connections

This readiness standard is an isolated SE. Students up to this point have not been introduced to transformations of radiant energy to chemical energy in the process of photosynthesis. This concept will not be revisited in middle school.

To what degree will this learning impact learning two years down the road?

This standard builds background content knowledge for high school Biology standard 12 with interdependence and interactions within an ecosystem.

Academic Vocabulary

- Radiant energy
- Chemical energy
- Photosynthesis

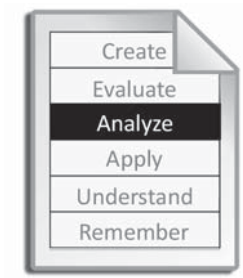
Rigor Implications

Verb

- Recognize

Level of Bloom's Taxonomy

- Analyze



Instructional Implications

Instructional content should include that radiant energy from the sun drives much of the flow of energy throughout living systems due to the process of photosynthesis in organisms described as producers.

Distractor Factor

To clear confusion during learning use the term mineral, instead of nutrient when talking about what plants get from soil. If something is a nutrient, students may think it is food.

Level of Difficulty (based on local data)

☐ Moderate ☐ Challenging

(7.5) Matter and energy. The student knows that interactions occur between matter and energy. The student is expected to:

Grade 7 Science

(C) Diagram the flow of energy through living systems, including food chains, food webs, and energy pyramids.

Content Builder

What do the students need to know?

Content

- Students will need to define, identify, and diagram food chains, food webs, and energy pyramids.
- Explain energy loss (10% rule).

Connections

Students' understandings from fourth and fifth grade help support this standard. Students have background knowledge of the flow of energy through living systems, as well as how to define and identify food chains and food webs. This standard will focus on energy pyramids.

To what degree will this learning impact learning two years down the road?

This standard supports 8.11A by requiring students to apply the concept of energy flow in a living system at a high level of understanding. This sets the framework for the students to look at specific relationships in eighth grade. It will also be revisited in Biology and Environmental Systems in high school.

Academic Vocabulary

- Food web
- Food chains
- Energy pyramid

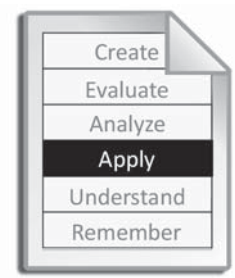
Rigor Implications

Verb

- Diagram

Level of Bloom's Taxonomy

- Applying



Instructional Implications

This is not a new concept for students. They should be asked to diagram the flow of energy through living systems in many different ways.

Distractor Factor

It is important that students know that energy is not lost, but is instead transformed into other types of energy, such as heat or mechanical energy, so it is not available for the next link in the food chain. Provide opportunities for students to construct diagrams and explain their thinking.

Level of Difficulty (based on local data)

☐ Moderate ☐ Challenging

(7.7) Force, motion and energy. The student knows that there is a relationship among force, motion, and energy. The student is expected to:

Grade 7 Science

(A) Contrast situations where work is done with different amounts of force to situations where no work is done such as moving a box with a ramp and without a ramp, or standing still.

Content Builder

What do the students need to know?

Content

- Understand Work vs. no work
- Students will need to know the calculation, Work = Force x Distance
- If there is no distance traveled, then there is no work done.
- Students will compare work done with different ramps, different levers, different pulleys, etc.

Connections

Previous grade-level standards 5.6D and 6.8E provide background knowledge to support this standard. Students will use this knowledge in the application of work and forces. This is the first time students have been introduced to the concept of work.

To what degree will this learning impact learning two years down the road?

Work is a concept that needs to be developed for future study in physics. It also supports Readiness Standards 8.6A and C by developing a context to apply unbalanced forces and Newton's Laws.

Academic Vocabulary

- Work (W) W=FxD
- Force F=m x a
- Inclined lane
- Joule
- Newton
- Motion
- Balanced force
- Unbalanced force
- Acceleration

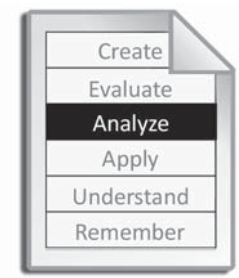
Rigor Implications

Verb

- Contrast

Level of Bloom's Taxonomy

- Analyzing



Instructional Implications

Students must understand that if an object does not move then no work is done, regardless of the amount of force that is applied to an object. Work is not revisited directly before the Grade 8 STAAR assessment

Distractor Factor

Students may think that if you apply a force, than work is always done. Address this misconception through classroom investigations and discussion.

Level of Difficulty (based on local data)

☐ Moderate ☐ Challenging

(7.8) Earth and space. The student knows that natural events and human activity can impact Earth systems. The student is expected to:

Grade 7 Science

(A) Predict and describe how the different types of catastrophic events impact ecosystems such as floods, hurricanes, or tornadoes.

Content Builder

What do the students need to know?

Content

- Catastrophic events can shape and restructure the environment through the force and motion evident in them.
- Events include: weather events, geological events, and the impacts of events on ecosystems.

Connections

In third and fifth grades, students learned about slow and fast changes to the Earth's surface. These standards help with foundational knowledge for 7.8A. Students will now focus on the impact of these events on Earth's ecosystems.

To what degree will this learning impact learning two years down the road?

This standard helps build conceptual understandings of the impact of events on the ecosystems, which will support learning in Environmental Systems in high school.

Academic Vocabulary

- Catastrophic
- Ecosystem
- Flood
- Hurricane
- Tornado

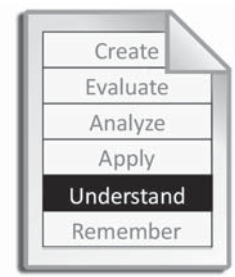
Rigor Implications

Verb

- Predict, Describe

Level of Bloom's Taxonomy

- Understanding



Instructional Implications

Instruction should include videos, images, or models and investigations that show the impact forces have on ecosystems.

Distractor Factor

It is important to focus learning on the impact on the ecosystem itself, not man made structures in these events.

Level of Difficulty (based on local data)

☐ Moderate ☐ Challenging

(7.9) Earth and space. The student knows components of our solar system. The student is expected to:

Grade 7 Science

(A) Analyze the characteristics of objects in our solar system that allow life to exist such as the proximity of the Sun, presence of water, and composition of the atmosphere.

Content Builder

What do the students need to know?

Content

- Students will analyze the characteristics of objects in our solar system that allow life to exist such as: proximity to the Sun, presence of water, and the composition of the atmosphere.

Connections

Sixth grade TEKS 6.11A provided students with the knowledge of physical properties, locations, and movements of objects in our solar system. This standard continues to build conceptual development of the space science strand and will directly support eighth grade readiness standard 8.8A.

To what degree will this learning impact learning two years down the road?

In this standard, students analyze characteristics of objects in our solar system that allow life to exist. In eighth grade readiness standard 8.8A, students will learn to describe the components of the universe.

Academic Vocabulary

- Characteristic
- Solar system
- Proximity
- Composition
- Atmosphere
- Exploration

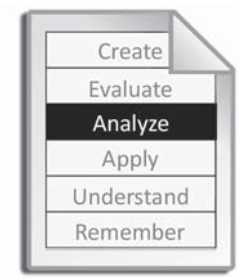
Rigor Implications

Verb

- Analyze

Level of Bloom's Taxonomy

- Analyzing



Instructional Implications

Instruction should also include: temperate weather, chemical composition of our atmosphere, Sulfur, Phosphorus, Oxygen, Nitrogen, Carbon and Hydrogen, proximity to the Sun, and presence of water as characteristics of Earth that enable life.

Distractor Factor

Students may not have an understanding of what factors help Earth sustain life forms. Focus instruction on these characteristics and compare them to other objects in our solar system.

Level of Difficulty (based on local data)

☐ Moderate ☐ Challenging

(7.10) Organisms and environments. The student knows that there is a relationship between organisms and the environment. The student is expected to:

Grade 7 Science

(A) Observe and describe how different environments, including microhabitats in schoolyards and biomes, support different varieties of organisms.

Content Builder

What do the students need to know?

Content

- Observe and describe different environments, including microhabitats in schoolyards and biomes
- How they support different varieties of organisms through providing basic needs
- Variety of life depends on environmental (biotic and abiotic) factors.

Connections

In third and fifth grades, students learned about organisms in their environments. This standard will focus on how different microhabitats support varieties of organisms. This standard directly supports eighth grade Readiness Standard 8.11A. This standard will also help support Biology standards in high school.

To what degree will this learning impact learning two years down the road?

This standard directly supports Readiness Standard 8.11A. This standard will also help support Biology standards in high school.

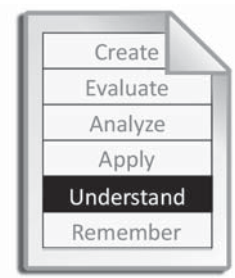
Rigor Implications

Verb

- Observe, Describe

Level of Bloom's Taxonomy

- Understanding



Instructional Implications

When possible, have students observe through outdoor field investigations.

Important questions to ask during instruction

What biotic and abiotic factors make up biomes? What is the significance of microhabitat investigations? What are the characteristics in an ecosystem?

Distractor Factor

Students must have working knowledge of microhabitat, biotic, and abiotic factors in order to understand why life is supported in these environments.

Academic Vocabulary

- Habitat
- Microhabitat
- Schoolyard
- Biome
- Organism
- Abiotic
- Biotic

Level of Difficulty (based on local data)

☐ Moderate ☐ Challenging

(7.11) Organisms and environments. The student knows that populations and species demonstrate variation and inherit many of their unique traits through gradual processes over many generations. The student is expected to:

Grade 7 Science

(B) Explain variation within a population or species by comparing external features, behaviors, or physiology of organisms that enhance their survival such as migration, hibernation, or storage of food in a bulb.

Content Builder

What do the students need to know?

Content

- What external structures or behaviors increase the survivability of certain organisms
- External features and physiology of plants and animals
- Behaviors in plants and animals.

Connections

The content in this standard builds from sixth grade TEKS 6.12C and 6.12D with taxonomic classifications and kingdoms. In this standard, students explain variation within a population or species through comparison of their physiology.

To what degree will this learning impact learning two years down the road?

This standard does not directly support an eighth grade readiness standard, however, it does support high school biology standards.

Academic Vocabulary

- Variation
- Population
- Species
- External feature
- Behavior
- Physiology
- Migration
- Hibernation
- Bulb

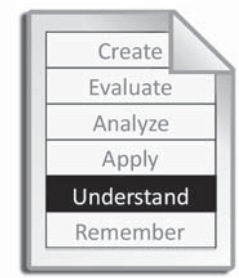
Rigor Implications

Verb

- Explain, Compare

Level of Bloom's Taxonomy

- Understanding



Instructional Implications

Provide instructional opportunities for students to compare organisms for survival advantages. Students will also need to build a strong understanding of the concept of species.

Distractor Factor

Emphasize that variation enhances survival of a population or a species, not an individual.

Level of Difficulty (based on local data)

☐ Moderate ☐ Challenging

(7.12) Organisms and environments. The student knows that living systems at all levels of organization demonstrate the complementary nature of structure and function. The student is expected to:

Grade 7 Science

(A) Investigate and explain how internal structures of organisms have adaptations that allow specific functions such as gills in fish, hollow bones in birds, or xylem in plants.

Content Builder

What do the students need to know?

Content

- Gill filaments enable oxygen to diffuse into the blood.
- Hollow bones are lighter, allowing flight.
- Xylem in plants
  - System of tubes that both support the plant and transport cells that circulate water and dissolved minerals
  - Phloem in plants
  - Cells laid out end-to-end throughout the plant, transporting sugars and other molecules created by the plant

Connections

Foundational knowledge from fourth grade standard 4.10A and fifth grade standard 5.10A help support this standard.

To what degree will this learning impact learning two years down the road?

This standard is not revisited in middle school. This standard supports Biology standard 12.B.

Academic Vocabulary

- Internal structure
- Organism
- Adaptation
- Specific
- Function
- Xylem
- Gills

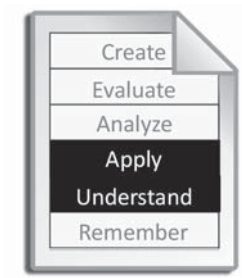
Rigor Implications

Verb

- Investigate, Explain

Level of Bloom's Taxonomy

- Applying
- Understanding



Instructional Implications

Students will need to have opportunities to determine what internal structures increase the survivability of certain organisms.

Distractor Factor

Students will need to understand that individuals do not make adaptations. Adaptations occur in populations, and this is a random occurrence based upon genetic mutation.

Level of Difficulty (based on local data)

☐ Moderate ☐ Challenging

(7.12) Organisms and environments. The student knows that living systems at all levels of organization demonstrate the complementary nature of structure and function. The student is expected to:

Grade 7 Science

(D) Differentiate between structure and function in plant and animal cell organelles, including cell membrane, cell wall, nucleus, cytoplasm, mitochondrion, chloroplast, and vacuole.

Content Builder

What do the students need to know?

Content

- Cell structure and function of organelles
- Plant cells differ from animal cells in structure and function.

Connections

This is the first time students have been introduced to structure and function on a cellular level, and this content is not directly taught again before the STAAR test is given in Grade 8.

To what degree will this learning impact learning two years down the road?

This standard sets the foundation for the understanding of the structure and function of cell organelles. Biology 5B will require students to examine the specialized cells of plants and animals. Biology 10B will require students to describe processes in plants, which cannot be done without knowledge of the functions of specialized plant cells.

Academic Vocabulary

- Cell organelles
- Cell membrane
- Cell wall
- Nucleus
- Cytoplasm
- Mitochondrion
- Chloroplast
- Vacuole

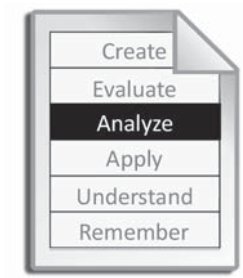
Rigor Implications

Verb

- Differentiate

Level of Bloom's Taxonomy

- Analyzing



Instructional Implications

The focus of instruction should be on the relationship between structure and function. Students must be able to distinguish between the two, and do not think of them as the same thing.

Distractor Factor

Students will need to see models of cells. They may have the misconception that all cells look the same, and have the same structure and features, as well as the same functions.

Level of Difficulty (based on local data)

☐ Moderate ☐ Challenging

(7.14) Organisms and environments. The student knows that reproduction is a characteristic of living organisms and that the instructions for traits are governed in the genetic material. The student is expected to:

Grade 7 Science

(B) Compare the results of uniform or diverse offspring from sexual reproduction or asexual reproduction.

Content Builder

What do the students need to know?
Content
- Asexual vs. sexual reproduction
- Uniform vs. diverse

Connections
The readiness standards in this category for the Grade 8 STAAR assessment focus on interdependence. This standard focuses specifically on the organism.

To what degree will this learning impact learning two years down the road?
This standard does not support a readiness standard. It fits the criteria of a supporting standard by addressing a narrowly defined idea. This standard does support the CCRS Biology 4A.

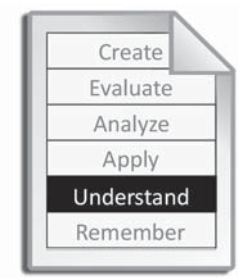
Academic Vocabulary

- Sexual reproduction
- Asexual reproduction

Rigor Implications

Verb
- Compare

Level of Bloom's Taxonomy
- Understanding



Instructional Implications
This is the first time that students will be introduced to the concepts of sexual and asexual reproduction. They must obtain the knowledge at a very high rigor.
Note: Meiosis and mitosis are not addressed until high school Biology.

Distractor Factor

Some organisms use both sexual and asexual reproduction (ex. Paramecium).

Level of Difficulty (based on local data)

☐ Moderate ☐ Challenging

(7.5) Matter and energy. The student knows that interactions occur between matter and energy. The student is expected to:

Grade 7 Science

(B) Demonstrate and explain the cycling of matter within living systems such as in the decay of biomass in a compost bin.

Supporting the Readiness Standards

What Readiness Standard(s) or concepts from the Readiness Standards does it support?
This is an isolated student expectation. There has not been a TEKS that directly supports this standard.

How does it support the Readiness Standard(s)?
This standard does not directly support a readiness standard, as it is new content for 7th grade. In previous years, students have studied about living systems and the larger concept of cycles. This standard helps support learning in high school biology.

May be adjusted according to local curriculum.

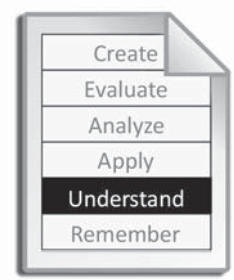
Academic Vocabulary

- Cycling of matter
- Decay
- Biomass
- Compost Bin
- Decomposer

Rigor Implications

Verb
- Demonstrate
- Explain

Level of Bloom's Taxonomy
- Understanding



Instructional Implications
Students will need to be able to answer the question: How is matter cycled through a living system? Over time, matter is transferred from one organism to another as well as within its physical environment. The total amount of matter remains constant even though its form and location may change.

(7.6) Matter and energy. The student knows that matter has physical and chemical properties and can undergo physical and chemical changes. The student is expected to:

Grade 7 Science

(A) Identify that organic compounds contain carbon and other elements such as hydrogen, oxygen, phosphorus, nitrogen, or sulfur.

Supporting the Readiness Standards

What Readiness Standard(s) or concepts from the Readiness Standards does it support?
This standard does not directly support a readiness standard.

How does it support the Readiness Standard(s)?
The introduction of organic compounds is a related concept to eighth grade readiness standard 8.5B, but it does not directly support a readiness standard.

May be adjusted according to local curriculum.

Academic Vocabulary

- Inorganic compounds
- Organic compounds
- Compound
- Element

Rigor Implications

Verb
- Identify

Level of Bloom's Taxonomy
- Remembering

Instructional Implications
Throughout learning this concept, students will need classroom experiences where they can identify organic compounds as those made of carbon and identify those carbon-based organic compounds which also contain nitrogen, hydrogen, oxygen, nitrogen, phosphorous, and sulfur.

7.6B Supporting

(7.6) Matter and energy. The student knows that matter has physical and chemical properties and can undergo physical and chemical changes. The student is expected to:

Grade 7 Science

(B) Distinguish between physical and chemical changes in matter in the digestive system.

Supporting the Readiness Standards

What Readiness Standard(s) or concepts from the Readiness Standards does it support?
The ability to distinguish between physical and chemical changes supports Readiness Standard 8.5E.

How does it support the Readiness Standard(s)?
Students were introduced to physical changes in matter in elementary school. In sixth grade, they were introduced to chemical changes and how to recognize that a chemical change has taken place. This standard requires students to distinguish between physical and chemical changes in matter, specifically in the digestive system.

May be adjusted according to local curriculum.

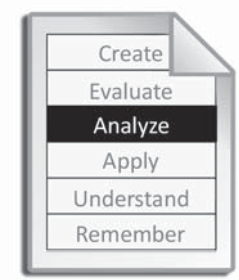
Academic Vocabulary

- Physical changes
- Chemical changes
- Digestive system

Rigor Implications

Verb
- Distinguish

Level of Bloom's Taxonomy
- Analyzing



Instructional Implications
This standard could be taught in a unit with the body systems and TEKS 7.12B, or in a unit on changes in matter earlier in the year and be revisited with body systems.

(7.6) Matter and energy. The student knows that matter has physical and chemical properties and can undergo physical and chemical changes. The student is expected to:

Grade 7 Science

(C) Recognize how large molecules are broken down into smaller molecules such as carbohydrates can be broken down

Supporting the Readiness Standards

What Readiness Standard(s) or concepts from the Readiness Standards does it support?
This standard/concept does not directly support a Readiness Standard.

How does it support the Readiness Standard(s)?
This standard does not directly support a readiness standard, however, it does support Biology and Chemistry high school concepts.

May be adjusted according to local curriculum.

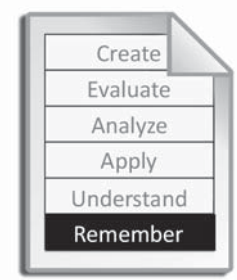
Academic Vocabulary

- Molecule
- Micromolecule
- Carbohydrate
- Lipid
- Protein
- Nucleotide
- Fats
- Sugars

Rigor Implications

Verb
- Recognize

Level of Bloom's Taxonomy
- Remembering



Instructional Implications
Students will need instructional activities where they can identify that large molecules are chemically broken down into smaller molecules.

7.7B Supporting

(7.7) Force, motion and energy. The student knows that there is a relationship among force, motion, and energy. The student is expected to:

Grade 7 Science

(B) Illustrate the transformation of energy within an organism such as the transfer from chemical energy to heat and thermal energy in digestion.

Supporting the Readiness Standards

What Readiness Standard(s) or concepts from the Readiness Standards does it support?
This standard does not directly support a Readiness Standard.

How does it support the Readiness Standard(s)?
This concept builds from grade 06, but does not directly support a Readiness Standard. The conceptual understanding of the transformation of energy will continue Biology.

May be adjusted according to local curriculum.

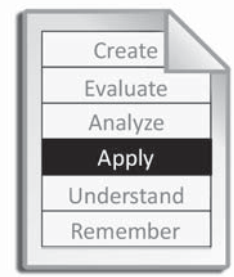
Academic Vocabulary

- Transfer
- Heat energy
- Thermal energy
- Digestion
- Organism

Rigor Implications

Verb
- Illustrate

Level of Bloom's Taxonomy
- Applying



Instructional Implications
Include in instruction a brief review of all types of energy transformations such as thermal, electrical, kinetic, and potential.

7.7C Supporting

(7.7) Force, motion and energy. The student knows that there is a relationship among force, motion, and energy. The student is expected to:

Grade 7 Science

(C) Demonstrate and illustrate forces that affect motion in everyday life such as emergence of seedlings, turgor pressure, and geotropism.

Supporting the Readiness Standards

What Readiness Standard(s) or concepts from the Readiness Standards does it support?
This standard directly supports Readiness Standard 8.6C.

How does it support the Readiness Standard(s)?
Students will apply these understandings to Newton's Laws in eighth grade.

May be adjusted according to local curriculum.

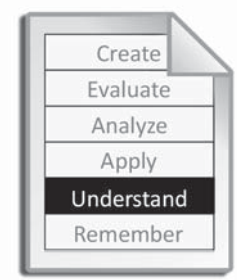
Academic Vocabulary

- Force
- Motion
- Emergence
- Seedlings
- Turgor pressure
- Tropism

Rigor Implications

Verb
- Demonstrate, Illustrate

Level of Bloom's Taxonomy
- Understanding



Instructional Implications
Provide support with this concept through hands-on investigations. Guiding questions throughout instruction: What forces influence the growth and development of a plant? How does turgor pressure prevent plants from wilting? How is photosynthesis affected by turgor pressure?

(7.8) Earth and space. The student knows that natural events and human activity can impact Earth systems. The student is expected to:

Grade 7 Science

(B) Analyze the effects of weathering, erosion, and deposition on the environment in ecoregions of Texas.

Supporting the Readiness Standards

What Readiness Standard(s) or concepts from the Readiness Standards does it support?
This standard does not directly support a Readiness Standard.

How does it support the Readiness Standard(s)?
Conceptual understandings from this standard will support future learning in Environmental Systems and Earth and Space Science in high school.

May be adjusted according to local curriculum.

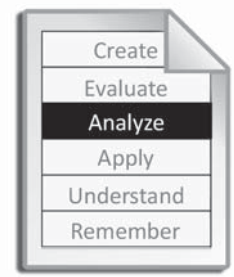
Academic Vocabulary

- Weathering
- Erosion
- Deposition
- Environment
- Ecoregion
- Sediment
- Mechanical weathering
- Chemical weathering

Rigor Implications

Verb
- Analyze

Level of Bloom's Taxonomy
- Analyzing



Instructional Implications
Students will need to know the types of chemical weathering (acid rain and oxidation). Include hands-on experiences with erosion investigations.

7.8C Supporting

(7.8) Earth and space. The student knows that natural events and human activity can impact Earth systems. The student is expected to:

Grade 7 Science

(C) Model the effects of human activity on ground water and surface water in a watershed.

Supporting the Readiness Standards

What Readiness Standard(s) or concepts from the Readiness Standards does it support?
This standard does not support a readiness standard, but it meets the criteria of a supporting standard because it addresses a narrowly defined idea.

How does it support the Readiness Standard(s)?
The concept of how humans affect the environment is an ongoing theme in the standards, but the specific focus on groundwater and surface water is a narrowly defined idea and does not directly support any readiness standard.

May be adjusted according to local curriculum.

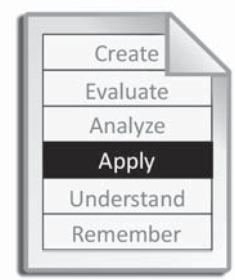
Academic Vocabulary

- Ground water
- Surface water
- Watershed

Rigor Implications

Verb
- Model

Level of Bloom's Taxonomy
- Applying



Instructional Implications
This is a standalone concept for 7th grade that can be taught in a unit on Earth systems. The focus of this standard is narrow, but the idea that human activity can impact the Earth is a major theme.

(7.9) Earth and space. The student knows components of our solar system. The student is expected to:

Grade 7 Science

(B) Identify the accommodations, considering the characteristics of our solar system, that enabled manned space exploration.

Supporting the Readiness Standards

What Readiness Standard(s) or concepts from the Readiness Standards does it support?
This standard does not support a readiness standard, but it does meet the criteria of a supporting standard because it addresses a narrowly defined idea.

How does it support the Readiness Standard(s)?
The standard is a narrowly defined concept and therefore does not support a readiness standard.

May be adjusted according to local curriculum.

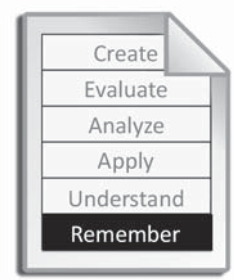
Academic Vocabulary

- Accommodation
- Characteristic
- Solar System
- Enable
- Manned space exploration
- Terrestrial

Rigor Implications

Verb
- Identify, Consider

Level of Bloom's Taxonomy
- Remembering



Instructional Implications
Instruction should include an exploration of what conditions are necessary to support life outside of Earth.

(7.10) Organisms and environments. The student knows that there is a relationship between organisms and the environment. The student is expected to:

Grade 7 Science

(B) Describe how biodiversity contributes to the sustainability of an ecosystem.

Supporting the Readiness Standards

What Readiness Standard(s) or concepts from the Readiness Standards does it support?
This is a newly introduced concept for seventh grade. This standard directly supports Readiness Standard 8.11B, where students are asked to investigate the relationships between organisms and populations in an ecosystem.

This standard also supports Biology Readiness Standard 12F by setting the foundation for stability in an ecosystem.

How does it support the Readiness Standard(s)?
This standard lays the foundation for the contributions of biodiversity to the sustainability of an ecosystem that will be studied further in Readiness Standards 8.11B and Biology 12F.

May be adjusted according to local curriculum.

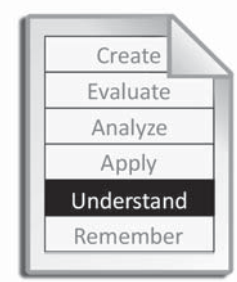
Academic Vocabulary

- Biodiversity
- Contribute
- Sustainability
- Ecosystem

Rigor Implications

Verb
- Describe

Level of Bloom's Taxonomy
- Understanding



Instructional Implications
Students will need to have the basic understandings that biotic and abiotic factors promote biodiversity, and know why biodiversity is important.

7.10C Supporting

(7.10) Organisms and environments. The student knows that there is a relationship between organisms and the environment. The student is expected to:

Grade 7 Science

(C) Observe, record, and describe the role of ecological succession such as in a microhabitat of a garden with weeds.

Supporting the Readiness Standards

What Readiness Standard(s) or concepts from the Readiness Standards does it support?
This standard supports Readiness Standard 8.11C, where students study how environmental changes affect populations. This standard supports Biology Readiness Standard 11D that expands on the concept of ecological succession and relates it to changes in populations and species diversity.

How does it support the Readiness Standard(s)?
This standard develops the background knowledge students will need in order to be successful with Readiness Standards 8.11C and Biology 11D.

May be adjusted according to local curriculum.

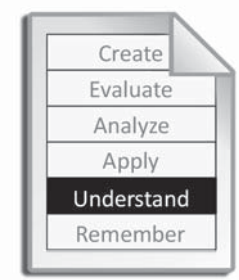
Academic Vocabulary

- Ecological
- Succession
- Pioneer species
- Primary succession
- Secondary succession
- Microhabitat
- Lichens

Rigor Implications

Verb
- Observe, Record, Describe

Level of Bloom's Taxonomy
- Understanding



Instructional Implications
This standard provides an introduction to the concept of ecological succession, which will play direct and indirect roles in eighth grade science, biology, and environmental systems courses. Provide students with opportunities to understand the stages of succession. Primary and secondary succession may include examples of deforestation, flood, drought, and fire.

(7.11) Organisms and environments. The student knows that populations and species demonstrate variation and inherit many of their unique traits through gradual processes over many generations. The student is expected to:

Grade 7 Science

(A) Examine organisms or their structures such as insects or leaves and use dichotomous keys for identification

Supporting the Readiness Standards

What Readiness Standard(s) or concepts from the Readiness Standards does it support?
The use of a dichotomous key for identification of organisms supports Biology Readiness Standard 8B.

How does it support the Readiness Standard(s)?
Biology 8B requires students to classify organisms based on similarities and differences using a dichotomous key for identification based on structures.

May be adjusted according to local curriculum.

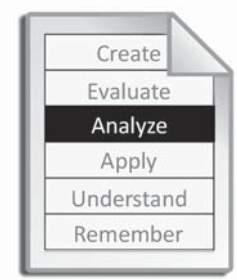
Academic Vocabulary

- Organism
- Structure
- Insect
- Dichotomous key
- Classification
- Identification
- Domains

Rigor Implications

Verb
- Examine

Level of Bloom's Taxonomy
- Analyzing



Instructional Implications
Students need to have opportunities to identify organisms using a dichotomous key and possibly create their own dichotomous key to use. Students will be tested in the use of a dichotomous key..

7.11C Supporting

(7.11) Organisms and environments. The student knows that populations and species demonstrate variation and inherit many of their unique traits through gradual processes over many generations. The student is expected to:

Grade 7 Science

(C) Identify some changes in genetic traits that can have occurred over several generations through natural selection and selective breeding such as the Galapagos medium ground finch (Geospiza fortis) or domestic animals.

Supporting the Readiness Standards

What Readiness Standard(s) or concepts from the Readiness Standards does it support?

The broad concept of traits and how they can play a role in a population's chance of survival in a particular ecosystem is a major idea in science. This standard supports Readiness Standards 8.11C and Biology 7D and 7E by addressing changes in genetic traits and how those changes have affected populations.

How does it support the Readiness Standard(s)?

This standard supports Readiness Standard 8.11C by creating a foundation for the ways that an organism's traits can change over time in reaction to environmental changes. This standard supports Biology Readiness Standards 7D and 7E by introducing the concept of natural selection.

May be adjusted according to local curriculum.

Academic Vocabulary

- Traits
- Natural selection
- Selective breeding

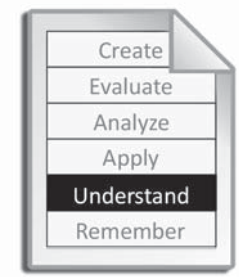
Rigor Implications

Verb

- Identify

Level of Bloom's Taxonomy

- Understanding



Instructional Implications

This standard should be taught in a unit with 7.11A and B, where organisms' structures are examined and related to their survival in an environment.

(7.12) Organisms and environments. The student knows that living systems at all levels of organization demonstrate the complementary nature of structure and function. The student is expected to:

Grade 7 Science

(B) Identify the main functions of the systems of the human organism, including the circulatory, respiratory, skeletal, muscular, digestive, excretory, reproductive, integumentary, nervous, and endocrine systems.

Supporting the Readiness Standards

What Readiness Standard(s) or concepts from the Readiness Standards does it support?
The readiness standards in this category for the Grade 8 STAAR assessment focus on interdependence. This standard focuses specifically on the organism. This standard supports Biology Readiness Standards 10A and 10C.

How does it support the Readiness Standard(s)?
This standard builds background knowledge of the functions of the body systems. This information will be used when students study the interactions of the systems in biology.

May be adjusted according to local curriculum.

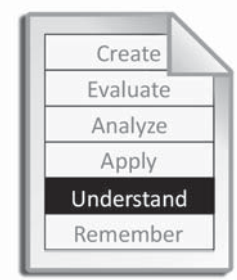
Academic Vocabulary

- Circulatory
- Respiratory
- Skeletal
- Muscular
- Digestive
- Excretory
- Reproductive
- Integumentary
- Nervous
- Endocrine systems

Rigor Implications

Verb
- Identify

Level of Bloom's Taxonomy
- Understanding



Instructional Implications
Instruction should focus primarily on the functions of the different systems. This will lay the foundation for the interactions between the systems that will be studied in biology.

(7.12) Organisms and environments. The student knows that living systems at all levels of organization demonstrate the complementary nature of structure and function. The student is expected to:

Grade 7 Science

(C) Recognize levels of organization in plants and animals, including cells, tissues, organs, organ systems, and organisms.

Supporting the Readiness Standards

What Readiness Standard(s) or concepts from the Readiness Standards does it support?
This standard does not directly support a readiness standard, however, it is considered a supporting standard because of the specificity of the content.

How does it support the Readiness Standard(s)?
This standard does not directly support a readiness standard but is aligned to Biology A6; Know the structure of membranes and how this relates to permeability.

May be adjusted according to local curriculum.

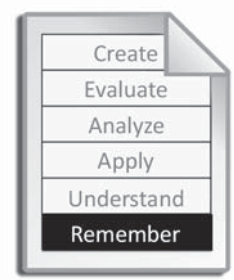
Academic Vocabulary

- Cell
- Tissue
- Organ
- Organ system
- Organism

Rigor Implications

Verb
- Recognize

Level of Bloom's Taxonomy
- Remembering



Instructional Implications
Provide activities where students learn that there are levels of organization in plants.

7.12E Supporting

(7.12) Organisms and environments. The student knows that living systems at all levels of organization demonstrate the complementary nature of structure and function. The student is expected to:

Grade 7 Science

(E) Compare the functions of a cell to the functions of organisms such as waste removal.

Supporting the Readiness Standards

What Readiness Standard(s) or concepts from the Readiness Standards does it support?
This is an isolated standard that does not directly support a readiness standard. It is a supporting standard because of its specificity.

How does it support the Readiness Standard(s)?
This standard supports Biology 5B, which is a supporting standard.

May be adjusted according to local curriculum.

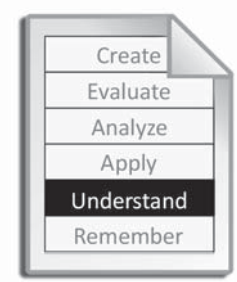
Academic Vocabulary

- Cell
- Organism
- Waste removal
- Excretion
- Metabolism

Rigor Implications

Verb
- Compare

Level of Bloom's Taxonomy
- Understanding



Instructional Implications
Provide opportunities in instruction for students to explore the ways plant cells and animal cells reproduce, eliminate waste, grow, and obtain energy compared to one another.

(7.12) Organisms and environments. The student knows that living systems at all levels of organization demonstrate the complementary nature of structure and function. The student is expected to:

Grade 7 Science

(F) Recognize that according to cell theory all organisms are composed of cells and cells carry on similar functions, such as extracting energy from food to sustain life.

Supporting the Readiness Standards

What Readiness Standard(s) or concepts from the Readiness Standards does it support?
The readiness standards in this category for the Grade 8 STAAR assessment focus on interdependence. This standard focuses specifically on the organism. This standard supports Biology Readiness Standard 4B.

How does it support the Readiness Standard(s)?
This standard focuses on cell theory and the concept that the functions required to sustain life happen at all levels of organization. Biology Readiness Standard 4B focuses on the cellular processes that take place for the cell to survive.

May be adjusted according to local curriculum.

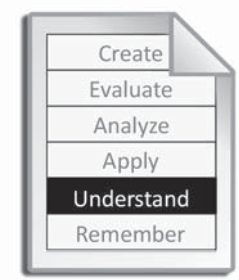
Academic Vocabulary

- Cell theory

Rigor Implications

Verb
- Recognize

Level of Bloom's Taxonomy
- Understanding



Instructional Implications
Students should recognize that the same functions that must occur to sustain life happen at all levels of organization.

(7.13) Organisms and environments. The student knows that a living organism must be able to maintain balance in stable internal conditions in response to external and internal stimuli. The student is expected to:

Grade 7 Science

(A) Investigate how organisms respond to external stimuli found in the environment, such as phototropism and fight or flight.

Supporting the Readiness Standards

What Readiness Standard(s) or concepts from the Readiness Standards does it support?
This standard does not directly support a readiness standard, but is considered a supporting standard because of the specificity of the content in seventh grade.

How does it support the Readiness Standard(s)?
This standard supports Biology in building understanding of the typical forms of organismal behavior.

May be adjusted according to local curriculum.

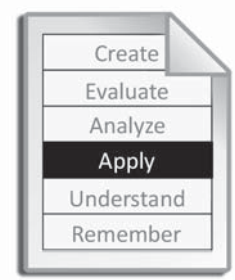
Academic Vocabulary

- Tropism
- Geotropism
- Phototropism

Rigor Implications

Verb
- Investigate

Level of Bloom's Taxonomy
- Applying



Instructional Implications
Provide students with the opportunities to plant seeds to observe the emergence of seedlings, turgor pressure, and geotropism.

(7.13) Organisms and environments. The student knows that a living organism must be able to maintain balance in stable internal conditions in response to external and internal stimuli. The student is expected to:

Grade 7 Science

(B) Describe and relate responses in organisms that may result from internal stimuli such as wilting in plants and fever or vomiting in animals that allow them to maintain balance.

Supporting the Readiness Standards

What Readiness Standard(s) or concepts from the Readiness Standards does it support?
This standard does not directly support an 8th grade readiness standard, but is considered a supporting standard because of the specificity of the content in seventh grade. This standard does support high school readiness standard Biology 10B.

How does it support the Readiness Standard(s)?
This standard supports Biology 10B.

May be adjusted according to local curriculum.

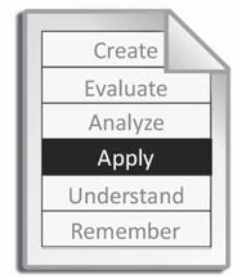
Academic Vocabulary

- Tropism
- Geotropism
- Phototropism

Rigor Implications

Verb
- Describe, Relate

Level of Bloom's Taxonomy
- Applying



Instructional Implications
Provide students with the opportunities to plant seeds to observe the emergence of seedlings, turgor pressure, and geotropism.

(7.14) Organisms and environments. The student knows that reproduction is a characteristic of living organisms and that the instructions for traits are governed in the genetic material. The student is expected to:

Grade 7 Science

(A) Define heredity as the passage of genetic instructions from one generation to the next generation.

Supporting the Readiness Standards

What Readiness Standard(s) or concepts from the Readiness Standards does it support?
This is an isolated student expectation that does not directly support a readiness standard.

How does it support the Readiness Standard(s)?
This standard does lay foundational knowledge for high school Biology 6A-H.

May be adjusted according to local curriculum.

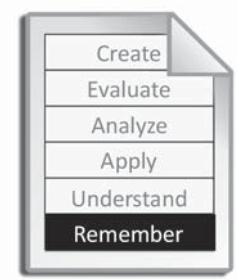
Academic Vocabulary

- Heredity
- Genetics
- Gene
- Generation
- Descendant
- Ancestor
- Dominant
- Recessive
- Punnett Square
- Homozygous
- Heterozygous
- Purebred
- Genotype
- Phenotype
- Variation
- Mutation

Rigor Implications

Verb
- Define

Level of Bloom's Taxonomy
- Remembering



Instructional Implications
Students should use Punnett Squares to help understand heredity and that traits are passed from parent to offspring through genetic material.

7.14C Supporting

(7.14) Organisms and environments. The student knows that reproduction is a characteristic of living organisms and that the instructions for traits are governed in the genetic material. The student is expected to:

Grade 7 Science

(C) Recognize that inherited traits of individuals are governed in the genetic material found in the genes within chromosomes in the nucleus.

Supporting the Readiness Standards

What Readiness Standard(s) or concepts from the Readiness Standards does it support?
The readiness standards in this category for the Grade 8 STAAR assessment focus on interdependence. This standard focuses specifically on the organism. This standard builds background knowledge for Biology Readiness Standard 6A. This standard supports the Biology Readiness Standard 4B.

How does it support the Readiness Standard(s)?
This standard sets the foundation for the study of genes, chromosomes, and the concept of genetic material. Biology Readiness Standard 4A will build on these concepts when students are asked to identify the components of DNA and describe how the DNA carries the information for specifying the traits of an organism.

May be adjusted according to local curriculum.

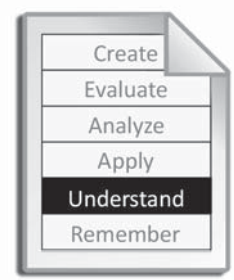
Academic Vocabulary

- Genes
- Chromosomes
- Nucleus
- Traits

Rigor Implications

Verb
- Recognize, Define

Level of Bloom's Taxonomy
- Understanding



Instructional Implications
Building a working knowledge of genes, traits, and chromosomes is important. The Grade 8 STAAR assessment could contain questions that might cause students to get the terms confused.