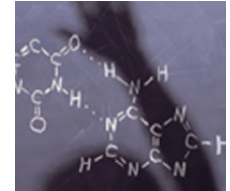
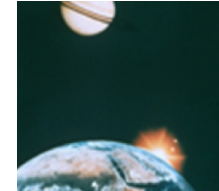


# Kindergarten Science

## 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

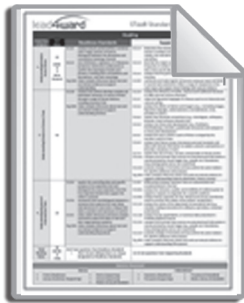
- assessing content and skills at a greater depth and higher level of cognitive complexity
- assessing more than one student expectation in a test item

The rigor of the tests will be increased by

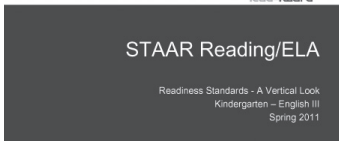
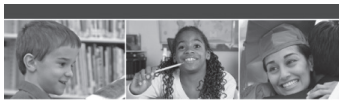
- assessing fewer, yet more focused student expectations and assessing them multiple times and in more complex ways
- including a greater number of rigorous items on the test, thereby increasing the overall test difficulty

# About the STAAR Field Guide

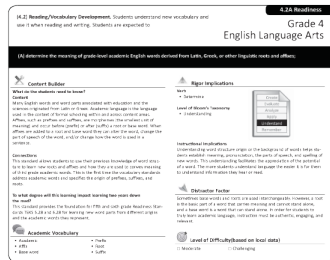
The STAAR Field Guide for Teachers is designed as a tool to help teachers prepare for instruction. The tools and resources in this guide are designed to supplement local curriculum documents by helping teachers understand how the design and components of STAAR are connected to the scope and sequence 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:



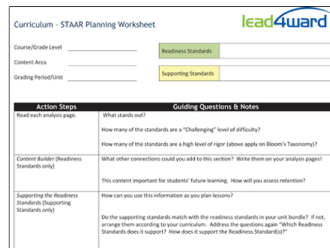
**STAAR Grade Level Snapshot** – one page overview of the standards assessed on STAAR, how those standards are classified (readiness, supporting, or process), the reporting categories around which those standards are clustered, and the number of items that will be on the test from each reporting category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

Student Expectation

Texas Essential Knowledge and Skills Statement

Standard and Indication of  
"Readiness" or "Supporting"

Grade and Subject

(5.3) Number, operation, and quantitative reasoning. The student adds, subtracts, multiplies, and divides to solve meaningful problems. The student is expected to

**5.3A Readiness**  
Grade 5 Math

**(A) use addition and subtraction to solve problems involving whole numbers and decimals;**

**Content Builder**  
What do the students need to know?  
Content  
• Addition  
• Decimals  
• Subtraction  
• Whole numbers  
• Decimals  
Connections  
In previous grades students added and subtracted decimals to the hundredths place using concrete objects and pictorial models. This supports the learning in grade 5 as students are using addition and subtraction to solve problems involving decimals.  
To what degree will this learning impact learning two years down the road?  
This learning will impact future learning as students will continue to be asked to use addition, subtraction, multiplication, and division to solve problems involving fractions and decimals.

**Academic Vocabulary**  
• Add  
• Subtract  
• Decimal

**Rigor Implications**  
Verb  
• Add  
• Subtract  
• Solve  
Level of Bloom's Taxonomy  
• Applying  
Instructional implications  
To appropriately adhere to the standard, students should be provided the opportunity to solve a variety of problems using addition and subtraction involving both whole numbers and decimals.

**Distractor Factor**  
Teachers should look for students who may be struggling with the addition when the whole is broken up into a decimal, or when the decimals add up to more than a whole.

**Level of Difficulty**

**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**

Student Expectation

Texas Essential Knowledge and Skills Statement

Standard and Indication of "Readiness" or "Supporting"

Grade and Subject

(5.1) Number, operation, and quantitative reasoning. The student uses place value to represent whole numbers and decimals. The student is expected to

**5.1B Supporting**  
Grade 5 Math

**(B) use place value to read, write, compare, and order decimals through the thousandths place.**

**Supporting the Readiness Standards**

What Readiness Standard(s) or concepts from the Readiness Standards does it support?  
5.3A use addition and subtraction to solve problems involving whole numbers and decimals.

How does it support the Readiness Standard(s)?  
This standard supports 5.3A by providing students continued practice reading, writing, comparing, and ordering decimals. This will support students as they solve addition and subtraction problems involving decimals.

*May be adjusted according to local curriculum.*

**Academic Vocabulary**

- Compare
- Order
- Decimal
- Tenths
- Hundredths
- Thousandths


**Rigor Implications**

Verb

- Write
- Compare
- Order

Level of Bloom's Taxonomy

- Analyzing



**Instructional Implications**

To appropriately adhere to the standard, students should be provided the opportunity to practice reading numbers aloud using place value, writing numbers that have been dictated using place value, and comparing and ordering decimals based on their the value.

**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 \_\_\_\_\_

Readiness Standards	
---------------------	--

Content Area \_\_\_\_\_

Grading Period/Unit \_\_\_\_\_

Supporting Standards	
----------------------	--

Action Steps	Guiding Questions & Notes
Read each analysis page.	<p>What stands out?</p> <p>How many of the standards are a “Challenging” level of difficulty?</p> <p>How many of the standards are a high level of rigor (above apply on Bloom’s Taxonomy)?</p>
<i>Content Builder</i> (Readiness Standards only)	<p>What other connections could you add to this section? Write them on your analysis pages!</p> <p>This content important for students’ future learning. How will you assess retention?</p>
<i>Supporting the Readiness Standards</i> (Supporting Standards only)	<p>How can you use this information as you plan lessons?</p> <p>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)?”</p>



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

Reporting Category	Readiness Standards	Supporting Standards
1 Matter and Energy	K.5.A observe and record properties of objects, including relative size and mass, such as bigger or smaller and heavier or lighter, shape, color, and texture*	K.5.B observe, record, and discuss how materials can be changed by heating or cooling*
	K.6.C observe and describe the location of an object in relation to another such as above, below, behind, in front of, and beside	K.6.A use the five senses to explore different forms of energy such as light, heat, and sound* K.6.B explore interactions between magnets and various materials* K.6.D observe and describe the ways that objects can move such as in a straight line, zigzag, up and down, back and forth, round and round, and fast and slow
2 Force, Motion, and Energy	K.7.A observe, describe, compare, and sort rocks by size, shape, color, and texture K.8.B identify events that have repeating patterns, including seasons of the year and day and night*	K.7.B observe and describe physical properties of natural sources of water, including color and clarity K.7.C give examples of ways rocks, soil, and water are useful K.8.A observe and describe weather changes from day to day and over seasons* K.8.C observe, describe, and illustrate objects in the sky such as the clouds, Moon, and stars, including the Sun*
	3 Earth and Space	K.9.A differentiate between living and nonliving things based upon whether they have basic needs and produce offspring K.10.A sort plants and animals into groups based on physical characteristics such as color, size, body covering, or leaf shape*
4 Organisms and Environments		

**Process Standards (Scientific Investigation and Reasoning Skills)**

K.1.A	identify and demonstrate safe practices as described in the Texas Safety Standards during classroom and outdoor investigations, including wearing safety goggles, washing hands, and using materials appropriately
K.1.B	discuss the importance of safe practices to keep self and others safe and healthy
K.1.C	demonstrate how to use, conserve, and dispose of natural resources and materials such as conserving water and reusing or recycling paper, plastic, and metal
K.2.A	ask questions about organisms, objects, and events observed in the natural world
K.2.B	plan and conduct simple descriptive investigations such as ways objects move
K.2.C	collect data and make observations using simple equipment such as hand lenses, primary balances, and nonstandard measurement tools
K.2.D	record and organize data and observations using pictures, numbers, and words
K.2.E	communicate observations with others about simple descriptive investigations
K.3.A	identify and explain a problem such as the impact of littering on the playground and propose a solution in his/her own words
K.3.B	make predictions based on observable patterns in nature such as the shapes of leaves
K.3.C	explore that scientists investigate different things in the natural world and use tools to help in their investigations
K.3.C	collect information using tools, including computers, hand lenses, primary balances, cups, bowls, magnets, collecting nets, and notebooks; timing devices, including clocks and timers; non-standard measuring items such as paper clips and clothespins; weather instruments such as demonstration thermometers and wind socks; and materials to support observations of habitats of organisms such as terrariums and aquariums
K.4.A	use senses as a tool of observation to identify properties and patterns of organisms, objects, and events in the environment

\* = Aligned with STAAR Assessed Curriculum at Grade 5

**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.*

## Kindergarten Science

**(K.5) Matter and energy.** The student knows that objects have properties and patterns. The student is expected to

**(A) Observe and record properties of objects, including relative size and mass, such as bigger or smaller and heavier or lighter, shape, color, and texture.**



### Content Builder

**What do the students need to know?**

#### Content

- Objects have observable properties
- Properties of objects (shape, color, texture)
- Relative size (bigger/ smaller)
- Relative mass
- Texture (rough, smooth, soft, etc.)
- Weight (heavier/ lighter)
- Temperature (hot, warm, cool, cold)
- Comparing/contrasting

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

To what degree will this learning impact learning 2 years down the road? This standard introduces foundation content for understanding the basic properties of matter and mass. These two concepts will build throughout the primary grades. The ability to observe the properties of objects will support first and second grade standards where students are asked to classify objects by their observable properties.



### Academic Vocabulary

- |            |               |
|------------|---------------|
| • Property | • Color       |
| • Size     | • Texture     |
| • Mass     | • Weight      |
| • Shape    | • Temperature |



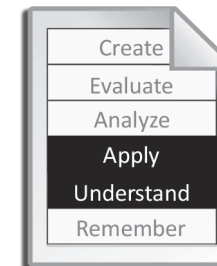
### Rigor Implications

#### Verb

- Observe, Record

#### Level of Bloom's Taxonomy

- Understanding, Applying



#### Instructional Implications

To appropriately adhere to the standard, students should be provided with opportunities to observe and record observations of various objects through hands-on investigations.



### Distractor Factor

- Students may think that mass/volume/weight/heaviness/size/density refer to the same property.
- Students associate the word “feel” with emotion instead of texture.
- Students need help identifying proper words to use when describing properties such as texture.



### Level of Difficulty (based on local data)

- Moderate       Challenging

**(K.6) Force, motion, and energy.** The student knows that energy, force, and motion are related and are a part of their everyday life. The student is expected to:

# Kindergarten Science

## **(C) Observe and describe the location of an object in relation to another such as above, below, behind, in front of, and beside.**



### Content Builder

**What do the students need to know?**

**Content**

- The location of an object in relation to another
- How to describe the location of the object, such as below, behind, in front of, and beside

**Connections**

Process TEKS K.2E relates to the students' use of communicating observations with others about simple descriptive investigations.

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

This learning introduces the foundational understanding of the position of objects in relation to others. In first grade, TEKS 1.6C will build on this understanding through describing the change in the location of an object, and in TEKS 1.6D students will begin to demonstrate and record ways objects can move.



### Academic Vocabulary

- Location
- Above
- Below
- Behind
- In front of
- Beside



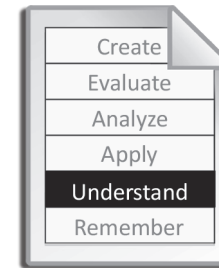
### Rigor Implications

**Verb**

- Observe, Describe

**Level of Bloom's Taxonomy**

- Understanding



**Instructional Implications**

Directional position of objects must be taught, demonstrated, and practiced through hands-on investigations to help with foundational knowledge building.



### Distractor Factor

At first, learning how to describe the position of objects, especially, in relation to other objects, can be an abstract concept for students. Simple, descriptive investigations where students are able to manipulate objects, observe, and discuss their findings will help strengthen their conceptual understandings.



### Level of Difficulty (based on local data)

- Moderate
- Challenging

**(K.7) Earth and Space.** The student knows that the natural world includes earth materials. The student is expected to:

## Kindergarten Science

**(A) Observe, describe, compare, and sort rocks by size, shape, color, and texture.**



### Content Builder

**What do the students need to know?**

**Content**

- Properties (size, shape, color, texture)

**Connections**

Process TEKS K.2A provides opportunities for students to ask questions about objects observed in the natural world. K.4B allows students to use their senses as a tool of observation to identify properties and patterns of objects in the environment.

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

In first grade, students will build on this knowledge by observing, comparing, describing, and sorting components of soil. In second grade, they will revisit rocks, focusing on the texture and color.



### Academic Vocabulary

- Size
- Shape
- Color
- Texture



### Rigor Implications

**Verb**

- Observe, Describe, Compare, Sort

**Level of Bloom's Taxonomy**

- Understanding, Analyzing, Evaluating, Applying



**Instructional Implications**

Properties of rocks, must be taught, demonstrated, and practiced through hands-on investigations to help with foundational knowledge building.



### Distractor Factor

Students need support in building vocabulary for identifying words to use when describing properties such as texture.



### Level of Difficulty (based on local data)

- Moderate       Challenging

**(K.8) Earth and space.**The student knows that there are recognizable patterns in the natural world and among objects in the sky. The student is expected to:

## Kindergarten Science

### (B) Identify events that have repeating patterns, including seasons of the year and day and night



#### Content Builder

**What do the students need to know?**

##### Content

- Identify events that have repeating patterns
- Day and night
- Seasons of the year
- Identify changes and cycles

##### Connections

The process TEKS K.3B can be connected to K.8B through the processes of predicting and understanding observable patterns in nature.

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

Students will continue to learn about observable patterns in the natural world through the characteristics of seasons, and day and night in first grade. In second grade, they will begin to learn about how seasons provide us with information to make informed decisions on how to dress, activities, etc.



#### Academic Vocabulary

- Patterns
- Day
- Night
- Seasons



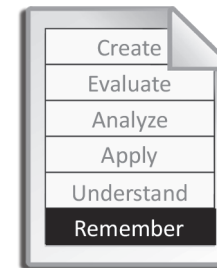
#### Rigor Implications

##### Verb

- Identify

##### Level of Bloom's Taxonomy

- Remembering



##### Instructional Implications

In kindergarten, understanding that there are repeating patterns can be abstract for learners. It is important for students to see first-hand the changes in nature, such as the seasons, and day and night. Activities such as revisiting a spot outside the school at different times of the year to observe changes in nature can help with the foundational understanding of change over time.



#### Distractor Factor

It is important to choose images and discussions on seasons that represent your area. Discussing temperature and climate change is important, and the observable changes in your area. Using generic clipart such as a snowflake for winter may not have meaning to students if they live in an area that does not or rarely receives snow in winter.



#### Level of Difficulty (based on local data)

- Moderate  Challenging

## Kindergarten Science

**(K.9) Organisms and environments.** The student knows that plants and animals have basic needs and depend on the living and nonliving things around them for survival. The student is expected to:

**(A) Differentiate between living and nonliving things based upon whether they have basic needs and produce offspring**



### Content Builder

**What do the students need to know?**

#### Content

- Living things are plants and animals
- Living things have basic needs
- Animals basic needs are water, food, air, and shelter
- Plants basic needs are sunlight, water, air, space, and nutrients
- Living things produce offspring

#### Connections

This concept will be revisited and built upon in several of the elementary grades.

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

The concept that this standard introduces in kindergarten will be built upon in first grade. Students will be sorting and classifying between living and nonliving things in first grade. When looking at this concept vertically, it will not be directly taught in second grade, but will be revisited in the intermediate grades.



### Academic Vocabulary

- |             |            |
|-------------|------------|
| • Living    | • Food     |
| • Nonliving | • Water    |
| • Offspring | • Shelter  |
| • Plant     | • Nutrient |
| • Animal    | • Space    |



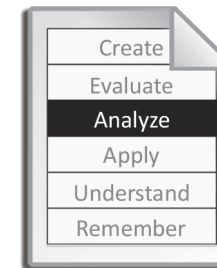
### Rigor Implications

#### Verb

- Differentiate

#### Level of Bloom's Taxonomy

- Analyzing



#### Instructional Implications

Students will need to understand the basic needs of living organisms. These needs are what sustains that organism and sets it apart from nonliving things. Spending time on each of the basic needs is important, as well as an understanding that all of these needs must be met for a living organism to survive. This will lay the foundation for future TEKS on organisms and environments.



### Distractor Factor

Students may have the misconception that all things that move are living organisms. Equally importantly, students might also believe that because plants do not move, they are nonliving.



### Level of Difficulty (based on local data)

- Moderate  Challenging

# Kindergarten Science

**(K.10) Organisms and environments.** The student knows that organisms resemble their parents and have structures and processes that help them survive within their environments. The student is expected to:

**(A) A sort plants and animals into groups based on physical characteristics such as color, size, body covering, or leaf shape.**



### Content Builder

**What do the students need to know?**

**Content**

- Sort the physical characteristics of living things (plants and animals) by:
  - Color
  - Size
  - Body
  - Covering
  - Leaf shape

**Connections**

Process TEKS K.2D can be connected to this standard by recording and organizing data and observations through pictures and words.

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

This standard lays the foundation for the ideas that living organisms have unique characteristics. In first grade, students will investigate external characteristics of animals, and then in second they will learn how physical characteristics help animals meet their basic needs. This standard will support future TEKS addressing inherited traits, learned behaviors, and adaptive features.



### Academic Vocabulary

- Physical characteristic
- Covering
- Color
- Leaf shape
- Size
- Body



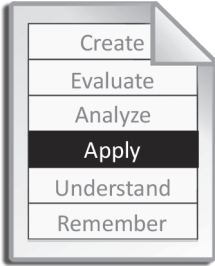
### Rigor Implications

**Verb**

- Sort

**Level of Bloom's Taxonomy**

- Applying



**Instructional Implications**

Students will need to have the basic understanding of physical characteristics of plants and animals. With plants, students should observe real samples of leaves and be able to sort. Pictures of animals can also be utilized to sort and discuss body coverings. In the discussion of body coverings, characteristics such as fur, feathers, skin, and scales need to be discussed so that students can build a basic understanding.



### Distractor Factor

Students may not have an understanding of animals. They may only think animals with fur are considered animals.



### Level of Difficulty (based on local data)

- Moderate
- Challenging



**(K.5) Matter and Energy.** The student knows that objects have properties and patterns. The student is expected to:

**(B) observe, record, and discuss how materials can be changed by heating or cooling.**



### Supporting the Readiness Standards

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

This standard helps build the foundational knowledge of matter and energy through observing how materials change through heating or cooling. It is important for students to have a basic understanding of heating and cooling of objects, such as ice melting or water freezing, so they can build on this knowledge in later grades.

#### How does it support the Readiness Standard(s)?

This standard helps support TEKS K.5A in recording properties of objects.

*May be adjusted according to local curriculum.*



### Academic Vocabulary

- Change
- Heating
- Cooling



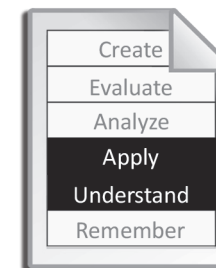
### Rigor Implications

#### Verb

- Observe, Record, Discuss

#### Level of Bloom's Taxonomy

- Understanding
- Applying



#### Instructional Implications

Instruction should include simple descriptive investigations where students can observe and record changes in materials such as ice melting or water freezing. This conceptual understanding will build in first and second grade through predicting changes, comparing materials, and understanding evaporation.

**(K.6) Force, motion, and energy.** The student knows that energy, force, and motion are related and are a part of their everyday life. The student is expected to:

## Kindergarten Science

**(A) use the five senses to explore different forms of energy such as light, heat, and sound**



### Supporting the Readiness Standards

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

This standard introduces the concept of energy through the use of senses. Students use their senses in every investigation. Therefore, it is essential that students understand each sense, how they are used, and how they support classroom and outdoor investigations.

#### How does it support the Readiness Standard(s)?

This standard does not directly support other kindergarten standards, however, it indirectly supports the process standards, as well as introducing the concept of energy that students will continue to learn throughout K-12 science.

*May be adjusted according to local curriculum.*



### Academic Vocabulary

- Senses
- Taste
- Sight
- Hear
- Touch
- Smell
- Heat
- Light
- Sound



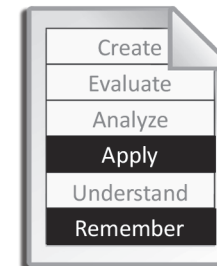
### Rigor Implications

#### Verb

- Use, Explore

#### Level of Bloom's Taxonomy

- Applying
- Remembering



#### Instructional Implications

To appropriately adhere to the standard, students should be provided the opportunity to explore various forms of energy through their senses. Hands-on investigations are essential.

**(K.6) Force, motion, and energy.** The student knows that energy, force, and motion are related and are a part of their everyday life. The student is expected to:

**(B) explore interactions between magnets and various materials**



### Supporting the Readiness Standards

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

This standard introduces the concepts of force and magnetism through the exploration of magnets and various materials. Students will observe how some materials are magnetic while others are not. This basic understanding will lay the foundation for the learning of force, motion, and energy.

#### How does it support the Readiness Standard(s)?

This standard supports future standards throughout the elementary grades. In first grade, students will begin to understand magnetism and force, and in second grade, students will understand how magnets are useful in everyday life.

*May be adjusted according to local curriculum.*



### Academic Vocabulary

- Magnet



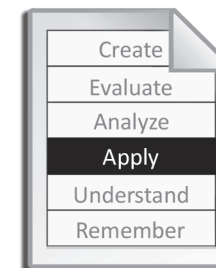
### Rigor Implications

#### Verb

- Explore

#### Level of Bloom's Taxonomy

- Applying



#### Instructional Implications

Students should perform a number of investigations with magnetic and nonmagnetic materials. Students can sort and classify the materials. Classroom discussions on characteristics of the objects, magnetic and non-magnetic, will help students' basic understanding of magnetism.

**(K.6) Force, motion, and energy.** The student knows that energy, force, and motion are related and are a part of their everyday life. The student is expected to:

## Kindergarten Science

**(D) observe and describe the ways that objects can move such as in a straight line, zigzag, up and down, back and forth, round and round, and fast and slow**



### Supporting the Readiness Standards

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

This standard introduces the concept of force and motion through observing and describing how objects move.

**How does it support the Readiness Standard(s)?**

This standard helps support learning of Readiness Standard K.6C and scaffold future learning for first and second grade.

*May be adjusted according to local curriculum.*



### Academic Vocabulary

- Straight line
- Zigzag
- Up and down
- Back and forth
- Round and round
- Fast and slow



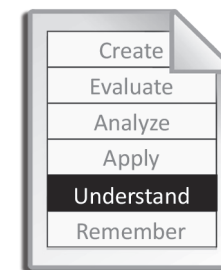
### Rigor Implications

**Verb**

- Observe, Describe

**Level of Bloom's Taxonomy**

- Understanding



**Instructional Implications**

Students perform a number of investigations that allow them to observe the movement of several different types of objects and describe the various types of movement. This standard lays the foundation for force and motion and will be built upon in first and second grade.

**(K.7) Earth and space.** The student knows that the natural world includes earth materials. The student is expected to:

# Kindergarten Science

## **(B) observe and describe physical properties of natural sources of water, including color and clarity**



### Supporting the Readiness Standards

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

Students gain the basic understanding of the concept of natural sources of water by observing different kinds of natural water sources. Through observations, students will describe the color and the clarity of the water source.

**How does it support the Readiness Standard(s)?**

This standard indirectly supports the development of identifying natural sources of water and determining its characteristics.

*May be adjusted according to local curriculum.*



### Academic Vocabulary

- Natural sources
- Ocean
- Lake
- Pond
- River
- Stream
- Color
- Clarity



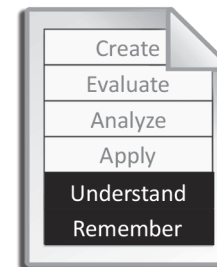
### Rigor Implications

**Verb**

- Observe, Describe

**Level of Bloom’s Taxonomy**

- Remembering
- Understanding



**Instructional Implications**

Instruction should include several opportunities for students to look at pictures of natural sources of water. Discuss the characteristics of each of these sources. Students may have difficulty with this standard as it is introduced. Provide opportunities for students to observe several different samples of water, and discuss how they look. Students will need to have the opportunity to see that some water can have a color to it and can be described by its clarity (e.g.: cloudy, clear). This is a foundational concept that will build in first grade, where students will have to identify these sources, and in second, where students will have to determine whether the source is comprised of salt or fresh water.

**(K.7) Earth and space.** The student knows that the natural world includes earth materials. The student is expected to:

## Kindergarten Science

**(C) Give examples of ways rocks, soil, and water are useful.**



### Supporting the Readiness Standards

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

This standard lays the foundation for supporting the understanding that rocks, soil, and water have properties and are useful to living organisms.

**How does it support the Readiness Standard(s)?**

This standard directly supports Readiness Standard 1.7A by providing students with the introduction of properties and uses of these natural resources. First grade will emphasize and build on the understandings of soil.

*May be adjusted according to local curriculum.*



### Academic Vocabulary

- Uses
- Rocks
- Soil
- Water



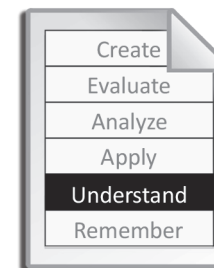
### Rigor Implications

**Verb**

- Give

**Level of Bloom's Taxonomy**

- Understanding



**Instructional Implications**

Provide students with opportunities to observe and experience ways that rocks, soil, and water are useful resources. For example, rocks can be used in the construction of buildings and road systems.

**(K.8) Earth and space.** The student knows that there are recognizable patterns in the natural world and among objects in the sky. The student is expected to:

# Kindergarten Science

## **(A) observe and describe weather changes from day to day and over seasons**



### Supporting the Readiness Standards

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

This standard introduces the overarching concept of change over time. Students will start with observing weather in kindergarten and will build from this experience to understand that there are patterns in weather, and that these patterns are what determine seasons.

**How does it support the Readiness Standard(s)?**

This standard directly supports K.8B in building understanding that there are changes in weather, and that the changes can be observed day to day, and through the seasons. Future readiness standards 1.8A and 2.8A will build on the foundational knowledge introduced in kindergarten.

*May be adjusted according to local curriculum.*



### Academic Vocabulary

- Weather
- Temperature
- Sunny
- Cloudy
- Windy
- Rainy
- Foggy
- Snowy



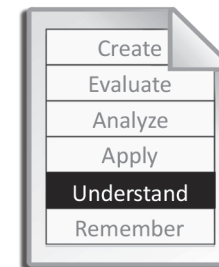
### Rigor Implications

**Verb**

- Observe, Describe

**Level of Bloom’s Taxonomy**

- Understanding



**Instructional Implications**

This supporting standard helps students begin to understand the observable patterns in nature in regards to weather. It is important to utilize the vocabulary during discussions in order for students to be able to describe what they see in their investigations. This standard directly supports related understandings in kindergarten, first, and second grades. It will also contribute to the larger understanding of patterns for the intermediate grades.

**(K.8) Earth and space.** The student knows that there are recognizable patterns in the natural world and among objects in the sky. The student is expected to:

## Kindergarten Science

**(C) observe, describe, and illustrate objects in the sky such as the clouds, Moon, and stars, including the Sun**



### Supporting the Readiness Standards

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

The introduction of objects in the sky does not directly support a readiness standard, but does contribute to the conceptual understanding that there are consistent observable objects in the sky. Students will continue to strengthen this concept in future grades by recognizing that there are patterns in the natural world and, in particular, in the night sky.

#### How does it support the Readiness Standard(s)?

This standard does not directly support a readiness standard.

*May be adjusted according to local curriculum.*



### Academic Vocabulary

- Stars
- Sun
- Moon
- Cloud



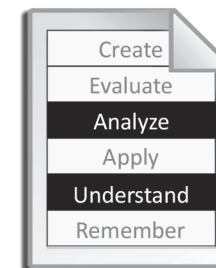
### Rigor Implications

#### Verb

- Observe, Describe, Illustrate

#### Level of Bloom's Taxonomy

- Understanding
- Analyzing



#### Instructional Implications

Provide opportunities for students to go out and observe the sky, and to record their observations in science notebooks. (Be sure to emphasize for safety purposes not to gaze at the Sun). Through classroom discussions, students can share what they observed during their investigation. It is equally important to provide images of the night sky to discuss what they observe. Include real images of the moon and stars.



# Kindergarten Science

**(K.9) Organisms and environments.** The student knows that plants and animals have basic needs and depend on the living and nonliving things around them for survival. The student is expected to:

**(B) examine evidence that living organisms have basic needs such as food, water, and shelter for animals and air, water, nutrients, sunlight, and space for plants**



### Supporting the Readiness Standards

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

This standard directly supports the readiness standard K.9A. TEKS K.9A introduces the concept of living and nonliving organisms. Students differentiate between the two based on the basic needs of living things. Building on that understanding, K.9B strengthens the idea that living organisms have basic needs, and provides students with the opportunities to examine evidence of these basic needs.

**How does it support the Readiness Standard(s)?**

The standard directly supports readiness standards K.9A, 1.9C and 2.9C in providing the foundational knowledge of living versus nonliving, and identifying basic needs.

*May be adjusted according to local curriculum.*



### Academic Vocabulary

- Living organisms
- Food
- Water
- Plants
- Shelter
- Animal
- Air
- Basic needs
- Water
- Nutrients
- Sunlight
- Space



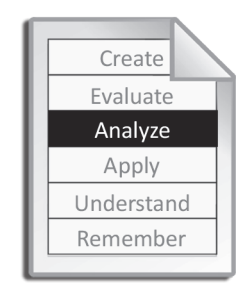
### Rigor Implications

**Verb**

- Examine

**Level of Bloom's Taxonomy**

- Analyzing



**Instructional Implications**

Students need opportunities to examine each type of basic need for living organisms. Students will need to understand that living organisms are plants and animals. They will also need to know that plants, as well as animals, have certain basic needs. These will be introduced in K.9A and reinforced through this supporting standard.

## Kindergarten Science

**(K.10) Organisms and environments.** The student knows that organisms resemble their parents and have structures and processes that help them survive within their environments. The student is expected to:

**(B) identify parts of plants such as roots, stem, and leaves and parts of animals such as head, eyes, and limbs**



### Supporting the Readiness Standards

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

This foundational standard helps students to begin to understand that plants and animals have parts, and that these parts have functions, or a purpose, in the overall survival of the organism.

#### How does it support the Readiness Standard(s)?

This standard does not directly support a readiness standard.

*May be adjusted according to local curriculum.*



### Academic Vocabulary

- |          |         |
|----------|---------|
| • Plant  | • Limbs |
| • Roots  | • Feet  |
| • Stem   | • Head  |
| • Leaves | • Eyes  |
| • Flower | • Fins  |
| • Animal | • Tails |
| • Eyes   |         |



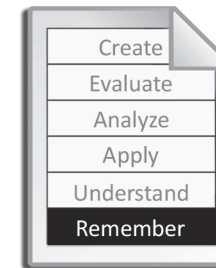
### Rigor Implications

#### Verb

- Identify

#### Level of Bloom's Taxonomy

- Remembering



#### Instructional Implications

Providing students with opportunities to observe pictures, diagrams, and real life examples will help them to understand the parts of living organisms and their functions.

**(K.10) Organisms and environments.** The student knows that organisms resemble their parents and have structures and processes that help them survive within their environments. The student is expected to:

### (C) identify ways that young plants resemble the parent plant



#### 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 introduces the idea that some traits are inherited by offspring from parents.

##### How does it support the Readiness Standard(s)?

This standard lays the conceptual framework for inherited traits in the intermediate grades.

*May be adjusted according to local curriculum.*



#### Academic Vocabulary

- Plant
- Leaves
- Flower
- Fruit



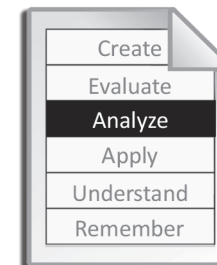
#### Rigor Implications

##### Verb

- Identify

##### Level of Bloom's Taxonomy

- Analyzing



##### Instructional Implications

The focus on instruction should be on building upon the knowledge of TEKS K.10A and K.10B (students sorted plants and animals based on physical characteristics, and identified parts of plants) For K.10C, classroom activities should include pictures of young and adult plants, as well as samples of live plants for students to observe and compare similarities.

## Kindergarten Science

**(K.10) Organisms and environments.** The student knows that organisms resemble their parents and have structures and processes that help them survive within their environments. The student is expected to:

**(D) observe changes that are part of a simple life cycle of a plant: seed, seedling, plant, flower, and fruit**



### Supporting the Readiness Standards

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

This foundational standard helps students to begin to understand that plants and animals have parts, and that these parts have functions, or a purpose, in the overall survival of the organism.

**How does it support the Readiness Standard(s)?**

This standard does not directly support a readiness standard.

*May be adjusted according to local curriculum.*



### Academic Vocabulary

- Plant
- Seed
- Seedling
- Plant
- Flower
- Fruit



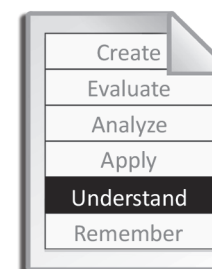
### Rigor Implications

**Verb**

- Observe

**Level of Bloom's Taxonomy**

- Understanding



**Instructional Implications**

Provide students with opportunities to plant seeds and observe the stages of the plant's life cycle.