Proficiency Scales

Science
KINDERGARTEN
2020

SOUTHWESTERN UNION

EDUCATION

PROFICIENCY SCALES

Proficiency scales serve as a starting point for unit planning, creating assessments, delivering instruction, grading, and reporting progress, as well as making teaching visible to students and guiding their growth on the standards. Specifically, a proficiency scale is a continuum or learning progression that articulates distinct levels of knowledge and skills relative to specific standards. It shows teachers and students what proficiency looks like, what knowledge and skills students need to achieve proficiency, and how students might go beyond proficiency.

A proficiency scale is composed of a series of levels as follows:

Score 3.0—Heart of the proficiency scale; it defines the target content that teachers expect all students to know and be able to do. I CAN statements are provided for this level.

Score 2.0—Simpler content; it describes the foundational knowledge and skills that students will need to master before progressing to proficiency.

Score 4.0—Challenging content; it provides students the opportunity to go above and beyond expectations by applying their knowledge in new situations or demonstrating understanding beyond what the teacher teaches in class. A generic statement is provided for this level.

Scores 1.0 and 0.0—No specific content; 1.0 indicates that a student can demonstrate some knowledge or skill with help from the teacher, but not independently; 0.0 means that, even with help, a student cannot show any understanding. Generic statements are provided for these levels.

Half-point Scores—More precise measurement of knowledge and skills that is between two levels. Generic statements are provided for these levels.
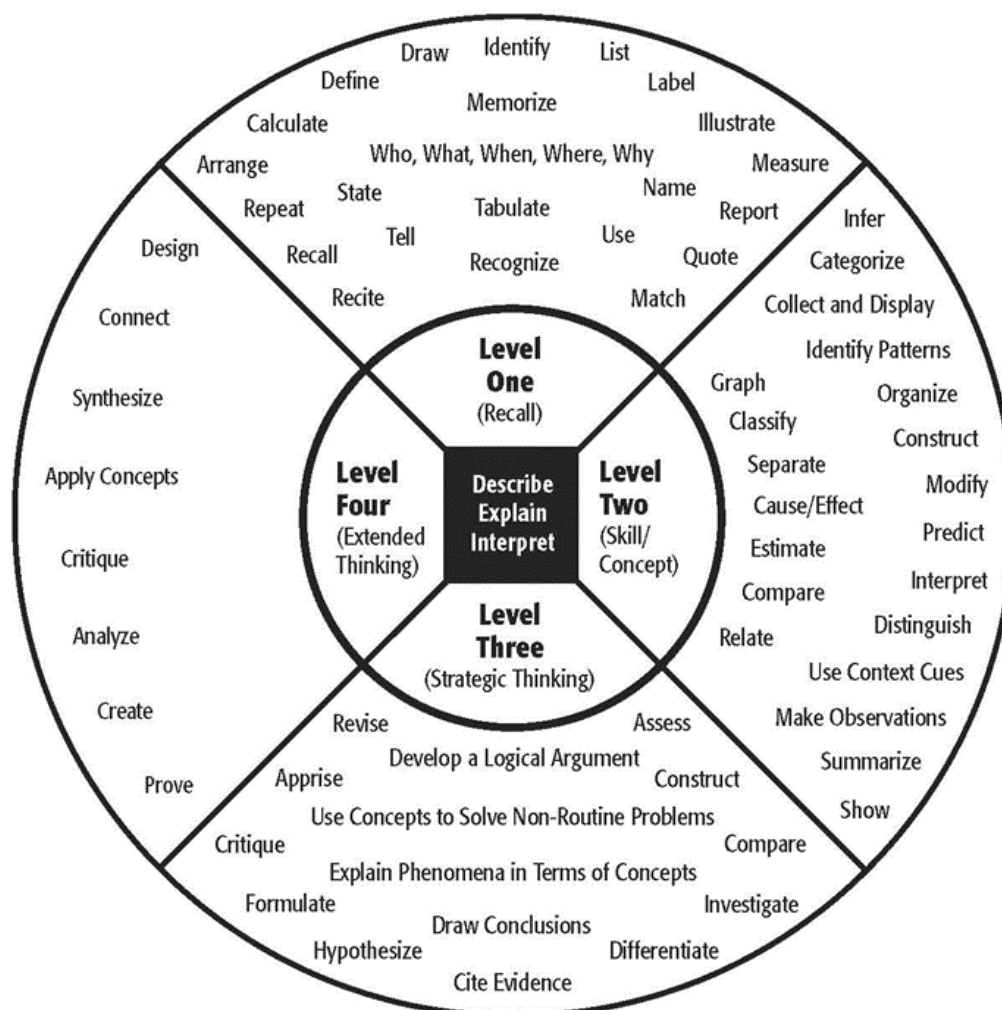
Proficiency scales become the centerpiece of communication and understanding in the classroom, as well as the common language for discussing learning between teacher and student.

The proficiency scales are organized according to the domains and strands in the NAD standards.

The cognitive rigor or complexity of the 3.0 learning targets has also been included, for it impacts the selection of instructional activities as well as assessment tasks. The Depth of Knowledge (DOK) model is generally used for this purpose, which is a taxonomy of four levels of cognitive demand. The levels are:

- **Level 1**—Recall
- **Level 2**—Skill/Concept
- **Level 3**—Strategic Thinking
- **Level 4**—Extended Thinking

Depth of Knowledge (DOK) Levels

Draw · Identify · List · Define · Label · Memorize · Calculate · Illustrate · Arrange · Who, What, When, Where, Why · Measure · State · Name · Repeat · Tabulate · Report · Tell · Use · Recall · Recognize · Quote · Recite · Match

Level One (Recall)

Design · Connect · Synthesize · Apply Concepts · Critique · Analyze · Create · Prove

Level Four (Extended Thinking)

Describe Explain Interpret

Level Two (Skill/Concept)

Infer · Categorize · Collect and Display · Identify Patterns · Graph · Organize · Classify · Construct · Separate · Modify · Cause/Effect · Predict · Estimate · Interpret · Compare · Distinguish · Relate · Use Context Cues · Make Observations · Summarize · Show · Compare · Investigate · Differentiate

Level Three (Strategic Thinking)

Revise · Assess · Apprise · Develop a Logical Argument · Construct · Critique · Use Concepts to Solve Non-Routine Problems · Explain Phenomena in Terms of Concepts · Formulate · Draw Conclusions · Hypothesize · Cite Evidence

Level One Activities	Level Two Activities	Level Three Activities	Level Four Activities
Recall elements and details of story structure, such as sequence of events, character, plot and setting.	Identify and summarize the major events in a narrative.	Support ideas with details and examples.	Conduct a project that requires specifying a problem, designing and conducting an experiment, analyzing its data, and reporting results/ solutions.
Conduct basic mathematical calculations.	Use context cues to identify the meaning of unfamiliar words.	Use voice appropriate to the purpose and audience.	Apply mathematical model to illuminate a problem or situation.
Label locations on a map.	Solve routine multiple-step problems.	Identify research questions and design investigations for a scientific problem.	Analyze and synthesize information from multiple sources.
Represent in words or diagrams a scientific concept or relationship.	Describe the cause/effect of a particular event.	Develop a scientific model for a complex situation.	
Perform routine procedures like measuring length or using punctuation marks correctly.	Identify patterns in events or behavior.	Determine the author's purpose and describe how it affects the interpretation of a reading selection.	Describe and illustrate how common themes are found across texts from different cultures.
Describe the features of a place or people.	Formulate a routine problem given data and conditions.	Apply a concept in other contexts.	Design a mathematical model to inform and solve a practical or abstract situation.
	Organize, represent and interpret data.		

Webb, Norman L. and others. "Web Alignment Tool" 24 July 2005. Wisconsin Center of Educational Research. University of Wisconsin-Madison. 2 Feb. 2006. <http://www.wcer.wisc.edu/WAT/index.aspx>.

DISCIPLINARY TRANSFER GOALS

There are a small number of overarching, long-term transfer goals in each subject area. They are meant to be integrated within and across grade-level instruction. Below are the transfer goals for science

1. Asking questions (for science) and defining problems (for engineering)
2. Developing and using models
3. Planning and carrying out investigations
4. Analyzing and interpreting data
5. Using mathematics and computational thinking
6. Constructing explanations (for science) and designing solutions (for engineering)
7. Engaging in argument from evidence
8. Obtaining, evaluating, and communicating information

Life Sciences

Essential Question: How do living organisms give evidence of God as the Designer, Creator, and Sustainer of life?

Big Idea: The complexity, order, and design of living organisms provide strong evidence of God as the Designer, Creator and Sustainer of life.

Physical Sciences

Essential Question: How does the order and consistency of natural laws provide evidence of God as the Designer, Creator, and Sustainer of the physical world?

Big Idea: Matter and energy are organized and behave according to natural laws that cannot be explained by chance, but are consistent and give evidence of God as the Designer, Creator, and Sustainer.

Health Sciences

Essential Question: Why does God want human beings to choose to have a healthy mind and body?

Big Idea: God designed a plan for healthful living that leads to optimum spiritual, physical, mental, and emotional health.

Earth and Space Sciences

Essential Question: How do the structure and physical phenomena of Earth and space provide evidence of God as Designer, Creator, and Sustainer of the universe?

Big Idea: The structure and processes of Earth and space are organized and governed by natural laws that give evidence of God as Designer, Creator, and Sustainer.

Engineering, Technology, and Applications of Science

Essential Question: How has God equipped humans to apply knowledge of science to solve problems for the benefit of His Creation?

Big Idea: God designed humans to wonder, question, and develop an attitude of inquiry as scientific principles are applied to the materials and forces of nature for the benefit of His Creation.

Subject: **Science**	Domain: **Physical Sciences** Strand: **Motion and Stability**	Grade: **K**

Standards: S.K-2.PS.5 Plan and conduct an investigation to compare the effects of different strengths or different directions of pushes and pulls (e.g., string attached to an object being pulled, pushing an object, stopping a rolling ball, two objects colliding and pushing on each other) on the motion of an object (K-PS2-1) S.K-2.PS.6 Analyze data to determine if a design solution (e.g., ramp to increase speed of an object, structure that causes an object to turn) works as intended to change the speed or direction of an object with a push or a pull (K-PS2-2)		
Score 4.0	In addition to score 3.0 performance, the student demonstrates in-depth inferences and applications that go beyond what was taught	
	Score 3.5	In addition to score 3.0 performance, partial success at score 4.0 content
Score 3.0	The student will: • Plan and conduct an investigation to compare the effects of different strengths or different directions of pushes and pulls on the motion of an object *(e.g., test and compare the relative, qualitative effects of pushing or pulling objects with varying strengths or in varying directions, such as a string pulling an object, a person pushing an object, a person stopping a rolling ball, or two objects colliding and pushing on each other)* **DOK 3** **I can compare how pushing or pulling objects affects how they move.** • Analyze data to determine if a design solution works as intended to change the speed or direction of an object with a push or a pull *(e.g., make observations to determine whether using a ramp can help a ball travel a certain distance or whether using curved structures can cause a marble to turn and follow a particular path)* **DOK 3** **I can decide if something changes the speed or direction of an object.**	
	Score 2.5	No major errors or omissions regarding score 2.0 content and partial success at score 3.0 content
Score 2.0	The student will recognize or recall vocabulary such as: • *Collide, compare, different, direction, motion, pull, push, stop, strength* • *Change, circular motion, curved, direction, distance, path, pull, push, ramp, speed, straight-line motion, turn, zigzag motion* The student will perform basic processes, such as: • Demonstrate a push • Demonstrate a pull • Describe the speed and direction of an object	
	Score 1.5	Partial success at score 2.0 content and major errors or omissions regarding score 3.0 content

Score 1.0	With help, partial success at score 2.0 content and score 3.0 content	
	Score 0.5	With help, partial success at score 2.0 content but not at score 3.0 content
Score 0.0	Even with help, no success	

With help, partial success at score 2.0 content and score 3.0 content

Subject: **Science**	Domain: **Physical Sciences** Strand: **Energy**	Grade: **K**

| **Standards:** S.K-2.PS.7 Make observations to determine the effect of sunlight on Earth's surface (e.g., sand, soil, rocks, water) (K-PS3-1)
 S.K-2.PS.8 Use tools and materials to design and build a structure (e.g., umbrellas, canopies, tents) that will reduce the warming effect of sunlight on an area (K-PS3-2) |||

Score 4.0		In addition to score 3.0 performance, the student demonstrates in-depth inferences and applications that go beyond what was taught
	Score 3.5	In addition to score 3.0 performance, partial success at score 4.0 content
Score 3.0		The student will: • Make observations to determine the effect of sunlight on Earth's surface *(e.g., make relative observations—such as "warmer" and "cooler"—of the effect of sunlight on sand, soil, rocks, and water to make generalizations about the effect that sunlight has on Earth's surface)* **DOK 3** **I can make an observation and tell how the sun affects the Earth's surface.** • Use tools and materials to design and build a structure that will reduce the warming effect of sunlight on an area *(e.g., use teacher-provided tools and materials to design and build a structure—such as an umbrella, canopy, or tent—that reduces the warming effect of the sun)* **DOK 3** **I can build a structure that reduces the warming effect of sunlight on an area.**
	Score 2.5	No major errors or omissions regarding score 2.0 content and partial success at score 3.0 content
Score 2.0		The student will recognize or recall vocabulary such as: • *Cold, cooler, Earth's surface, effect, hot, observation, rock, sand, soil, sunlight, warmer, water* • *Area, reduce, structure, sun, sunlight, warming effect* The student will perform basic processes, such as: • Describe the relative temperatures of objects using words like *cold, warmer, hot, and cooler* • Describe the effect of the sun on an object • Identify objects that provide shade from the sun, such as a tree or porch
	Score 1.5	Partial success at score 2.0 content and major errors or omissions regarding score 3.0 content
Score 1.0		With help, partial success at score 2.0 content and score 3.0 content

	Score 0.5	With help, partial success at score 2.0 content but not at score 3.0 content
Score 0.0	Even with help, no success	

Subject: **Science**	Domain: **Life Sciences** Strand: **Molecules to Organisms**	Grade: **K**

Standards: S.K-2.LS.1 Use observations to describe patterns (e.g., animals need to take in food but plants do not, different kinds of food needed by different types of animals, requirement of plants to have light, all living things need water) of what plants and animals (including humans) need to survive (K-LS1-1)

       S.K-2.LS.8 Apply scientific principles to begin to construct a personal model that explains how life began on earth and acknowledges God as the Creator

Score 4.0		In addition to score 3.0 performance, the student demonstrates in-depth inferences and applications that go beyond what was taught
	Score 3.5	In addition to score 3.0 performance, partial success at score 4.0 content
Score 3.0		The student will: • Use observations to describe patterns of what plants and animals (including humans) need to survive *(e.g., make observations of different ways in which plants and animals survive and identify patterns—such as animals needing food versus plants needing light, certain types of animals needing specific kinds of food, or all living things needing water)* **DOK 3** **I can make observations and tell what plants and animals need to survive.**
	Score 2.5	No major errors or omissions regarding score 2.0 content and partial success at score 3.0 content
Score 2.0		The student will recognize or recall vocabulary such as: • *Animal, food, human, light, living thing, pattern, plant, requirements for life, sunlight, survive, water* The student will perform basic processes, such as: • Identify different things that animals and plants need to survive, such as sunlight, water, and food • Apply scientific principles to begin to construct a personal model that explains how life began on earth and acknowledges God as the Creator
	Score 1.5	Partial success at score 2.0 content and major errors or omissions regarding score 3.0 content
Score 1.0		With help, partial success at score 2.0 content and score 3.0 content
	Score 0.5	With help, partial success at score 2.0 content but not at score 3.0 content
Score 0.0		Even with help, no success

Subject: **Science**	Domain: **Earth and Space Sciences** Strand: **Earth's Systems**	Grade: **K**

Standard: S.K-2.ES.1 Use and share observations of local weather conditions to describe patterns over time ((K-ESS2-1)		
Score 4.0	In addition to score 3.0 performance, the student demonstrates in-depth inferences and applications that go beyond what was taught	
	Score 3.5	In addition to score 3.0 performance, partial success at score 4.0 content
Score 3.0	The student will: • Use and share observations of local weather conditions to describe patterns over time *(e.g., make qualitative and quantitative observations of local weather conditions—such as describing the weather as sunny, cloudy, rainy, or warm or tallying the number of sunny, windy, and rainy days in a month—to describe patterns over time; for instance, it is usually cooler in the morning than in the afternoon, the number of sunny days versus cloudy days varies from month to month, and so on)* **DOK 3** **I can make observations of weather conditions to describe patterns over time.**	
	Score 2.5	No major errors or omissions regarding score 2.0 content and partial success at score 3.0 content
Score 2.0	The student will recognize or recall vocabulary such as: • *Afternoon, air movement, cloudy, cool, daily weather pattern, local, month, morning, rainy, seasonal change, seasonal weather, sunny, thermometer, warm, weather condition, weather pattern, windy* The student will perform basic processes, such as: • Make and record observations of local weather conditions	
	Score 1.5	Partial success at score 2.0 content and major errors or omissions regarding score 3.0 content
Score 1.0	With help, partial success at score 2.0 content and score 3.0 content	
	Score 0.5	With help, partial success at score 2.0 content but not at score 3.0 content
Score 0.0	Even with help, no success	

Subject: **Science**	Domain: **Earth and Space Sciences** Strand: **Earth and Human Activity**	Grade: **K**

Standard: S.K-2.ES.7 Ask questions to obtain information about the purpose of weather forecasting to prepare for, and respond to, severe weather (K-ESS3-2)		
Score 4.0	In addition to score 3.0 performance, the student demonstrates in-depth inferences and applications that go beyond what was taught	
	Score 3.5	In addition to score 3.0 performance, partial success at score 4.0 content
Score 3.0	The student will: • Ask questions to obtain information about the purpose of weather forecasting to prepare for, and respond to, severe weather *(e.g., ask questions to figure out why it is important to make predictions about local forms of severe weather)* **DOK 3** **I can ask questions about weather forecasting to help me prepare and respond to severe weather.**	
	Score 2.5	No major errors or omissions regarding score 2.0 content and partial success at score 3.0 content
Score 2.0	The student will recognize or recall vocabulary such as: • *Forecast, local, prediction, prepare, purpose, region, respond, severe weather, weather forecasting* The student will perform basic processes, such as: • Describe local forms of severe weather • Describe how to respond to severe weather situations	
	Score 1.5	Partial success at score 2.0 content and major errors or omissions regarding score 3.0 content
Score 1.0	With help, partial success at score 2.0 content and score 3.0 content	
	Score 0.5	With help, partial success at score 2.0 content but not at score 3.0 content
Score 0.0	Even with help, no success	

Subject: **Science**	Domain: **Earth and Space Sciences** Strand: **Earth and Human Activity**	Grade: **K**

Standard: S.K-2.ES.8 Communicate solutions that will reduce the impact of humans on the land, water, air, and/or other living things in the local environment (K-ESS3-3)

Score 4.0		In addition to score 3.0 performance, the student demonstrates in-depth inferences and applications that go beyond what was taught
	Score 3.5	In addition to score 3.0 performance, partial success at score 4.0 content
Score 3.0		The student will: • Communicate solutions that will reduce the impact of humans on the land, water, air, and/or other living things in the local environment *(e.g., consider the effect of human acts—such as cutting trees to produce paper and using resources to produce bottles—on the local environment, and describe ways to reduce this impact, such as by reusing paper and recycling cans and bottles)* **DOK 3** **I can find ways for us to take better care of our environment.**
	Score 2.5	No major errors or omissions regarding score 2.0 content and partial success at score 3.0 content
Score 2.0		The student will recognize or recall vocabulary such as: • *Air, environment, human, impact, land, living thing, local, recycle, reduce, resource, reuse, water* The student will perform basic processes, such as: • Identify ways humans have changed the environment • Describe ways to reduce the impact of humans on the environment
	Score 1.5	Partial success at score 2.0 content and major errors or omissions regarding score 3.0 content
Score 1.0		With help, partial success at score 2.0 content and score 3.0 content
	Score 0.5	With help, partial success at score 2.0 content but not at score 3.0 content
Score 0.0		Even with help, no success

Subject: **Science**	Domain: **Earth and Space Sciences** Strand: **Earth's Systems**	Grade: **K**

| **Standard:** S.K-2.ES.2 Construct an argument supported by evidence for how plants and animals (including humans) can change the environment to meet their needs (K-ESS2-2) |||

Score 4.0	In addition to score 3.0 performance, the student demonstrates in-depth inferences and applications that go beyond what was taught	
	Score 3.5	In addition to score 3.0 performance, partial success at score 4.0 content
Score 3.0	The student will: • Construct an argument supported by evidence for how plants and animals (including humans) can change the environment to meet their needs *(e.g., make and defend the claim that plants and animals can change an environment to meet their needs by citing examples such as a squirrel digging in the ground to hide its food or tree roots breaking concrete)* **DOK 3** **I can tell how plants and animals change the environment to meet their needs.**	
	Score 2.5	No major errors or omissions regarding score 2.0 content and partial success at score 3.0 content
Score 2.0	The student will recognize or recall vocabulary such as: • *Animal, change, environment, human, need, plant* The student will perform basic processes, such as: • State examples of ways in which humans, plants, or animals have changed the environment to meet their needs	
	Score 1.5	Partial success at score 2.0 content and major errors or omissions regarding score 3.0 content
Score 1.0	With help, partial success at score 2.0 content and score 3.0 content	
	Score 0.5	With help, partial success at score 2.0 content but not at score 3.0 content
Score 0.0	Even with help, no success	

Subject: **Science**	Domain: **Earth and Space Sciences** Strand: **Earth and Human Activity**		Grade: **K**
Standard: S.K-2.ES.6 Use a model to represent the relationship between the needs of different plants and animals (including humans) and the places they live (K-ESS3-2)			
Score 4.0	In addition to score 3.0 performance, the student demonstrates in-depth inferences and applications that go beyond what was taught		
	Score 3.5	In addition to score 3.0 performance, partial success at score 4.0 content	
Score 3.0	The student will: • Use a model to represent the relationship between the needs of different plants or animals (including humans) and the places they live *(e.g., use a model to show that living things need water, air, and resources from the land and that they live in places that have the things they need; for instance, deer eat buds and leaves and therefore usually live in forested areas, grasses need sunlight so they often grow in meadows, and so on)* **DOK 3** **I can show the relationship between the needs of different plants and animals and the places they live.**		
	Score 2.5	No major errors or omissions regarding score 2.0 content and partial success at score 3.0 content	
Score 2.0	The student will recognize or recall vocabulary such as: • *Air, animal, human, land, living thing, need, plant, relationship, resource, water* The student will perform basic processes, such as: • Identify the needs of plants, animals, and humans • Describe resources available in places where plants, animals, and humans live		
	Score 1.5	Partial success at score 2.0 content and major errors or omissions regarding score 3.0 content	
Score 1.0	With help, partial success at score 2.0 content and score 3.0 content		
	Score 0.5	With help, partial success at score 2.0 content but not at score 3.0 content	
Score 0.0	Even with help, no success		

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Subject: **Science**	Domain: **Engineering** Strand: **Engineering Design**	Grade: **K**

Standard: S.K-2.ET.1 Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool (K-2-ETS1-1)

Score 4.0		In addition to score 3.0 performance, the student demonstrates in-depth inferences and applications that go beyond what was taught
	Score 3.5	In addition to score 3.0 performance, partial success at score 4.0 content
Score 3.0		The student will: • Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool *(e.g., approach a situation that people want to change or create a problem to be solved through engineering, and ask questions, make observations, and gather information to clarify the problem, understanding that a problem must be clearly understood before a solution can be designed)* **DOK 3** **I can use questions, observations, and information to understand a problem.**
	Score 2.5	No major errors or omissions regarding score 2.0 content and partial success at score 3.0 content
Score 2.0		The student will recognize or recall vocabulary such as: • *Change, clarify, design, development, improve, information, observation, problem, question, situation, solution, solve, tool* The student will perform basic processes, such as: • Identify the steps to defining the problem *(e.g., ask questions, make observations, and gather information)* • Describe a simple problem
	Score 1.5	Partial success at score 2.0 content and major errors or omissions regarding score 3.0 content
Score 1.0		With help, partial success at score 2.0 content and score 3.0 content
	Score 0.5	With help, partial success at score 2.0 content but not at score 3.0 content
Score 0.0		Even with help, no success

Subject: **Science**	Domain: **Health Sciences** Strand: **Health Promotion and Disease Prevention**	Grade: **K**

Standards: S.K-2.HS.2 Demonstrate ways to prevent communicable diseases and reduce accidental injuries S.K-2.HS.3 Role play how to tell a trusted adult if threatened or harmed		
Score 4.0	In addition to score 3.0 performance, the student demonstrates in-depth inferences and applications that go beyond what was taught	
	Score 3.5	In addition to score 3.0 performance, partial success at score 4.0 content
Score 3.0	The student will: • Demonstrate ways to prevent communicable diseases and reduce accidental injuries *(e.g., demonstrate how to keep a home clean to prevent communicable diseases [such as throw away trash, wash dishes, dust, sweep floors, etc.]; demonstrate safety equipment that individuals wear to protect from accidental injuries while involved in different types of sports [such as helmet, knee pads, elbow pads])* **DOK 2** **I can show ways to prevent diseases and accidents.**	
	Score 2.5	No major errors or omissions regarding score 2.0 content and partial success at score 3.0 content
Score 2.0	The student will recognize or recall vocabulary such as: • *Accidental, communicable, disease, injury, threatened* The student will perform basic processes, such as: • Identify common communicable diseases • Identify common accidental injuries • Role play how to tell a trusted adult if threatened or harmed	
	Score 1.5	Partial success at score 2.0 content and major errors or omissions regarding score 3.0 content
Score 1.0	With help, partial success at score 2.0 content and score 3.0 content	
	Score 0.5	With help, partial success at score 2.0 content but not at score 3.0 content
Score 0.0	Even with help, no success	