# Proficiency Scales

## Science
## GRADE 1
## 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  Illustrate
Calculate  Who, What, When, Where, Why  Measure
Arrange  State  Name
Repeat  Tabulate  Report  Infer
Design  Tell  Use
Recall  Quote  Categorize
Recite  Recognize  Match  Collect and Display
Connect  Identify Patterns
Graph  Organize
Synthesize  Classify  Construct
Separate  Modify
Apply Concepts  **Level One** (Recall)  Cause/Effect  Predict
Estimate
**Level Four** (Extended Thinking)  **Describe Explain Interpret**  **Level Two** (Skill/ Concept)  Interpret
Critique  Compare  Distinguish
Relate
Analyze  **Level Three** (Strategic Thinking)  Use Context Cues
Create  Make Observations
Revise  Assess  Summarize
Develop a Logical Argument
Prove  Apprise  Construct  Show
Use Concepts to Solve Non-Routine Problems
Critique  Compare
Explain Phenomena in Terms of Concepts
Formulate  Investigate
Draw Conclusions
Hypothesize  Differentiate
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. | |
| 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. | Analyze and synthesize information from multiple sources. |
| 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. | | Design a mathematical model to inform and solve a practical or abstract situation. |
| | Organize, represent and interpret data. | Apply a concept in other contexts. | |

# 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: **Waves and Their Applications** | Grade: **1** |
|---|---|---|

**Standard:** S.K-2.PS.9 Plan and conduct investigations to provide evidence that vibrating materials (e.g., tuning forks, plucking a stretched string) can make sound and that sound can make materials vibrate (e.g., holding a piece of paper near a speaker, holding an object near a vibrating tuning fork) (1-PS4-1)

| 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: | |
| | | • Plan and conduct investigations to provide evidence that vibrating materials can make sound and that sound can make materials vibrate *(e.g., conduct an experiment to show that vibrating materials—such as tuning forks and plucked, stretched strings—can make sound and that sound can make materials vibrate—such as a piece of paper held near a speaker or an object held near a vibrating tuning fork)* **DOK 3**  **I can show that vibrating materials can make sound and that sound can make materials vibrate.** |
| | 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:  • *Sound, tuning fork, vibration*  The student will perform basic processes, such as:  • Identify examples of materials that vibrate to produce sound  • Describe what it means for something to vibrate | |
| | 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: **Physical Sciences**<br>Strand: **Waves and Their Applications** | Grade: **1** |
|---|---|---|

| **Standards:** S.K-2.PS.10 Make observations (e.g., those made in a completely dark room, pinhole box, video of a cave explorer) to construct an evidence-based account that objects can be seen only when illuminated (e.g., external light source, object giving off its own light) (1-PS4-2)<br>　　　S.K-2.PS.11 Plan and conduct an investigation to determine the effect of placing objects made with different materials (e.g., transparent, translucent, opaque, reflective) in the path of a beam of light (1-PS4-3) |||
|---|---|---|
| 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:<br>　• Make observations to construct an evidence-based account that objects can be seen only when illuminated *(e.g., make observations in a completely dark room, with a pinhole box, or about a video of a cave explorer with a flashlight, and use those observations to support the claim that objects can only be seen when they are illuminated, either from an external light source or by an object giving off its own light)* **DOK 3**<br>**I can make observations to show that objects can be seen only when illuminated.**<br>　• Plan and conduct an investigation to determine the effect of placing objects made with different materials in the path of a beam of light *(e.g., conduct an experiment to figure out what happens when objects that have different transparencies—whether they are fully transparent, such as clear plastic, translucent, such as wax paper; opaque, such as cardboard; or reflective, such as a mirror—are placed in the path of a beam of light)* **DOK 3**<br>**I can show the effect of placing objects made with different materials in a beam of light.** ||
| | 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:<br>　• *Evidence-based, external, illuminate, internal, light, light source*<br>　• *Effect, light, light beam, light source, opaque, path, properties of light, reflective, shadow, translucent, transparent*<br><br>The student will perform basic processes, such as:<br>　• State examples of objects that produce light<br>　• Describe the effect of a beam of light shining on an object ||
| | Score | Partial success at score 2.0 content and major errors or omissions regarding |

| | 1.5 | 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: **Physical Sciences** Strand: **Waves and Their Applications** | Grade: **1** |
|---|---|---|

**Standard:** S.K-2.PS.12 Use tools and materials to design and build a device (e.g., light source, paper cup and string "telephones," drum beats pattern) that uses light or sound to solve the problem of communicating over a distance (1-PS4-4)

| 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:<br>• Use tools and materials to design and build a device that uses light or sound to solve the problem of communicating over a distance *(e.g., design a device that allows people to communicate over a distance—such as signals through light flashes, a paper cup and string "telephone," or a pattern of drum beats—and construct the device using tools and materials)* **DOK 3**<br>**I can build a device that uses light or sound to communicate over a distance.** |
| | 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:<br>• *Communicate, construct, device, distance, light, light source, pattern, signal, sound*<br><br>The student will perform basic processes, such as:<br>• Identify different devices that use light or sound to communicate |
| | 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**<br>Strand: **Molecules to Organisms** | Grade: **1** |
|---|---|---|

| **Standard:** S.K-2.LS.3 Make observations to determine patterns in behavior of parents and offspring that help offspring survive (e.g., signals that offspring make such as crying, cheeping, and the responses of parents such as feeding, comforting, protecting) (1-LS1-2) |||
|---|---|---|
| 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:<br>• Read texts and use media to determine patterns in behavior of parents and offspring that help offspring survive *(e.g., read grade-appropriate scientific texts and use other types of media to identify behavioral patterns of survival among parents and offspring, such as signals that offspring make [including crying, cheeping, and other vocalizations] and the responses of parents [including feeding, comforting, and protection])* **DOK 3**<br>**I can describe the ways parents help their children 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:<br>• *Behavior, behavior pattern, offspring, parent, response, shelter, signal, survive*<br><br>The student will perform basic processes, such as:<br>• Describe the ways animal parents help their offspring survive<br>• State factors that threaten or inhibit the survival of animals ||
|  | 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**<br>Strand: **Molecules to Organisms** | Grade: **1** |
|---|---|---|

**Standard:** S.K-2.LS.2 Use materials to design a solution to a human problem by mimicking how plants and/or animals use their external parts to help them survive, grow, and meet their needs (e.g., designing clothing or equipment to protect bicyclists by mimicking turtle shells, acorn shells, and animal scales; stabilizing structures by mimicking animal tails and roots on plants; keeping out intruders by mimicking thorns on branches and animal quills (1-LS1-1)

| 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:<br>• Use materials to design a solution to a human problem by mimicking how plants and/or animals use their external parts to help them survive, grow, and meet their needs *(e.g., figure out a solution to a human problem based on plant and animal methods of survival—such as designing clothing or equipment to protect bicyclists by mimicking turtle shells, acorn shells, and animal scales; creating stabilizing structures by mimicking animal tails and roots on plants; fending off predators by mimicking thorns on branches and animal quills; and detecting predators by mimicking eyes and ears—and use teacher-provided materials to construct the design)* **DOK 3**<br>**I can find an answer to a problem by mimicking how plants or animals use their external parts to help them 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:<br>• *Animal, external, feature, grow, mimic, need, predator, survival, survive*<br><br>The student will perform basic processes, such as:<br>• Describe external parts that plants or animals use to survive or grow |
| | 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**<br>Strand: **Heredity** | Grade: **1** |
|---|---|---|

**Standards:**  S.K-2.LS.6  Make observations to construct an evidence-based account that young plants and animals are like, but not exactly like, their parents (e.g., leaves from same kind of plant are the same shape but can differ in size, young animals look similar to their parents but are not exactly the same) (1-LS3-1)
    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:<br>• Make observations to construct an evidence-based account that young plants and animals are like, but not exactly like, their parents *(e.g., observe plants and animals that show evidence of inheritance—such as leaves from the same kind of plant that are the same shape but different in size or a puppy that looks similar to its parents—and use these observations to support the claim that young plants and animals are similar but not identical to their parents)*  **DOK 3**<br>**I can make observations to show that young plants and animals are not exactly like their parents.** |
| | 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:<br>• *Animal, appearance, behavior, identical, inheritance, observation, offspring, parent, parent/offspring similarity, plan, similar*<br><br>The student will perform basic processes, such as:<br>• Describe the behavior and appearance of parents and offspring<br>• 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**<br>Strand: **Earth's Place in the Universe** | Grade: **1** |
|---|---|---|

| **Standard:** S.K-2.ES.10  Make observations at different times of year to relate the amount of daylight to the time of year (1-ESS1-2) |||
|---|---|---|
| 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:<br>• Make observations at different times of year to relate the amount of daylight to the time of year *(e.g., use observations—firsthand or from media—to make relative comparisons of the amount of daylight in the winter to the amount in the spring or fall)* **DOK 3**<br>**I can make observations to compare the amount of sunlight at different times of the year.** ||
| | 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:<br>• *Comparison, daylight, fall, observation, spring, summer, sun's position, sun's size, sunrise, sunset, winter, year*<br><br>The student will perform basic processes, such as:<br>• Make and record observations of the amount of sunlight at different times of the year ||
| | 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**<br>Strand: **Earth's Place in the Universe** | | Grade: **1** |
|---|---|---|---|
| **Standard:** S.K-2.ES.9  Use observations of the sun, moon, and stars to describe patterns (e.g., sun and moon appear to track across the sky, stars visible at night) that can be predicted (1-ESS1-1) | | | |
| 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:<br>• Use observations of the sun, moon, and stars to describe patterns that can be predicted *(e.g., make observations—firsthand or from media—of the sun, moon, and stars to identify predictable patterns, such as the visibility of stars other than our sun at night but not during the day; the consistent movement of the sun and moon appearing to rise in one part of the sky, cross the sky, and set in an opposite part of the sky; and so on)* **DOK 3**<br>**I can make observations of the sun, moon, and stars to describe the patterns of their movement.** | | |
| | 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:<br>• *Apparent movement of stars, apparent movement of the sun, day, Earth's rotation, moon, night, pattern, position, predict, predictable, rise, sky, star, sun, visible*<br><br>The student will perform basic processes, such as:<br>• State accurate information about the sun, moon, and stars<br>• Identify the relative positions of the sun, moon, and stars | | |
| | 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: **Engineering**<br>Strand:   **Engineering Design** | Grade: **1** |
|---|---|---|

| **Standard:** S.K-2.ET.2  Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object functions to solve a given problem (K-2-ETS1-2) |||
|---|---|---|
| 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:<br>• Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem *(e.g., convey a design solution through a sketch, drawing, or physical model in order to communicate problem-solving ideas to other people)* **DOK 3**<br>**I can show how the shape of an object helps it solve 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:<br>• *Communicate, design solution, drawing, function, illustrate, model, physical model, problem, problem-solving idea, shape, sketch, teamwork*<br><br>The student will perform basic processes, such as:<br>• Describe how an object might function to solve a 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**<br>Strand: **Healthy Lifestyle Choices** | **G**rade: **1** |
|---|---|---|

| **Standards:** S.K-2.HS.5 Construct an argument that media influences personal decisions relating to healthy choices<br>  S.K-2.HS.7 Identify a short-term personal health goal and implement a plan to attain that goal |||

| 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:<br>• Construct an argument that media influences personal decisions relating to healthy choices *(e.g., choose a TV ad on food and describe how it influences decisions about healthy choices)* **DOK 3**<br>**I can describe how media influences my decisions about healthy choices.**<br>• Implement a plan to attain a short-term personal health goal *(e.g., develop and use a food plan for a week that features healthy choices; develop and use an exercise plan for a week that features a variety of activities)* **DOK 3**<br>**I can develop and use a plan to reach a health goal.** ||
| | 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:<br>• *Choice, decision, goal, health, healthy, media, short-term*<br><br>The student will perform basic processes, such as:<br>• Identify examples of ads about health<br>• Identify a short-term personal health goal ||
| | 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 ||