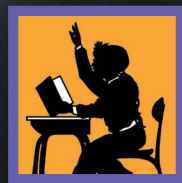


# STAAR CONNECTION™

## Diagnostic Series™

Science  
**4**  
teacher

**(revised for streamlined TEKS)**



**KAMICO®**  
**Instructional Media, Inc.**

# STAAR CONNECTION™

Science  
**4**  
teacher

## Diagnostic Series™

XXIX/i/MMXXII

Version 2

**(revised for streamlined TEKS)**



**KAMICO®**

Instructional Media, Inc.

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**KAMICO® Instructional Media, Inc.**  
**STAAR CONNECTION™**  
**Introduction**

KAMICO® Instructional Media's program is validated by scientifically based research. **STAAR CONNECTION™ Diagnostic Series™** and **Developmental Series™** can be used in tandem to ensure mastery of Texas reporting categories and TEKS. The *Diagnostic Series™* consists of a bank of assessments. Each assessment covers a mixture of reporting categories and TEKS. This research-based format provides continual reinforcement for and ensures retention of mastered concepts. To take full advantage of this series, administer an assessment to students. After they have completed the assessment, use it as an instructional tool. Go over each item with the class, discussing all correct and incorrect answers. Then, use the assessment as a diagnostic tool to determine a standard for which students need remediation. Find that standard in the *Developmental Series™*.

Each book in the *STAAR CONNECTION Developmental Series™* consists of isolated activities and assessments to allow for the development of specific TEKS. For every TEKS, there is at least one individual or group activity. The activities provide a fun, challenging, yet nonthreatening, way to develop mastery of the TEKS. In addition to these activities, each *Developmental Series™* book has assessments on isolated standards to be used to identify mastery or the need for further skill development or reinforcement. Continue to alternate between the *STAAR CONNECTION™ Diagnostic Series™* and the *Developmental Series™*.

KAMICO's **DATA CONNECTION®** software prints student answer sheets on plain paper using a standard laser printer, scans answer sheets using a TWAIN-compliant scanner, scores assessments, and disaggregates student academic data, showing which goals and objectives are mastered and which goals and objectives are in need of reinforcement. The software is preprogrammed to work with all KAMICO® assessments. It is easily customized to work with other instructional materials and assessments as well as teacher-, school-, district-, or state-created assessments. **DATA CONNECTION®** analyzes academic data from individual students, classes, grade levels, and demographic groups. Reports are presented in tabular and graphic form. Item analysis is provided to help determine the most effective method of instruction.

KAMICO® Instructional Media, Inc., supports efforts to ensure adequate yearly progress and eliminate surprises in high-stakes test results.

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**KAMICO® Instructional Media, Inc.**  
**STAAR CONNECTION™**  
**Diagnostic Series™**  
**Grade 4 Science**  
**Table of Contents**

|   |     |
|---|-----|
| Texas Essential Knowledge and Skills . . . . .                | 7   |
| Assessment 1 . . . . .  | 13  |
| Assessment 2 . . . . .  | 20  |
| Assessment 3 . . . . .  | 26  |
| Assessment 4 . . . . .  | 33  |
| Assessment 5 . . . . .  | 42  |
| Assessment 6 . . . . .  | 48  |
| Assessment 7 . . . . .  | 55  |
| Assessment 8 . . . . .  | 61  |
| Assessment 9 . . . . .  | 69  |
| Assessment 10 . . . . .                                       | 76  |
| Assessment 11 . . . . .                                       | 84  |
| Assessment 12 . . . . .                                       | 89  |
| Assessment 13 . . . . .                                       | 97  |
| Assessment 14 . . . . .                                       | 103 |
| Assessment 15 . . . . .                                       | 109 |
| Assessment 16 . . . . .                                       | 116 |
| Assessment 17 . . . . .                                       | 122 |
| Assessment 18 . . . . .                                       | 128 |
| Assessment 19 . . . . .                                       | 133 |
| Assessment 20 . . . . .                                       | 140 |
| Answer Key . . . . .  | 147 |
| Student Bubble Answer Sheet . . . . .                         | 159 |
| Bubble Answer Key . . . . .                                   | 162 |
| TEKS Alignment . . . . .                                      | 165 |
| Student Progress Chart . . . . .                              | 171 |
| Letter to Parents . . . . .                                   | 172 |
| Test-Taking Tips . . . . .                                    | 173 |
| Strategies for Reducing Your Students' Test Anxiety . . . . . | 174 |
| Rulers . . . . .  | 175 |
| KAMICO® Product Information . . . . .                         | 176 |

**NOTE:**

TEA advises that the Scientific Investigation and Reasoning Skills "will be incorporated into at least 40% of the test questions in reporting categories 1-4 and will be identified along with content standards." KAMICO® has followed these guidelines. However, to ensure thorough coverage of the Scientific Investigation and Reasoning Skills, KAMICO® writers have included extra questions over just those skills to ensure student mastery.



**Grade 4 Science**  
**Texas Essential Knowledge and Skills**

**Scientific Investigation and Reasoning Skills**

- (4.1) **Scientific investigation and reasoning:** The student conducts classroom and outdoor investigations, following home and school safety procedures and environmentally appropriate and ethical practices. The student is expected to
- (A) demonstrate safe practices and the use of safety equipment as described in Texas Education Agency-approved safety standards during classroom and outdoor investigations using safety equipment, including safety goggles or chemical splash goggles, as appropriate, and gloves, as appropriate; and
  - (B) make informed choices in the use and conservation of natural resources and reusing and recycling of materials such as paper, aluminum, glass, cans, and plastic.
- (4.2) **Scientific investigation and reasoning:** The student uses scientific practices during laboratory and outdoor investigations. The student is expected to
- (A) plan and implement descriptive investigations, including asking well defined questions, making inferences, and selecting and using appropriate equipment or technology to answer his/her questions;
  - (B) collect and record data by observing and measuring, using the metric system, and using descriptive words and numerals such as labeled drawings, writing, and concept maps;
  - (C) construct simple tables, charts, bar graphs, and maps using tools and current technology to organize, examine, and evaluate data;
  - (D) analyze data and interpret patterns to construct reasonable explanations from data that can be observed and measured;
  - (E) perform repeated investigations to increase the reliability of results; and
  - (F) communicate valid oral and written results supported by data.

(4.3) **Scientific investigation and reasoning:** The student uses critical thinking and scientific problem solving to make informed decisions. The student is expected to

(A) analyze, evaluate, and critique scientific explanations by using evidence, logical reasoning, and experimental and observational testing;

(B) represent the natural world using models such as the water cycle and stream tables and identify their limitations, including accuracy and size; and

(C) connect grade-level appropriate science concepts with the history of science, science careers, and contributions of scientists.

(4.4) **Scientific investigation and reasoning:** The student knows how to use a variety of tools, materials, equipment, and models to conduct science inquiry. The student is expected to

collect, record, and analyze information using tools, including calculators, microscopes, cameras, computers, hand lenses, metric rulers, Celsius thermometers, mirrors, spring scales, balances, graduated cylinders, beakers, hot plates, meter sticks, magnets, collecting nets, and notebooks; timing devices; and materials to support observation of habitats of organisms such as terrariums and aquariums.

**Reporting Category 1:  
Matter and Energy**

- (4.5) **Matter and energy:** The student knows that matter has measurable physical properties and those properties determine how matter is classified, changed, and used. The student is expected to
- (A) measure, compare, and contrast physical properties of matter, including mass, volume, states (solid, liquid, gas), temperature, magnetism, and the ability to sink or float; and
  - (B) compare and contrast a variety of mixtures, including solutions.

**Reporting Category 2:  
Force, Motion, and Energy**

- (4.6) **Force, motion, and energy:** The student knows that energy exists in many forms and can be observed in cycles, patterns, and systems. The student is expected to
- (A) differentiate among forms of energy, including mechanical, sound, electrical, light, and thermal;
  - (B) differentiate between conductors and insulators of thermal and electrical energy;
  - (C) demonstrate that electricity travels in a closed path, creating an electrical circuit; and
  - (D) design a descriptive investigation to explore the effect of force on an object such as a push or a pull, gravity, friction, or magnetism.



**Reporting Category 3:  
Earth and Space**

- (4.7) **Earth and space:** The students know that Earth consists of useful resources and its surface is constantly changing. The student is expected to
- (A) examine properties of soils, including color and texture, capacity to retain water, and ability to support the growth of plants;
  - (B) observe and identify slow changes to Earth's surface caused by weathering, erosion, and deposition from water, wind, and ice; and
  - (C) identify and classify Earth's renewable resources, including air, plants, water, and animals; and nonrenewable resources, including coal, oil, and natural gas; and the importance of conservation.
- (4.8) **Earth and space:** The student knows that there are recognizable patterns in the natural world and among the Sun, Earth, and Moon system. The student is expected to
- (A) measure, record, and predict changes in weather;
  - (B) describe and illustrate the continuous movement of water above and on the surface of Earth through the water cycle and explain the role of the Sun as a major source of energy in this process; and
  - (C) collect and analyze data to identify sequences and predict patterns of change in shadows, seasons, and the observable appearance of the Moon over time.

**Reporting Category 4:  
Organisms and Environments**

- (4.9) **Organisms and environments:** The student knows and understands that living organisms within an ecosystem interact with one another and with their environment. The student is expected to
- (A) investigate that most producers need sunlight, water, and carbon dioxide to make their own food, while consumers are dependent on other organisms for food; and
  - (B) describe the flow of energy through food webs, beginning with the Sun, and predict how changes in the ecosystem affect the food web.
- (4.10) **Organisms and environments:** The student knows that organisms undergo similar life processes and have structures and behaviors that help them survive within their environment. The student is expected to
- (A) explore how structures and functions enable organisms to survive in their environment;
  - (B) explore and describe examples of traits that are inherited from parents to offspring, such as eye color and shapes of leaves and behaviors that are learned such as reading a book and a wolf pack teaching their pups to hunt effectively; and
  - (C) explore, illustrate, and compare life cycles in living organisms such as beetles, crickets, radishes, or lima beans.

Name \_\_\_\_\_ Date \_\_\_\_\_

- 1 A science class is planning to go on a field trip to study plants and insects. The class is going to a forest. The teacher tells the students to wear the proper clothes for the trip. It would be best for students to wear —

- A loafers or high heels.
- B flip-flops or sandals.
- C aqua socks or deck shoes.
- D sneakers or hiking boots.

**TEKS 4.1A**  
**SIRS 4.1A**

- 2 There is a boat floating in salt water and a boat floating in fresh water. The boat floating in salt water sits higher than the boat floating in fresh water. Based on this information, the reader can infer that —

- F the salt water is denser than fresh water.
- G salt water is darker than fresh water.
- H salt water contains less salt than fresh water.
- J salt water tastes better than fresh water.

**TEKS 1/4.5A**  
**SIRS 4.2A**  
**SIRS 4.2E**

- 3** Scientists have announced that life may have existed at one time on Mars. They have data, such as chemical measurements and pictures, that suggest that water was once present on Mars. They also report finding methane on Mars. On Earth, methane is a gas made by plants and animals.

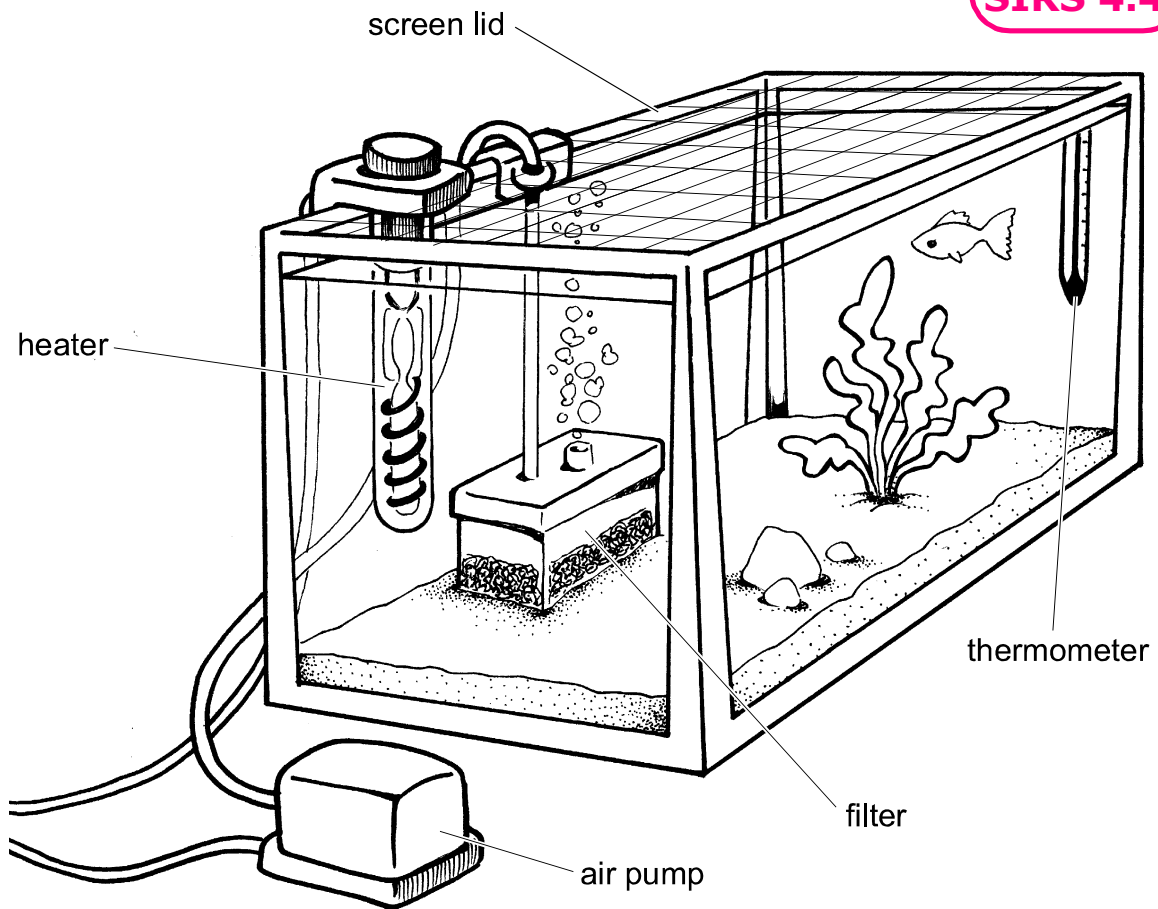
Which information from the paragraph above supports the scientists' belief that life may have existed on Mars?

- A** Scientists from all around the world agree that some forms of life can exist on Mars.
- B** Life on Mars was at one time the same as life on Earth.
- C** Evidence of past water, an important requirement for life, and methane, a gas produced by life, have been found on Mars.
- D** Evidence shows that Mars and Earth have similar atmospheres, water content, and temperatures.

**TEKS 4/4.9A**  
**SIRS 4.3A**

4 The drawing shows an aquarium.

**TEKS 4.4**  
**SIRS 4.4**



What would you use to see if the aquarium heater was turned up too high?

- F a thermometer
- G a filter
- H an air pump
- J a dip net

**TEKS 1/4.5A**  
**SIRS 4.2C**

- 5 Look at the table.

|             | <b>Volume</b>         | <b>Shape</b>         |
|-------------|-----------------------|----------------------|
| Substance A | has a definite volume | has no shape         |
| Substance B | has a definite volume | has a definite shape |

Based on the table, how are the two substances different?

- A** Substance A is a liquid. Substance B is a gas.
- B** Substance A is a gas. Substance B is a solid.
- C** Substance A is a solid. Substance B is a liquid.
- D** Substance A is a liquid. Substance B is a solid.
- 6 Kyle rubs his hands together on a snowy day. This action keeps his hands warm. What form of energy is produced by his hands?

- F** thermal
- G** electrical
- H** mechanical
- J** light

**TEKS 2/4.6A**  
**SIRS 4.2A**  
**SIRS 4.2C**



- 7 Three main types of soil are sand, silt, and clay. Sand is made of large, heavy particles. Clay is made of light, very small dust-like particles. Silt consists of particles that are between clay and sand in size.

**TEKS 3/4.7A**

Raven gets some soil for an experiment. The soil contains a mixture of sand, silt, and clay. Raven fills a glass jar with an equal amount of the soil sample and water. She closes the jar with a lid. Raven shakes the jar, mixing the soil with the water. She places the jar on a table. After 10 minutes, the soil settles into three different layers. She measures the depth of each soil layer. Raven creates a table to record her measurements.

| Soil Layer | Depth Measurement<br>(in centimeters) |
|------------|---------------------------------------|
| Top        | 1                                     |
| Middle     | 2                                     |
| Bottom     | 10                                    |

Based on Raven's knowledge of soil types and on the results of her experiment, she concludes that —

- A the soil sample is made mostly of clay.
- B the soil sample is made mostly of sand.
- C the soil sample is made mostly of silt.
- D the soil sample is made mostly of water.

- 8 There are weather instruments on the school playground. Anita checks them in the morning and in the afternoon. She records the data in a table.

| Time    | Cloud Cover | Temperature (Fahrenheit) | Wind Conditions | Precipitation (inches) |
|---------|-------------|--------------------------|-----------------|------------------------|
| 8:00 AM | cloudy      | 62°                      | calm            | 0                      |
| 3:00 PM | sunny       | 79°                      | calm            | 1                      |

Based on data in the chart, what major change in weather occurred between 8:00 AM and 3:00 PM?

- F A cold front moved into the area.
- G A rainstorm blew through the area.
- H More clouds blew into the area.
- J A cold front moved out of the area.

**TEKS 3/4.8A**  
**SIRS 4.2B**  
**SIRS 4.2D**

- 9 Which of the following examples shows how a consumer depends upon a producer for food?

- A A weasel catches and eats a fish.
- B A potato beetle larva feeds on the leaves of a potato plant.
- C A mosquito sucks the blood of a cow.
- D A pitcher plant traps and digests a house fly.

**TEKS 4/4.9A**

10 Examine the drawing of the bean plant.

TEKS 4/4.10A



In order to stay anchored in the soil, the bean plant has grown —

- F bean pods.
- G wide leaves.
- H long roots.
- J thin branches.

Student  
Name:

STAAR CONNECTION™  
Grade 4  
Diagnostic Series Science

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Science assessment questions are listed below by reporting category and TEKS. Circle the number of any question that has been answered incorrectly. Next, circle the TEKS that needs additional reinforcement.

| Assessment 1    |        |                    |       |              | Assessment 2    |        |                    |       |      |
|-----------------|--------|--------------------|-------|--------------|-----------------|--------|--------------------|-------|------|
| Question Number | Answer | Reporting Category | TEKS  | SIRS         | Question Number | Answer | Reporting Category | TEKS  | SIRS |
| 1               | D      | SIRS               | 4.1A  | 4.1A         | 1               | A      | SIRS               | 4.1B  | 4.1B |
| 2               | F      | 1                  | 4.5A  | 4.2A<br>4.2E | 2               | F      | 4                  | 4.9B  | 4.2B |
| 3               | C      | 4                  | 4.9A  | 4.3A         | 3               | B      | SIRS               | 4.3C  | 4.3C |
| 4               | F      | SIRS               | 4.4   | 4.4          | 4               | H      | SIRS               | 4.1A  | 4.1A |
| 5               | D      | 1                  | 4.5A  | 4.2C         | 5               | D      | 1                  | 4.5A  |      |
| 6               | F      | 2                  | 4.6A  | 4.2A<br>4.2C | 6               | J      | 2                  | 4.6B  | 4.1A |
| 7               | B      | 3                  | 4.7A  |              | 7               | B      | 3                  | 4.7B  | 4.3C |
| 8               | G      | 3                  | 4.8A  | 4.2B<br>4.2D | 8               | H      | 3                  | 4.8B  | 4.2C |
| 9               | B      | 4                  | 4.9A  |              | 9               | A      | 4                  | 4.9B  | 4.3A |
| 10              | H      | 4                  | 4.10A |              | 10              | H      | 4                  | 4.10B | 4.3A |