

STAAR CONNECTION™

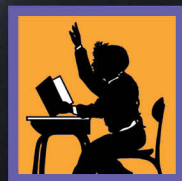
Diagnostic Series™

Science

7

teacher

(revised for streamlined TEKS)



KAMICO®

Instructional Media, Inc.

STAAR CONNECTION™

Science
7
teacher

Diagnostic Series™

XVII/iv/MMXVIII

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 *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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STAAR CONNECTION™
Diagnostic Series™
Grade 7 Science
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Texas Essential Knowledge and Skills Grade 7 Science

Reporting Category 1: Matter and Energy

The student will demonstrate an understanding of the properties of matter and energy and their interactions.

- (7.5) **Matter and energy.** The student knows that interactions occur between matter and energy. The student is expected to:
- (A) recognize that radiant energy from the Sun is transformed into chemical energy through the process of photosynthesis; and
 - (B) diagram the flow of energy through living systems, including food chains, food webs, and energy pyramids.
- (7.6) **Matter and energy.** The student knows that matter has physical and chemical properties and can undergo physical and chemical changes. The student is expected to:
- distinguish between physical and chemical changes in matter.

Reporting Category 2: Force, Motion, and Energy

The student will demonstrate an understanding of force, motion, and energy and their relationships.

- (7.7) **Force, motion, and energy.** The student knows that there is a relationship among force, motion, and energy. The student is expected to:
- (A) illustrate the transformation of energy within an organism such as the transfer from chemical energy to thermal energy; and
 - (B) demonstrate and illustrate forces that affect motion in organisms such as emergence of seedlings, turgor pressure, geotropism, and circulation of blood.

Reporting Category 3: Earth and Space

The student will demonstrate an understanding of components, cycles, patterns, and material events of Earth and space systems.

- (7.8) **Earth and space.** The student knows that natural events and human activity can impact Earth systems. The student is expected to:
- (A) predict and describe how catastrophic events such as floods, hurricanes, or tornadoes impact ecosystems;
 - (B) analyze the effects of weathering, erosion, and deposition on the environment in ecoregions of Texas; and
 - (C) model the effects of human activity on groundwater and surface water in a watershed.
- (7.9) **Earth and space.** The student knows components of our solar system. The student is expected to:
- (A) analyze the characteristics of objects in our solar system that allow life to exist such as the proximity of the Sun, presence of water, and composition of the atmosphere; and
 - (B) identify the accommodations, considering the characteristics of our solar system, that enabled manned space exploration.

Reporting Category 4: Organisms and Environments

The student will demonstrate an understanding of the structures and functions of living organisms and their interdependence on each other and on their environment.

- (7.10) **Organisms and environments.** The student knows that there is a relationship between organisms and the environment. The student is expected to:
- (A) observe and describe how different environments, including microhabitats in schoolyards and biomes, support different varieties of organisms;
 - (B) describe how biodiversity contributes to the sustainability of an ecosystem; and
 - (C) observe, record, and describe the role of ecological succession such as in a microhabitat of a garden with weeds.
- (7.11) **Organisms and environments.** The student knows that populations and species demonstrate variation and inherit many of their unique traits through gradual processes over many generations. The student is expected to:
- (A) examine organisms or their structures such as insects or leaves and use dichotomous keys for identification;

- (B) explain variation within a population or species by comparing external features, behaviors, or physiology of organisms that enhance their survival such as migration, hibernation, or storage of food in a bulb; and
 - (C) identify some changes in genetic traits that have occurred over several generations through natural selection and selective breeding such as the Galapagos Medium Ground Finch (*Geospiza fortis*) or domestic animals and hybrid plants.
- (7.12) **Organisms and environments.** The student knows that living systems at all levels of organization demonstrate the complementary nature of structure and function. The student is expected to:
- (A) investigate and explain how internal structures of organisms have adaptations that allow specific functions such as gills in fish, hollow bones in birds, or xylem in plants;
 - (B) identify the main functions of the systems of the human organism, including the circulatory, respiratory, skeletal, muscular, digestive, excretory, reproductive, integumentary, nervous, and endocrine systems;
 - (C) recognize levels of organization in plants and animals, including cells, tissues, organs, organ systems, and organisms;
 - (D) differentiate between structure and function in plant and animal cell organelles, including cell membrane, cell wall, nucleus, cytoplasm, mitochondrion, chloroplast, and vacuole;
 - (E) compare the functions of cell organelles to the functions of an organ system; and
 - (F) recognize the components of cell theory.
- (7.13) **Organisms and environments.** The student knows that a living organism must be able to maintain balance in stable internal conditions in response to external and internal stimuli. The student is expected to:
- (A) investigate how organisms respond to external stimuli found in the environment such as phototropism and fight or flight; and
 - (B) describe and relate responses in organisms that may result from internal stimuli such as wilting in plants and fever or vomiting in animals that allow them to maintain balance.
- (7.14) **Organisms and environments.** The student knows that reproduction is a characteristic of living organisms and that the instructions for traits are governed in the genetic material. The student is expected to:
- (A) define heredity as the passage of genetic instructions from one generation to the next generation;
 - (B) compare the results of uniform or diverse offspring from asexual or sexual reproduction; and
 - (C) recognize that inherited traits of individuals are governed in the genetic material found in the genes within chromosomes in the nucleus.

Scientific Investigation and Reasoning Skills

- (7.1) **Scientific investigation and reasoning.** The student, for at least 40% of the instructional time, conducts laboratory and field investigations following safety procedures and environmentally appropriate and ethical practices. The student is expected to:
- (A) demonstrate safe practices during laboratory and field investigations as outlined in Texas Education Agency-approved safety standards; and
 - (B) practice appropriate use and conservation of resources, including disposal, reuse, or recycling of materials.
- (7.2) **Scientific investigation and reasoning.** The student uses scientific practices during laboratory and field investigations. The student is expected to:
- (A) plan and implement comparative and descriptive investigations by making observations, asking well defined questions, and using appropriate equipment and technology;
 - (B) design and implement experimental investigations by making observations, asking well defined questions, formulating testable hypotheses, and using appropriate equipment and technology;
 - (C) collect and record data using the International System of Units (SI) and qualitative means such as labeled drawings, writing, and graphic organizers;
 - (D) construct tables and graphs, using repeated trials and means, to organize data and identify patterns; and
 - (E) analyze data to formulate reasonable explanations, communicate valid conclusions supported by the data, and predict trends.
- (7.3) **Scientific investigation and reasoning.** The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions and knows the contributions of relevant scientists. The student is expected to:
- (A) analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, so as to encourage critical thinking by the student;
 - (B) use models to represent aspects of the natural world such as human body systems and plant and animal cells;
 - (C) identify advantages and limitations of models such as size, scale, properties, and materials; and
 - (D) relate the impact of research on scientific thought and society, including the history of science and contributions of scientists as related to the content.

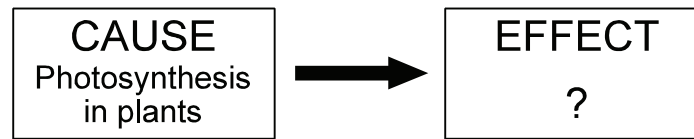
(7.4) **Science investigation and reasoning.** The student knows how to use a variety of tools and safety equipment to conduct science inquiry. The student is expected to:

- (A) use appropriate tools, including life science models, hand lenses, stereoscopes, microscopes, beakers, Petri dishes, microscope slides, graduated cylinders, test tubes, meter sticks, metric rulers, metric tape measures, timing devices, hot plates, balances, thermometers, calculators, water test kits, computers, temperature and pH probes, collecting nets, insect traps, globes, digital cameras, journals/notebooks, and other necessary equipment to collect, record, and analyze information; and
- (B) use preventative safety equipment, including chemical splash goggles, aprons, and gloves, and be prepared to use emergency safety equipment, including an eye/face wash, a fire blanket, and a fire extinguisher.

Name _____

Date _____

- 1** Look at the graphic organizer showing the cause and effect of a process that occurs in nature.



Which of the following effects is a result of photosynthesis in plants?

- A** Sun's chemical energy is transformed into radiant energy.
 - B** Sun's chemical energy is transformed into geothermal energy.
 - C** Sun's radiant energy is transformed into chemical energy.
 - D** Sun's radiant energy is transformed into geothermal energy.
- 2** Many forces affect the circulation of blood throughout the human body. Which of the following choices is the principal force that causes blood to flow?
- F** the pull force of gravity
 - G** the pumping action of the heart
 - H** the movement of limbs
 - J** the expansion of the lungs

3 Beach grass, adapted to being buried by sand, grows on sand dunes along the Texas Gulf Coast. The grass helps reduce wind erosion of the sand dunes, while the sand dunes help protect inland areas from the crashing waves of storms. Which of the following natural events would most likely affect the sand dune ecosystem by removing the beach grass growing on the dunes?

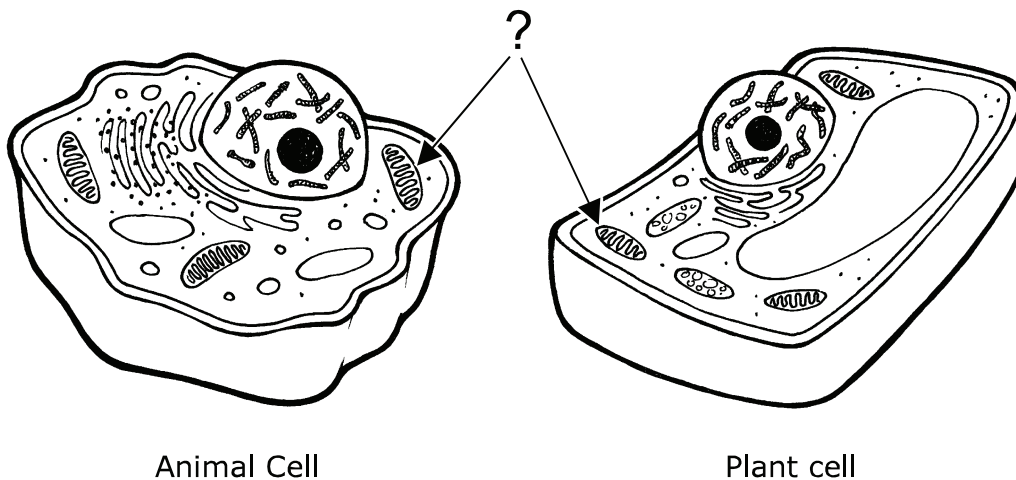
- A** fire
- B** tornado
- C** hurricane
- D** earthquake

4 Some organisms have adaptations that allow them to survive in different environments. Plants with fleshy stems, waxy coating, and shallow root systems, as well as insects and animals that conserve their energy during the day, are examples of organisms which live in a —

- F** swamp.
- G** tidal zone.
- H** prairie.
- J** desert.

- 5** Willow trees can reproduce through fragmentation, a form of asexual reproduction in which a twig from the willow tree can take root and grow into a new tree. Which statement about asexual reproduction is correct?
- A** Asexual reproduction occurs only in plants.
 - B** An offspring from asexual reproduction has identical chromosomes to those of its parent.
 - C** Asexual reproduction occurs every other generation.
 - D** An offspring from asexual reproduction must have two parents.

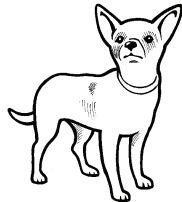
- 6** Look at the drawings of an animal cell and a plant cell.



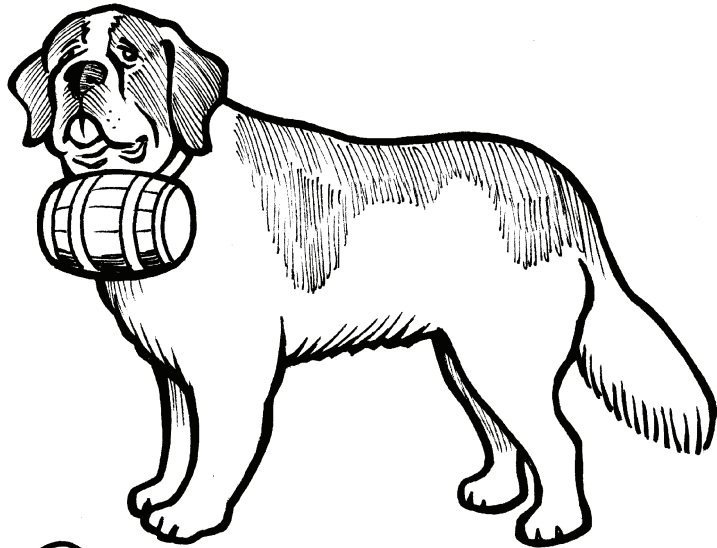
What is the name and function of the organelle indicated by the arrow?

- F** Lysosome – Lysosome stores enzymes created in the endoplasmic reticulum.
- G** Mitochondrion – Mitochondrion provides energy for the cell to use.
- H** Chloroplast – Chloroplast produces food for the cell.
- J** Vacuole – Vacuole stores waste and food inside the cell.

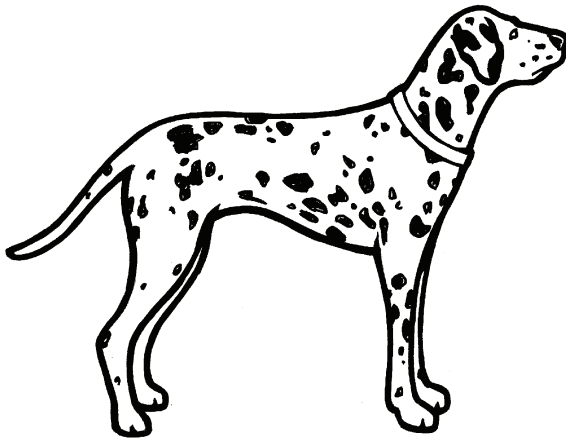
- 7 St. Bernards, chihuahuas, dalmatians, and beagles are different breeds of the same species, domestic dogs.



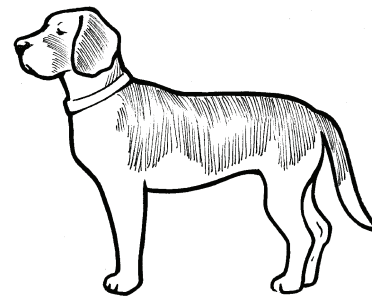
Chihuahua



St. Bernard



Dalmatian



Beagle

Which physical feature or behavior of the St. Bernard enhances its chances over the other breeds of survival in cold temperatures?

- A The St. Bernard's neck is strong enough to carry warm liquids in the flask hanging from the collar.
- B The St. Bernard's strong jaws are able to break apart and chew ice.
- C The St. Bernard's thick fur coat helps keep the dog warm.
- D The St. Bernard's large size helps its owners find it more easily.

- 8** Mr. Tyler assigns a field investigation activity to his seventh grade science students. He instructs students to compare different plants in the school's community garden. Which of the following students is **not** following an appropriate field investigation safety rule?
- F** Bonnie immediately informs Mr. Tyler that she accidentally touched poison ivy, a plant which can cause a skin rash.
 - G** Jackson carefully pulls apart the petals of a flower with his fingers to observe the parts of a flower.
 - H** Josea pushes away a small rock with a shovel to look at the exposed roots of a tree.
 - J** Cami slowly backs away from a snake slithering through the grass.
- 9** Sydney has an assignment to take a flower apart to identify its petals, stamen, pistil, sepal, and stem. She must record the data in her science notebook. What is the best way for Sydney to record the data so that she can remember and identify the parts of the flower?
- A** Write a description of the function of each part of the flower.
 - B** Organize the data in a flow chart, beginning with the outermost part of the flower at the top of the flow chart.
 - C** Draw a detailed picture of the flower and identify its parts with labels.
 - D** Construct a table which includes the name of each flower part with a description of the part's function.
- 10** Sea lions are known to eat hard indigestible objects along with their food. Some captive sea lions will even eat coins, balls, or other foreign objects thrown into their tanks by zoo visitors.
- A scientist studying sea lions reads about the animal's strange diet and comes to the conclusion that sea lions eat indigestible objects for a reason. She believes that the indigestible materials help with the sea lion's digestion and keep the animal stable in the water. What evidence would support the scientist's conclusion?
- F** observations of sea lions swimming without complications after eating indigestible objects
 - G** photographs of sea lions being fed in captivity
 - H** a study comparing the swimming ability of sea lions in captivity with the swimming ability of sea lions in the wild
 - J** a study, using controls, comparing the digestion and swimming ability of sea lions that eat indigestible objects with those that eat only digestible food

STAAR CONNECTION™
Diagnostic Series™ Grade 7 Science
TEKS Alignment Chart

Student Name:	STAAR CONNECTION™ Grade 7 Diagnostic Series Science
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The following charts provide the correct answer to each assessment question, along with the corresponding content strand, content student expectation, and process student expectation.

Circle the number of any question that has been answered incorrectly. Circle the TEKS that need additional reinforcement.

Assessment 1				
Item Number	Correct Answer	Reporting Category	Content Strand	Student Expectation (TEKS)
1	C	1	Matter and Energy	7.5A
2	G	2	Force, Motion, and Energy	7.7B
3	C	3	Earth and Space	7.8A
4	J	4	Organisms and Environments	7.10A
5	B	4	Organisms and Environments	7.14B
6	G	4	Organisms and Environments	7.12D
7	C	4	Organisms and Environments	7.11B
8	G	SIRS	Scientific Investigation and Reasoning Skills	7.1A
9	C	SIRS	Scientific Investigation and Reasoning Skills	7.2C
10	J	SIRS	Scientific Investigation and Reasoning Skills	7.3A