STAAR CONNECTION™

Diagnostic Series™

Science

6

teacher

(revised for streamlined TEKS)

KAMICO®
Instructional Media, Inc.

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Science
6
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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Diagnostic Series™
Grade 6 Science
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Texas Essential Knowledge and Skills
Grade 6 Science

(6.1) **Scientific investigation and reasoning**. The student, for at least 40% of 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.

(6.2) **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.

(6.3) **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 a model of Earth's layers;

(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.

(6.4) **Scientific 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 journals/notebooks, beakers, Petri dishes, meter sticks, graduated cylinders, hot plates, test tubes, balances, microscopes, thermometers, calculators, computers, timing devices, 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.

(6.5) **Matter and energy**. The student knows the differences between elements and compounds. The student is expected to:

(A) know that an element is a pure substance represented by a chemical symbol and that a compound is a pure substance represented by a chemical formula;

(B) recognize that a limited number of the many known elements comprise the largest portion of solid Earth, living matter, oceans, and the atmosphere; and

(C) identify the formation of a new substance by using the evidence of a possible chemical change such as production of a gas, change in temperature, production of a precipitate, or color change.

(6.6) **Matter and energy**. The student knows matter has physical properties that can be used for classification. The student is expected to:

(A) compare metals, nonmetals, and metalloids using physical properties such as luster, conductivity, or malleability;

(B) calculate density to identify an unknown substance; and

(C) test the physical properties of minerals, including hardness, color, luster, and streak.

(6.7) **Matter and energy**. The student knows that some of Earth's energy resources are available on a nearly perpetual basis, while others can be renewed over a relatively short period of time. Some energy resources, once depleted, are essentially nonrenewable. The student is expected to:

research and discuss the advantages and disadvantages of using coal, oil, natural gas, nuclear power, biomass, wind, hydropower, geothermal, and solar resources.

(6.8) **Force, motion, and energy**. The student knows force and motion are related to potential and kinetic energy. The student is expected to:

(A) compare and contrast potential and kinetic energy;

(B) identify and describe the changes in position, direction, and speed of an object when acted upon by unbalanced forces;

(C) calculate average speed using distance and time measurements;

(D) measure and graph changes in motion; and

(E) investigate how inclined planes can be used to change the amount of force to move an object.

(6.9) **Force, motion, and energy**. The student knows that the Law of Conservation of Energy states that energy can neither be created nor destroyed, it just changes form. The student is expected to:

(A) investigate methods of thermal energy transfer, including conduction, convection, and radiation;

(B) verify through investigations that thermal energy moves in a predictable pattern from warmer to cooler until all the substances attain the same temperature such as an ice cube melting; and

(C) demonstrate energy transformations such as energy in a flashlight battery changes from chemical energy to electrical energy to light energy.

(6.10) **Earth and space**. The student understands the structure of Earth, the rock cycle, and plate tectonics. The student is expected to:

(A) build a model to illustrate the compositional and mechanical layers of Earth, including the inner core, outer core, mantle, crust, asthenosphere, and lithosphere;

(B) classify rocks as metamorphic, igneous, or sedimentary by the processes of their formation;

(C) identify the major tectonic plates, including Eurasian, African, Indo-Australian, Pacific, North American, and South American; and

(D) describe how plate tectonics causes major geological events such as ocean basin formation, earthquakes, volcanic eruptions, and mountain building.

(6.11) **Earth and space**. The student understands the organization of our solar system and the relationships among the various bodies that comprise it. The student is expected to:

(A) describe the physical properties, locations, and movements of the Sun, planets, moons, meteors, asteroids, and comets;

(B) understand that gravity is the force that governs the motion of our solar system; and

(C) describe the history and future of space exploration, including the types of equipment and transportation needed for space travel.

(6.12) **Organisms and environments**. The student knows all organisms are classified into domains and kingdoms. Organisms within these taxonomic groups share similar characteristics that allow them to interact with the living and nonliving parts of their ecosystem. The student is expected to:

(A) understand that all organisms are composed of one or more cells;

(B) recognize that the presence of a nucleus is a key factor used to determine whether a cell is prokaryotic or eukaryotic;

(C) recognize that the broadest taxonomic classification of living organisms is divided into currently recognized domains;

(D) identify the basic characteristics of organisms, including prokaryotic or eukaryotic, unicellular or multicellular, autotrophic or heterotrophic, and mode of reproduction, that further classify them in the currently recognized kingdoms;

(E) describe biotic and abiotic parts of an ecosystem in which organisms interact; and

(F) diagram the levels of organization within an ecosystem, including organism, population, community, and ecosystem.

Name _____ Date _____

1 Students in a sixth-grade science class construct a simple model of an erupting volcano. They build a small model of a volcano, place one tablespoon of baking soda down a hole representing the volcano's vent, and pour vinegar out of a test tube down the vent. The vinegar makes the baking soda fizz and give off gas, which blows out of the volcano.

Which student is working in a safe manner?

A the student who washes her gloves with soap and water before touching her eyes

B the student who puts on a pair of safety goggles after pouring the vinegar down the volcano

C the student who eats a snack during the construction of the model

D the student who avoids breathing in the gas blowing out of the volcano

2 Elements are organized, based on their properties, on a chart called the Modern Periodic Table. Which of the following statements is true about elements?

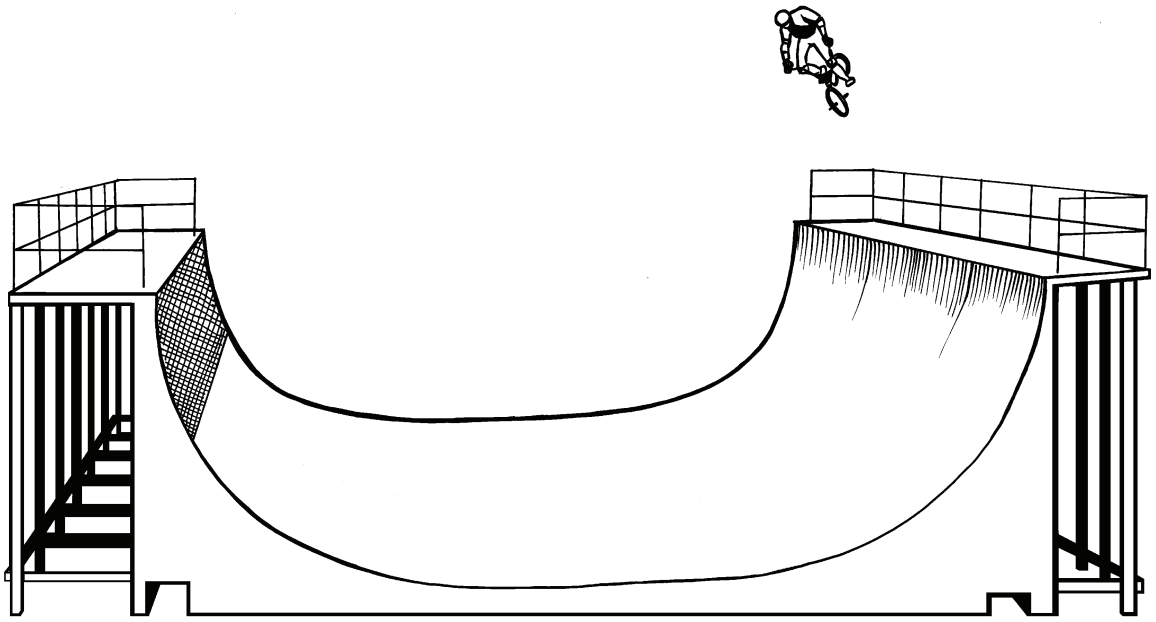
F Elements can be made of two or more atoms, as long as the atoms are not of the same type.

G Elements are represented by chemical symbols.

H No substance can be made of more than one element.

J Two different substances can be combined together to create a new element.

3 A mountain biker practices tricks on a halfpipe.



The cyclist begins at the left side of the halfpipe, rides down the left ramp and across the bottom, up the right side of the halfpipe, and then launches into the air with a twist. At which position does the cyclist have the greatest amount of kinetic energy? Why?

A at the position in the air because he is at the highest point above the ground

B at the bottom crossing the halfpipe because he is moving at the fastest speed

C at the top of the left side of the halfpipe at the beginning of his trick because he is storing the greatest amount of energy

D down the left side of the halfpipe because gravity has the greatest pull force on him as he moves down the ramp

4 Corina is looking for materials to use to make a model of Earth's layers. She knows that Earth is not like a solid ball and that some of the layers are not solid. If Corina is going to use softer material to represent layers that are not solid, one of the softer layers of her model will represent —

F the inner core.

G the lithosphere.

H the mantle.

J the outer core.

5 A cell is the basic structure of life for all organisms. The minimum number of cells required in the most simple of all organisms is —

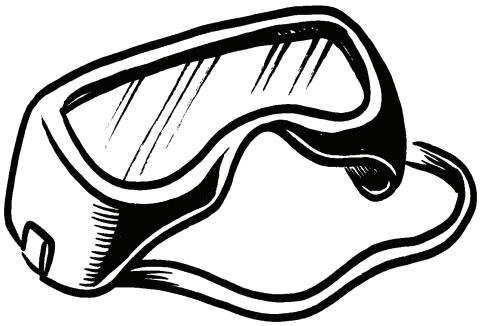
A 36.

B 144.

C 1.

D 2.

6 Tamara is trying to decide whether she needs to use chemical splash goggles or safety glasses for an experiment.



Chemical Splash Goggles

Safety Glasses

For which experiment should Tamara wear chemical splash goggles instead of safety glasses?

F counting the number of spots on a ladybug

G watering seeds planted in a pot of soil

H crushing a rock using a hammer

J adding vinegar to baking soda

7 David wants to identify a sample of pure metal for a science project. He places the sample on a balance that shows the mass of the sample to be 37.85 grams. He places the sample in a beaker that is completely filled with pure water. The sample causes 8.4 cubic centimeters of water to overflow from the beaker.

The table shows the densities of some pure metals.

Metal	**Density (g/cm^3)**
Ti	4.506
Mn	7.440
Fe	7.850
Co	8.746

If David is correct, which metal does he identify as the composition of his sample?

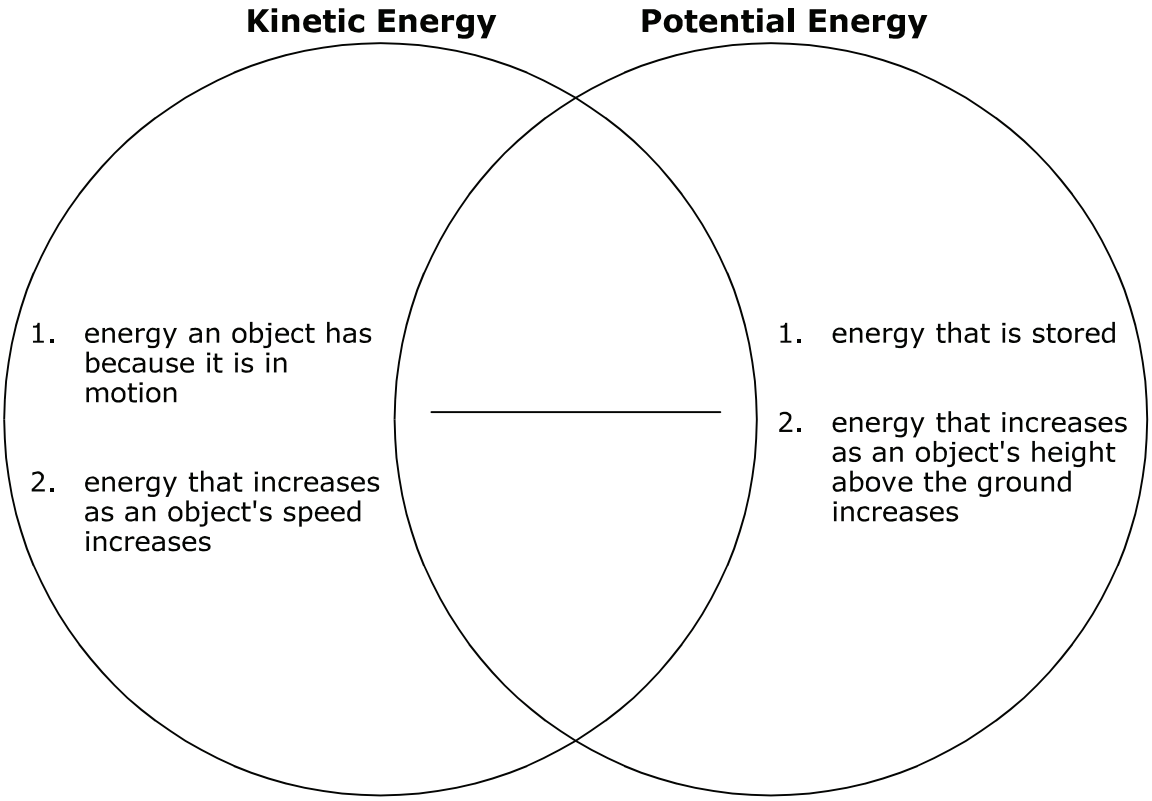
A titanium

B manganese

C iron

D cobalt

8 Study the Venn Diagram comparing and contrasting kinetic energy and potential energy.



Which of the following belongs in the blank space?

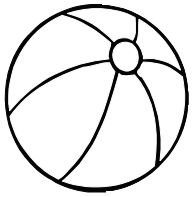
F energy that is converted into kinetic energy

G energy can be destroyed by another form of energy

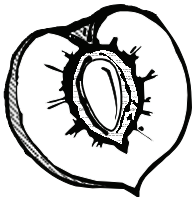
H energy that cannot exist outside of Earth's atmosphere

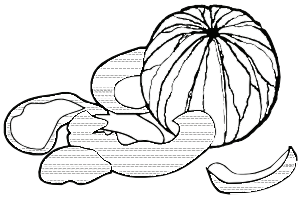
J energy that has the ability to cause change

9 Patty is going to build a model that illustrates the structural layers of Earth. She wants to select an object to use as her model. Which of the following objects would be best to use to create a model that represents Earth's layers?

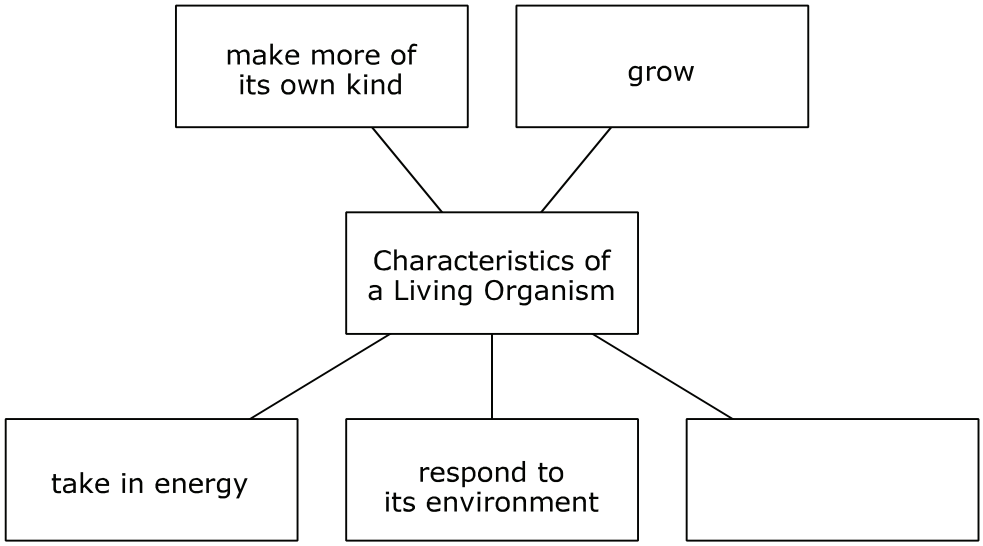
A 

C 

B 

D 

10 Look at the diagram describing a living organism.



What belongs in the empty box?

F require electricity

G eat food for energy

H need light to see

J made of one or more cells

STAAR CONNECTION™
Diagnostic Series™ Grade 6 Science
TEKS Alignment Chart

Student Name:	STAAR CONNECTION™ Grade 6 Diagnostic Series Science

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**	**Content Strand**	**Content Student Expectation (TEKS)**	**Process Student Expectation (TEKS)**
1	D	Scientific investigation and reasoning	6.1A	6.1A
2	G	Matter and energy	6.5A	—
3	B	Force, motion, and energy	6.8A	6.3A
4	J	Earth and space	6.10A	6.3B
5	C	Organisms and environments	6.12A	—
6	J	Scientific investigation and reasoning	6.1A	6.4B
7	A	Matter and energy	6.6B	6.4A
8	J	Force, motion, and energy	6.8A	6.3A
9	B	Earth and space	6.10A	6.3C
10	J	Organisms and environments	6.12A	6.3A