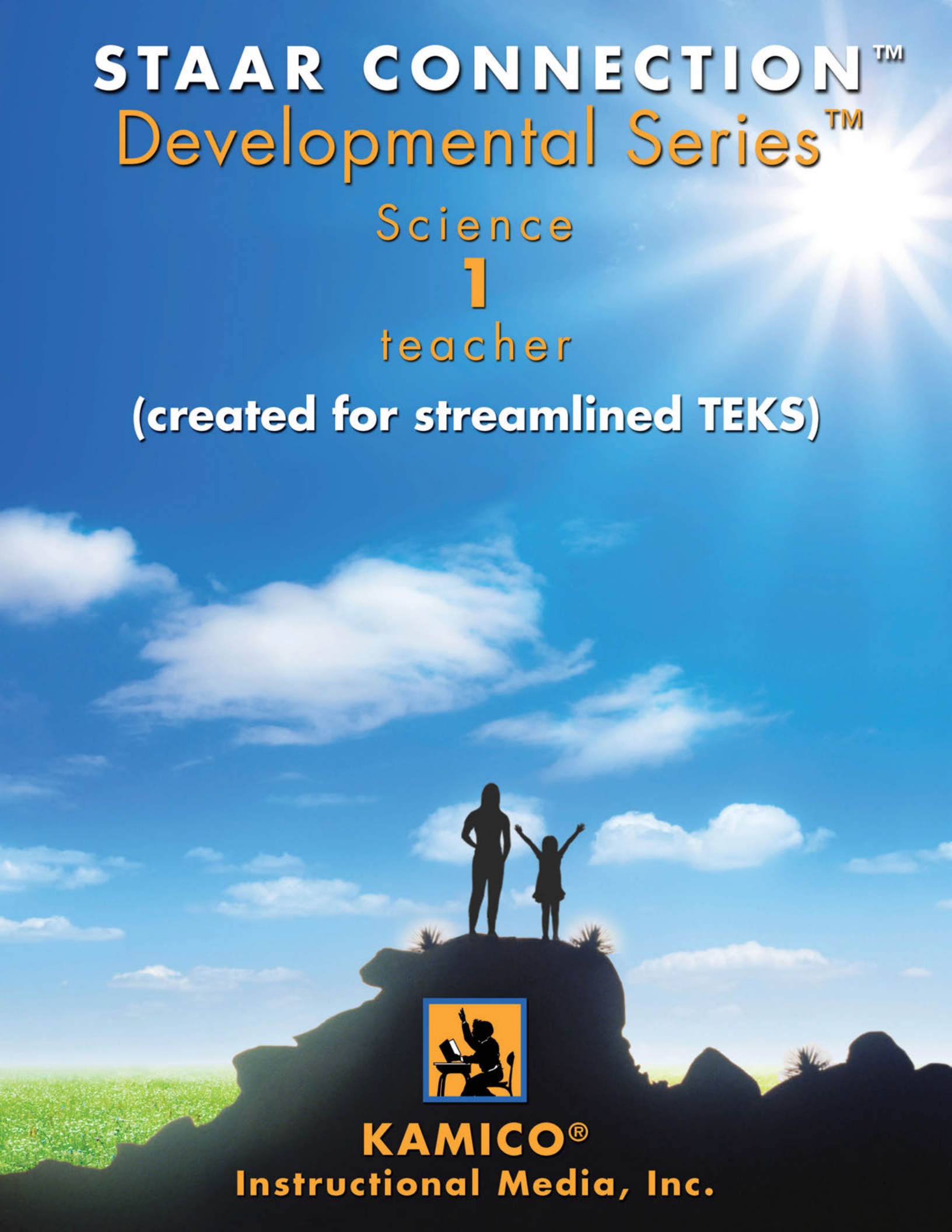
STAAR CONNECTION™
Developmental Series™

Science
1
teacher

(created for streamlined TEKS)



KAMICO®
Instructional Media, Inc.

STAAR CONNECTION™

Science

1

teacher

Developmental Series™

XIV/ii/MMXVIII

Version 2

(created for streamlined TEKS)

KAMICO®

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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 **STAAR CONNECTION® Developmental Series™** can be used in tandem to ensure mastery of the TEKS and success on STAAR. The *Diagnostic Series™* consists of a bank of assessments. Each assessment covers a mixture of TEKS that are assessed by STAAR. This research-based format provides continual reinforcement for and ensures retention of mastered concepts. To take full advantage of this series, administer a diagnostic assessment to students. After they have completed the assessment, go over each item with the class, discussing all correct and incorrect answers. Then, use the assessment as a diagnostic tool to determine a TEKS for which students need remediation. Find that TEKS 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 STAAR-evaluated TEKS, there is at least one individual or group activity. The activities provide a fun, challenging, yet nonthreatening, way to develop mastery of the skills evaluated on STAAR. In addition to these activities, each *Developmental Series™* book has assessments on isolated TEKS to be used to identify mastery or the need for further skill development or reinforcement. Continue to alternate between the *Diagnostic* and *Developmental Series™*.

The **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. 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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Texas Essential Knowledge and Skills
STAAR Grade 1 Science

Scientific Investigation and Reasoning Skills

(1.1) **Scientific investigation and reasoning**: The student conducts classroom and outdoor investigations following home and school safety procedures and uses environmentally appropriate and responsible practices. The student is expected to

(A) identify, discuss, and demonstrate safe and healthy practices as outlined in Texas Education agency-approved safety standards during classroom and outdoor investigations, including wearing safety goggles or chemical splash goggles, as appropriate, washing hands, and using materials appropriately.

(B) identify and learn how to use natural resources and materials, including conservation and reuse or recycling of paper, plastic, and metals.

(1.2) **Scientific investigation and reasoning:** The student develops abilities to ask questions and seek answers in classroom and outdoor investigations. The student is expected to

(A) ask questions about organisms, objects, and events observed in the natural world.

(B) plan and conduct simple descriptive investigations.

(C) collect data and make observations using simple tools.

(D) record and organize data using pictures, numbers, and words.

(E) communicate observations and provide reasons for explanations using student-generated data from simple descriptive investigations.

(1.3) **Scientific investigation and reasoning**: The student knows that information and critical thinking are used in scientific problem solving. The student is expected to

(A) identify and explain a problem and propose a solution.

(B) make predictions based on observable patterns.

(C) describe what scientists do.

(1.4) **Scientific investigation and reasoning**: The student uses age-appropriate tools and models to investigate the natural world. The student is expected to

(A) collect, record, and compare information using tools, including computers, hand lenses, primary balances, cups, bowls, magnets, collecting nets, notebooks, and safety goggles or chemical splash goggles, as appropriate; timing devices; non-standard measuring items; weather instruments such as demonstration thermometers and wind socks; and materials to support observations of habitats of organisms such as aquariums and terrariums.

(B) measure and compare organisms and objects using non-standard units.

Reporting Category 1: Matter and Energy

(1.5) **Matter and energy:** The student knows that objects have properties and patterns. The student is expected to

(A) classify objects by observable properties such as larger and smaller, heavier and lighter, shape, color, and texture.

(B) predict and identify changes in materials caused by heating and cooling.

(C) classify objects by the materials from which they are made.

Reporting Category 2: Force, Motion, and Energy

(1.6) **Force, motion, and energy**: The student knows that force, motion, and energy are related and are a part of everyday life. The student is expected to

(A) identify and discuss how different forms of energy such as light, thermal, and sound are important to everyday life.

(B) predict and describe how a magnet can be used to push or pull an object.

(C) demonstrate and record the ways that objects can move such as in a straight line, zig zag, up and down, back and forth, round and round, and fast and slow.

Reporting Category 3: Earth and Space

(1.7) **Earth and space:** The student knows that the natural world includes rocks, soil, and water that can be observed in cycles, patterns, and systems. The student is expected to

(A) observe, compare, describe, and sort components of soil by size, texture, and color.

(B) identify and describe a variety of natural sources of water, including streams, lakes, and oceans.

(C) identify how rocks, soil, and water are used to make products.

(1.8) **Earth and space:** The student knows that the natural world includes the air around us and objects in the sky. The student is expected to

(A) record weather information, including relative temperature such as hot or cold, clear or cloudy, calm or windy, and rainy or icy.

(B) observe and record changes in the appearance of objects in the sky such as the Moon and stars, including the Sun.

(C) identify characteristics of the seasons of the year and day and night.

(D) demonstrate that air is all around us and observe that wind is moving air.

Reporting Category 4:
Organisms and Environments

(1.9) **Organisms and environments:** The student knows that the living environment is composed of relationships between organisms and the life cycles that occur. The student is expected to

(A) sort and classify living and nonliving things based upon whether they have basic needs and produce offspring.

TEKS 1.1A

Identify, discuss, and demonstrate safe and healthy practices as outlined in Texas Education Agency-approved safety standards during classroom and outdoor investigations, including wearing safety goggles or chemical splash goggles, as appropriate, washing hands, and using materials appropriately.

ACTIVITY I
Safe Science

Materials

Safe Science statements and explanations sheet

For each student:
4" x 6" unlined index cards—2
Markers or crayons (red and green)

For class demonstrations:
Beakers (2), safety goggles or chemical splash goggles, lab apron, electric lamp or hot plate, hand towel, taped glassware, toy stuffed animal, water, soap, plastic insect toy (as available), insect net

Background

Students enjoy and remember lessons when they perform hands-on science activities. Student safety must be a major consideration when planning and performing these science investigations.

A working awareness of general science lab-safety rules is essential for student well-being. *Safe Science* is designed to help students differentiate between safe and unsafe science practices, understand why the practices are safe or unsafe, and demonstrate several safe practices.

Procedure

Introduce the activity with a general discussion of safe practices around home and at school. Examples of safe practices might include wearing a helmet while riding a bicycle or skateboard; stopping, looking, and listening before crossing the street; and staying with the group when on a field trip. Consequences for failing to follow safe practices should be mentioned as well—injuring one's head on the sidewalk or being struck by a car. Explain to the class that safe practices are important at home, at school, or outdoors.

Provide each student with two index cards. Direct students to write "Safe" on one card with a green marker or crayon and "Unsafe" on the other card with a red marker or crayon.

Tell the class that some science investigation practices will be described. Some of the practices may be safe. Other practices may be unsafe. When a statement is read, if students think it is a safe practice, they will hold up their green "Safe" card. If students think it is an unsafe practice, they will hold up their red "Unsafe" card.

Select a statement from the *Safe Science* statements and explanations sheet. Read it aloud to the class. Allow time for students to decide whether the statement describes a safe or unsafe investigation practice. Direct all students to hold up their selected "Safe" or "Unsafe" cards at the same time. State the correct response. Call on a student to explain why the practice is safe or unsafe. Call on additional students as necessary until a satisfactory explanation is determined. Reinforce the explanation by rereading the statement followed by the accepted explanation. Repeat the process until each statement has been read and explained at least once. Answer questions as they arise.

Conclude by inviting volunteers to come to the front of the class to demonstrate safe science practices using available equipment. Some examples follow:

1. Hand a piece of lab equipment to the student, and ask the student to set it on a table in a safe place. (The student should set the equipment away from the table's edge.)

2. Put two beakers on the table. Tell the student that (s)he is getting ready to pour liquids from one container to another. Ask the student to put on the proper safety equipment to prepare for pouring liquids. (The student should wear goggles and a lab apron.)

3. Display a lamp or a hot plate that is plugged into an outlet but not turned on. Ask the student to demonstrate the proper way to unplug electrical equipment from the outlet. (The student should grasp the plug with one hand and pull the plug gently but firmly from the outlet.)

4. Tell the student to pretend that his or her hands are wet. Ask the student to demonstrate what (s)he should do with his or her hands before unplugging electrical equipment. (The student should dry his or her hands.)

5. Ask all students to demonstrate what to do if their clothes catch on fire. (All students should stop, drop, and roll.)

6. Hand taped glassware to the student, and tell the student to pretend that the glassware is chipped or broken. Ask the student to explain what (s)he should do with broken lab equipment. (The student should report that the equipment is broken.)

7. Tell the student to pretend that the toy stuffed animal is a real classroom pet. Ask the student to show the class what to do after (s)he puts the animal back into its cage. (The student should wash his or her hands with soap and water.)

8. Put the plastic toy insect on the table. Ask the student how (s)he should catch the insect if it were really alive. (The student should use an insect net and avoid touching the insect.)

Safe Science Statements and Explanations Sheet

Read: Be careful when you are working on a science investigation.

Safe—Working carefully keeps you from making careless mistakes. Do not play around during an investigation.

Read: Listen to all directions. Wait for your teacher to tell you to start before you begin a science investigation.

Safe—You will not miss any important steps if you wait until you hear all of the directions and your teacher's announcement to start.

Read: Use a piece of broken equipment as long as you fix it yourself or put it back together with tape.

Unsafe—Broken lab equipment could cut, burn, or shock you. Use only equipment that is in good shape.

Read: Put lab equipment along the edge of the table.

Unsafe—Any equipment set on the edge of a table could accidentally be knocked onto the floor. The fall could break the equipment, splash chemicals, or cause injury. Keep lab equipment away from the edge of the table.

Read: Unplug electrical equipment by holding the plug in one hand and gently pulling the plug from the outlet.

Safe—A plug has a place for your fingers to get a good grip. If you pull on the cord instead of the plug, you might pull out wires that could shock you.

Read: If you do not understand a step in your experiment, ask another student in your class for help or just skip the step.

Unsafe—Another first grader might not understand the step or might not give you the right directions. Skipping steps could make you do something dangerous or make your experiment not work. Always ask your teacher if you do not understand.

Read: Wipe your hands on your clothes after you work with animals.

Unsafe—Animals carry germs on their skin. You might get sick if you get the germs on you or inside of you. Wash your hands with soap and water after you touch an animal. Use a paper towel to turn the faucet off.

Read: Wear safety goggles or chemical splash goggles when you work with liquids or chemicals.

Safe—Safety goggles or chemical splash goggles protect your eyes. The goggles keep liquids and chemicals from getting into your eyes and hurting them.

Read: Wipe up chemical spills with a sponge or paper towels.

Unsafe—Some chemicals are dangerous and could hurt you or someone else if you try to wipe them up yourself. Tell your teacher about the spill because your teacher knows the right way to clean the spill.

Read: Wear a lab apron only if you are cooking something.

Unsafe—Lab aprons are made from material that keeps liquids from touching your skin or your clothes. Wear lab aprons whenever you work with liquids.

Read: Stay with your group when you are on a field trip.

Safe—You will not get lost if you stay with your group. Your teacher and parents can help keep you safe.

Read: Catch insects with your bare hands.

Unsafe—Some insects can sting or bite you. Other insects might carry germs. Keep insects away from you by catching them with insect nets.

Read: Dry your hands completely before you touch anything electrical.

Safe—Electricity can move through water. Wet hands can cause you to get shocked. Electric shocks are dangerous.

Read: Run to your teacher for help if your clothes catch on fire.

Unsafe—Running with your clothes on fire can make the fire burn faster. Stop, drop, and roll to slow the fire. Use the floor to help put the fire out.

ACTIVITY II
Safety Patrol

Materials
For each student:
Safety Patrol Scenes
crayons or colored markers

Background
Students learn safety lessons well when they conduct hands-on science activities. While recognizing and implementing safe practices is an integral aspect of science investigations, understanding the reasons for the practices helps enforce their importance. Students should understand that safe practices are designed to keep themselves and others safe and healthy.

Safety Patrol is an activity that allows students to identify investigation practices shown in pairs of similar scenes. By contrasting the practices shown in the scenes, students will be able to recognize possible consequences of unsafe practices, thereby recognizing the importance of the safe practices.

Procedure
Begin the activity by asking students what is a safe practice when crossing a street. Select one or two students to answer the question. Correct responses can include looking both ways before crossing, waiting for the street crossing light to change, waiting for a cross guard to assist with the crossing, and crossing at an intersection or crosswalk. Ask students how these practices keep them safe. The correct response is that the practices prevent students from being struck by a vehicle. Explain that during investigations, students should also use safe practices to keep themselves safe.

Display the Classroom Investigation Scenes on a whiteboard using a projector. Distribute a copy of Classroom Investigation Scenes and Outdoor Investigation Scenes to each student. Instruct students to look at each pair of scenes. Tell students that one scene shows safe practices while the second scene shows unsafe practices. Instruct students to match each safe practice with its unsafe practice by circling the matching practices using the same color crayons. Demonstrate by circling a safe practice with an unsafe practice using a dry erase marker. Tell students to match all of the safe and unsafe practices remaining on the scenes. Students should use a different color crayon for each matching pair. Provide students sufficient time to complete the activity. After all students finish, review the scenes and identify the safe and unsafe practices. Lead a discussion about the importance of the identified safe practices.

Safety Patrol Answer Key

Classroom Investigation Scenes

Contrast 1: Students are wearing chemical splash goggles in the safe practice scene. Goggles are necessary to protect eyes from foreign substances.

Contrast 2: Students are wearing aprons in the safe practice scene. Aprons are necessary to protect clothing and skin from chemicals.

Contrast 3: Boy student is wearing a heavy glove in the safe practice scene. The heavy glove protects his hands from burns.

Contrast 4: Boy student is pulling the plug out of the outlet by tugging at the plug in the safe practice scene. Pulling the plug out by the cord may result in the cord pulling away from the plug or damaging the cord, which could cause an electrical shock.

Contrast 5: Girl student is wearing gloves in the safe practice scene. Gloves protect the skin from harmful substances.

Contrast 6: Bottle is placed safely away from the edge of the table in the safe practice scene. Placing the bottle away from the edge prevents the bottle from falling on the floor.

Contrast 7: Girl student is reading instructions from the science back in the safe practice scene. Reading and understanding instructions is necessary to be sure that nothing dangerous occurs.

Contrast 8: Beaker is in good condition (not cracked) in the safe practice scene. Broken glassware can cut skin.

Outdoor Investigation Scenes

Contrast 1: All students are wearing closed-toe shoes in the safe practice scene. Closed-toe shoes prevent sharp objects or insect bites from harming feet.

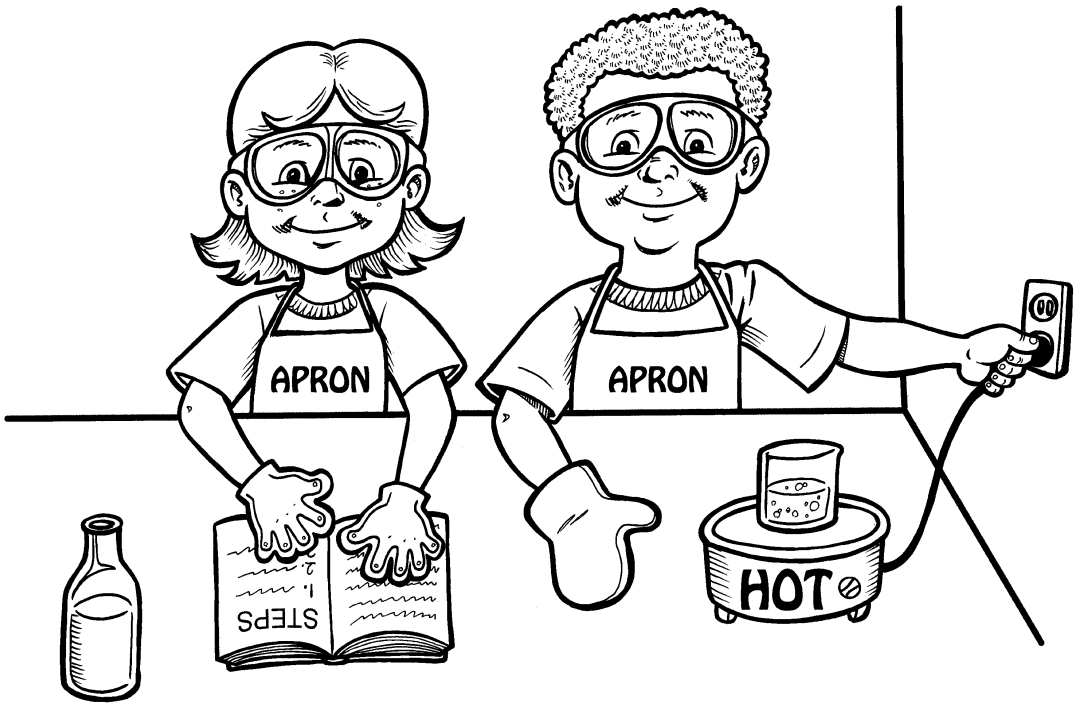
Contrast 2: Girl student by the tree is observing the hole in the trunk in the safe practice scene by taking a photograph of the hole. Photographs record observations of the hole without posing a threat to the student.

Contrast 3: Boy student is observing the plant in the safe practice scene by looking at it closely with a hand-held lens. Looking through hand-held lens allows close-up observations without touching the plant.

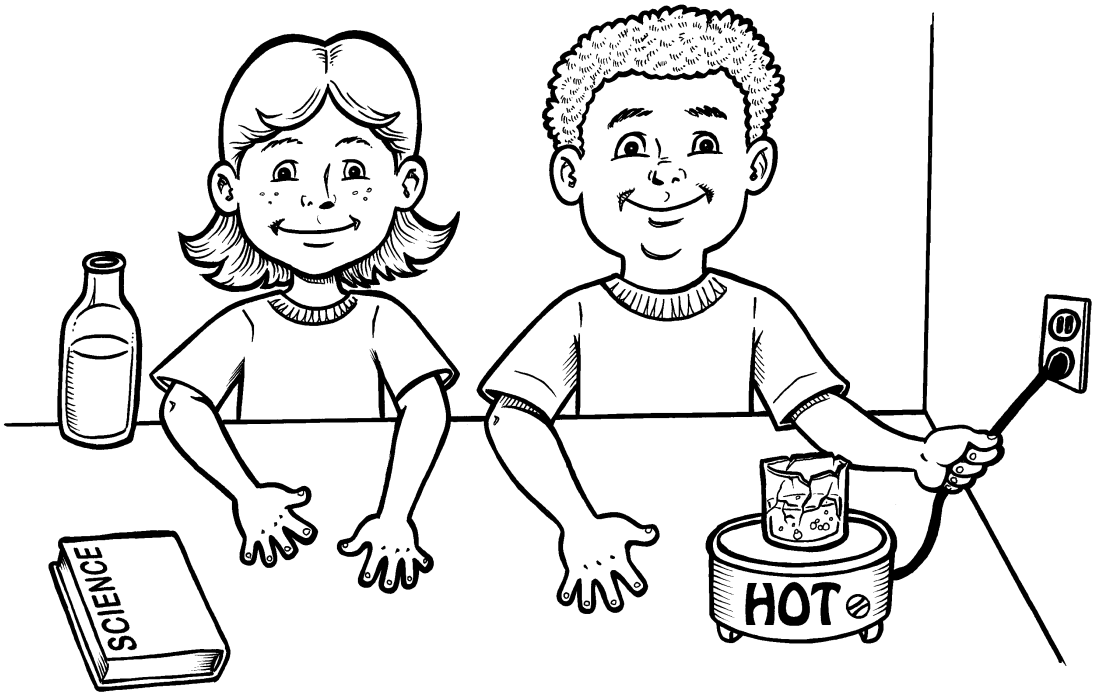
Contrast 4: Girl student is trying to catch the flying insect with a net in the safe practice scene. Using a net prevents students from coming into contact with potentially dangerous insects.

Classroom Investigation Scenes

Safe Practice

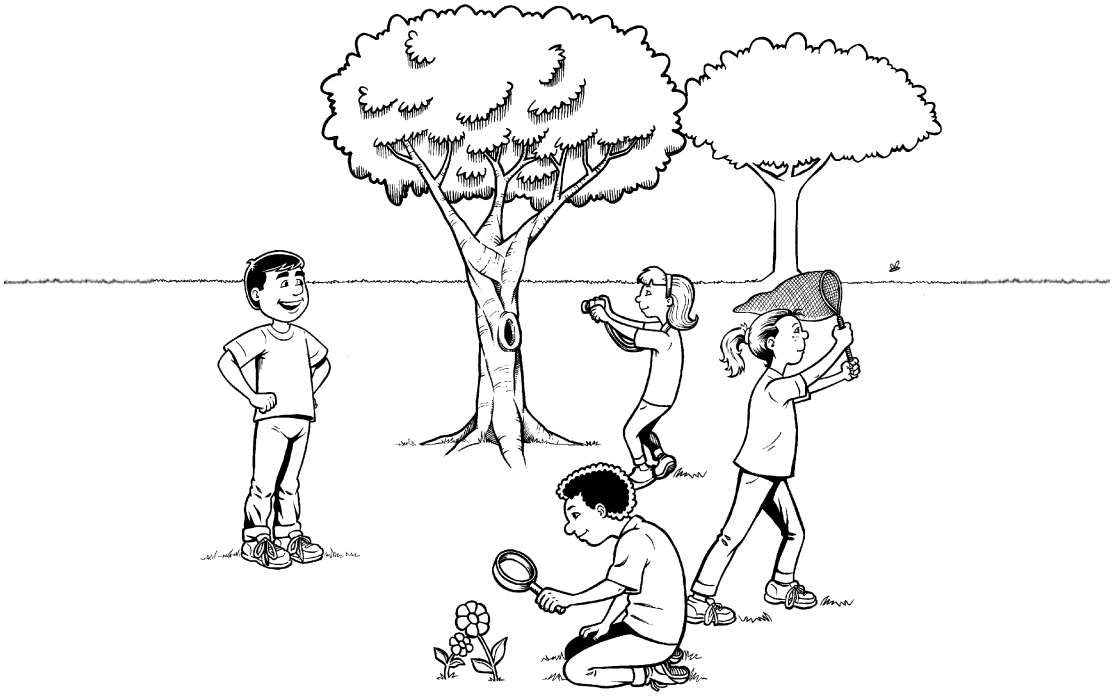


Unsafe Practice

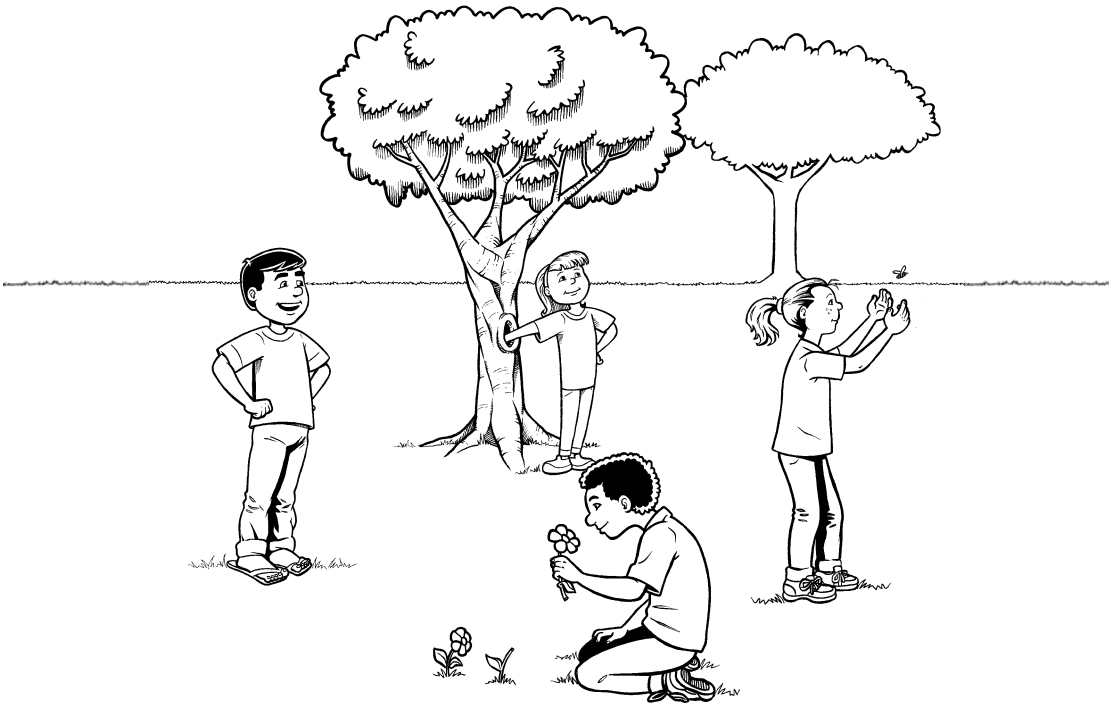


Outdoor Investigation Scenes

Safe Practice



Unsafe Practice



Name _____ TEKS 1.1A

Identify, discuss, and demonstrate safe and healthy practices as outlined in Texas Education Agency-approved safety standards during classroom and outdoor investigations, including wearing safety goggles or chemical splash goggles, as appropriate, washing hands, and using materials appropriately.

1 Tim is in the science lab. He is going to work with liquids. What should Tim wear?

Ⓐ oven mitt and cooking apron

Ⓑ goggles and lab apron

Ⓒ socks and mittens

Ⓓ hat and sunglasses

2 What is the safe way to unplug a light in the science lab?

Ⓐ Jerk the cord quickly with a dry hand.

Ⓑ Pull the plug gently with a pair of tweezers.

Ⓒ Jerk the cord quickly with oven mitts.

Ⓓ Pull the plug gently with a dry hand.

3 What is the safest way **not** to get lost when on a field trip outdoors?

Ⓐ Leave bread crumbs on the ground to mark the trail.

Ⓑ Ask a friend to stay with you all of the time.

Ⓒ Draw a map of the outdoors.

Ⓓ Stay with your teacher and classmates.

4 Conrad washes his hands with soap and water after he comes inside from the school playground. How does washing hands with soap and water keep Conrad healthy?

Ⓐ Soap makes Conrad's hands smell nice.

Ⓑ The water soaks into Conrad's hands.

Ⓒ The soap and water wash away germs.

Ⓓ Washing hands keeps Conrad cool.