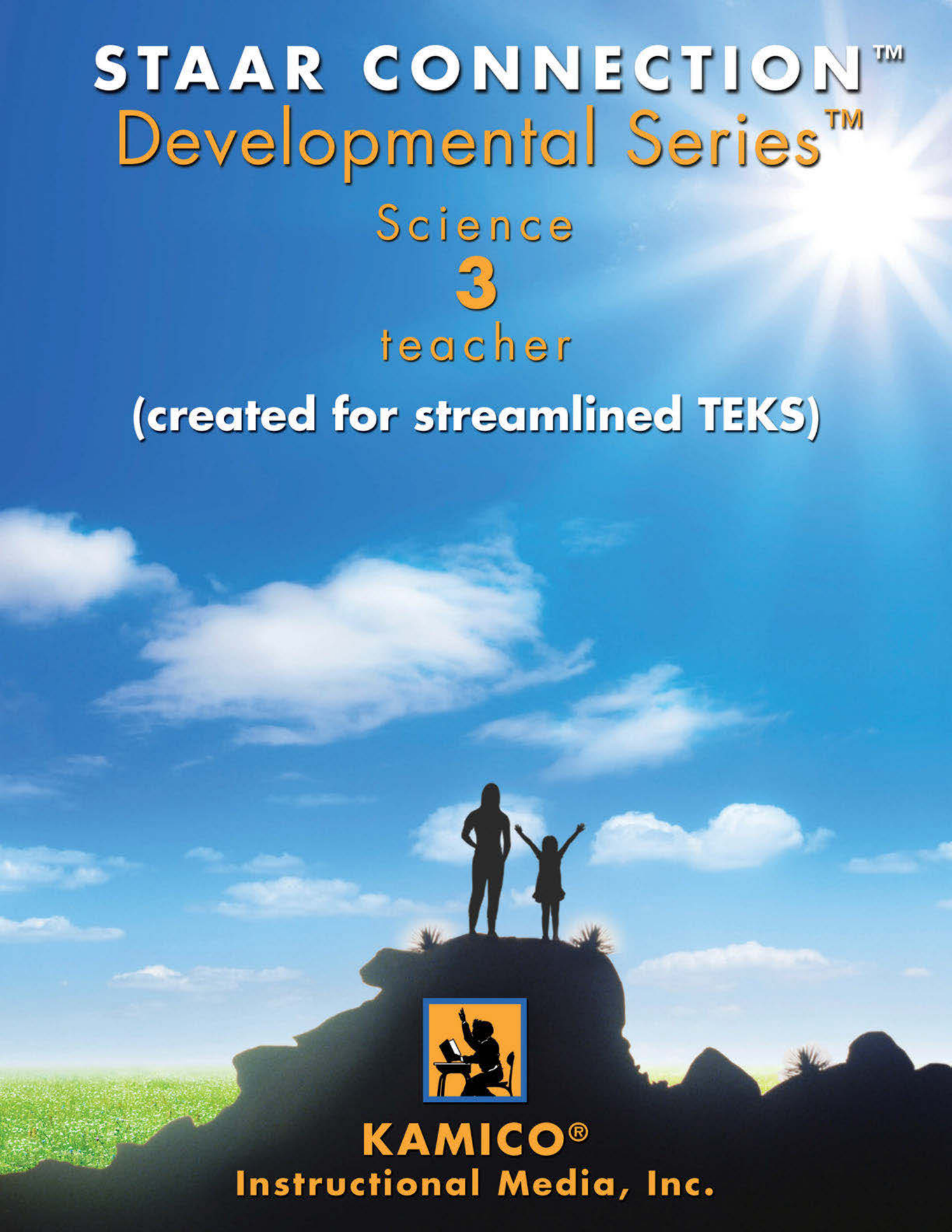
STAAR CONNECTION™
Developmental Series™

Science
3
teacher

(created for streamlined TEKS)



KAMICO®
Instructional Media, Inc.

STAAR CONNECTION™

Science
3
teacher

Developmental Series™

III/i/MMXXIII
Version 2.5
(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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Texas Essential Knowledge and Skills
STAAR Grade 3 Science

Scientific Investigation and Reasoning Skills

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

(A) demonstrate safe practices as described in Texas Education Agency-approved safety standards during classroom and outdoor investigations using safety equipment as appropriate, including safety goggles or chemical splash goggles, as appropriate, and gloves;

(B) make informed choices in the use and conservation of natural resources by recycling or reusing materials such as paper, aluminum cans, and plastics.

(3.2) **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 and answering questions, making inferences, and selecting and using equipment or technology needed, to solve a specific problem in the natural world;

(B) collect and record data by observing and measuring using the metric system and recognize differences between observed and measured data;

(3.4) **Scientific investigation and reasoning.** The student knows how to use a variety of tools and methods to conduct science inquiry. The student is expected to

collect, record, and analyze information using tools, including cameras, computers, hand lenses, metric rulers, Celsius thermometers, wind vanes, rain gauges, pan balances, graduated cylinders, beakers, spring scales, hot plates, meter sticks, magnets, collecting nets, notebooks, and Sun, Earth, and Moon system models; timing devices; and materials to support observation of habitats of organisms such as terrariums and aquariums;

Reporting Category 1:
Matter and Energy

(3.5) **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, test, and record physical properties of matter, including temperature, mass, magnetism, and the ability to sink or float;

(B) describe and classify samples of matter as solids, liquids, and gases and demonstrate that solids have a definite shape and that liquids and gases take the shape of their container;

(C) predict, observe, and record changes in the state of matter caused by heating or cooling such as ice becoming liquid water, condensation forming on the outside of a glass of ice water, or liquid water being heated to the point of becoming water vapor;

(D) explore and recognize that a mixture is created when two materials are combined such as gravel and sand or metal and plastic paper clips.

Reporting Category 2:
Force, Motion, and Energy

(3.6) **Force, motion, and energy**. The student knows that forces cause change and that energy exists in many forms. The student is expected to

(A) explore different forms of energy, including mechanical, light, sound, and thermal in everyday life;

(B) demonstrate and observe how position and motion can be changed by pushing and pulling objects such as swings, balls, and wagons;

(C) observe forces such as magnetism and gravity acting on objects.

Reporting Category 3:
Earth and Space

(3.7) **Earth and space.** The student knows that Earth consists of natural resources and its surface is constantly changing. The student is expected to

(A) explore and record how soils are formed by weathering of rock and the decomposition of plant and animal remains;

(B) investigate rapid changes in Earth's surface such as volcanic eruptions, earthquakes, and landslides;

(C) explore the characteristics of natural resources that make them useful in products and materials such as clothing and furniture and how resources may be conserved.

(3.8) **Earth and space**. The student knows there are recognizable patterns in the natural world and among objects in the sky. The student is expected to

(A) observe, measure, record, and compare day-to-day weather changes in different locations at the same time that include air temperature, wind direction, and precipitation;

(B) describe and illustrate the Sun as a star composed of gases that provides light and thermal energy;

(C) construct models that demonstrate the relationship of the Sun, Earth, and Moon, including orbits and positions;

(D) identify the planets in Earth's solar system and their position in relation to the Sun.

Reporting Category 4:
Organisms and Environments

(3.9) **Organisms and environments**. The student knows and can describe patterns, cycles, systems, and relationships within the environments. The student is expected to

(A) observe and describe the physical characteristics of environments and how they support populations and communities of plants and animals within an ecosystem;

TEKS 3.2A

Plan and implement descriptive investigations, including asking and answering questions, making inferences, and selecting and using equipment or technology needed, to solve a specific problem in the natural world.

ACTIVITY
Do You Hear What I Hear?

NOTE: This activity is the first of six in a series that are intended to be completed together.

Materials

Do You Hear What I Hear? record sheet for each student
Wind-up (ticking) clock (or other device that produces a sound of equal volume) for each lab group
Meter stick for each lab group
Ruler for each lab group
Masking tape for each lab group
Chair for each lab group

Background

Descriptive investigations begin with a specific, well-defined question. To answer the question, researchers perform an investigation that includes accurate measurements and unbiased observations. During the investigation, researchers collect data that can be organized in graphs, tables, charts, or maps. The organized data is then interpreted to develop a reasonable explanation. Finally, researchers communicate a valid conclusion.

This activity is the first of six cumulative activities. The work from each activity should be saved. Each subsequent activity in the series builds upon previous work. Students will develop a question and hypothesis, observe and measure, record and graph data, analyze and interpret results, and communicate valid conclusions related to hearing ability tests.

Procedure

Divide the class into lab groups of three or four students. To help students hear the clocks, the activity should be performed with lab groups spread out as far as possible, possibly in a cafeteria or a gymnasium.

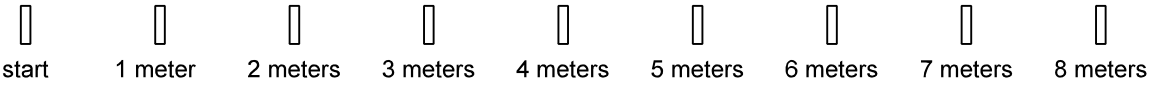
Students will develop and perform an experiment to test and compare hearing abilities. Students will compare and contrast the hearing ability of their right ears with that of their left ears. They will later compare and contrast the hearing abilities of individuals in their lab group. Then, they will use the knowledge gained

to make a prediction about hearing ability when using both ears. An additional experiment will be completed to test their refined hypothesis.

As a class, formulate a question. For example - "Do people hear better out of their left ear or out of their right ear?"

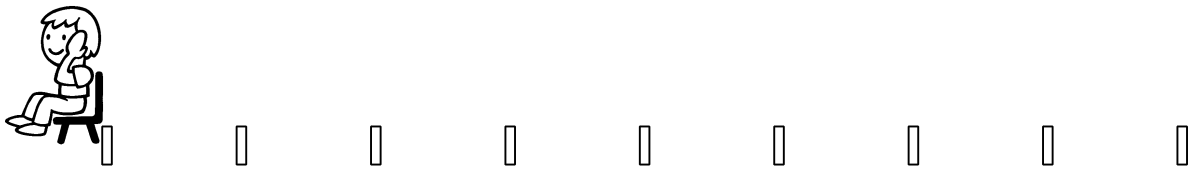
Show students a set of materials. Lead students through the creation of the steps below, and write the procedure on the board as each step is formulated.

1. Mark a spot on the floor with masking tape. Measure one meter from the first spot, and place a strip of tape to mark the spot. Measure one meter from the first meter spot, and place a strip of tape to mark the second spot. Continue making marks for a total of eight meters.

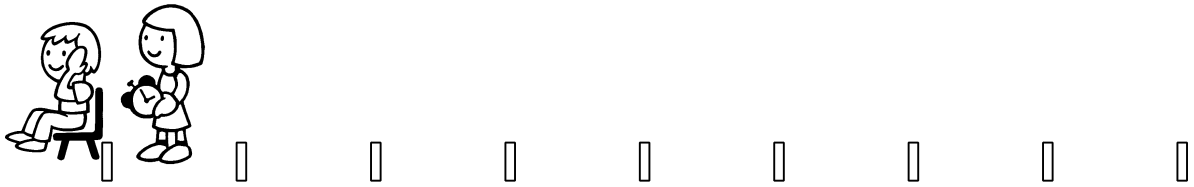


2. Put a chair on the first mark, positioned so that the other marks are behind the chair's back.

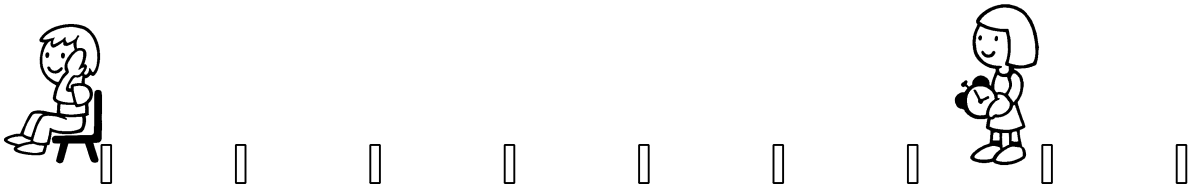
3. One lab partner sits in the chair and covers his or her left ear. (S)He listens for the sound of the ticking clock.



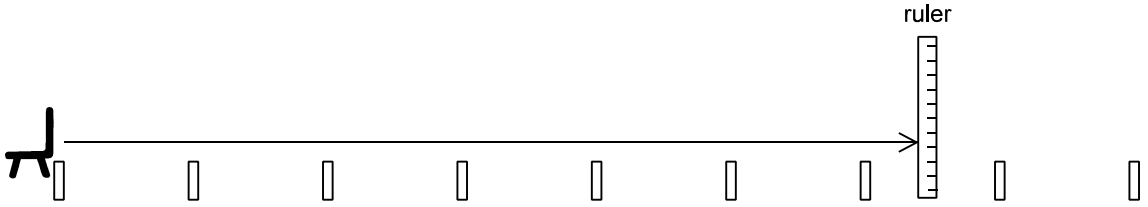
4. A lab partner stands directly behind the seated partner, holds the ticking clock at waist level, and slowly steps backwards from the chair.



5. The seated partner says "stop" when (s)he cannot hear the ticking any longer.



6. Place the ruler on the floor at the "stop" position. Measure the distance between the back of the chair and the ruler. All lab partners record the measurement.



7. The same partners repeat steps 3 through 6 with the right ear.

8. Lab partners take turns performing all roles until everyone measures his or her hearing in both ears.

9. Each student completes the procedure three times and records all results in a data table.

Point out that repeating the procedure two or more times will help reduce the chance that one mistake will change the results for the entire experiment.

Enrichment

Students formulate several questions. Then, students select one of the questions that (s)he would like to investigate. Next, students write a detailed procedure that contains steps to be followed to help find the answer to their selected question.

Name _____ TEKS 3.2A

Plan and implement descriptive investigations, including asking and answering questions, making inferences, and selecting and using equipment or technology needed, to solve a specific problem in the natural world.

1 A good science experiment needs a plan. What is the first step in planning a good science experiment?

A Ask a question that has only one answer.

B Wash your hands with soap and water.

C Choose equipment to use during the experiment.

D Write a procedure that changes every time somebody performs the experiment.

2 Billie covers her left ear while listening to a ticking clock. She then uncovers her left ear and covers her right ear while listening to the clock. What is Billie most likely trying to find out?

F Will she hear the clock ticking in each ear?

G Is her left ear larger than her right ear?

H Will she hear the clock ticking louder when she listens without covering either ear?

J Does the clock tick faster when her ears are covered?

3 You plan an experiment. It will test how well you can hear sounds as the sounds move farther away from you. What equipment should you choose?

A headphones and a telephone pole

B a timer and earplugs

C loudspeakers and a wristwatch

D a ticking clock and a meter stick

4 An investigation plan describes the procedure for an experiment. Which information is most needed in the plan?

F the title of the experiment

G the color of the paper you will use to write on about your experiment

H the steps you will follow as you carry out the experiment

J the date you will complete the experiment