

# STAAR CONNECTION™ Developmental Series™

Science  
**8**  
teacher



**KAMICO®**  
Instructional Media, Inc.

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Science  
**8**  
teacher

## Developmental Series™

X/iv/MMXV  
Version 1



**KAMICO®**

Instructional Media, Inc.

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**Eligible Texas Essential Knowledge and Skills  
STAAR Grade 8 Science**

**Reporting Category 1:  
Matter and Energy**

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

**Grade 8**

- (8.5) **Matter and energy.** The student knows that matter is composed of atoms and has chemical and physical properties. The student is expected to
- (A) describe the structure of atoms, including the masses, electrical charges, and locations, of protons and neutrons in the nucleus and electrons in the electron cloud;  
**Readiness Standard** Building an Atom . . . . . 17  
Assessment . . . . . 23
  - (B) identify that protons determine an element’s identity and valence electrons determine its chemical properties, including reactivity; **Readiness Standard**  
Getting a Reaction . . . . . 25  
Assessment . . . . . 31
  - (C) interpret the arrangement of the Periodic Table, including groups and periods, to explain how properties are used to classify elements; **Readiness Standard**  
What a Nice Arrangement! . . . . . 33  
Assessment . . . . . 37
  - (D) recognize that chemical formulas are used to identify substances and determine the number of atoms of each element in chemical formulas containing subscripts; **Readiness Standard**  
What's in the Formula? . . . . . 39  
Assessment . . . . . 43
  - (E) investigate how evidence of chemical reactions indicate that new substances with different properties are formed; and **Readiness Standard**  
Signs of Something New . . . . . 45  
Assessment . . . . . 53

(F) recognize whether a chemical equation containing coefficients is balanced or not and how that relates to the law of conservation of mass. <b>Supporting Standard</b>	
	A Balancing Act . . . . . 56
	Assessment . . . . . 64

## Grade 7

(7.5) <b>Matter and energy.</b> The student knows that interactions occur between matter and energy. The student is expected to	
(C) diagram the flow of energy through living systems, including food chains, food webs, and energy pyramids.	
<b>Supporting Standard</b>	Living Energy . . . . . 66
	Assessment . . . . . 76
(7.6) <b>Matter and energy.</b> The student knows that matter has physical and chemical properties and can undergo physical and chemical changes. The student is expected to	
(A) identify that organic compounds contain carbon and other elements such as hydrogen, oxygen, phosphorus, nitrogen, or sulfur; and <b>Supporting Standard</b>	
	Is It Organic? . . . . . 79
	Assessment . . . . . 86
(B) distinguish between physical and chemical changes in matter in the digestive system. <b>Supporting Standard</b>	
	Break It Down! . . . . . 88
	Assessment . . . . . 95

## Grade 6

(6.5) <b>Matter and energy.</b> The student knows the differences between elements and compounds. The student is expected to	
(C) differentiate between elements and compounds on the most basic level. <b>Supporting Standard</b>	
	Element or Compound? . . . . . 98
	Assessment . . . . . 104

- (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; and **Supporting Standard**
    - All That Glitters Is Not Gold . . . . . 106
    - Assessment . . . . . 113
  - (B) calculate density to identify an unknown substance.
    - Supporting Standard** Density Matters . . . . . 115
    - Assessment . . . . . 121

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

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

**Grade 8**

- (8.6) **Force, motion, and energy.** The student knows that there is a relationship between force, motion, and energy. The student is expected to
- (A) demonstrate and calculate how unbalanced forces change the speed or direction of an object’s motion;
    - Readiness Standard** Which Way? How Fast? . . . . . 123
    - Assessment . . . . . 130
  - (B) differentiate between speed, velocity, and acceleration; and
    - Supporting Standard** Motion Bingo . . . . . 133
    - Assessment . . . . . 143
  - (C) investigate and describe applications of Newton’s law of inertia, law of force and acceleration, and law of action-reaction such as in vehicle restraints, sports activities, amusement park rides, Earth’s tectonic activities, and rocket launches. **Readiness Standard**
    - Law and Order . . . . . 145
    - Assessment . . . . . 153

## Grade 7

- (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) contrast situations where work is done with different amounts of force to situations where no work is done such as moving a box with a ramp and without a ramp, or standing still. **Supporting Standard**
- |  |     |
|--|-----|
| Working Hard, or Hardly Working? . . . | 155 |
| Assessment . . . . .                   | 163 |

## Grade 6

- (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;  
**Supporting Standard** Stored Energy, Moving Energy . . . . . 166  
Assessment . . . . . 175
- (C) calculate average speed using distance and time measurements; and **Supporting Standard**
- |                        |     |
|------------------------|-----|
| Speeding Car . . . . . | 178 |
| Assessment . . . . .   | 184 |
- (D) measure and graph changes in motion.  
**Supporting Standard** Measurable Change . . . . . 187  
Assessment . . . . . 197
- (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
- (C) demonstrate energy transformations such as energy in a flashlight battery changes from chemical energy to electrical energy to light energy. **Supporting Standard**
- |                                  |     |
|----------------------------------|-----|
| Transforming the World . . . . . | 201 |
| Assessment . . . . .             | 207 |

**Reporting Category 3:  
Earth and Space**

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

**Grade 8**

- (8.7) **Earth and space.** The student knows the effects resulting from cyclical movements of the Sun, Earth, and Moon. The student is expected to
- (A) model and illustrate how the tilted Earth rotates on its axis, causing day and night, and revolves around the Sun causing changes in seasons; **Readiness Standard**
    - Days into Nights . . . . . 209
    - Assessment . . . . . 214
  - (B) demonstrate and predict the sequence of events in the lunar cycle; and **Readiness Standard**
    - Making "Phases" at the Moon . . . . . 217
    - Assessment . . . . . 224
  - (C) relate the position of the Moon and Sun to their effect on ocean tides. **Supporting Standard**
    - Keeping Earth "Tide-y" . . . . . 226
    - Assessment . . . . . 235
- (8.8) **Earth and space.** The student knows characteristics of the universe. The student is expected to
- (A) describe components of the universe, including stars, nebulae, and galaxies, and use models such as the Hertzsprung-Russell diagram for classification;  
**Readiness Standard**
    - Universe Rummy . . . . . 238
    - Assessment . . . . . 252
  - (B) recognize that the Sun is a medium-sized star near the edge of a disc-shaped galaxy of stars and that the Sun is many thousands of times closer to Earth than any other star; **Supporting Standard**
    - Sunny-Side Up . . . . . 254
    - Assessment . . . . . 257

(C)	explore how different wavelengths of the electromagnetic spectrum such as light and radio waves are used to gain information about distances and properties of components in the universe; and <b>Supporting Standard</b>	
		The Spectrum of the Universe . . . . . 259
		Assessment . . . . . 268
(D)	model and describe how light years are used to measure distances and sizes in the universe. <b>Supporting Standard</b>	
		How Far to That Star? . . . . . 271
		Assessment . . . . . 275
(8.9)	<b>Earth and space.</b> The student knows that natural events can impact Earth systems. The student is expected to	
(A)	describe the historical development of evidence that supports plate tectonic theory; <b>Supporting Standard</b>	
		Plate Tectonics Time Line . . . . . 277
		Assessment . . . . . 282
(B)	relate plate tectonics to the formation of crustal features; and <b>Readiness Standard</b>	
		Leaving Crusts on the Plate . . . . . 284
		Assessment . . . . . 289
(C)	interpret topographic maps and satellite views to identify land and erosional features and predict how these features may be reshaped by weathering. <b>Readiness Standard</b>	
		View from Above . . . . . 291
		Assessment . . . . . 296
(8.10)	<b>Earth and space.</b> The student knows that climatic interactions exist among Earth, ocean, and weather systems. The student is expected to	
(A)	recognize that the sun provides the energy that drives convection within the atmosphere and oceans, producing winds and ocean currents; <b>Supporting Standard</b>	
		Movement from the Sun . . . . . 299
		Assessment . . . . . 307
(B)	identify how global patterns of atmospheric movement influence local weather using weather maps that show high and low pressures and fronts; and <b>Supporting Standard</b>	
		Under Pressure . . . . . 309
		Assessment . . . . . 317



(C) identify the role of the oceans in the formation of weather systems such as hurricanes. <b>Supporting Standard</b>	
	The Oceans' Influence . . . . . 319
	Assessment . . . . . 330

**Grade 7**

(7.8) <b>Earth and space.</b> The student knows that natural events and human activity can impact Earth systems. The student is expected to	
(C) model the effects of human activity on groundwater and surface water in a watershed. <b>Supporting Standard</b>	
	Watershed Dynamics . . . . . 332
	Assessment . . . . . 344

**Grade 6**

(6.11) <b>Earth and space.</b> The student understands the organization of our solar system and the relationships among the various bodies that comprise it. The student is expected to	
(B) understand that gravity is the force that governs the motion of our solar system. <b>Supporting Standard</b>	
	Solar System In Motion . . . . . 347
	Assessment . . . . . 352

**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.**

**Grade 8**

(8.11) <b>Organisms and environments.</b> The student knows that interdependence occurs among living systems and the environment and that human activities can affect these systems. The student is expected to	
(A) describe producer/consumer, predator/prey, and parasite/host relationships as they occur in food webs within marine, freshwater, and terrestrial ecosystems;	
<b>Readiness Standard</b>	Web-Based Relationships . . . . . 355
	Assessment . . . . . 360

(B) investigate how organisms and populations in an ecosystem depend on and may compete for biotic and abiotic factors such as quantity of light, water, range of temperatures, or soil composition; <b>Readiness Standard</b>	Ecosystem Population Feud . . . . .	362
	Assessment . . . . .	371
(C) explore how short- and long-term environmental changes affect organisms and traits in subsequent populations; and <b>Readiness Standard</b>	Changing Populations . . . . .	373
	Assessment . . . . .	382
(D) recognize human dependence on ocean systems and explain how human activities such as runoff, artificial reefs, or use of resources have modified these systems. <b>Supporting Standard</b>	Depending on the Oceans . . . . .	385
	Assessment . . . . .	394

**Grade 7**

(7.10) <b>Organisms and environments.</b> The student knows that there is a relationship between organisms and the environment. The student is expected to		
(B) describe how biodiversity contributes to the sustainability of an ecosystem; and <b>Supporting Standard</b>	Strength through Biodiversity . . . . .	396
	Assessment . . . . .	403
(C) observe, record, and describe the role of ecological succession such as in a microhabitat of a garden with weeds. <b>Supporting Standard</b>	Successful Weeding . . . . .	405
	Assessment . . . . .	412
(7.11) <b>Organisms and environments.</b> 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; and <b>Supporting Standard</b>	Your ID, Please . . . . .	415
	Assessment . . . . .	423

(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 ( <i>Geospiza fortis</i> ) or domestic animals. <b>Supporting Standard</b>	New and Improved! . . . . .	427
		Assessment . . . . .	435
(7.12)	<b>Organisms and environments.</b> The student knows that living systems at all levels of organization demonstrate the complementary nature of structure and function. The student is expected to		
(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; <b>Supporting Standard</b>	Multi-Tasking Systems Bingo . . . . .	438
		Assessment . . . . .	446
(D)	differentiate between structure and function in plant and animal cell organelles, including cell membrane, cell wall, nucleus, cytoplasm, mitochondrion, chloroplast, and vacuole; and <b>Supporting Standard</b>	Cellular Coverage . . . . .	448
		Assessment . . . . .	454
(F)	recognize that according to cell theory all organisms are composed of cells and cells carry on similar functions such as extracting energy from food to sustain life. <b>Supporting Standard</b>	Cell Theory Brochure . . . . .	456
		Assessment . . . . .	459
(7.14)	<b>Organisms and environments.</b> 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		
(B)	compare the results of uniform or diverse offspring from sexual reproduction or asexual reproduction; and <b>Supporting Standard</b>	Offspring Resemblance . . . . .	461
		Assessment . . . . .	467

(C) recognize that inherited traits of individuals are governed in the genetic material found in the genes within chromosomes in the nucleus. <b>Supporting Standard</b>	
Control Center . . . . .	469
Assessment . . . . .	473

**Grade 6**

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

(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. <b>Supporting Standard</b>	
Classified! . . . . .	476
Assessment . . . . .	485

**Scientific Investigation and Reasoning Skills**

**These skills will not be listed under a separate reporting category. Instead, they will be incorporated into at least 40% of the test questions in reporting categories 1–4 and will be identified along with content standards.**

**Grade 8**

(8.1) **Scientific investigation and reasoning.** The student, for at least 40% of instructional time, will conduct 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 the Texas Safety Standards; and	Investigation Safety Jeopardy . . . . .	487
	Assessment . . . . .	494
(B) practice appropriate use and conservation of resources, including disposal, reuse, or recycling of materials.		
	Resource Manager . . . . .	496
	Assessment . . . . .	504

(8.2)	<b>Scientific investigation and reasoning.</b> The student uses scientific inquiry methods 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;		
		Footprints to Discovery . . . . .	506
		Assessment . . . . .	515
	(B) design and implement comparative and experimental investigations by making observations, asking well-defined questions, formulating testable hypotheses, and using appropriate equipment and technology;		
		Investigating Craters from Crashes . . .	517
		Assessment . . . . .	524
	(C) collect and record data using the International System of Units (SI) and qualitative means such as labeled drawings, writing, and graphic organizers;		
		Recording Studio . . . . .	526
		Assessment . . . . .	534
	(D) construct tables and graphs, using repeated trials and means, to organize data and identify patterns; and		
		Data Organization Station . . . . .	537
		Assessment . . . . .	542
	(E) analyze data to formulate reasonable explanations, communicate valid conclusions supported by the data, and predict trends.		
		Don't Jump to Conclusions! . . . . .	545
		Assessment . . . . .	553
(8.3)	<b>Scientific investigation and reasoning.</b> The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions and know the contributions of relevant scientists. The student is expected to		
	(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student;		
		Thinking Critically . . . . .	557
		Assessment . . . . .	564

(B)	use models to represent aspects of the natural world such as an atom, a molecule, space, or a geologic feature;	
	Natural World Models . . . . .	567
	Assessment . . . . .	578
(C)	identify advantages and limitations of models such as size, scale, properties, and materials; and	
	Model Imperfections . . . . .	581
	Assessment . . . . .	587
(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.	
	Science Baseball . . . . .	591
	Assessment . . . . .	601
(8.4)	<b>Scientific investigation and reasoning.</b> 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 to collect, record, and analyze information, including lab journals/notebooks, beakers, meter sticks, graduated cylinders, anemometers, psychrometers, hot plates, test tubes, spring scales, balances, microscopes, thermometers, calculators, computers, spectrosopes, timing devices, and other equipment as needed to teach the curriculum; and	
	Inquiring Tools . . . . .	603
	Assessment . . . . .	609
(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.	
	Team Safety . . . . .	611
	Assessment . . . . .	621
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## Reporting Category 4: Organisms and Environments

### TEKS 7.11A

*Examine organisms or their structures such as insects or leaves and use dichotomous keys for identification.*

### ACTIVITY

#### Your ID, Please

#### Materials

For class demonstration:  
Animal Dichotomous Key example  
stuffed toy bear

For each group of students:

*Your ID, Please* game board (one of two available game boards)  
Set of *Your ID, Please* game cards corresponding to the distributed game board  
Dice

#### Background

Identifying an organism can be difficult if the identity must be determined from a multitude of choices. People can rely upon their memory to identify an organism, or they can eliminate incorrect choices methodically by using a dichotomous key. The word "dichotomous" means "to divide into two parts." A dichotomous key is a tool for identifying something by progressing through a series of pairs of choices. Each choice within a pair leads a user to another pair of choices until the determination of the organism's identity can be selected from the final pair of choices.

*Your ID, Please* is a game which teaches students how to use a dichotomous key for identifying organisms. In this game, students will make visual observations of an organism's structure and select from a pair of choices in a dichotomous key for identification of the organism. Although the identity of some of the organisms may be obvious, students should play the game more than once to practice using the dichotomous key. Groups of students may also exchange their game board and game cards with other groups of students to incorporate more organisms into their activity.

#### Procedure

To begin the activity, display the animal dichotomous key example on a whiteboard or an overhead projector. Explain a dichotomous key to students using the background information. Inform students that as a class, they will use the simple dichotomous key in a demonstration to help them identify a toy stuffed animal. Lead the students through the choices in the dichotomous key until they have correctly identified the stuffed animal as a bear.

Divide students into groups of three or four. Distribute one of the two different *Your ID, Please* game boards, its corresponding game cards, and a die to each group. Review the rules of the game with the students as follows:

- 1 One player shuffles the game cards and deals one card to each player, including himself/herself. Players turn over their cards and study them.
- 2 Players take turns rolling the die. The player who rolls the highest number plays first.
- 3 The first player rolls the die. The player must roll the number "1" in order to select from the first pair of choices on the dichotomous key. If the player rolls the number "1," the player selects from the first pair of choices on the dichotomous key which best matches the drawing shown on his or her card. The selected choice will indicate the next pair of choices to progress to on the player's next turn. If the player does not roll the number "1," the player's turn is over.
- 4 The next player rolls the die. Like the first player, the second and each subsequent player must first roll a "1" to select from the first pair of choices on the dichotomous key. It is possible for a player to pass several turns before (s)he rolls a "1" and gets to make a selection on the dichotomous key.
- 5 Each time a player has a turn, the player must roll the number that corresponds to the next pair the player must select. For example, after a player chooses from the first pair, (s)he must roll the number "2" before proceeding to the second pair of choices, and so forth.
- 6 Players continue rolling the die and making choices until a player reaches the end of the dichotomous key and successfully identifies the organism shown on his or her card. Players may check the answer key to verify the identify of their organisms.

After all groups have completed a game, encourage groups to exchange game boards so that students have the opportunity to practice using the dichotomous key on different types of organisms.



### Animal Dichotomous Key Example

1	a. skin is covered with fur or hair b. skin is covered with scales	Go to 2 Go to 3
2	a. ears are rounded b. ears are long	Go to 4 rabbit
3	a. animal has four legs and a tail b. animal has no legs	lizard snake
4	a. tail is obvious b. tail is short or does not exist	Go to 5 Go to 6
5	a. tail is bushy b. tail is long and thin	squirrel rat
6	a. legs are short and small b. legs are thick and stocky	guinea pig bear

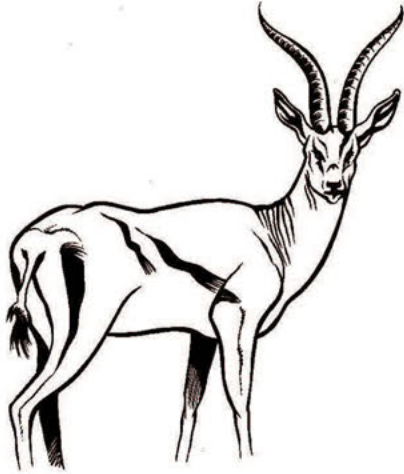
## Your ID, Please Game Board 1

1	a. body protected by outer shell	turtle
	b. body not protected by outer shell	Go to 2
2	a. skin covered with yellow feathers	canary
	b. skin covered with fur or hair	Go to 3
3	a. has four legs	Go to 4
	b. has two legs	human
4	a. animal does not have any horns	Go to 5
	b. animal has one or more horns	Go to 6
5	a. fur color is uniform	Go to 9
	b. fur color has different markings	Go to 8
6	a. single horn on nose	rhinoceros
	b. two horns on head	Go to 7
7	a. horns are long with no branches	gazelle
	b. horns are branched	deer
8	a. eyes are surrounded by mask-like fur coloring	raccoon
	b. fur is black with solid white stripe down back	skunk
9	a. fur is white	polar bear
	b. fur is dark	grizzly bear

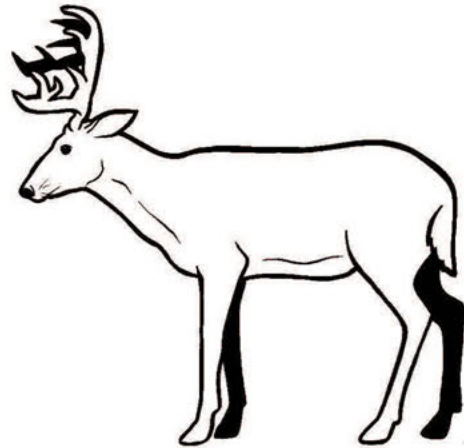
## Your ID, Please Game Board 2

1	a. plant grows in and on top of water	water lily
	b. plant grows on land	Go to 2
2	a. plant spreads out low and covers ground	grass
	b. plant grows upward	Go to 3
3	a. leaves are thin or needle-like	Go to 4
	b. leaves are broad and flat	Go to 5
4	a. leaves are connected to a fleshy stem	cactus
	b. leaves are connected to woody branches	Go to 6
5	a. leaves are single lobed	Go to 9
	b. leaves are multiple lobed	ragweed
6	a. plant is a tree	Go to 7
	b. plant is a bush or shrub	Go to 8
7	a. branches bear small, round berries	juniper
	b. branches bear cones	fir
8	a. flowers bloom from a tall central stalk	yucca
	b. multiple small flowers bloom from many branches	rosemary
9	a. leaf edges are serrated (jagged)	rose
	b. leaf edges are smooth	Go to 10
10	a. flower petals open wide to expose long stamen	alstroemeria
	b. flower petals overlap and protect stamen	gardenia

Your ID, Please Game Cards Set 1



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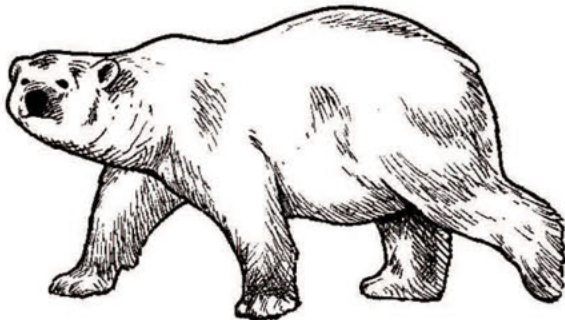
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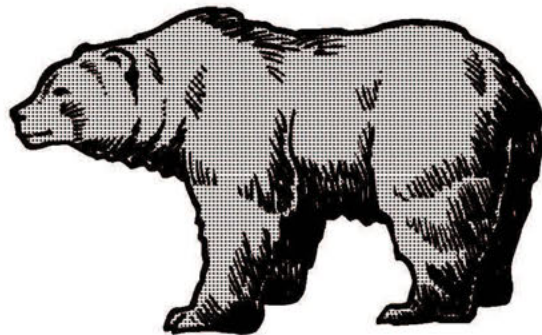
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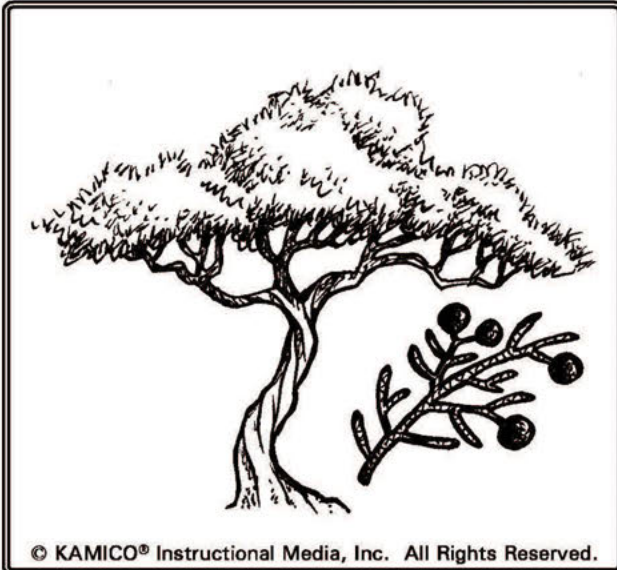


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Your ID, Please Game Cards Set 2



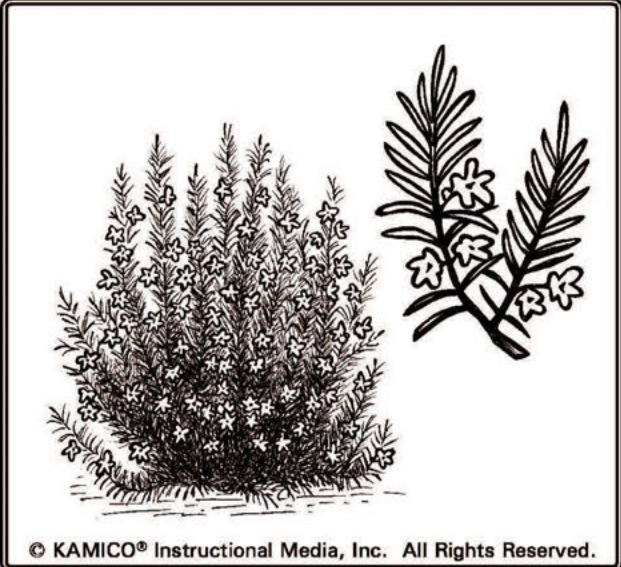
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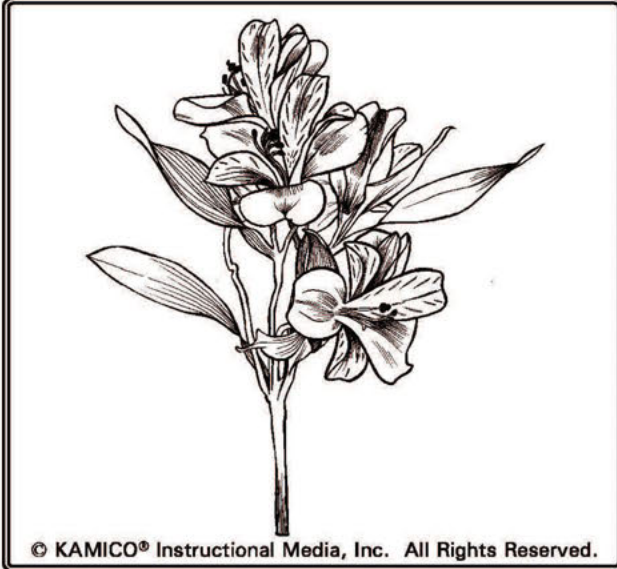
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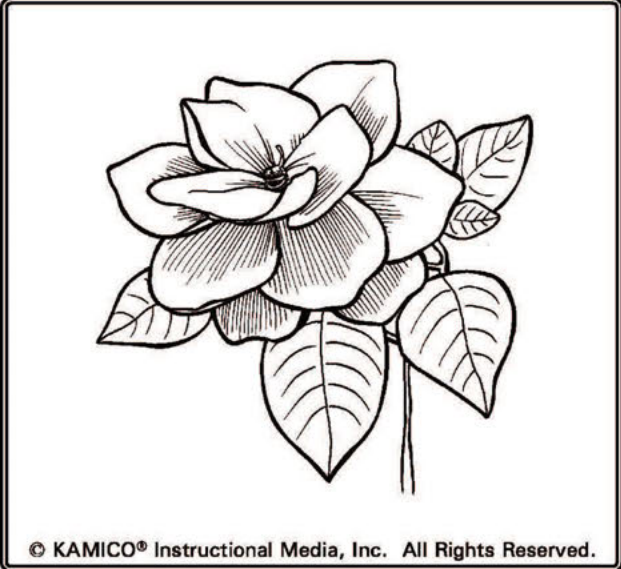
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## Your ID, Please Answer Key

### Game Card Set 1:

- 1a gazelle
- 1b deer
- 1c raccoon
- 1d skunk
- 1e polar bear
- 1f grizzly bear

### Game Card Set 2:

- 2a juniper
- 2b fir
- 2c yucca
- 2d rosemary
- 2e alstroemeria
- 2f gardenia

*Examine organisms or their structures such as insects or leaves and use dichotomus keys for identification.*

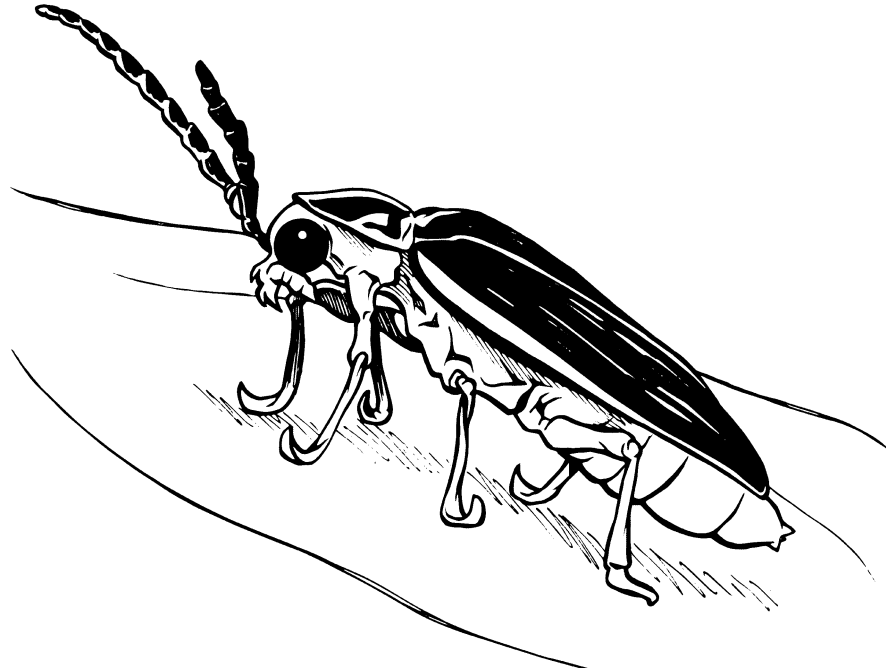
- 1** A plant scientist, called a botanist, has discovered an unusual plant growing in the middle of his antique rose garden. He photographs the plant so that he can try to identify it when he returns to his office. Which of the following features is **least** likely to be helpful in identifying the plant from a dichotomus key?
- A** the shape of the plant's leaves
  - B** the number of flowers growing on the plant
  - C** the color of the plant's flowers
  - D** the smoothness of the stems
- 2** Fiona is using a dichotomus key to identify an organism, which her teacher knows is a chameleon. Based on her initial observations of the organism, she has determined that it is a type of reptile. Which of the following pairs of choices would help determine that the organism is a chameleon and not a gecko?
- A**
    - a. The organism changes its color when placed in a different environment.
    - b. The organism's color remains the same when placed in a different environment.
  - B**
    - a. The organism's tail continues to move when it is detached from the body.
    - b. The organism's tail does not move when it is detached from the body.
  - C**
    - a. The organism's skin is covered with scales.
    - b. The organism's skin is covered with fur.
  - D**
    - a. The organism has a long, thin tongue.
    - b. The organism has a short, thick tongue.

Use the following dichotomus key to answer questions 3 and 4.

1	a. lives on water b. lives on land	water spider Go to 2
2	a. wings are large and broad b. wings are elongated or small	butterfly Go to 3
3	a. organism has more than six legs b. organism has six legs	Go to 5 Go to 4
4	a. walks on back 4 legs b. walks on all 6 legs	praying mantis Go to 6
5	a. main body part(s) spherically shaped b. main body part(s) not spherically shaped	Go to 7 Go to 8
6	a. appears spotted b. does not appear spotted	Go to 9 Go to 10
7	a. main body is small with long, thin legs attached b. main body is large with hairy legs attached	daddy long legs tarantula
8	a. body has many segments with many pairs of legs b. front legs have claws and curved tail has stinger	centipede scorpion
9	a. spots are present on the body b. body is shaped like a shield	ladybug stink bug
10	a. wings do not cover full length of body when closed b. wings cover full length of body when closed	firefly June bug



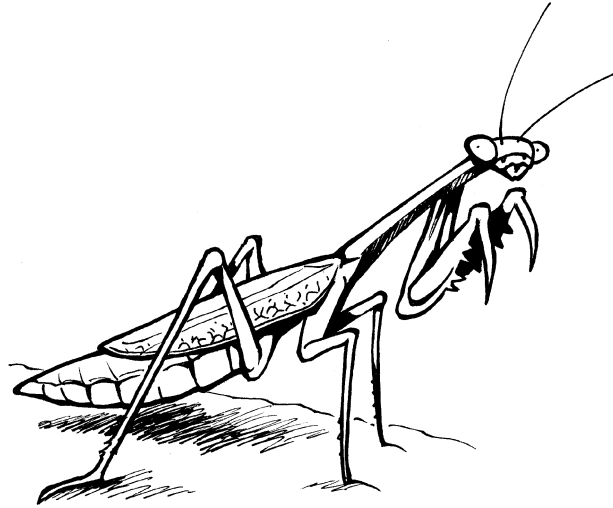
- 3 Leanna bends over a rosebud to smell its fragrance but jumps back in surprise when she finds a bug on one of the leaves. A drawing of the bug is shown.



Leanna uses a dichotomus key to determine the bug's identity. Based on the bug's physical features, Leanna correctly identifies the bug as a —

- A June bug.
- B stink bug.
- C ladybug.
- D firefly.

- 4 Camping in the wilderness can be fun as long as you follow safety precautions. One popular camping rule is to shake out your shoes before putting them on to remove any bugs which may be inside the shoes. A boy scout shakes out his shoes in his tent one morning and a bug falls out. The bug looks like the drawing.



Based on the dichotomous key, the bug in the shoe is most likely a —

- A daddy long legs.
- B tarantula.
- C praying mantis.
- D scorpion.