

# SCIENCE

FOR LANGUAGE DEVELOPMENT

GRADE 8 • BOOK 2

BASED ON  
ALASKA  
SCIENCE  
STANDARDS



Sealaska Heritage Institute





# UNIT 6

C-1: Concepts of Life Science





# KEY VOCABULARY

# Culturally Responsive & Place-Based Introduction of Science Vocabulary

## FUNCTION

### Place-Based Perspective

Place a stuffed animal or toy at the front of the room. Have the students list all of the body parts that they can see. What are each of the parts for? In other words, what is their function? Teeth for chewing, fur for keeping warm, paws for walking, eyes for seeing... These are just a few examples. Ask the students what the functions of various organs are.

### Heritage Cultural Perspective

*The function or purpose of the traditional halibut hook was to catch halibut! These were crafted very carefully and the dimensions of the hook were tailored for the size of fish that was to be caught. A crest of one's clan was often carved into the hook as it was thought that the animal's spirit would aid in the harvest. What is the function of a fish's fin? Of a boat's motor?*

## INTERDEPENDENCE

### Place-Based Perspective

Show the students a plant in the classroom or outside. Explain that plants need carbon dioxide, which humans give off, and that we need oxygen, which plants give off. This is an example of interdependence between plants and animals. What would happen if all of the oxygen or ALL of the carbon dioxide were depleted in the world?

### Heritage Cultural Perspective

*Predators and their prey are interdependent on one another. It may sound strange to suggest that prey need to be eaten, but predators help to keep their populations at healthy levels. Indigenous peoples of Alaska recognized that there was a delicate balance in the environment and they would often harvest at sustainable levels, never taking more than they needed.*

## CIRCULATORY SYSTEM

### Place-Based Perspective

Ask the students to look at their hands and to try to identify veins. Explain that blood is flowing through those veins carrying nutrients to cells and waste away from them. The heart pumps and pushes the blood throughout the body. This is called the circulatory system because it circulates materials throughout the body!

### Heritage Cultural Perspective

*The Native people of Southeast Alaska were quite familiar with much of the anatomy and physiology of animals. They knew that the heart was important as was the blood of the body. To lose blood or a heartbeat could mean death. By examining the organs of animals that were killed, they were able to learn much about their own bodies!*

# Culturally Responsive & Place-Based Introduction of Science Vocabulary

## RESPIRATORY SYSTEM

### Place-Based Perspective

Ask the students how long they can hold their breath underwater. What does it feel like at the point that they need to come up for air? Explain that this feeling is caused by the depletion of oxygen in the body. When they finally reach the surface and breathe, oxygen is transported from the lungs to the blood. The intake of oxygen and output of waste gasses is done by the respiratory system!

### Heritage Cultural Perspective

*The respiratory system of marine mammals is similar to terrestrial mammals, but is adapted to allow them to be submerged longer. Most people probably know that whales breathe through a blow hole on their back. The spout that is seen is not water but an exhale of air! The indigenous peoples of Southeast Alaska commonly see whale spouts and some can even tell the kind of the whale from the spout!*

## NERVOUS SYSTEM

### Place-Based Perspective

Ask the students to lightly pinch the underside of their arms. Tell them that the pain that they feel results from nerves sending impulses to the brain. This information is transmitted by means of the nervous system. The nervous system is the way that we feel all objects around us. Have the students imagine a life without a nervous system! While we hate to feel pain, it is often good that we do!

### Heritage Cultural Perspective

*The ability of parts of the body to communicate with the brain and all other parts is important for survival. Without the sense of touch how would you know to remove your hand from a fire or to get in out of the cold? Nervous systems are important not only for indigenous peoples living in Alaska, but for everyone.*

## NATURAL SELECTION

### Place-Based Perspective

Show the students the pictures of Darwin's Finches on page 497. Explain to them that each of these finches has a different beak shape based on the type of food that they eat. Over long periods of time and many generations, the birds with better beaks for breaking apart their food were able to survive and produce young. This survival of individuals that are better suited for their environment is called natural selection.

### Heritage Cultural Perspective

*Sitka black-tailed deer are an important resource for indigenous peoples in Southeast Alaska. The deer have been naturally selected by the environment for thousands of years. Those that were slower, weaker, and less adapted to their environment likely died off or were killed, and were unable to contribute to subsequent generations.*

# Culturally Responsive & Place-Based Introduction of Science Vocabulary

## EVOLUTION

### Place-Based Perspective

Show the students the diagram of dog evolution on page 499. Explain that over time humans bred wolves to become the various breeds of dog that we have today. They selected these breeds for specific traits. This is an example of evolution. There is ample evidence to suggest that all life on Earth may have evolved from early ancestors to the species now present on Earth.

### Heritage Cultural Perspective

*Porcupines have a unique example of an evolutionary trait that helps them to survive. They have evolved to have hard quills that can penetrate the skin of any animal that is attacking them. Though they can be killed, predators are likely to choose easier prey first! Porcupines were occasionally consumed by Tlingits in Southeast Alaska.*

## CYCLING

### Place-Based Perspective

Have the students draw a picture of a bicycle on a piece of paper. Next ask them to explain where the bicycle might have gotten its name. Explain that it has two wheels and that the rotation of the pedals rotates the chain which rotates the wheels — a continuous cycle. Tell the students that cycling occurs naturally too, with various elements making their way from one place to another and back to where they started in the first place.

### Heritage Cultural Perspective

*The annual cycle taken on by indigenous peoples in the north refers to the times of year that various events took place, from ceremonies to the harvest of berries, hunting, fishing etc. Many indigenous peoples, including the Tlingit and Haida, were quite mobile and lived in different places throughout the year. Summer fish camps, for example, were usually in very different locations than the winter village sites!*

## CONSERVE

### Place-Based Perspective

Have the students make lists of all of the ways that they can think of to conserve energy at school and in their homes. Who has the most ways? Who has the most interesting way? Create a superlatives chart on the board. Ask the students what it really means to conserve. Explain that it means to keep something constant, in this case energy, but not using it, at least to the degree that you would by not “conserving.”

### Heritage Cultural Perspective

*The conservation of resources has always been important for mankind. In order to make sure that a resource remains available in subsequent years and for future generations, one must limit the amount that is harvested at any one time. This has always been a cultural value among the Tlingit.*





# LESSONS

# Science Language for Success

*Introduce the key science vocabulary, using concrete materials and/or pictures.*

## LISTENING

*Use the Mini Pictures activity page from the Student Support Materials. Have the students cut out the pictures. Say the key words and the students show the pictures.*



### Nod and Clap

Mount the vocabulary pictures on the board. Point to one of the pictures and say its name. The students should nod their heads to indicate that you said the correct vocabulary word for the picture. However, when you point to a picture and say an incorrect name for it, the students should clap their hands ONCE. Repeat this process until all of the vocabulary pictures have been used a number of times in this way.

### Student Support Materials

Have the students work on the activity pages from the Student Support Materials from this unit. Afterward, review their work.

## SPEAKING



### The Disappearing Pictures

Mount five or six pictures on the board, vertically. Point to the picture at the top and tell the students to name it. Continue in this way until the students have named all of the pictures from top to bottom. Then, remove the last picture and repeat this process—the students should say all of the vocabulary words, including the name for the “missing” picture. Then, remove another picture from the board and have the students repeat this process. Continue in this way until the students are saying all of the vocabulary words from a blank board or until the students cannot remember the “missing pictures.”

### Flashlight Name

Mount the vocabulary pictures on the board and the walls of the classroom. Darken the classroom as much as possible. Use a strong flashlight to direct the students’ attention to one of the pictures. The students should identify the picture that is illuminated by the light of the flashlight. Continue in this way until all of the vocabulary words have been said a number of times.

### Roll ‘Em Again!

Mount the vocabulary pictures on the board. Number each picture from one to six (repeat a number as often as necessary). Then, group the students into two teams. Give the first player in each team a die. When you say “Go,” the first player in each team must roll his/her die. He/She should call the number showing on it and then say a complete sentence about a vocabulary picture on the board that has the same number. Repeat this process until all students have participated.

# Science Language for Success

## READING

Introduce the science sight words to the students—match the sight words with the vocabulary pictures. The sight words are included in the Student Support Materials, attached to these lesson plans.



*Note: After each unit, mount a set of the unit's words on the walls around the room. Use the "word walls" for review and reinforcement activities.*

### Funnel Words

Group the students into two teams. Give the first player in each team a funnel. Mount the sight words on the walls, board, and windows, around the classroom. Say one of the sight words. The students with the funnels must then look through them to locate the sight word you named. The first student to do this correctly wins the round. Repeat with other pairs of students until all players in each team have played.

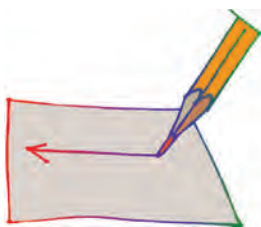
### Letter Encode

Give each student his/her envelope that contains the alphabet letters. Mount one of the science pictures on the board. The students must use the cut-out letters to spell the word. Review the students' work. Repeat, until all of the words have been spelled in this way.

### Student Support Materials

Have the students complete the sight recognition and encoding activities in the Student Support Materials. When finished, review their work.

## WRITING



### Mirror Writing

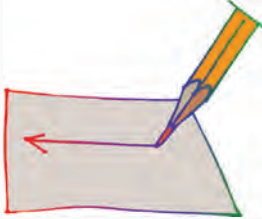
Group the students into two teams. Have the first player from each team stand in front of the board. Give each of the two players a small, unbreakable mirror. Stand some distance behind the two players with pictures for the sight words. Hold up one of the pictures. When you say "Go," the players must use the mirrors to look over their shoulders to see the picture you are holding. When a player sees the picture, he/she must write the sight word for that picture on the board. The first player to do this correctly wins the round. Repeat this process until all players in each team have had an opportunity to respond.

### Silent Dictation

Provide each student with writing paper and a pen. The students should watch carefully as you move your lips as though you are saying one of the sight words (do not voice the word). After "lipping" the sight word, each student should write that word on his/her sheet of paper. Repeat this process with other sight words. Afterwards, review the students' responses.

# Science Language for Success

## WRITING (CONTINUED)



### Student Support Materials

Provide the students with a copy of the writing pages from the Student Support Materials. When finished, review the students' work.



# VOCABULARY PICTURES







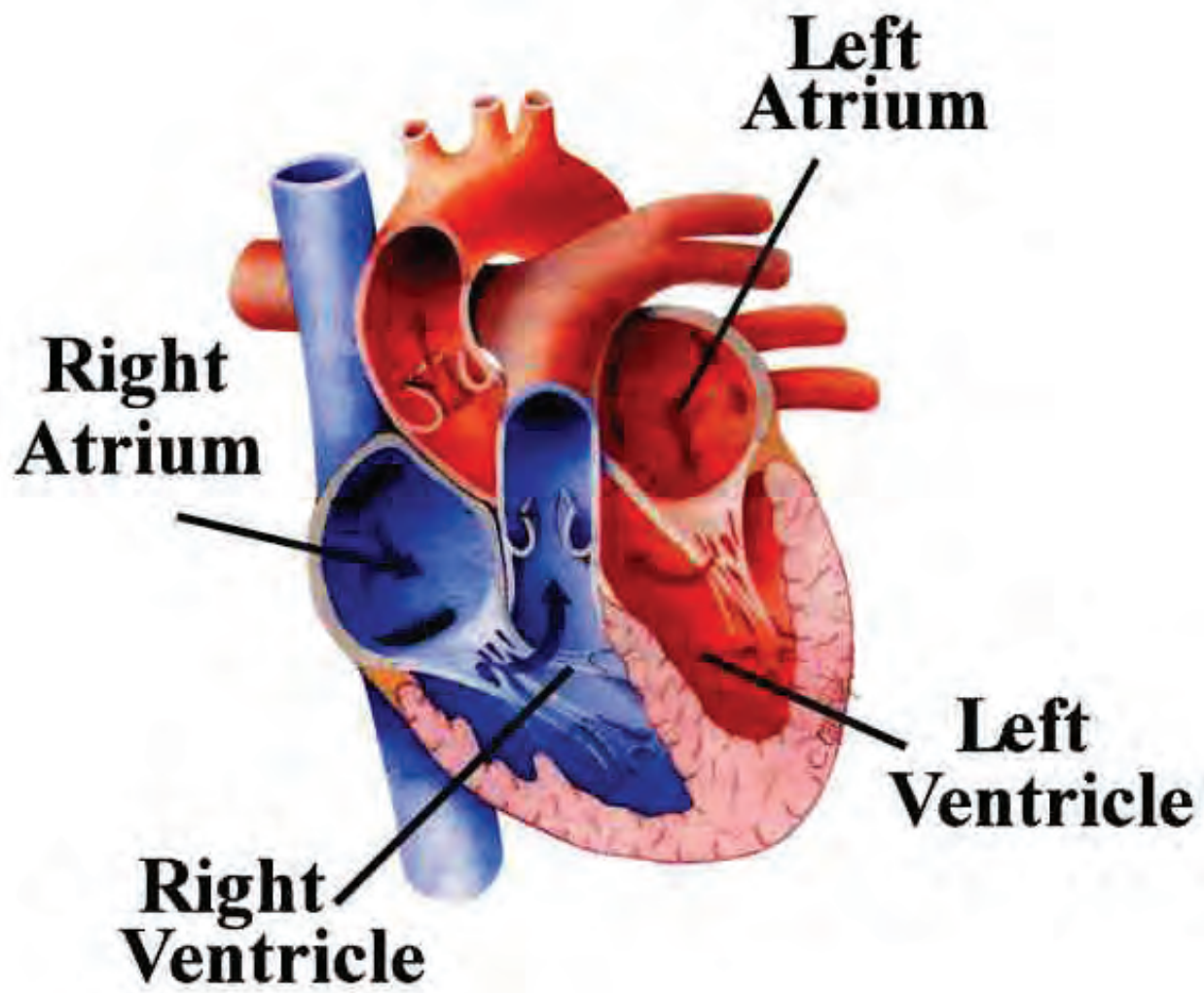
## FUNCTION





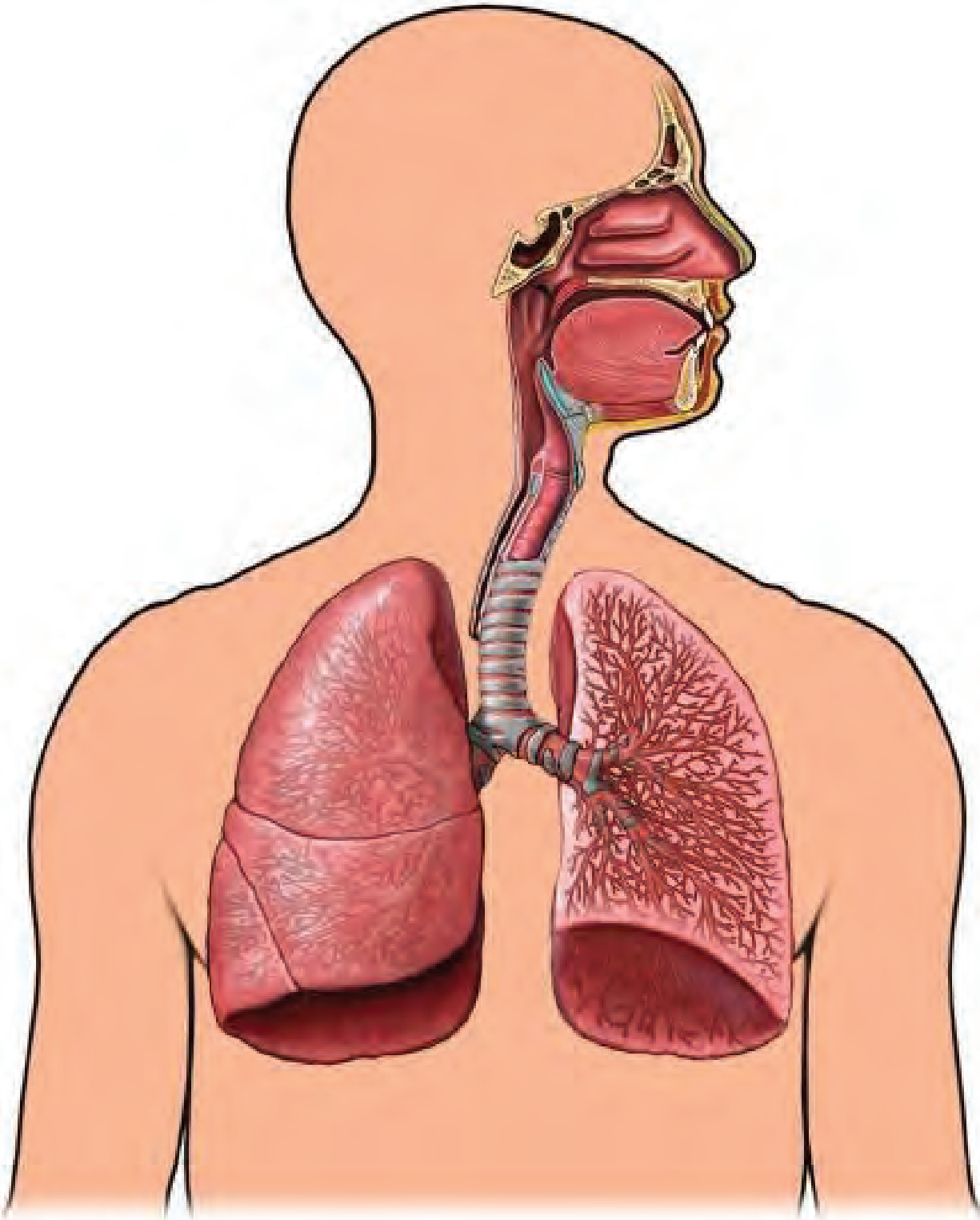


## INTERDEPENDENCE



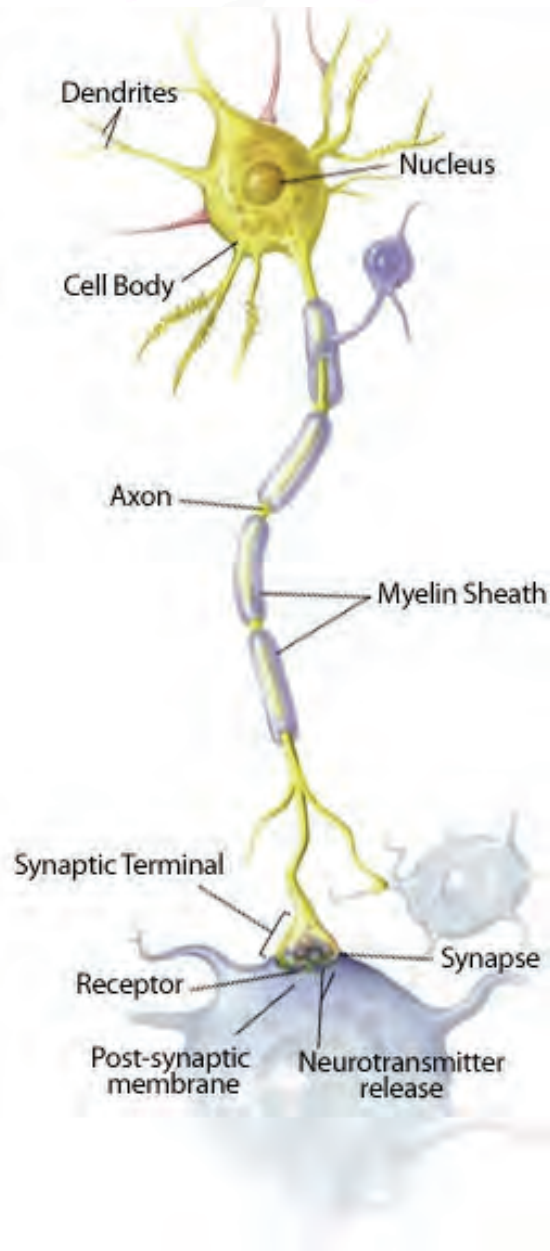


## CIRCULATORY SYSTEM





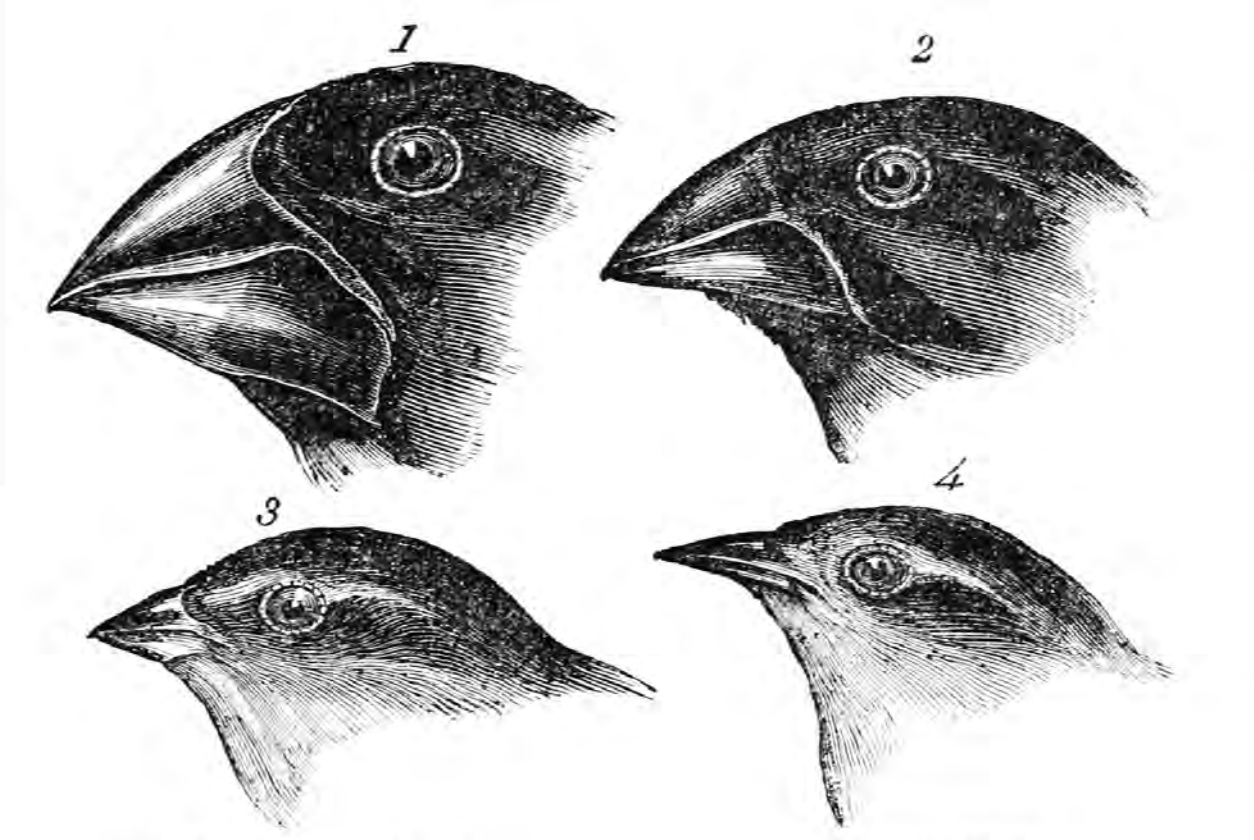
## RESPIRATORY SYSTEM





# NERVOUS SYSTEM





1. *Geospiza magnirostris*.

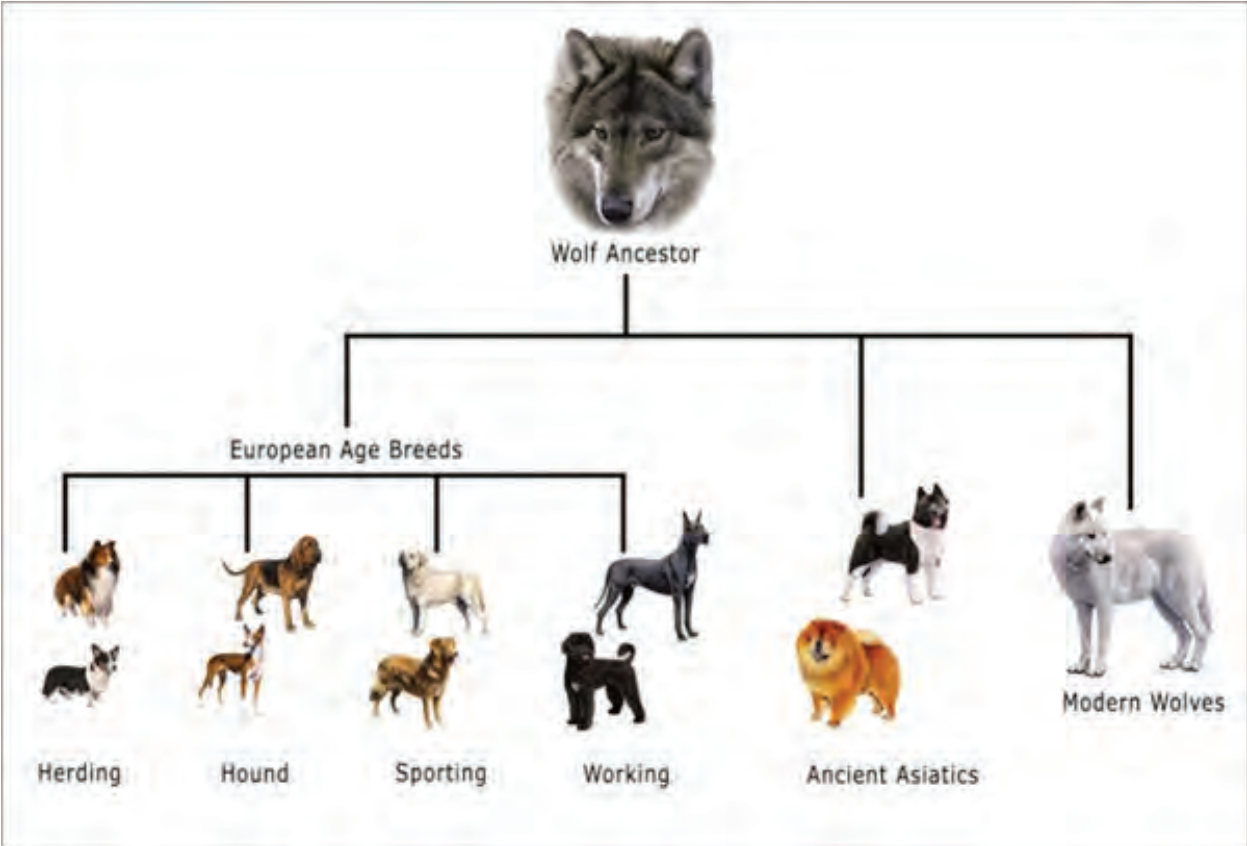
2. *Geospiza fortis*.

3. *Geospiza socialis*.

4. *Geospiza alpestris*.

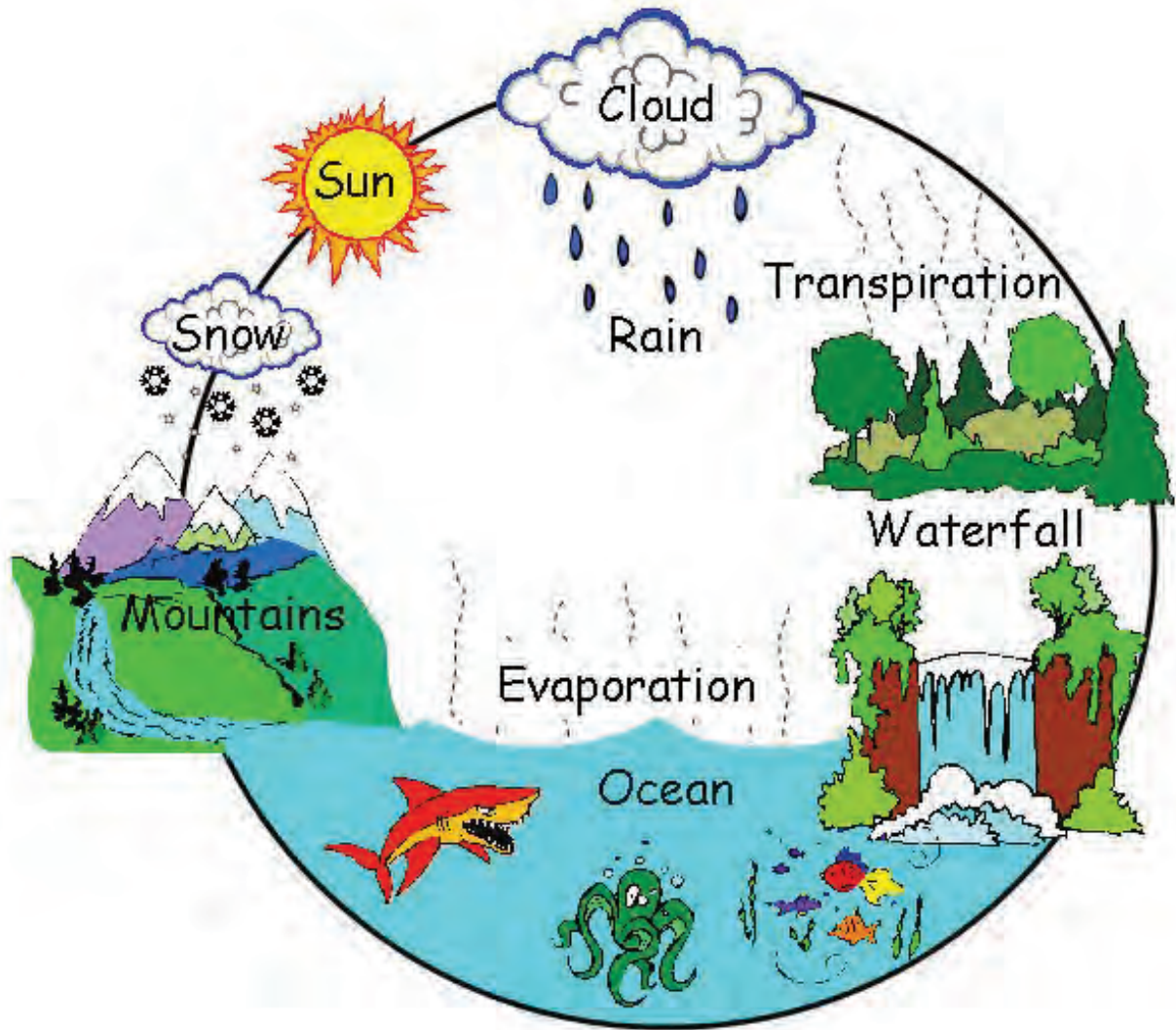


## NATURAL SELECTION





# EVOLUTION





## CYCLING





## CONSERVE



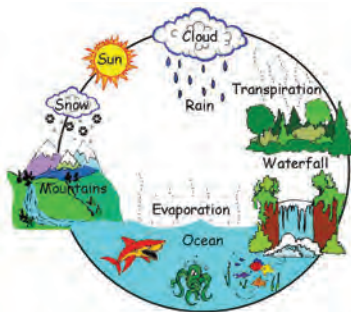
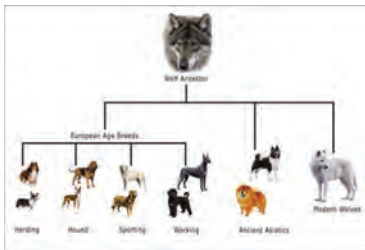
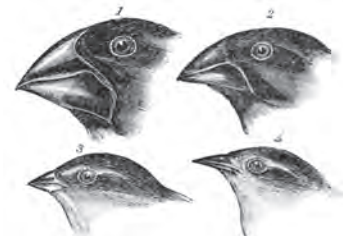
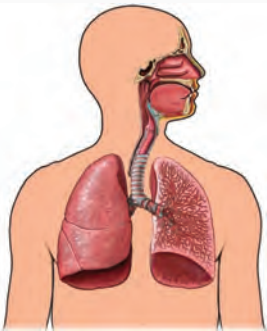
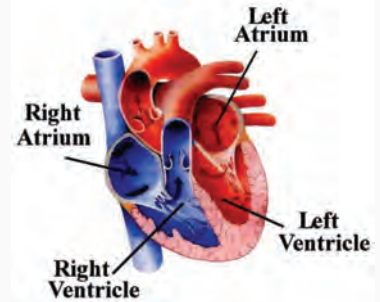


# STUDENT SUPPORT MATERIALS

Listening • Mini Pictures

# Listening: Mini Pictures

Prepare a copy of these pages for each student. The students should cut out the pictures and lay them on the floor or desk. Say the key words and the students should show you the pictures. Repeat a number of times. This activity can also be done with pairs of students to determine who is the fastest player.





# STUDENT SUPPORT MATERIALS

Listening Comprehension

# Listening Comprehension



Read the following sentences to the students. The students should circle “true” or “false” for each of the sentences. Review the students’ work.

- 1 A function of a fish’s fins is to aid in swimming. True  
False
- 2 There is interdependence between Southeast Alaska forests and salmon. True  
False
- 3 The main purpose of the circulatory system is food digestion. True  
False
- 4 The respiratory system allows oxygen to be taken in by the body. True  
False
- 5 The nervous system’s sole purpose is to make us nervous. True  
False
- 6 Natural selection is the process by which organisms that are better adapted to their environments tend to survive and produce more offspring. True  
False
- 7 Evolution is the development and diversification of organisms from earlier forms over time. True  
False
- 8 The cycling of freshwater is important for many living organisms. True  
False
- 9 To conserve energy now may make the same energy available later. True  
False

# Listening Comprehension: Answer Key

Read the following sentences to the students. The students should circle "true" or "false" for each of the sentences. Review the students' work.

- 1 A function of a fish's fins is to aid in swimming. True  
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- 9 To conserve energy now may make the same energy available later. True  
False





# STUDENT SUPPORT MATERIALS

Sight Words



**function**

**interdependence**

**circulatory**







**respiratory system**

**nervous system**

**natural selection**



**evolution**

**cycling**

**conserve**



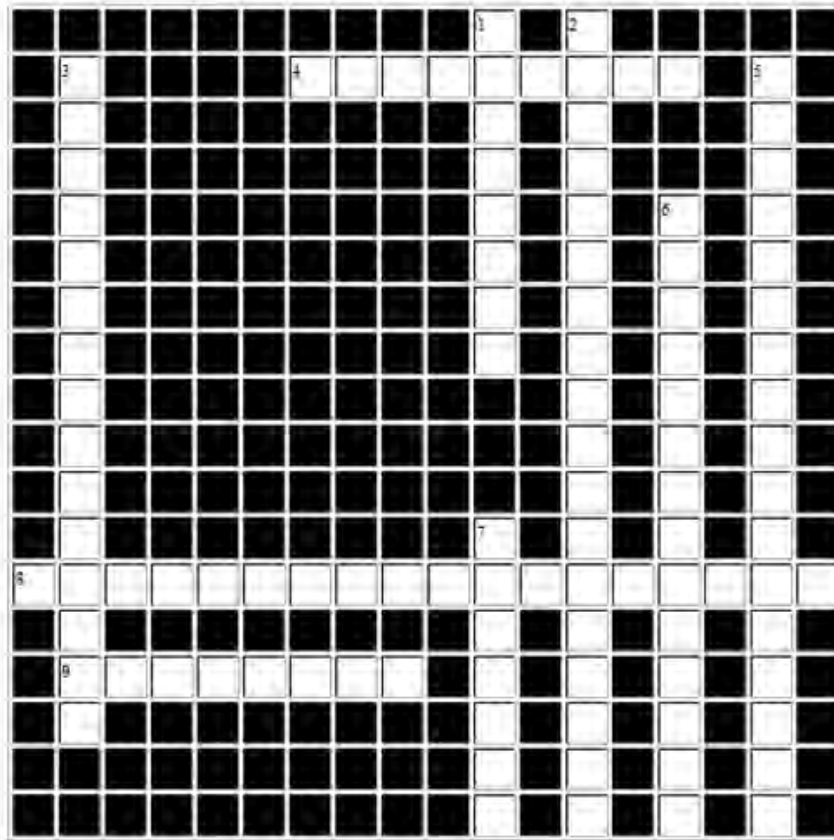
# STUDENT SUPPORT MATERIALS

Basic Reading • Sight Recognition

# Sight Words Activity Page



Have the students complete the cross word puzzle below. A blank box is present for any space between a two-word phrase.



## Across

4. Process where organisms are thought to have developed and diversified from earlier forms.
8. The system of organs which allows for gas exchange.
9. Keep constant through physical or chemical reactions or evolutionary change.

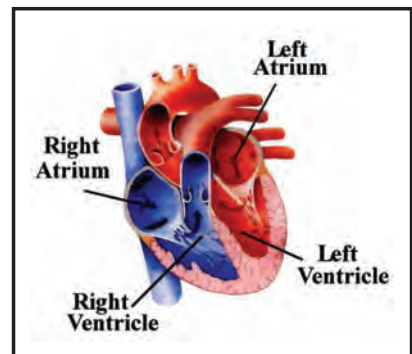
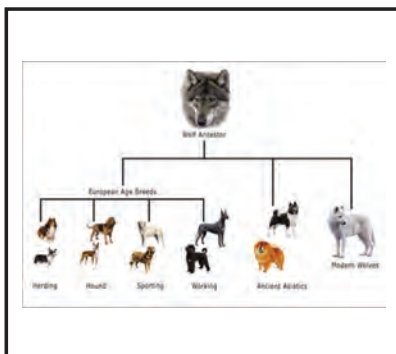
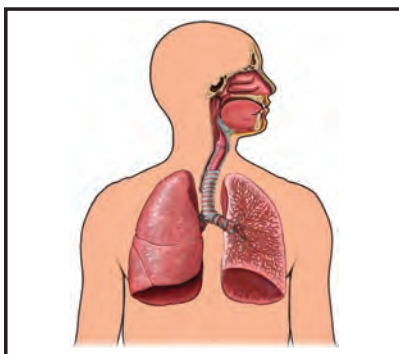
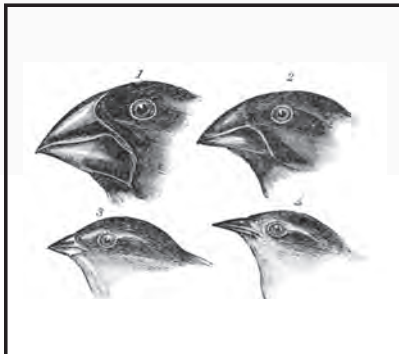
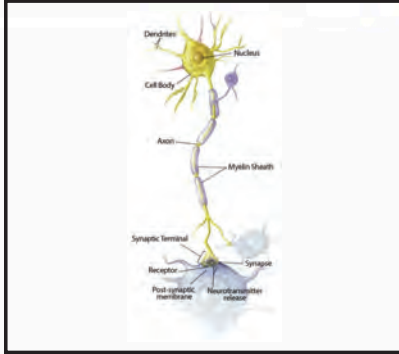
## Down

1. An activity or purpose natural to or intended for a person or thing.
2. The system that circulates blood and lymph through the body.
3. Dependence between two or more people, groups, or things.
5. Organisms better adapted to their environment tend to survive and produce offspring.
6. The network of nerve cells that transmits nerve impulses between parts of the body.
7. Any complete round or series of occurrences that repeats or is repeated.



# Sight Words Activity Page

Have the students cut out the key words and glue them at the bottom of their pictures.



function	interdependence	circulatory system	respiratory system
nervous system	natural selection	evolution	cycling
conserve			











# STUDENT SUPPORT MATERIALS

Basic Reading • Encoding

# Encoding Activity Page

Have the students cut out and encode the syllables of the words, OR number the syllables in their correct sequence.



func tion

---

de ter pen in dence

---

ry la to cu cir

---

serve con

---



# Encoding Activity Page

Have the students cut out and encode the syllables of the words, OR number the syllables in their correct sequence.



to pi res ra ry

---

vous ner

---

tem sys

---

cy cling

---



# Encoding Activity Page

Have the students cut out and encode the syllables of the words, OR number the syllables in their correct sequence.



u nat lec

---

ral tion se

---

evo lu tion

---



# Encoding Activity Page

Have the students cut out the word halves and glue them together to create the key words for this unit.



**func**

**ous system**

**inter**

**atory system**

**circul**

**olution**

**resp**

**serve**

**nerv**

**ural selection**



# Encoding Activity Page

Have the students cut out the word halves and glue them together to create the key words for this unit.



**nat**

**cling**

**ev**

**dependence**

**cy**

**tion**

**con**

**iratory system**





# STUDENT SUPPORT MATERIALS

Reading Comprehension

# Reading Comprehension Activity Page

Have the students read the text and then select the correct answer for it. They should fill in the appropriate bullet beside the answer of their choice.



- ① Which of the following is a function of a canoe?
  - air travel
  - water travel
  - land travel
  - none of the above
  
- ② Which of the following is an example of interdependence?
  - salmon and rivers
  - bees and pollen
  - wolves and deer
  - all of the above
  
- ③ Which of the following is part of the circulatory system?
  - blood
  - eyes
  - stomach
  - spine
  
- ④ Which of the following is part of the respiratory system?
  - heart
  - liver
  - lungs
  - teeth
  
- ⑤ Which of the following is part of the nervous system?
  - liver
  - nose
  - blood
  - brain



# Reading Comprehension Activity Page



- 6 Natural selection suggests a competitive advantage for organisms:
- that are less adapted for their environment
  - that are better adapted for their environment
  - that are malnourished
  - that are domesticated
- 7 The diversification of organisms over Earth's history is often attributed to:
- mathematics
  - population
  - evolution
  - saturation
- 8 Examples of cycling in the environment include?
- water
  - carbon
  - nitrogen
  - all of the above
- 9 Which of the following is NOT a good way to conserve energy?
- turn lights off when you are not using them
  - leave the television on for the dog while you are not home
  - unplug your cell phone charger when it is not being used
  - keep the heat turned down in your home

# Reading Comprehension Activity Page

ANSWER KEY



- 1 Which of the following is a function of a canoe?
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  - brain

# Reading Comprehension Activity Page



- 6 Natural selection suggests a competitive advantage for organisms:
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  - keep the heat turned down in your home

# Reading Comprehension Activity Page

Have the students write the letters for sentence halves that match.



- |  |   |
|--|---|
| ① A function of teeth is               | ① circulatory system.                           |
| ② Interdependence occurs frequently    | ② in the diversity of dog breeds today.         |
| ③ Veins and arteries are part of the   | ③ that are better suited to their environments. |
| ④ The nose and mouth are parts of the  | ④ nervous system.                               |
| ⑤ Nerves are part of the               | ⑤ to conserve it.                               |
| ⑥ Natural selection favors organisms   | ⑥ parts of the water cycle.                     |
| ⑦ Human assisted evolution can be seen | ⑦ to aid in grinding food.                      |
| ⑧ Evaporation and precipitation are    | ⑧ respiratory system.                           |
| ⑨ To keep something constant is        | ⑨ between animals.                              |

1 → \_\_\_\_\_ 2 → \_\_\_\_\_ 3 → \_\_\_\_\_ 4 → \_\_\_\_\_  
5 → \_\_\_\_\_ 6 → \_\_\_\_\_ 7 → \_\_\_\_\_ 8 → \_\_\_\_\_  
9 → \_\_\_\_\_

# Reading Comprehension Activity Page

## ANSWER KEY



- |  |   |
|--|---|
| ① A function of teeth is               | ① circulatory system.                           |
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| ⑤ Nerves are part of the               | ⑤ to conserve it.                               |
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1 →     G          2 →     I          3 →     A          4 →     H      
5 →     D          6 →     C          7 →     B          8 →     F      
9 →     E

# Reading Comprehension Activity Page

Have the students cut out the words and glue them under their definitions.



<b>Selection for better adapted organisms</b>	<b>Dependence between two or more things</b>	<b>Activity or purpose intended for a person or thing</b>
<b>Diversification of organisms over Earth's history</b>	<b>System of organs which allows for gas exchange</b>	<b>Series of occurrences that repeat</b>
<b>System that circulates blood and lymph through the body</b>	<b>Keep constant through physical or chemical reactions</b>	<b>System that transmits nerve impulses between body parts</b>

<b>function</b>	<b>interdependence</b>	<b>circulatory system</b>	<b>respiratory system</b>
<b>nervous system</b>	<b>natural selection</b>	<b>evolution</b>	<b>cycling</b>
<b>conserve</b>			



# Reading Comprehension Activity Page

ANSWER KEY



**Selection for better adapted organisms**

natural selection

**Dependence between two or more things**

interdependence

**Activity or purpose intended for a person or thing**

function

**Diversification of organisms over Earth's history**

evolution

**System of organs which allows for gas exchange**

respiratory system

**Series of occurrences that repeat**

cycling

**System that circulates blood and lymph through the body**

circulatory system

**Keep constant through physical or chemical reactions**

conserve

**System that transmits nerve impulses between body parts**

nervous system





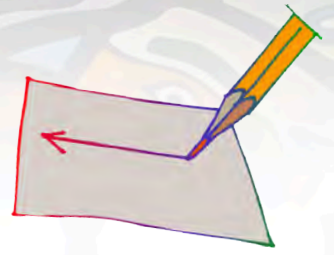


# STUDENT SUPPORT MATERIALS

Basic Writing

# Basic Writing Activity Page

Have the students write in the missing letters.



fu \_\_\_\_\_ ion

interde \_\_\_\_\_

cir \_\_\_\_\_ ory s \_\_\_\_\_ em

res \_\_\_\_\_ ry sys \_\_\_\_\_

ner \_\_\_\_\_ s \_\_\_\_\_ tem

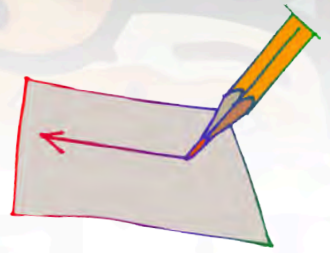
nat \_\_\_\_\_ l sel \_\_\_\_\_ on

e \_\_\_\_\_ tion

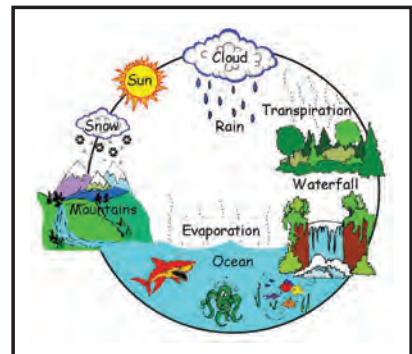
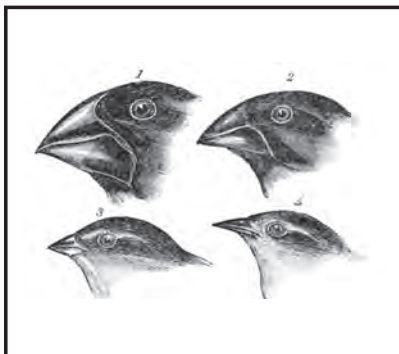
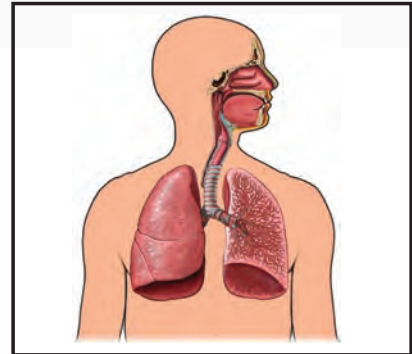
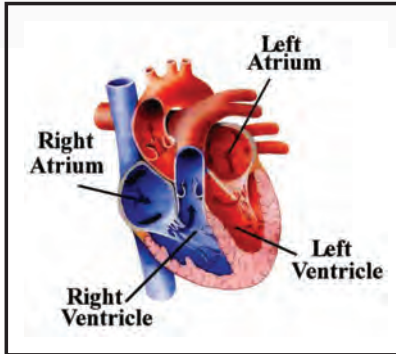
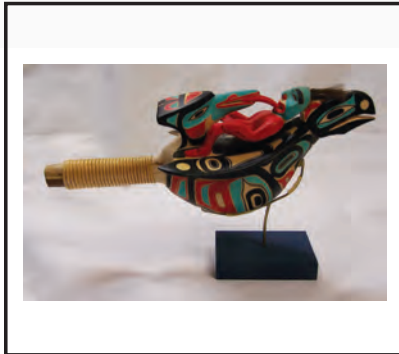
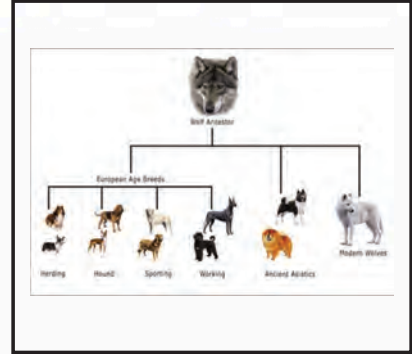
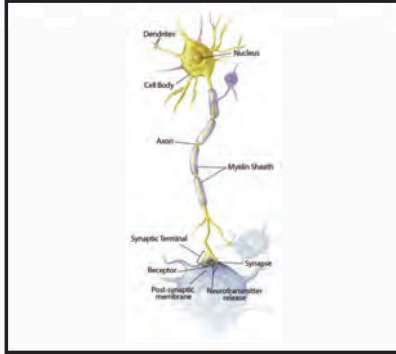
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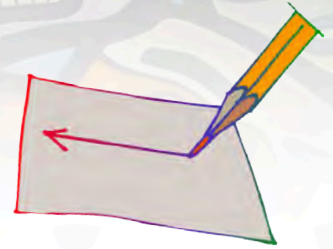
# Basic Writing Activity Page



Have the students write the word for each picture.



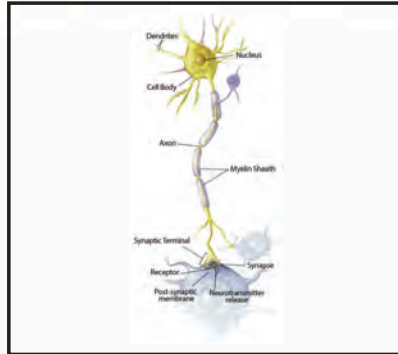
# Basic Writing Activity Page



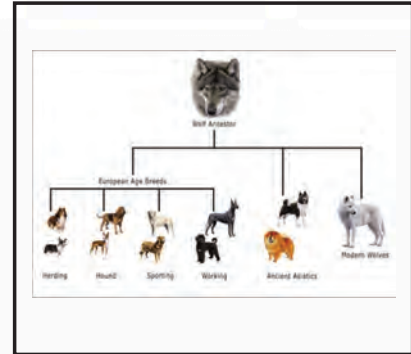
ANSWER KEY



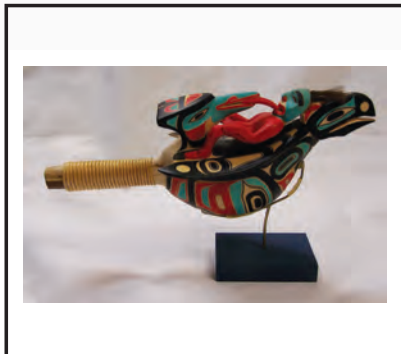
**interdependence**



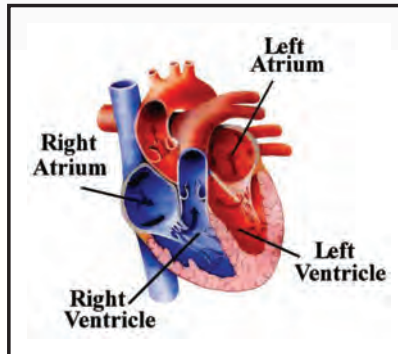
**nervous system**



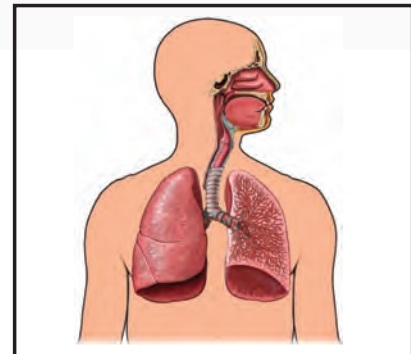
**evolution**



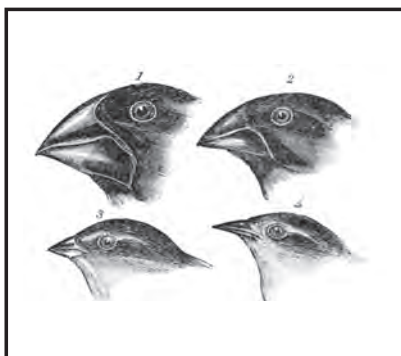
**function**



**circulatory**



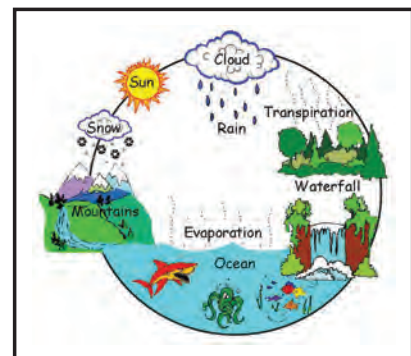
**respiratory system**



**natural selection**



**conserve**



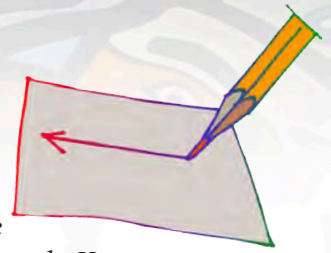
**cycling**



# STUDENT SUPPORT MATERIALS

Creative Writing

# Creative Writing Activity Page



Have the students write sentences of their own, using the key words from this unit. When the students' sentences are finished, have them take turns reading their sentences orally. The students should say "Blank" for the key words; the other students must name the "missing" words. You may wish to have the students write the "definitions" for the key words.

## FUNCTION

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## INTERDEPENDENCE

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## CIRCULATORY SYSTEM

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## RESPIRATORY SYSTEM

---

## NERVOUS SYSTEM

---

## NATURAL SELECTION

---

## EVOLUTION

---

## CYCLING

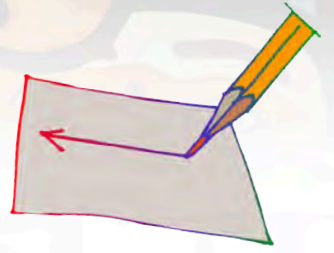
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## CONSERVE

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# Creative Writing Activity Page

Have the students write sentences of their own, based on the picture below. When finished, have each student read his/her sentences to the others.



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# UNIT ASSESSMENT

C-1: Concepts of Life Science





# SCIENCE PROGRAM

Unit Assessment Teacher's Notes

Grade 8 • Unit 6 (C-1)

Theme: Concepts of Life Science

Date: \_\_\_\_\_



# Unit Assessment

Provide each student with a copy of the students' pages. Read the following instructions aloud. The students should answer the questions on their copies of the assessment.

## BASIC LISTENING

Turn to page 1 in your test. Look at the pictures in the boxes.

1. Write the number 1 by the picture for **FUNCTION**.
2. Write the number 2 by the picture for **INTERDEPENDENCE**.
3. Write the number 3 by the picture for **CIRCULATORY SYSTEM**.
4. Write the number 4 by the picture for **RESPIRATORY SYSTEM**.
5. Write the number 5 by the picture for **NERVOUS SYSTEM**.
6. Write the number 6 by the picture for **NATURAL SELECTION**.
7. Write the number 7 by the picture for **EVOLUTION**.
8. Write the number 8 by the picture for **CYCLING**.
9. Write the number 9 by the picture for **CONSERVE**.

## LISTENING COMPREHENSION

Turn to page 2 in your test. Listen to the sentences I say. Circle "T" for true and "F" for false sentences."

1. A function of a bird's wing is flight.
2. Most organisms have no interdependence on other organisms.
3. Like most animals, human beings have no need for circulatory systems.
4. The lungs are a central component of the respiratory system in many animals.
5. The brain communicates with other parts of the body using the nervous system.
6. Natural selection suggests that organisms LESS adapted to their environment are LESS likely to persist.
7. The evolution of organisms has taken place throughout the Earth's history.
8. Cycling of elements allows them to influence many parts of a system.
9. To conserve energy means to use as much as possible while it is still available.
- 10.



# Unit Assessment

*Provide each student with a copy of the students' pages. Read the following instructions aloud. The students should answer the questions on their copies of the assessment.*

## SIGHT RECOGNITION

Turn to pages 3 and 4 in your test. Look at the pictures in the boxes. Circle the word for each picture.

## DECODING/ENCODING

Turn to pages 5 and 6 in your test. Look at the word parts in the boxes. Circle the other half or part of each word.

## READING COMPREHENSION

Turn to page 7 in your test. Read the sentence part and fill in the bullet for the correct sentence ending.

## BASIC WRITING

Turn to page 8 in your test. Look at the pictures in the boxes. Write the word for each picture.

## CREATIVE WRITING

Turn to page 9 in your test. Write a sentence of your own, using each word.

*Teacher: To get a percentage for this student's assessment, divide the total number of questions correct by the total number of questions, then multiply this answer by 100 to determine the percentage of questions answered correctly.*



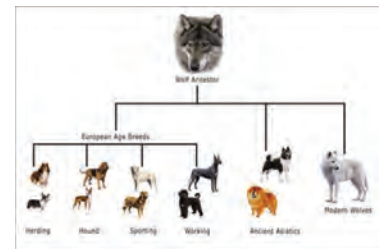
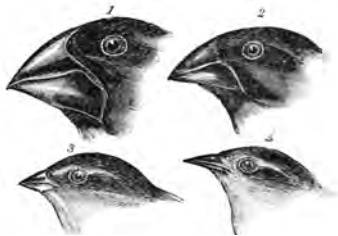
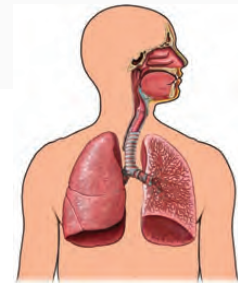
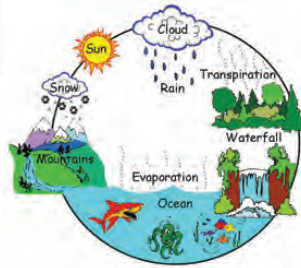
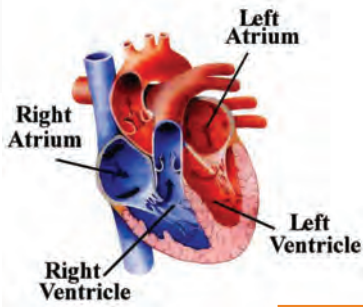
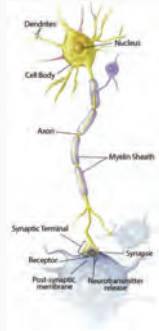


# SCIENCE PROGRAM

Unit Assessment Student Pages  
Grade 8 • Unit 6 (C-1)  
Theme: Concepts of Life Science

Date: \_\_\_\_\_ Student's Name: \_\_\_\_\_

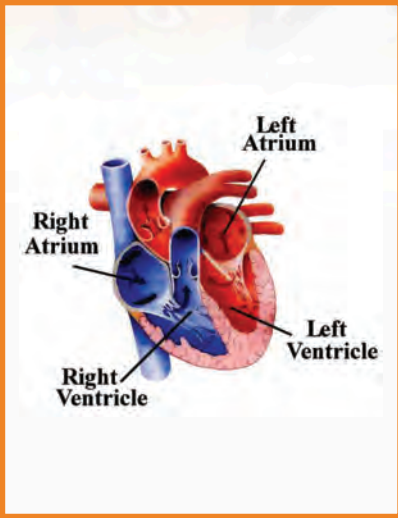
Number Correct: \_\_\_\_\_ Percent Correct: \_\_\_\_\_



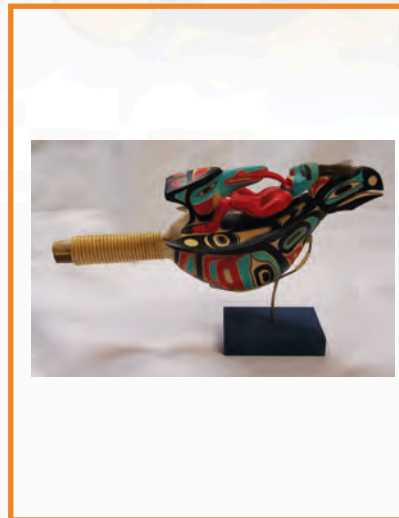




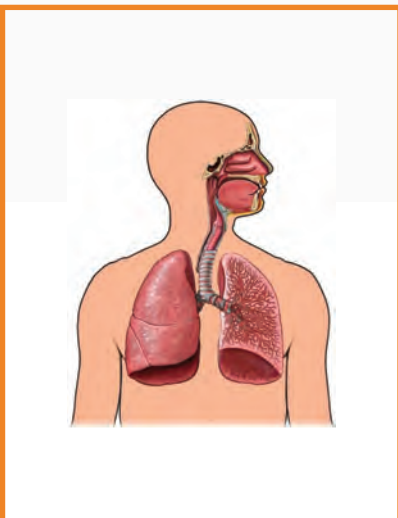
1.            **T**        **F**
2.            **T**        **F**
3.            **T**        **F**
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5.            **T**        **F**
6.            **T**        **F**
7.            **T**        **F**
8.            **T**        **F**
9.            **T**        **F**



function  
interdependence  
circulatory system  
respiratory system  
nervous system  
natural selection  
evolution  
cycling  
conserve



function  
interdependence  
circulatory system  
respiratory system  
nervous system  
natural selection  
evolution  
cycling  
conserve



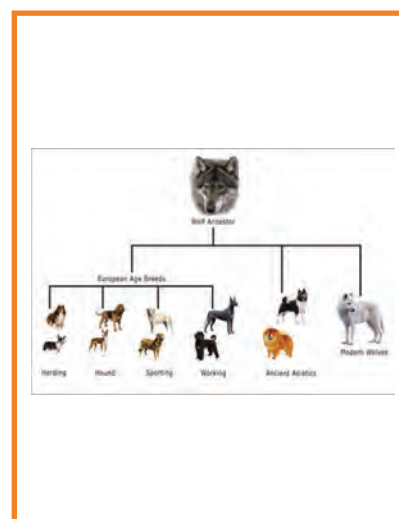
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conserve



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1 The function of an oven is to:

- be plugged in
- cook food
- burn people

2 Two organisms that exhibit interdependence are:

- flowers and insects
- moose and lions
- turtles and caribou

3 The circulatory system carries \_\_\_\_\_ and lymph throughout the body.

- mucous
- blood
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4 The respiratory system allows for \_\_\_\_\_ exchange to and from the body.

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- organ
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5 The nervous system transmits nerve \_\_\_\_\_ between parts of the body.

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- cells
- waste

6 Natural selection suggests that which organisms will persist most often?

- those that are better suited to their environment
- those that are less poorly suited to their environment
- those with many predators

7 Evolution suggests that species have diversified over the course of Earth's:

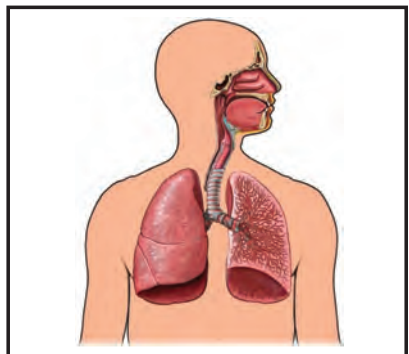
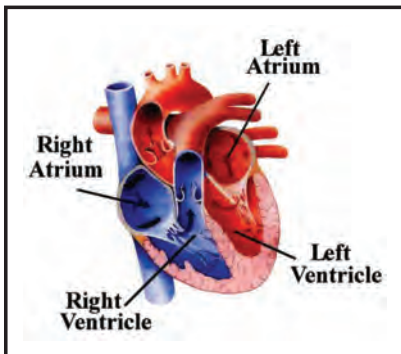
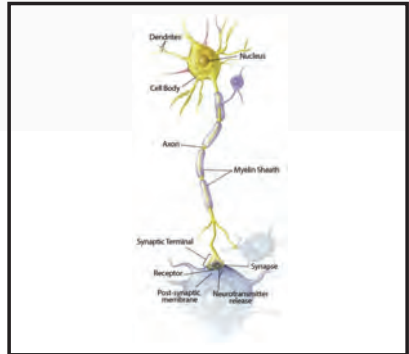
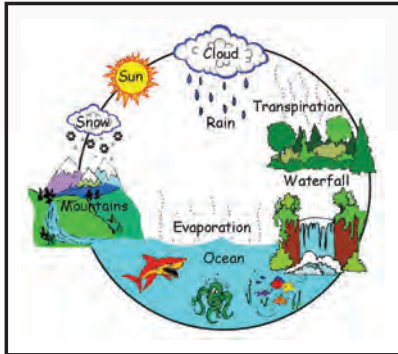
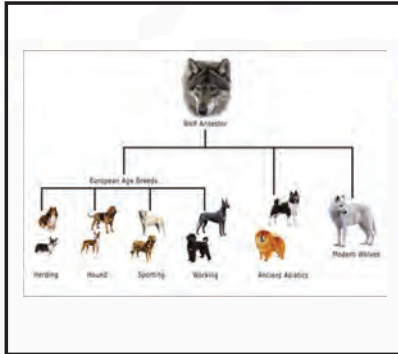
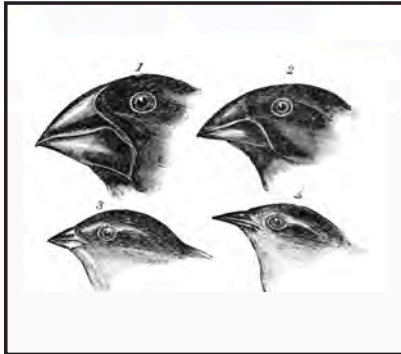
- atmosphere
- resources
- history

8 The repetition of a process or series of occurrences is:

- turning
- stopping
- cycling

9 To conserve is to keep something:

- constant
- solid
- changing





**FUNCTION**

---

**INTERDEPENDENCE**

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**CIRCULATORY SYSTEM**

---

**RESPIRATORY SYSTEM**

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**NERVOUS SYSTEM**

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**NATURAL SELECTION**

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**EVOLUTION**

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**CYCLING**

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**CONSERVE**

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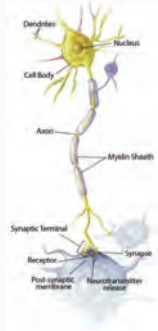


# SCIENCE PROGRAM

Unit Assessment ANSWER KEY  
Grade 8 • Unit 6 (C-1)  
Theme: Concepts of Life Science



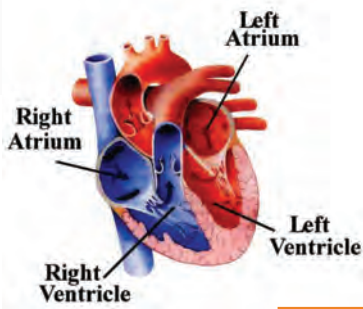
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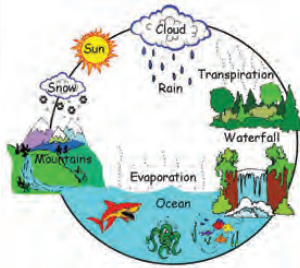
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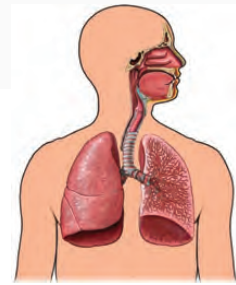
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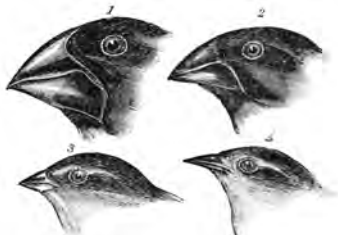
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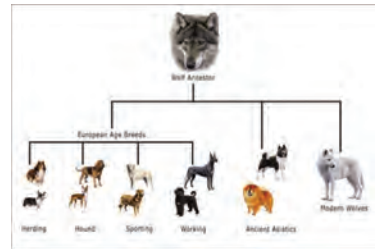
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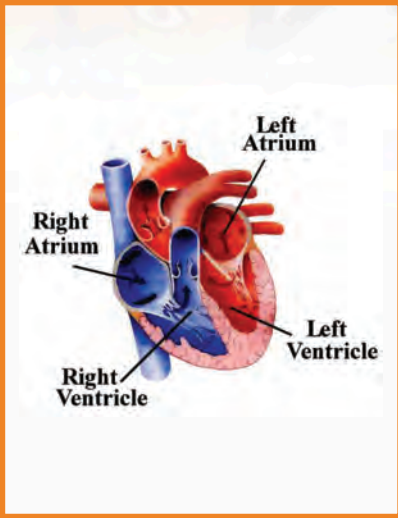
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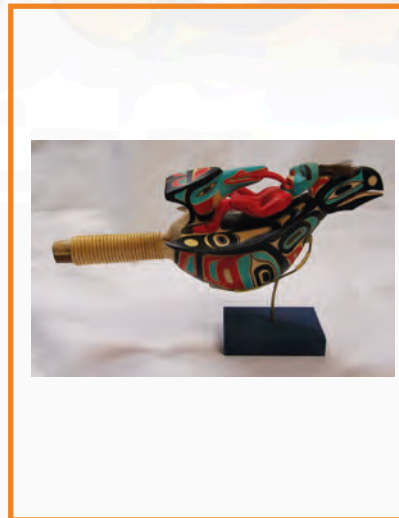
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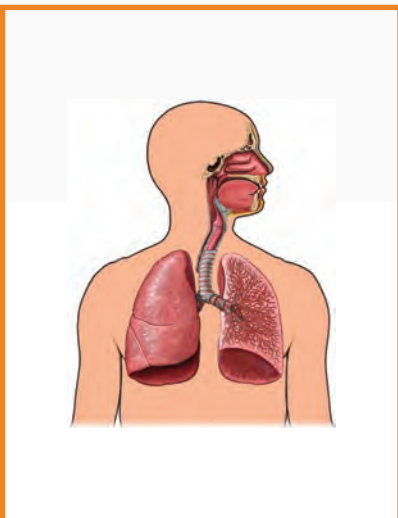
1.       T      F
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9.      T       F



function  
interdependence  
**circulatory system**  
respiratory system  
nervous system  
natural selection  
evolution  
cycling  
conserve



**function**  
interdependence  
circulatory system  
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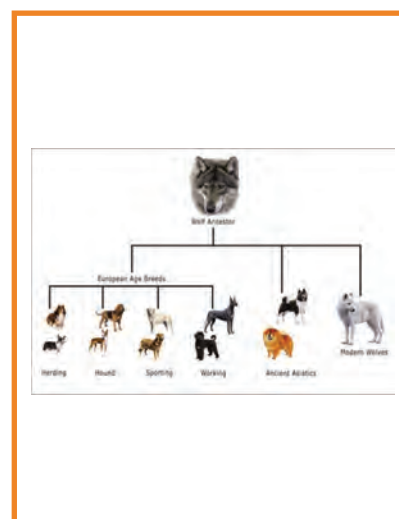
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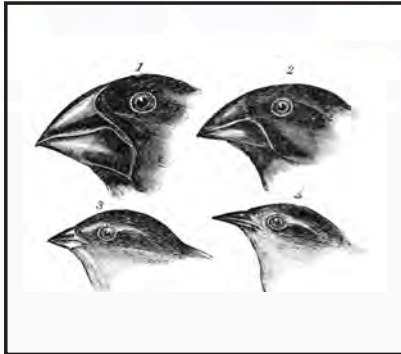
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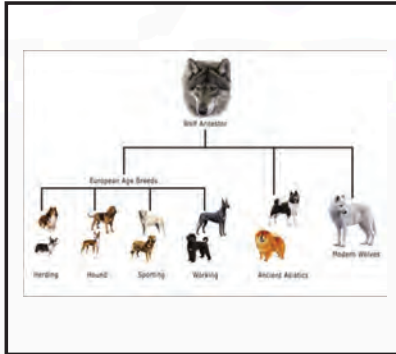
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**natural selection**



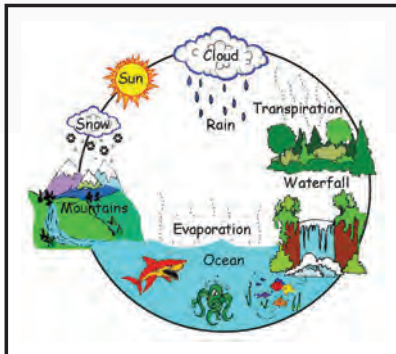
**evolution**



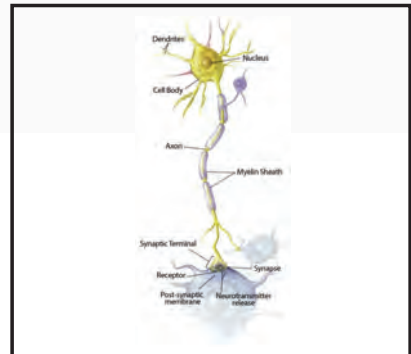
**function**



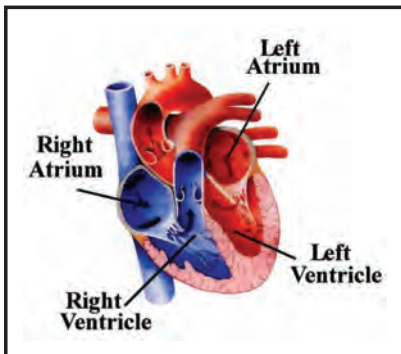
**conserve**



**cycling**



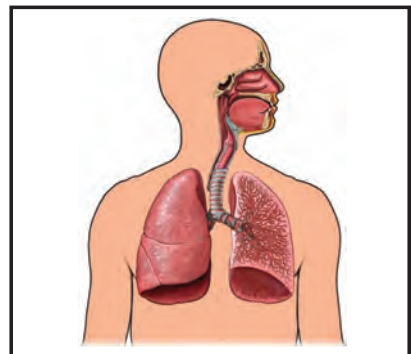
**nervous system**



**circulator**



**interdependence**



**respiratory system**





# UNIT 7

D-1: Concepts of Earth Science





# KEY VOCABULARY

# Culturally Responsive & Place-Based Introduction of Science Vocabulary

## COMPONENTS

### Place-Based Perspective

Find an old calculator or electronic device that is no longer functional. Use a screwdriver or a hammer, if appropriate, to open it up. Show the students all of the intricate parts on the inside. Explain that these are components of the device, the pieces that make up the whole. What other objects can students think of that are made up of many components?

### Heritage Cultural Perspective

*Traditional Tlingit spirituality divided the living being into several components:*

*Du daa.it — body, physical being*

*X'aséikw — vital force, breath*

*Du toowú — mind, thought and feelings*

*Du yahaayí — soul, shadow*

*S'ígeekáawu — ghost, revenant*

*The latter two were considered immortal and persisted in various forms after death.*

## GEOLOGIC

### Place-Based Perspective

Use flour and water to make various structures representing geologic formations such as mountains and plateaus. Ask the students what other geologic formations they know about and if they can name any near their homes. Explain that geologic refers to the Earth's physical structure, its history, and the processes that act on it. So, a landslide would be a "geologic" event.

### Heritage Cultural Perspective

*Geologic processes have been important considerations for Alaska's indigenous peoples. The eruptions of volcanoes, movement of tectonic plates, advancement and retreat of glaciers, landslides and other events have impacted human life in Alaska for millennia. Tlingit, Haida, and Tsimshian people were aware of these occurrences and often took precautions to avoid being in their path!*

## ROCK CYCLE

### Place-Based Perspective

Show the students different types of rocks and explain that they were formed in different ways. Over time, rocks begin to erode and fall apart due to various geologic processes. Those particles from the rocks are often then reformed over time to make new rocks. This cycle, the rock cycle, has proceeded throughout Earth's history and often operates on very long time scales. Where have the students found interesting rocks?

### Heritage Cultural Perspective

*The rock cycle can take hundreds or even thousands of years to complete. Some rocks are more brittle than others. Rocks found along the beaches of Southeast Alaska are often very old and have been in relatively the same position for many generations. Petroglyphs are frequent in parts of Southeast and the Tlingit believe that their ancestors produced the rock images. Many remain today but are slowly eroding as a natural part of the rock cycle.*

# Culturally Responsive & Place-Based Introduction of Science Vocabulary

## WATER CYCLE

### Place-Based Perspective

Ask the students to make a list of what Southeast Alaska is known for. Then ask how many people wrote rainforest, rain, ocean, water, Xtra Tuf boots.... It is a wet place to live! The water cycle is constantly working in this region. Through several processes, water enters the air and eventually falls back to earth. The water cycle is important for most living organisms!

### Heritage Cultural Perspective

*Southeast Alaska is considered a temperate rainforest and has been home to indigenous peoples since time immemorial. These peoples survived in an environment where water was consistently present in the ocean, on land, and in the air. Thanks to the water cycle, the fog, mist, and rain that we are so accustomed to have been a part of indigenous life since long ago.*

## EARTH SURFACE

### Place-Based Perspective

Cut a small loaf of bread in half. Show the students that the crust is just like the crust of the Earth, it is the outermost layer. Ask the students what can be found on the Earth's crust. Is that where we live? What can be found beneath the Earth's crust? Of course the world that we know in our daily lives is on the Earth's surface — an important part of the planet for those of us who call it home.

### Heritage Cultural Perspective

*Throughout Alaska, Native peoples have thrived on the Earth's surface. The Earth's surface is where most life on this planet can be found. It provides food, water, and shelter to make life possible. Many Native peoples recognized the beauty and bounty of the Earth and respected its contributions to their own survival.*

## TOPOGRAPHICAL MAP

### Place-Based Perspective

Show the students the topographical map of Southeast Alaska on page 593. Ask them to try to figure out what various items on the map indicate. Explain to them that this map contains a lot of valuable information, especially regarding elevation and slope. Ask the students to tell you when having a map like this might be useful, and even save one's life. What types of occupations would find these maps useful?

### Heritage Cultural Perspective

*The concept of navigating with a map and knowledge of slope and elevation is ancient. Alaska's Native peoples were very aware of their surroundings and the relative height of hills and mountains. Kohklux, a clan leader of the Tlingit Chilkat, famously drew a map from Lynn Canal to the interior with the help of his wives. The detailed knowledge that they had of this route is spectacular.*

# Culturally Responsive & Place-Based Introduction of Science Vocabulary

## TUNDRA

### Place-Based Perspective

Draw a rough outline of the Americas on the board and include several of the mountain chains (Andes, Rockies, Appalachians). Explain to the students that tundra is a biome where tree growth is hindered by short growing seasons, low temperatures, and permanently frozen ground. Have them guess where tundra occurs in the Americas, including the three types (Arctic, Antarctic, Alpine).

### Heritage Cultural Perspective

*Tundra is not only found in the northern reaches of Alaska but also at high elevations on mountain slopes. This type of tundra is called alpine tundra and is the kind that Southeast Alaska's indigenous peoples are familiar with. Tlingit, Haida and Tsimshian peoples frequently visited alpine tundra in their travels. It is here that they hunted mountain goats and escaped the Great Flood.*

## CONVECTION CURRENT

### Place-Based Perspective

Draw the outline of a large hot air balloon on the board. Do not draw the fire flame. Have the students guess what is missing in order to make the balloon rise. When the air is heated, the balloon gets higher. If allowed to cool, what happens? The balloon begins to descend. This is convection current. Warmer, less dense substances rise and when they cool and become less dense, they descend. What other examples can the students come up with?

### Heritage Cultural Perspective

*Convection currents are all around us. They impact our weather systems and are often very different from place to place. In Juneau, for instance, the weather and its related convection currents can be highly variable between downtown, the Mendenhall Valley and North Douglas Island. The Tlingit of Juneau came to know these currents and their resulting weather patterns. This knowledge aided them in both travel and harvest!*

## MANTLE

### Place-Based Perspective

Cut a peach in half and show the students the cross section. Explain that if this were the Earth, the skin would be the crust and the seed would be the core. What is the fruit flesh in between? The mantle! The mantle consists of hot dense silicate rocks and makes up about 84% of Earth's volume!

### Heritage Cultural Perspective

*The mantle of the Earth is deep below its surface. Though Alaska's Native peoples did not travel to the mantle, they may have contemplated what was far below their feet. The mantle did however have an effect on their lives, especially when the movement of its parts caused earthquakes and volcanic eruptions.*





# LESSONS

# Science Language for Success

*Introduce the key science vocabulary, using concrete materials and/or pictures.*

## LISTENING

*Use the Mini Pictures activity page from the Student Support Materials. Have the students cut out the pictures. Say the key words and the students show the pictures.*



### Match My Sequence

Provide each student with three vocabulary pictures. All students should have the same pictures. Have the students lay the pictures on their desks in a row (any sequence). When the students have arranged their pictures, say a sequence of three vocabulary words (using the vocabulary words for the pictures the students have). Any student or students whose pictures are in the same sequence as the vocabulary words you said wins the round. The students may change their sequences after each round of the activity.

### Student Support Materials

Have the students work on the activity pages from the Student Support Materials from this unit. Afterward, review their work.

## SPEAKING



### Sheet Golf

Before the activity begins, obtain an old sheet. Cut a hole (approximately two inches in diameter) in each end of the sheet. Group the students into two teams. Have the first player from each team hold opposite ends of the sheet. Place a marble or small ball in the center of the sheet. When you say “Go,” the players must then lift their ends of the sheet and attempt to cause the marble or ball to fall through the hole in the other player’s side of the sheet. When the ball or marble falls through one of the holes, the player on that side of the sheet must say the name of a vocabulary picture you show or he/she should repeat a sentence you said at the beginning of the round. Repeat with other pairs of students until all students have participated. If the sheet is large enough, all students can play—divide the students into four groups (one group for each side). Cut a hole in the sheet near each side. When the marble or ball falls through, all the players on that side must say the name of a vocabulary picture that you show. Repeat.

### Wild Balloon

Before the activity begins, obtain a large balloon. Stand in front of the students and inflate the balloon. Have the vocabulary pictures mounted on the board. Hold the end of the balloon closed. Then, release the balloon. When the balloon lands, the student closest to it should say a complete sentence about a vocabulary picture you point to. Repeat this process until many students have responded.

# Science Language for Success

## READING

Introduce the science sight words to the students—match the sight words with the vocabulary pictures. The sight words are included in the Student Support Materials, attached to these lesson plans.



*Note: After each unit, mount a set of the unit's words on the walls around the room. Use the "word walls" for review and reinforcement activities.*

### String Along

Join all of the students together with string. The students do not need to move from their seats. Before tying the ends of the string together, insert a roll of tape over one of the ends of the string. Tie the ends of the string together. Turn your back to the students. The students should pass the roll of tape along the string as quickly as possible. When you clap your hands, the student left holding the tape must then identify a sight word you show him. Repeat this process until many students have responded and until all of the sight words have been correctly identified a number of times.

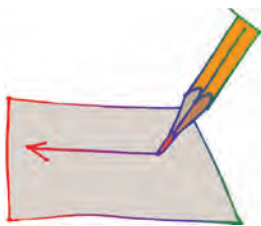
### Letter Encode

Give each student his/her envelope that contains the alphabet letters. Mount one of the science pictures on the board. The students must use the cut-out letters to spell the word. Review the students' work. Repeat, until all of the words have been spelled in this way.

### Student Support Materials

Have the students complete the sight recognition and encoding activities in the Student Support Materials. When finished, review their work.

## WRITING



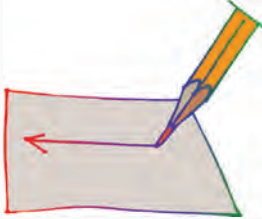
### Flashlight Writing

If possible, darken the classroom. Give a student a flashlight. Say one of the vocabulary words and the student should write that word with the light of the flashlight on a wall or on the board. Repeat until many students have had a chance to participate. An alternative is to provide each student with writing paper and a pen. Darken the classroom, if possible. Use the light of a flashlight to write one of the sight words on the wall or board. When you have completed the writing of the word, each student should then write the same word on his/her sheet of paper. Repeat until all sight words have been written in this way.

This activity may also be done in team form. In this case, group the students into two teams. Darken the classroom. Use the light of a flashlight to write one of the sight words on the board. When you say "Go," the first player in each team should rush to the board and use chalk to write the same word on the board. The first player to do this correctly wins the round. Repeat until all players have played.

# Science Language for Success

## WRITING (CONTINUED)



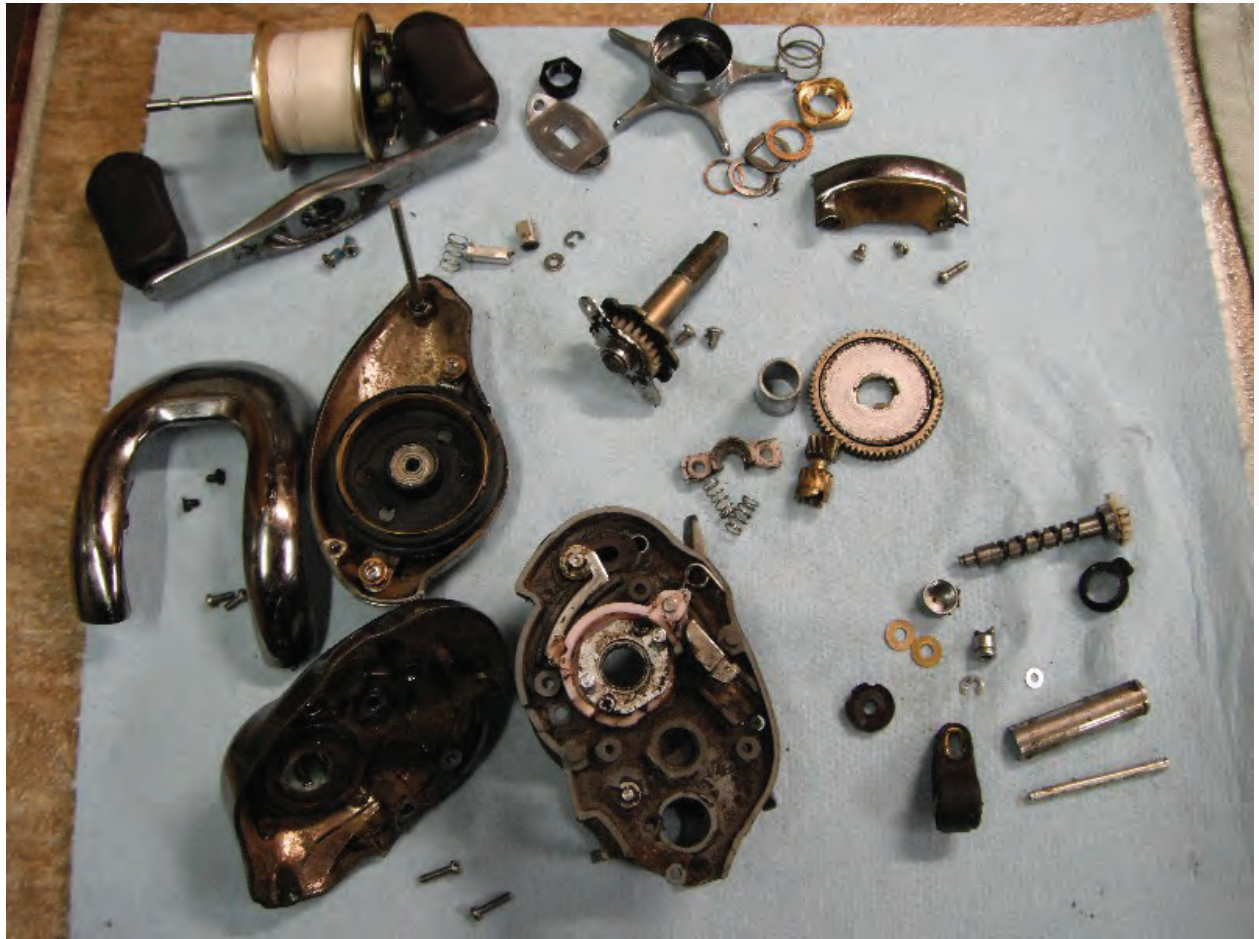
### Student Support Materials

Provide the students with a copy of the writing pages from the Student Support Materials. When finished, review the students' work.



# VOCABULARY PICTURES







## COMPONENTS







# GEOLOGIC





# ROCK CYCLE





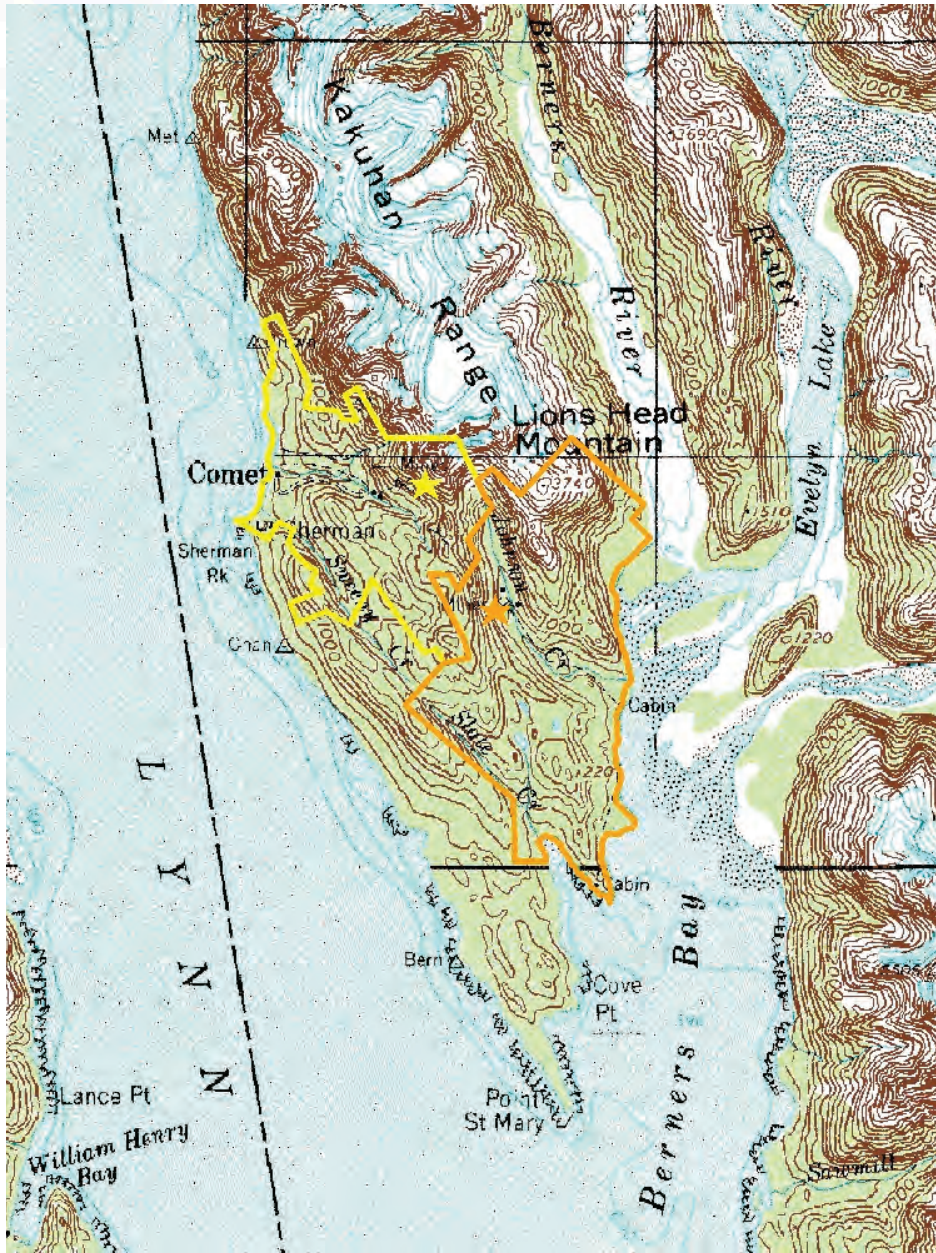
## WATER CYCLE





## EARTH SURFACE







## TOPOGRAPHICAL MAP



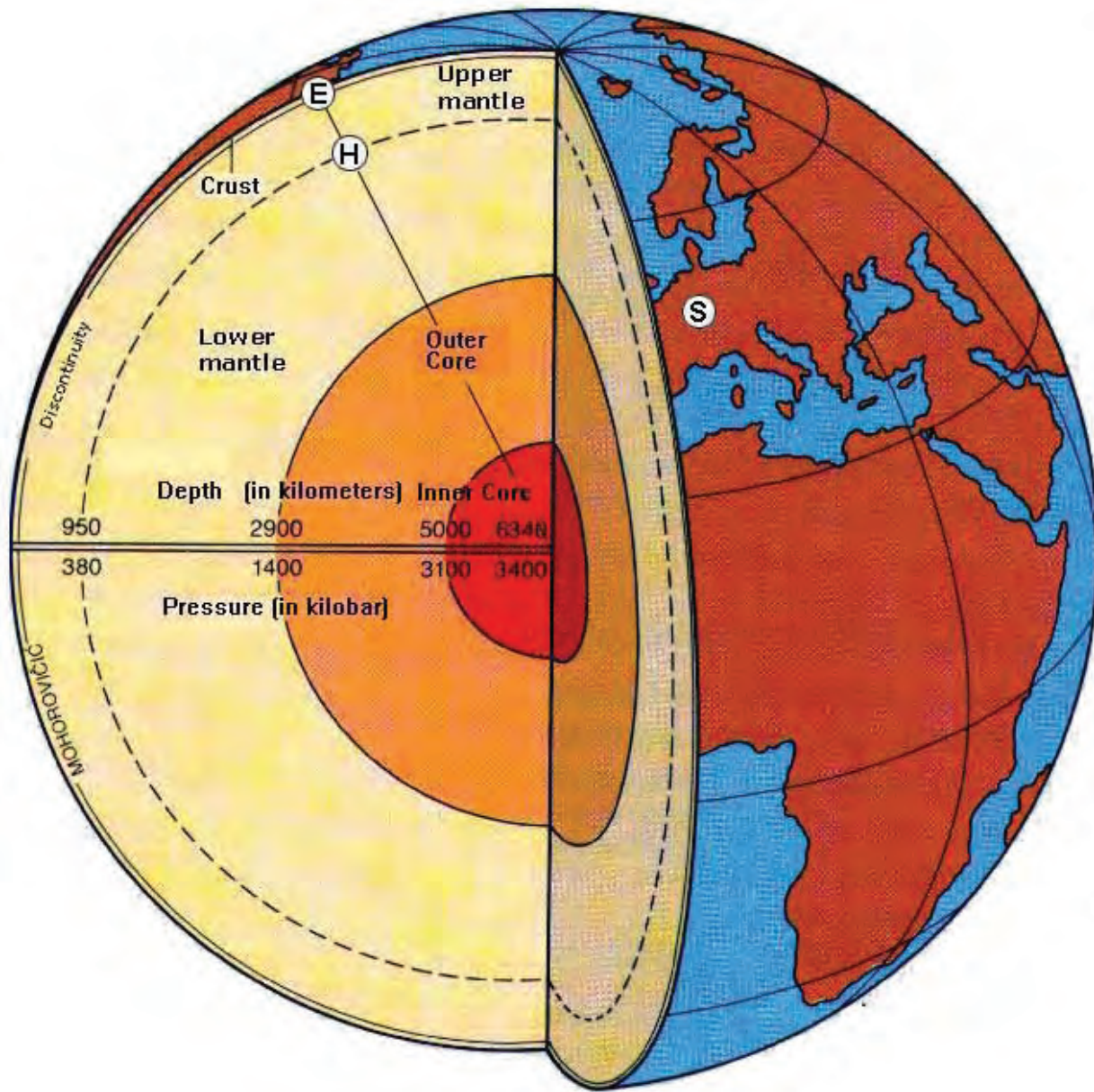


# TUNDRA





## CONVECTION CURRENT





## MANTLE



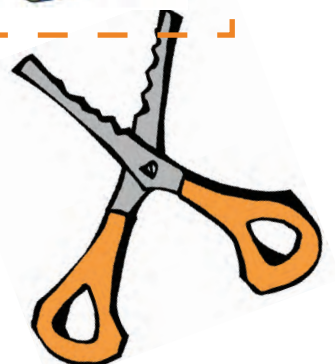
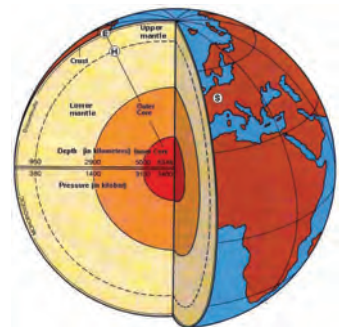


# STUDENT SUPPORT MATERIALS

Listening • Mini Pictures

# Listening: Mini Pictures

Prepare a copy of these pages for each student. The students should cut out the pictures and lay them on the floor or desk. Say the key words and the students should show you the pictures. Repeat a number of times. This activity can also be done with pairs of students to determine who is the fastest player.





# STUDENT SUPPORT MATERIALS

Listening Comprehension

# Listening Comprehension



Read the following sentences to the students. The students should circle “true” or “false” for each of the sentences. Review the students’ work.

- ① A wrist watch is made up of many individual components. True  
False
- ② Geologic formations can be seen across Southeast Alaska. True  
False
- ③ Rocks are never formed as part of the rock cycle, only destroyed. True  
False
- ④ Evaporation is not a part of the water cycle. True  
False
- ⑤ The earth’s surface is the part of the planet on which we live. True  
False
- ⑥ You can determine the elevation of an area with a topographic map. True  
False
- ⑦ There is no plant or animal life that lives on tundra. True  
False
- ⑧ Boiling water is an example of convection current. True  
False
- ⑨ The mantel of the earth is completely frozen, too cold for humans. True  
False

# Listening Comprehension: Answer Key

Read the following sentences to the students. The students should circle "true" or "false" for each of the sentences. Review the students' work.


- 1 A wrist watch is made up of many individual components. True  
False
- 2 Geologic formations can be seen across Southeast Alaska. True  
False
- 3 Rocks are never formed as part of the rock cycle, only destroyed. True  
False
- 4 Evaporation is not a part of the water cycle. True  
False
- 5 The Earth's surface is the part of the planet on which we live. True  
False
- 6 You can determine the elevation of an area with a topographic map. True  
False
- 7 There is no plant or animal life that lives on tundra. True  
False
- 8 Boiling water is an example of convection current. True  
False
- 9 The mantel of the Earth is completely frozen, too cold for humans. True  
False





# STUDENT SUPPORT MATERIALS

Sight Words



**components**

**geologic**

**rock cycle**







**rock cycle**

**earth surface**

**topographical map**



**tundra**

**convection current**

**mantle**



# STUDENT SUPPORT MATERIALS

Basic Reading • Sight Recognition

# Sight Words Activity Page



Have the students highlight or circle the words in this word find. Words appear horizontally.

geologic  
water cycle  
earth surface

mantle  
rock cycle  
topographical map

components  
tundra

a t u m t d c e i c t n h c a c t t  
l t k a l e r e g n l o m a n r l a  
p g e o l o g i o l l e o i c i g h  
n d e y r n t e e y e s c p s p a e  
r o c k c y c l e i e d c f e r a o  
w t o p o g r a p h i c a l m a p a  
r h w a t e r c y c l l t u n d r t  
o t c o m a n t l c e c r a r e u l  
u o c h e a r t h s u r f a c l c o  
l o y r e p t u n d r a e s o a e a  
p m a n t l e e o m c o a c s l a e  
y e r w u c r t a l g e o l o g i c  
p f e s l c a a a e c l m h c r i e  
e a r t h s u r f a c e e m o p y o  
n o o t o p o g r a p h i c a l m h  
k h m r s w c o m p o n e n t s t a  
e h c t a l y l r y c o m p o n e o  
c m p y e m l o w a t e r c y c l e  
a n n a c p l p g r o c k c y c o r  
o t f o t y k e e m e e g g r r e o

# Sight Words Activity Page

Answer Key



geologic  
water cycle  
earth surface

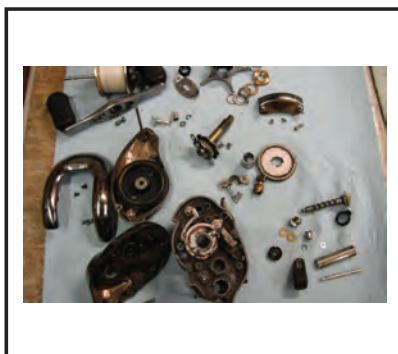
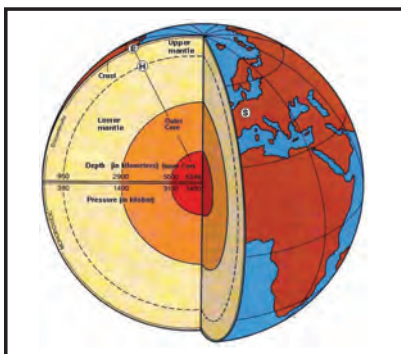
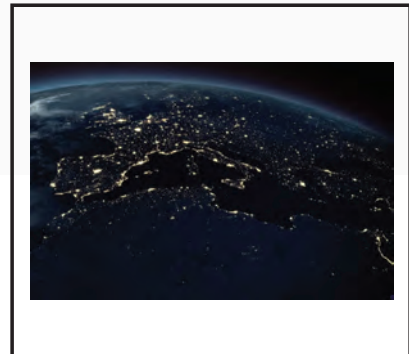
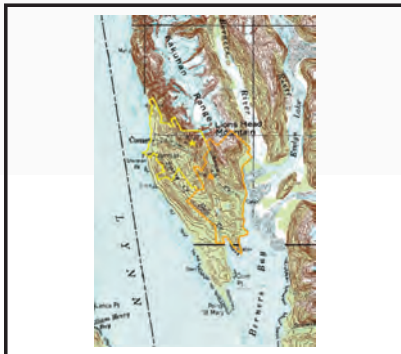
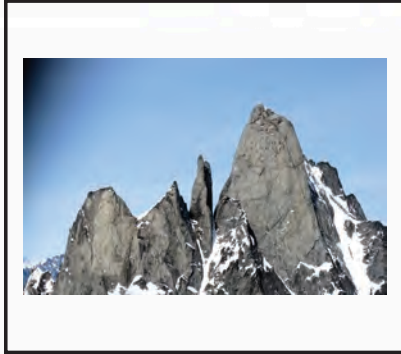
mantle  
rock cycle  
topographical map

components  
tundra

a t u m t d c e i c t n h c a c t t  
l t k a l e r e g n l o m a n r l a  
p g e o l o g i o l l e o i c i g h  
n d e y r n t e e y e s c p s p a e  
r o c k c y c l e i e d c f e r a o  
w t o p o g r a p h i c a l m a p a  
r h w a t e r c y c l l t u n d r t  
o t c o m a n t l c e c r a r e u l  
u o c h e a r t h s u r f a c l c o  
l o y r e p t u n d r a e s o a e a  
p m a n t l e e o m c o a c s l a e  
y e r w u c r t a l g e o l o g i c  
p f e s l c a a a e c l m h c r i e  
e a r t h s u r f a c e e m o p y o  
n o o t o p o g r a p h i c a l m h  
k h m r s w c o m p o n e n t s t a  
e h c t a l y l r y c o m p o n e o  
c m p y e m l o w a t e r c y c l e  
a n n a c p l p g r o c k c y c o r  
o t f o t y k e e m e e g g r r e o

# Sight Words Activity Page

Have the students cut out the key words and glue them at the bottom of their pictures.



component	geologic	rock cycle	topographical map
tundra	water cycle	earth surface	convection current
mantle			











# STUDENT SUPPORT MATERIALS

Basic Reading • Encoding

# Encoding Activity Page

Have the students cut out and encode the syllables of the words, OR number the syllables in their correct sequence.



nents    po    com

---

geo    ic    log

---

cle    rock    cy

---



# Encoding Activity Page

Have the students cut out and encode the syllables of the words, OR number the syllables in their correct sequence.



ter

cle

cy

wa

po

graph

to

cal

map

i

tun

dra



# Encoding Activity Page

Have the students cut out and encode the syllables of the words, OR number the syllables in their correct sequence.



rent || vec || cur || tion || con

---

tle || man

---



# Encoding Activity Page

Have the students cut out the word halves and glue them together to create the key words for this unit.



**comp**

**logic**

**geo**

**er cycle**

**roc**

**k cycle**

**wat**

**tion current**

**earth su**

**dra**



# Encoding Activity Page

Have the students cut out the word halves and glue them together to create the key words for this unit.



**topograph**

**onents**

**tun**

**rface**

**convec**

**tle**

**man**

**ical map**





# STUDENT SUPPORT MATERIALS

Reading Comprehension

# Reading Comprehension Activity Page

Have the students read the text and then select the correct answer for it. They should fill in the appropriate bullet beside the answer of their choice.



- ① Which of the following is made up of several components?
  - nails
  - stones
  - cars
  - clouds
  
- ② Geologic formations may include:
  - mountains
  - plateaus
  - river valleys
  - all of the above
  
- ③ The rock cycle is a process where:
  - rocks are broken down and reformed through chemical and physical means
  - rocks tumble down mountainsides, often settling on the ocean floor
  - rocks fall apart due to their age
  - none of the above
  
- ④ Which of the following is NOT a part of the water cycle?
  - evaporation
  - precipitation
  - condensation
  - acceleration
  
- ⑤ Which of the following can be found on the Earth's surface?
  - forests
  - oceans
  - wildlife
  - all of the above



# Reading Comprehension Activity Page



- 6 A topographical map can be useful in:
- identifying the elevation of an area
  - identifying the slope of an area
  - identifying safe routes of travel
  - all of the above
- 7 Which of the following is NOT a characteristic of tundra?
- low temperatures
  - short growing seasons
  - extensive forests
  - permanently frozen ground
- 8 A convection current is present when:
- warm water rises to the surface, cools and sinks
  - warm air rises, cools, and falls back toward Earth
  - hotter magma within the earth rises, cools, and sinks
  - all of the above
- 9 The Earth's mantle is:
- the shelf above its fireplace
  - the area between the crust and the core
  - its several populations of manta rays
  - none of the above

# Reading Comprehension Activity Page

ANSWER KEY



- ① Which of the following is made up of several components?
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# Reading Comprehension Activity Page



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  - the area between the crust and the core
  - its several populations of manta rays
  - none of the above

# Reading Comprehension Activity Page

Have the students write the letters for sentence halves that match.



- |                                   |  |                                   |   |
|-----------------------------------|--|-----------------------------------|---|
| ① A component of Southeast Alaska | ⑨ The area between the Earth's crust         | Ⓐ outermost layer of our planet.  | Ⓘ circulation of water on Earth.            |
| ② Mountains and plateaus          | ⑧ The rising of warm substances and falling  | Ⓑ all involved in the rock cycle. | ⓗ and it's core is called the mantle.       |
| ③ Wind, water, and gravity are    | ⑦ Permanently frozen ground is a             | Ⓒ ecosystems are marine mammals.  | Ⓙ are geologic formations.                  |
| ④ The water cycle involves the    | ⑥ A useful instrument that depicts elevation | Ⓓ and slope is a topographic map. | Ⓚ of cold substances is convection current. |
| ⑤ The Earth's surface is the      | ① Permanently frozen ground is a             | Ⓔ characteristic of tundra.       | Ⓛ are geologic formations.                  |

1 → \_\_\_\_\_ 2 → \_\_\_\_\_ 3 → \_\_\_\_\_ 4 → \_\_\_\_\_  
5 → \_\_\_\_\_ 6 → \_\_\_\_\_ 7 → \_\_\_\_\_ 8 → \_\_\_\_\_  
9 → \_\_\_\_\_

# Reading Comprehension Activity Page

## ANSWER KEY



- ① A component of Southeast Alaska
- ② Mountains and plateaus
- ③ Wind, water, and gravity are
- ④ The water cycle involves the
- ⑤ The Earth's surface is the
- ⑥ A useful instrument that depicts elevation
- ⑦ Permanently frozen ground is a
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- ⑨ The area between the Earth's crust
- Ⓐ outermost layer of our planet.
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- Ⓔ characteristic of tundra.
- Ⓕ of cold substances is convection current.
- Ⓖ are geologic formations.
- Ⓗ and its core is called the mantle.
- Ⓘ circulation of water on Earth.

1 →     C        2 →     G        3 →     B        4 →     I      
5 →     A        6 →     D        7 →     E        8 →     F      
9 →     H

# Reading Comprehension Activity Page

Have the students cut out the words and glue them under their definitions.



**A map indicating elevation and slope**

**Breaking down and reforming rocks**

**Things that deal with the earth's physical structure**

**Circulation of water on earth**

**Rising of less dense material and falling of denser material**

**The outermost layer of our planet**

**Biome with low temperatures, short growing seasons and permanently frozen ground**

**A part or element of a larger whole**

**Region of the earth's interior between the crust and the core**

component      geologic      rock cycle      topographical map  
tundra      water cycle      earth surface      convection current  
mantle



# Reading Comprehension Activity Page

ANSWER KEY



**A map indicating elevation and slope**

topographical map

**Breaking down and reforming rocks**

rock cycle

**Things that deal with the earth's physical structure**

geologic

**Circulation of water on earth**

water cycle

**Rising of less dense material and falling of denser material**

convection current

**The outermost layer of our planet**

earth surface

**Biome with low temperatures, short growing seasons and permanently frozen ground**

tundra

**A part or element of a larger whole**

components

**Region of the earth's interior between the crust and the core**

mantle





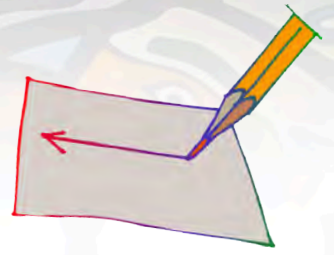


# STUDENT SUPPORT MATERIALS

Basic Writing

# Basic Writing Activity Page

Have the students write in the missing letters.



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g\_\_\_\_\_gic

rock c\_\_\_\_\_e

wa\_\_\_\_\_c\_\_\_\_\_e

earth s\_\_\_\_\_e

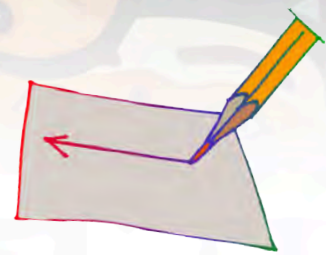
topo\_\_\_\_\_l map

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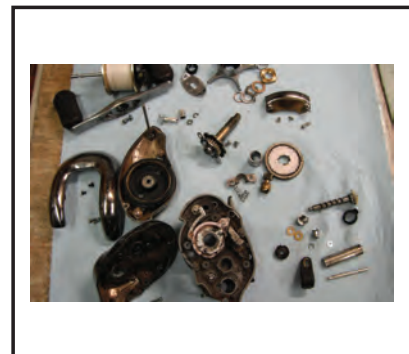
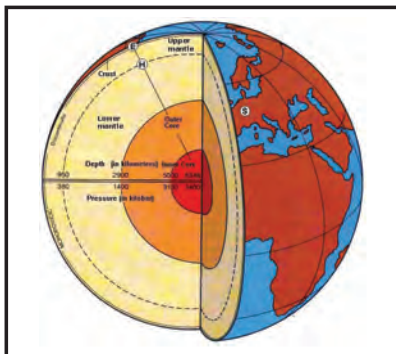
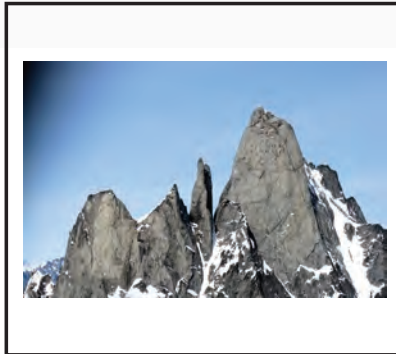
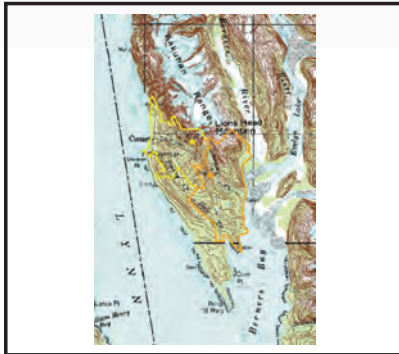
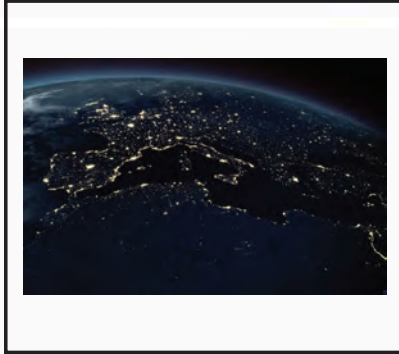
co\_\_\_\_\_ion current

m\_\_\_\_\_le

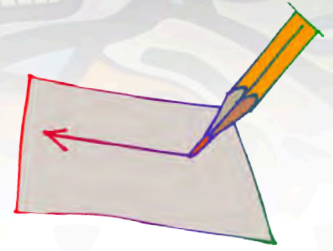
# Basic Writing Activity Page



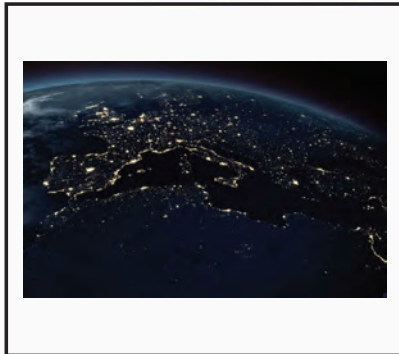
Have the students write the word for each picture.



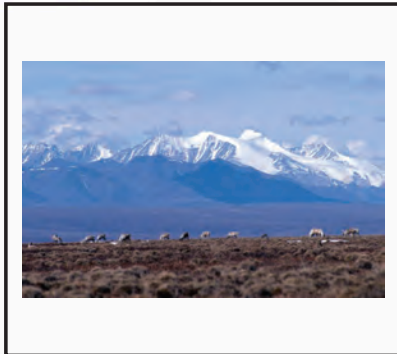
# Basic Writing Activity Page



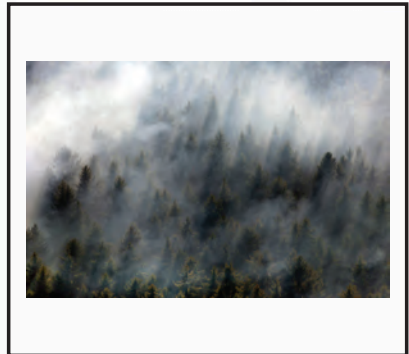
ANSWER KEY



**earth surface**



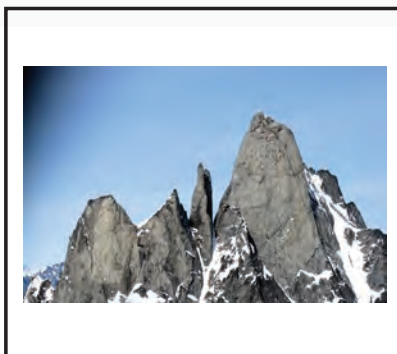
**tundra**



**water cycle**



**topographical map**



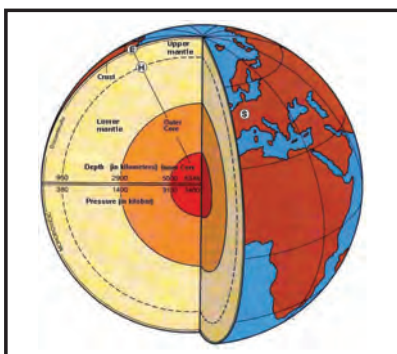
**geologic**



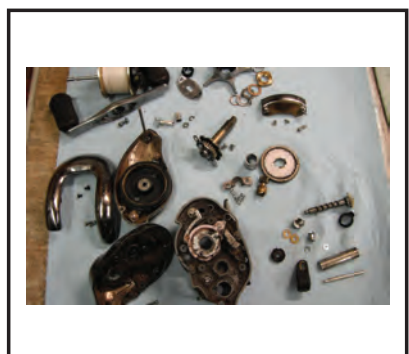
**rock cycle**



**convection current**



**mantle**



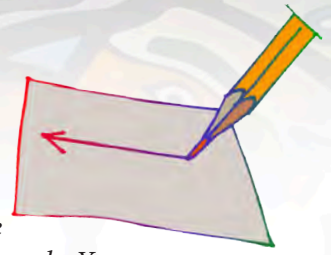
**components**



# STUDENT SUPPORT MATERIALS

Creative Writing

# Creative Writing Activity Page



Have the students write sentences of their own, using the key words from this unit. When the students' sentences are finished, have them take turns reading their sentences orally. The students should say "Blank" for the key words; the other students must name the "missing" words. You may wish to have the students write the "definitions" for the key words.

## COMPONENTS

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## GEOLOGIC

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## ROCK CYCLE

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## WATER CYCLE

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## EARTH SURFACE

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## TOPOGRAPHICAL MAP

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## TUNDRA

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## CONVECTION CURRENT

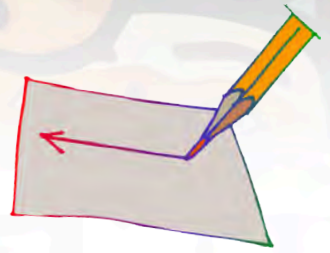
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## MANTLE

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# Creative Writing Activity Page

Have the students write sentences of their own, based on the picture below. When finished, have each student read his/her sentences to the others.



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# UNIT ASSESSMENT

D-1: Concepts of Earth Science





# SCIENCE PROGRAM

Unit Assessment Teacher's Notes  
Grade 8 • Unit 7 (D-1)  
Theme: Concepts of Earth Science  
Date: \_\_\_\_\_



# Unit Assessment

Provide each student with a copy of the students' pages. Read the following instructions aloud. The students should answer the questions on their copies of the assessment.

## BASIC LISTENING

Turn to page 1 in your test. Look at the pictures in the boxes.

1. Write the number 1 by the picture for **COMPONENTS**.
2. Write the number 2 by the picture for **GEOLOGIC**.
3. Write the number 3 by the picture for **ROCK CYCLE**.
4. Write the number 4 by the picture for **WATER CYCLE**.
5. Write the number 5 by the picture for **EARTH SURFACE**.
6. Write the number 6 by the picture for **TOPOGRAPHICAL MAP**.
7. Write the number 7 by the picture for **TUNDRA**.
8. Write the number 8 by the picture for **CONVECTION CURRENT**.
9. Write the number 9 by the picture for **MANTLE**.

## LISTENING COMPREHENSION

Turn to page 2 in your test. Listen to the sentences I say. Circle "T" for true and "F" for false sentences."

1. Cars are comprised of many different components.
2. Geologic formations are absent from Southeast Alaska.
3. The rock cycle refers to the rise and fall of rock bands.
4. The water cycle helps to circulate water across the Earth.
5. Earth's surface refers to the outermost layer of the planet.
6. There is no usefulness in a topographic map, who needs to know elevation anyway?
7. In Alaska, animals such as caribou and muskox thrive on the tundra.
8. Convection current refers to the electric charge used to run streetcars.
9. The mantle of the earth is extremely hot.



# Unit Assessment

*Provide each student with a copy of the students' pages. Read the following instructions aloud. The students should answer the questions on their copies of the assessment.*

## SIGHT RECOGNITION

Turn to pages 3 and 4 in your test. Look at the pictures in the boxes. Circle the word for each picture.

## DECODING/ENCODING

Turn to pages 5 and 6 in your test. Look at the word parts in the boxes. Circle the other half or part of each word.

## READING COMPREHENSION

Turn to page 7 in your test. Read the sentence part and fill in the bullet for the correct sentence ending.

## BASIC WRITING

Turn to page 8 in your test. Look at the pictures in the boxes. Write the word for each picture.

## CREATIVE WRITING

Turn to page 9 in your test. Write a sentence of your own, using each word.

*Teacher: To get a percentage for this student's assessment, divide the total number of questions correct by the total number of questions, then multiply this answer by 100 to determine the percentage of questions answered correctly.*



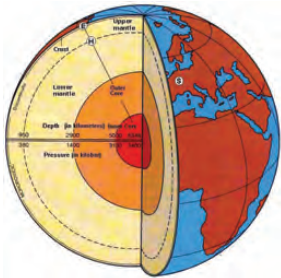


# SCIENCE PROGRAM

Unit Assessment Student Pages  
Grade 8 • Unit 7 (D-1)  
Theme: Concepts of Earth Science

Date: \_\_\_\_\_ Student's Name: \_\_\_\_\_

Number Correct: \_\_\_\_\_ Percent Correct: \_\_\_\_\_







1.            **T**        **F**
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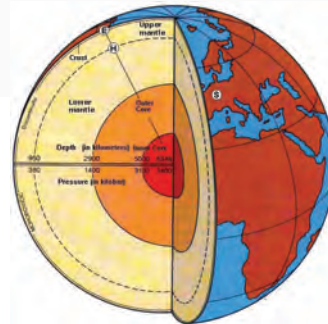
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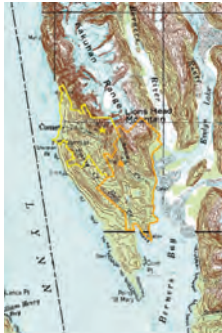
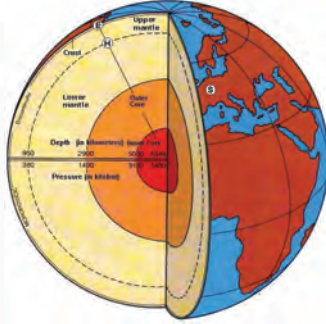
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- 1 Which of the following is NOT a component of a car?
- tail flap
  - steering wheel
  - engine
- 2 Which of the following is a geologic formation?
- mountain
  - origami
  - skyscraper
- 3 Rocks are broken down and reformed in a process called the rock:
- system
  - cycle
  - symmetry
- 4 \_\_\_\_\_ is part of the water cycle.
- anticipation
  - acceleration
  - precipitation
- 5 The Earth's surface is where:
- satellites orbit
  - wildlife exists
  - massive beds of magma churn
- 6 Which of the following is not part of a topographical map?
- population
  - slope
  - elevation
- 7 Tundra has all of the following characteristics EXCEPT:
- permanently frozen ground
  - extensive forests
  - short growing seasons
- 8 Which of the following is an example of convection current?
- boiling water
  - riptides
  - a plant with small berries
- 9 The Earth's mantle is located between the :
- outer core and inner core
  - surface and atmosphere
  - crust and core





**COMPONENTS**

---

**GEOLOGIC**

---

**ROCK CYCLE**

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**WATER CYCLE**

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**EARTH SURFACE**

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**TOPOGRAPHICAL MAP**

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**TUNDRA**

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**CONVECTION CURRENT**

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**MANTLE**

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# SCIENCE PROGRAM

Unit Assessment ANSWER KEY  
Grade 8 • Unit 7 (D-1)  
Theme: Concepts of Earth Science



4



7



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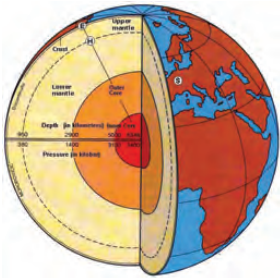
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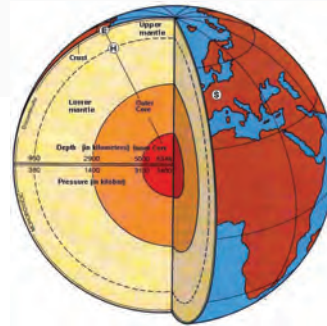
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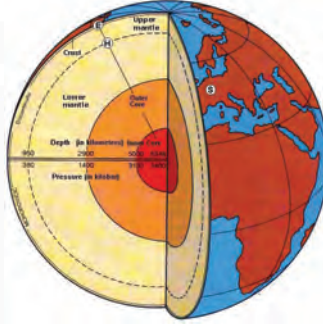
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**rock cycle**



**mantle**



**components**



**geologic**



**water cycle**



**tundra**



**convection  
current**



**topographical  
map**



**earth surface**





# UNIT 8

D-1: Concepts of Earth Science





# KEY VOCABULARY

# Culturally Responsive & Place-Based Introduction of Science Vocabulary

## TILT

### Place-Based Perspective

Prop a can on its side in the front of the classroom and ask the students to imagine that this is your house. What might life be like inside this structure on a “tilt”? What famous building is on a tilt in Italy? The leaning Tower of Pisa! How many students have heard of this? The Earth is another object that is tilted on its axis. This tilt causes us to experience seasons as different parts of the Earth come nearer to the sun.

### Heritage Cultural Perspective

*Mankind has forever known the concept of tilt and tilted objects. What a boring world this would be if EVERYTHING stood straight! Just as trees sometimes tilt in growth or after they age, so do totem poles from time to time. Totems are said to be alive and that they die just like other organisms. Just as trees fall to the ground, so do totems. Several older photographs show village sites with both straight and tilted totems.*

## RELATIVE

### Place-Based Perspective

On the board, draw a large circle representing the sun and a smaller circle representing the Earth. Ask the students how many of them think that the Earth is large? Explain to them that though it may be large in their perspectives, it is actually small “relative” to the size of the sun. In another example, 20 degrees Fahrenheit might be considered frigid to someone from the Lower 48 but it may be rather mild for someone from Fairbanks who is used to -30! The feeling is therefore relative!!

### Heritage Cultural Perspective

*The world can be seen from many different points of view. While comparisons dealing with size and other characteristics may be objective, they may also be subjective based on personal experience. Athabascans visiting Southeast Alaska in the winter probably found the weather extremely mild relative to the frigid interior.*

## ROTATION

### Place-Based Perspective

Explain to the students that rotation is movement along a circle or a center. Ask the students to come up with as many objects that “rotate” as they can and list them on the board. Did they mention the Earth? Tell the students that the Earth does rotate around its axis — one full turn per day. The side that is turning toward the sun experiences daylight while the other side experiences darkness.

### Heritage Cultural Perspective

*The sun and the moon move across our sky in a circular motion every day. This is caused not only by our planet’s rotation around its axis but also its rotation around the sun. These movements were obvious to Native peoples of long ago. These celestial movements impact our daily life on planet Earth. Imagine what would happen if the Earth failed to rotate!*

# Culturally Responsive & Place-Based Introduction of Science Vocabulary

## CONDUCTION

### Place-Based Perspective

Show the students the photo of the camp stove on page 685. Ask the students to tell you the flow of heat between all of the objects: fire, pot, water, and air. Explain that thermal energy (heat) is being transferred between each of those objects through conduction. Molecules that are next to one another and of different temperatures are passing the heat along the gradient.

### Heritage Cultural Perspective

*Lightning conducts electricity along air molecules. It can move from a cloud to the ground, from the ground to a cloud, or from cloud to cloud. While lightning is infrequent in Alaska, it can be seen occasionally. Just as we all marvel at lightning and thunder today, surely the Native peoples of long ago did the same. The Tlingit even have a Thunderbird crest — a bird whose flapping wings creates thunder!*

## RADIATION

### Place-Based Perspective

Ask the students how many of them have had x-rays. Did they have to wear heavy blankets or bibs to block other parts of their body? Explain that x-rays emit radiation—high energy particles that pass through the body. In low doses these are safe but we do not want excess radiation if unnecessary. What else emits large amounts of radiation?

### Heritage Cultural Perspective

*Sunlight is one of the most obvious forms of radiation present in our daily lives. It is filtered through the Earth's atmosphere and can be seen by our naked eyes when the sun is above the horizon. In Southeast Alaska clouds and rain often block direct solar radiation. Sunny days can sometimes be a real treat. Native peoples of long ago probably enjoyed the occasional warm sunny days that we long for today!*

## GEOCHEMISTRY

### Place-Based Perspective

Show the students the picture of pallasite on page 689. Explain that these are rare stone-iron meteorites that have periodically fallen to earth from space. They are made up of several compounds. The study of rocks and minerals found on and in the earth is called geochemistry! How many students have thought about a career involving this field of study? What types of careers are possible in this field?

### Heritage Cultural Perspective

*Learning about the world around us helps us to grow and survive on the landscape. Native peoples of Alaska depended on knowledge of the earth. They studied geochemistry and observed rocks and minerals found on the Earth. They knew different soil types and where these could be found. They knew where to find brittle rocks and those that could not be broken. They also knew where to find metals, such as gold and copper.*

# Culturally Responsive & Place-Based Introduction of Science Vocabulary

## POSITION

### Place-Based Perspective

Place several pencils (or pick-up sticks if available) in a pile on a table. Explain that each of the sticks is in a different “position” — a particular placement or arrangement. Have the students try to remove one pencil at a time without touching any other or causing any other to move. If it moves, that student is eliminated!

### Heritage Cultural Perspective

*The position of an object or objects can be very important for mankind. The position of an ancient Tlingit village, for example, often dictated its inhabitants’ access to resources and control of trade. The Stikine Tlingit villages were positioned along and near the Stikine river valley. This allowed them access to the river’s rich fisheries but also to an important trade route to the interior.*

## COMPOSITION

### Place-Based Perspective

Show the students a can or bottle of soda or juice. Pass the can around the room and have the students each read off an ingredient from the label. Write these on the board as the students are reading them aloud. Explain that these make up the “composition” of that item. What is the composition of the classroom? What about of the human body?

### Heritage Cultural Perspective

*The composition of tribes in Southeast Alaska has long been an important aspect of indigenous culture. Tribes are composed of several clans from both the Raven and the Eagle/Wolf moieties. Individual clans are composed of house groups. This composition dictates interpersonal, inter-clan, and inter-tribal relationships. What might happen if different components of this composition were added or removed?*

## BRIGHTNESS

### Place-Based Perspective

Light a candle and place it on the desk. Set a standard flashlight and an LED flashlight next to it. Ask the students to rank the brightness of each. Explain that the “brightness” is their perceived intensity of each light source. What is the brightest light source they know of? The least bright (without being dark)?

### Heritage Cultural Perspective

*The brightness of sunlight and moonlight in Southeast Alaska has obvious fluctuations from day to day based on the weather and has long had implications for Native peoples. On a bright day (or night), navigating in a canoe may be easier as one can see greater distances. Imagine now trying to navigate in very dim or lightless situations!*





# LESSONS

# Science Language for Success

*Introduce the key science vocabulary, using concrete materials and/or pictures.*

## LISTENING

*Use the Mini Pictures activity page from the Student Support Materials. Have the students cut out the pictures. Say the key words and the students show the pictures.*



### Stretch

Place the vocabulary pictures on the floor, in a scattered form. The pictures should be quite close together. Have a student stand beside the pictures. Say a vocabulary word for one of the pictures. The student should place his/her left foot on that picture. Then, say other vocabulary words and the student must identify the correct pictures with different parts of his/her body. You may wish to have two students participate in this process at the same time for added motivation.

### Student Support Materials

Have the students work on the activity pages from the Student Support Materials from this unit. Afterward, review their work.

## SPEAKING



### Right or Wrong?

Mount the vocabulary pictures on the board. Point to one of the pictures and say its vocabulary word. The students should repeat the vocabulary word for that picture. However, when you point to a picture and say an incorrect vocabulary word for it, the students should remain silent. Repeat this process until the students have responded a number of times to the different vocabulary pictures.

### Change Time

Group the students into pairs. One student should be without a partner to be “it” for the first round of the activity. Have the pairs of students stand, back to back, with elbows interlocked. Say a vocabulary word. Tell the students to listen for that word repeated once again. Say a number of vocabulary words—eventually repeating the vocabulary word you said at the beginning of the round. The students should drop arms and find new partners. However, “it” must also find a partner, thus producing a new “it” for the next round of the game. The student who is left without a partner must then use the vocabulary word you said (at the beginning of the round) in a complete sentence of his/her own. Repeat this process until all students have responded.

# Science Language for Success

## READING

Introduce the science sight words to the students—match the sight words with the vocabulary pictures. The sight words are included in the Student Support Materials, attached to these lesson plans.



*Note: After each unit, mount a set of the unit's words on the walls around the room. Use the "word walls" for review and reinforcement activities.*

### The Disappearing Word

Mount all of the sight words on the board. For added motivation, you may wish to prepare an extra set of sight word cards to add to those on the board. Have the students look carefully at the sight words. Then, the students should close their eyes. When the students' eyes are closed, remove one of the sight words from the board. Have the students open their eyes and identify the missing word. Repeat this process until all of the sight words have been removed from the board and identified in this way.

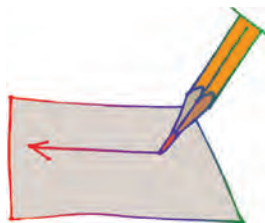
### Letter Encode

Give each student his/her envelope that contains the alphabet letters. Mount one of the science pictures on the board. The students must use the cut-out letters to spell the word. Review the students' work. Repeat, until all of the words have been spelled in this way.

### Student Support Materials

Have the students complete the sight recognition and encoding activities in the Student Support Materials. When finished, review their work.

## WRITING



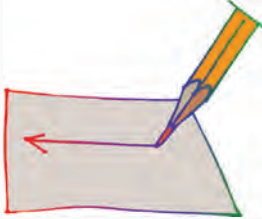
### Flashlight Writing

If possible, darken the classroom. Give a student a flashlight. Say one of the vocabulary words and the student should write that word with the light of the flashlight on a wall or on the board. Repeat until many students have had a chance to participate. An alternative is to provide each student with writing paper and a pen. Darken the classroom, if possible. Use the light of a flashlight to write one of the sight words on the wall or board. When you have completed the writing of the word, each student should then write the same word on his/her sheet of paper. Repeat until all sight words have been written in this way.

This activity may also be done in team form. In this case, group the students into two teams. Darken the classroom. Use the light of a flashlight to write one of the sight words on the board. When you say "Go," the first player in each team should rush to the board and use chalk to write the same word on the board. The first player to do this correctly wins the round. Repeat until all players have played.

# Science Language for Success

## WRITING (CONTINUED)



### **Student Support Materials**

Provide the students with a copy of the writing pages from the Student Support Materials. When finished, review the students' work.



# VOCABULARY PICTURES







# TILT







## RELATIVE



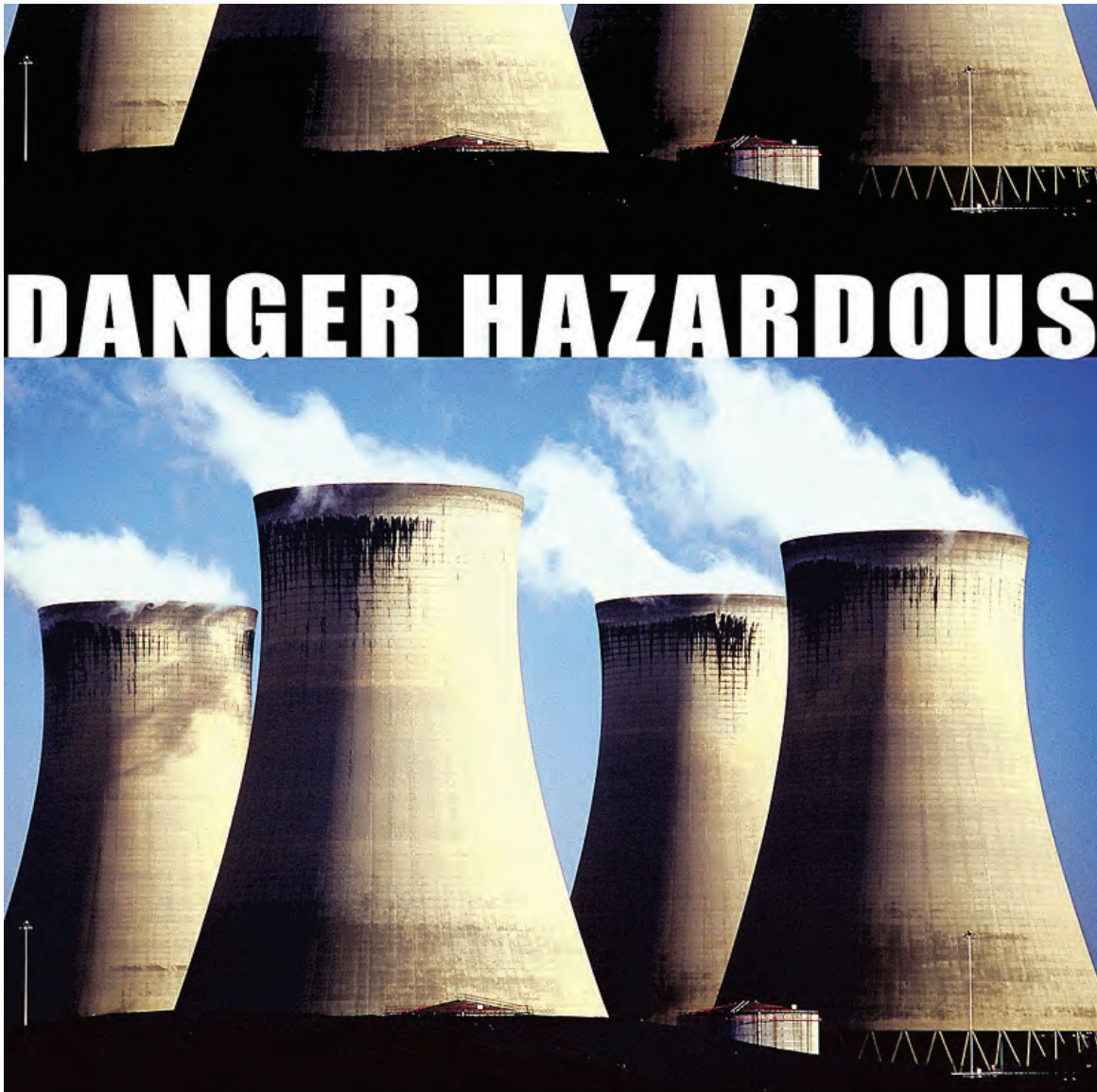


## ROTATION





## CONDUCTION





# RADIATION







# GEOCHEMISTRY





## POSITION



## Baked Salmon

**Salmon**

**Onion**

**Bacon**

**Tomato sauce**

Put salmon into oven at 350 degrees for 1 hour. Put bacon strips on salmon 15 minutes after you put it in the oven. Then the last 10 minutes put onion rings on top. Pour 1 can tomato sauce over the top.



## COMPOSITION





## **BRIGHTNESS**





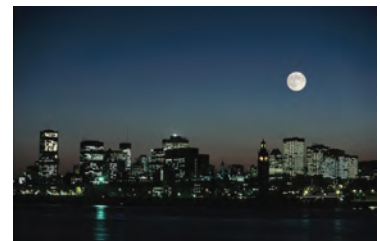
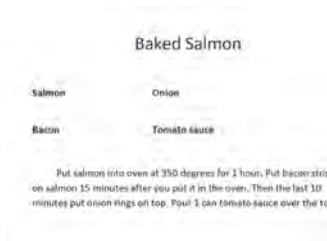
# STUDENT SUPPORT MATERIALS

Listening • Mini Pictures

# Listening: Mini Pictures



Prepare a copy of these pages for each student. The students should cut out the pictures and lay them on the floor or desk. Say the key words and the students should show you the pictures. Repeat a number of times. This activity can also be done with pairs of students to determine who is the fastest player.





# STUDENT SUPPORT MATERIALS

Listening Comprehension

# Listening Comprehension



Read the following sentences to the students. The students should circle “true” or “false” for each of the sentences. Review the students’ work.

- 1 The earth is tilted on its axis. True  
False
- 2 There is a relative difference in size between killer whales and beluga whales. True  
False
- 3 The rotation of Ferris wheels is scary for some people. True  
False
- 4 Heating water on a stove is an example of conduction. True  
False
- 5 X-ray machines emit radiation. True  
False
- 6 Geochemistry is the study of organic tissues. True  
False
- 7 The position of a rear-view mirror is not important for a driver. True  
False
- 8 A turkey is usually part of the composition of a thanksgiving dinner. True  
False
- 9 The brightness of all light bulbs is the same. True  
False

# Listening Comprehension: Answer Key

Read the following sentences to the students. The students should circle "true" or "false" for each of the sentences. Review the students' work.

- 1 The Earth is tilted on its axis. True  
False
- 2 There is a relative difference in size between killer whales and beluga whales. True  
False
- 3 The rotation of Ferris wheels is scary for some people. True  
False
- 4 Heating water on a stove is an example of conduction. True  
False
- 5 X-ray machines emit radiation. True  
False
- 6 Geochemistry is the study of organic tissues. True  
False
- 7 The position of a rear-view mirror is not important for a driver. True  
False
- 8 A turkey is usually part of the composition of a thanksgiving dinner. True  
False
- 9 The brightness of all light bulbs is the same. True  
False





# STUDENT SUPPORT MATERIALS

Sight Words



**tilt**

**relative**

**rotation**







**conduction**

**radiation**

**geochemistry**



**position**

**composition**

**brightness**



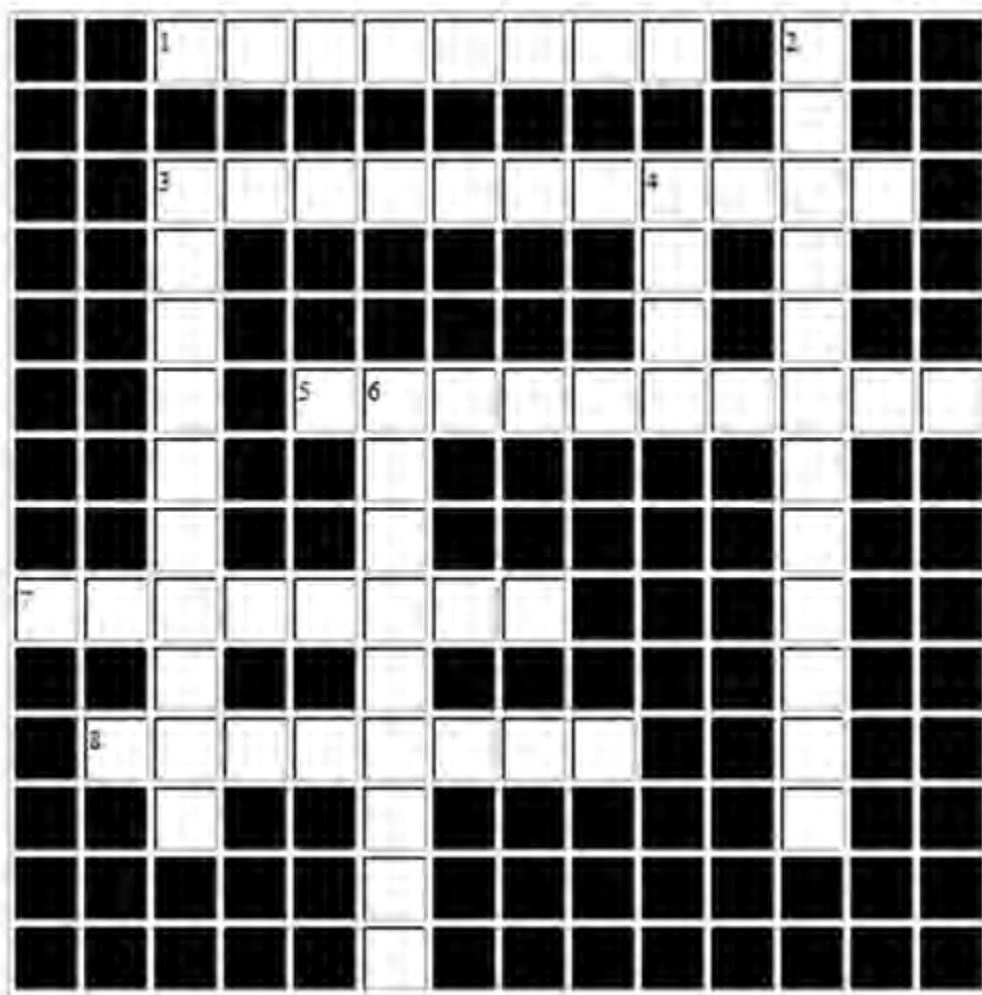
# STUDENT SUPPORT MATERIALS

Basic Reading • Sight Recognition

# Sight Words Activity Page



Have the students complete the cross word puzzle below. A blank box is present for any space between word phrase.



## Across

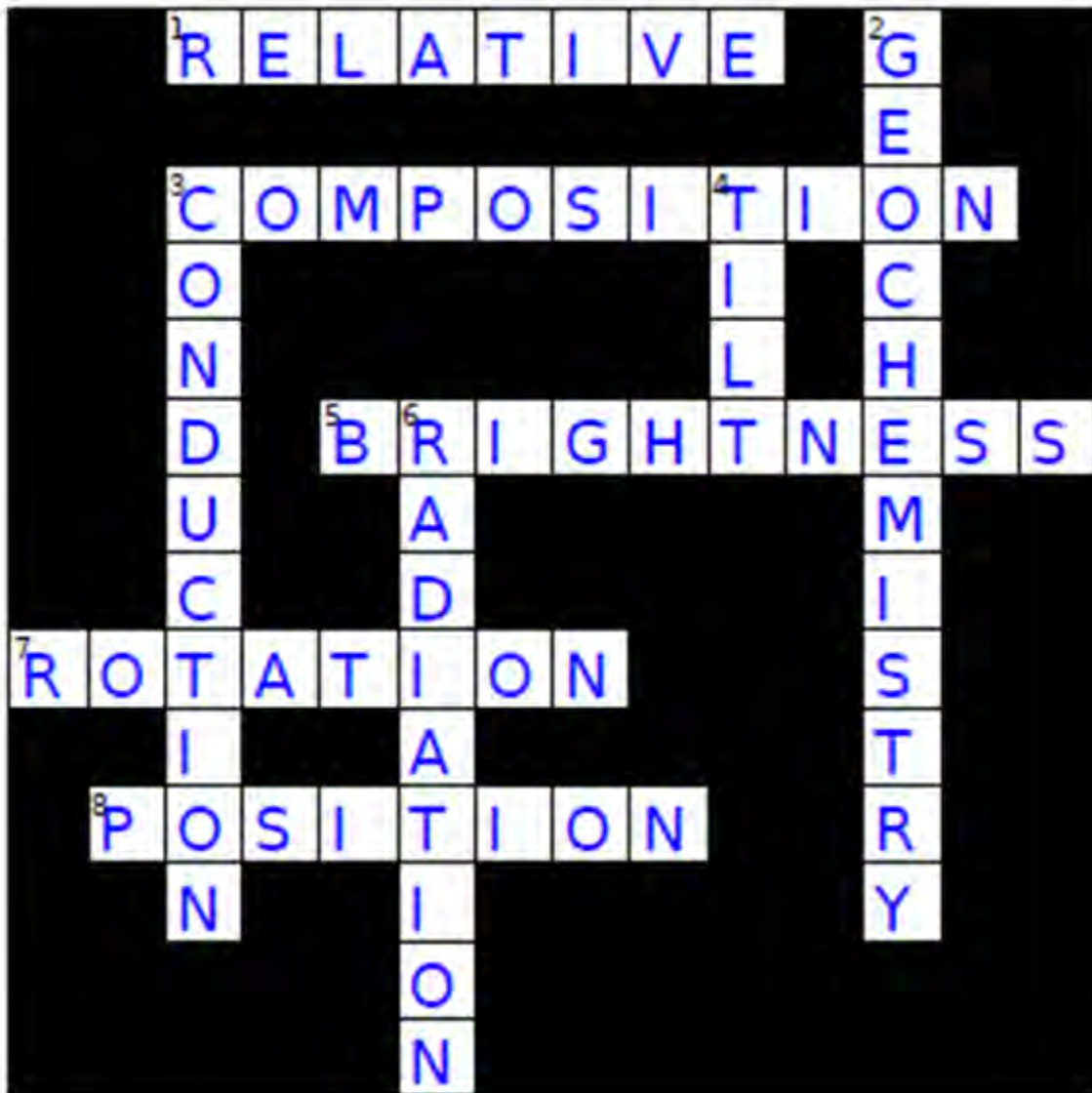
1. Possessing a specified characteristic in comparison to something else.
3. The nature of something's ingredients or constituents.
5. The perceived intensity level of light in a visual spectrum.
7. Turn on or around an axis or a center.
8. A particular way in which someone or something is placed or arranged.

## Down

2. The study of the chemical composition of the earth and its rocks and minerals.
3. Transfer of thermal energy between neighboring molecules due to a temperature gradient.
4. A sloping position or movement.
6. Emission of energy as electromagnetic waves or as sub-atomic particles.

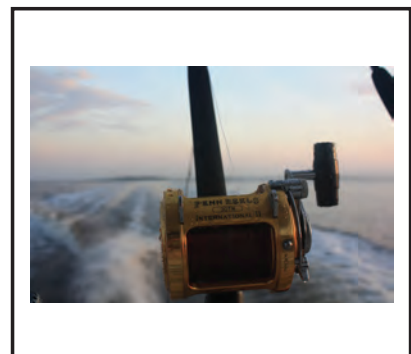
# Sight Words Activity Page

Answer Key



# Sight Words Activity Page

Have the students cut out the key words and glue them at the bottom of their pictures.



tilt	relative	rotation	conduction
radiation	geochemistry	position	composition
brightness			











# STUDENT SUPPORT MATERIALS

Basic Reading • Encoding

# Encoding Activity Page

Have the students cut out and encode the syllables of the words, OR number the syllables in their correct sequence.



tilt

---

tive || rel || a

---

ta || tion || ro

---



# Encoding Activity Page

Have the students cut out and encode the syllables of the words, OR number the syllables in their correct sequence.



tion || duc || con

---

ra || tion || a || di

---

chem || is || geo || try

---



# Encoding Activity Page

Have the students cut out and encode the syllables of the words, OR number the syllables in their correct sequence.



po || tion || si

---

po || tion || si || com

---

ness || bright

---



# Encoding Activity Page

Have the students cut out the word halves and glue them together to create the key words for this unit.



**ti**

**tion**

**rel**

**duction**

**rota**

**sition**

**con**

**tness**

**ra**

**lt**



# Encoding Activity Page

Have the students cut out the word halves and glue them together to create the key words for this unit.



geoch

ative

po

position

com

diation

brigh

emistry





# STUDENT SUPPORT MATERIALS

Reading Comprehension

# Reading Comprehension Activity Page

Have the students read the text and then select the correct answer for it. They should fill in the appropriate bullet beside the answer of their choice.



- ① Which of the following is typically on a tilt?
  - planet Earth
  - telephone poles
  - skyscrapers
  - totem poles
  
- ② Animals can be classified based on their relative:
  - intelligence
  - size
  - aggressiveness
  - all of the above
  
- ③ Rotation is the action of revolving around a center or an:
  - axis
  - anvil
  - asterisk
  - none of the above
  
- ④ Conduction is the transfer of thermal energy between \_\_\_\_\_ molecules.
  - dissimilar
  - neighboring
  - distant
  - similar
  
- ⑤ Which of the following emit radiation?
  - nuclear power plants
  - x-ray machines
  - sun
  - all of the above



# Reading Comprehension Activity Page



- 6 Which of the following are studied in geochemistry?
- rocks and minerals
  - birds and mammals
  - reptiles and amphibians
  - none of the above
- 7 In what position does a teacher usually stand in a classroom?
- right side
  - back and center
  - front and center
  - back left corner
- 8 The composition of beef stew may include:
- beef
  - broth
  - vegetables
  - all of the above
- 9 Brightness is the \_\_\_\_\_ intensity of light in a visual spectrum.
- actual
  - perceived
  - irrelevant
  - degraded

# Reading Comprehension Activity Page

ANSWER KEY



- ① Which of the following is typically on a tilt?
- planet Earth
  - telephone poles
  - skyscrapers
  - totem poles
- ② Animals can be classified based on their relative:
- intelligence
  - size
  - aggressiveness
  - all of the above
- ③ Rotation is the action of revolving around a center or an:
- axis
  - anvil
  - asterisk
  - none of the above
- ④ Conduction is the transfer of thermal energy between \_\_\_\_\_ molecules.
- dissimilar
  - neighboring
  - distant
  - similar
- ⑤ Which of the following emit radiation?
- nuclear power plants
  - x-ray machines
  - sun
  - all of the above

# Reading Comprehension Activity Page



- 6 Which of the following are studied in geochemistry?
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- beef
  - broth
  - vegetables
  - all of the above
- 9 Brightness is the \_\_\_\_\_ intensity of light in a visual spectrum.
- actual
  - perceived
  - irrelevant
  - degraded

# Reading Comprehension Activity Page

Have the students write the letters for sentence halves that match.



- |   |  |
|---|--|
| ① Earth's tilt toward the sun is what         | ① a pot and to water is conduction.          |
| ② A car battery is quite powerful relative to | ② chemical composition of the earth.         |
| ③ The rotation of a steering wheel            | ③ nuclear plants is an example of radiation. |
| ④ The transfer of heat from a stove to        | ④ causes us to have seasons.                 |
| ⑤ The emission of high-energy particles from  | ⑤ influences the team's skill level.         |
| ⑥ Geochemistry is the study of the            | ⑥ determines the direction water will flow.  |
| ⑦ The position of a drain pipe                | ⑦ a watch battery.                           |
| ⑧ The composition of a basketball team        | ⑧ to be greater due to their distance.       |
| ⑨ We perceive the brightness of some stars    | ⑨ allows a driver to turn the wheels.        |

1 → \_\_\_\_\_      2 → \_\_\_\_\_      3 → \_\_\_\_\_      4 → \_\_\_\_\_  
5 → \_\_\_\_\_      6 → \_\_\_\_\_      7 → \_\_\_\_\_      8 → \_\_\_\_\_  
9 → \_\_\_\_\_

# Reading Comprehension Activity Page

## ANSWER KEY



- |   |  |
|---|--|
| ① Earth's tilt toward the sun is what         | ① a pot and to water is conduction.          |
| ② A car battery is quite powerful relative to | ② chemical composition of the earth.         |
| ③ The rotation of a steering wheel            | ③ nuclear plants is an example of radiation. |
| ④ The transfer of heat from a stove to        | ④ causes us to have seasons.                 |
| ⑤ The emission of high-energy particles from  | ⑤ influences the team's skill level.         |
| ⑥ Geochemistry is the study of the            | ⑥ determines the direction water will flow.  |
| ⑦ The position of a drain pipe                | ⑦ a watch battery.                           |
| ⑧ The composition of a basketball team        | ⑧ to be greater due to their distance.       |
| ⑨ We perceive the brightness of some stars    | ⑨ allows a driver to turn the wheels.        |

1 →   D      2 →   G      3 →   I      4 →   A    
5 →   C      6 →   B      7 →   F      8 →   E    
9 →   H

# Reading Comprehension Activity Page

Have the students cut out the words and glue them under their definitions.



Possessing a specified characteristic in comparison to something else

A sloping position or movement

Emission of energy as electromagnetic waves or as moving subatomic particles

The perceived intensity level of light in a visual spectrum

Transfer of thermal energy between neighboring molecules

Study of the chemical composition of the earth

A particular way in which someone or something is placed or arranged

To turn on or around an axis or a center

The nature of something's ingredients or constituents

tilt

relative

rotation

conduction

radiation

geochemistry

position

composition

brightness



# Reading Comprehension Activity Page

ANSWER KEY



**Possessing a specified characteristic in comparison to something else**

relative

**A sloping position or movement**

tilt

**Emission of energy as electromagnetic waves or as moving subatomic particles**

radiation

**The perceived intensity level of light in a visual spectrum**

brightness

**Transfer of thermal energy between neighboring molecules**

conduction

**Study of the chemical composition of the earth**

geochemistry

**A particular way in which someone or something is placed or arranged**

position

**To turn on or around an axis or a center**

rotation

**The nature of something's ingredients or constituents**

composition





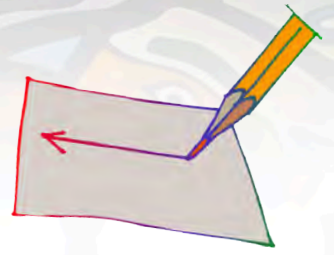


# STUDENT SUPPORT MATERIALS

Basic Writing

# Basic Writing Activity Page

Have the students write in the missing letters.



t \_\_\_\_\_ t

re \_\_\_\_\_ ve

rot \_\_\_\_\_ n

con \_\_\_\_\_ tion

r \_\_\_\_\_ tion

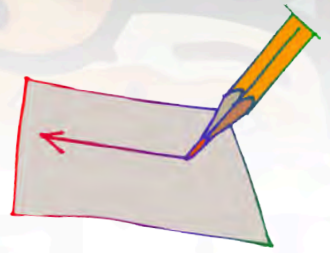
geo \_\_\_\_\_ stry

po \_\_\_\_\_ on

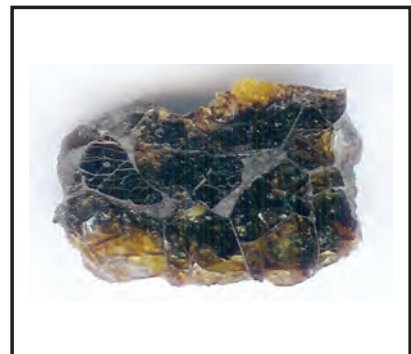
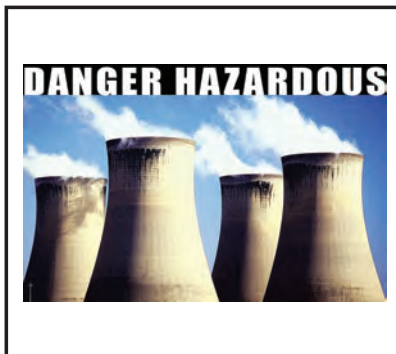
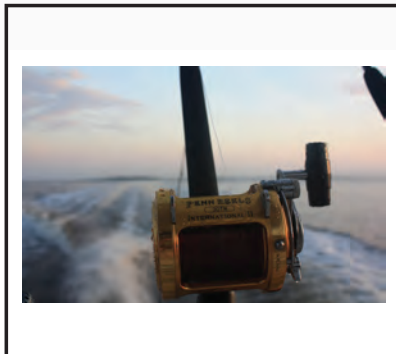
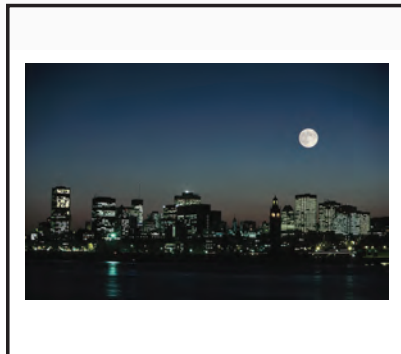
com \_\_\_\_\_ ion

bri \_\_\_\_\_ ss

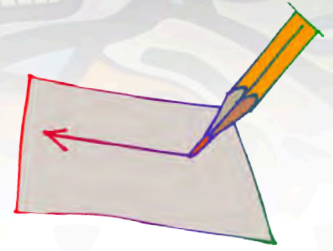
# Basic Writing Activity Page



Have the students write the word for each picture.



# Basic Writing Activity Page



ANSWER KEY



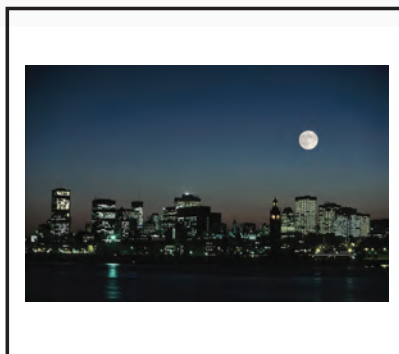
**composition**



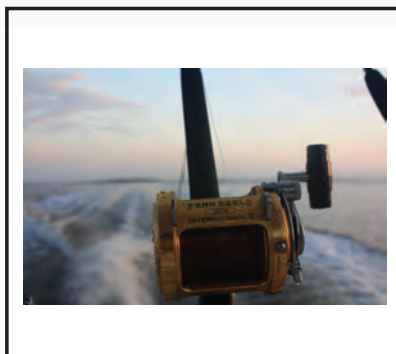
**tilt**



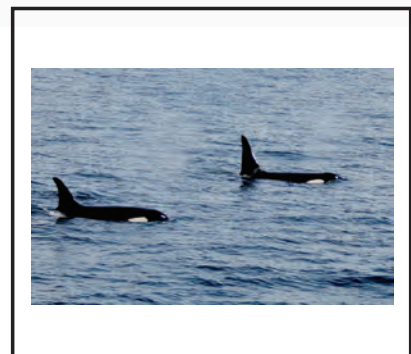
**conduction**



**brightness**



**rotation**



**relative**



**position**



**radiation**



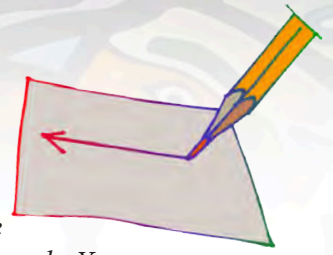
**geochemistry**



# STUDENT SUPPORT MATERIALS

Creative Writing

# Creative Writing Activity Page



Have the students write sentences of their own, using the key words from this unit. When the students' sentences are finished, have them take turns reading their sentences orally. The students should say "Blank" for the key words; the other students must name the "missing" words. You may wish to have the students write the "definitions" for the key words.

**TILT**

---

**RELATIVE**

---

**ROTATION**

---

**CONDUCTION**

---

**RADIATION**

---

**GEOCHEMISTRY**

---

**POSITION**

---

**COMPOSITION**

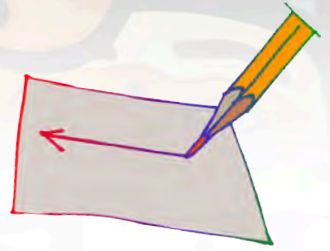
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**BRIGHTNESS**

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# Creative Writing Activity Page

Have the students write sentences of their own, based on the picture below. When finished, have each student read his/her sentences to the others.



---

---

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---

---

---

---

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# UNIT ASSESSMENT

D-1: Concepts of Earth Science





# SCIENCE PROGRAM

Unit Assessment Teacher's Notes  
Grade 8 • Unit 8 (D-1)  
Theme: Concepts of Earth Science  
Date: \_\_\_\_\_



# Unit Assessment

Provide each student with a copy of the students' pages. Read the following instructions aloud. The students should answer the questions on their copies of the assessment.

## BASIC LISTENING

Turn to page 1 in your test. Look at the pictures in the boxes.

1. Write the number 1 by the picture for **TILT**.
2. Write the number 2 by the picture for **RELATIVE**.
3. Write the number 3 by the picture for **ROTATION**.
4. Write the number 4 by the picture for **CONDUCTION**.
5. Write the number 5 by the picture for **RADIATION**.
6. Write the number 6 by the picture for **GEOCHEMISTRY**.
7. Write the number 7 by the picture for **POSITION**.
8. Write the number 8 by the picture for **COMPOSITION**.
9. Write the number 9 by the picture for **BRIGHTNESS**.

## LISTENING COMPREHENSION

Turn to page 2 in your test. Listen to the sentences I say. Circle "T" for true and "F" for false sentences."

1. The leaning Tower of Pisa is famous because of its tilt.
2. The sun is huge relative to the Earth.
3. The rotation of the earth is along its axis.
4. Conduction is a longer name for duct tape.
5. Radiation is a harmless substance found in river valleys.
6. Geochemistry is the study of the chemical composition of the Earth.
7. The position of a batter in baseball is at the home plate.
8. The composition of beef stew usually includes chicken.
9. All light bulbs have the same brightness.



# Unit Assessment

*Provide each student with a copy of the students' pages. Read the following instructions aloud. The students should answer the questions on their copies of the assessment.*

## SIGHT RECOGNITION

Turn to pages 3 and 4 in your test. Look at the pictures in the boxes. Circle the word for each picture.

## DECODING/ENCODING

Turn to pages 5 and 6 in your test. Look at the word parts in the boxes. Circle the other half or part of each word.

## READING COMPREHENSION

Turn to page 7 in your test. Read the sentence part and fill in the bullet for the correct sentence ending.

## BASIC WRITING

Turn to page 8 in your test. Look at the pictures in the boxes. Write the word for each picture.

## CREATIVE WRITING

Turn to page 9 in your test. Write a sentence of your own, using each word.

*Teacher: To get a percentage for this student's assessment, divide the total number of questions correct by the total number of questions, then multiply this answer by 100 to determine the percentage of questions answered correctly.*



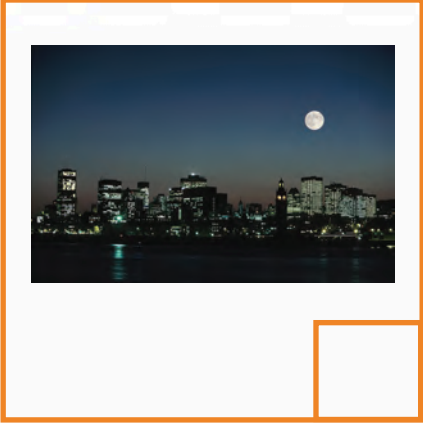


# SCIENCE PROGRAM

Unit Assessment Student Pages  
Grade 8 • Unit 8 (D-1)  
Theme: Concepts of Earth Science

Date: \_\_\_\_\_ Student's Name: \_\_\_\_\_

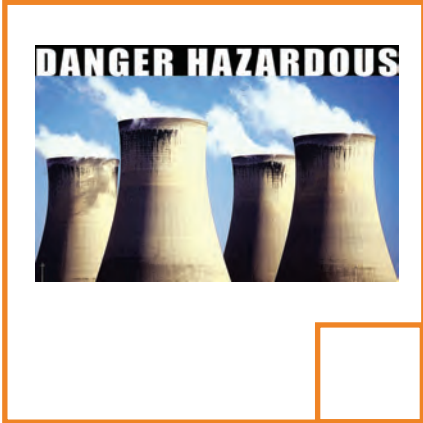
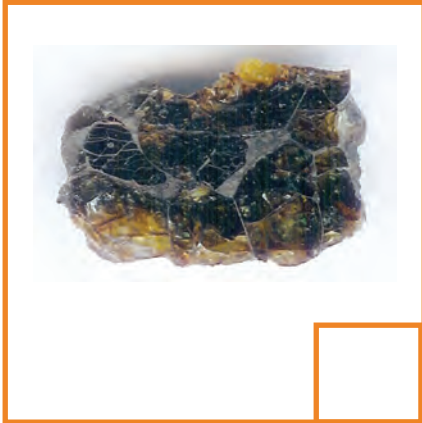
Number Correct: \_\_\_\_\_ Percent Correct: \_\_\_\_\_



### Baked Salmon

Salmon	Onion
Bacon	Tomato sauce

Put salmon into oven at 350 degrees for 2 hours. Put bacon strips on salmon 15 minutes after you put it in the oven. Then the last 10 minutes put onion rings on top. Pour 1 can tomato sauce over the top







1.            **T**        **F**

2.            **T**        **F**

3.            **T**        **F**

4.            **T**        **F**

5.            **T**        **F**

6.            **T**        **F**

7.            **T**        **F**

8.            **T**        **F**

9.            **T**        **F**



tilt  
 relative  
 rotation  
 conduction  
 radiation  
 geochemistry  
 position  
 composition  
 brightness



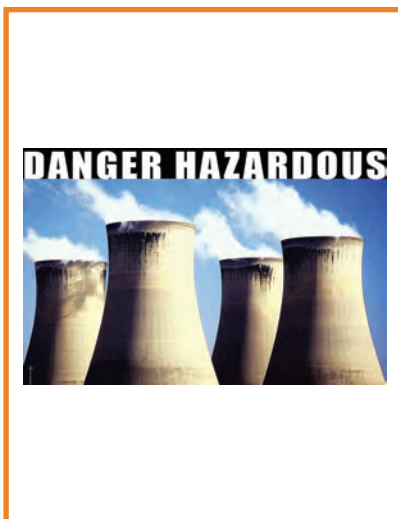
tilt  
 relative  
 rotation  
 conduction  
 radiation  
 geochemistry  
 position  
 composition  
 brightness



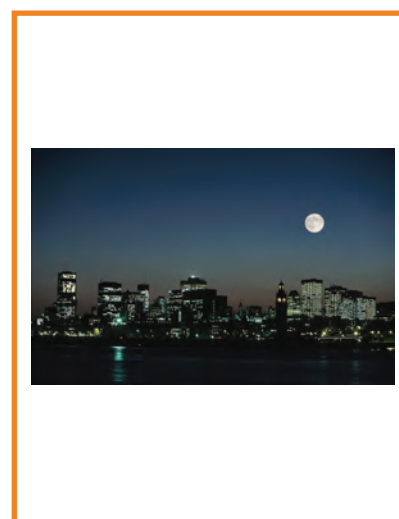
tilt  
 relative  
 rotation  
 conduction  
 radiation  
 geochemistry  
 position  
 composition  
 brightness



tilt  
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 rotation  
 conduction  
 radiation  
 geochemistry  
 position  
 composition  
 brightness



tilt  
 relative  
 rotation  
 conduction  
 radiation  
 geochemistry  
 position  
 composition  
 brightness



tilt  
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brightness



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rotation  
conduction  
radiation  
geochemistry  
position  
composition  
brightness



**t**

alte  
elte  
ilte  
olte  
ulte  
alt  
elt  
ilt  
olt

**rela**

tave  
teve  
tive  
tove  
tuve  
tyve  
tav  
tev  
tiv

**posi**

tian  
tien  
tion  
tiun  
shian  
shien  
shin  
shion  
shiun

**rota**

tian  
tien  
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- 1 Which of the following refers to something that is tilted?
- straight
  - narrow
  - leaning

- 2 Alaska is actually a small state \_\_\_\_\_ its human population.
- compared to
  - relative to
  - regardless of

- 3 The day/night cycle experienced on Earth is due to its \_\_\_\_\_.
- size
  - rotation
  - tides

- 4 Conduction affects weather patterns as it is the transfer of what kind of energy?
- thermal
  - potential
  - static

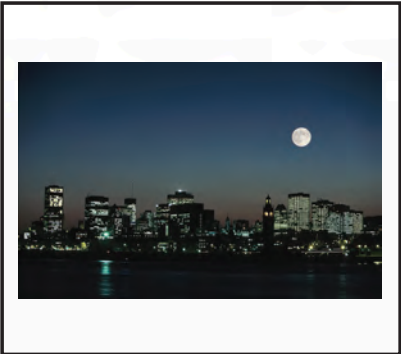
- 5 Like nuclear power plants and x-ray machines, the sun emits \_\_\_\_\_.
- waste
  - water
  - radiation

- 6 Those who study geochemistry are interested in:
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  - conservation of earth's resources
  - the chemical composition of the earth

- 7 The \_\_\_\_\_ of planets in relation to the sun is a factor in their surface temperatures.
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  - make-up
  - resistance

- 8 The composition of Southeast Alaska's landscapes includes:
- mountains, rivers, islands
  - mountains, rivers, deserts
  - deserts, rivers, islands

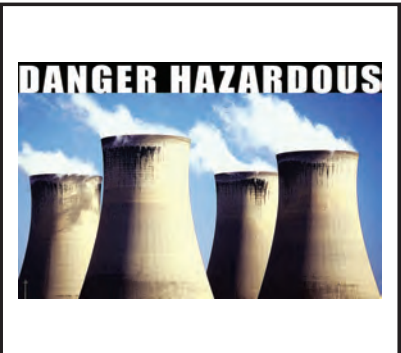
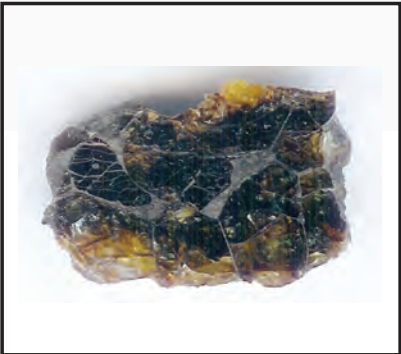
- 9 The perceived \_\_\_\_\_ of a star is due to its distance and size.
- color
  - brightness
  - consistency



### Baked Salmon

Salmon	Onion
Bacon	Tomato sauce

Put salmon into oven at 350 degrees for 1 hour. Put bacon strips on salmon 15 minutes after you put it in the oven. Then the last 10 minutes put onion rings on top. Pour 1 can tomato sauce over the top





**TILT**

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**RELATIVE**

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**ROTATION**

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**CONDUCTION**

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**RADIATION**

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**GEOCHEMISTRY**

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**POSITION**

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**COMPOSITION**

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**BRIGHTNESS**

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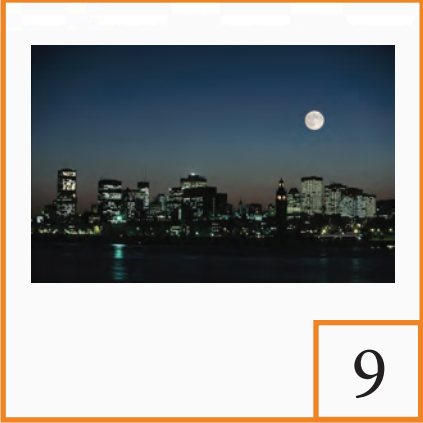


# SCIENCE PROGRAM

Unit Assessment ANSWER KEY  
Grade 8 • Unit 8 (D-1)  
Theme: Concepts of Earth Science



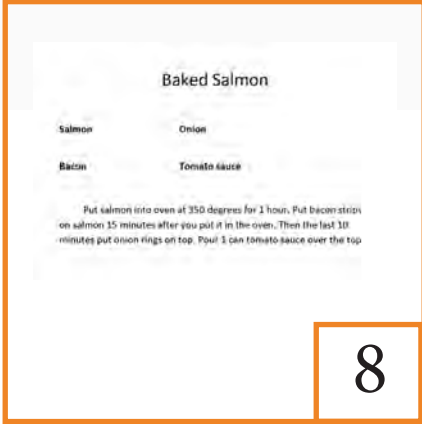
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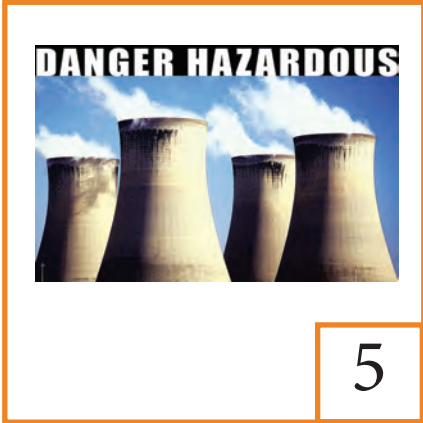
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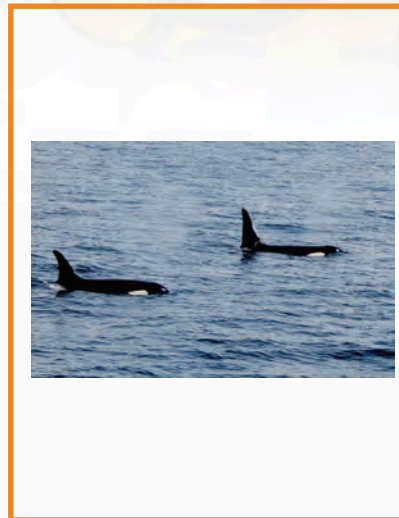
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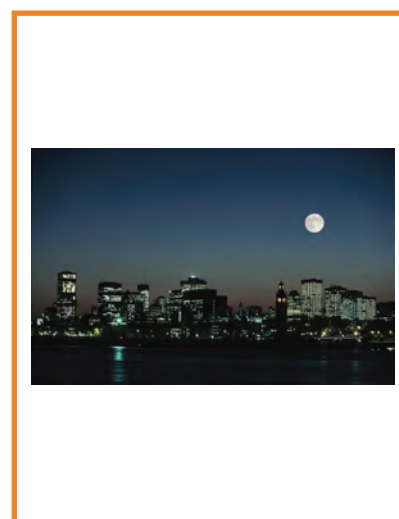
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 brightness  
 consistency





**tilt**



**rotation**



**brightness**



**position**



**composition**



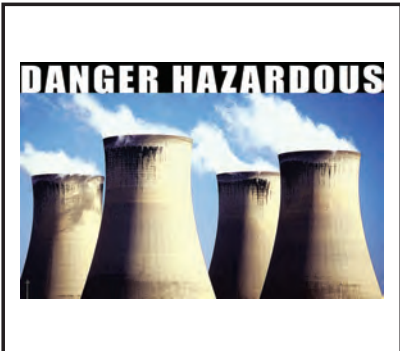
**geochemistry**



**relative**



**conduction**



**radiation**





# UNIT 9

**E-1: Science and Technology**

**F-1: Cultural, Social, Personal Perspectives and Science**

**G-1: History and Nature of Science**





# KEY VOCABULARY

# Culturally Responsive & Place-Based Introduction of Science Vocabulary

## DIPLOMATIC

### Place-Based Perspective

Split the students into two groups on either side of the room. Each group is to represent a country. Present the scenario that one of the countries has been caught illegally fishing in the waters of the other. Have students from each team present an argument that is likely to further inflame tensions about this issue. Now have them brainstorm a “diplomatic” solution and dialogue between the nations. Explain that diplomatic solutions to problems are important to retain peace and respect.

### Heritage Cultural Perspective

*While wars have plagued human existence, peace has also been frequently enjoyed too! This is a result of diplomatic relationships and approaches to problem solving. Following the sale of Alaska to the United States by Russia, Tlingit leaders discussed the possibility of war to secure their rights. They instead chose diplomacy — legal and political approaches to land claims rather than bloodshed.*

## EVIDENCE

### Place-Based Perspective

Present the students with the hypothesis that orange juice will catch on fire if Tabasco sauce is added to it. Ask them to tell you what would be needed to convince others that this is true. What types of facts or “evidence” would you need? Why is evidence important in science?

### Heritage Cultural Perspective

*It is part of human nature to seek evidence that supports answers to life’s questions. The Tlingit, Haida, and Tsimshian peoples consistently sought scientific evidence within the natural world. Would the salmon return to the rivers annually and why? Is a plant’s root safe to eat? Prove it! Evidence helps us to ground our theories in fact to better understand our surroundings.*

## DESIGN

### Place-Based Perspective

Ask the students to take 5 minutes to come up with an original piece of equipment that would be useful in our daily lives. These can be funny! Have them draw their thoughts on a sheet of paper. Explain that these are “designs” for their inventions. Have the students share their designs with the rest of the class.

### Heritage Cultural Perspective

*Alaska Native designs are important aspects of their artistic expressions and can be used to identify cultural groups. The Tlingit, Haida, and Tsimshian are famous for their formline designs. Subtle differences in this art exist between the cultures but may not be obvious to the untrained eye.*

# Culturally Responsive & Place-Based Introduction of Science Vocabulary

## DISCOVERY

### Place-Based Perspective

Explain to the students that a discovery is new knowledge gained through study or observation. The “discovered” information can be new to an individual, a group, or all of mankind. What are some discoveries that the students have had in their own lives? What are some recent scientific discoveries in science? What types of discoveries would the students like to participate in throughout their lives?

### Heritage Cultural Perspective

*Discovery of new places and objects is not only a modern phenomenon but was likely exciting for Alaska Native peoples of long ago. Imagine the feeling felt by the first Tlingit to see shiny copper or travel along the beautiful Lynn Canal. Imagine discovering new animals and flowering plants when traveling to trade or hunt. Alaska is a vast land of natural resources and discovering these had to be very exciting!*

## BREAKTHROUGH

### Place-Based Perspective

Explain to the students that a breakthrough is a sudden, dramatic, and/or extremely important discovery. Breakthroughs have been numerous throughout human history and have been especially important in medicine. New vaccines that prevent disease and cures for those who already have a disease have saved many human lives. We hope for breakthroughs in curing or preventing cancer, HIV, and other ailments in the near future.

### Heritage Cultural Perspective

*Breakthroughs, though often dramatic, can be large or small in scale. From time to time Alaska Native people of long ago would experience a breakthrough that would change their lives. Imagine when people discovered that hooligan oil would burn steady and could be used in lamps. Imagine when herring eggs were determined to be a tasty, healthy, and abundant treat. These breakthroughs improved the lives of Alaskan peoples.*

## LOCAL KNOWLEDGE

### Place-Based Perspective

Draw a rough outline of your community on the board, including any surrounding wetlands. Ask the students where they have seen frogs or salamanders in the vicinity. Explain to them that knowledge of these animals in Alaska is limited and that local knowledge may be very valuable in understanding their lives and locations. If they would like to contribute as “citizen scientists” to the knowledge of amphibians, have them contact the University of Alaska Fairbanks Museum’s Aquatics Collection.

### Heritage Cultural Perspective

*Local knowledge among Alaska peoples was and continues to be incredibly important for human survival. Local knowledge of resources and landscapes allows us to learn about, use, and protect them. Where is the best place to fish for sockeye or harvest berries? When is the best time to travel to Prince of Wales Island? No one can answer these questions better than local people familiar with their community and surroundings.*

# Culturally Responsive & Place-Based Introduction of Science Vocabulary

## SUBSISTENCE

### Place-Based Perspective

Ask the students how many of them have eaten local plants and animals that have been harvested by themselves or their families. What types of foods were these? Did they enjoy them? Explain that “subsistence” has always been important for humans in Alaska and that it continues to be the means by which many families obtain food. State and federal laws protect the right to pursue subsistence foods but many believe these laws need to be strengthened even further.

### Heritage Cultural Perspective

*Subsistence, the harvest of plants and animals for food, clothing, and other valuable objects, has allowed Alaska Native people to live off of the land in the far north. They have a right to these resources as they have utilized them since time immemorial. Subsistence foods have often been determined to be healthier than store-bought items that have more artificial ingredients.*

## INCONSISTENT

### Place-Based Perspective

Show the students the egg carton on page 789. Ask them what is wrong with the contents of the carton. Explain that the product is “inconsistent” because it has all intact eggs except one. Ask the students what inconsistent results of experiments would mean. Perhaps the data is not valid or there is some fluctuation in what is being tested?

### Heritage Cultural Perspective

*Alaska Native peoples of long ago knew that inconsistencies could have dire consequences. Years of unusually heavy rainfall or droughts can cause the plants and animals on which they depend to change their behavior or availability. What would happen if disease suddenly killed off all of the local deer or if an event prevented salmon from entering the mouth of the river?*

## EMPIRICAL

### Place-Based Perspective

Ask the students to present theories as to whether or not “bigfoot” exists. What evidence do they have to support or reject their hypothesis? Explain that while theories have been incredibly useful to help us understand the world around us, “empirical” evidence, evidence obtained through experiment and observation, is necessary to prove a hypothesis in western science.

### Heritage Cultural Perspective

*The Tlingit, Haida, and Tsimshian peoples throughout time undertook experimentation and observation. They have empirical evidence to support their claims to the land and their knowledge of local landscapes derived from traditional use and occupation. They knew exactly what size fish would be caught by the size of the halibut hook. Why? Because they experimented and observed the results.*





# LESSONS

# Science Language for Success

*Introduce the key science vocabulary, using concrete materials and/or pictures.*

## LISTENING

*Use the Mini Pictures activity page from the Student Support Materials. Have the students cut out the pictures. Say the key words and the students show the pictures.*



### Whisper

Mount the vocabulary pictures on the board. Group the students into two teams. Whisper a vocabulary word to the first player in each team. When you say “Go,” the first player in each team must then whisper the same word to the next player in his/her team. The players should continue whispering the vocabulary word in this way until the last player in a team hears the word. When the last player in a team hears the word, he/she must rush to the board and point to the picture for the word. The first player to do this correctly wins the round. Repeat until all players have had an opportunity to identify a vocabulary picture. When a player has identified a vocabulary picture, he/she should rejoin the front of his/her team.

### Student Support Materials

Have the students work on the activity pages from the Student Support Materials from this unit. Afterward, review their work.

## SPEAKING



### Half Match

Before the lesson begins, prepare a photocopy of each of the vocabulary pictures. Cut each of the photocopied pictures in half. Give the picture halves to the students (a student may have more than one picture half). Say one of the vocabulary words. The two students who have the halves of the picture for that word must show their halves and repeat the word orally. Continue in this way until all of the vocabulary words have been reviewed. This activity may be repeated more than once by collecting, mixing, and redistributing the picture halves to the students. This activity may also be adapted for team form. To do this, cut each of the vocabulary pictures in half. Place half of the pictures in one pile and the other halves in another pile (one pile for each team). Say a vocabulary word. When you say “Go,” the first player from each team must rush to his/her pile of picture halves. Each player must find the half of the picture for the vocabulary word you said. The first player to correctly identify the picture half and to repeat the vocabulary word for it wins the round. Repeat until all players have played.

### Numbered Boxes

Before the activity begins, prepare a page that contains twenty (or more) boxes. Number each of the boxes. Provide each student with a copy of the numbered boxes. Each student should then shade in half of the boxes with a pencil (any ten

# Science Language for Success

## SPEAKING (CONTINUED)



boxes). When the students are ready, mount the vocabulary pictures on the board and say the number of a box (between one and twenty) to one of the students. The student should look on his/her form to see if that box number is shaded in. If that box is shaded in, the student may “pass” to another player. However, if the box is not shaded in, he/she should say a complete sentence about a vocabulary picture you point to. The students may exchange pages periodically during this activity. Repeat until many students have responded in this way.

### High Card Draw

Give each student in the class a card from a deck of playing cards. Mount the vocabulary pictures on the board and number each one. Call two students’ names. Those two students should show their cards. The student who has the highest card (aces can be high or low) should then say a complete sentence about a vocabulary picture you point to. The students may exchange playing cards periodically during the activity. Repeat until many students have responded.

## READING

*Introduce the science sight words to the students—match the sight words with the vocabulary pictures. The sight words are included in the Student Support Materials, attached to these lesson plans.*



*Note: After each unit, mount a set of the unit’s words on the walls around the room. Use the “word walls” for review and reinforcement activities.*

### Circle of Words

Before the activity begins, prepare a page that contains the sight words. Provide each student with a copy of the page. The students should cut the sight words from their pages. When a student has cut out the sight words, he/she should lay them on his/her desk in a circle. Then, each student should place a pen or pencil in the center of the circle of sight word cards. Each student should spin the pen/pencil. Say a sight word. Any student or students whose pens/pencils are pointing to the sight word you said, should call “Bingo.” The student or students should then remove those sight words from their desks. Continue in this way until a student or students have no sight words left on their desks.

### Letter Encode

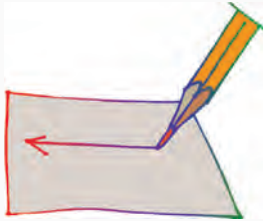
Give each student his/her envelope that contains the alphabet letters. Mount one of the science pictures on the board. The students must use the cut-out letters to spell the word. Review the students’ work. Repeat, until all of the words have been spelled in this way.

### Student Support Materials

Have the students complete the sight recognition and encoding activities in the Student Support Materials. When finished, review their work.

# Science Language for Success

## WRITING



### Yarn Spell

Group the students into two teams. Give the first player in each team lengths of yarn or string. Say a vocabulary word. When you say “Go,” the first player in each team must then use the yarn or string to “write” the word on the floor. The first player to complete his/her word wins the round. Repeat this process until all players in each team have played. If pipe cleaners are available, they may be used in place of the yarn or string (have both long and short lengths of the pipe cleaners ready for the activity).

### Overhead Configurations

Before the activity begins, write the sight words on an overhead transparency sheet. Place an overhead projector on the floor, facing the board. Lay the overhead transparency sheet on the screen of the projector and turn the projector on. The sight words should be projected onto the board. Then, use chalk to draw configurations around each of the sight words. When a configuration has been drawn for each sight word, turn the overhead projector off. Call upon a student to use chalk to fill in one of the configurations with its sight word. You may wish to have more than one student participating in this process at the same time.

This activity may also be conducted in team form. In this case, when you say “Go,” the first player in each team must rush to the configurations. Each player must attempt to fill in one of the configurations with its correct sight word. The first player to do this correctly wins the round. Repeat until all configurations have been filled in in this way.

### Student Support Materials

Have the students work on the activity pages from the Student Support Materials from this unit. Afterward, review their work.



# VOCABULARY PICTURES







## DIPLOMATIC







## EVIDENCE





## DESIGN





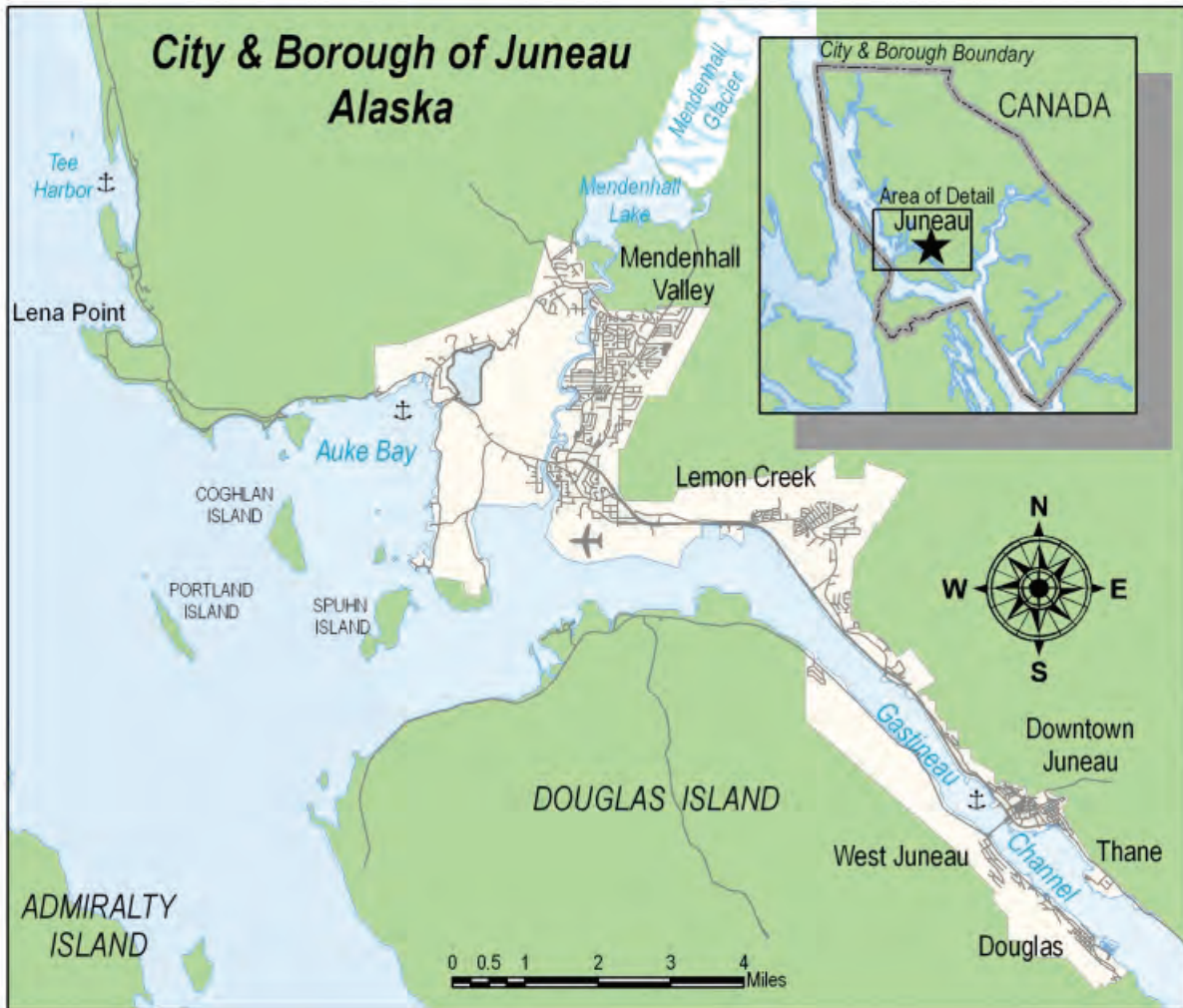
# DISCOVERY





# BREAKTHROUGH







## LOCAL KNOWLEDGE





## SUBSISTENCE





# INCONSISTENT





## EMPIRICAL





# STUDENT SUPPORT MATERIALS

Listening • Mini Pictures

# Listening: Mini Pictures

Prepare a copy of these pages for each student. The students should cut out the pictures and lay them on the floor or desk. Say the key words and the students should show you the pictures. Repeat a number of times. This activity can also be done with pairs of students to determine who is the fastest player.





# STUDENT SUPPORT MATERIALS

Listening Comprehension

# Listening Comprehension



Read the following sentences to the students. The students should circle “true” or “false” for each of the sentences. Review the students’ work.

- 1 Diplomatic discussions are usually the best approach True  
False
- 2 Scientists only depend on theory and do not seek evidence. True  
False
- 3 It is important for communities to design solutions for local problems. True  
False
- 4 It is important to consider the possible effects of a new discovery. True  
False
- 5 Scientific breakthroughs have helped to advance technology and medicine for mankind. True  
False
- 6 Local knowledge of landscapes can be a valuable source of information for scientists. True  
False
- 7 Subsistence is not an important life for indigenous peoples in Alaska. True  
False
- 8 Salmon runs are always inconsistent, you never know if they will return to the rivers each year. True  
False
- 9 Empirical data can be used to support a theory. True  
False

# Listening Comprehension: Answer Key

Read the following sentences to the students. The students should circle "true" or "false" for each of the sentences. Review the students' work.

- 1 Diplomatic discussions are usually the best approach True  
False
- 2 Scientists only depend on theory and do not seek evidence. True  
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False





# STUDENT SUPPORT MATERIALS

Sight Words



**diplomatic**

**evidence**

**design**







**discovery**

**breakthrough**

**local knowledge**



**subsistence**

**inconsistent**

**empirical**



# STUDENT SUPPORT MATERIALS

Basic Reading • Sight Recognition

# Sight Words Activity Page



Have the students complete the cross word puzzle below. A blank box is present for any space between words.

design  
discovery  
evidence

inconsistent  
subsistence  
diplomatic

empirical  
breakthrough  
local knowledge

e l e c s g i s b d n g t r l c r g  
i e l k m c t d i s c o v e r y u c  
o i g h n s s u b s i s t e n c e o  
e e n g e o m i s d e s i r e s e i  
p s a e h b i n n l e v i d e e n a  
s g l o c a l k n o w l e d g e c d  
e s m e e s u b s i s t e n l k n d  
e n v n g d i p l o m a e o i i i c  
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o e m p i r i e k s g y l k s i s l  
s i l d r k y d i s c o v d n e d r  
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# Sight Words Activity Page

Answer Key



design  
discovery  
evidence

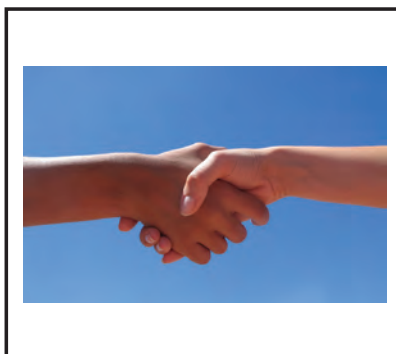
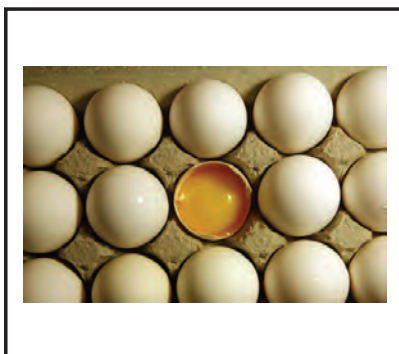
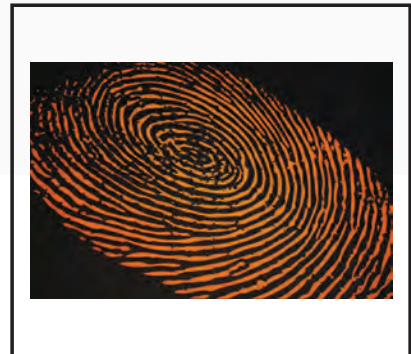
inconsistent  
subsistence  
diplomatic

empirical  
breakthrough  
local knowledge

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o i g h n s **s u b s i s t e n c e** o  
e e n g e o m i s d e s i r e s e i  
p s a e h b i n n l e v i d e e n a  
s g **l o c a l k n o w l e d g e** c d  
e s m e e s u b s i s t e n l k n d  
e n v n g d i p l o m a e o i i i c  
l a **i n c o n s i s t e n t** s o s i  
t g i i n c o n s i s t e h i h e a  
i **e v i d e n c e** l m i b o e d o t  
r c l o c a l k n o w l e d g t e c  
n l a d **e m p i r i c a l** d w v p o  
e a t d o **d i p l o m a t i c** e m d  
i **b r e a k t h r o u g h** k a i r o  
e c o i b l a b r e a k t h r o k i  
l t k i **d e s i g n** i n i t t g a t  
o e m p i r i e k s g y l k s i s l  
s i l d r k y d i s c o v d n e d r  
e s r o d u e e i s i n c o c e e n

# Sight Words Activity Page

Have the students cut out the key words and glue them at the bottom of their pictures.



diplomatic      evidence      design      discovery

breakthrough      local knowledge      subsistence      inconsistent

empirical











# STUDENT SUPPORT MATERIALS

Basic Reading • Encoding

# Encoding Activity Page

Have the students cut out and encode the syllables of the words, OR number the syllables in their correct sequence.



mat || lo || dip || ic

---

ev || dence || i

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sign || de

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# Encoding Activity Page

Have the students cut out and encode the syllables of the words, OR number the syllables in their correct sequence.



cov || ery || dis

---

through || break

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cal || lo || edge || knowl

---



# Encoding Activity Page

Have the students cut out and encode the syllables of the words, OR number the syllables in their correct sequence.



tence || sis || sub

---

in || tent || sis || con

---

i || em || pir || cal

---



# Encoding Activity Page

Have the students cut out the word halves and glue them together to create the key words for this unit.



dip

overy

evid

ign

des

through

disc

wledge

break

lomatic



# Encoding Activity Page

Have the students cut out the word halves and glue them together to create the key words for this unit.



**local kno**

**sistent**

**subsi**

**ence**

**incon**

**stence**

**empi**

**rical**





# STUDENT SUPPORT MATERIALS

Reading Comprehension

# Reading Comprehension Activity Page

Have the students read the text and then select the correct answer for it. They should fill in the appropriate bullet beside the answer of their choice.



- ① Which of the following is an example of a diplomatic argument?
  - Though I understand your theory, the evidence doesn't seem to support it.
  - Your argument has no basis and should not even be considered.
  - We are looking for facts, not undeveloped theories such as yours.
  - Please come back when you have something valuable to say.
  
- ② There is sufficient evidence to suggest that:
  - trees need sunlight to grow
  - Pacific salmon return to their rivers of birth to spawn
  - there are other planets in the solar-system besides our own
  - all of the above
  
- ③ It is important to pay attention to the design of scientific experiments.
  - never
  - always
  - sometimes
  - rarely
  
- ④ Knowledge gained through observation, study, or research, especially concerning novel information, is a:
  - insult
  - failure
  - discovery
  - treasure
  
- ⑤ Which of the following is an example of a breakthrough?
  - the creation of polio vaccines
  - the ability to clone animals
  - space travel
  - all of the above



# Reading Comprehension Activity Page



- 6 Local knowledge may help scientists with which of the following?
- Identify where local animals live.
  - Identify areas where contaminants may have been spilled.
  - Identify natural resources that are important to their community.
  - all of the above
- 7 Which of the following is typically harvested as a subsistence food in Southeast Alaska?
- coal
  - gold
  - deer
  - freshwater
- 8 Inconsistent weather patterns are those that:
- can be easily predicted
  - do not have a pattern and are thus difficult to predict
  - dump massive amounts of snow on a landscape
  - none of the above
- 9 Data derived from experiment and observation rather than theory is \_\_\_\_\_.
- actual
  - consequential
  - empirical
  - theoretical

# Reading Comprehension Activity Page

ANSWER KEY



- ① Which of the following is an example of a diplomatic argument?
- Though I understand your theory, the evidence doesn't seem to support it.
  - Your argument has no basis and should not even be considered.
  - We are looking for facts, not undeveloped theories such as yours.
  - Please come back when you have something valuable to say.
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# Reading Comprehension Activity Page



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- 9 Data derived from experiment and observation rather than theory is \_\_\_\_\_.
- actual
  - consequential
  - empirical
  - theoretical

# Reading Comprehension Activity Page

Have the students write the letters for sentence halves that match.



- |  |  |
|--|--|
| ① A diplomatic response is one that is           | ① results are to be considered valid.  |
| ② There is not sufficient evidence to conclude   | ② find the best fishing holes.         |
| ③ The design of an experiment is critical if its | ③ that life exists on other planets.   |
| ④ A novel piece of information obtained through  | ④ through the harsh Alaska winters.    |
| ⑤ Medical breakthroughs have helped people to    | ⑤ an experiment is a discovery.        |
| ⑥ Fishermen may utilize local knowledge to       | ⑥ both sensitive and effective.        |
| ⑦ Subsistence foods were critical to surviving   | ⑦ make predictions difficult.          |
| ⑧ Inconsistent patterns in nature                | ⑧ live longer healthier lives.         |
| ⑨ Data obtained through experiment and           | ⑨ observation is considered empirical. |

1 → \_\_\_\_\_ 2 → \_\_\_\_\_ 3 → \_\_\_\_\_ 4 → \_\_\_\_\_

5 → \_\_\_\_\_ 6 → \_\_\_\_\_ 7 → \_\_\_\_\_ 8 → \_\_\_\_\_

9 → \_\_\_\_\_

# Reading Comprehension Activity Page

## ANSWER KEY



- |  |  |
|--|--|
| ① A diplomatic response is one that is           | ① results are to be considered valid.  |
| ② There is not sufficient evidence to conclude   | ② find the best fishing holes.         |
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1 →     F        2 →     C        3 →     A        4 →     E      
5 →     H        6 →     B        7 →     D        8 →     G      
9 →     I

# Reading Comprehension Activity Page

Have the students cut out the words and glue them under their definitions.



To do or plan with a specific purpose or intention in mind

Statements or conditions that are incompatible or contradictory

A sudden, dramatic, and important discovery or development

Long-standing bodies of knowledge derived from a particular place

Derived from experiment or observation rather than theory

Facts indicating whether a proposition is true or valid

Dealing with people in a sensitive and effective manner

Harvest of plants and animals for food

Novel information gained through observation, study or search

diplomatic      evidence      design      discovery  
breakthrough      local knowledge      subsistence      inconsistent  
empirical



# Reading Comprehension Activity Page

ANSWER KEY



To do or plan with a specific purpose or intention in mind

design

Statements or conditions that are incompatible or contradictory

inconsistent

A sudden, dramatic, and important discovery or development

breakthrough

Long-standing bodies of knowledge derived from a particular place

local knowledge

Derived from experiment or observation rather than theory

empirical

Facts indicating whether a proposition is true or valid

evidence

Dealing with people in a sensitive and effective manner

diplomatic

Harvest of plants and animals for food

subsistence

Novel information gained through observation, study or search

discovery





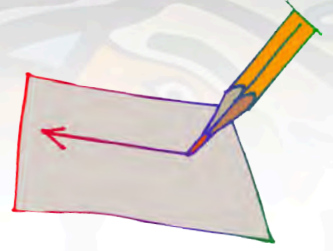


# STUDENT SUPPORT MATERIALS

Basic Writing

# Basic Writing Activity Page

Have the students write in the missing letters.



diplo \_\_\_\_\_ c

evi \_\_\_\_\_ e

d \_\_\_\_\_ gn

dis \_\_\_\_\_ y

brea \_\_\_\_\_ gh

local kn \_\_\_\_\_ ge

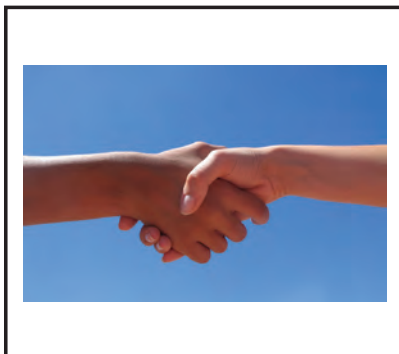
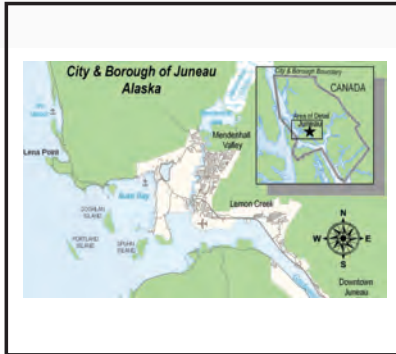
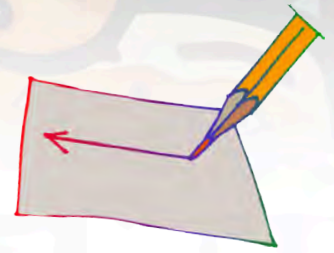
sub \_\_\_\_\_ tence

in \_\_\_\_\_ tent

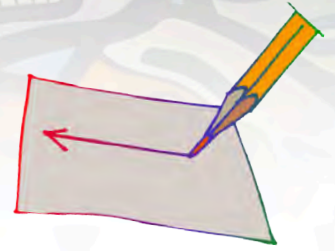
em \_\_\_\_\_ ical

# Basic Writing Activity Page

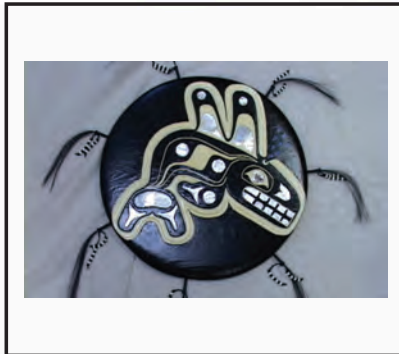
Have the students write the word for each picture.



# Basic Writing Activity Page



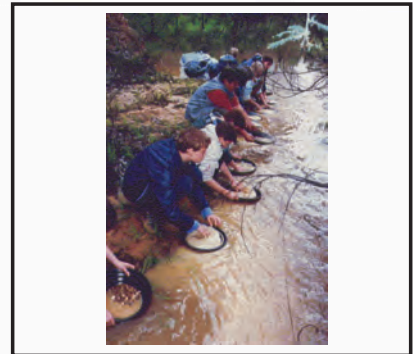
ANSWER KEY



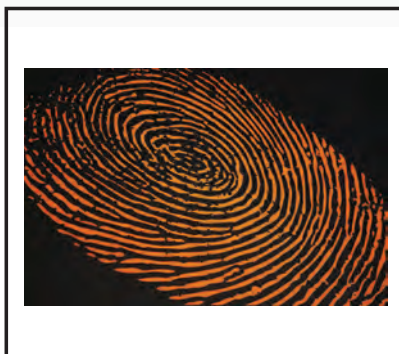
**design**



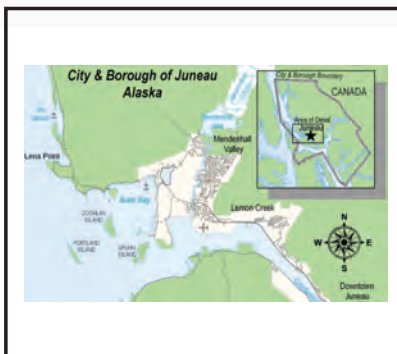
**inconsistent**



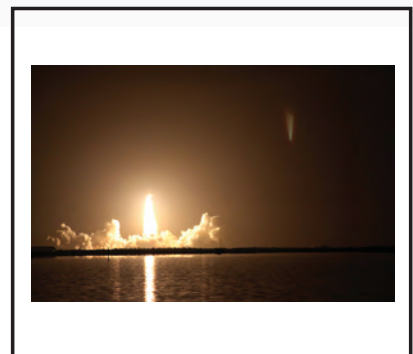
**discovery**



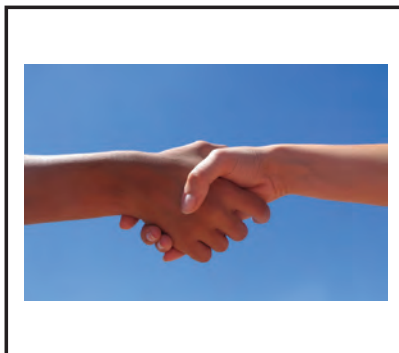
**evidence**



**local knowledge**



**breakthrough**



**diplomatic**



**empirical**



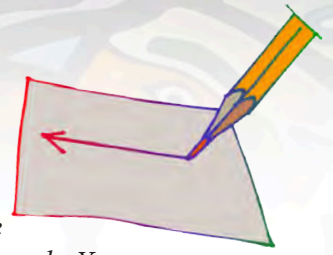
**subsistence**



# STUDENT SUPPORT MATERIALS

Creative Writing

# Creative Writing Activity Page



Have the students write sentences of their own, using the key words from this unit. When the students' sentences are finished, have them take turns reading their sentences orally. The students should say "Blank" for the key words; the other students must name the "missing" words. You may wish to have the students write the "definitions" for the key words.

## DIPLOMATIC

---

## EVIDENCE

---

## DESIGN

---

## DISCOVERY

---

## BREAKTHROUGH

---

## LOCAL KNOWLEDGE

---

## SUBSISTENCE

---

## INCONSISTENT

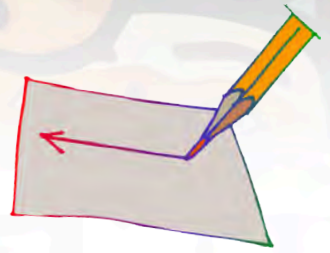
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## EMPIRICAL

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# Creative Writing Activity Page

Have the students write sentences of their own, based on the picture below. When finished, have each student read his/her sentences to the others.



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# UNIT ASSESSMENT

**E-1: Science and Technology**

**F-1: Cultural, Social, Personal Perspectives and Science**

**G-1: History and Nature of Science**





# SCIENCE PROGRAM

Unit Assessment Teacher's Notes  
Grade 8 • Unit 9 (E-1, F-1, G-1)

Science and Technology

Cultural, Social, Personal Perspectives and Science

History and Nature of Science

Date: \_\_\_\_\_



# Unit Assessment

Provide each student with a copy of the students' pages. Read the following instructions aloud. The students should answer the questions on their copies of the assessment.

## BASIC LISTENING

Turn to page 1 in your test. Look at the pictures in the boxes.

1. Write the number 1 by the picture for **DIPLOMATIC**.
2. Write the number 2 by the picture for **EVIDENCE**.
3. Write the number 3 by the picture for **DESIGN**.
4. Write the number 4 by the picture for **DISCOVERY**.
5. Write the number 5 by the picture for **BREAKTHROUGH**.
6. Write the number 6 by the picture for **LOCAL KNOWLEDGE**.
7. Write the number 7 by the picture for **SUBSISTENCE**.
8. Write the number 8 by the picture for **INCONSISTENT**.
9. Write the number 9 by the picture for **EMPIRICAL**.

## LISTENING COMPREHENSION

Turn to page 2 in your test. Listen to the sentences I say. Circle "T" for true and "F" for false sentences."

1. Diplomatic relations between countries is important to avoid conflict and war.
2. There is ample evidence to conclude that intelligent life exists on other planets.
3. The design of an experiment is relatively unimportant.
4. A discovery is typically just the validation of previously known information.
5. Polio vaccines were a medical and scientific breakthrough.
6. Local knowledge is unimportant and should never be pursued or utilized in science.
7. Harvesting plants and animals for food is the definition of subsistence.
8. Inconsistent patterns in nature are easily predictable.
9. Empirical information helps to support and reject scientific theories.



# Unit Assessment

*Provide each student with a copy of the students' pages. Read the following instructions aloud. The students should answer the questions on their copies of the assessment.*

## SIGHT RECOGNITION

Turn to pages 3 and 4 in your test. Look at the pictures in the boxes. Circle the word for each picture.

## DECODING/ENCODING

Turn to pages 5 and 6 in your test. Look at the word parts in the boxes. Circle the other half or part of each word.

## READING COMPREHENSION

Turn to page 7 in your test. Read the sentence part and fill in the bullet for the correct sentence ending.

## BASIC WRITING

Turn to page 8 in your test. Look at the pictures in the boxes. Write the word for each picture.

## CREATIVE WRITING

Turn to page 9 in your test. Write a sentence of your own, using each word.

*Teacher: To get a percentage for this student's assessment, divide the total number of questions correct by the total number of questions, then multiply this answer by 100 to determine the percentage of questions answered correctly.*





# SCIENCE PROGRAM

Unit Assessment Student Pages  
Grade 8 • Unit 9 (E-1, F-1, G-1)

Science and Technology  
Cultural, Social, Personal Perspectives and Science  
History and Nature of Science

Date: \_\_\_\_\_ Student's Name: \_\_\_\_\_

Number Correct: \_\_\_\_\_ Percent Correct: \_\_\_\_\_







1.            **T**        **F**
2.            **T**        **F**
3.            **T**        **F**
4.            **T**        **F**
5.            **T**        **F**
6.            **T**        **F**
7.            **T**        **F**
8.            **T**        **F**
9.            **T**        **F**



diplomatic  
 evidence  
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 discovery  
 breakthrough  
 local knowledge  
 subsistence  
 inconsistent  
 empirical



diplomatic  
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- 1 To be diplomatic is to be \_\_\_\_\_ and \_\_\_\_\_ in dealing with people.
- firm and effective
  - sensitive and ineffective
  - sensitive and effective

- 2 There is currently sufficient evidence to support which of the following statements?
- intelligent life exists on other planets
  - big foot is a real creature that lives in remote areas
  - there is an obesity problem in America

- 3 When is an experiment's design important?
- When there is limited funding to do it properly
  - When the results are unlikely to be positive
  - always

- 4 What type of knowledge is gained from a scientific discovery?
- valuable
  - new
  - old

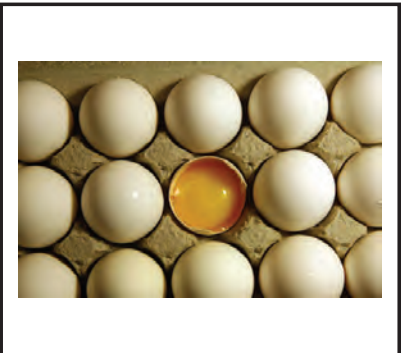
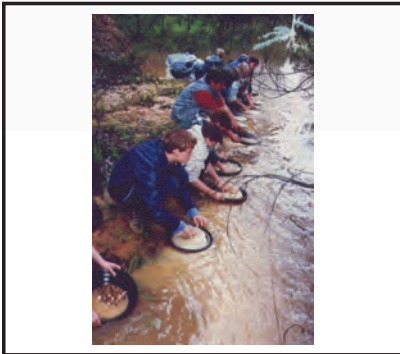
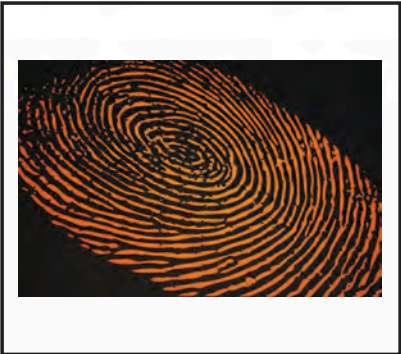
- 5 A discovery that is sudden, dramatic and important is considered a:
- hazard
  - surprise
  - breakthrough

- 6 Local knowledge is derived from members of:
- scientific communities
  - local communities
  - political communities

- 7 Subsistence is the harvest of plants and animals for:
- food
  - pets
  - sale

- 8 Two statements that are incompatible or contradictory are:
- irrelevant
  - consistent
  - inconsistent

- 9 Data used to support or reject theories in science is usually:
- costly
  - empirical
  - theoretical





**DIPLOMATIC**

---

**EVIDENCE**

---

**DESIGN**

---

**DISCOVERY**

---

**BREAKTHROUGH**

---

**LOCAL KNOWLEDGE**

---

**SUBSISTENCE**

---

**INCONSISTENT**

---

**EMPIRICAL**

---





# SCIENCE PROGRAM

Unit Assessment ANSWER KEY  
Grade 8 • Unit 9 (E-1, F-1, G-1)

Science and Technology  
Cultural, Social, Personal Perspectives and Science  
History and Nature of Science



3



6



4



2



9



7



5



8



1



1.       T      F
2.      T       F
3.      T       F
4.      T       F
5.       T      F
6.      T       F
7.       T      F
8.      T       F
9.       T      F



diplomatic  
 evidence  
 design  
 discovery  
 breakthrough  
 local knowledge  
**subsistence**  
 inconsistent  
 empirical



diplomatic  
**evidence**  
 design  
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 breakthrough  
 local knowledge  
 subsistence  
 inconsistent  
 empirical



diplomatic  
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**discovery**  
 breakthrough  
 local knowledge  
 subsistence  
 inconsistent  
 empirical



**diplomatic**  
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 inconsistent  
 empirical



diplomatic  
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**breakthrough**  
 local knowledge  
 subsistence  
 inconsistent  
 empirical



diplomatic  
 evidence  
 design  
 discovery  
 breakthrough  
**local knowledge**  
 subsistence  
 inconsistent  
 empirical



diplomatic  
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**design**  
discovery  
breakthrough  
local knowledge  
subsistence  
inconsistent  
empirical



diplomatic  
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breakthrough  
local knowledge  
subsistence  
inconsistent  
**empirical**



diplomatic  
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breakthrough  
local knowledge  
subsistence  
**inconsistent**  
empirical

diplom

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- adge
- edge
- idge
- odge

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- cil
- col
- cul
- cyl
- sal
- sel
- sol

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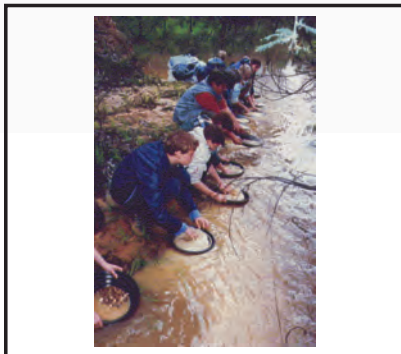
**local knowledge**



**subsistence**



**evidence**



**discovery**



**breakthrough**



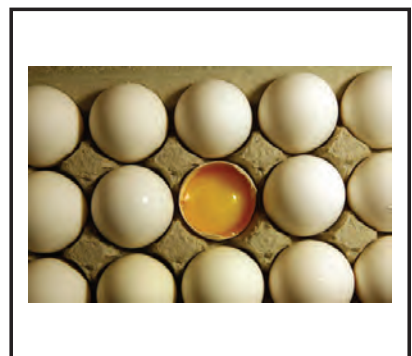
**diplomatic**



**empirical**



**design**



**inconsistent**





# UNIT 10

**CULTURAL PERSPECTIVE:**  
Story of the Frog Crest of the Kiks.ádi of Wrangell





# CULTURAL CONTENT



# STORY OF THE FROG CREST OF THE KIKS.ÁDI OF WRANGELL

*This story was adapted from John R. Swanton's "Tlingit Myths and Texts." Swanton's informant was Chief K'adashaan of the Kaasx'agweidi of Wrangell. The story is owned by the Stikine Kiks.ádi and permission was granted to use it here for educational purposes by the clan's matriarch, Marge Byrd.*

A man belonging to the Stikine Kiks.ádi kicked a frog over on its back, but as soon as he had done so he lay motionless unable to talk, and they carried his body into the house. This happened at Town-of-the-frogs (Xíxch'i Xaayik Aan), so named because there are many frogs nearby.

The reason why this man lost his senses was because the frogs had taken his soul. They had it tied to a house post, and some of them said, "Let him starve right there where he is tied." Others said, "No, don't let him starve there. Feed him and let us see what the chief says." This chief's name was Frightful-face (Yakwlixéitl'shán). When he at last came in his canoe, they said, "Frightful-face has come." Then all went down to his canoe to welcome him, and, when he reached his house, they told him the news. They said, "This man disgraced us terribly. He threw one of our women down and kicked her over." The woman was called Woman-in-the-road (Dei yax sháawu). When the chief looked up, he said, "Untie him and bring him here." Then he said to the man, "We belong to your clan, and it is a shame that you should treat your own people as you have done. We are Kiks.ádi, and it is a Kiks.ádi youth who has done this. You better go to your own village. You have disgraced yourself as well as us, for this woman belongs to your own clan."

As soon as he had left the frogs' house, his body lying at home came to. He had thought all the time that his body also was in the house of the frogs. Then he got up and began to talk. He said, "Something strange has happened to me. The frog people captured me on account of that frog that I kicked over in front of the house the other day. They had tied me to the chief's house-post, and some wanted to kill me at once, while others wanted to starve me, and still others wanted to wait until their chief, Frightful-face, came home. When the latter at length arrived, they said to him, 'We have a man in here who has been throwing down one of our women. We have been waiting for you to see what shall be done with him.' I listened to all they said. Then the frog chief said, 'Untie him,' and all minded him. As soon as he had heard about it, he said, 'See here, young man, what is this you have done? Don't you know that we belong to your clan and that this woman you have done that to is of the same clan. If it were not for that, we would not let you go. As it is you may go.' "

All of the Kiks.ádi were listening to what this man said, and it is because the frog himself said he was a Kiks.ádi that they claim the frog.



# KEY VOCABULARY

# Culturally Responsive & Place-Based Introduction of Science Vocabulary

## CREST

### Place-Based Perspective

Show the students the image of the Kiks.ádi frog crest on page 873. Explain to them that many crests among the Tlingit and Haida were obtained through an event involving that animal. Have the students had any interesting encounters with animals that stick out in their memory? Are they willing to share? What other clan crests do they know about?

### Heritage Cultural Perspective

*In Tlingit, Haida, and Tsimshian cultures, crests help to define one's cultural and self-identity. They were often obtained from an event in the past and the clans themselves own the stories. The crests are often depicted on regalia, totems, house poles, instruments, houses, and other forms of property. The people relate closely to their crests and sometimes even consider themselves one in the same with them.*

## FROG

### Place-Based Perspective

Explain the life cycle of the frog by drawing images of each stage on the board: egg, tadpole, metamorph, and adult. Ask the students how many of these stages they have seen. Where were they seen? How did they know it was a frog? Have the students draw the frog that they saw and its habitat on a piece of paper.

### Heritage Cultural Perspective

*Frogs are very important to the Native peoples of Alaska. Several clans claim the frog as their crest and most have or know stories related to these animals. Frogs are believed to have been in Alaska for thousands of years. They can survive frigid temperatures and freeze most of their bodies in the winter. They also provide an ample food source for many animals and help to control insects!*

## MOTIONLESS

### Place-Based Perspective

Ask the students if they have ever heard of a flash mob. Choose a simple and well known song and have one word be the signal for freezing. When that word is sung, everyone is to be "motionless." Why might an animal benefit from being motionless? Explain that being still can help to hide from predators OR help to hide from one's prey!

### Heritage Cultural Perspective

*Alaska Native peoples were quite good at remaining motionless when it was necessary. This was an important skill in hunting when you did not want to be seen by the animals that you were seeking. It is also important if you are being stalked by a predator or an enemy!*



# Culturally Responsive & Place-Based Introduction of Science Vocabulary

## STARVATION

### Place-Based Perspective

Ask the students in the classroom how many of them have felt extremely hungry at some point in their lives. Did they use the phrase “I am starving?” Explain that this term is often misused as hunger is not necessarily the same as a prolonged lack of essential nutrients — starvation. Many species including humans sometimes have trouble finding ample food. Diseases that prevent digestion can also cause starvation.

### Heritage Cultural Perspective

*Southeast Alaska is known for abundant food resources, even in winter, and so starvation of humans was generally not an extreme danger in the region. In other parts of Alaska though, wildlife and plant life can be extremely scarce for a large part of the year. A poor harvest often meant that people would not make it through the winter. Other animals too can struggle with finding enough food to survive.*

## DISGRACE

### Place-Based Perspective

Ask the students what types of things would cause them to feel disgraced and make a list of these on the board. Now ask each student which of these would cause the most disgrace and put a tally mark next to those that are said. Explain that disgrace is a very personal emotion and that most of us try to avoid actions that would lead to this.

### Heritage Cultural Perspective

*Personal integrity was and continues to be an important part of Tlingit culture. The actions of an individual can cause disgrace upon his or herself as well as with family and friends. It was traditionally the role of maternal uncles to teach integrity and honor. Sometimes uncles would even take responsibility for the actions 10.271*

## SHAME

### Place-Based Perspective

Explain to the students that shame and disgrace are synonyms. Shame can be brought on by a variety of actions including those of individuals, groups and even nations. In order to avoid shame, people and nations should consider alternative actions to various situations. Ask the students to brainstorm antonyms for shame, words that describe a feeling of accomplishment, honor or respect.

### Heritage Cultural Perspective

*Shame can be experienced not just by individuals but also but entire groups. Many people of European descent, for example, feel shame for the actions of their forefathers against the Native peoples of North America. While the feeling is negative, knowledge of its origins can lead to improved awareness and sensitivity. It can help us to avoid the atrocities of the past.*

# Culturally Responsive & Place-Based Introduction of Science Vocabulary

## CAPTURE

### Place-Based Perspective

Explain to the students that to capture something is to take control of it, often by force. What types of things have they captured in their lives? Explain that capturing something doesn't always have to have a negative connotation; it can be positive to take control of many things! What would the students like to capture in the future?

### Heritage Cultural Perspective

*The Tlingit know that there are many different ways to capture a fish. You can use hooks, nets, traps, weirs, spears, and sometimes, even your bare hands! Capturing things does not only have to be useful, it can be fun too! Children often enjoy capturing insects and other small animals to observe them up close. How many of the students have gone tide-pooling?*

## MIND

### Place-Based Perspective

Show the students the picture of a mother shaking her finger on page 887. Ask the students what the mother might be saying and make a list of these on the board. Then ask the students what the outcome would be if the child minded the mother. What if he or she didn't? Why are parents and elders worthy of being minded?

### Heritage Cultural Perspective

*Minding ones Elders is an important part of all Alaska Native cultures. Elders have lived for a long time and have experiences and knowledge that are vast and important. Native peoples teach that Elders are to be respected and admired for this wisdom. We are to listen closely to what they have to say and to heed their advice in our lives.*

## CLAIM

### Place-Based Perspective

Place pieces of candy in different places around the room without the students knowing. Tell the students about the candy and that when you say "go" they are to claim as many of the pieces that they can without running. Explain that man has laid claim to many resources throughout history. Sometimes this leads to conflict, especially since some resources are limited. Did everyone get candy? What if the stakes were higher, such as land, fisheries, and forests?

### Heritage Cultural Perspective

*The Tlingit and Haida peoples of Southeast Alaska have long claimed the region as their home. This legitimate claim has not always been recognized by foreign powers that have sought to claim Alaska's resources as their own. While it did not restore all of the land to Alaska Native peoples, the Alaska Native Claims Settlement Act (ANCSA) was instrumental in returning some land to its rightful owners.*



# LESSONS

# Science Language for Success

*Introduce the key science vocabulary, using concrete materials and/or pictures.*

## LISTENING

*Use the Mini Pictures activity page from the Student Support Materials. Have the students cut out the pictures. Say the key words and the students show the pictures.*



### Whisper

Mount the vocabulary pictures on the board. Group the students into two teams. Whisper a vocabulary word to the first player in each team. When you say “Go,” the first player in each team must then whisper the same word to the next player in his/her team. The players should continue whispering the vocabulary word in this way until the last player in a team hears the word. When the last player in a team hears the word, he/she must rush to the board and point to the picture for the word. The first player to do this correctly wins the round. Repeat until all players have had an opportunity to identify a vocabulary picture. When a player has identified a vocabulary picture, he/she should rejoin the front of his/her team.

### The Story

Read or tell the story “Story of the Frog Crest of the Kiks.ádi of Wrangell” on page 766 to the students. You may wish to cut out props from construction paper to enhance the story’s contents.

### Student Support Materials

Have the students work on the activity pages from the Student Support Materials from this unit. Afterward, review their work.

## SPEAKING



### Sheet Golf

Before the activity begins, obtain an old sheet. Cut a hole (approximately two inches in diameter) in each end of the sheet. Group the students into two teams. Have the first player from each team hold opposite ends of the sheet. Place a marble or small ball in the center of the sheet. When you say “Go,” the players must then lift their ends of the sheet and attempt to cause the marble or ball to fall through the hole in the other player’s side of the sheet. When the ball or marble falls through one of the holes, the player on that side of the sheet must say the name of a vocabulary picture you show or he/she should repeat a sentence you said at the beginning of the round. Repeat with other pairs of students until all students have participated. If the sheet is large enough, all students can play—divide the students into four groups (one group for each side). Cut a hole in the sheet near each side. When the marble or ball falls through, all the players on that side must say the name of a vocabulary picture that you show. Repeat.

# Science Language for Success

## SPEAKING (CONTINUED)



### Picture Jigsaw

Cut each of the vocabulary pictures into four pieces. Mix the cut out pieces together and distribute them to the students (a student may have more than one picture section). When you say “Go,” the students should attempt to match the jigsaw sections they have to reproduce the original vocabulary pictures. When the students put the necessary pieces of a picture together, they should identify the picture by its vocabulary word. Continue until all vocabulary pictures have been put together and named in this way.

### The Story

Have the students say sentences related to the story “Story of the Frog Crest of the Kiks.ádi of Wrangell” on page 766 . You may wish to write the students’ sentences on strips of paper or on chart paper. Later, have individuals tell the story, in their own words.

## READING

*Introduce the science sight words to the students—match the sight words with the vocabulary pictures. The sight words are included in the Student Support Materials, attached to these lesson plans.*



*Note: After each unit, mount a set of the unit’s words on the walls around the room. Use the “word walls” for review and reinforcement activities.*

### Balloon Volleyball

Group the students into two teams. The two teams should stand, facing one another. Toss a round, inflated balloon to the members of Team One. The members of Team One must then bounce the balloon to the members of Team Two. The players should continue to bounce the balloon back and forth in this way until a team loses the balloon. You may wish to establish the rule that players may not move their feet during the activity. When a team loses the balloon, show them a vocabulary picture and all team members in that team must say the vocabulary word for it. Repeat until players in both teams have responded a number of times.

### The Story

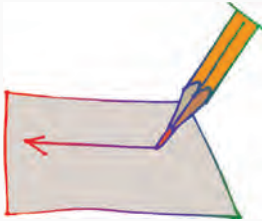
Give each student a copy of the story “Story of the Frog Crest of the Kiks.ádi of Wrangell” on page 766 . Have the students read the story silently. Then, they should take turns reading portions of the story orally. Afterward, ask questions related to the story’s contents; the students must read to find the answers to the questions.

### Student Support Materials

Have the students complete the sight recognition and encoding activities in the Student Support Materials. When finished, review their work.

# Science Language for Success

## WRITING



### Word Completion

Before the activity begins, prepare clozure cards for the sight words; omit letters and syllables. Provide each student with a clozure card. Call upon the students to complete their words on the clozure cards by writing in the missing parts. Afterward, review the students' responses.

### Every Second Letter

Write a sight word on the board, omitting every second letter. Provide the students with writing paper and pens. The students should look at the incomplete word on the board and then write the sight word for it on their papers. Repeat using other sight words.

This activity may also be done in team form. In this case, have the incomplete words prepared on separate flash cards. Mount one of the cards on the board. When you say "Go," the first player from each team must rush to the board and write the sight word for it—adding all of the missing letters. Repeat until all players have participated.

### The Story

Make a version of the story that has the key words missing. Give a copy of the story to each student. The students should then write in the missing words. Later, review their work.

### Student Support Materials

Have the students work on the activity pages from the Student Support Materials from this unit. Afterward, review their work.



# VOCABULARY PICTURES









# CREST





# FROG





# MOTIONLESS





# STARVATION







## DISGRACE





# SHAME





## CAPTURE





# MIND





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# CLAIM

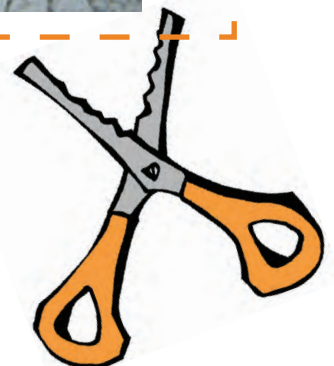
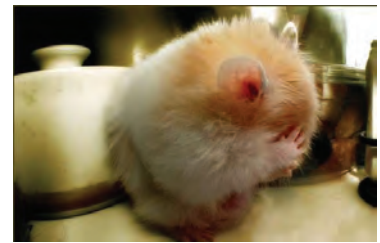


# STUDENT SUPPORT MATERIALS

Listening • Mini Pictures

# Listening: Mini Pictures

Prepare a copy of these pages for each student. The students should cut out the pictures and lay them on the floor or desk. Say the key words and the students should show you the pictures. Repeat a number of times. This activity can also be done with pairs of students to determine who is the fastest player.





# STUDENT SUPPORT MATERIALS

Listening Comprehension

# Listening Comprehension



Read the following sentences to the students. The students should circle “true” or “false” for each of the sentences. Review the students’ work.

- 1 Crests are important parts of Tlingit, Haida and Tsimshian culture. True  
False
- 2 Several species of frogs occur in Southeast Alaska. True  
False
- 3 Someone who is lying motionless appears hyperactive. True  
False
- 4 Animals with lots of food are very likely to starve. True  
False
- 5 There is shame in doing well on school exams. True  
False
- 6 Birds often capture insects to eat. True  
False
- 7 A person may feel disgrace after making fun of another in public. True  
False
- 8 Children ALWAYS mind their parents. True  
False
- 9 People have been laying claim to land for much of human history. True  
False

# Listening Comprehension: Answer Key

Read the following sentences to the students. The students should circle "true" or "false" for each of the sentences. Review the students' work.

- 1 Crests are important parts of Tlingit, Haida and Tsimshian culture. True  
False
- 2 Several species of frogs occur in Southeast Alaska. True  
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- 8 Children ALWAYS mind their parents. True  
False
- 9 People have been laying claim to land for much of human history. True  
False







# STUDENT SUPPORT MATERIALS

Sight Words



**crest**

**frog**

**motionless**





**starve**

**shame**

**capture**



**disgrace**

**mind**

**claim**



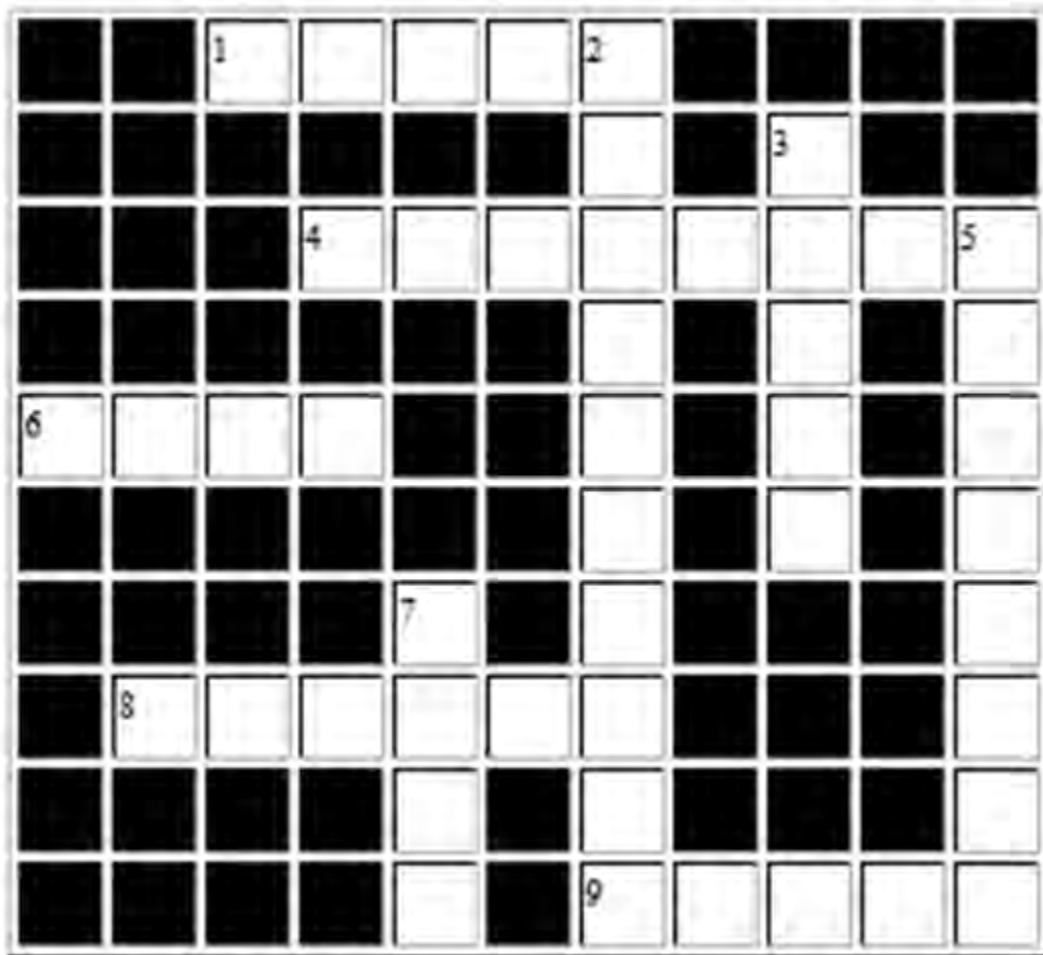
# STUDENT SUPPORT MATERIALS

Basic Reading • Sight Recognition

# Sight Words Activity Page



Have the students complete the cross word puzzle below. A blank box is present for any space between word phrase.



## Across

1. a right or title to something
4. take into one's possession or control by force
6. regard as important and worthy of attention
8. extreme hunger resulting from lack of essential nutrients over a prolonged period.
9. a person, action, or situation that brings a loss of respect or honor

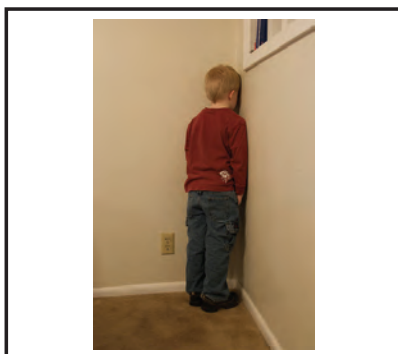
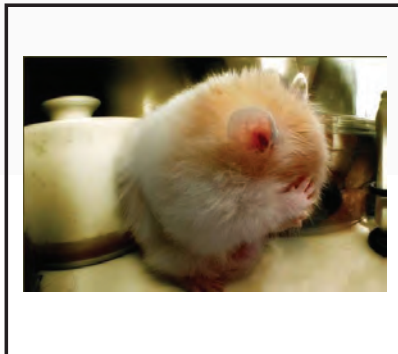
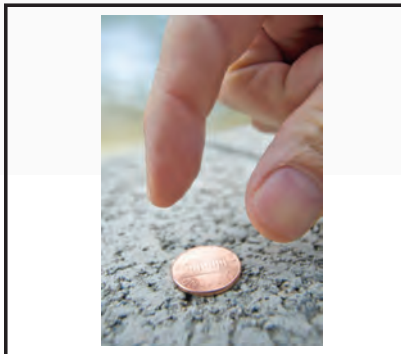
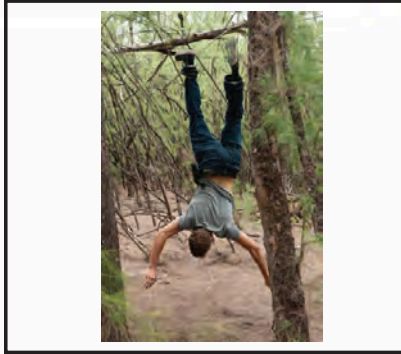
## Down

2. at rest; stationary; immobile; not moving
3. take into one's possession or control by force
5. loss of reputation or respect especially as the result of a dishonorable action
7. amphibians characterized by a short body, webbed digits, protruding eyes and the absence of a tail.



# Sight Words Activity Page

Have the students cut out the key words and glue them at the bottom of their pictures.



crest	frog	motionless	starve
shame	capture	disgrace	mind
claim			











# STUDENT SUPPORT MATERIALS

Basic Reading • Encoding

# Encoding Activity Page

Have the students cut out and encode the syllables of the words, OR number the syllables in their correct sequence.



crest

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frog

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less || tion || mo

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# Encoding Activity Page

Have the students cut out and encode the syllables of the words, OR number the syllables in their correct sequence.



**starve**

---

**shame**

---

**ture**   **cap**

---



# Encoding Activity Page

Have the students cut out and encode the syllables of the words, OR number the syllables in their correct sequence.



grace dis

---

mind

---

claim

---



# Encoding Activity Page

Have the students cut out the word halves and glue them together to create the key words for this unit.



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# Encoding Activity Page

Have the students cut out the word halves and glue them together to create the key words for this unit.



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# STUDENT SUPPORT MATERIALS

Reading Comprehension

# Reading Comprehension Activity Page

Have the students read the text and then select the correct answer for it. They should fill in the appropriate bullet beside the answer of their choice.



- ① Which of the following is a crest used by the Kiks.ádi?
  - frog
  - salamander
  - moose
  - polar bear
  
- ② Which of the following does NOT characterize most frogs?
  - short body
  - long hind legs
  - black hair
  - webbed feet
  
- ③ Which of the following are typically motionless?
  - insects
  - salmon
  - bears
  - rocks
  
- ④ An animal that is starving has a lack of:
  - shelter
  - food
  - water
  - space
  
- ⑤ Shame is the loss of:
  - knowledge
  - car keys
  - money
  - respect

# Reading Comprehension Activity Page



- 6 To capture is to take into one's possession by \_\_\_\_\_ or \_\_\_\_\_.
- control, force
  - asking, trading
  - sleeping, resting
  - screaming, pouting
- 7 Disgrace is often brought on a person or family because of:
- an honorable act
  - a charitable act
  - a dishonorable act
  - a successful act
- 8 A child who minds his parents:
- forgets the chores
  - does not attend school
  - disobeys them
  - obeys them
- 9 A claim is a \_\_\_\_\_ or a \_\_\_\_\_ to something.
- discard, trash
  - wish, want
  - right, title
  - smell, fragrance

# Reading Comprehension Activity Page

ANSWER KEY



- ① Which of the following is a crest used by the Kiks.ádi?
- frog
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# Reading Comprehension Activity Page



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- discard, trash
  - wish, want
  - right, title
  - smell, fragrance

# Reading Comprehension Activity Page

Have the students write the letters for sentence halves that match.



- |   |  |
|---|--|
| ① The Kiks.ádi clan of the Tlingit            | ① very still, almost motionless.           |
| ② There are at least three species            | ② vacation now and again.                  |
| ③ On a calm day, the boats on the lake appear | ③ of frogs that occur in Southeast Alaska. |
| ④ Not having enough food can cause            | ④ their child stole candy from the store.  |
| ⑤ There is no shame in taking a               | ⑤ natural resources of Alaska.             |
| ⑥ Russia was eager to capture the             | ⑥ elders.                                  |
| ⑦ The family was disgraced when               | ⑦ fishing locations.                       |
| ⑧ We are taught to mind our                   | ⑧ bears the frog as their crest.           |
| ⑨ Tlingit clans often laid claim to prime     | ⑨ an animal to starve.                     |

1 → \_\_\_\_\_ 2 → \_\_\_\_\_ 3 → \_\_\_\_\_ 4 → \_\_\_\_\_  
5 → \_\_\_\_\_ 6 → \_\_\_\_\_ 7 → \_\_\_\_\_ 8 → \_\_\_\_\_  
9 → \_\_\_\_\_

# Reading Comprehension Activity Page

## ANSWER KEY



- |   |  |
|---|--|
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1→   H      2→   C      3→   A      4→   I    
5→   B      6→   E      7→   D      8→   F    
9→   G

# Reading Comprehension Activity Page

Have the students cut out the words and glue them under their definitions.



**At rest, stationary,  
immobile, not  
moving**

**Amphibians with  
short bodies, webbed  
digits, protruding  
eyes and no tail (as  
adults)**

**An emblem that  
designates a kin  
group**

**State of extreme  
hunger resulting  
from lack of essential  
nutrients over a  
prolonged period**

**A right or title to  
something**

**Loss of reputation  
or respect due to  
dishonorable action**

**Regard as important  
and worthy of  
attention**

**A person, action, or  
situation that brings  
a loss of respect or  
honor**

**To take into  
possession or control  
by force**

crest      frog      motionless      starve  
shame      capture      disgrace      mind  
claim





# Reading Comprehension Activity Page

ANSWER KEY



**At rest, stationary,  
immobile, not  
moving**

motionless

**Amphibians with short  
bodies, webbed digits,  
protruding eyes and no  
tail (as adults)**

frog

**An emblem that  
designates a kin  
group**

crest

**State of extreme hunger  
resulting from lack of  
essential nutrients over a  
prolonged period**

starve

**A right or title to  
something**

claim

**Loss of reputation  
or respect due to  
dishonorable action**

shame

**Regard as important  
and worthy of  
attention**

mind

**A person, action, or  
situation that brings  
a loss of respect or  
honor**

disgrace

**To take into  
possession or control  
by force**

capture



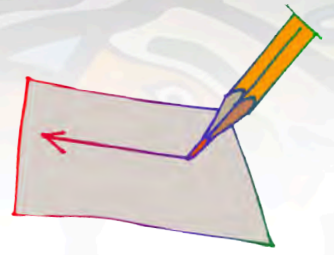


# STUDENT SUPPORT MATERIALS

Basic Writing

# Basic Writing Activity Page

Have the students write in the missing letters.



cr \_\_\_\_\_ t

fr \_\_\_\_\_

m \_\_\_\_\_ less

st \_\_\_\_\_ e

sh \_\_\_\_\_ e

cap \_\_\_\_\_

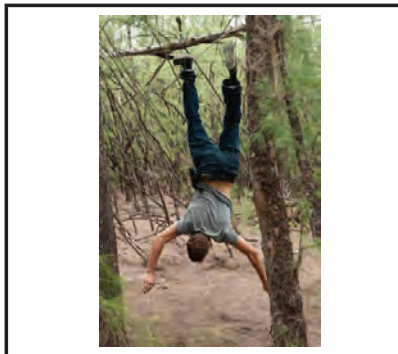
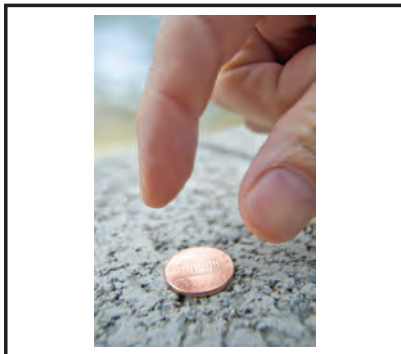
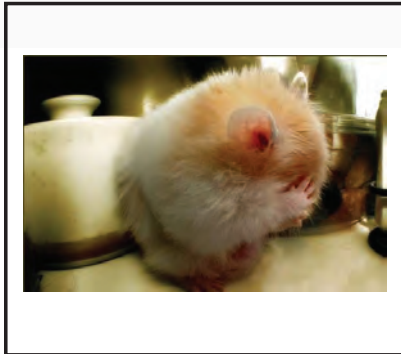
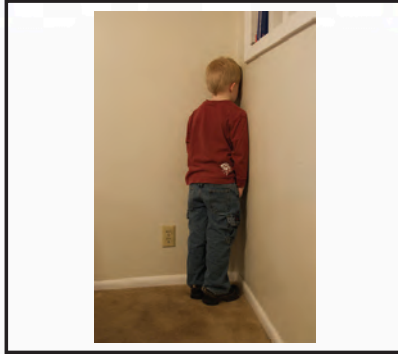
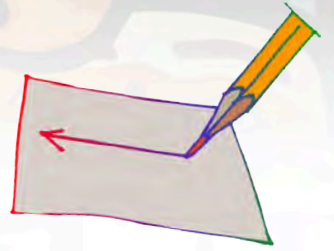
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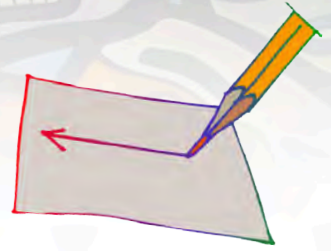
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# Basic Writing Activity Page

Have the students write the word for each picture.



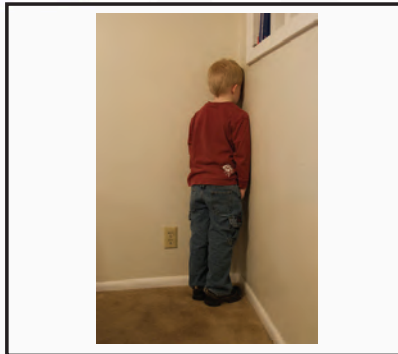
# Basic Writing Activity Page



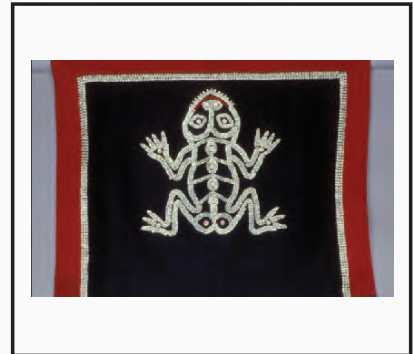
ANSWER KEY



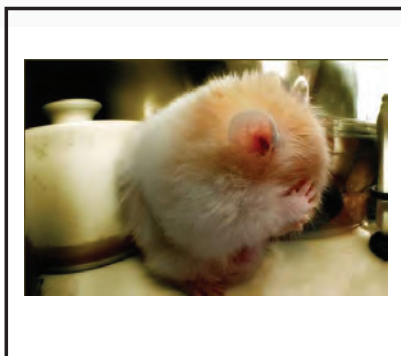
**mind**



**disgrace**



**crest**



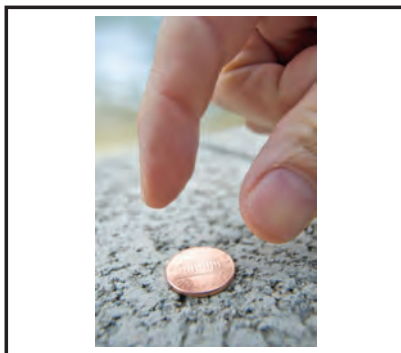
**shame**



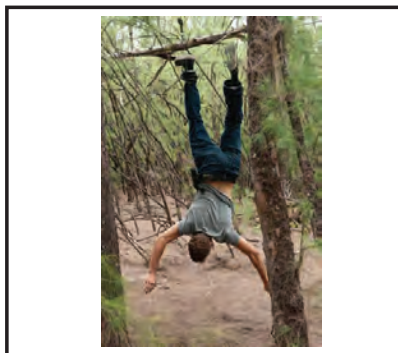
**starve**



**frog**



**claim**



**capture**



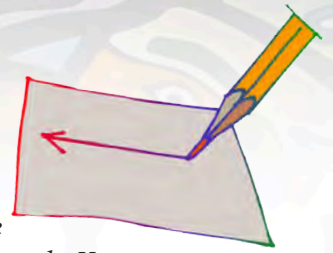
**motionless**



# STUDENT SUPPORT MATERIALS

Creative Writing

# Creative Writing Activity Page



Have the students write sentences of their own, using the key words from this unit. When the students' sentences are finished, have them take turns reading their sentences orally. The students should say "Blank" for the key words; the other students must name the "missing" words. You may wish to have the students write the "definitions" for the key words.

**CREST**

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**FROG**

---

**MOTIONLESS**

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**STARVE**

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**SHAME**

---

**CAPTURE**

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**DISGRACE**

---

**MIND**

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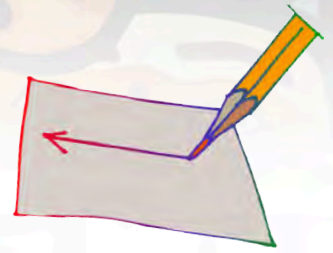
**CLAIM**

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# Creative Writing Activity Page

Have the students write sentences of their own, based on the picture below. When finished, have each student read his/her sentences to the others.



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# UNIT ASSESSMENT

**CULTURAL PERSPECTIVE:**  
Story of the Frog Crest of the Kiks.ádi of Wrangell





# SCIENCE PROGRAM

Unit Assessment Teacher's Notes

Grade 8 • Unit 10

CULTURAL PERSPECTIVE:

Story of the Frog Crest of the Kiks.ádi of Wrangell

Date: \_\_\_\_\_



# Unit Assessment

Provide each student with a copy of the students' pages. Read the following instructions aloud. The students should answer the questions on their copies of the assessment.

## BASIC LISTENING

Turn to page 1 in your test. Look at the pictures in the boxes.

1. Write the number 1 by the picture for **CREST**.
2. Write the number 2 by the picture for **FROG**.
3. Write the number 3 by the picture for **MOTIONLESS**.
4. Write the number 4 by the picture for **STARVE**.
5. Write the number 5 by the picture for **SHAME**.
6. Write the number 6 by the picture for **CAPTURE**.
7. Write the number 7 by the picture for **DISGRACE**.
8. Write the number 8 by the picture for **MIND**.
9. Write the number 9 by the picture for **CLAIM**.

## LISTENING COMPREHENSION

Turn to page 2 in your test. Listen to the sentences I say. Circle "T" for true and "F" for false sentences."

1. A clan crest refers to the top of a particular mountain.
2. Frogs are mammals with long hair and hooves.
3. The earth is stagnant and motionless, never moving.
4. A prolonged period without essential nutrients can cause an animal to starve.
5. There is shame in brushing one's teeth daily.
6. Some children like to capture insects in the summertime.
7. People sometimes disgrace their families by breaking the law.
8. There is no need to mind our elders.
9. Various groups have laid claim to land and resources in Alaska.



# Unit Assessment

*Provide each student with a copy of the students' pages. Read the following instructions aloud. The students should answer the questions on their copies of the assessment.*

## SIGHT RECOGNITION

Turn to pages 3 and 4 in your test. Look at the pictures in the boxes. Circle the word for each picture.

## DECODING/ENCODING

Turn to pages 5 and 6 in your test. Look at the word parts in the boxes. Circle the other half or part of each word.

## READING COMPREHENSION

Turn to page 7 in your test. Read the sentence part and fill in the bullet for the correct sentence ending.

## BASIC WRITING

Turn to page 8 in your test. Look at the pictures in the boxes. Write the word for each picture.

## CREATIVE WRITING

Turn to page 9 in your test. Write a sentence of your own, using each word.

*Teacher: To get a percentage for this student's assessment, divide the total number of questions correct by the total number of questions, then multiply this answer by 100 to determine the percentage of questions answered correctly.*







# SCIENCE PROGRAM

Unit Assessment Student Pages

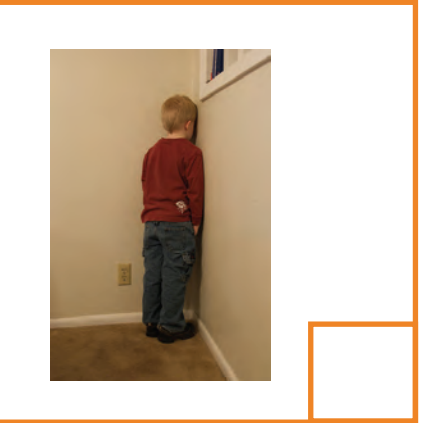
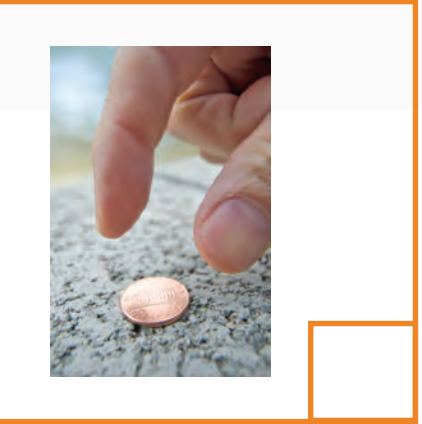
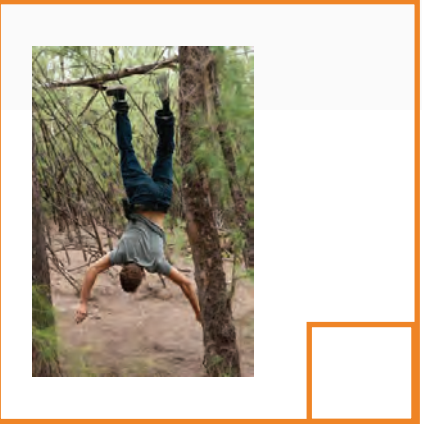
Grade 8 • Unit 10

CULTURAL PERSPECTIVE:

Story of the Frog Crest of the Kiks.ádi of Wrangell

Date: \_\_\_\_\_ Student's Name: \_\_\_\_\_

Number Correct: \_\_\_\_\_ Percent Correct: \_\_\_\_\_





1. T F

2. T F

3. T F

4. T F

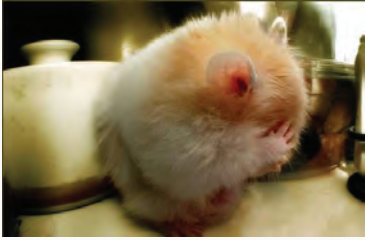
5. T F

6. T F

7. T F

8. T F

9. T F



crest  
frog  
motionless  
starve  
shame  
capture  
disgrace  
mind  
claim



crest  
frog  
motionless  
starve  
shame  
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crest  
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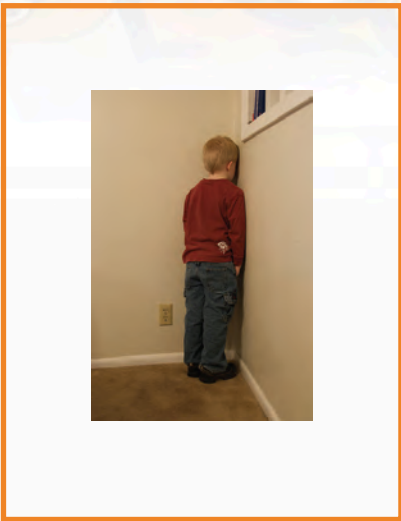
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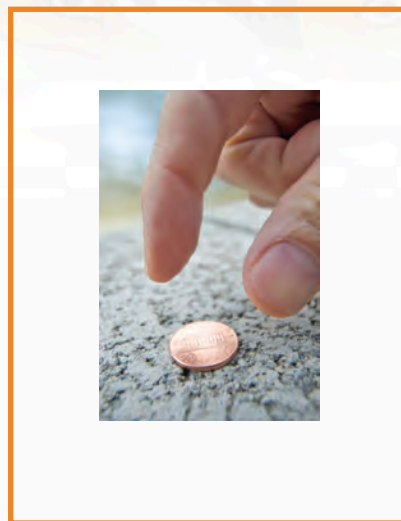
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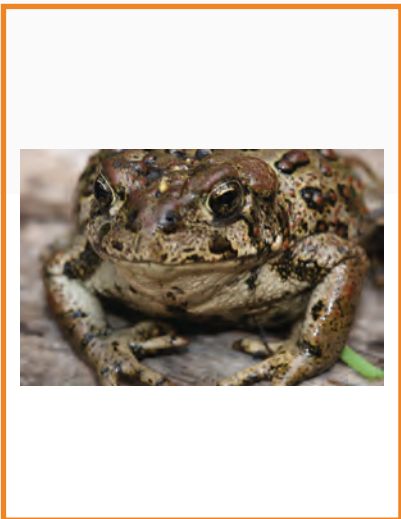
crest  
frog  
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1 Tlingit and Haida clan crests are typically:

- rocks
- rivers
- animals

2 A frog is an:

- amphibian
- mammal
- reptile

3 To remain motionless is to be:

- sad
- still
- active

4 An animal that is starving is lacking essential:

- shelter
- nutrients
- water

5 Shame may be felt if one:

- provides food for his/her family
- does well on an exam
- robs a convenience store

6 It is possible to capture which of the following?

- time
- stars
- insects

7 A disgraced individual may have lost:

- respect
- teeth
- keys

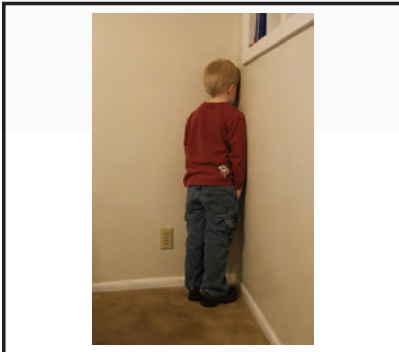
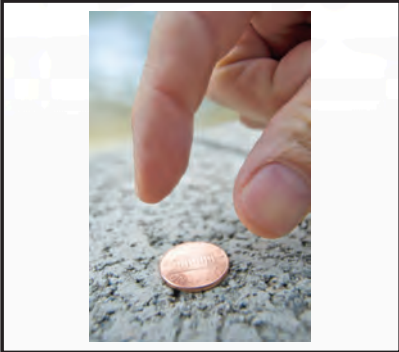
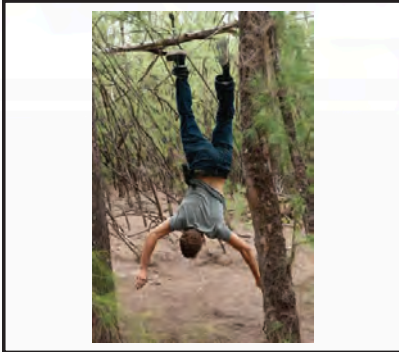
8 If one minds his/her elders, he/she:

- leaves them
- ignores them
- pays attention to them

9 Which of the following have people NOT laid claim to in Alaska?

- land
- flamingos
- natural resources







**CREST**

---

**FROG**

---

**MOTIONLESS**

---

**STARVE**

---

**SHAME**

---

**CAPTURE**

---

**DISGRACE**

---

**MIND**

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**CLAIM**

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# SCIENCE PROGRAM

Unit Assessment ANSWER KEY  
Grade 8 • Unit 10

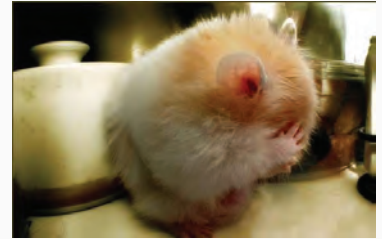
CULTURAL PERSPECTIVE:  
Story of the Frog Crest of the Kiks.ádi of Wrangell



1



8



5



6



2



9



4



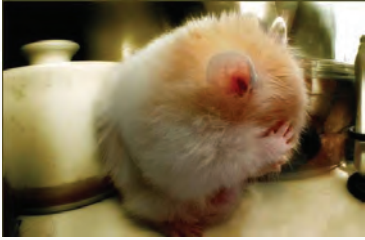
3



7



1. T  F
2. T  F
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4.  T F
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6.  T F
7.  T F
8. T  F
9.  T F



crest  
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starve  
**shame**  
capture  
disgrace  
mind  
claim



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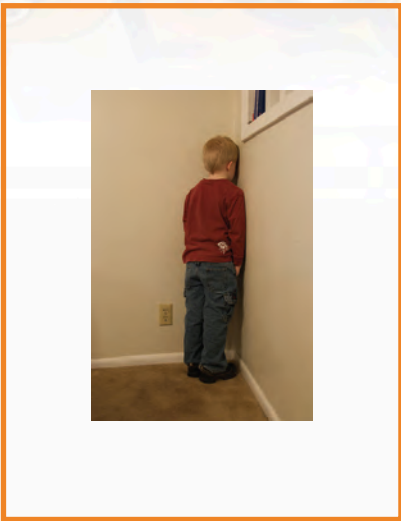
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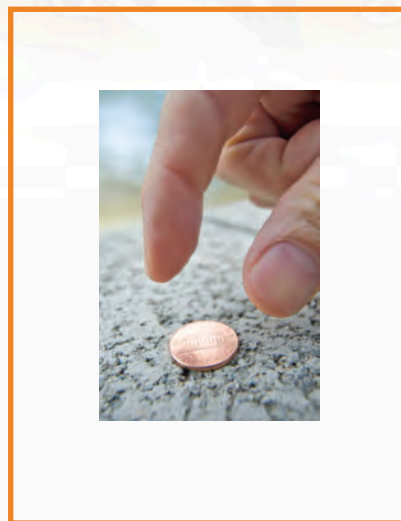
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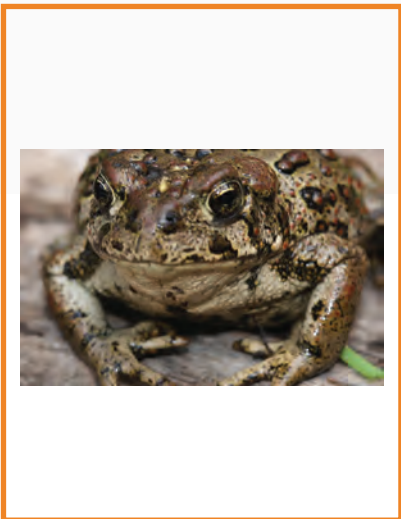
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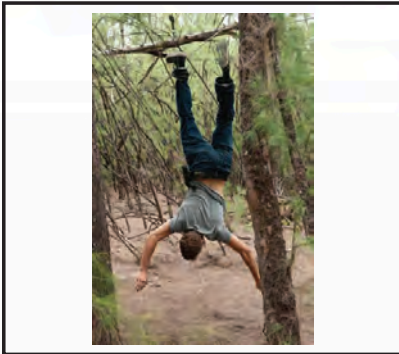
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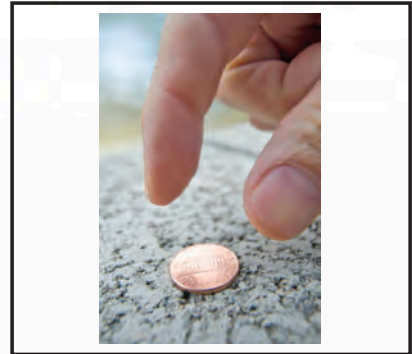
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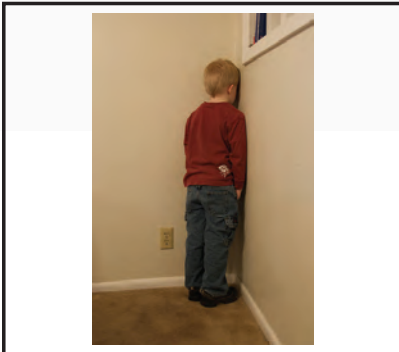
**capture**



**crest**



**claim**



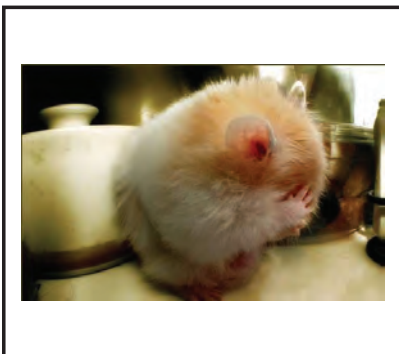
**disgrace**



**mind**



**starve**



**shame**



**motionless**



**frog**

