UNIT 4

B-1: Concepts of Physical Science

KEY VOCABULARY

Culturally Responsive & Place-Based Introduction of Science Vocabulary

STATE CHANGE

Place-Based Perspective

Put an ice cube on a napkin in front of each student. Allow the ice cubes a minute or two to begin to melt. Ask the students what is happening (most will probably say that it is melting). Explain that it is undergoing a state change. Water is water no matter its state (ice, liquid, steam). A state change occurs when a substance changes its "state" but remains the same substance. Ask the students to identify another example of a state change.

Heritage Cultural Perspective

Alaska Native peoples in Southeast were constantly aware of state changes, especially for water. Throughout Southeast Alaska, water can be found in many forms: glaciers, lake and river ice, rain, snow, fog, mist, hail, etc. Though it took different forms, the indigenous people knew that ultimately, water was water — an ever present and ever changing component of the temperate rainforest.

PARTICLE SPEED

Place-Based Perspective

Show the students the picture of the Large Hadron Collider on page 301. Ask how many of them have heard of it. Do they know what it does? Explain that it collides atomic particles at very high speeds to answer complex questions about physics. Tell them that particles travel at different speeds depending on the conditions. Particles in solids travel at much slower speeds than those in gases!

Heritage Cultural Perspective

The idea of atomic structures and the velocity at which they move is relatively new. Though atomic and subatomic particle speeds were not traditionally known to Alaska's indigenous peoples, particle speed is also defined as a measure of ground vibration during seismic activity. Native peoples definitely recognized earthquakes and experienced them from time to time throughout Alaska.

HEAT TRANSFER

Place-Based Perspective

Tell the students to cup their hands over their mouth and to blow on them. Ask them how their breath felt, warm? Explain that the breath was warmer than the skin on their hands and that the heat was being transferred. Tell the students that this happens all of the time in nature, as heat passes from one object to another. What are some other common examples of heat transfer?

Heritage Cultural Perspective

Body heat is extremely important to maintain in the harsh climactic conditions of the North. Tlingit, Haida, and Tsimshian peoples had to take great care when navigating through the frigid ocean waters of the region as it would not take long for hypothermia to set in after becoming wet. When someone enters cold water, heat transfer occurs from the body to the surrounding liquid.

Culturally Responsive & Place-Based Introduction of Science Vocabulary

BONDS

Place-Based Perspective

Show the students a very hard object, such as a metal pipe, and try to pull it apart at the ends. No matter how hard you try, you are unable to. Ask the students why it may be so difficult to pull apart. Explain that the molecules that make up the object are bound tightly together by strong chemical bonds that resist being pulled apart. Ask them to list some items with weaker bonds.

Heritage Cultural Perspective

Bonds are a force of attraction but the term does not always have to be applied to chemical properties. Human beings establish bonds between each other and these are especially strong among family members. The Tlingit, Haida, and Tsimshian peoples maintained strong bonds with their immediate and extended families. The bonds between people are central to culture, self-identity, survival, and peace.

MOLECULES

Place-Based Perspective

Show the students the picture of a molecule on page 307. Though they can see this representation of the molecule on the paper, ask them how small they think the molecule actually is. Explain that these are the smallest fundamental units of chemical compounds and they are made up of atoms that are bound together. See who can draw the best molecule on the board!

Heritage Cultural Perspective

Individual molecules could not be perceived by the human eye before the invention of high-powered microscopes. Many molecules make up the objects that we see and use in the world around us. From red cedar canoes to shaman rattles to clan houses and oil lamps, the molecular make-up of our world is critical to their existence!

ARRAYS

Place-Based Perspective

Write two sets of numbers on the board:

3 5 9 12 16 90 114

114 9 12 16 5 90 3

Ask the students which set appears to be the most orderly. Explain that the first set is listed in order of magnitude and that this is called an array.

Heritage Cultural Perspective

An array can also mean an impressive display or range of a particular object. The Native people of Alaska were constantly in the presence of magnificent arrays in the natural world. Mountain ranges, lakes and rivers, spawning salmon, vast open ocean, pods of whales, massive herds of caribou. People are still mesmerized by the great beauty of Alaska!

Culturally Responsive & Place-Based Introduction of Science Vocabulary

CIRCULAR MOTION

Place-Based Perspective

Show the students an analog clock. Though the hands move very slowly, ask them to describe their movement. What other objects move in this way? Explain that this is circular motion — rotation along a circle. What objects in nature tend to move in a circular motion? Is it important that they do?

Heritage Cultural Perspective

Celestial bodies such as the sun and the moon exhibit circular motion as they move across the sky each day and night. These movements were recognized by Alaska Native people. The movements impacted daylight, seasons, climate, tides, and other aspects of daily life in the north.

INTERACTIONS

Place-Based Perspective

Try to write a sentence on the board with your finger. Ask the students what you wrote. They should have no idea because your finger did not leave a mark. Now write the sentence with a marker. They can read it now because the "interaction" between the marker and the board resulted in ink being left behind. Both times the sentence was written there was an interaction, but the results were different. Explain that interactions are simply objects having an effect on one another.

Heritage Cultural Perspective

The various Tlingit tribes, though some lived quite far from one another, traditionally had significant interaction. People would frequently traverse the inside passage to visit relatives, trade, make peace, and sometimes, make war. Interactions with other tribes were important to share information and goods.

CHARGES

Place-Based Perspective

Show the students the picture of the person with their hair standing on end on page 315. Ask the students how this person's hair might have gotten like this. Then ask the students if they have ever been shocked. Ask them if they prefer their phone's battery to have a full charge. Explain that charges are a property of matter that allows them to experience electrical forces.

Heritage Cultural Perspective

Charges are involved in the creation of lightning, which was not unknown to the Tlingit and Haida peoples of long ago. The Tlingit word for lightning is "xeitl l'úkx̲u." Lightning is said to occur when the Thunderbird blinks his eyes, and thunder, when he flaps his wings. When a mill burned to the ground in Sitka long ago after a lightning strike, the Tlingit told the Russians that Thunderbird was to blame.

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.

Change

Group the students in pairs. There should be one student without a partner to be "it" for the first round of the activity. Have the students in each pair stand back to back, with elbows interlocked. Tell the students to listen for a specific word, sequence of words, or sentence. When the students hear the word, sequence, or sentence you said at the beginning of the round, they should drop arms and quickly find new partners. However, "it" must also find a partner—thus producing a new "it" for the next round of the activity.

Wild Cars

Make two "roads" on the floor using masking tape. Be certain that there are a number of curves and circles in the roads. The roads should stretch for at least ten feet. If you have a floor rug, chalk may be used to fashion the roads. Place a toy car at the beginning of each road. Lay the vocabulary pictures at the end of the roads. Have a student sit beside each car. Name one of the vocabulary pictures and say "Go." The two students should "drive" their cars along the roads as quickly as they can. The winner is the player who first parks his car on the picture for the vocabulary word you said.

Student Support Materials

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

SPEAKING

Cat's Cradle

Group the students in a circle, sitting on the floor. Provide each student with a vocabulary picture (prepare extra pictures if necessary). The students should stand their vocabulary pictures on the floor, leaning against their legs. Give a student in the circle a ball of string. The student should hold the end of the ball of string and then say the name of a vocabulary picture that another student has. After identifying the picture, he/she should then toss the ball of string to the student who has that picture (being careful to hold tightly to his/her end of the string). The student who receives the ball of string must then repeat this process—tossing the ball of string to another student in the circle. The students should continue in this way until a "cat's cradle" has been created with the string in the center of the circle. This activity may be repeated more than once by collecting and redistributing the pictures for each new round.

SPEAKING (CONTINUED)

Roll 'Em Again!

Mount the vocabulary pictures on the board. Number each picture using the numbers 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.

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.

Configurations

Before the activity begins, print the sight words on an overhead transparency sheet (fill the transparency with words). Place the transparency on an overhead projector and project the sight words onto the board. Review the sight words with the students. Then, outline each of the sight words on the board with chalk. When a configuration has been created for each sight word, turn the overhead projector off. Then, point to one of the configurations and call upon a student to identify the sight word for the configuration. Continue in this way until all of the sight words have been correctly identified. You may wish to turn the projector on momentarily to verify a student's response.

Letter Encode

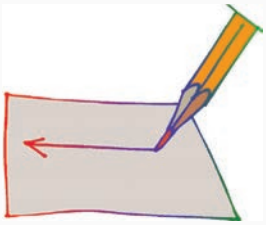
Give each student his/her envelope that contains the alphabet letters. Mount one of the science pictures on the board. The students must use the cut-out letters to spell the word. Review the students' work. Repeat, until all of the words have been spelled in this way.

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—Lesson 2

WRITING



Watch Your Half

Prepare a photocopy of each of the vocabulary pictures. Cut the photocopied pictures in half. Keep the picture halves in separate piles. Group the students into two teams. Give all of the picture halves from one pile to the players in Team One. Give the picture halves from the other pile to the players in Team Two. Say a vocabulary word. When you say "Go," the student from each team who has the picture half for the vocabulary word you said should rush to the board and write the word on the board. The first player to do this correctly wins the round. Repeat until all players have participated. This activity may be played more than once by collecting, mixing, and redistributing the picture halves to the two teams.

Back Writing

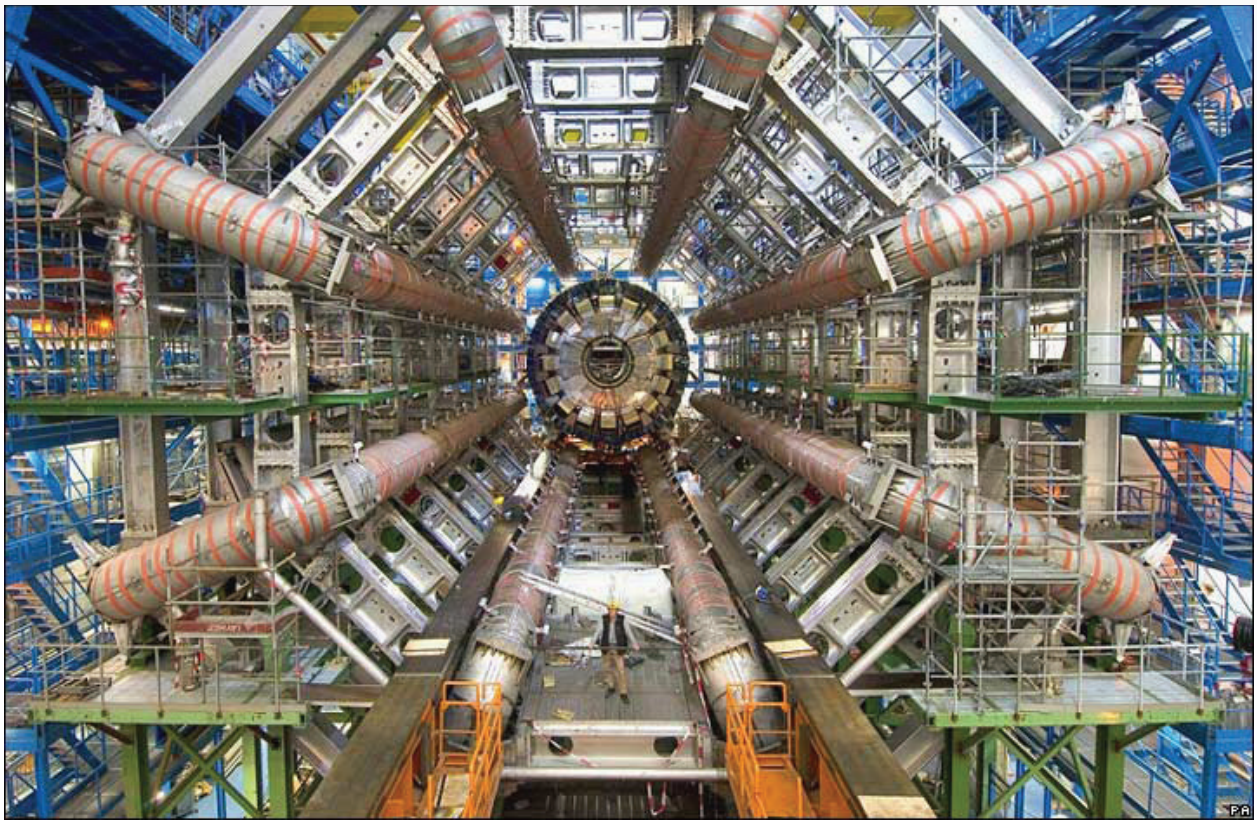
Group the students into two teams. Have the first player from each team stand in front of the board. Use the index finger of your writing hand to "write" the first letter of a sight word on the two players' backs. When you have done this, say "Go". Each of the players should then write a sight word on the board that begins with that letter. Repeat with other pairs of players until all players in each team have played and until all sight words have been written a number of times.

Student Support Materials

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

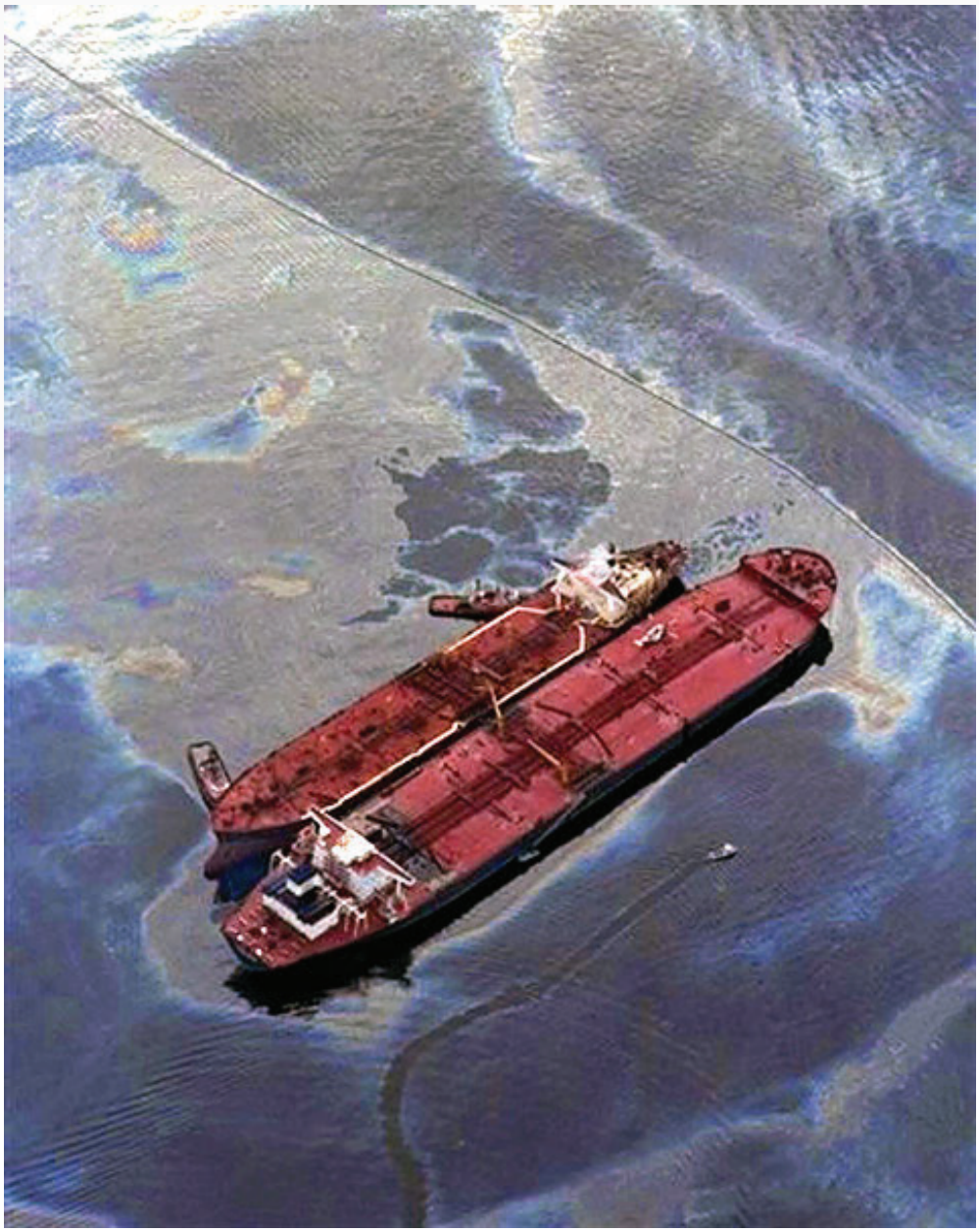
VOCABULARY PICTURES

STATE CHANGE

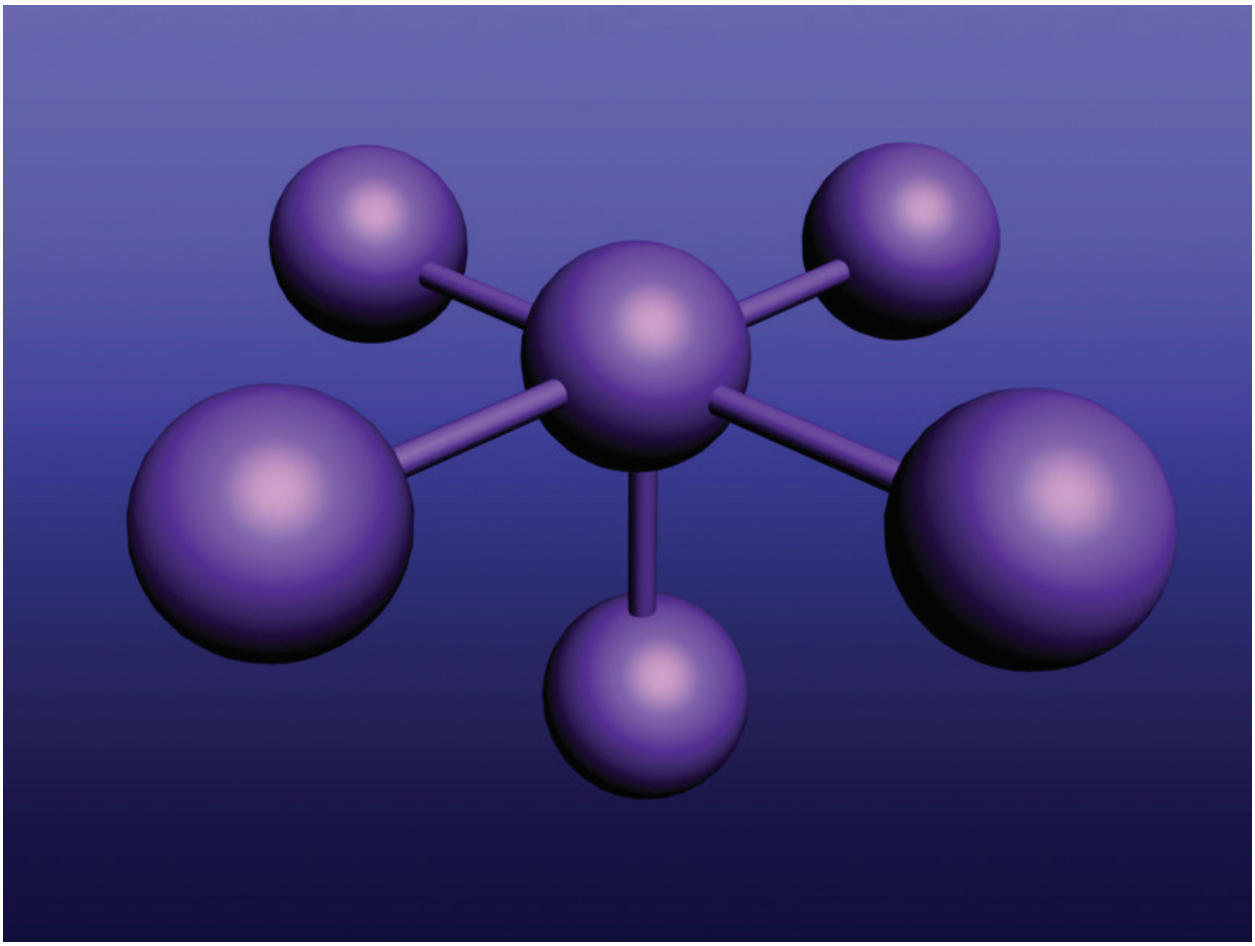


PARTICLE SPEED

HEAT TRANSFER

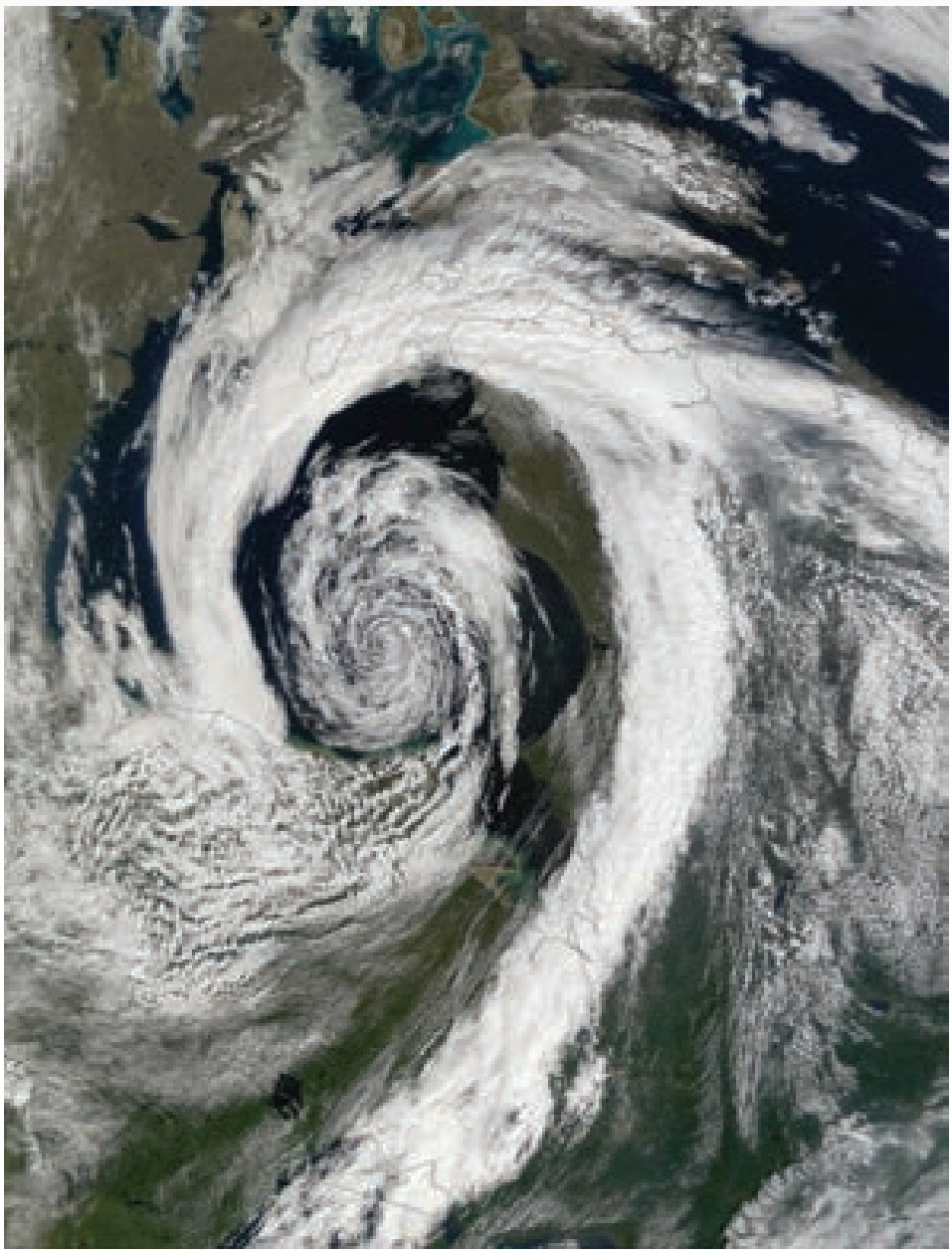


BONDS



MOLECULES

ARRAYS



CIRCULAR MOTION

INTERACTIONS

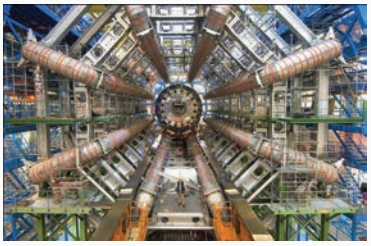
CHARGES

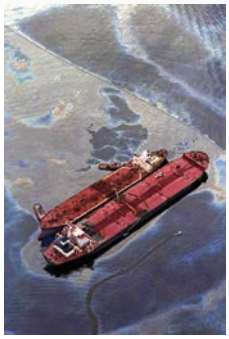
STUDENT SUPPORT MATERIALS

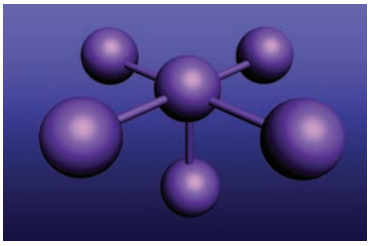
Listening • Mini Pictures

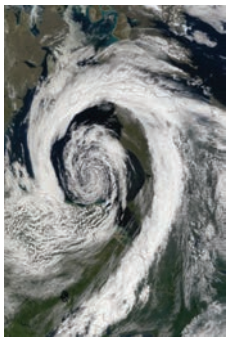
Listening: Mini Pictures

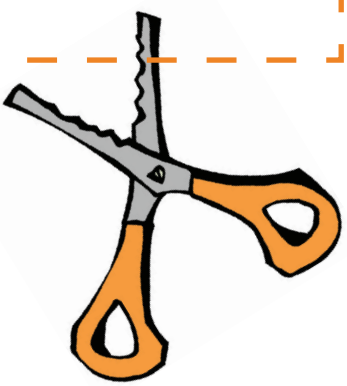
Prepare a copy of these pages for each student. The students should cut out the pictures and lay them on the floor or desk. Say the key words and the students should show you the pictures. Repeat a number of times. This activity can also be done with pairs of students to determine who is the fastest 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 melting of a glacier is an example of a state change in water. **True** **False**

2. The state of a substance is related to its particle speed. **True** **False**

3. Heat cannot be transferred between one object and another. **True** **False**

4. Bonds push two objects apart rather than attract them to one another. **True** **False**

5. A molecule is a group of atoms bonded together. **True** **False**

6. A disorderly and random set of numbers represents an array. **True** **False**

7. The spinning of storm systems is an example of circular motion. **True** **False**

8. Just as there are interactions between people, so too do molecules interact. **True** **False**

9. An electrical charge is always caused by an angry bull moose. **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 melting of a glacier is an example of a state change in water. **True** / **False**

2. The state of a substance is related to its particle speed. **True** / **False**

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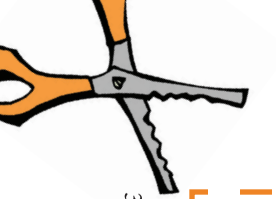
STUDENT SUPPORT MATERIALS

Sight Words



state change

particle speed

heat transfer

bonds

molecules

arrays

circular motion

interactions

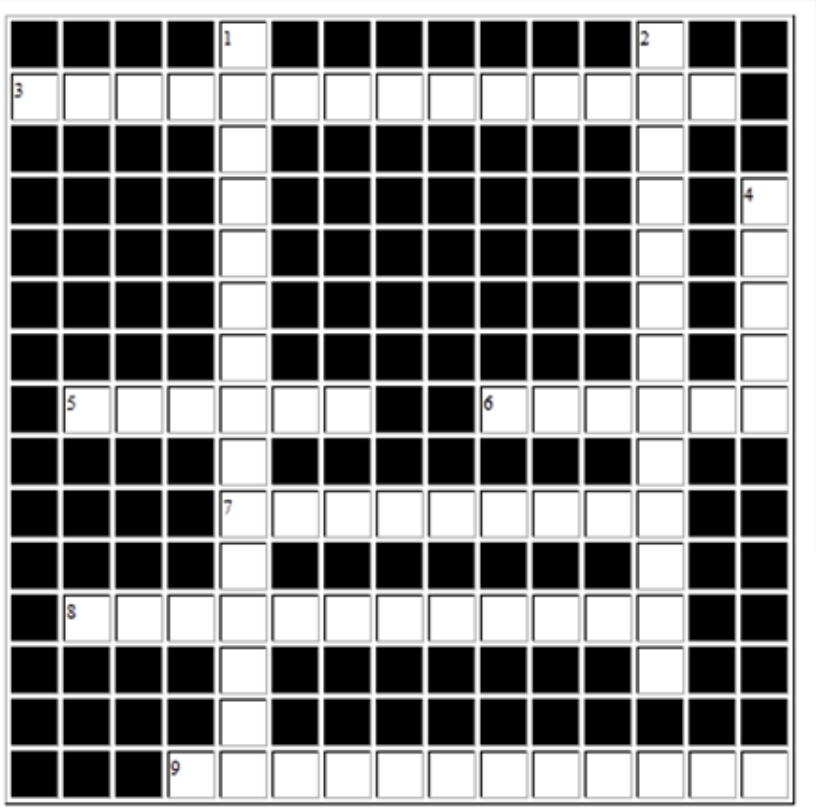
charges

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.



Across

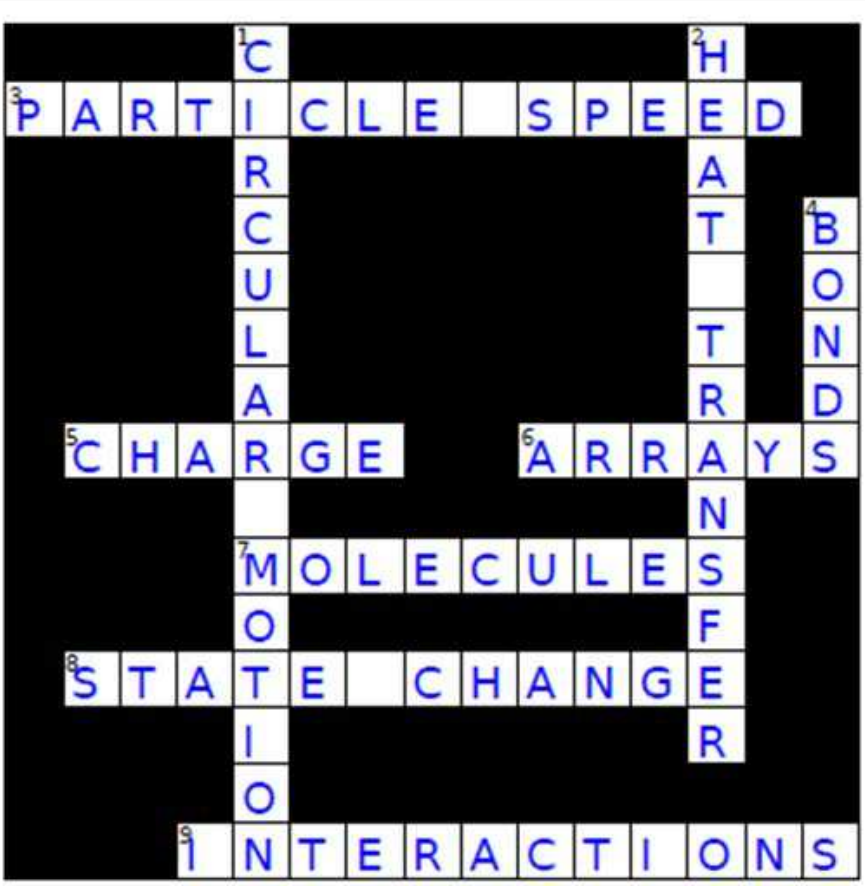
3. the velocity of a particle through a medium
5. a property of matter that causes electrical forces
6. orderly arrangements
7. a group of atoms bonded together
8. a change from one state to another without a change in chemical composition
9. an action that occurs as two or more objects have an effect upon one another

Down

1. rotation along a circle; a circular path or orbit
2. the movement of heat from one place to another
4. a force of attraction, especially between atoms in a molecule

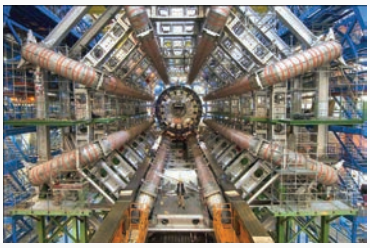
Sight Words Activity Page

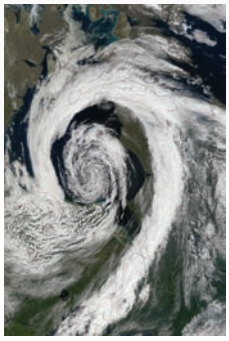
Answer Key

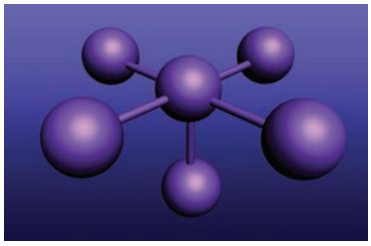


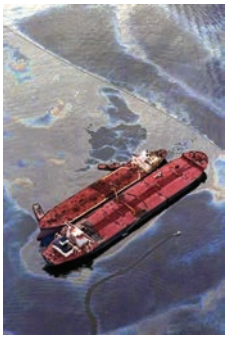
Sight Words Activity Page

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





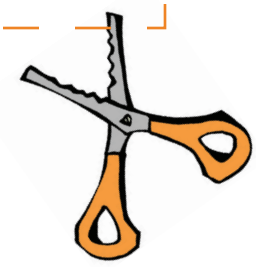




state change | particle speed | heat transfer | bonds

molecules | arrays | circular motion | interactions

charges



Sight Words Activity Page

Have the students print the key words from this unit horizonally in the boxes (each word may be written more than once). They should then fill in all other boxes with any letters. Have the students exchange pages. The students should then circle the words on the page.

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.

change **state**

_____ _____

par **cle** **ti** **speed**

_____ _____ _____ _____

fer **heat** **trans**

_____ _____ _____

Encoding Activity Page

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

bonds

_____

e **mol** **cules**

_____ _____ _____

rays **ar**

_____ _____

Encoding Activity Page

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

tion	cir	mo	lar	cu
_____	_____	_____	_____	_____

ac	ter	in	tions
_____	_____	_____	_____

ges	char
_____	_____

Encoding Activity Page

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

state ch	nsfer
part	nds
heat tra	ange
bo	ays
mole	lar motion

Encoding Activity Page

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

arr	icle speed
circu	rges
int	eractions
cha	cules

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. A state change has occurred when:
   - ❍ an ice cube melts becoming liquid water
   - ❍ Alaska was granted statehood
   - ❍ bears awaken from hibernation
   - ❍ bears hibernate

2. Particle speed refers to a particle's:
   - ❍ height
   - ❍ velocity
   - ❍ color
   - ❍ volume

3. Heat transfer occurs when:
   - ❍ the seasons change
   - ❍ heat passes from one source to another
   - ❍ plants grow in the spring
   - ❍ money is given to another person

4. Chemical bonds hold _____ together.
   - ❍ hands
   - ❍ dust
   - ❍ light
   - ❍ atoms

5. A molecule is the smallest fundamental unit of:
   - ❍ matter
   - ❍ atmosphere
   - ❍ a chemical compound
   - ❍ culture

Reading Comprehension Activity Page

6 Items in an array are in:

- ❍ an orderly arrangement
- ❍ a disorderly arrangement
- ❍ conflict with other things
- ❍ none of the above

7 Circular motion is rotation along a:

- ❍ cylinder
- ❍ rectangle
- ❍ square
- ❍ circle

8 Interactions occur when:

- ❍ a single object has no effect on another
- ❍ two or more objects have an effect on one another
- ❍ many objects stay separate from one another
- ❍ none of the above

9 The term charge refers to:

- ❍ a property of matter
- ❍ electricity
- ❍ experiencing a force
- ❍ all of the above

Reading Comprehension Activity Page

ANSWER KEY

1. A state change has occurred when:
   - ● an ice cube melts becoming liquid water
   - ❍ Alaska was granted statehood
   - ❍ bears awaken from hibernation
   - ❍ bears hibernate

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   - ❍ light
   - ● atoms

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Reading Comprehension Activity Page

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9 The term charge refers to:

- ❍ a property of matter
- ❍ electricity
- ❍ experiencing a force
- ● all of the above

Reading Comprehension Activity Page

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

1	A state change does NOT involve	A	forms a molecule.
2	Particle speed is the	B	that hold atoms together.
3	Heat transfer occurs when heat	C	can be said to be in an array.
4	Bonds are a force of attraction	D	same as particle velocity.
5	A group of atoms bonded together	E	an electrical force to charge its battery.
6	Objects in an orderly arrangement	F	circular motion.
7	The Earth's rotation in an example of	G	a change in chemical composition.
8	An interaction has occurred when	H	two molecules have affected each other.
9	Plugging in a cell phone causes	I	is exchanged between two objects.

1→_____ 2→ _____ 3→ _____ 4→ _____

5→ _____ 6→ _____ 7→ _____ 8→ _____

9→ _____

Reading Comprehension Activity Page

ANSWER KEY

1	A state change does NOT involve	A	forms a molecule.
2	Particle speed is the	B	that hold atoms together.
3	Heat transfer occurs when heat	C	can be said to be in an array.
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6	Objects in an orderly arrangement	F	circular motion.
7	The Earth's rotation in an example of	G	a change in chemical composition.
8	An interaction has occurred when	H	two molecules have affected each other.
9	Plugging in a cell phone causes	I	is exchanged between two objects.

1→ G 2→ D 3→ I 4→ B

5→ A 6→ C 7→ F 8→ H

9→ E

Reading Comprehension Activity Page

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

Rotation along a circle	**Force of attraction holding atoms together**	**Action that occurs when objects effect one another**
Smallest unit of a chemical compound	**A change from one state to another**	**Movement of heat from one place to another**
An orderly arrangement	**Property of matter that causes electrical forces**	**Particle velocity in a given medium**

state change **particle speed** **heat transfer** **bonds**

molecules **arrays** **circular motion**

charges **interactions**

Reading Comprehension Activity Page

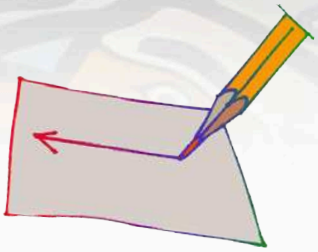
ANSWER KEY

Rotation along a circle circular motion	**Force of attraction holding atoms together** bonds	**Action that occurs when objects effect one another** interaction
Smallest unit of a chemical compound molecules	**A change from one state to another** state change	**Movement of heat from one place to another** heat transfer
An orderly arrangement arrays	**Property of matter that causes electrical forces** charge	**Particle velocity in a given medium** particle speed

STUDENT SUPPORT MATERIALS

Basic Writing

Basic Writing Activity Page



Have the students write in the missing letters.

st_____e c_____nge

pa_____e sp____d

h_____t t_____fer

b_____ds

mol_____es

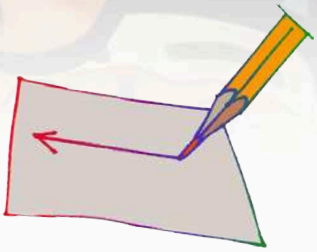
a_____ys

cir_____r m_____n

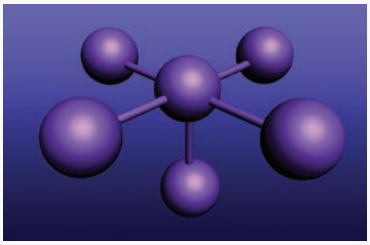
inter_____ns

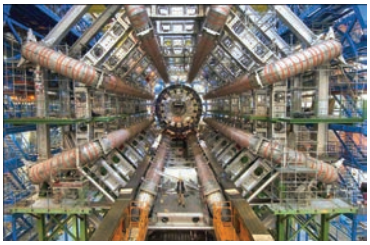
c_____ges

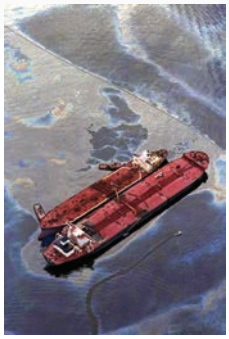
Basic Writing Activity Page

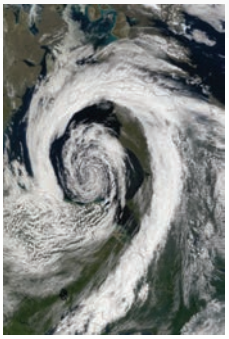


Have the students write the word for each picture.



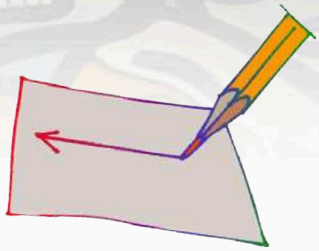


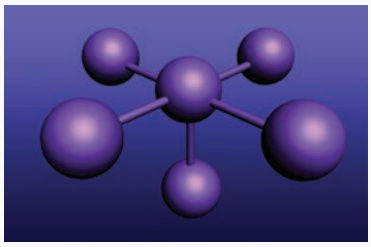




Basic Writing Activity Page

ANSWER KEY

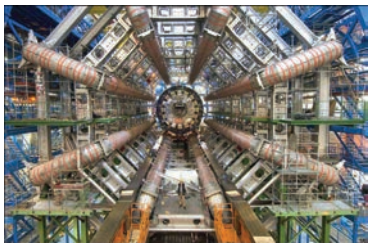




molecules

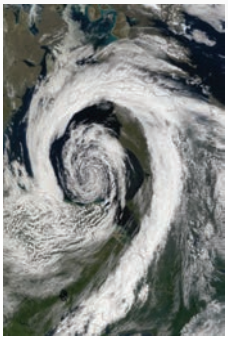
heat transfer

arrays



particle speed

bonds



circular motion

charges

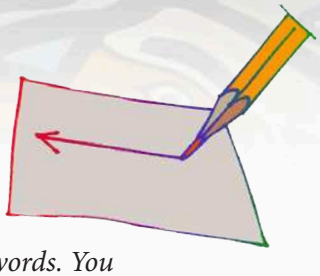
interactions

state change

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.

STATE CHANGE

_____

PARTICLE SPEED

_____

HEAT TRANSFER

_____

BONDS

_____

MOLECULES

_____

ARRAYS

_____

CIRCULAR MOTION

_____

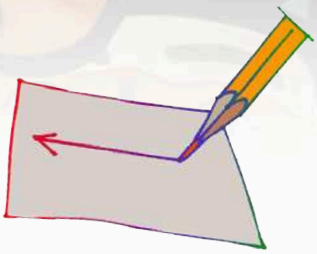
INTERACTIONS

_____

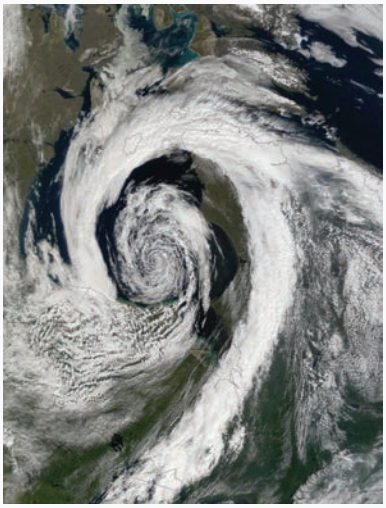
CHARGES

_____

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.



UNIT ASSESSMENT

B-1: Concept of Physical Science

SCIENCE PROGRAM

Unit Assessment Teacher's Notes
Grade 8 • Unit 4 (B–1)
Theme: Concepts of Physical 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 **STATE CHANGE.** .
2. Write the number 2 by the picture for **PARTICLE SPEED**.
3. Write the number 3 by he picture for **HEAT TRANSFER**.
4. Write the number 4 by the picture for **BONDS**.
5. Write the number 5 by the picture for **MOLECULES**.
6. Write the number 6 by the picture for **ARRAYS**.
7. Write the number 7 by the picture for **CIRCULAR MOTION**.
8. Write the number 8 by the picture for **INTERACTIONS**.
9. Write the number 9 by the picture for **CHARGES**.

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 state change has occurred when ice melts becoming liquid water.
2. Particle speed is measured as its height above sea level.
3. Heat transfer refers to trading basketball players living in Miami.
4. Atoms are held together in a molecule or crystal by bonds.
5. Molecules represent the largest fundamental unit of a chemical compound.
6. A disorderly and random arrangement of numbers is an array.
7. Circular motion is rotation along a circle.
8. Interactions occur when two or more molecules have an effect on one another.
9. Charge is an electrical property of matter.

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 page 5 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 6 in your test. Read the sentence part and fill in the bullet for the correct sentence ending.

BASIC WRITING

Turn to page 7 in your test. Look at the pictures in the boxes. Write the word for each picture.

CREATIVE WRITING

Turn to page 8 in your test. Write a sentence of your own, using each word.

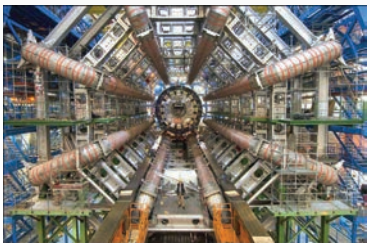
Teacher: To get a percentage for this student's assessment, divide the total number of questions correct by the total number of questions, then multiply this answer by 100 to determine the percentage of questions answered correctly.

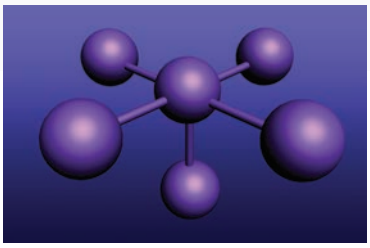
SCIENCE PROGRAM

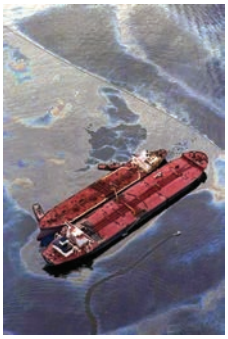
Unit Assessment Student Pages
Grade 8 • Unit 4 (B–1)
Theme: Concepts of Physical Science

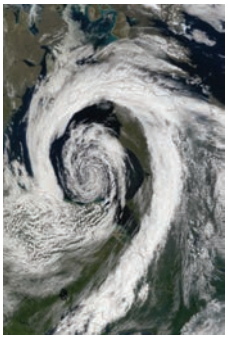
Date:_____ Student's Name:_____

Number Correct:_____ Percent Correct:_____









1. T F

2. T F

3. T F

4. T F

5. T F

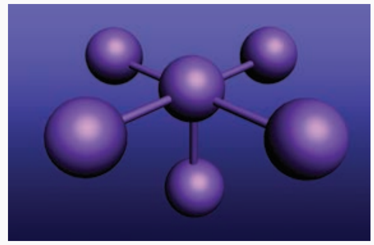
6. T F

7. T F

8. T F

9. T F

state change
particle speed
heat transfer
bonds
molecules
arrays
circular motion
interactions
charges



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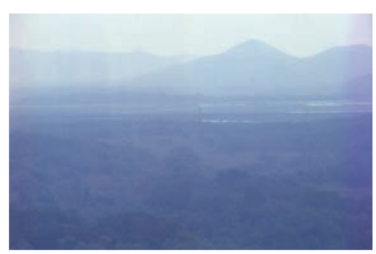

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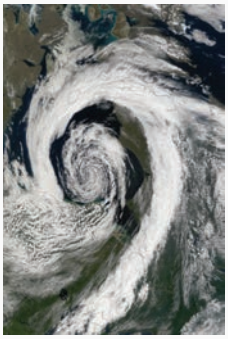

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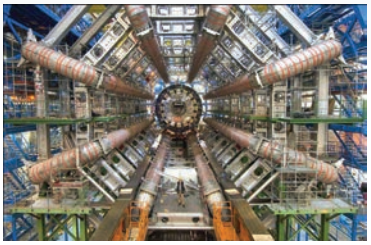

state change
particle speed
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arrays
circular motion
interactions
charges

state ch	aynge ainge ange eynge einge enge iynge inge oynge
pa speed	rticle rtickle rtycle rtyckle rtacle rtackle cyty rtecle rteckle
heat tran	far fer fir fur fyr sfar sfer sfir sfor
b	nz nze ndz nds and end ind ond und
molec	ale ele ile ole ule yle all ell ill
ar	ays eys iys oys uys rays reys riys roys
circ motion	alar elar ilar olar ular kalar kelar kilar kolar
interac	ian ien ion iun tian tien tion tiun shun
char	ges jes ches chez jez rges rjes rches rchez

1. Which of the following is NOT an example of a state change?
   - ❍ ice melting, becoming liquid water
   - ❍ liquid water freezing, becoming ice
   - ❍ the addition of sugar to liquid water

2. Particle speed is a measurement of particle:
   - ❍ height
   - ❍ velocity
   - ❍ change

3. Which of the following is NOT an example of heat transfer?
   - ❍ water and air of equal temperatures
   - ❍ a doe warming a fawn by lying next to it
   - ❍ a stove heating a pot of water

4. Bonds:
   - ❍ attract things to one another
   - ❍ repel things from one another
   - ❍ make things seem larger than they actually are

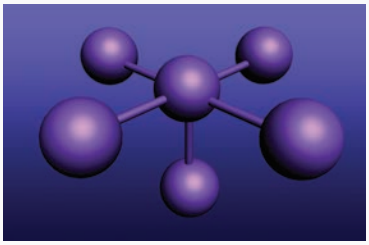
5. Molecules are the _____ fundamental unit of a chemical compound.
   - ❍ fastest
   - ❍ largest
   - ❍ smallest

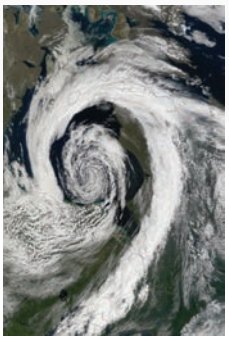
6. Numbers arranged in an organized manner are in an:
   - ❍ estimate
   - ❍ array
   - ❍ allocation

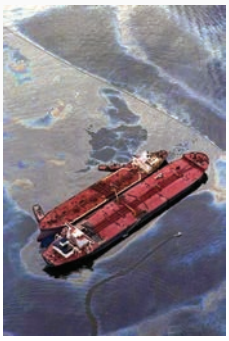
7. Rotation around a circle is the definition of:
   - ❍ circular motion
   - ❍ triangular motion
   - ❍ rectangular motion

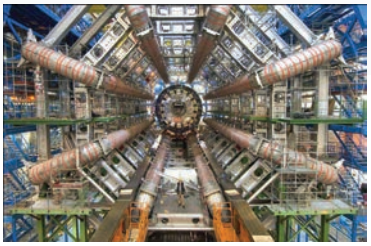
8. Interactions occur when:
   - ❍ objects are placed far apart
   - ❍ objects fall apart
   - ❍ objects have an effect on one another

9. A charge in chemistry refers to:
   - ❍ electrical energy
   - ❍ an attacking bull moose
   - ❍ using a credit card









STATE CHANGE

_____

PARTICLE SPEED

_____

HEAT TRANSFER

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BONDS

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MOLECULES

_____

ARRAYS

_____

CIRCULAR MOTION

_____

INTERACTIONS

_____

CHARGES

_____

SCIENCE PROGRAM

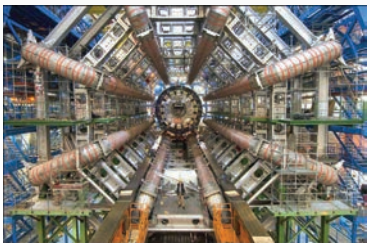
Unit Assessment ANSWER KEY
Grade 8 • Unit 4 (B–1)
Theme: Concepts of Physical Science

8

6

9

3



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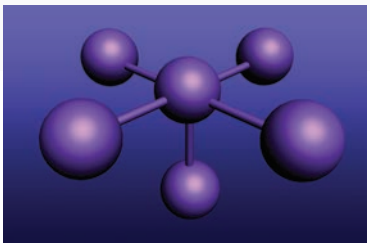

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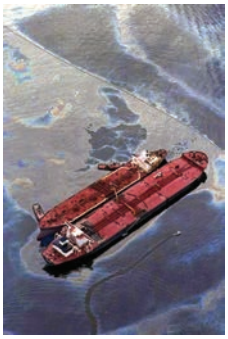

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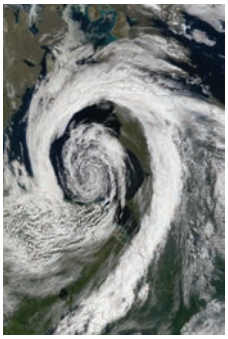

7

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

state change
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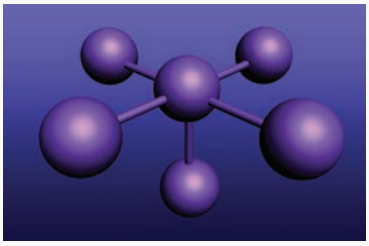

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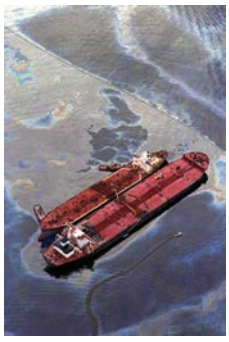

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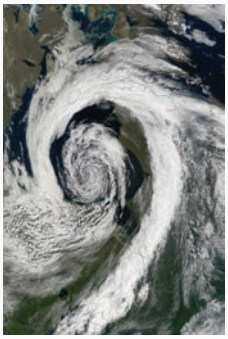

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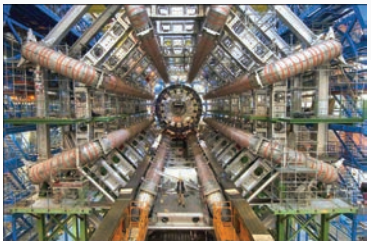

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state ch	aynge ainge ange eynge einge enge iynge inge oynge
pa speed	rticle rtickle rtycle rtyckle rtacle rtackle cyty rtecle rteckle
heat tran	far fer fir fur fyr sfar sfer sfir sfor
b	nz nze ndz nds and end ind ond und
molec	ale ele ile ole ule yle all ell ill
ar	ays eys iys oys uys rays reys riys roys
circ motion	alar elar ilar olar ular kalar kelar kilar kolar
interac	ian ien ion iun tian tien tion tiun shun
char	ges jes ches chez jez rges rjes rches rchez

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   - ❍ liquid water freezing, becoming ice
   - ● the addition of sugar to liquid water

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   - ❍ change

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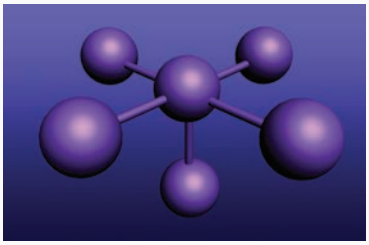
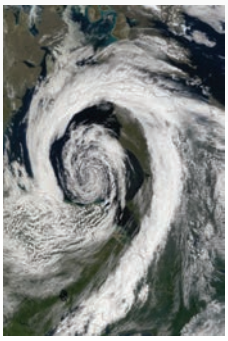
arrays

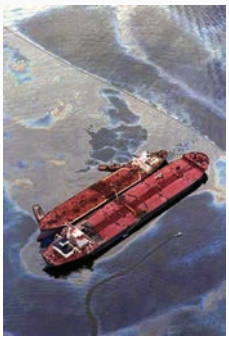


molecules

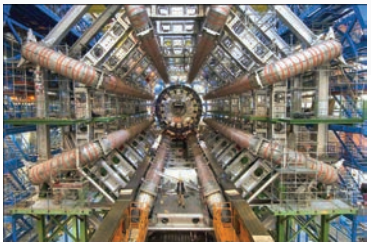
state change



circular motion



bonds



particle speed

charges

heat transfer

interactions