UNIT 4

B–1: Concepts of Physical Science

KEY VOCABULARY

Key Vocabulary

ACCELERATION	*to change the speed of a moving object with respect to time*
AMPLITUDE	*the height of a sound wave, which determines its volume*
FORCES	*the push or pull exerted on an object*

Key Vocabulary

FREQUENCIES	*the number of wave cycles per unit time or cycles per second or hertz*
GAS	*a state of matter that has no definite shape or volume*
LIQUID	*a state of matter that has a definite volume, but no definite shape*

Key Vocabulary

MOTION	*an object's change in position relative to a reference point*
SOLID	*a state of matter that has definite shape and volume*
UNBALANCED FORCES	*forces that do not cancel each other out which changes an object's motion*

Key Vocabulary

WAVE LENGTH

the distance from one peak to the next on a wave

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

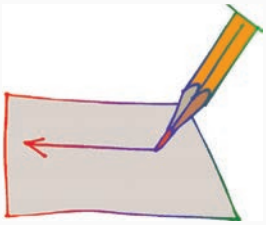
Give each student his/her envelope that contains the alphabet letters. Mount one of the science pictures on the board. The students must use the cut-out letters to spell the word. Review the students' work. Repeat, until all of the words have been spelled in this way.

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

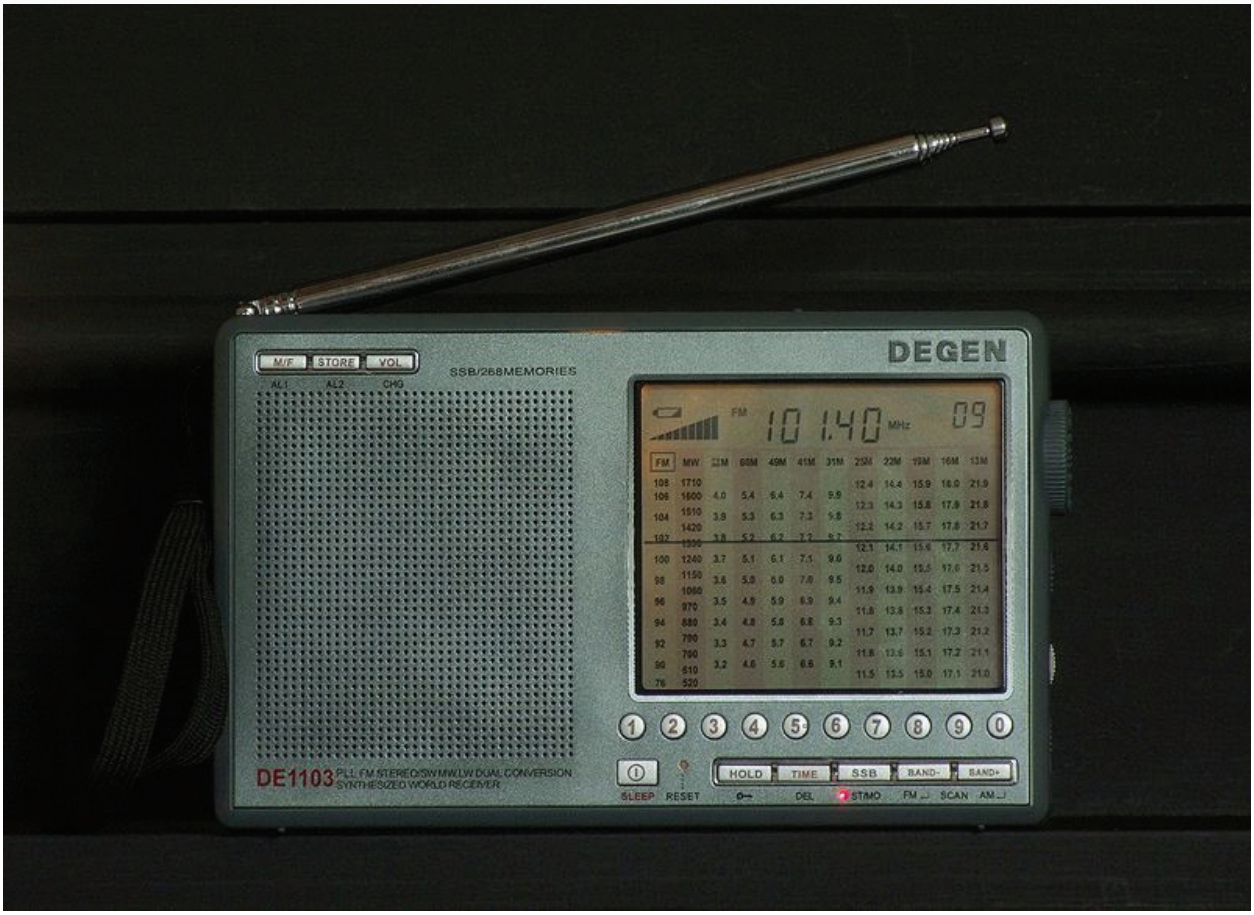

ENGELHART
14
hofer
Mobil 1
adidas
PAGID/RS

ACCELERATION

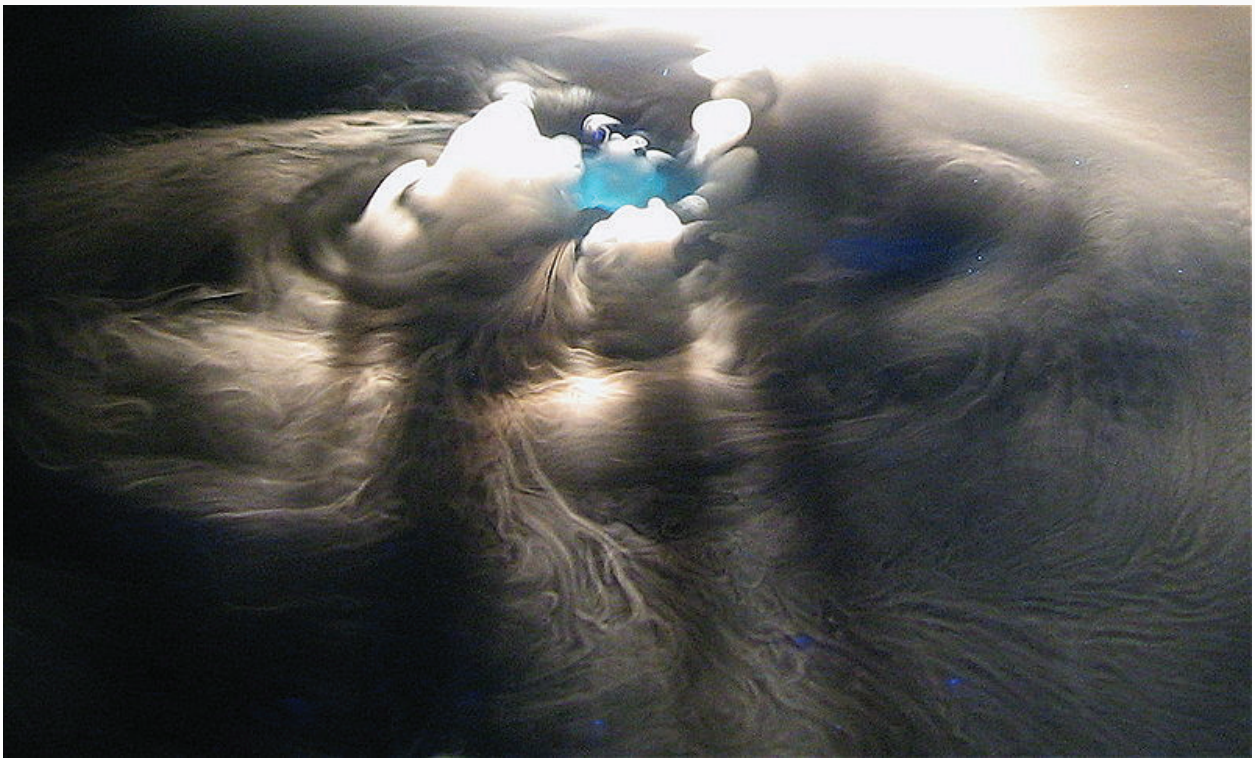
AMPLITUDE


N61848

FORCES


DEGEN
M/F
STORE
VOL
AL1
AL2
CHG
SSB/288MEMORIES
FM
10 1.40 MHz
09
DE1103
PLL FM STEREO/SW MW LW DUAL CONVERSION
SYNTHESIZED WORLD RECEIVER
HOLD
TIME
SSB
BAND-
BAND+
SLEEP
RESET
DEL
STMO
FM
SCAN
AM

FREQUENCIES



GAS

LIQUID

MOTION

SOLID

UNBALANCED FORCES

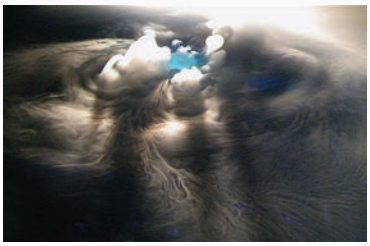
WAVE LENGTH

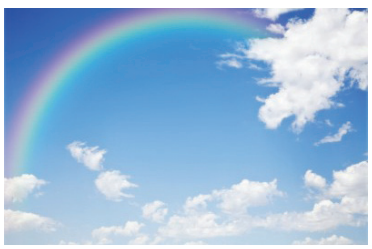
STUDENT SUPPORT MATERIALS

Listening • Mini Pictures

Listening: Mini Pictures

Have the students cut out the pictures. Say the key math words from this unit, and the students should hold up the pictures for them.





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. Amplitude is the distance from one peak to the next on a wave. **True** **False**

2. Acceleration is the number of wave cycles per unit time or cycles per second or hertz. **True** **False**

3. Frequency is to change the speed of a moving object with respect to time. **True** **False**

4. Force is the push or pull exerted on an object. **True** **False**

5. Liquid is the state of matter that has no definite shape or volume. **True** **False**

6. Gas is a state of matter that has a definite volume, but no definite shape. **True** **False**

7. Unbalanced forces do not cancel each other out which changes an object's motion. **True** **False**

8. Motion is an object's change in position relative to a reference point. **True** **False**

9. A wavelength is the height of a sound wave, which determines its volume. **True** **False**

10. A solid is a state of matter that has definite shape and volume. **True** **False**

STUDENT SUPPORT MATERIALS

Sight Words

acceleration

amplitude

forces

frequencies

gas

liquid

motion

solid

unbalanced forces

wave length

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.

acceleration	gas	solid
amplitude	liquid	unbalanced forces
forces	motion	wave length
frequencies		

G	P	D	T	L	R	Z	B	U	S	Y	N	Q	C	L	W
V	A	M	P	L	I	T	U	D	E	J	U	M	B	J	A
M	T	C	A	R	Q	T	V	Z	U	F	U	O	L	N	V
C	N	B	C	E	N	G	T	H	R	R	A	T	I	D	E
O	L	N	M	E	S	R	Y	A	J	E	Z	I	Q	P	L
U	R	I	F	N	L	T	R	Z	I	Q	A	O	Y	Z	E
B	R	E	Q	U	H	E	T	B	R	U	V	N	I	K	N
J	F	A	R	U	I	Y	R	H	N	E	B	T	V	C	G
O	O	T	B	Y	I	N	G	A	S	N	D	F	J	K	T
G	R	A	S	D	Q	D	W	E	T	C	B	N	G	H	H
K	C	B	E	F	G	H	T	Y	V	I	B	N	M	C	X
L	E	X	W	R	N	U	Z	M	I	E	O	V	C	W	X
Q	S	O	L	I	D	B	E	R	A	S	Q	N	Z	V	X
G	X	Z	Q	R	E	W	N	Y	T	U	M	P	I	Y	U
C	J	O	A	W	Q	N	V	B	R	E	S	D	K	L	P
U	N	B	A	L	A	N	C	E	D	F	O	R	C	E	S

Sight Words Activity Page

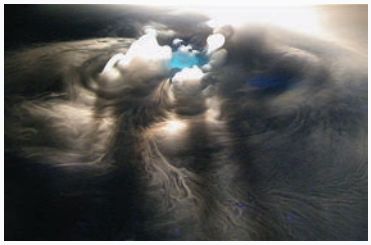
Have the students highlight or circle the words in this word find. Words appear horizontally.

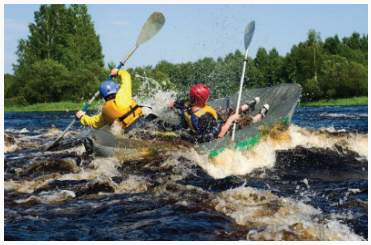
acceleration amplitude forces frequencies	gas liquid motion	solid unbalanced forces wave length

															W
	A	M	P	L	I	T	U	D	E			M			A
		C								F		O			V
			C							R		T			E
	L			E						E		I			L
		I			L					Q		O			E
			Q			E				U		N			N
	F			U			R			E					G
	O				I		G	A	S	N					T
	R					D			T	C					H
	C									I					
	E									E	O				
	S	O	L	I	D					S		N			
U	N	B	A	L	A	N	C	E	D	F	O	R	C	E	S

Sight Words Activity Page

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





acceleration	amplitude	forces	frequencies
gas	liquid	motion	solid
unbalanced forces	wave length		

Sight Words Activity Page

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.

tion **mo**

_____ _____

li **amp** **tude**

_____ _____ _____

sol **id**

_____ _____

Encoding Activity Page

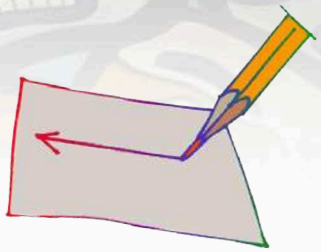
Have the students cut out and encode the syllables of the words, OR number the syllables in their correct sequence.

cies	fre	quen
_____	_____	_____

gas
_____

wave	length
_____	_____

Word Scramble Activity Page



Rearrange or unscramble the following letters to form one of the listed unit words. As you use a word, cross it off.

solid	motion	unbalanced forces	frequencies	wave length
liquid	forces	amplitude	acceleration	gas

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

STUDENT SUPPORT MATERIALS

Reading Comprehension

Reading Comprehension Activity Page

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

the height of a sound wave, which determines its volume	**to change the speed of a moving object with respect to time**	**the number of wave cycles per unit time or cycles per second or hertz**
the push or pull exerted on an object	**a state of matter that has a definite volume, but no definite shape**	**a state of matter that has no definite shape or volume**
forces that do not cancel each other out which changes an object's motion	**an object's change in position relative to a reference point**	**the distance from one peak to the next on a wave**
a state of matter that has definite shape and volume		

acceleration **amplitude** **forces** **frequencies**

gas **liquid** **motion** **solid**

unbalanced forces **wave length**

Reading Comprehension Activity Page

Write the word or words that best complete each sentence in the space below. Words may be used only once.

solid	motion	unbalanced forces	frequencies	wave length
liquid	forces	amplitude	acceleration	gas

1. A radio is an example of something that has many _____.

2. In an amplifier, the volume of the sound depends on the height of the sound wave or its _____.

3. In an amplifier, the loudness of a sound depends on the sound's _____

4. A _____ has a definite volume and a definite shape.

5. _____ has a definite volume but not a definite shape.

6. An airplane is an example of an object that has two or more _____ acting in a way that changes its motion.

7. Forces that cause an object, like a canoe, to change its motion is called _____.

8. _____ has no definite volume or shape.

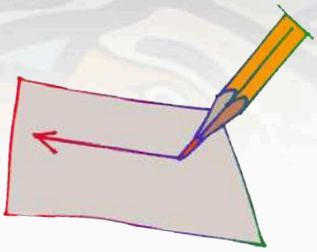
9. Sir Isaac Newton studied balanced and unbalanced forces then wrote his firs law of _____.

10. _____ is the change in velocity over time and includes the measure of distance.

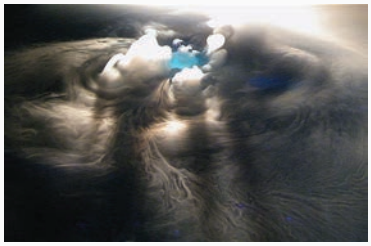
STUDENT SUPPORT MATERIALS

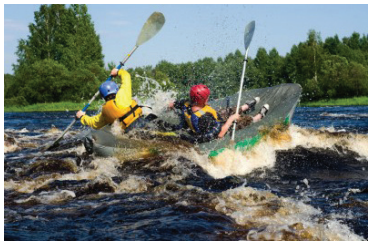
Basic Writing

Basic Writing Activity Page

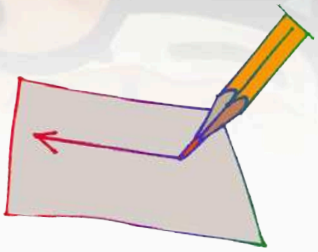


Have the students write the word for each picture.





Basic Writing Activity Page



Have the students write in the missing letters.

acce_____ation

amp_____ude

f_____es

fre_____cies

g_____

l_____uid

m_____ion

s_____id

un_____anced forces

wave l_____th

Graphic Organizer

Model the process for students using the following unit words.

WHAT IT IS:		WHAT IT IS NOT:
EXAMPLES:	acceleration	NOT EXAMPLES:

WHAT IT IS:		WHAT IT IS NOT:
EXAMPLES:	amplitude	NOT EXAMPLES:

WHAT IT IS:		WHAT IT IS NOT:
EXAMPLES:	forces	NOT EXAMPLES:

WHAT IT IS:		WHAT IT IS NOT:
EXAMPLES:	frequencies	NOT EXAMPLES:

WHAT IT IS:		WHAT IT IS NOT:
EXAMPLES:	gas	NOT EXAMPLES:

Graphic Organizer

WHAT IT IS:		WHAT IT IS NOT:
EXAMPLES:	liquid	NOT EXAMPLES:

WHAT IT IS:		WHAT IT IS NOT:
EXAMPLES:	motion	NOT EXAMPLES:

WHAT IT IS:		WHAT IT IS NOT:
EXAMPLES:	solid	NOT EXAMPLES:

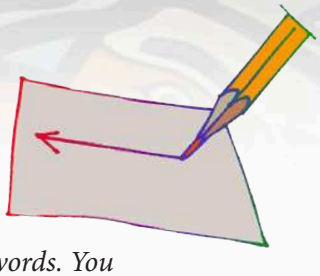
WHAT IT IS:		WHAT IT IS NOT:
EXAMPLES:	unbalanced forces	NOT EXAMPLES:

WHAT IT IS:		WHAT IT IS NOT:
EXAMPLES:	wave length	NOT EXAMPLES:

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.

ACCELERATION

_____

AMPLITUDE

_____

FORCES

_____

FREQUENCIES

_____

GAS

_____

LIQUID

_____

MOTION

_____

SOLID

_____

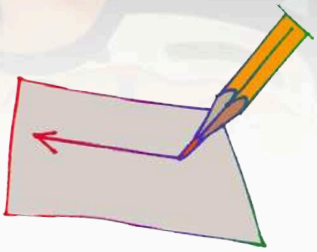
UNBALANCED FORCES

_____

WAVE LENGTH

_____

Creative Writing Activity Page



On the lines below, write a paragraph based on the picture above. Before you begin writing, reflect on the unit words – density, elements, heat, light, and matter.

UNIT ASSESSMENT

B–1: Concepts of Physical Science

SCIENCE PROGRAM

Unit Assessment Teacher's Notes
Grade 7 • 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 pages 1 in your test. Look at the pictures in the boxes.

1. Write the number 1 on top of the picture for **ACCELERATION**.
2. Write the number 2 on top of the picture for **AMPLITUDE**.
3. Write the number 3 on top of the picture for **FORCES**.
4. Write the number 4 on top of the picture for **FREQUENCIES**.
5. Write the number 5 on top of the picture for **GAS**.
6. Write the number 6 on top of the picture for **LIQUID**.
7. Write the number 7 on top of the picture for **MOTION**.
8. Write the number 8 on top of the picture for **SOLID**.
9. Write the number 7 on top of the picture for **UNBALANCED FORCES**.
10. Write the number 8 on top of the picture for **WAVE LENGTH**.

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. Amplitude is the distance from one peak to the next on a wave.
2. Acceleration is the number of wave cycles per unit time or cycles per second or hertz.
3. Frequency is to change the speed of a moving object with respect to time.
4. Force is the push or pull exerted on an object.
5. Liquid is the state of matter that has no definite shape or volume.
6. Gas is a state of matter that has a definite volume, but no definite shape.
7. Unbalanced forces do not cancel each other out which changes an object's motion.

Unit Assessment

8. Motion is an object's change in position relative to a reference point.
9. A wavelength is the height of a sound wave, which determines its volume.
10. A solid is a state of matter that has definite shape and volume.

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 scrambled letters on the left. Rearrange or unscramble the letters to form each of the unit words.

READING COMPREHENSION

Turn to page 6 in your test. Write the word or words that best complete each sentence in the space below. Words may be used only once.

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.

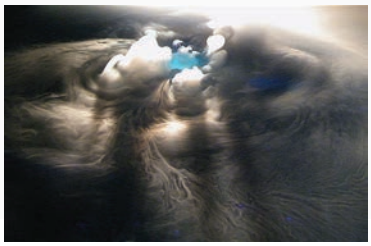
SCIENCE PROGRAM

Unit Assessment Student Pages
Grade 7 • Unit 4 (B–1)
Theme: Concepts of Physical Science

Date:_____ Student's Name:_____

Number Correct:_____ Percent Correct:_____


N61848




DEGEN


14

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

10. T F

acceleration
amplitude
forces
frequencies
gas
liquid
motion
solid
unbalanced forces
wave length

acceleration
amplitude
forces
frequencies
gas
liquid
motion
solid
unbalanced forces
wave length

acceleration
amplitude
forces
frequencies
gas
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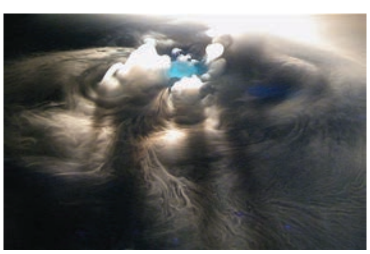
motion
solid
unbalanced forces
wave length

acceleration
amplitude
forces
frequencies
gas
liquid
motion
solid
unbalanced forces
wave length



acceleration
amplitude
forces
frequencies
gas
liquid
motion
solid
unbalanced forces
wave length

acceleration
amplitude
forces
frequencies
gas
liquid
motion
solid
unbalanced forces
wave length

3

acceleration
amplitude
forces
frequencies
gas
liquid
motion
solid
unbalanced forces
wave length

acceleration
amplitude
forces
frequencies
gas
liquid
motion
solid
unbalanced forces
wave length

acceleration
amplitude
forces
frequencies
gas
liquid
motion
solid
unbalanced forces
wave length

acceleration
amplitude
forces
frequencies
gas
liquid
motion
solid
unbalanced forces
wave length

i s l d o	_ _ _ l _ _ _
q l i u d i	_ _ _ q u _ _ _
a s g	_ _ a _ _
o n m o t i	m o _ _ _ _ _ _
c r f o e s	_ _ o _ _ _ _ s
t l a m d e u p i	_ _ m _ _ _ i _ _ _ _ _ _
w v t a g n e e h l	_ _ _ _ e _ _ _ n _ _ _ _
e e f c e q s n u r i	_ _ _ _ q _ _ _ _ _ _ i e _ _
c t c a e o r i e l a n	_ _ _ c _ _ l e _ _ _ _ _ _ _ _ _
d l f o b n n r c a c a s e u e	_ _ _ _ a _ _ _ _ c _ _ _
	_ _ o _ _ _ _ s

solid	motion	unbalanced forces	frequencies	wave length
liquid	forces	amplitude	acceleration	gas

1. A radio is an example of something that has many _____.

2. In an amplifier, the volume of the sound depends on the height of the sound wave or its _____.

3. In an amplifier, the loudness of a sound depends on the sound's _____

4. A _____ has a definite volume and a definite shape.

5. _____ has a definite volume but not a definite shape.

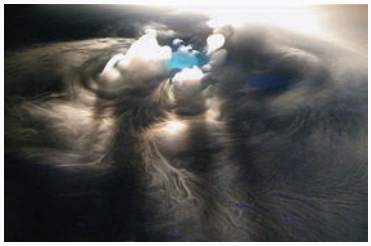
6. An airplane is an example of an object that has two or more _____ acting in a way that changes its motion.

7. Forces that cause an object, like a canoe, to change its motion is called _____.

8. _____ has no definite volume or shape.

9. Sir Isaac Newton studied balanced and unbalanced forces then wrote his firs law of _____.

10. _____ is the change in velocity over time and includes the measure of distance.

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ACCELERATION

AMPLITUDE

FORCES

FREQUENCIES

GAS

LIQUID

MOTION

SOLID

UNBALANCED FORCES

WAVE LENGTH