



MATH

FOR LANGUAGE DEVELOPMENT
BASED ON ALASKA MATH STANDARDS
GRADE 8 • BOOK 2



Sealaska Heritage Institute



UNIT 6: Functions & Relationships

Modeling and Solving Equations & Inequalities

Note: All key terms are based on the Math Standards for Alaska and reflect terms vital to academic achievement in math.



INTRODUCTION OF MATH VOCABULARY

Process Skills

Concrete Introduction of Key Vocabulary

Note: A vocabulary graphic is provided in this unit for each of the key words.

Definitions for all of the key words can be found in the glossary at the back of this program.

algebraic expression

Have the students call out common phrases and write them on the board. Now assign a number and letter for each word in the phrase and write them below with an addition symbol in between. Explain that these combinations of letters and numbers make up an algebraic expression.

inequality

Ask the students to each draw a fruit on the board. Explain that an = sign can be used between the same fruits but that a \neq sign would be appropriate between two different fruits. Consider your favorite fruits and least favorite. The $>$ and $<$ symbols can be used to describe the likeability of each fruit. Explain that \neq , $>$ and $<$ are inequalities in contrast to equalities.

coordinate plane

Draw a rough outline of Alaska on the board then draw a grid with four quadrants over it. Explain that this is a coordinate plane. Ask how many students have been to each quadrant.

Process Skills

Concrete Introduction of Key Vocabulary

Note: A vocabulary graphic is provided in this unit for each of the key words.

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**story (word)
problem**

Explain that in the “real world” math is often used to solve problems or questions that actually exist. Have the students brainstorm small problems that they’ve had recently and how math might have helped them to reach a solution.

similar form

Show the students the picture of many buttons on page 415. Explain that they are all similar in both form and function though they come in several different sizes. What other useful items can they think of that come in different sizes?

variable

Have the students write a funny but appropriate sentence on a sheet of paper. Now have them assign a number for each unique word. They have created a code! Explain that replacing numbers with letters in math creates a code that can help us to visualize problems and more easily solve them.

Process Skills

Concrete Introduction of Key Vocabulary

Note: A vocabulary graphic is provided in this unit for each of the key words.

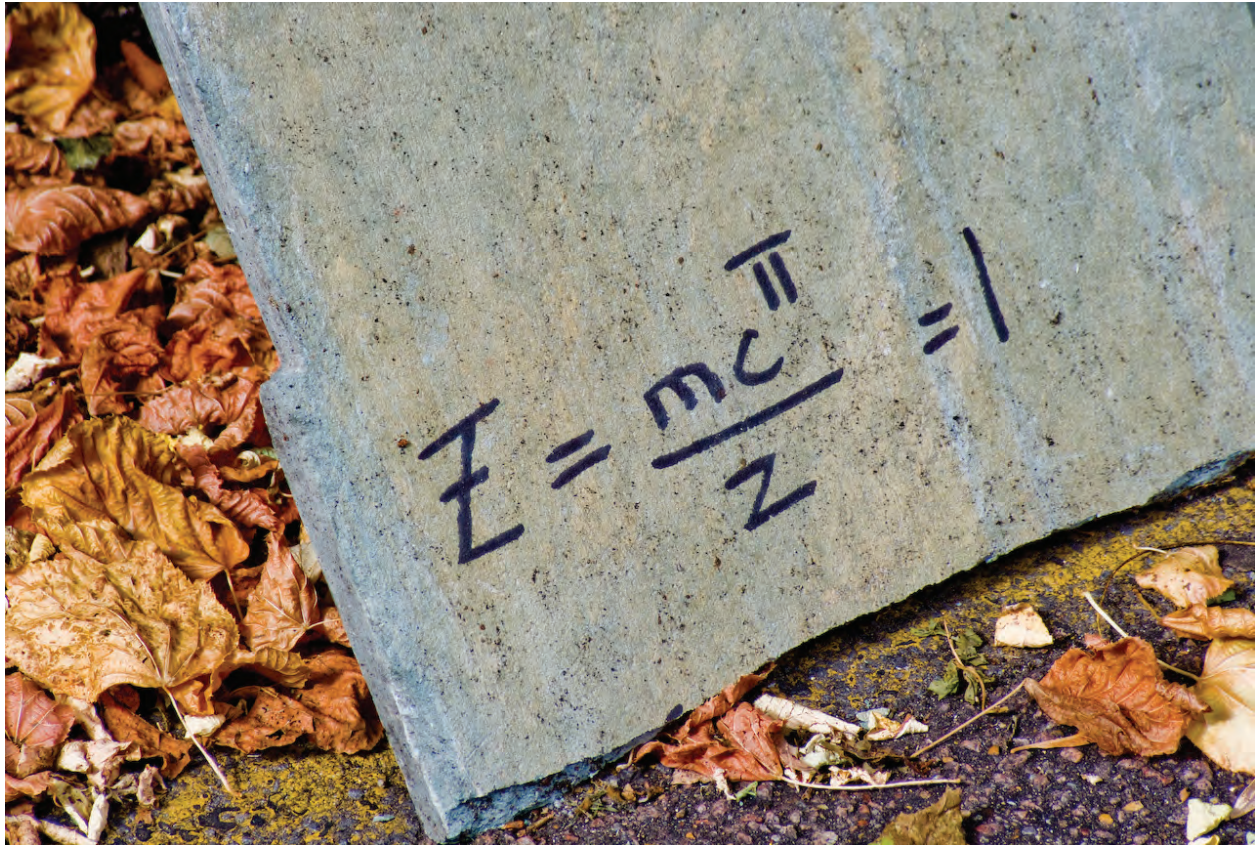
Definitions for all of the key words can be found in the glossary at the back of this program.

value

Place a dollar bill, a family photo, and a diet soda on the table. Ask the students to rate the worth of each item in terms of money. What about in terms of sentiment? Explain that this worth or “value” is dependent on the question asked.



VOCABULARY PICTURES





ALGEBRAIC EXPRESSION



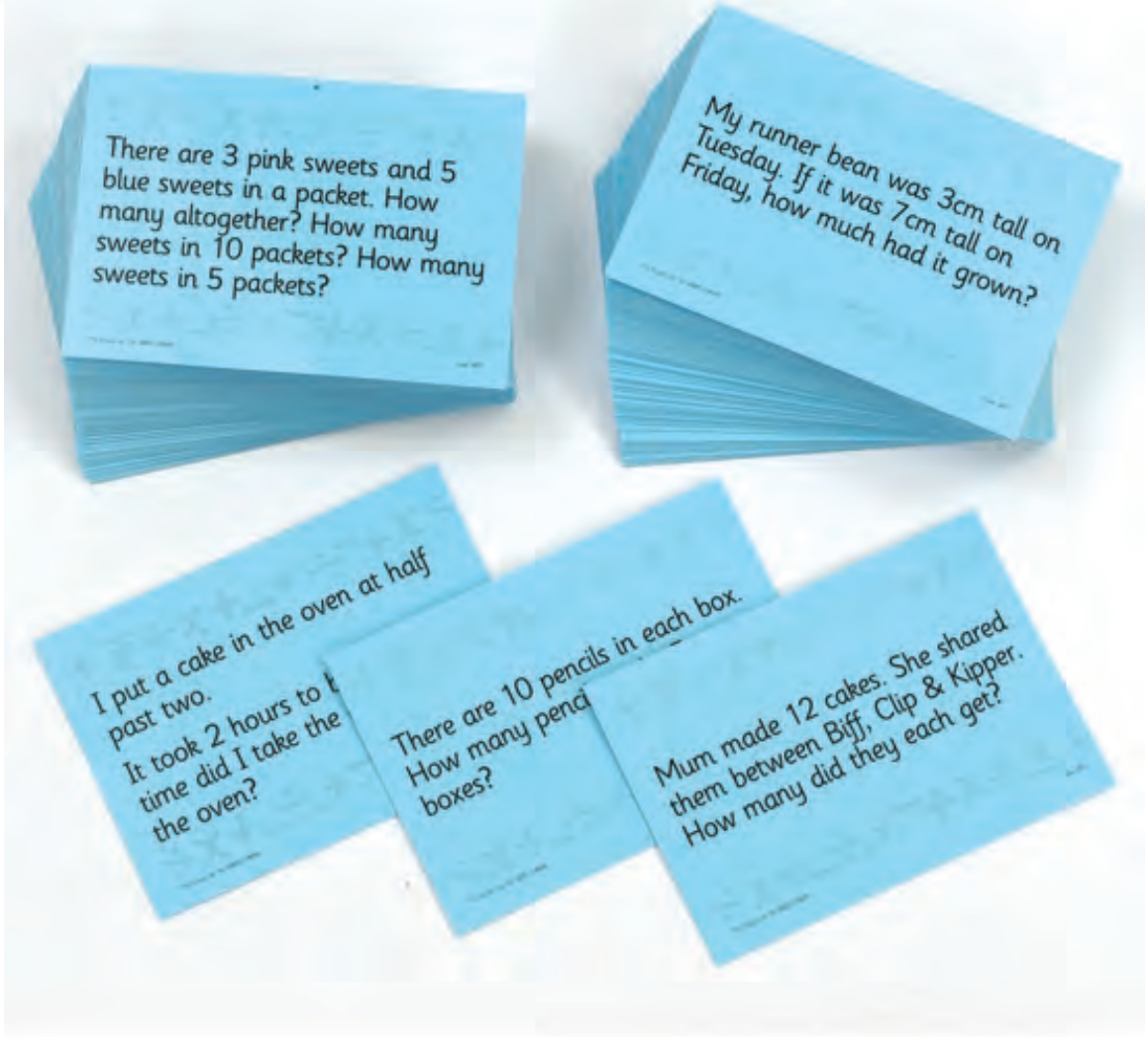


INEQUALITY





COORDINATE PLANE



There are 3 pink sweets and 5 blue sweets in a packet. How many altogether? How many sweets in 10 packets? How many sweets in 5 packets?

My runner bean was 3cm tall on Tuesday. If it was 7cm tall on Friday, how much had it grown?

I put a cake in the oven at half past two.
It took 2 hours to take the time did I take the oven?

There are 10 pencils in each box.
How many pencils in 5 boxes?

Mum made 12 cakes. She shared them between Biff, Clip & Kipper.
How many did they each get?

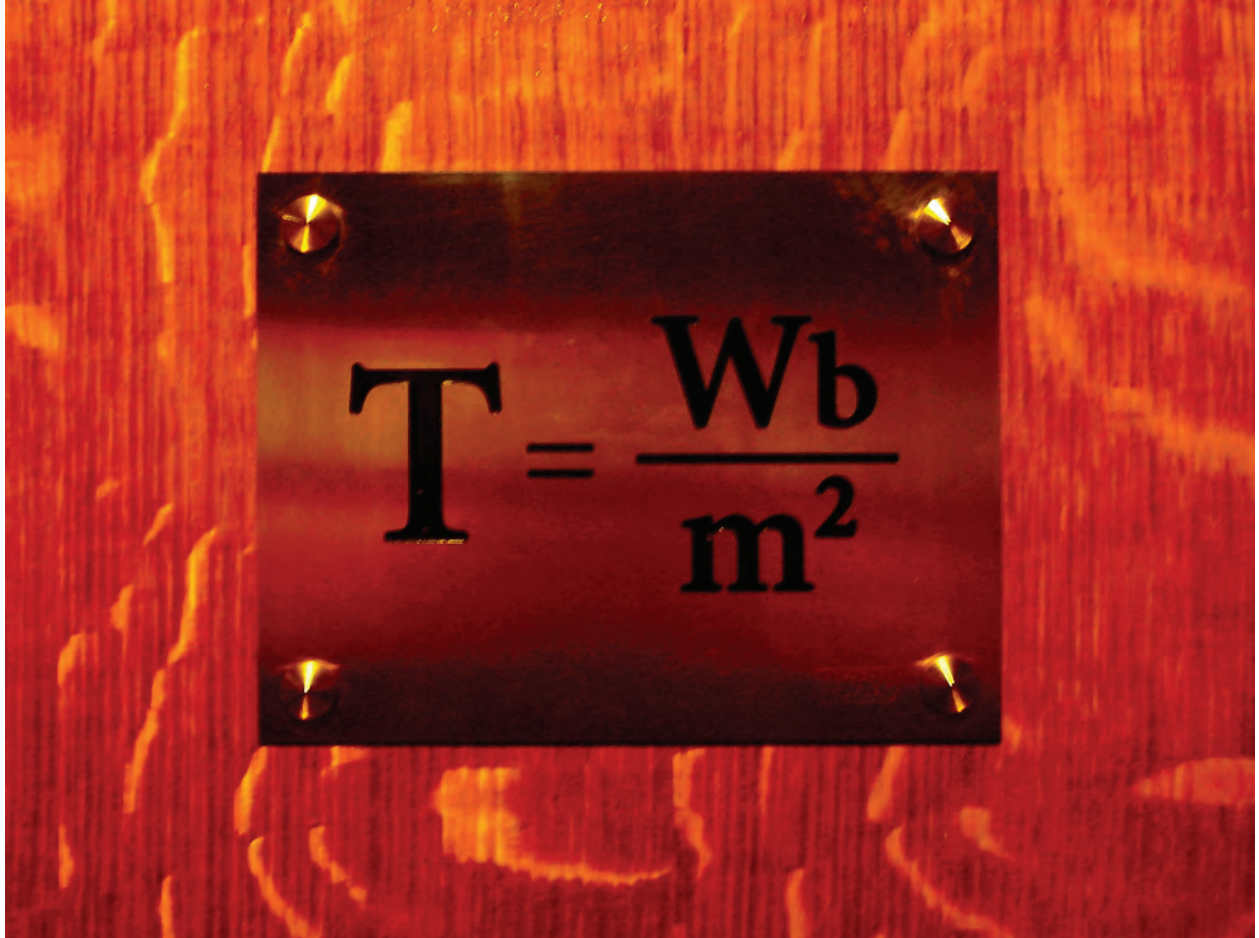


STORY (WORD) PROBLEM





SIMILAR FORM





VARIABLE





VALUE



LANGUAGE ACTIVITIES

Language and Skills Development

LISTENING

Review the key math words introduced in this unit. If the vocabulary pictures were not presented during the introduction, show them to the students at this time.



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.

Language and Skills Development

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.

Language and Skills Development

READING

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



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

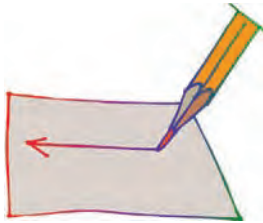
Give each student his/her envelope that contains the alphabet letters. Show a picture from this unit. The students must use the cut-out letters to spell the word for the picture. Review the students' work. Repeat, until all of the words have been spelled.

Student Support Materials

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

Language and Skills Development

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.

Student Support Materials

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



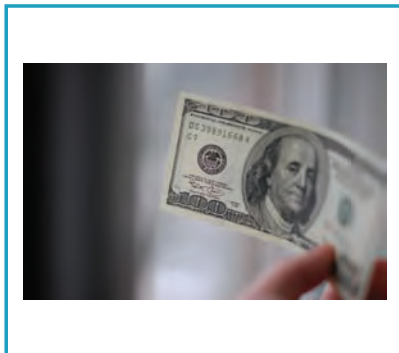
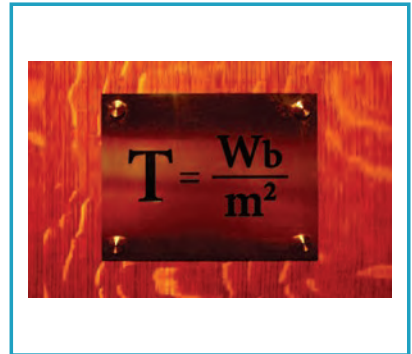
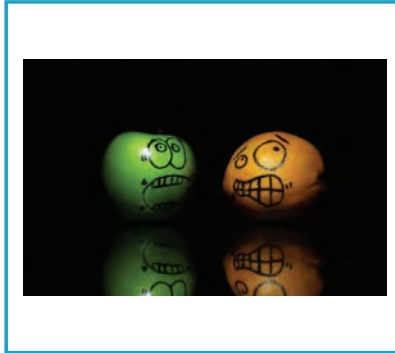
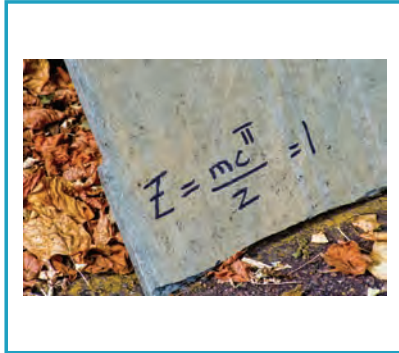
STUDENT SUPPORT MATERIALS

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

Sight Words

algebraic expression

inequality

coordinate





story (word) problem

similar form

variable



value





STUDENT SUPPORT MATERIALS

Reading • Sight Recognition

Sight Words Activity Page



Have the students circle the word for each picture.



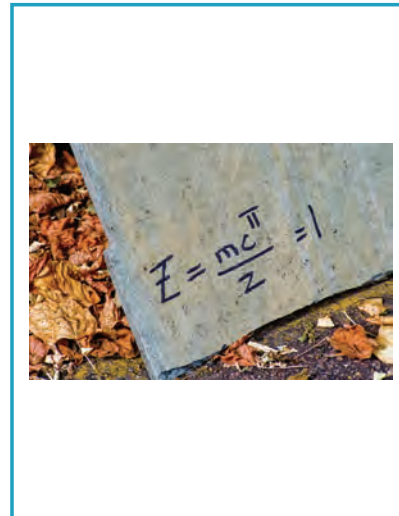
algebraic expression
inequality
coordinate plane
plane
story (word)
problem
similar form
variable
value



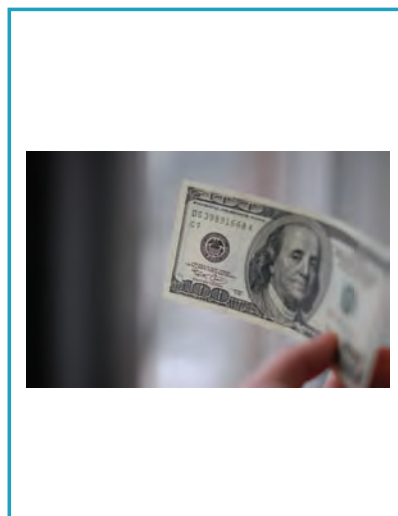
algebraic expression
inequality
coordinate plane
story (word)
problem
similar form
variable
value



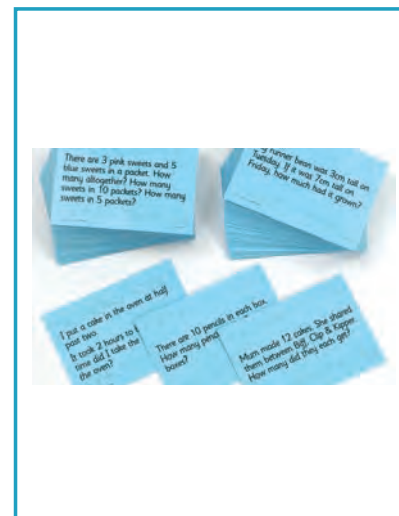
algebraic expression
inequality
coordinate plane
story (word)
problem
similar form
variable
value



algebraic expression
inequality
coordinate plane
story (word)
problem
similar form
variable
value

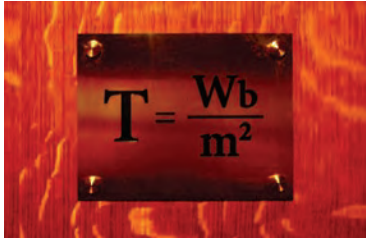


algebraic expression
inequality
coordinate plane
story (word)
problem
similar form
variable
value



algebraic expression
inequality
coordinate plane
story (word)
problem
similar form
variable
value

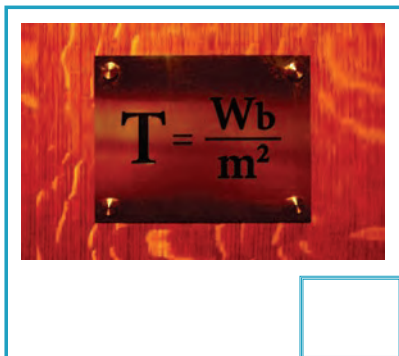
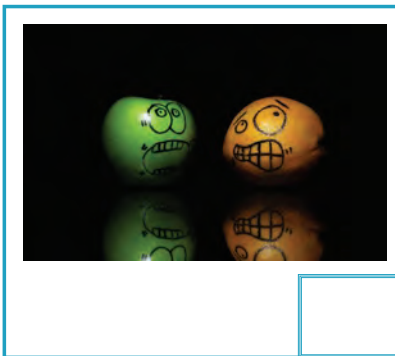
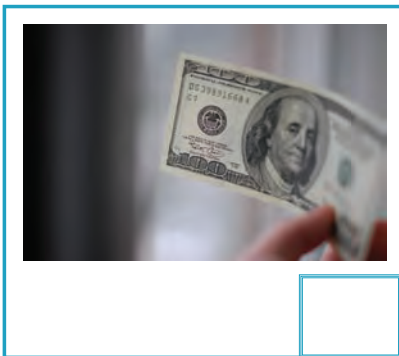
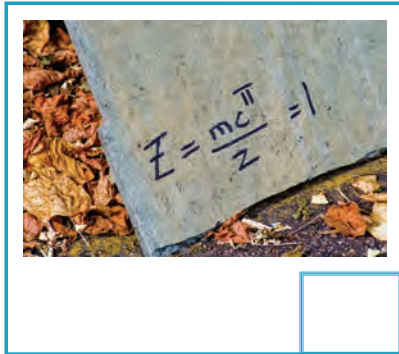
Sight Words Activity Page



algebraic
expression
inequality
coordinate plane
story (word)
problem
similar form
variable
value

Sight Words Activity Page

Write the numbers on their correct vocabulary graphics.



1. algebraic expression
2. inequality
3. coordinate plane
4. story (word) problem
5. similar form
6. variable
7. value

Sight Words Activity Page

Write the key words from this unit horizontally in the boxes (more than one copy of each word can be written). Fill in all other boxes with any letters. Exchange page with another student. Find key words and circle.



Sight Words Activity Page



Highlight or circle the words in this word find.

coordinate plane
variable
similar form
value

inequality
algebraic expression
story problem

i s p o s f x e s i m i l a r f o r t u x l u f v
t i a n b e p c i n e q u a l e p r u u l a i c x
n l s n e c c o o r d i n a t e p l a n e i i r a
n b v o x a i c o o r d i n a t e p l a i r l s i
i s a r e o e l i s t o r y p r o b u e i r b u a
m r l i q x n r c e p s r e e c e d s c q v a l u
e n c i o i v a i l a e p a p i i a i b r r i r
o d r a r i r b r o r e l a v a r i a r o r c s l
i q l e q e r e v c l o y a l r a e m p b r n a u
l o u e n c t r i e l l r r e m a b t q i b l m u
t e f i o e r o e e r r o y b e t i i y b r m a b
e t s a r a i i m v i n e q u a l i t y r b i b r
n r n p a t r i l f a e o c s n i s i y i t v l a
a a p b n s o a r e l e i c a a l o i s d f i x e
a o y f a a r r p c e m t a i u m i g m y r i u r
l s y e q t l r c t e r v a r i a b l e i a e o i
y t i i d s i m i l a r f o r m o i e c v a a e l
s v p o t c n u q u e r e n u e y a t e e a o y q
v e l r i n r a o p f i l s o p l i i a i p l p i
l e n t p s t o r y p r o b l e m n l i t o v y o
r a o e o c b a b o n b c r q a o l o l e e i r s
a l y a l g e b r a i c e x p r e s s i o n p a q
s a c i s f c a t s y y e l i i a f s e u b o s o
l r e c o x m m a r b i s l v a l u e a l e t i e
c f s a l g e b r a i c e x p r e s s n y f a l i
r o a s r u x x m c x m y c o f d i a e a m i i p
l a e m e l u e v e a y m n o n e s r m o c i i p
r s s i c a d l i f p s p i m o v e n r a y i q a
a p o n u q c o r c a o i p r a e a l i b s r y i

Sight Words Activity Page



ANSWER KEY

coordinate plane
variable
similar form
value

inequality
algebraic expression
story problem

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



STUDENT SUPPORT MATERIALS

Reading • Encoding

Encoding Activity Page

Have the students cut out the word parts and glue them into their correct words.



alge_____c expression

in_____ity

c_____nate plane

story (word) p_____m

s_____r form

oordi	brai	alu
-------	------	-----

roble	equal
-------	-------



Encoding Activity Page



va_____le

v_____e

imila	riab
-------	------

Encoding Activity Page



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

algebraic e

lue

in

roblem

coord

xpression

story (word) p

inate plane

sim

ilar form



Encoding Activity Page



vari

able

va

equality

Encoding Activity Page



Cut out and encode the syllables of the words OR number the syllables in their correct sequence.

ge || al || ic || bra

qua || e || in || ty || li

di || nate || co || or || plane

Encoding Activity Page



ry || word || lem || sto || prob

form || si || mi || lar

ble || ri || va || a

Encoding Activity Page



lue va



STUDENT SUPPORT MATERIALS

Reading Comprehension

What's the Answer?



Read the text and then select the correct answer for it. Fill in the bullet beside the answer of your choice.

- ① A combination of numbers and letters equivalent to a phrase in language is an:
- Oddity
 - Problem
 - Phrase of Speech
 - Algebraic Expression
- ② An inequality is a mathematical sentence that includes one of these symbols EXCEPT:
- $>$
 - $<$
 - $=$
 - \neq
- ③ A _____ plane is used for graphing ordered pairs.
- Single Engine
 - Coordinate
 - Turbo Prop
 - Three-Dimensional
- ④ A _____ _____ can either come from a hypothetical situation or a real world problem that needs to be solved!
- Story Problem
 - Best Friend
 - Right Angle
 - Common Courtesy
- ⑤ Many fish species have the same shape but not necessarily the same size. This is an example of
- Nothing
 - Similar Form
 - Exceptionalism
 - Abstract Art

What's the Answer?



- ⑥ The average volume of water exiting the Stikine River can be _____ from year to year.
- Dry
 - Variable
 - Dangerous
 - Right
- ⑦ The _____ of preserving stories, songs and regalia in many Alaska Native cultures is very high.
- Value
 - Excellence
 - Prosperity
 - Method

What's the Answer?



ANSWER KEY

- ① A combination of numbers and letters equivalent to a phrase in language is an:
- Oddity
 - Problem
 - Phrase of Speech
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- ② An inequality is a mathematical sentence that includes one of these symbols EXCEPT:
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- Value
 - Excellence
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 - Method

Reading Comprehension Activity Page

Write the numbers/letters for sentence halves that match.



- | | |
|---|--|
| ① An algebraic expression is a combination of numbers and letters | ① used for graphing ordered pairs. |
| ② The symbols $>$, $<$, and \neq | ② equivalent to a phrase in language. |
| ③ A coordinate plane is | ③ real life or hypothetical scenarios. |
| ④ A story problem uses | ④ represent inequalities. |
| ⑤ Cherries and oranges have similar form | ⑤ predict the weather. |
| ⑥ There are many variables used to | ⑥ but are different sizes. |
| ⑦ The value of an object is not always | ⑦ based on money. |

1 → _____ 2 → _____ 3 → _____ 4 → _____
5 → _____ 6 → _____ 7 → _____

Reading Comprehension Activity Page

ANSWER KEY



- | | |
|---|--|
| ① An algebraic expression is a combination of numbers and letters | ① used for graphing ordered pairs. |
| ② The symbols $>$, $<$, and \neq | ② equivalent to a phrase in language. |
| ③ A coordinate plane is | ③ real life or hypothetical scenarios. |
| ④ A story problem uses | ④ represent inequalities. |
| ⑤ Cherries and oranges have similar form | ⑤ predict the weather. |
| ⑥ There are many variables used to | ⑥ but are different sizes. |
| ⑦ The value of an object is not always | ⑦ based on money. |

1 → B 2 → D 3 → A 4 → C
5 → F 6 → E 7 → G

Reading Comprehension Activity Page

Cut out the words and glue them under their definitions.



Includes $>$, $<$ or \neq

Used for graphing ordered pairs

Same shape different size

Symbol representing numbers

Magnitude, Quantity or Number

Combination of numbers and letters

Math in hypothetical or real situations

algebraic expression **inequality** **coordinate plane** **story (word) problem**
similar form **variable** **value**



Reading Comprehension Activity Page

ANSWER KEY



Includes $>$, $<$ or \neq

inequality

**Used for graphing
ordered pairs**

coordinate plane

**Same shape different
size**

similar form

**Symbol representing
numbers**

variable

**Magnitude, Quantity
or Number**

value

**Combination of
numbers and letters**

algebraic expression

**Math in hypothetical
or real situations**

story (word) problem

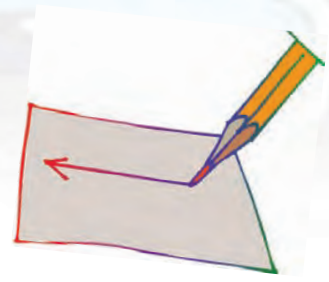


STUDENT SUPPORT MATERIALS

Writing

Writing Activity Page

Have the students complete the writing of the key math words.



al _____ raic ex _____ ssion

ine _____ ity

coor _____ ate pl _____ e

st _____ y (w_ rd) pr _____ lem

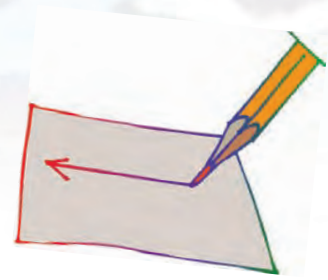
sim _____ r f _____ rm

var _____ le

va _____ ue

Writing Activity Page

Have the students complete the writing of the key math words.



a _____ **e** _____ **n**

i _____ **y**

c _____ **p** _____ **e**

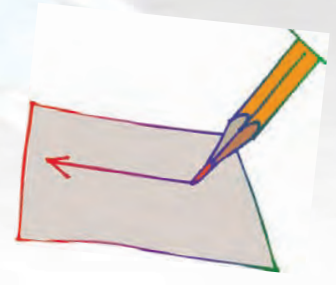
s _____ (**w** _____) **p** _____ **m**

s _____ **f** _____

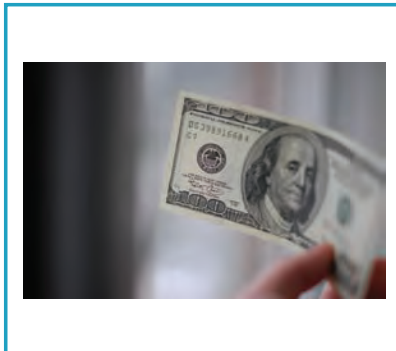
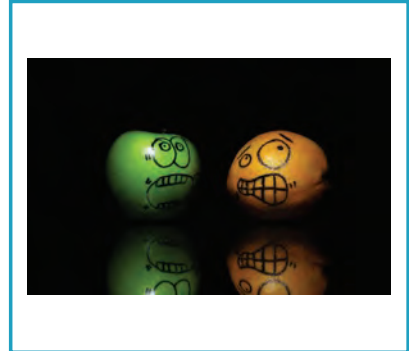
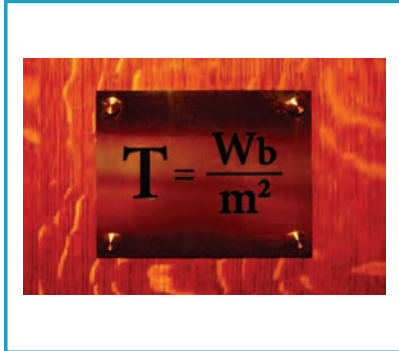
v _____ **l** **e**

v _____ **e**

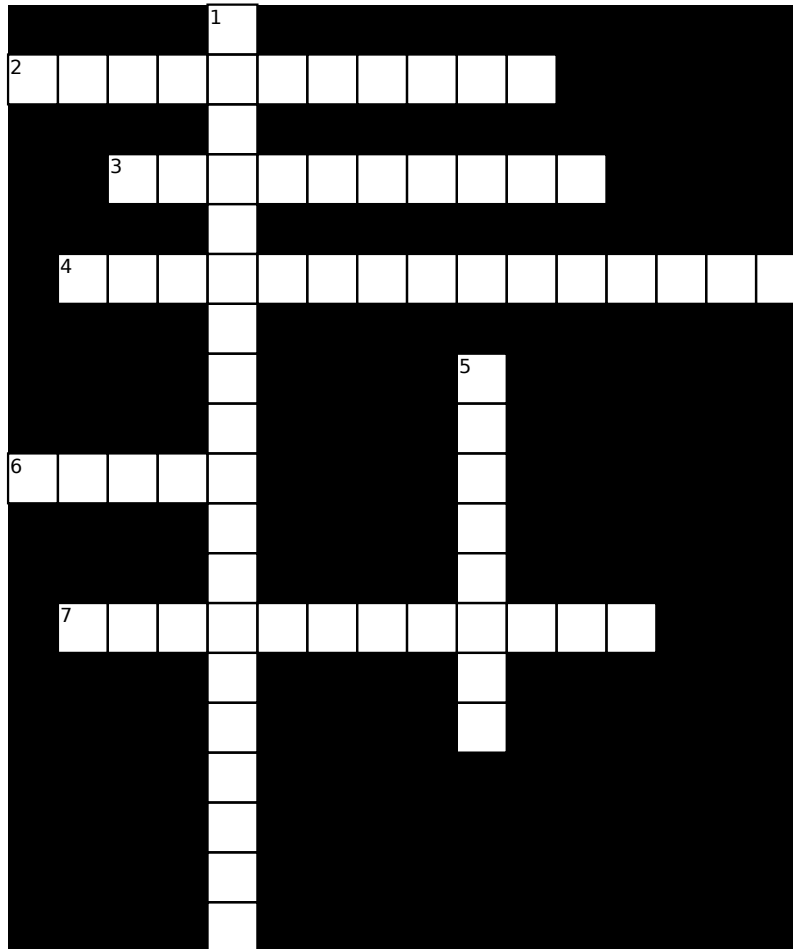
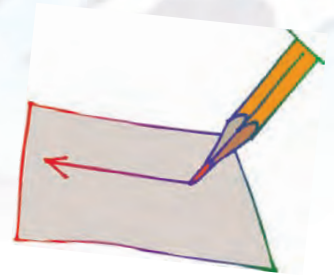
Basic Writing Activity Page



Have the students write the word for each picture.



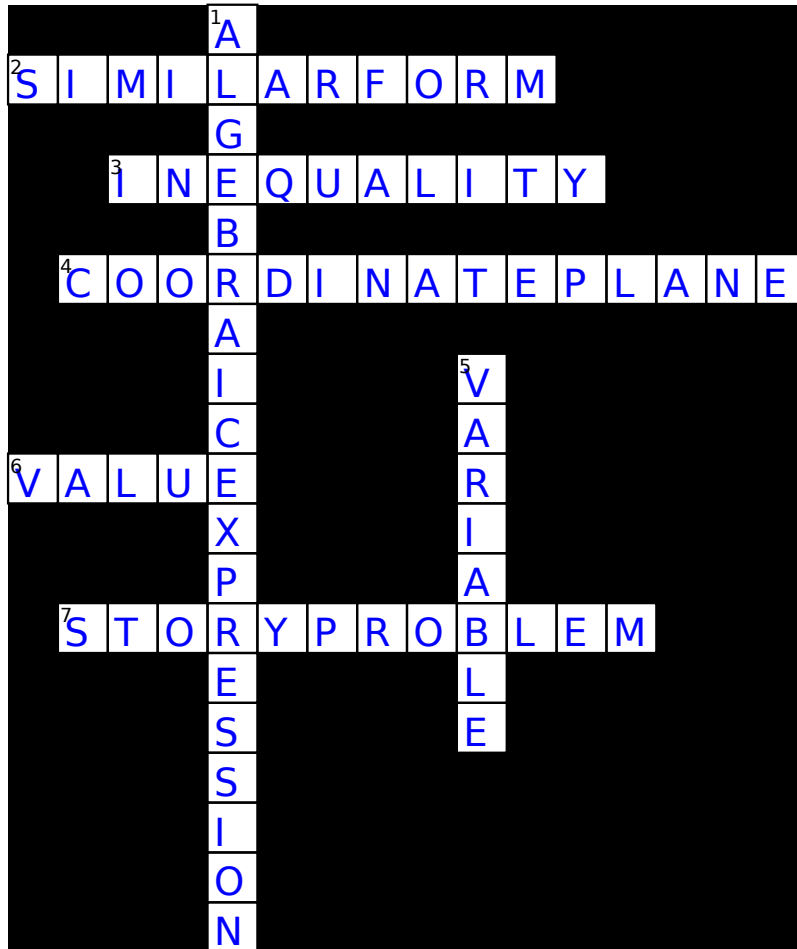
Crossword Puzzle



- 2 Across
Same shape
different size (2
Words)
- 3 Includes $>$, $<$ or \neq
- 4 Used for graphing
ordered pairs (2
Words)
- 6 Magnitude,
quantity or number
- 7 Math in
hypothetical or real
situations (2
Words)

- 1 Down
Combination of
numbers and letters
(2 Words)
- 5 Symbol representing
numbers

Crossword Puzzle Answers



- | | | | |
|---|---|------|--|
| | Across | Down | |
| 2 | Same shape different size (2 Words) | 1 | Combination of numbers and letters (2 Words) |
| 3 | Includes $>$, $<$ or \neq | 5 | Symbol representing numbers |
| 4 | Used for graphing ordered pairs (2 Words) | | |
| 6 | Magnitude, quantity or number | | |
| 7 | Math in hypothetical or real situations (2 Words) | | |



UNIT ASSESSMENT



Modeling and Solving Equations & Inequalities

Unit Assessment Teacher's Notes
Grade 8 • Unit 6

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 **ALGEBRAIC EXPRESSION**.
2. Write the number 2 by the picture for **INEQUALITY**.
3. Write the number 3 by the picture for **COORDINATE PLANE**.
4. Write the number 4 by the picture for **STORY (WORD) PROBLEM**.
5. Write the number 5 by the picture for **SIMILAR FORM**.
6. Write the number 6 by the picture for **VARIABLE**.
7. Write the number 7 by the picture for **VALUE**.

SIGHT RECOGNITION

Turn to page 2 in your test. Look at the pictures in the boxes. Circle the word for each picture.

DECODING/ENCODING

Turn to page 3 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 4 in your test. Write each word under its definition.

Refer to Student Support Materials for answer key.

BASIC WRITING

Turn to page 5 in your test. Look at the pictures in the boxes. Write the word for each picture.



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.



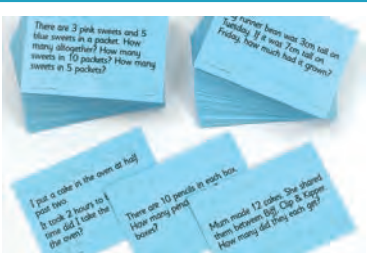
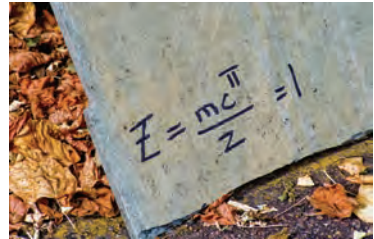
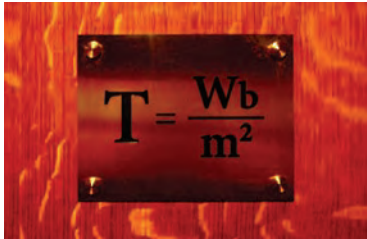


MATH PROGRAM

Unit Assessment Student Pages
Grade 8 • Unit 6

Date: _____ Student's Name: _____

Number Correct: _____ Percent Correct: _____

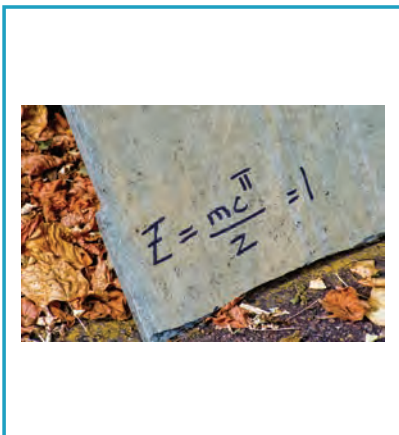




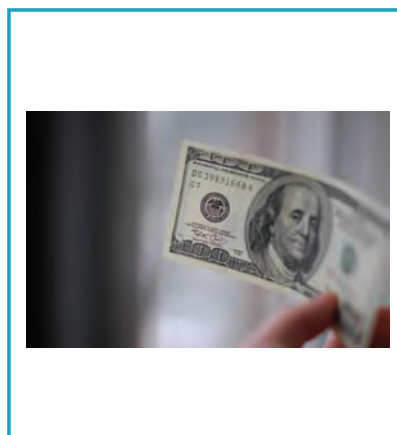
algebraic expression
inequality
coordinate plane
story (word)
problem
similar form
variable
value



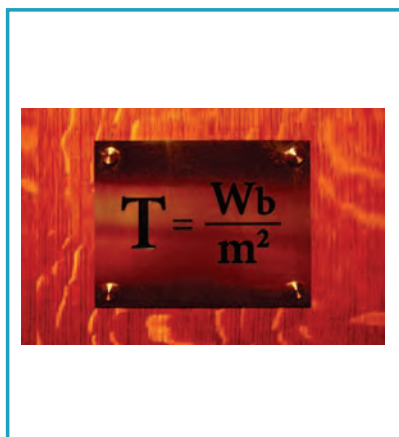
algebraic expression
inequality
coordinate plane
story (word)
problem
similar form
variable
value



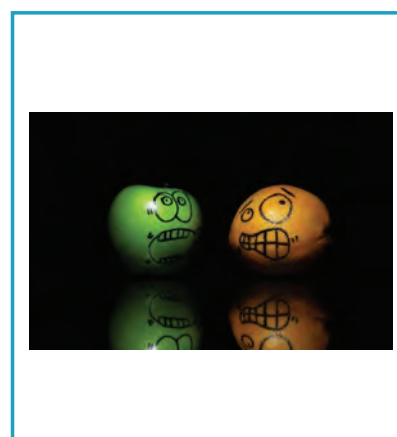
algebraic expression
inequality
coordinate plane
story (word)
problem
similar form
variable
value



algebraic expression
inequality
coordinate plane
story (word)
problem
similar form
variable
value



algebraic expression
inequality
coordinate plane
story (word)
problem
similar form
variable
value



algebraic expression
inequality
coordinate plane
story (word)
problem
similar form
variable
value



algebraic expression
inequality
coordinate plane
story (word)
problem
similar form
variable
value

algeb____
expression

rack
reck
rick
rock
ruck
raac
raec
raic
raoc

inequa____

laty
lety
lity
loty
luty
latty
letty
litty
lotty

coordi____
plane

nat
net
nit
not
nut
nate
nete
nite
note

s____
problem

ary
ery
iry
ory
ury
tary
tery
tory
tury

sim____
form

alor
elor
ilor
olor
ulor
alar
elar
ilar
olar

vari____

abal
abel
abil
abol
abul
able
eble
ible
oble

v____

alu
elu
ilu
olu
ulu
alue
elue
ilue
olue

Includes $>$, $<$ or \neq

**Used for graphing
ordered pairs**

**Same shape different
size**

**Symbol representing
numbers**

**Magnitude, Quantity
or Number**

**Combination of
numbers and letters**

**Math in hypothetical
or real situations**

**algebraic
expression**

inequality

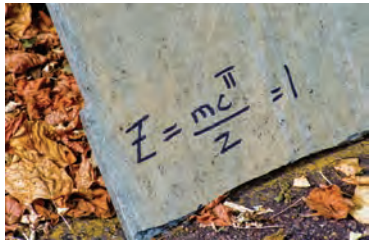
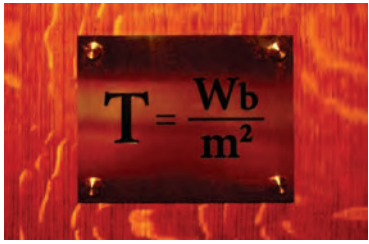
coordinate plane

**story (word)
problem**

similar form

variable

value





UNIT 7: Geometry

Geometric Relationships

Note: All key terms are based on the Math Standards for Alaska and reflect terms vital to academic achievement in math.



INTRODUCTION OF MATH VOCABULARY

Process Skills

Concrete Introduction of Key Vocabulary

Note: A vocabulary graphic is provided in this unit for each of the key words.

Definitions for all of the key words can be found in the glossary at the back of this program.

attribute

Show the students the picture of Devil's Club on page 485. Ask them to each come to the board and list a unique characteristic of the plant. Explain that these are attributes. Are there any funny or painful stories involving this local species?

vertices

Explain that vertices can be found all around us. Have the students make a list of the objects in the room with vertices. They have one minute to make the longest list possible!

alignment

Push a toy car across the room. If it veers to one side, exclaim "I need an alignment!" Explain that alignments on vehicles help them to drive in a straight line. This same concept occurs in math when we arrange items in a straight line. Driving wouldn't be possible otherwise!

Process Skills

Concrete Introduction of Key Vocabulary

Note: A vocabulary graphic is provided in this unit for each of the key words.

Definitions for all of the key words can be found in the glossary at the back of this program.

bases

Show the students a potted plant. Ask them to describe the base of the plant. What would happen if it didn't have a base? Explain that the plant would likely not grow!

cylinders

Show the students an empty toilet paper roll and an empty paper towel roll. Explain that these are cylinders that are used in our daily lives. Put the students in two teams and have them make a list of cylinders they encounter in their households. Who can come up with the most?

cones

Give the students 5–10 minutes to write a short story involving an ice cream cone AND a traffic cone. Have them read this aloud. Ask “what is a cone?”

Process Skills

Concrete Introduction of Key Vocabulary

Note: A vocabulary graphic is provided in this unit for each of the key words.

Definitions for all of the key words can be found in the glossary at the back of this program.

prisms

Explain the definition of a prism to the students. Using only a long sheet of plastic wrap, have student pairs make miniature prisms.

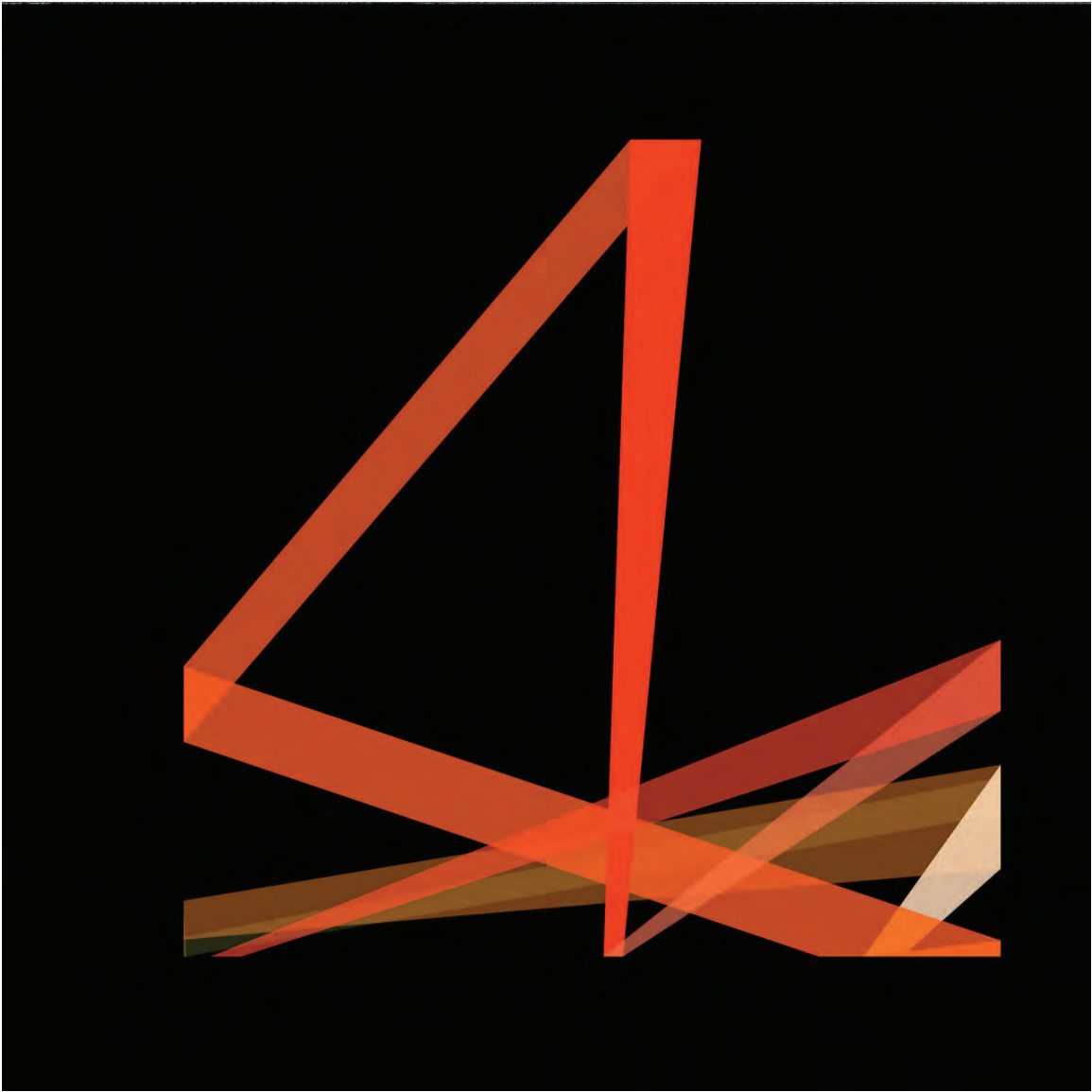


VOCABULARY PICTURES





ATTRIBUTE





VERTICES





ALIGNMENT





BASES





CYLINDERS





CONES





PRISMS



LANGUAGE ACTIVITIES

Language and Skills Development

LISTENING

Review the key math words introduced in this unit. If the vocabulary pictures were not presented during the introduction, show them to the students at this time.



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.

Language and Skills Development

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.

Language and Skills Development

READING

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



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

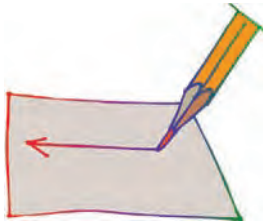
Give each student his/her envelope that contains the alphabet letters. Show a picture from this unit. The students must use the cut-out letters to spell the word for the picture. Review the students' work. Repeat, until all of the words have been spelled.

Student Support Materials

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

Language and Skills Development

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.

Student Support Materials

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

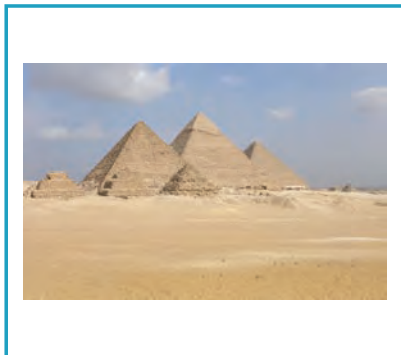
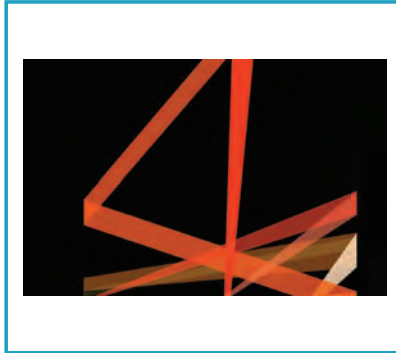


STUDENT SUPPORT MATERIALS

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

Sight Words



attribute

vertices

alignment





bases

cylinders

cones



prisms





STUDENT SUPPORT MATERIALS

Reading • Sight Recognition

Sight Words Activity Page



Have the students circle the word for each picture.



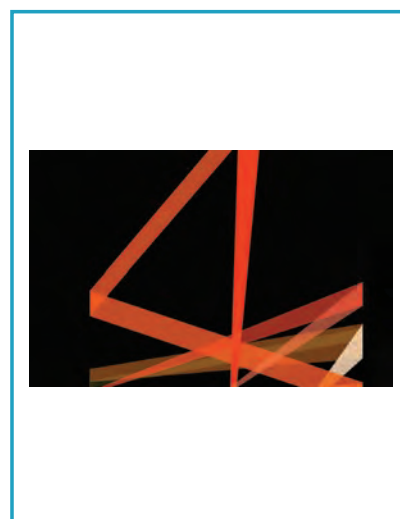
attribute
vertices
alignment
bases
cylinders
cones
prisms



attribute
vertices
alignment
bases
cylinders
cones
prisms



attribute
vertices
alignment
bases
cylinders
cones
prisms



attribute
vertices
alignment
bases
cylinders
cones
prisms



attribute
vertices
alignment
bases
cylinders
cones
prisms



attribute
vertices
alignment
bases
cylinders
cones
prisms

Sight Words Activity Page

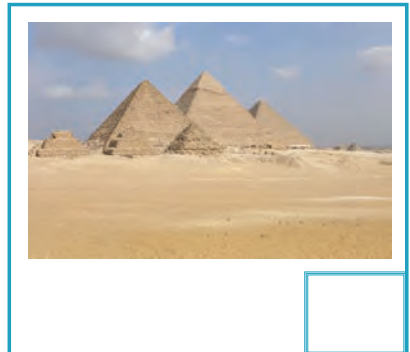
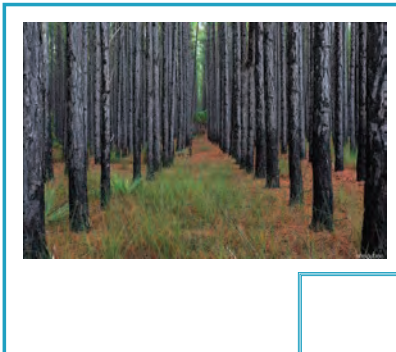
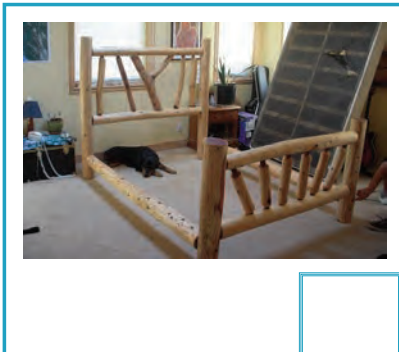
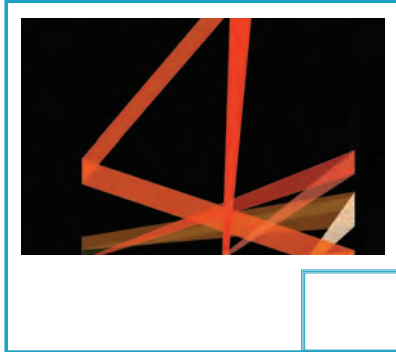


- attribute**
- vertices**
- alignment**
- bases**
- cylinders**
- cones**
- prisms**

Sight Words Activity Page



Write the numbers on their correct vocabulary graphics.



1. attribute
2. vertices
3. alignment
4. bases
5. cylinders
6. cones
7. prisms

Sight Words Activity Page



Highlight or circle the words in this word find.

cylinders
bases

prisms
cones

vertices
alignment

attribute

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

Sight Words Activity Page

ANSWER KEY



cylinders
bases

prisms
cones

vertices
alignment

attribute

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



STUDENT SUPPORT MATERIALS

Reading • Encoding

Encoding Activity Page

Have the students cut out the word parts and glue them into their correct words.



a _____ ute

ver _____ s

a _____ ment

b _____ s

c _____ ers

ylind	ttrib	tice
-------	-------	------

rism	one
------	-----



Encoding Activity Page



c _____ **s**

p _____ **s**

ase lign

Encoding Activity Page



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

att

rtices

ve

inders

alig

ribute

ba

isms

cyl

nes



Encoding Activity Page



co

ses

pr

nment

Encoding Activity Page



Cut out and encode the syllables of the words OR number the syllables in their correct sequence.

tri || at || bute

ces || ver || ti

lign || a || ment

Encoding Activity Page



ba ses

ders lin cy

cones

prisms



STUDENT SUPPORT MATERIALS

Reading Comprehension

What's the Answer?



Read the text and then select the correct answer for it. Fill in the bullet beside the answer of your choice.

- ① The prominent hump on a brown bear's back is one of its _____.
 - Attributes
 - Prey Items
 - Hibernation Tools
 - Accessories

- ② _____ are points of intersection between two rays, two sides of a polygon or two edges of a solid.
 - Hoops
 - Sides
 - Vertices
 - Curvatures

- ③ A car that is pulling to one side may need an _____ to allow it to drive in a straight line.
 - Overhaul
 - Brake Change
 - Oil Change
 - Alignment

- ④ The foundation of a house is its _____
 - Roof
 - Bathroom
 - Attic
 - Base

- ⑤ Large water-holding containers for towns and cities are often in the shape of _____
 - Dog Biscuits
 - Cylinders
 - Shellfish
 - Triangles

What's the Answer?



- ⑥ Ice-cream is sometimes put into an edible container in the shape of a
- Spoon
 - Cone
 - Square
 - Kettle
- ⑦ A figure with two ends that are similar, equal, parallel rectilinear figures whose sides are parallelograms is a:
- Cone
 - Prism
 - Pyramid
 - Circle

What's the Answer?



ANSWER KEY

- ① The prominent hump on a brown bear's back is one of its _____.
- Attributes
 - Prey Items
 - Hibernation Tools
 - Accessories
- ② _____ are points of intersection between two rays, two sides of a polygon or two edges of a solid.
- Hoops
 - Sides
 - Vertices
 - Curvatures
- ③ A car that is pulling to one side may need an _____ to allow it to drive in a straight line.
- Overhaul
 - Brake Change
 - Oil Change
 - Alignment
- ④ The foundation of a house is its _____.
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 - Bathroom
 - Attic
 - Base
- ⑤ Large-water holding containers for towns and cities are often in the shape of _____.
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 - Cylinders
 - Shellfish
 - Triangles

What's the Answer?



- ⑥ Ice-cream is sometimes put into an edible container in the shape of a
- Spoon
 - Cone
 - Square
 - Kettle
- ⑦ A figure with two ends that are similar, equal, parallel rectilinear figures whose sides are parallelograms is a:
- Cone
 - Prism
 - Pyramid
 - Circle

Reading Comprehension Activity Page

Write the numbers/letters for sentence halves that match.



- | | |
|---|---------------------------------------|
| ① One attribute of a male black-tail deer | ⑨ it is likely to wobble or collapse. |
| ② The vertices of the room are | ⑩ both liquids and gasses. |
| ③ The alignment of a tape measure along a surface | ⑪ to warn of traffic of hazards. |
| ④ If the base of a chair or table is broken, | ⑫ the refraction of light. |
| ⑤ Cylinders are often used to store | ⑬ often referred to as corners. |
| ⑥ Orange or red plastic cones are often used | ⑭ can be important for accuracy! |
| ⑦ Some prisms are used in classrooms to display | ⑮ is their annual growth of antlers. |

1→ _____ 2→ _____ 3→ _____ 4→ _____
5→ _____ 6→ _____ 7→ _____

Reading Comprehension Activity Page

ANSWER KEY



- | | |
|---|---------------------------------------|
| ① One attribute of a male black-tail deer | ① it is likely to wobble or collapse. |
| ② The vertices of the room are | ② both liquids and gasses. |
| ③ The alignment of a tape measure along a surface | ③ to warn of traffic of hazards. |
| ④ If the base of a chair or table is broken, | ④ the refraction of light. |
| ⑤ Cylinders are often used to store | ⑤ often referred to as corners. |
| ⑥ Orange or red plastic cones are often used | ⑥ can be important for accuracy! |
| ⑦ Some prisms are used in classrooms to display | ⑦ is their annual growth of antlers. |

1→ G 2→ E 3→ F 4→ A
5→ B 6→ C 7→ D

Reading Comprehension Activity Page

Cut out the words and glue them under their definitions.



Arrangement in a straight line

Points of intersection

Circle base with tapering sides

Two congruent and parallel faces

Circular sides and parallel lines

Characteristic

Bottom support

attribute vertices alignment bases
cylinders cones prisms



Reading Comprehension Activity Page

ANSWER KEY



Arrangement in a straight line

alignment

Points of intersection

vertices

Circle base with tapering sides

cones

Two congruent and parallel faces

prisms

Circular sides and parallel lines

cylinders

Characteristic

attribute

Bottom support

bases

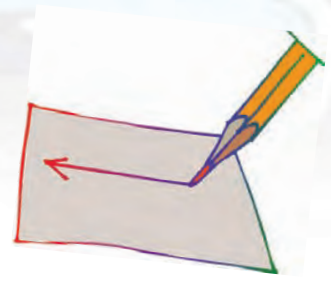


STUDENT SUPPORT MATERIALS

Writing

Writing Activity Page

Have the students complete the writing of the key math words.



att_____ute

ver_____es

align_____t

b_____es

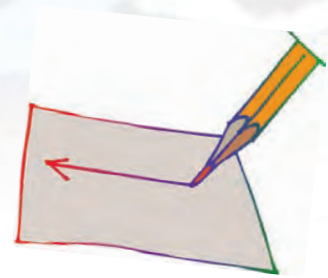
cy_____ders

c_____es

pr_____s

Writing Activity Page

Have the students complete the writing of the key math words.



a _____ **e**

v _____ **s**

a _____ **t**

b _____ **s**

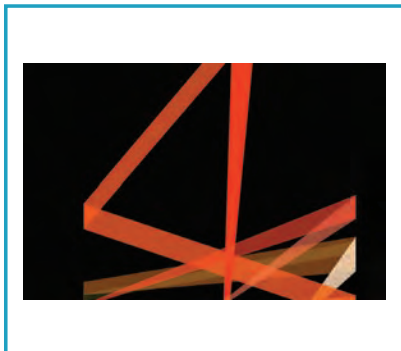
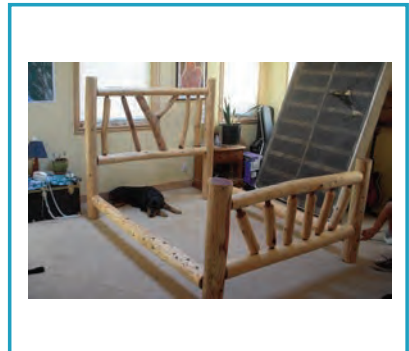
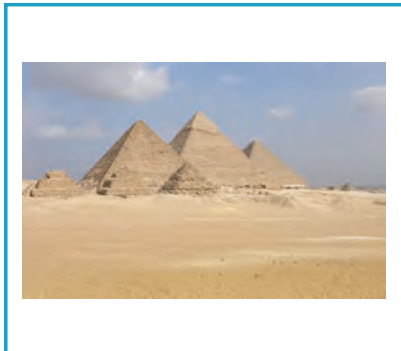
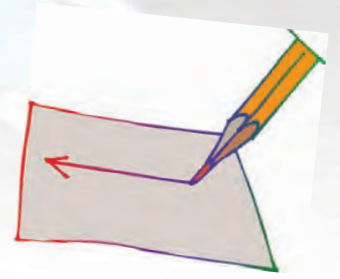
cy _____ **s**

c _____ **s**

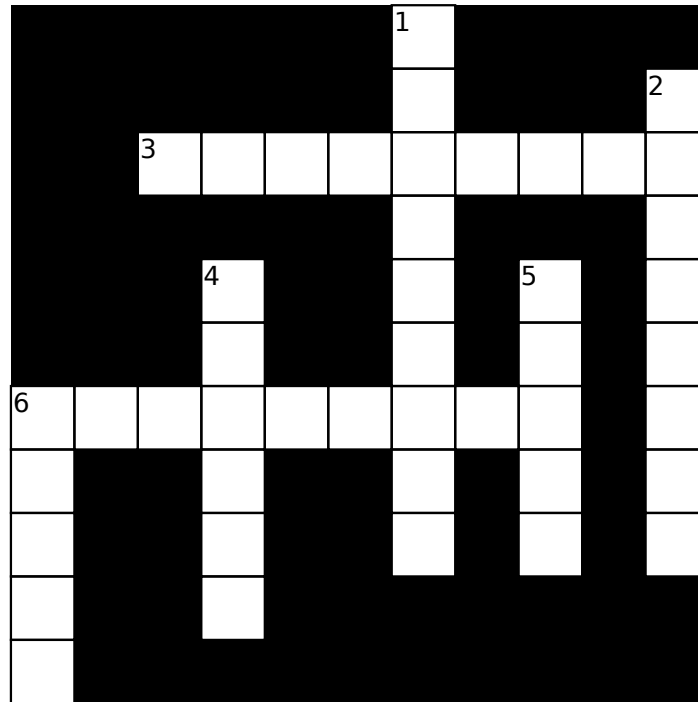
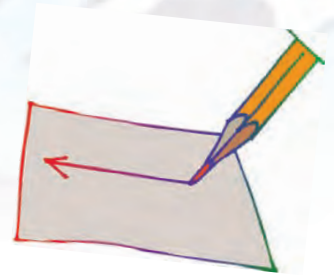
p _____ **s**

Basic Writing Activity Page

Have the students write the word for each picture.

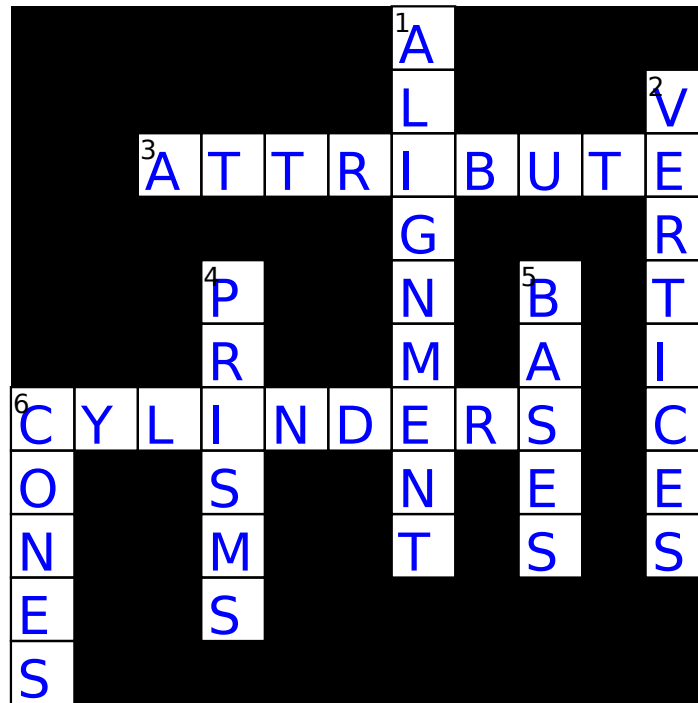


Crossword Puzzle



- | Across | | Down | |
|--------|-----------------------------------|------|----------------------------------|
| 3 | Characteristic | 1 | Arrangement in a straight line |
| 6 | Circular sides and parallel lines | 2 | Points of intersection |
| | | 4 | Two congruent and parallel faces |
| | | 5 | Bottom support |
| | | 6 | Circle base with tapering sides |

Crossword Puzzle Answers



- | Across | | Down | |
|--------|-----------------------------------|------|----------------------------------|
| 3 | Characteristic | 1 | Arrangement in a straight line |
| 6 | Circular sides and parallel lines | 2 | Points of intersection |
| | | 4 | Two congruent and parallel faces |
| | | 5 | Bottom support |
| | | 6 | Circle base with tapering sides |



UNIT ASSESSMENT



Geometric Relationships

Unit Assessment Teacher's Notes
Grade 8 • Unit 7

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 **ATTRIBUTE**.
2. Write the number 2 by the picture for **VERTICES**.
3. Write the number 3 by the picture for **ALIGNMENT**.
4. Write the number 4 by the picture for **BASES**.
5. Write the number 5 by the picture for **CYLINDERS**.
6. Write the number 6 by the picture for **CONES**.
7. Write the number 7 by the picture for **PRISMS**.

SIGHT RECOGNITION

Turn to page 2 in your test. Look at the pictures in the boxes. Circle the word for each picture.

DECODING/ENCODING

Turn to page 3 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 4 in your test. Write each word under its definition.

Refer to Student Support Materials for answer key.

BASIC WRITING

Turn to page 5 in your test. Look at the pictures in the boxes. Write the word for each picture.



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.



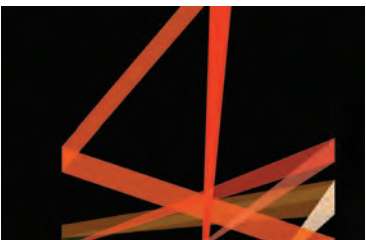


MATH PROGRAM

Unit Assessment Student Pages
Grade 8 • Unit 7

Date: _____ Student's Name: _____

Number Correct: _____ Percent Correct: _____





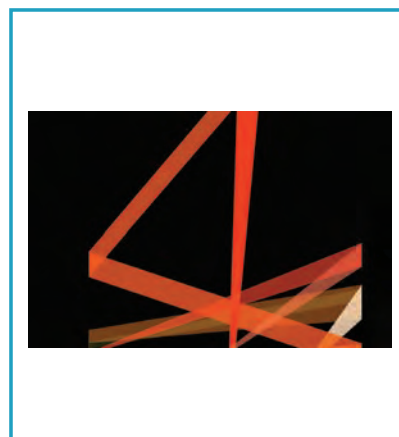
attribute
 vertices
 alignment
 bases
 cylinders
 cones
 prisms



attribute
 vertices
 alignment
 bases
 cylinders
 cones
 prisms



attribute
 vertices
 alignment
 bases
 cylinders
 cones
 prisms



attribute
 vertices
 alignment
 bases
 cylinders
 cones
 prisms



attribute
 vertices
 alignment
 bases
 cylinders
 cones
 prisms



attribute
 vertices
 alignment
 bases
 cylinders
 cones
 prisms



attribute
 vertices
 alignment
 bases
 cylinders
 cones
 prisms

attri_____

bate
bete
bite
bote
bute
tate
tete
tite
tote

vert_____

aces
eces
ices
oces
uces
ates
etes
ites
utes

align_____

ant
ent
int
ont
unt
mant
ment
mint
mont

b_____

acas
aces
acis
acos
acus
asas
ases
asos
asus

cylin_____

tars
ters
tirs
tors
turs
dars
ders
dirs
dors

c_____

ames
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imes
omes
umes
ains
enes
ines
ones

pr_____

asns
esns
isns
osns
usns
asms
esms
isms
osms



Arrangement in a straight line

Points of intersection

Circle base with tapering sides

Two congruent and parallel faces

Circular sides and parallel lines

Characteristic

Bottom support

cones

attribute

vertices

cylinders

prisms

bases

alignment





UNIT 8: Geometry

Similarity, Congruence, Symmetry & Transformation of Shapes

Note: All key terms are based on the Math Standards for Alaska and reflect terms vital to academic achievement in math.



INTRODUCTION OF MATH VOCABULARY

Process Skills

Concrete Introduction of Key Vocabulary

Note: A vocabulary graphic is provided in this unit for each of the key words.

Definitions for all of the key words can be found in the glossary at the back of this program.

symmetry

The human mind often prefers things that are symmetric in form. Ask the students to list objects in the room that are symmetric. Which are not symmetric and why?

transformation

Pass out an animal cracker to each student. Ask them to do an outline of the shape on a piece of paper using a pencil. Now ask them to do a series of shape transformations. How did they “transform” the shape?

proportionality

Show the students a cherry and a grapefruit. Explain that though they can be slightly different sizes from time to time, grapefruits are generally proportionally larger than cherries and that the relationship holds constant. That relationship is also seen between variables in some mathematic equations!

Process Skills

Concrete Introduction of Key Vocabulary

Note: A vocabulary graphic is provided in this unit for each of the key words.

Definitions for all of the key words can be found in the glossary at the back of this program.

translations

Give the students a piece of graph paper and ask them to draw a small simple figure or object. Now have them duplicate that object by moving each point the same distance in the same direction. Explain that this is a translation.

rotations

Have each student draw the front of a penny on a piece of paper including an Abraham Lincoln with a funny face. Now have them draw the penny upside down. Explain that this was a rotation of the shape. Who has the funniest Lincoln?

reflections

Show the students the picture of the horses on the beach on page 573. Explain that their image is being reflected on the water. Have them draw an animal and reflect it on the paper. Who had the most accurate reflection?

Process Skills

Concrete Introduction of Key Vocabulary

Note: A vocabulary graphic is provided in this unit for each of the key words.

Definitions for all of the key words can be found in the glossary at the back of this program.

dilatations

Have the students draw a plane figure in many sizes. Explain that dilatations are enlargements or reductions of a plane figure. Why would you want to enlarge or reduce a figure without changing its shape?



VOCABULARY PICTURES





SYMMETRY



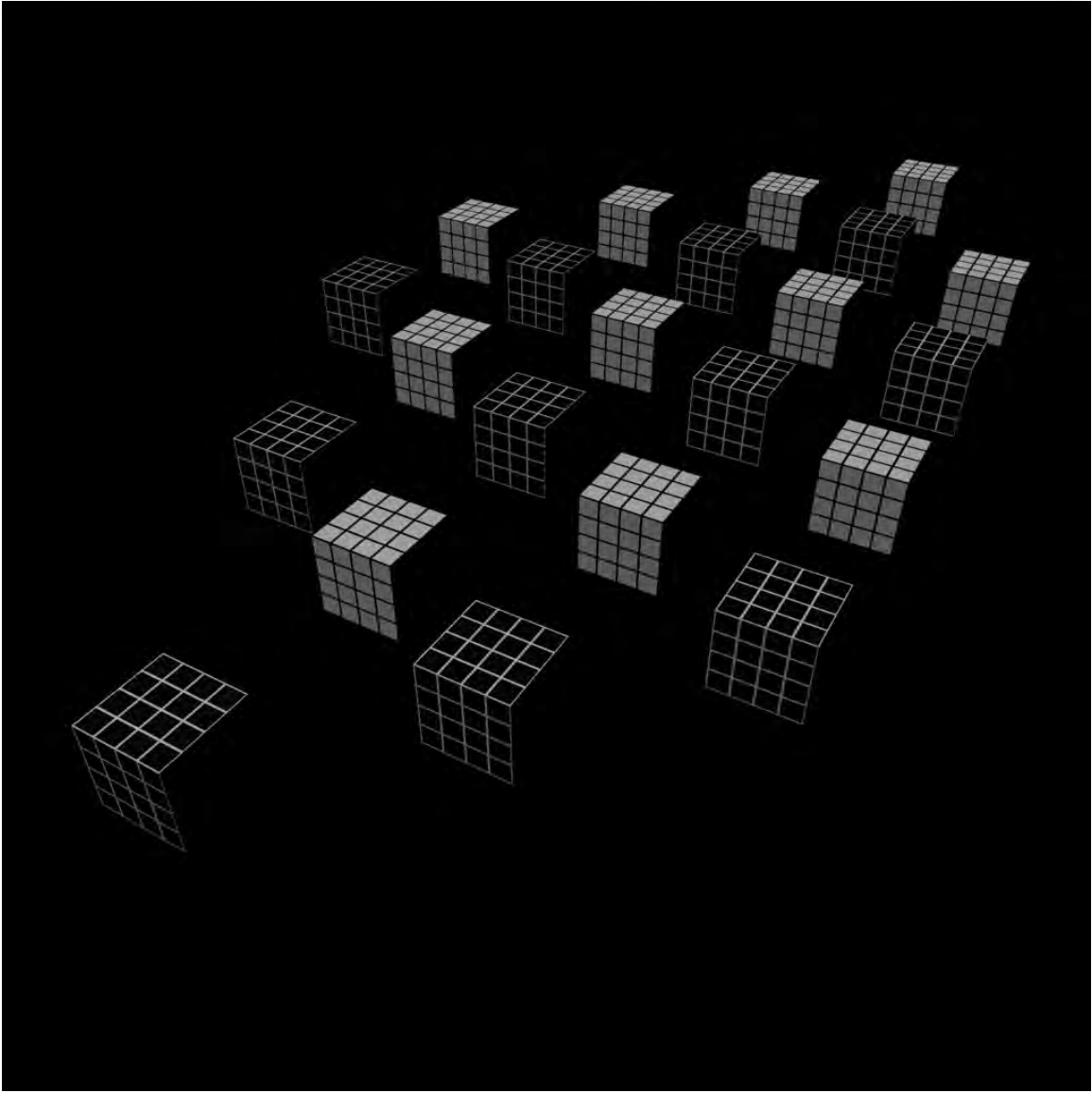


TRANSFORMATION





PROPORTIONALITY





TRANSLATIONS





ROTATIONS



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REFLECTIONS





DILATATIONS



LANGUAGE ACTIVITIES

Language and Skills Development

LISTENING

Review the key math words introduced in this unit. If the vocabulary pictures were not presented during the introduction, show them to the students at this time.



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.

Language and Skills Development

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.

Language and Skills Development

READING

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



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

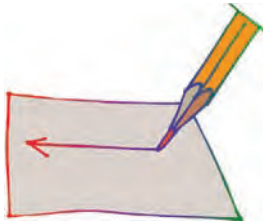
Give each student his/her envelope that contains the alphabet letters. Show a picture from this unit. The students must use the cut-out letters to spell the word for the picture. Review the students' work. Repeat, until all of the words have been spelled.

Student Support Materials

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

Language and Skills Development

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.

Student Support Materials

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



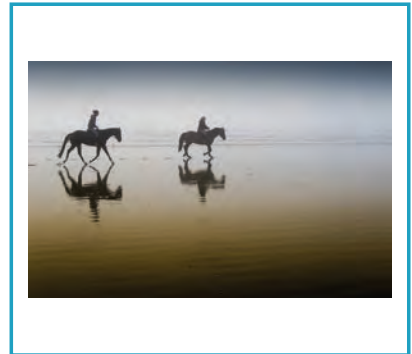
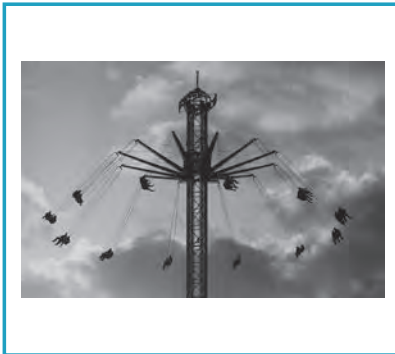
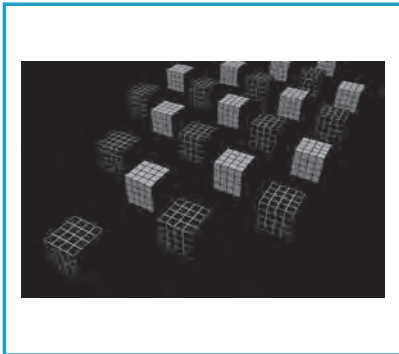
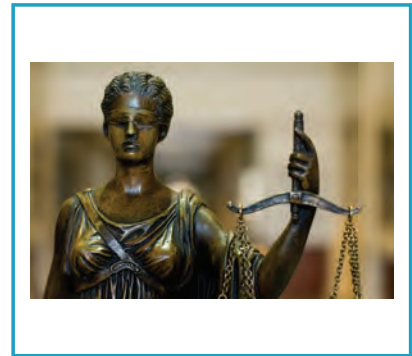
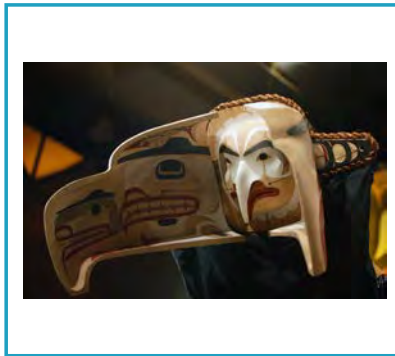
STUDENT SUPPORT MATERIALS

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

Sight Words

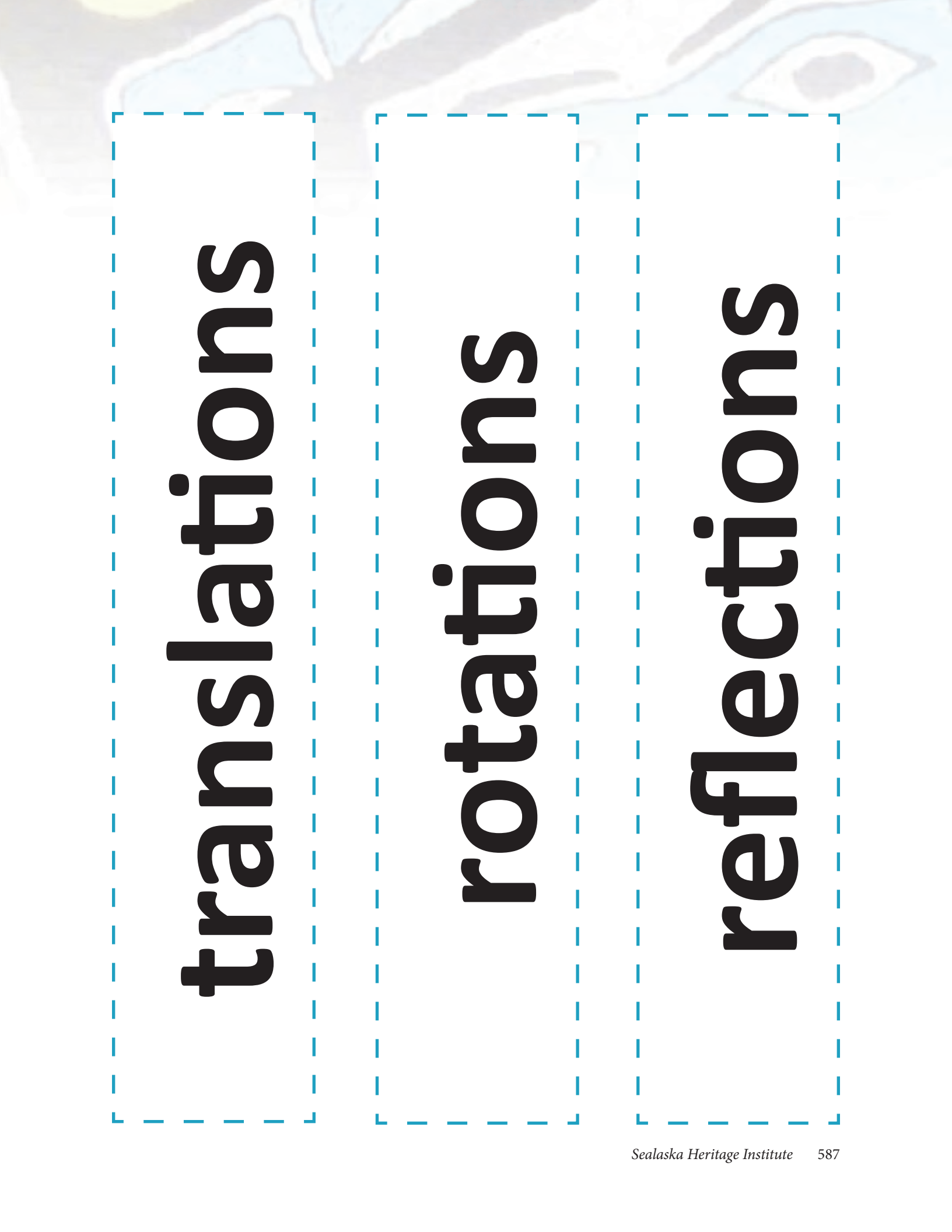


symmetry

transformation

proportionality





translations

rotations

reflections



dilatations





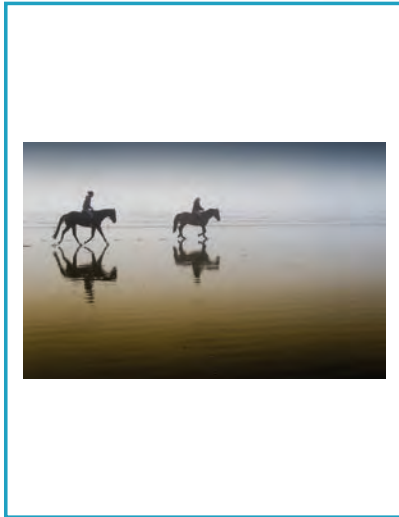
STUDENT SUPPORT MATERIALS

Reading • Sight Recognition

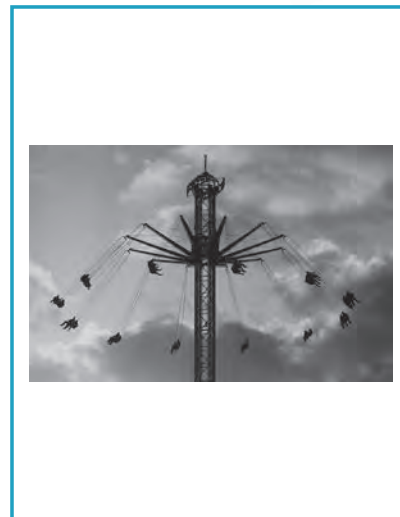
Sight Words Activity Page



Have the students circle the word for each picture.



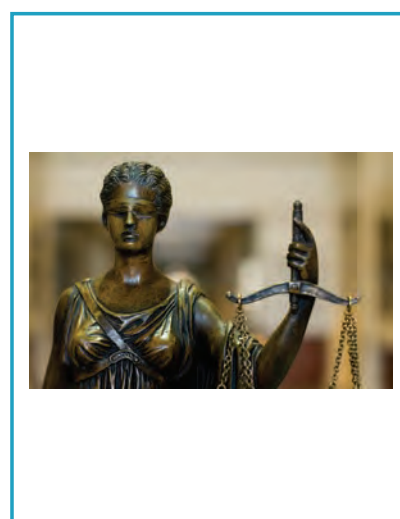
symmetry
transformation
proportionality
translations
rotations
reflections
dilatations



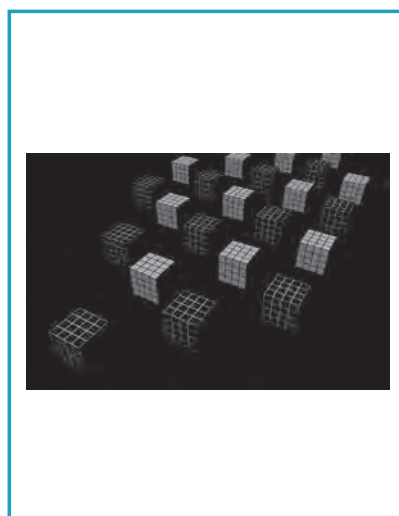
symmetry
transformation
proportionality
translations
rotations
reflections
dilatations



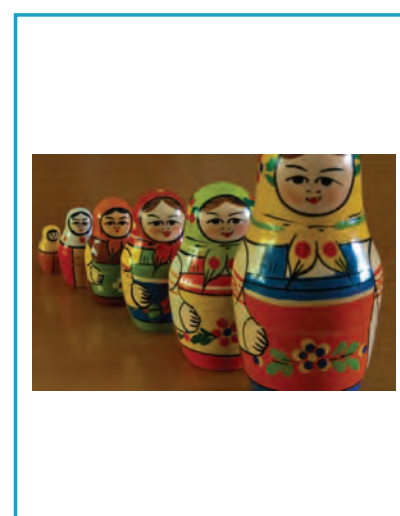
symmetry
transformation
proportionality
translations
rotations
reflections
dilatations



symmetry
transformation
proportionality
translations
rotations
reflections
dilatations

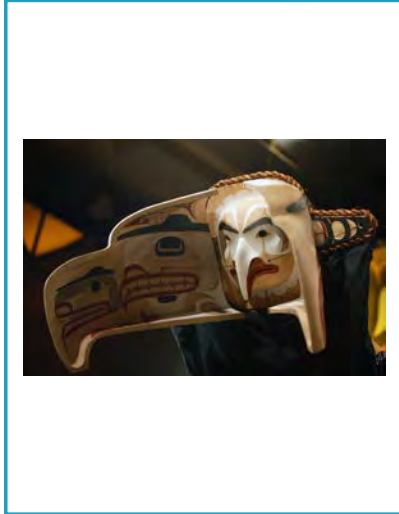


symmetry
transformation
proportionality
translations
rotations
reflections
dilatations



symmetry
transformation
proportionality
translations
rotations
reflections
dilatations

Sight Words Activity Page

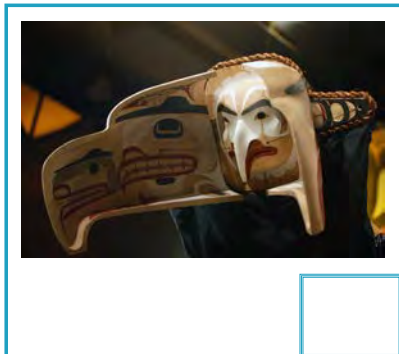
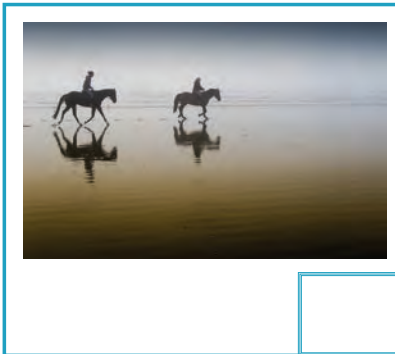
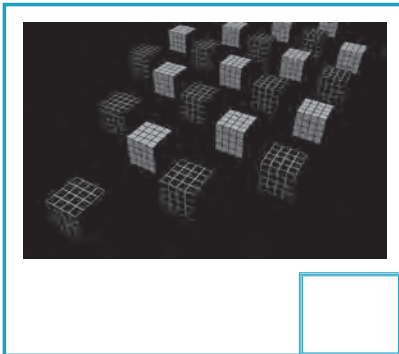
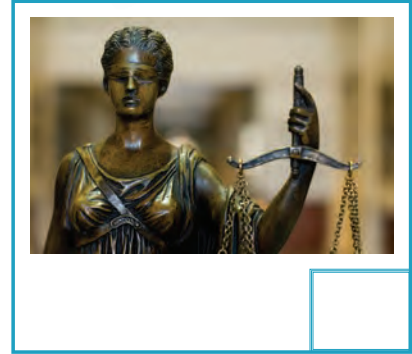


- symmetry**
- transformation**
- proportionality**
- translations**
- rotations**
- reflections**
- dilatations**

Sight Words Activity Page



Write the numbers on their correct vocabulary graphics.



1. symmetry
2. transformation
3. proportionality
4. translations
5. rotations
6. reflections
7. dilatations

Sight Words Activity Page



Highlight or circle the words in this word find.

symmetry
dilatations
proportionality

rotations
transformation
translations

reflections

t t y l a a r p r m m t r a n s l a t i o n s o s
a r m l t r o n i o o a r i s o p i y t r i p s l
r s o t o l l n t a n r o o l t i s r l o s i i t
t i p s r n s r t f n t n r t i r t i c p r n a n
i s p r o p o r t i o n a l o r t a t s t i o r i
o s s f r n f l i o e y r i o p t n r o o t t a l
t r o t a t i o n s r i t e m c i n t n p a o o t
l p o i o s s m f f n i i r i l a f n r l e t a n
y r a o t a c r n p e m t n i i e o f o t a t t m
d o o y n a i o t a y o t n o n e o o t r t o f a
i t r a n s l a t i o n t i l t a r a o l o m n t
a i s s e i i t o s y y i l n s y m m e t r y o a
o a n t r a m n e n m n p s i o m l i i c m i t n
l p r o i o r p n s m r r t f m i a a n t a o s t
t m s s t s c y m m r e f l e c t i o p t s i e t
l r r o r f i o r n l a o t o r c l t s a d i o r
a t t e t c s t i o m e t s r r s l o t r t p o m
s o r o i t y r l r o i o n l s r n m o a a e i t
r o r t o i a i t t r y t r a n s f o r m a t i s
e d i l a t a t i o n s p y r a l f t r o s y i c
n o r s o d i l a t a t i o n e l f s t t n a i a
s m a n e n r a a s o s o r p o n d p t s i n n n
f o l i s y m m e s t r a n s f o r m a t i o n a
s r p a a r i t l o o t m n o s o t e d a r s t r
o a o i t t t n r r e f l e c t i o n s t t l s t
a r t r o t a t i t o o i p m n f l n s i o p r y
n t l a r d i a n o i e n i a s a y f l m r l a
y l s p r o p o r t i o n a l i t y i s e r o r r
i t o t y s r n i t r m f l l n e i l n p s o n i
a a n m t t t n n n r n e t t n r f p n t c i n i

Sight Words Activity Page



ANSWER KEY

symmetry
dilatations
proportionality

rotations
transformation
translations

reflections

t t y l a a r p r m m **t r a n s l a t i o n s** o s
a r m l t r o n i o o a r i s o p i y t r i p s l
r s o t o l l n t a n r o o l t i s r l o s i i t
t i p s r n s r t f n t n r t i r t i c p r n a n
i s p r o p o r t i o n a l o r t a t s t i o r i
o s s f r n f l i o e y r i o p t n r o o t t a l
t **r o t a t i o n s** r i t e m c i n t n p a o o t
l p o i o s s m f f n i i r i l a f n r l e t a n
y r a o t a c r n p e m t n i i e o f o t a t t m
d o o y n a i o t a y o t n o n e o o t r t o f a
i t r a n s l a t i o n t i l t a r a a o l o m n t
a i s s e i i t o s y y i l n **s y m m e t r y** o a
o a n t r a m n e n m n p s i o m l i i c m i t n
l p r o i o r p n s m r r t f m i a a n t a o s t
t m s s t s c y m m r e f l e c t i o p t s i e t
l r r o r f i o r n l a o t o r c l t s a d i o r
a t t e t c s t i o m e t s r r s l o t r t p o m
s o r o i t y r l r o i o n l s r n m o a a e i t
r o r t o i a i t t r y t r a n s f o r m a t i s
e **d i l a t a t i o n s** p y r a l f t r o s y i c
n o r s o d i l a t a t i o n e l f s t t n a i a
s m a n e n r a a s o s o r p o n d p t s i n n n
f o l i s y m m e s **t r a n s f o r m a t i o n** a
s r p a a r i t l o o t m n o s o t e d a r s t r
o a o i t t t n r **r e f l e c t i o n s** t t l s t
a r t r o t a t i t o o i p m n f l n s i o p r y
n t l a r d i a n o i e n i a s a y f l l m r l a
y l s **p r o p o r t i o n a l i t y** i s e r o r r
i t o t y s r n i t r m f l l n e i l n p s o n i
a a n m t t t n n n r n e t t n r f p n t c i n i



STUDENT SUPPORT MATERIALS

Reading • Encoding

Encoding Activity Page

Have the students cut out the word parts and glue them into their correct words.



s _____ try

t _____ ation

pro _____ ality

t _____ lations

rot _____ s

ransform	rans	ymme
----------	------	------

latat	ation
-------	-------



Encoding Activity Page



re _____ ions

di _____ ions

flex	port
------	------

Encoding Activity Page



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

sym

tions

trans

metry

prop

portionality

transla

formation

ro

lections



Encoding Activity Page



ref

latations

di

tations

Encoding Activity Page



Cut out and encode the syllables of the words OR number the syllables in their correct sequence.

ry || met || sym

ma || for || tion || trans

tio || por || pro || lity || na

Encoding Activity Page



la || trans || tions

ro || tions || ta

tions || ref || lec

Encoding Activity Page



ta || la || di || tions



STUDENT SUPPORT MATERIALS

Reading Comprehension

What's the Answer?



Read the text and then select the correct answer for it. Fill in the bullet beside the answer of your choice.

- ① Many flowers are the same or very similar on their right halves and on their left halves. This is an example of
 - Symmetry
 - Pollination
 - Creativeness
 - Alignment

- ② _____ is the movement of one geometric shape to another according to some rule.
 - Speed
 - Destruction
 - Shift
 - Transformation

- ③ Proportionality is the ____ of proportions.
 - Size
 - Shape
 - Ratio
 - Speed

- ④ _____ are exact duplications of geometric figures formed by moving each point in the figure the same distance and in the same direction.
 - Ration
 - Simulation
 - Vacation
 - Translation

- ⑤ The motion used to turn the handle on a fishing reel is a
 - Gyration
 - Meditation
 - Reflection
 - Rotation

What's the Answer?



- ⑥ Objects can often be seen duplicated as _____ on water when the water is very still and the sun is shining.
- Aliens
 - Thoughts
 - Frivolous
 - Reflections
- ⑦ The enlargement or reduction of a plane figure is a _____.
- Dilatation
 - Dilution
 - Dissolution
 - Damper

What's the Answer?



ANSWER KEY

- ① Many flowers are the same or very similar on their right halves and on their left halves. This is an example of
 - Symmetry
 - Pollination
 - Creativeness
 - Alignment

- ② _____ is the movement of one geometric shape to another according to some rule.
 - Speed
 - Destruction
 - Shift
 - Transformation

- ③ Proportionality is the ____ of proportions.
 - Size
 - Shape
 - Ratio
 - Speed

- ④ _____ are exact duplications of geometric figures formed by moving each point in the figure the same distance and in the same direction.
 - Ration
 - Simulation
 - Vacation
 - Translation

- ⑤ The motion used to turn the handle on a fishing reel is a
 - Gyration
 - Meditation
 - Reflection
 - Rotation

What's the Answer?



- ⑥ Objects can often be seen duplicated as _____ on water when the water is very still and the sun is shining.
- Aliens
 - Thoughts
 - Frivolous
 - Reflections
- ⑦ The enlargement or reduction of a plane figure is a _____.
- Dilatation
 - Dilution
 - Dissolution
 - Damper

Reading Comprehension Activity Page

Write the numbers/letters for sentence halves that match.



- | | |
|--|---|
| ① Plants and animals often have a large | ① ratio of proportions. |
| ② A transformation is the movement of one geometric shape to another | ② degree of symmetry in their body forms. |
| ③ Proportionality is the | ③ he or she is seeing a reflection. |
| ④ Moving each point of a figure in the same direction and the | ④ is considered rotation. |
| ⑤ The movement of a car's wheel around the axle | ⑤ a plane figure is a dilatation. |
| ⑥ When one looks in the mirror, | ⑥ same distance is a translation. |
| ⑦ An enlargement or reduction of | ⑦ according to some rule. |

1 → _____ 2 → _____ 3 → _____ 4 → _____
5 → _____ 6 → _____ 7 → _____

Reading Comprehension Activity Page

ANSWER KEY



- | | |
|--|---|
| ① Plants and animals often have a large | ① ratio of proportions. |
| ② A transformation is the movement of one geometric shape to another | ② degree of symmetry in their body forms. |
| ③ Proportionality is the | ③ he or she is seeing a reflection. |
| ④ Moving each point of a figure in the same direction and the | ④ is considered rotation. |
| ⑤ The movement of a car's wheel around the axle | ⑤ a plane figure is a dilatation. |
| ⑥ When one looks in the mirror, | ⑥ same distance is a translation. |
| ⑦ An enlargement or reduction of | ⑦ according to some rule. |

1 → B 2 → G 3 → A 4 → F
5 → D 6 → C 7 → E

Reading Comprehension Activity Page

Cut out the words and glue them under their definitions.



Rotating around an axis

Exact reflection of form

Changes position or direction of axis

Enlargement or reduction

Direction of axis is reversed

Origin moved to another position

Ratio of two constant quantities

symmetry	transformation	proportionality	translations
rotations	reflections	dilatations	



Reading Comprehension Activity Page

ANSWER KEY



Rotating around an axis

ALIGNMENT

Exact reflection of form

symmetry

Changes position or direction of axis

transformation

Enlargement or reduction

dilatations

Direction of axis is reversed

reflections

Origin moved to another position

translations

Ratio of two constant quantities

proportionality

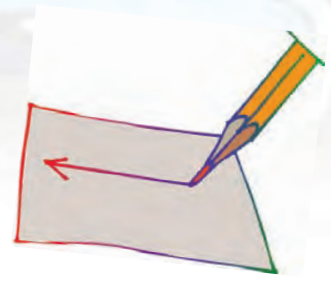


STUDENT SUPPORT MATERIALS

Writing

Writing Activity Page

Have the students complete the writing of the key math words.



sym_____ry

tra_____ormation

pro_____tionality

tr_____lation

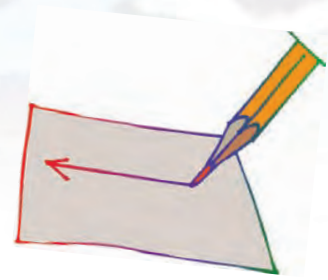
ro_____ions

ref_____ions

di_____ations

Writing Activity Page

Have the students complete the writing of the key math words.



s _____ **y**

t _____ **f** _____ **n**

p _____ **t** _____ **y**

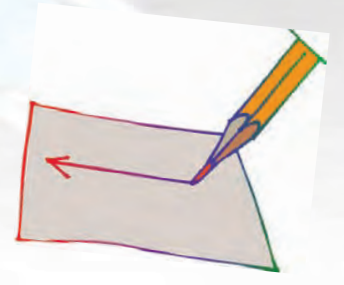
t _____ **n**

r _____ **s**

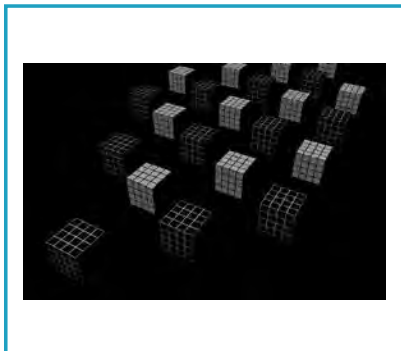
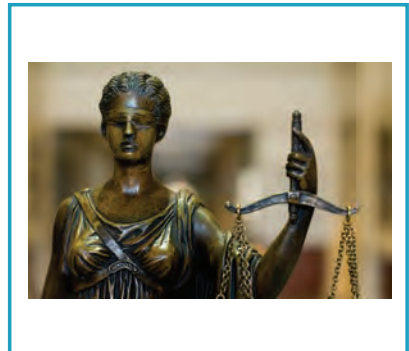
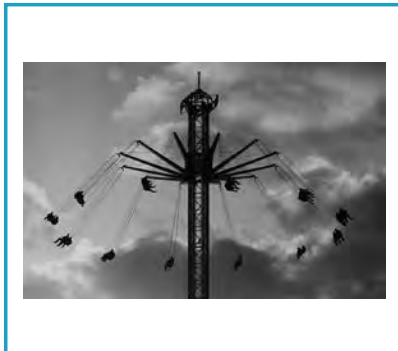
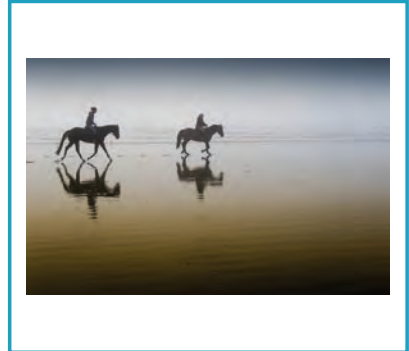
r _____ **f** _____ **s**

d _____ **s**

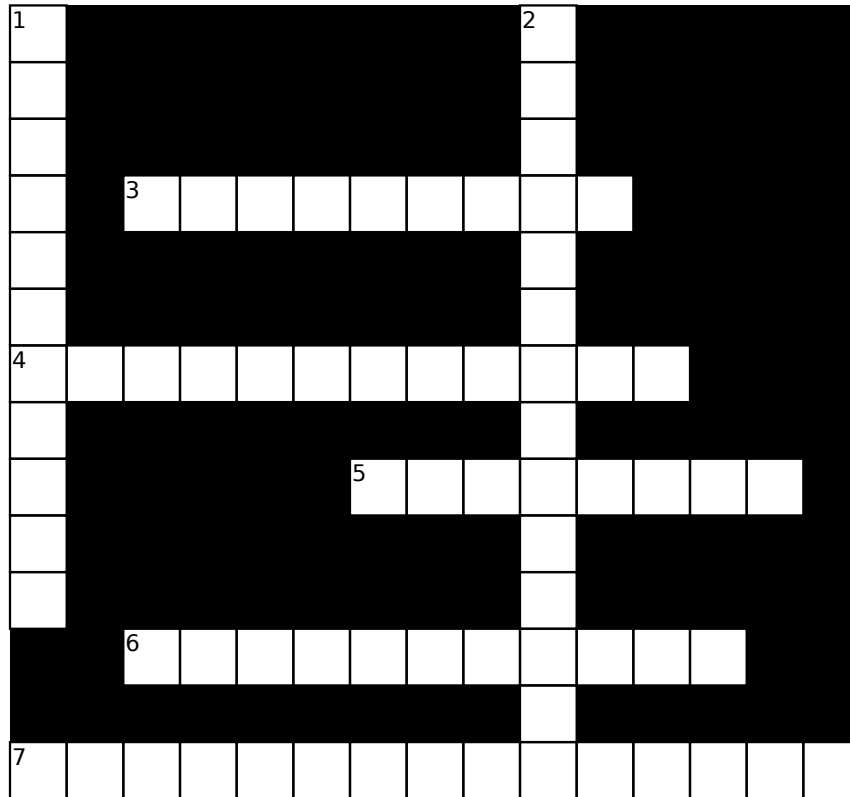
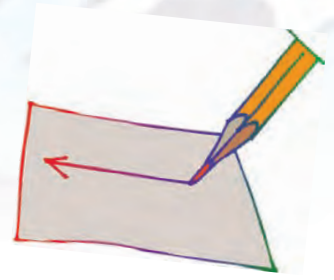
Basic Writing Activity Page



Have the students write the word for each picture.



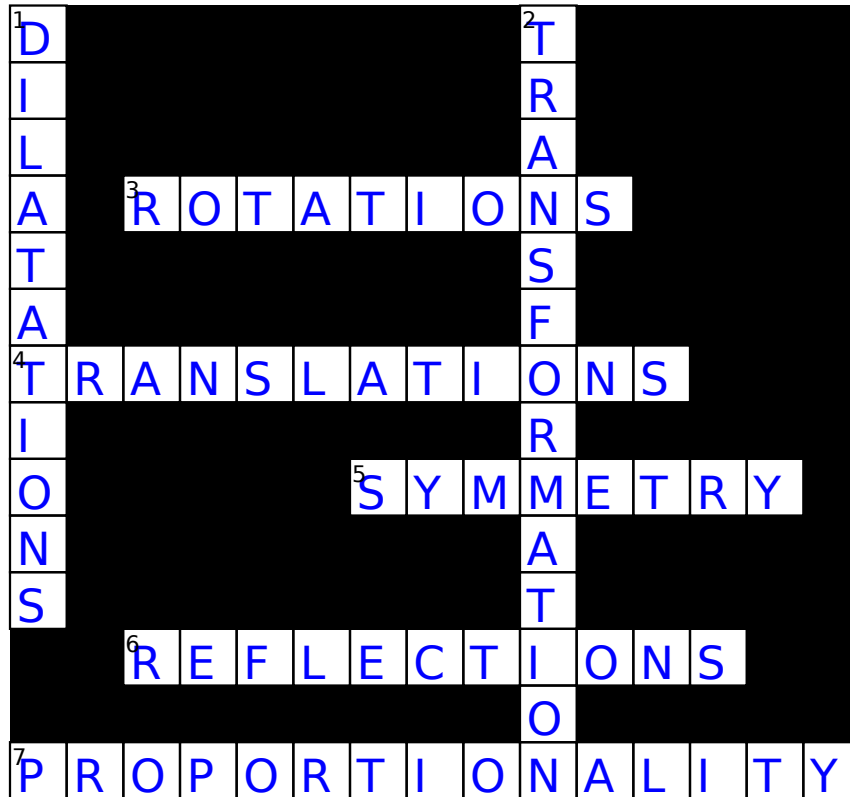
Crossword Puzzle



- Across
- 3 Rotating around an axis
 - 4 Origin moved to another position
 - 5 Exact reflection of form
 - 6 Direction of axis is reversed
 - 7 Ratio of two constant quantities

- Down
- 1 Enlargement or reduction
 - 2 Changes position or direction of axis

Crossword Puzzle Answers



- Across
- 3 Rotating around an axis
 - 4 Origin moved to another position
 - 5 Exact reflection of form
 - 6 Direction of axis is reversed
 - 7 Ratio of two constant quantities

- Down
- 1 Enlargement or reduction
 - 2 Changes position or direction of axis



UNIT ASSESSMENT



Similarity, Congruence, Symmetry & Transformation of Shapes

Unit Assessment Teacher's Notes
Grade 8 • Unit 8

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 **SYMMETRY**.
2. Write the number 2 by the picture for **TRANSFORMATION**.
3. Write the number 3 by the picture for **PROPORTIONALITY**.
4. Write the number 4 by the picture for **TRANSLATIONS**.
5. Write the number 5 by the picture for **ROTATIONS**.
6. Write the number 6 by the picture for **REFLECTIONS**.
7. Write the number 7 by the picture for **DILATATIONS**.

SIGHT RECOGNITION

Turn to page 2 in your test. Look at the pictures in the boxes. Circle the word for each picture.

DECODING/ENCODING

Turn to page 3 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 4 in your test. Write each word under its definition.

Refer to Student Support Materials for answer key.

BASIC WRITING

Turn to page 5 in your test. Look at the pictures in the boxes. Write the word for each picture.



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.



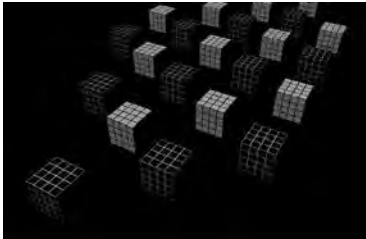
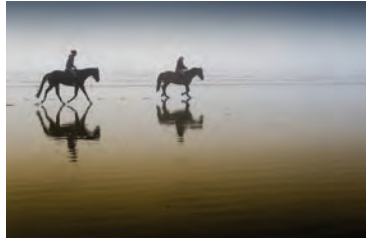


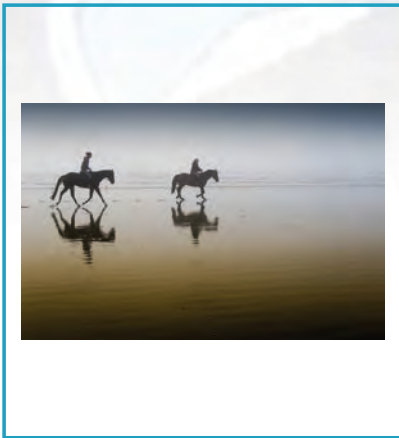
MATH PROGRAM

Unit Assessment Student Pages
Grade 8 • Unit 8

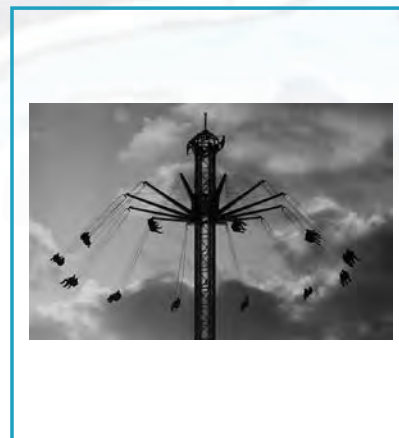
Date: _____ Student's Name: _____

Number Correct: _____ Percent Correct: _____





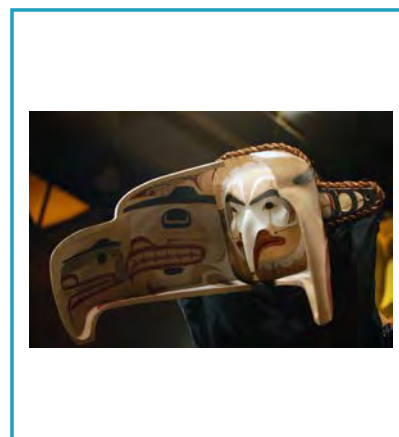
symmetry
transformation
proportionality
translations
rotations
reflections
dilatations



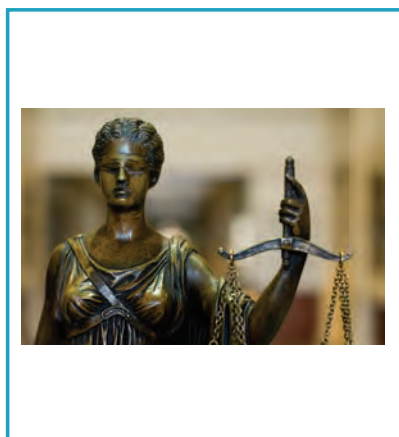
symmetry
transformation
proportionality
translations
rotations
reflections
dilatations



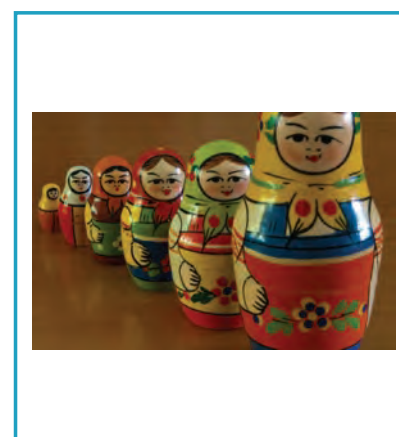
symmetry
transformation
proportionality
translations
rotations
reflections
dilatations



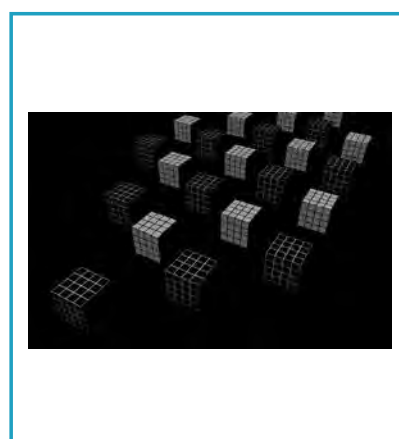
symmetry
transformation
proportionality
translations
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reflections
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Rotating around an axis

Exact reflection of form

Changes position or direction of axis

Enlargement or reduction

Direction of axis is reversed

Origin moved to another position

Ratio of two constant quantities

symmetry

transformation

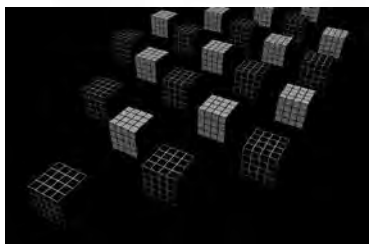
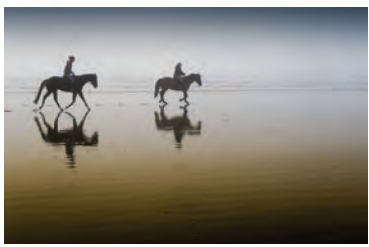
proportionality

translations

rotations

reflections

dilatations





UNIT 9: Geometry

Perimeter, Volume & Surface Area

Note: All key terms are based on the Math Standards for Alaska and reflect terms vital to academic achievement in math.



INTRODUCTION OF MATH VOCABULARY

Process Skills

Concrete Introduction of Key Vocabulary

Note: A vocabulary graphic is provided in this unit for each of the key words.

Definitions for all of the key words can be found in the glossary at the back of this program.

circle

Explain the definition of a circle and ask students to draw their most perfect circle on a sheet of paper. Who actually came close to drawing a real circle?

surface area

Show the students a flat piece of paper then show them a car's air filter. Ask which one has more surface area. Explain that the air filter has greater surface area. Some parts of the body like the mitochondria in our DNA utilize increased surface area to function more efficiently!

circumference

Pass a cross section from a small tree around the classroom. Using a sting and a ruler, ask the students to measure the circumference of the smallest and largest circles in the wood. How about the circle corresponding to three years ago?

Process Skills

Concrete Introduction of Key Vocabulary

Note: A vocabulary graphic is provided in this unit for each of the key words.

Definitions for all of the key words can be found in the glossary at the back of this program.

area

Show the students of the vast area on page 647. Explain that areas can be large or quite small. Where is the prettiest area that the students have visited?

mid-point

Wrap a gift in front of the classroom. When you go to put on the bow with ribbon, ask the students where it is typically located. When they answer that it is the center, explain the center can be thought of as the mid-point of a line down the middle of the box. The knot on the ribbon now represents a mid-point.

perimeter

Hand out a square cracker to each student. Explain the definition of perimeter and have them find it for the cracker. Were they all the same size?

Process Skills

Concrete Introduction of Key Vocabulary

Note: A vocabulary graphic is provided in this unit for each of the key words.

Definitions for all of the key words can be found in the glossary at the back of this program.

distance

Have each student role a pencil or pen from the right side of his or her table to the left without having it role off the table. Whoever comes closest to the edge without rolling over wins. Measure the distances from the edge to see for sure who won!



VOCABULARY PICTURES





CIRCLE





SURFACE AREA



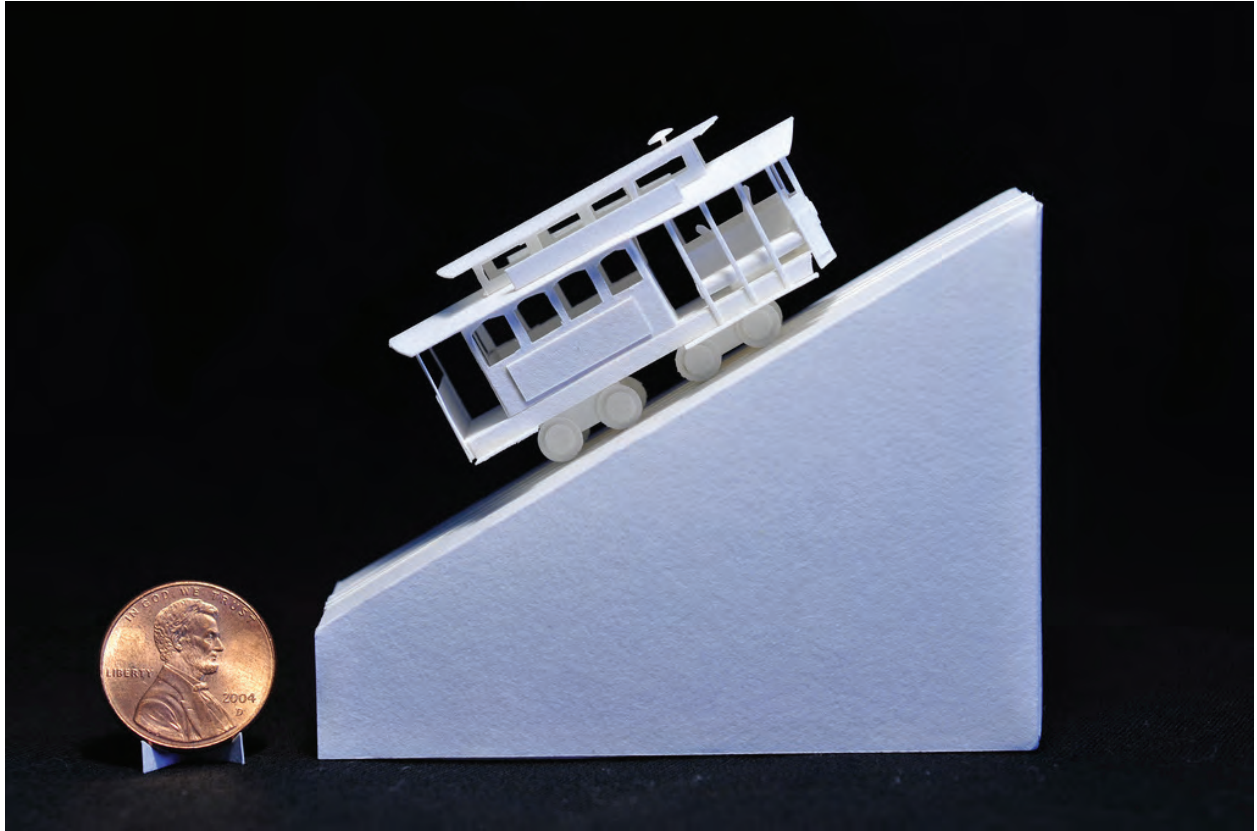


CIRCUMFERENCE





AREA





MID-POINT





PERIMETER





DISTANCE



LANGUAGE ACTIVITIES

Language and Skills Development

LISTENING

Review the key math words introduced in this unit. If the vocabulary pictures were not presented during the introduction, show them to the students at this time.



Whisper

Mount the vocabulary illustrations on the chalkboard. 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 chalkboard and point to the illustration 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 illustration in this way. When a player has identified a vocabulary illustration, he/she should rejoin the front of his/her team.

Modification: Make it more like tele-pictionary: Whisper a definition to a player, who then must decide what word it is, and whisper the word to the next player, who then translates it into the definition again when they whisper it to the next player. Thus, it would be repeated as word, then definition, then word, then definition, and so forth.

Student Support Materials

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

Language and Skills Development

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 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.

Language and Skills Development

READING

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



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

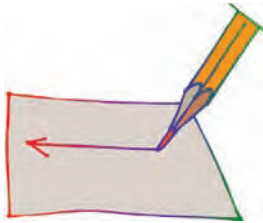
Give each student his/her envelope that contains the alphabet letters. Show a picture from this unit. The students must use the cut-out letters to spell the word for the picture. Review the students’ work. Repeat, until all of the words have been spelled.

Student Support Materials

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

Language and Skills Development

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.

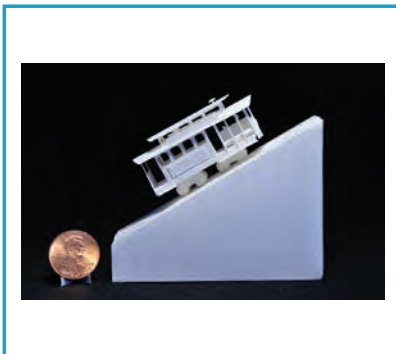
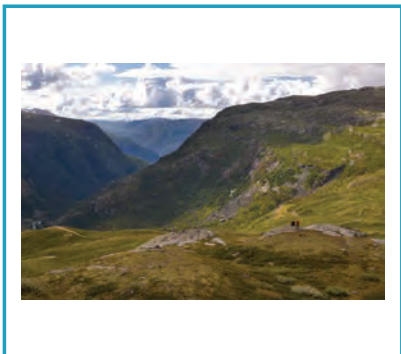
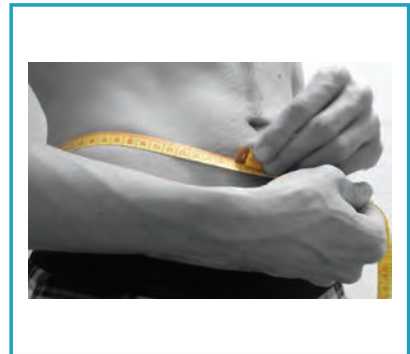
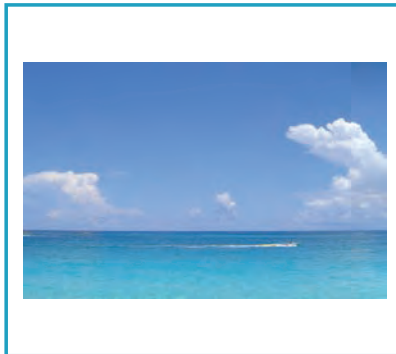
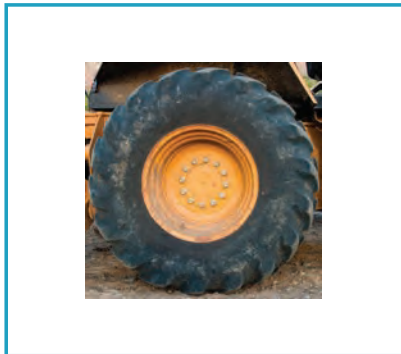


STUDENT SUPPORT MATERIALS

Listening • Mini Pictures

Listening: Mini Pictures

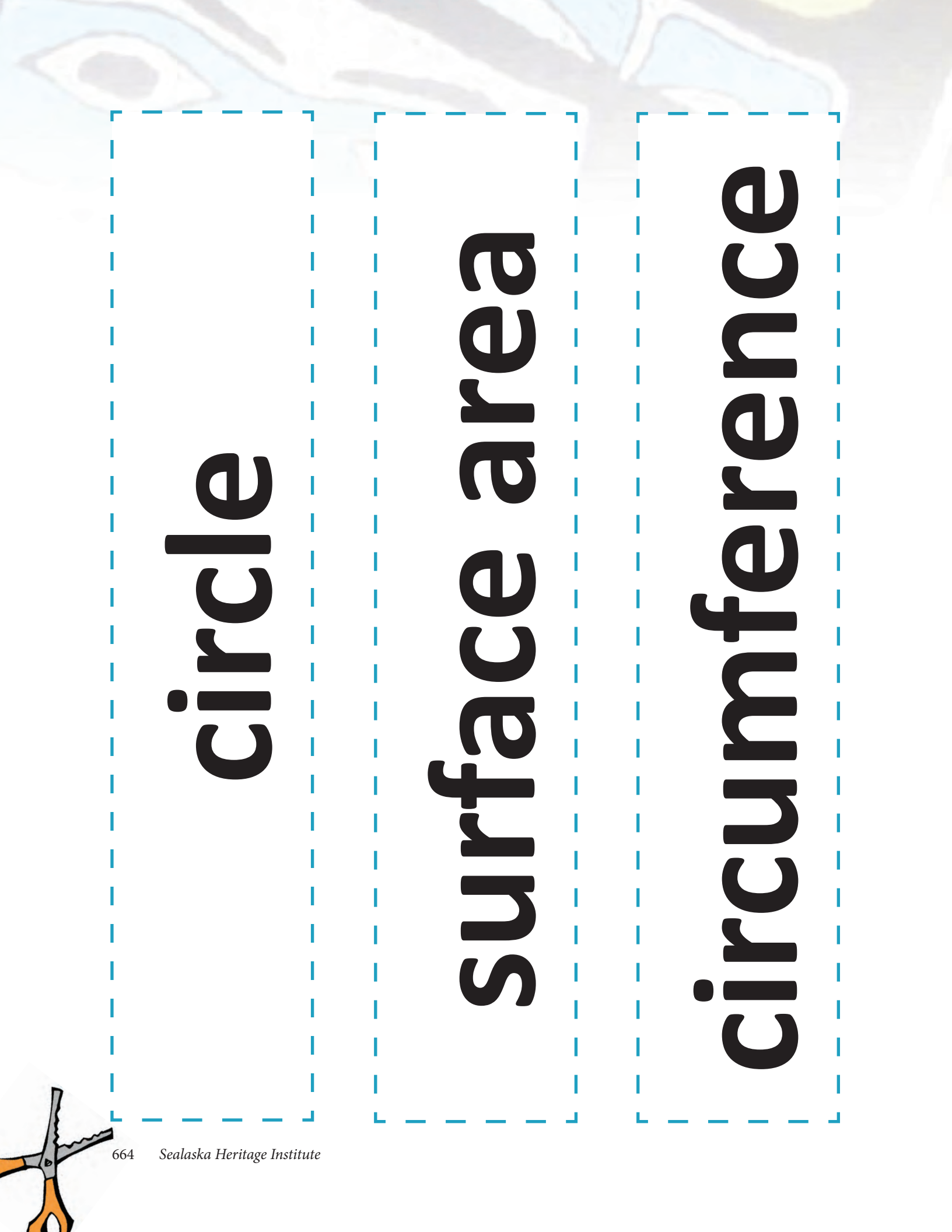
Have the students cut out the pictures. Say the key math words from this unit, and the students should hold up the pictures for them.





STUDENT SUPPORT MATERIALS

Sight Words



circle

surface area

circumference





area

mid-point

perimeter



distance





STUDENT SUPPORT MATERIALS

Reading • Sight Recognition

Sight Words Activity Page



Have the students circle the word for each picture.



circle
surface area
circumference
area
mid-point
perimeter
distance



circle
surface area
circumference
area
mid-point
perimeter
distance



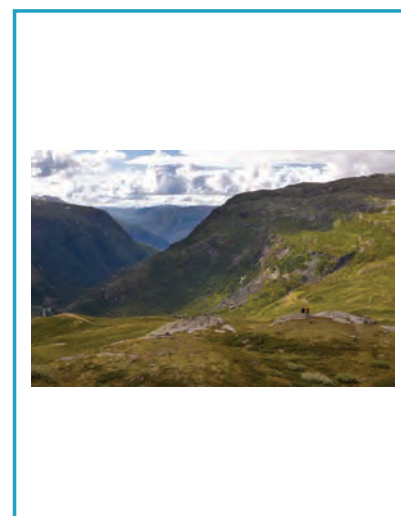
circle
surface area
circumference
area
mid-point
perimeter
distance



circle
surface area
circumference
area
mid-point
perimeter
distance



circle
surface area
circumference
area
mid-point
perimeter
distance



circle
surface area
circumference
area
mid-point
perimeter
distance

Sight Words Activity Page

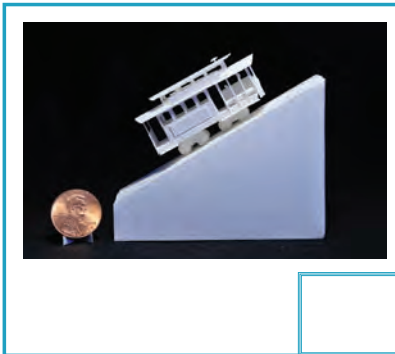


- circle**
- surface area**
- circumference**
- area**
- mid-point**
- perimeter**
- distance**

Sight Words Activity Page



Write the numbers on their correct vocabulary graphics.



1. circle
2. surface area
3. circumference
4. area
5. mid-point
6. perimeter
7. distance

Sight Words Activity Page



Highlight or circle the words in this word find.

area
midpoint
circumference

surface area
circle
perimeter

distance

n o r c m e n t f c d i s t a n c e e e d d r e r
e a a e i a i r i a r a l d c a a c e r e u a d e
i t i e c i r f u a c i r c u m f e r e n c e n t
i e i a m c e i r e c e d c m i d p o i n t p e n
c e u e r u e r s u r f a c e a r e r r c a p e e
d i e u c r e d f r e s o r i e n e r r r i r n p
a r e a c p r c e r c c a p n a d o f m u e r r r
c a c r n c l p d i c c n e u m s c i i e s e r m
i m p e r i m e t e r i r m c e c a e i c a c i s
m c n i i m n c o s d e c m e e i c c u f e s e e
n s a r i c a o d s e i e n e e e m a l a m d t c
s i a n s u r f a c e a r e a a i d n c i r e d n n
i r c s r e e t n u c r c s m e m r o s o e m r s
d o e m n e i e d i s t a n c m r r f c c i t n e
e e d c c e r i c r l r e p i i c m c n c i e r c
e c f r n i i i c r t d a e l a e n m c i m u m p
e c f i f e r e e r t s c c m a r e t m l c a n a
c p m l a a f d i a o c i r c l e r r c r p e n f
t a l e a f s a i i e f i u u e r i i c d e e n e
m s f e r t u a t n r d i r m a c a c e r t e i u
m r t i m r d c u c r i c c a t s p a d r t c r f
a r a a e u m m t n u t n e e i i r e c e f f a c
e c r m i d p o p e e r a c a a i c t u s s i c f
l f c p e r i m e t i p o a i c c i n n i r c r t
r e e c i c a r l e e m a p i s a c n r s i a e a
e i c i r c u m f e r e n c d c c e r r e e e r c
m c a r p e c f e c u e c a r e c c m i r m e m c
c o m r a e a p i f a e m m r a r i r a a u i c e
f i s e a a c p r a t r f e d n t n i m i c e n e
f a r a e e e e m e n i e i a s r r m r t d e u c

Sight Words Activity Page



ANSWER KEY

area
midpoint
circumference

surface area
circle
perimeter

distance

n o r c m e n t f c **d i s t a n c e** e e d d r e r
e a a e i a i r i a r a l d c a a c e r e u a d e
i t i e c i r f u a **c i r c u m f e r e n c e** n t
i e i a m c e i r e c e d c **m i d p o i n t** p e n
c e u e r u e r s u r f a c e a r e r r c a p e e
d i e u c r e d f r e s o r i e n e r r r i r n p
a r e a c p r c e r c c a p n a d o f m u e r r r
c a c r n c l p d i c c n e u m s c i i e s e r m
i m **p e r i m e t e r** i r m c e c a e i c a c i s
m c n i i m n c o s d e c m e e i c c u f e s e e
n s a r i c a o d s e i e n e e e m a l a m d t c
s i a n **s u r f a c e a r e a** i d n c i r e d n n
i r c s r e e t n u c r c s m e m r o s o e m r s
d o e m n e i e d i s t a n c m r r f c c i t n e
e e d c c e r i c r l r e p i i c m c n c i e r c
e c f r n i i i c r t d a e l a e n m c i m u m p
e c f i f e r e e r t s c c m a r e t m l c a n a
c p m l a a f d i a o **c i r c l e** r r c r p e n f
t a l e a f s a i i e f i u u e r i i c d e e n e
m s f e r t u a t n r d i r m a c a c e r t e i u
m r t i m r d c u c r i c c a t s p a d r t c r f
a r a a e u m m t n u t n e e i i r e c e f f a c
e c r m i d p o p e e r a c a a i c t u s s i c f
l f c p e r i m e t i p o a i c c i n n i r c r t
r e e c i c a r l e e m a p i s a c n r s i a e a
e i c i r c u m f e r e n c d c c e r r e e e r c
m c a r p e c f e c u e c a r e c c m i r m e m c
c o m r a e a p i f a e m m r a r i r a a u i c e
f i s e a a c p r a t r f e d n t n i m i c e n e
f a r a e e e e m e n i e i a s r r m r t d e u c



STUDENT SUPPORT MATERIALS

Reading • Encoding

Encoding Activity Page

Have the students cut out the word parts and glue them into their correct words.



c _____ **e**

s _____ **ce area**

ci _____ **erance**

a _____

mi _____ **int**

rea	ircl	d-po
------------	-------------	-------------

urfa	erim
-------------	-------------



Encoding Activity Page



p_____eter

di_____e

stanc	rcumf
-------	-------

Encoding Activity Page



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

ci

rface area

su

ference

circum

rcle

ar

tance

mid-

meter



Encoding Activity Page



peri

ea

dis

point

Encoding Activity Page



Cut out and encode the syllables of the words OR number the syllables in their correct sequence.

cle || cir

re || sur || face || a || a

cum || cir || fe || rence

Encoding Activity Page



a a re

mid point

ri pe me ter

Encoding Activity Page



tance || dis



STUDENT SUPPORT MATERIALS

Reading Comprehension

What's the Answer?



Read the text and then select the correct answer for it. Fill in the bullet beside the answer of your choice.

- ① All circles have
 - Corners
 - Sharp Edges
 - Center Points
 - Cross-Sections

- ② The surface area of a muskeg is its
 - area on top
 - volume of dirt
 - volume of water
 - abundance of wildlife

- ③ The circumference of a basketball is its
 - Distance around the edge
 - Weight
 - Shape
 - Condition

- ④ The area open for salmon fishing on a given river is the:
 - Extent of space open
 - Depth that one can fish in
 - Bag limit for the day
 - Best lure to use

- ⑤ The mid-point of a given line is its
 - Far Left End
 - Far Right End
 - Upper Edge
 - Exact Center

What's the Answer?



- ⑥ The perimeter of someone's property is the property's
- Area
 - Value
 - Boundary
 - Security System
- ⑦ The distance travelled on the Alaska Marine Highway System from Hoonah to Juneau is the amount of _____ between two places.
- Space
 - Wildlife
 - Passengers
 - Weather

What's the Answer?

ANSWER KEY



- ① All circles have
 - Corners
 - Sharp Edges
 - Center Points
 - Cross-Sections

- ② The surface area of a muskeg is its
 - area on top
 - volume of dirt
 - volume of water
 - abundance of wildlife

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- ⑦ The distance travelled on the Alaska Marine Highway System from Hoonah to Juneau is the amount of _____ between two places.
- Space
 - Wildlife
 - Passengers
 - Weather

Reading Comprehension Activity Page

Write the numbers/letters for sentence halves that match.



- | | |
|---|--|
| ① When drawn on paper, the sun is often | ① can be enormous! |
| ② The surface area of a brown bear is much | ② can be relatively small. |
| ③ The circumference of a Sitka Spruce | ③ depicted in the shape of a circle. |
| ④ The area required for a tick to survive on a wolf | ④ greater than that of a squirrel. |
| ⑤ The mid-point of the Earth is | ⑤ is relatively short. |
| ⑥ The perimeter of ancient cities | ⑥ at the planet's center. |
| ⑦ The distance from Alaska to Canada | ⑦ was often guarded to prevent attack. |

1→ _____ 2→ _____ 3→ _____ 4→ _____
5→ _____ 6→ _____ 7→ _____

Reading Comprehension Activity Page

ANSWER KEY



- | | |
|---|--|
| ① When drawn on paper, the sun is often | ① can be enormous! |
| ② The surface area of a brown bear is much | ② can be relatively small. |
| ③ The circumference of a Sitka Spruce | ③ depicted in the shape of a circle. |
| ④ The area required for a tick to survive on a wolf | ④ greater than that of a squirrel. |
| ⑤ The mid-point of the Earth is | ⑤ is relatively short. |
| ⑥ The perimeter of ancient cities | ⑥ at the planet's center. |
| ⑦ The distance from Alaska to Canada | ⑦ was often guarded to prevent attack. |

1→ C 2→ D 3→ A 4→ B
5→ F 6→ G 7→ E

Reading Comprehension Activity Page

Cut out the words and glue them under their definitions.



Center

Space between two things

Extent

Extent of surface within a boundary

Distance around a circle

Boundary

Round plane figure

circle surface area circumference area

mid-point perimeter distance



Reading Comprehension Activity Page

ANSWER KEY



Center

mid-point

Space between two things

distance

Extent

area

Extent of surface within a boundary

surface area

Distance around a circle

circumference

Boundary

perimeter

Round plane figure

circle

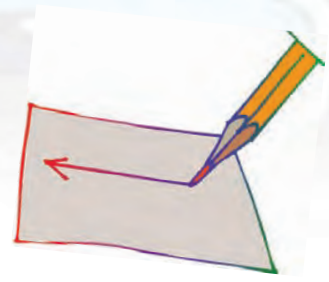


STUDENT SUPPORT MATERIALS

Writing

Writing Activity Page

Have the students complete the writing of the key math words.



ci _____ le

s _____ face a _____ a

ci _____ ference

a _____ a

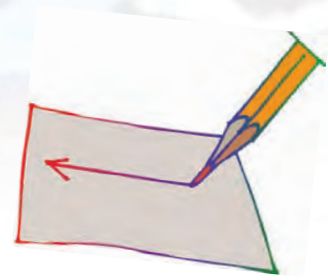
mi _____ -po _____

per _____ eter

dis _____ ce

Writing Activity Page

Have the students complete the writing of the key math words.



c _____ **e**

s _____ **a** _____ **a**

c _____ **f** _____ **e**

a _____ **a**

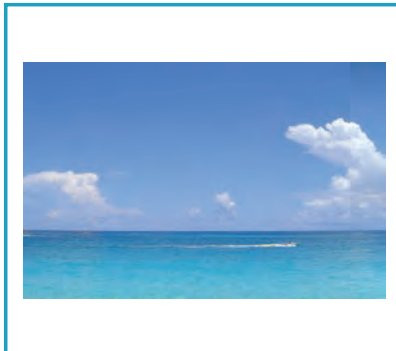
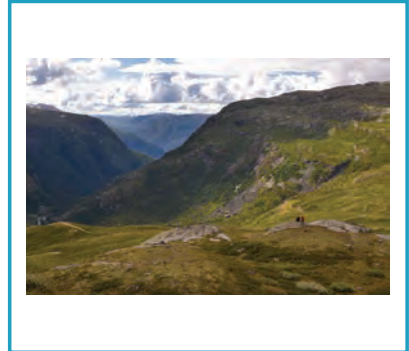
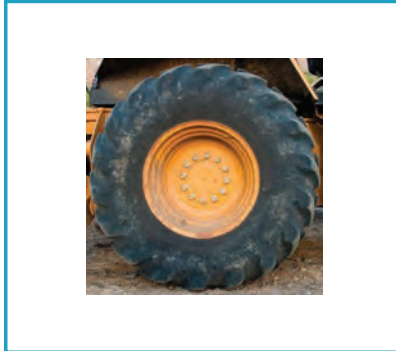
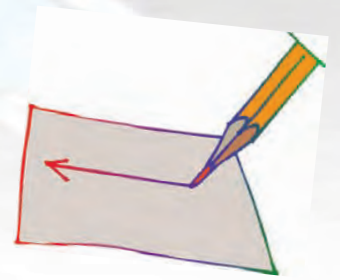
m _____ - _____ **t**

p _____ **r**

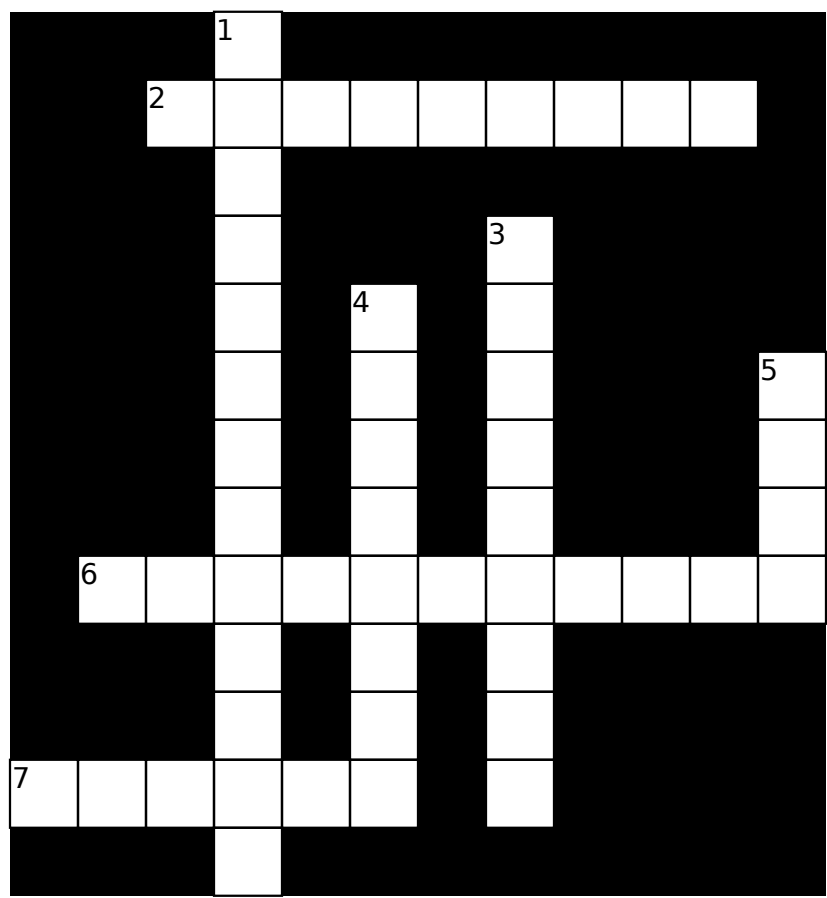
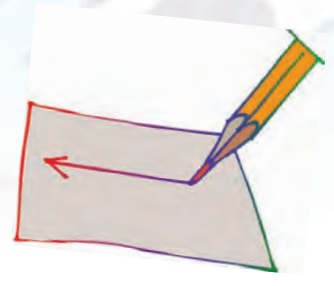
d _____ **e**

Basic Writing Activity Page

Have the students write the word for each picture.

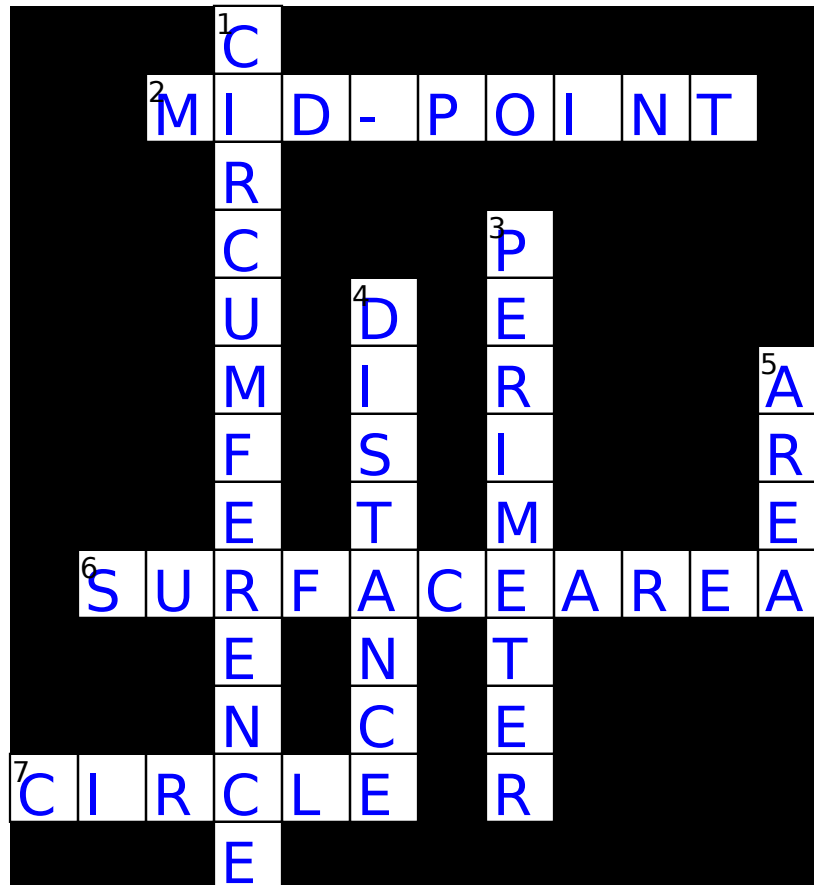


Crossword Puzzle



- | | | | |
|---|---|---|--------------------------|
| | Across | | Down |
| 2 | Center | 1 | Distance around a circle |
| 6 | Extent of surface within a boundary (2 Words) | 3 | Boundary |
| | | 4 | Space between two things |
| 7 | Round plane figure | 5 | Extent |

Crossword Puzzle Answers



- | | | | |
|---|-----------|---|-------------|
| 2 | Across | 1 | Down |
| 6 | Center | 3 | Distance |
| | Extent of | 4 | around a |
| | surface | | circle |
| | within a | 5 | Boundary |
| | boundary | | Space |
| | (2 Words) | | between two |
| 7 | Round | | things |
| | plane | | Extent |
| | figure | | |



UNIT ASSESSMENT



Perimeter, Volume & Surface Area

Unit Assessment Teacher's Notes
Grade 8 • Unit 9

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 **CIRCLE**.
2. Write the number 2 by the picture for **SURFACE AREA**.
3. Write the number 3 by the picture for **CIRCUMFERENCE**.
4. Write the number 4 by the picture for **AREA**.
5. Write the number 5 by the picture for **MID-POINT**.
6. Write the number 6 by the picture for **PERIMETER**.
7. Write the number 7 by the picture for **DISTANCE**.

SIGHT RECOGNITION

Turn to page 2 in your test. Look at the pictures in the boxes. Circle the word for each picture.

DECODING/ENCODING

Turn to page 3 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 4 in your test. Write each word under its definition.

Refer to Student Support Materials for answer key.

BASIC WRITING

Turn to page 5 in your test. Look at the pictures in the boxes. Write the word for each picture.



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.



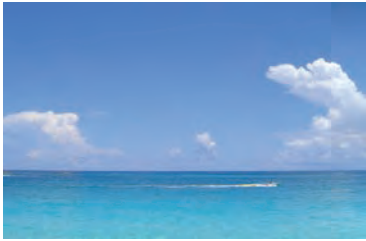


MATH PROGRAM

Unit Assessment Student Pages
Grade 8 • Unit 9

Date: _____ Student's Name: _____

Number Correct: _____ Percent Correct: _____





circle
 surface area
 circumference
 area
 mid-point
 perimeter
 distance



circle
 surface area
 circumference
 area
 mid-point
 perimeter
 distance



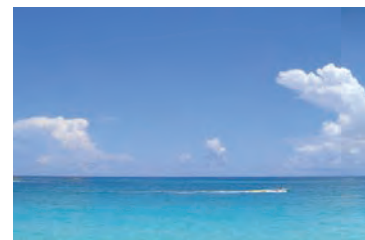
circle
 surface area
 circumference
 area
 mid-point
 perimeter
 distance



circle
 surface area
 circumference
 area
 mid-point
 perimeter
 distance



circle
 surface area
 circumference
 area
 mid-point
 perimeter
 distance



circle
 surface area
 circumference
 area
 mid-point
 perimeter
 distance



circle
 surface area
 circumference
 area
 mid-point
 perimeter
 distance

ci_____

rkla
rkle
rkli
rklo
rklu
rcla
rcle
rcli
rclo

sur_____

area

fas
fes
fis
fos
fus
face
fece
fice
foce

circumfer_____

anse
ense
inse
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unce
ance
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once

a_____

rya
rye
ryi
ryo
ryu
raa
rea
rei
reo

mid-p_____

ant
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int
ont
unt
oant
oent
oint
oont

perim_____

ater
eter
iter
oter
uter
ader
eder
ider
odor

dist_____

ance
ence
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once
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ants
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ints
onts

Center

Space between two things

Extent

Extent of surface within a boundary

Distance around a circle

Boundary

Round plane figure

circle

surface area

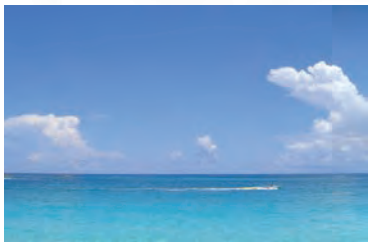
circumference

area

mid-point

perimeter

distance





UNIT 10: Geometry

Position, Direction & Construction

Note: All key terms are based on the Math Standards for Alaska and reflect terms vital to academic achievement in math.



INTRODUCTION OF MATH VOCABULARY

Process Skills

Concrete Introduction of Key Vocabulary

Note: A vocabulary graphic is provided in this unit for each of the key words.

Definitions for all of the key words can be found in the glossary at the back of this program.

position

Toss a tennis ball into the center of the room and let it come to a stop on the floor. Ask the students to describe its position in the room. Write the characteristics of its position on the board. You may wish to use a measuring tape!

direction

With the students seated, ask them to quickly point in the direction that a place is located when you call it out. Examples that you may wish to use are Juneau, Anchorage, Fairbanks, Barrow, Ketchikan and Sitka!

diameter

Show the students a clock and explain to them the definition of diameter. Ask them to write several times when the clock's hands would create a chord that corresponds to the diameter of the circle.

Process Skills

Concrete Introduction of Key Vocabulary

Note: A vocabulary graphic is provided in this unit for each of the key words.

Definitions for all of the key words can be found in the glossary at the back of this program.

polygon

Show the students a soccer ball and explain that each of the divisions is a unique polygon. Have the students all guess how many polygons are on the ball. Who came the closest to being correct?

perpendicular line

Explain the definition of perpendicular lines and have the students count the number that they can find on the palms of their own hands. Are there too many to count? Who knew?!

parallel line

Parallel lines are abundant in many transportation systems. Just look at roads, train tracks and the impressions left behind from cross-country skies! What other transportation examples can students come up with?

Process Skills

Concrete Introduction of Key Vocabulary

Note: A vocabulary graphic is provided in this unit for each of the key words.

Definitions for all of the key words can be found in the glossary at the back of this program.

**perpendicular
bisector**

Pass out several blades of grass or small sticks to each student. Explain the definition of a perpendicular bisector and have them use a ruler to create one in exactly the right spot on these items.



VOCABULARY PICTURES





POSITION





DIRECTION





DIAMETER





POLYGON





PERPENDICULAR LINE





PARALLEL LINE





PERPENDICULAR BISECTOR



LANGUAGE ACTIVITIES

Language and Skills Development

LISTENING

Review the key math words introduced in this unit. If the vocabulary pictures were not presented during the introduction, show them to the students at this time.



Whisper

Mount the vocabulary illustrations on the chalkboard. 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 chalkboard and point to the illustration 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 illustration in this way. When a player has identified a vocabulary illustration, he/she should rejoin the front of his/her team.

Modification: Make it more like tele-pictionary: Whisper a definition to a player, who then must decide what word it is, and whisper the word to the next player, who then translates it into the definition again when they whisper it to the next player. Thus, it would be repeated as word, then definition, then word, then definition, and so forth.

Student Support Materials

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

Language and Skills Development

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.

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.

Language and Skills Development

READING

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



Balloon Volleyball

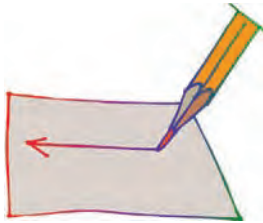
Group the students into two teams. The two teams should stand, facing one another. Toss a round, inflated balloon to the members of Team One. The members of Team One must then bounce the balloon to the members of Team Two. The players should continue to bounce the balloon back and forth in this way until 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 ask all the members in that team to say the vocabulary word for it. Repeat until both teams have responded a number of times.

Student Support Materials

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

Language and Skills Development

WRITING



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.

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.

Student Support Materials

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

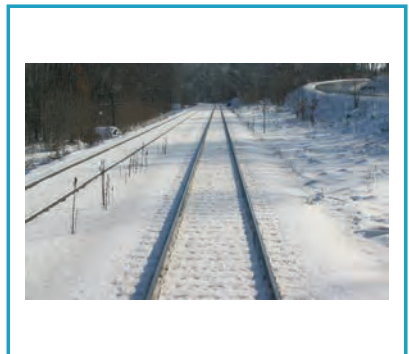


STUDENT SUPPORT MATERIALS

Listening • Mini Pictures

Listening: Mini Pictures

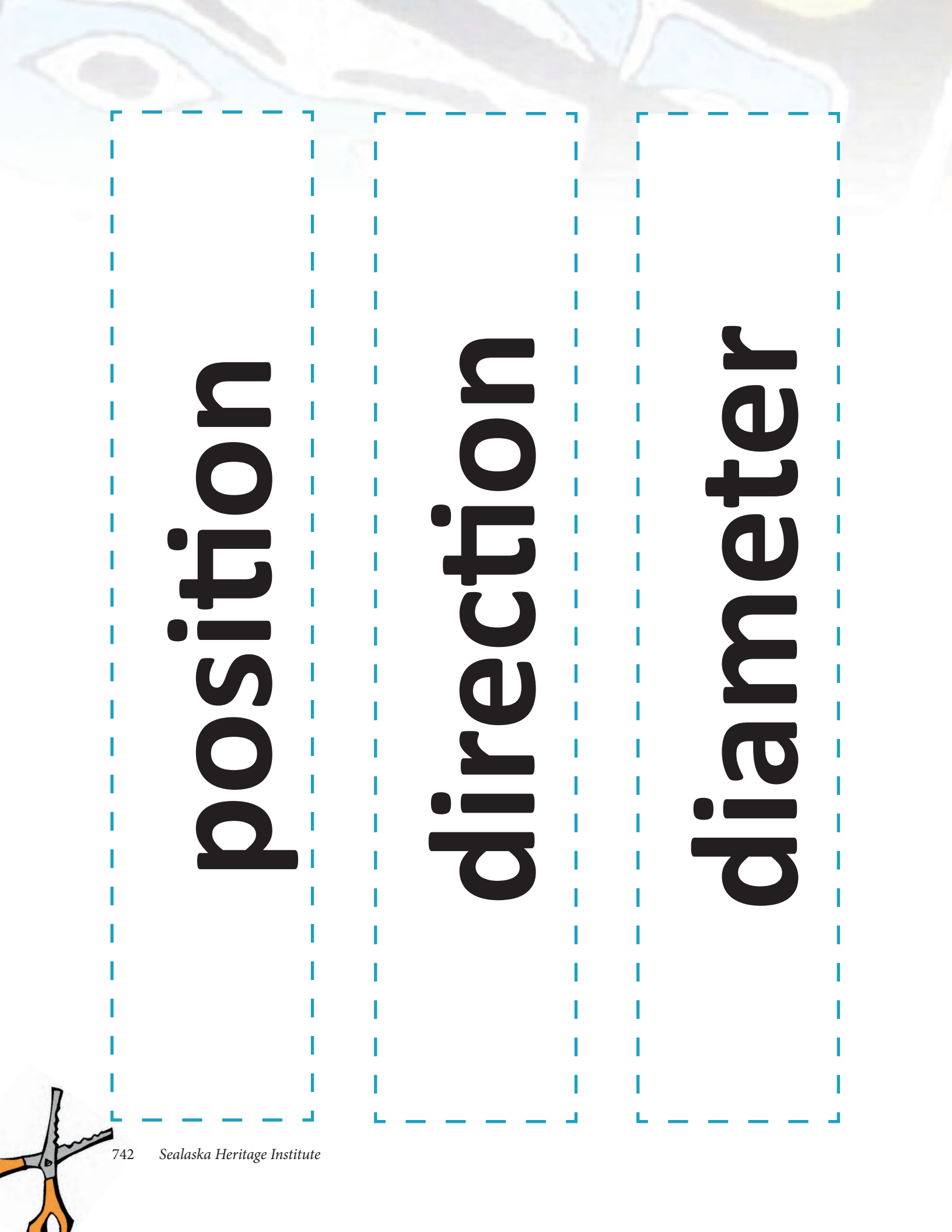
Have the students cut out the pictures. Say the key math words from this unit, and the students should hold up the pictures for them.





STUDENT SUPPORT MATERIALS

Sight Words



position

direction

diameter





polygon

perpendicular line

parallel line



perpendicular bisector





STUDENT SUPPORT MATERIALS

Reading • Sight Recognition

Sight Words Activity Page



Have the students circle the word for each picture.



position
direction
diameter
polygon
perpendicular
line
parallel line
perpendicular
bisector



position
direction
diameter
polygon
perpendicular
line
parallel line
perpendicular
bisector



position
direction
diameter
polygon
perpendicular
line
parallel line
perpendicular
bisector



position
direction
diameter
polygon
perpendicular
line
parallel line
perpendicular
bisector

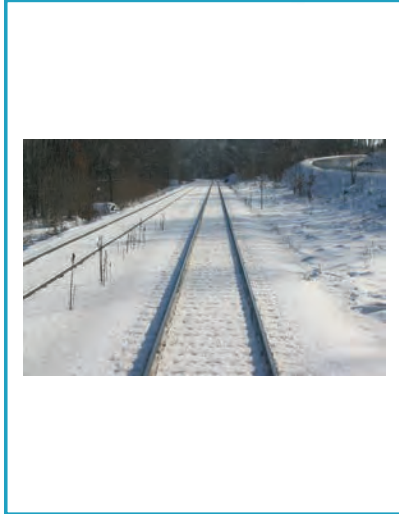


position
direction
diameter
polygon
perpendicular
line
parallel line
perpendicular
bisector



position
direction
diameter
polygon
perpendicular
line
parallel line
perpendicular
bisector

Sight Words Activity Page

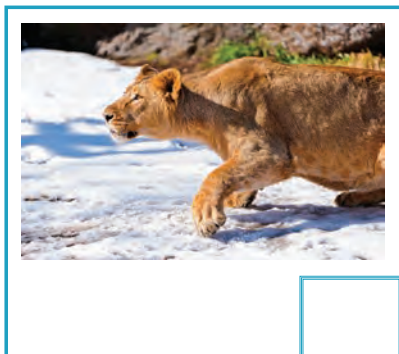


- position**
- direction**
- diameter**
- polygon**
- perpendicular
line**
- parallel line**
- perpendicular
bisector**

Sight Words Activity Page



Write the numbers on their correct vocabulary graphics.



1. position
2. direction
3. diameter
4. polygon
5. perpendicular line
6. parallel line
7. perpendicular bisector

Sight Words Activity Page



Highlight or circle the words in this word find.

direction
perpendicular bisector
polygon
diameter

position
perpendicular line
parallel line

o r r r p t e p i e e l d a y p p t y i i p i d e
s e r c d o l r e i i p d i a m e t e r c l e d c
o o u t p e i p o n t c l d i d p o s i t i o n n
l u d a l o c y o l o o r i i a r t s i i l d p l
d e d d p e r p e n d i c u l a r b i s e c t o r
n a r t r e t l b d i i i l u i i i e i n l s e d
n r r d i r e c t i o n r a p e p t n n l r e o l
p p o s i t i o p e i c p p a r a l l e l l i e o
p n m b d l o p t i p d l e r e o a e l n o p b i
p r i t p e r p e n d i c u l a r l i n e i p n i
a d t l a s l n e e a p r d r r o c u r n i p r i
e i l b n l y a u p i e d i r e c t i r i g e l i
n n n i i e e r r e e e o l c n s i i l i n l r a
t r r s i s a i c i c e i i e o l i i r d l o l r
l i a i o m d o e e n p d a e p d e l l g i o b e
y n p e t r l e n e i u g l e y d c e l i a e r l
e r i e i e e e c o i i p r e l l e o r r l l o b
n e y e p o l y s p y p e i a m p m d e c m g i n
c r d s o t e r n r u l g c c n o o n n a i r t c
i a i a e p o p e r p e n d i c u l a r l i i e t
o c d p n t r n y r a e l r l o n a i l o i n t p
n e u l m n s r n i n s r e r r r e y p u r o t n
d i a m e t e n p i n c d e l i p o l y g o n p l
d l a p b d l r e i l d l y p u a o l p r p p l r
n e e l g d i o u c r o o l i r n r d t i l o a i
o l p a a p a m n o e g l l l e a r p d n n g t
p e r p e n d i c u l a r b i s e c t o l r n i s
i p c o r i i p t l p c s p a r a l l e l l i n e
o a d i r e b i d r e l r p t n p m e r t a u e o

Sight Words Activity Page

ANSWER KEY



direction
perpendicular bisector
polygon
diameter

position
perpendicular line
parallel line

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



STUDENT SUPPORT MATERIALS

Reading • Encoding

Encoding Activity Page

Have the students cut out the word parts and glue them into their correct words.



p_____ion

di_____ion

d_____ter

p_____on

perp_____ular line

rect	endic	secto
------	-------	-------

rall	osit
------	------



Encoding Activity Page



pa_____el line

perpendicular bi_____r

olyg	iame
------	------

Encoding Activity Page



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

pos

ine

di

sector

dia

ition

pol

rection

per

ygon



Encoding Activity Page



parallel l

pendicular line

**perpendicular
bi**

meter

Encoding Activity Page



Cut out and encode the syllables of the words OR number the syllables in their correct sequence.

tion || si || po

rec || di || tion

me || di || a || ter

Encoding Activity Page



y || pol || gon

pen || per || lar || di || cu

line

Encoding Activity Page



ral || line || pa || lel

lar || di || per || pen || cu

bi || tor || sec



STUDENT SUPPORT MATERIALS

Reading Comprehension

What's the Answer?



Read the text and then select the correct answer for it. Fill in the bullet beside the answer of your choice.

- ① The position of Fairbanks relative to Southeast Alaska is
 - Large
 - North
 - Small
 - South

- ② The direction that salmon swim in a river to spawn is generally
 - Upstream
 - Downstream
 - Upside Down
 - Out to Sea

- ③ The diameter of a pearl would be the measure of a chord passing through its
 - Top
 - Bottom
 - Left Side
 - Center

- ④ A polygon is a _____ figure made up of line segments.
 - Open
 - Closed
 - Heavy
 - Light

- ⑤ Perpendicular lines are lines that intersect to form _____ angles.
 - Small
 - Large
 - Left
 - Right

What's the Answer?



- ⑥ Good examples of parallel lines are
- Train Tracks
 - Basketballs
 - Fish Eggs
 - Car Tires
- ⑦ A perpendicular bisector passes through the _____ of a line.
- Far Ends
 - Left End
 - Right End
 - Mid-Point

What's the Answer?



ANSWER KEY

- ① The position of Fairbanks relative to Southeast Alaska is
- Large
 - North
 - Small
 - South
- ② The direction that salmon swim in a river to spawn is generally
- Upstream
 - Downstream
 - Upside Down
 - Out to Sea
- ③ The diameter of a pearl would be the measure of a chord passing through its
- Top
 - Bottom
 - Left Side
 - Center
- ④ A polygon is a _____ figure made up of line segments.
- Open
 - Closed
 - Heavy
 - Light
- ⑤ Perpendicular lines are lines that intersect to form _____ angles.
- Small
 - Large
 - Left
 - Right

What's the Answer?



- ⑥ Good examples of parallel lines are
- Train Tracks
 - Basketballs
 - Fish Eggs
 - Car Tires
- ⑦ A perpendicular bisector passes through the _____ of a line.
- Far Ends
 - Left End
 - Right End
 - Mid-Point

Reading Comprehension Activity Page

Write the numbers/letters for sentence halves that match.



- | | |
|--|---|
| ① The position of an army on the battlefield | ⑨ diameter of a mature cottonwood tree. |
| ② The direction that one is driving is important | ⑩ closed figure made up of line segments. |
| ③ The diameter of an acorn is much less than the | ⑪ parallel lines. |
| ④ A polygon is a | ⑫ perpendicular line. |
| ⑤ A cross is an example of a | ⑬ perpendicular bisector. |
| ⑥ Train tracks are examples of | ⑭ can be important for winning the battle or war. |
| ⑦ A plus sign is an example of a | ⑮ if you wish to reach your intended destination! |

1→ _____ 2→ _____ 3→ _____ 4→ _____
5→ _____ 6→ _____ 7→ _____

Reading Comprehension Activity Page

ANSWER KEY



- | | |
|--|---|
| ① The position of an army on the battlefield | ⑨ diameter of a mature cottonwood tree. |
| ② The direction that one is driving is important | ⑩ closed figure made up of line segments. |
| ③ The diameter of an acorn is much less than the | ⑪ parallel lines. |
| ④ A polygon is a | ⑫ perpendicular line. |
| ⑤ A cross is an example of a | ⑬ perpendicular bisector. |
| ⑥ Train tracks are examples of | ⑭ can be important for winning the battle or war. |
| ⑦ A plus sign is an example of a | ⑮ if you wish to reach your intended destination! |

1→ F 2→ G 3→ A 4→ B
5→ D 6→ C 7→ E

Reading Comprehension Activity Page

Cut out the words and glue them under their definitions.



Closed figure of line segments

Intersect to form right angles

Location

Chord passing through circle center

In same plane without intersection

Line along which something faces

Intersecting at a mid-point

position	direction	diameter	polygon
perpendicular line	parallel line	perpendicular bisector	



Reading Comprehension Activity Page

ANSWER KEY



Closed figure of line segments

polygon

Intersect to form right angles

perpendicular line

Location

position

Chord passing through circle center

diameter

In same plane without intersection

parallel line

Line along which something faces

direction

Intersecting at a mid-point

perpendicular bisector

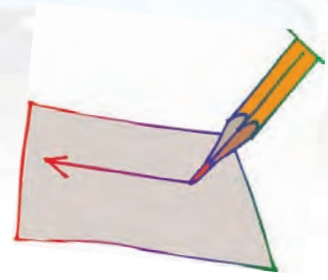


STUDENT SUPPORT MATERIALS

Writing

Writing Activity Page

Have the students complete the writing of the key math words.



po_____ion

dir_____tion

diam_____r

po_____gon

per_____dic_____ar l_____e

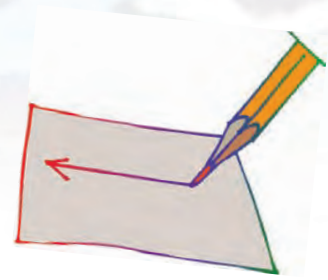
para_____l li_____

p_____pen_____ular

bi_____tor

Writing Activity Page

Have the students complete the writing of the key math words.



p _____ **n**

d _____ **n**

d _____ **r**

p _____ **g** _____ **n**

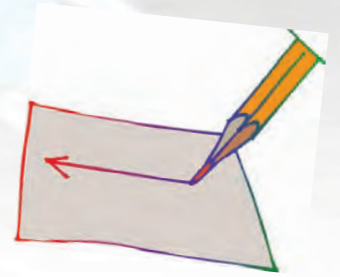
p _____ **l** _____ **e**

p _____ **l** _____ **l** _____ **e**

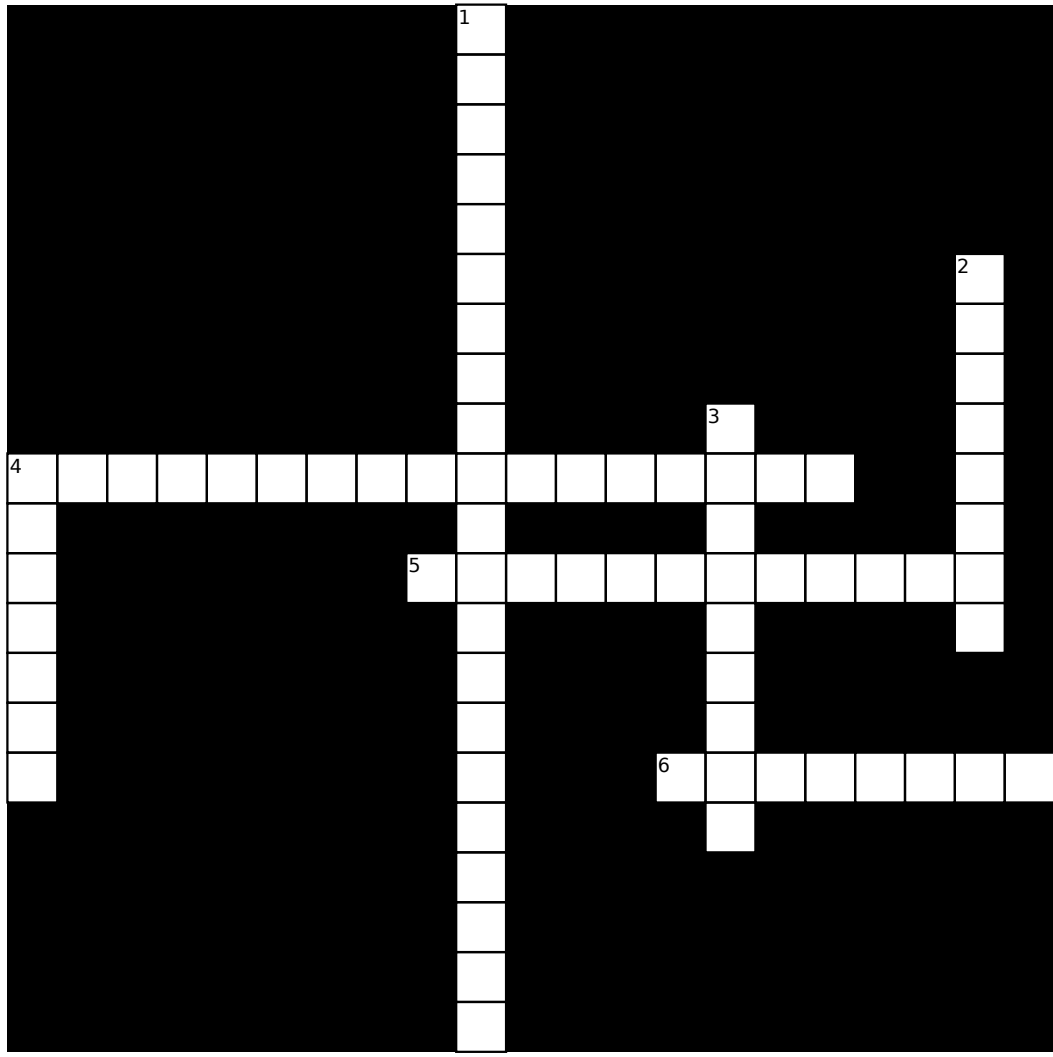
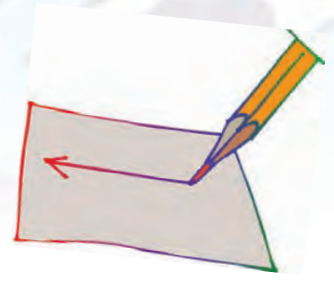
p _____ **b** _____ **r**

Basic Writing Activity Page

Have the students write the word for each picture.

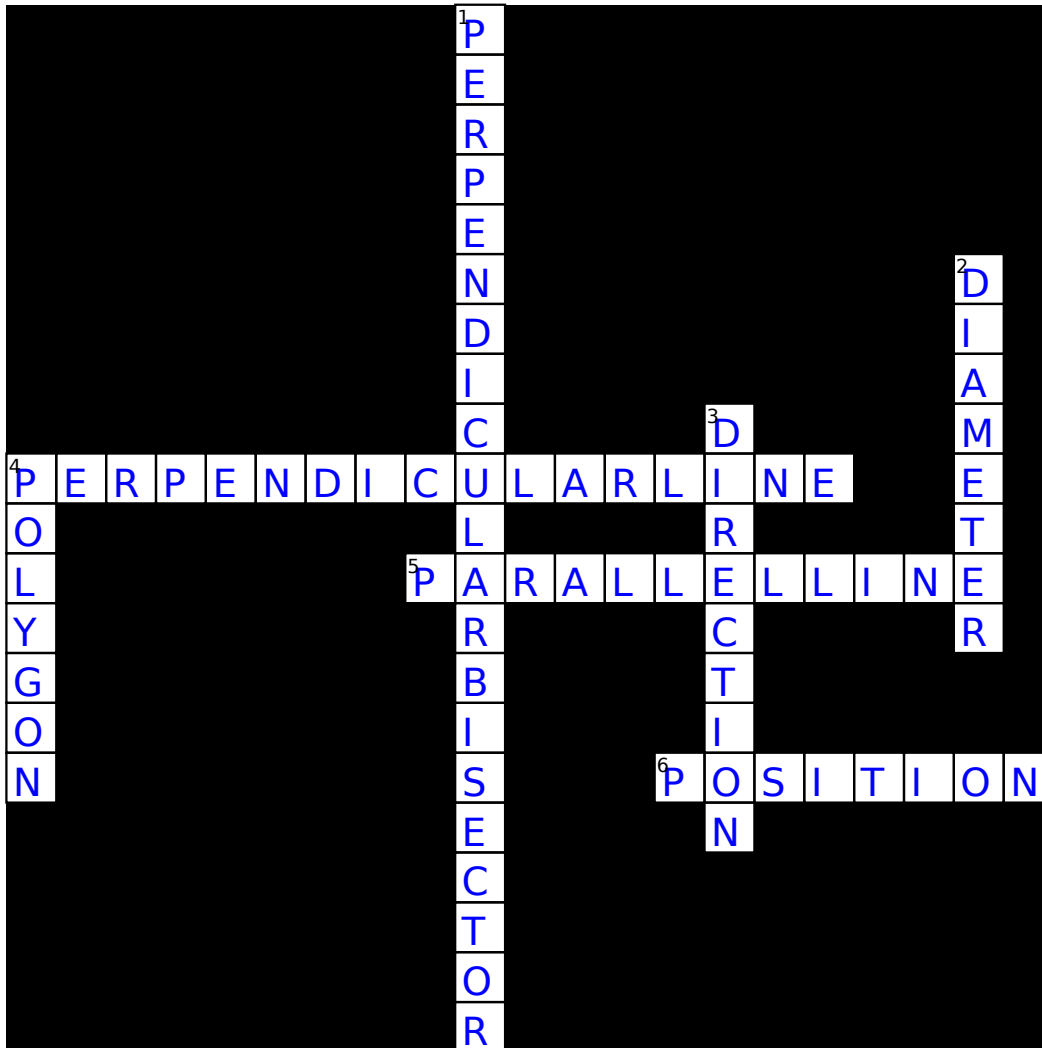


Crossword Puzzle



- | | |
|---|---|
| <p>4 Across</p> <p>4 Intersect to form right angles (2 Words)</p> <p>5 In same plane without intersection (2 Words)</p> <p>6 Location</p> | <p>Down</p> <p>1 Intersecting at a mid-point (2 Words)</p> <p>2 Chord passing through circle center</p> <p>3 Line along which something faces</p> <p>4 Closed figure of line segments</p> |
|---|---|

Crossword Puzzle Answers



- 4 Across
Intersect to form right angles (2 Words)
- 5 In same plane without intersection (2 Words)
- 6 Location

- 1 Down
Intersecting at a mid-point (2 Words)
- 2 Chord passing through circle center
- 3 Line along which something faces
- 4 Closed figure of line segments



UNIT ASSESSMENT



Position, Direction & Construction

Unit Assessment Teacher's Notes

Grade 8 • Unit 10

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 **POSITION**.
2. Write the number 2 by the picture for **DIRECTION**.
3. Write the number 3 by the picture for **DIAMETER**.
4. Write the number 4 by the picture for **POLYGON**.
5. Write the number 5 by the picture for **PERPENDICULAR LINE**.
6. Write the number 6 by the picture for **PARALLEL LINE**.
7. Write the number 7 by the picture for **PERPENDICULAR BISECTOR**.

SIGHT RECOGNITION

Turn to page 2 in your test. Look at the pictures in the boxes. Circle the word for each picture.

DECODING/ENCODING

Turn to page 3 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 4 in your test. Write each word under its definition.

Refer to Student Support Materials for answer key.

BASIC WRITING

Turn to page 5 in your test. Look at the pictures in the boxes. Write the word for each picture.



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.





MATH PROGRAM

Unit Assessment Student Pages
Grade 8 • Unit 10

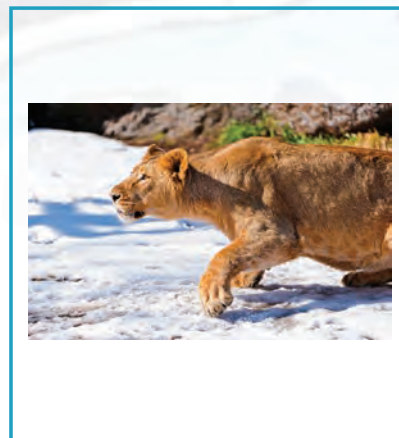
Date: _____ Student's Name: _____

Number Correct: _____ Percent Correct: _____





position
 direction
 diameter
 polygon
 perpendicular line
 parallel line
 perpendicular
 bisector



position
 direction
 diameter
 polygon
 perpendicular line
 parallel line
 perpendicular
 bisector



position
 direction
 diameter
 polygon
 perpendicular line
 parallel line
 perpendicular
 bisector



position
 direction
 diameter
 polygon
 perpendicular line
 parallel line
 perpendicular
 bisector



position
 direction
 diameter
 polygon
 perpendicular line
 parallel line
 perpendicular
 bisector



position
 direction
 diameter
 polygon
 perpendicular line
 parallel line
 perpendicular
 bisector



position
 direction
 diameter
 polygon
 perpendicular line
 parallel line
 perpendicular
 bisector

posi_____

chin
chen
chan
chon
chun
tian
tien
tion
tiun

direc_____

chin
chen
chan
chon
chun
tian
tien
tion
tiun

diam_____

atar
etar
itar
otar
utar
ater
eter
iter
oter

pol_____

igan
igen
igin
igon
igun
ygan
ygen
ygin
ygon

perpendic_____ **line**

alar
elar
ilar
olar
ular
aler
eler
iler
oler

para_____ **line**

lal
lel
lil
lol
lul
llal
llep
llil
llol

perpendicular
bise_____

ktar
kter
ktir
ktor
ktur
ctar
cter
ctir
ctor



Closed figure of line segments

Intersect to form right angles

Location

Chord passing through circle center

In same plane without intersection

Line along which something faces

Intersecting at a mid-point

position

direction

diameter

polygon

perpendicular line

parallel line

perpendicular bisector

