



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.

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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.

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prisms

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

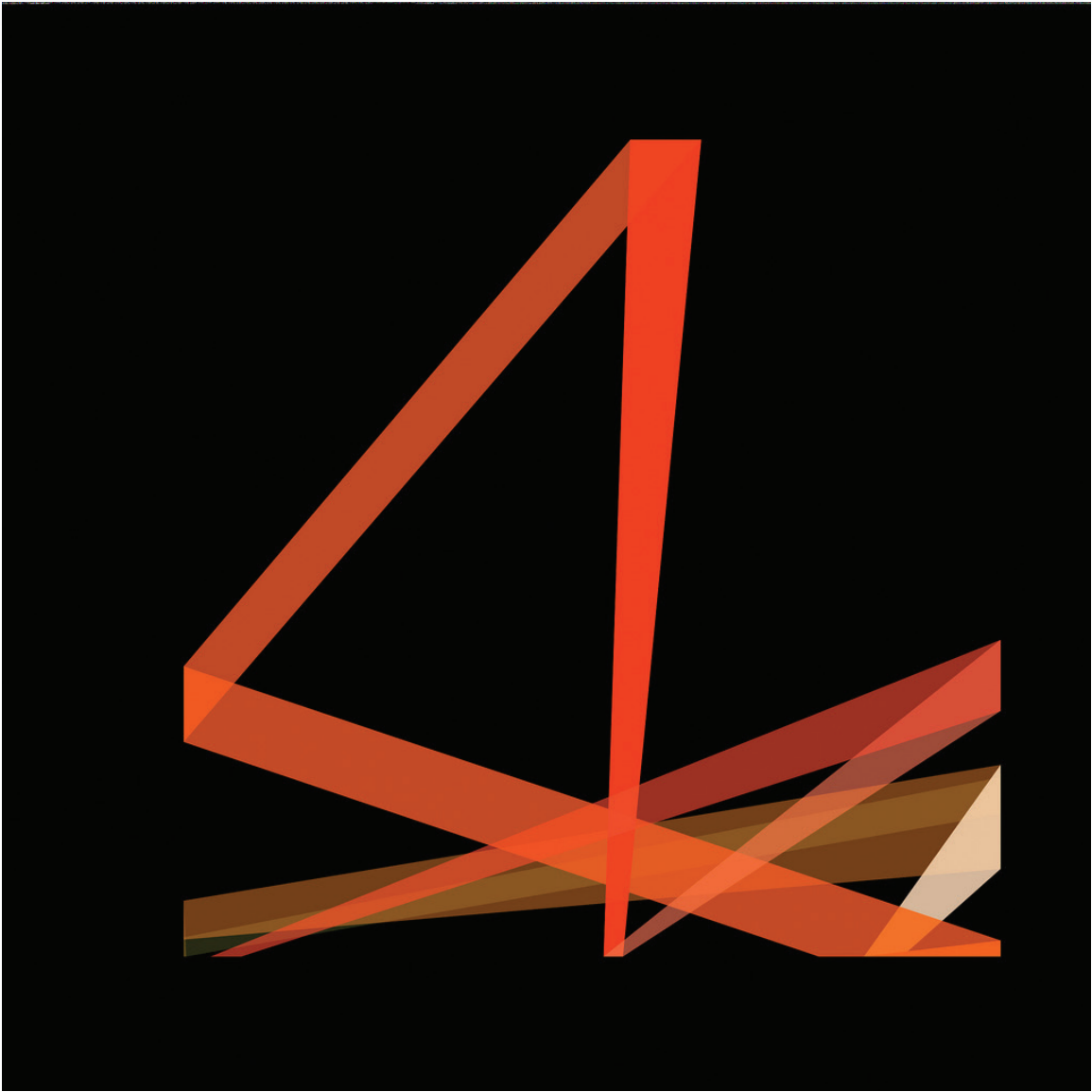


VOCABULARY PICTURES





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

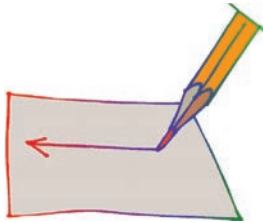
Give each student his/her envelope that contains the alphabet letters. Show a picture from this unit. The students must use the cut-out letters to spell the word for the picture. Review the students' work. Repeat, until all of the words have been spelled.

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.

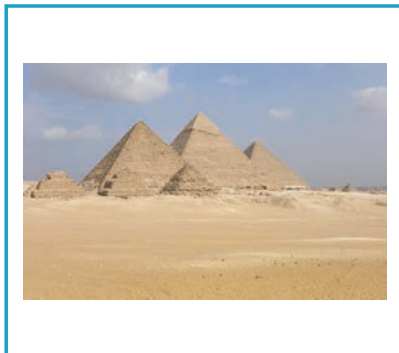
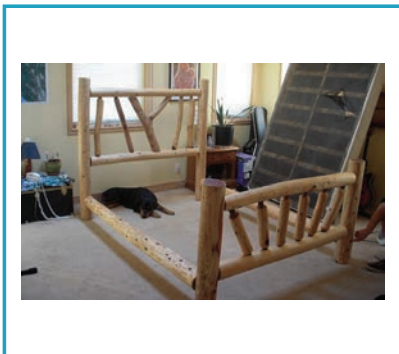
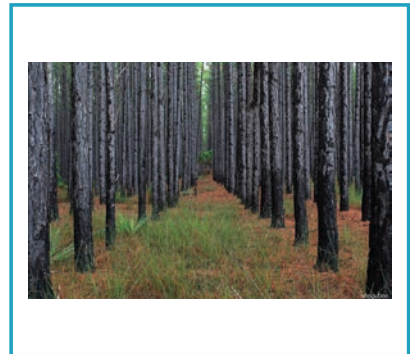
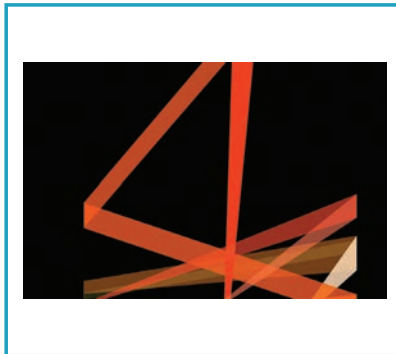


STUDENT SUPPORT MATERIALS

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.



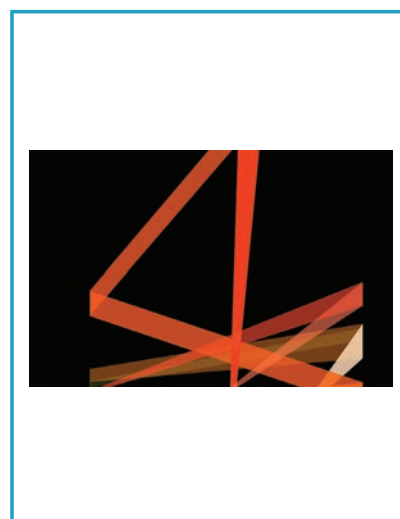
- attribute
- vertices
- alignment
- bases
- cylinders
- cones
- prisms



- 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

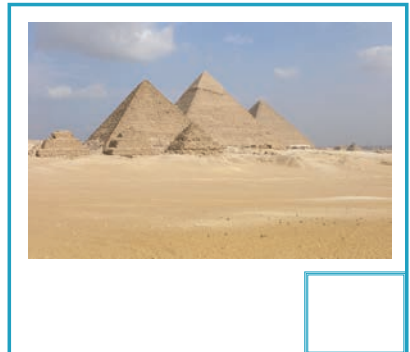
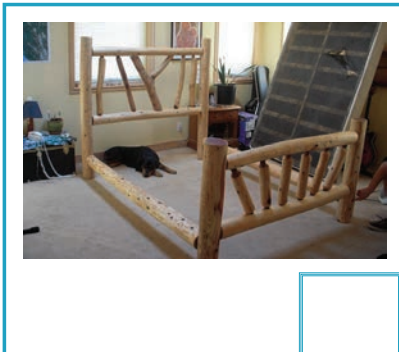
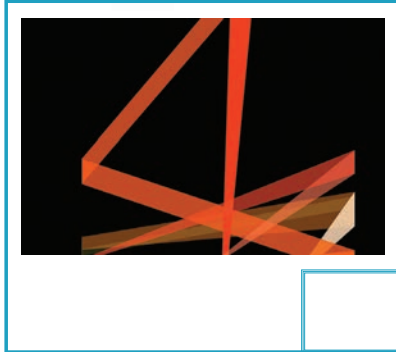


- attribute**
- vertices**
- alignment**
- bases**
- cylinders**
- cones**
- prisms**

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 _____.
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 - Prey Items
 - Hibernation Tools
 - Accessories
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- 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

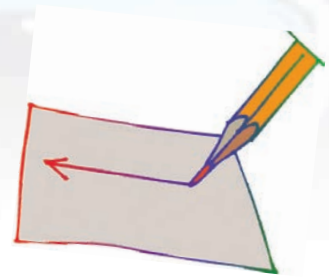


STUDENT SUPPORT MATERIALS

Writing

Writing Activity Page

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



att_____ute

ver_____es

align_____t

b_____es

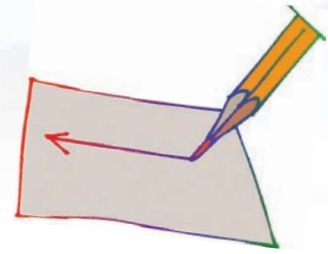
cy_____ders

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**

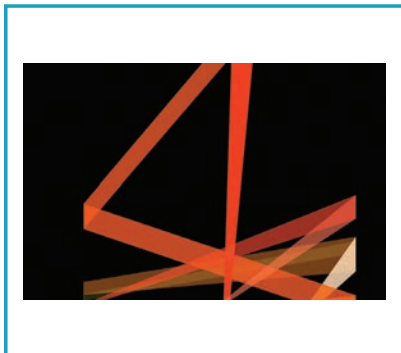
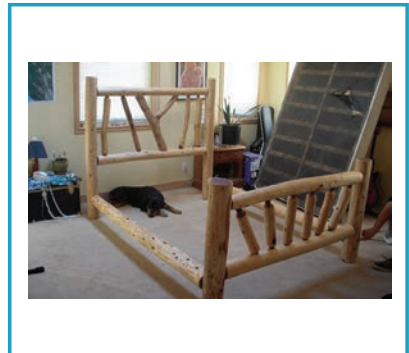
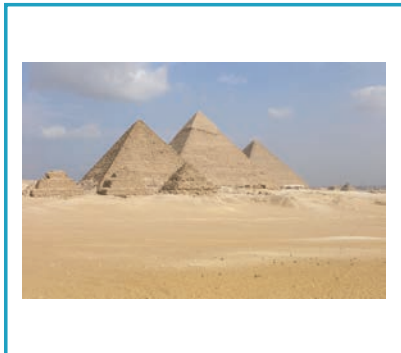
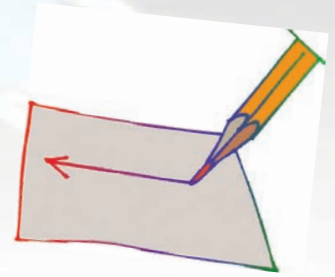
cy _____ **s**

c _____ **s**

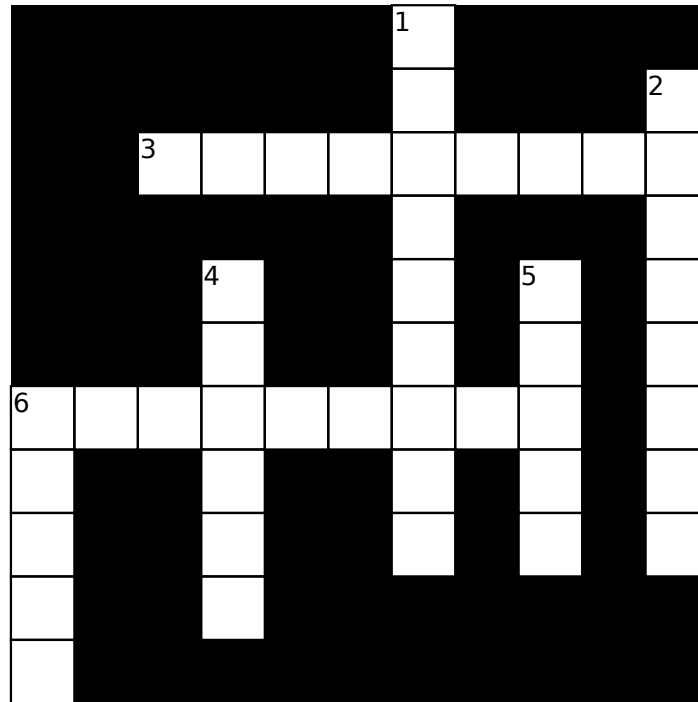
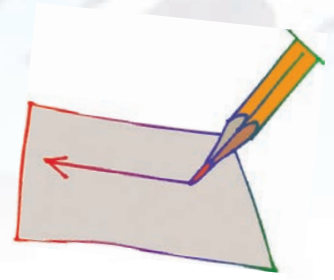
p _____ **s**

Basic Writing Activity Page

Have the students write the word for each picture.

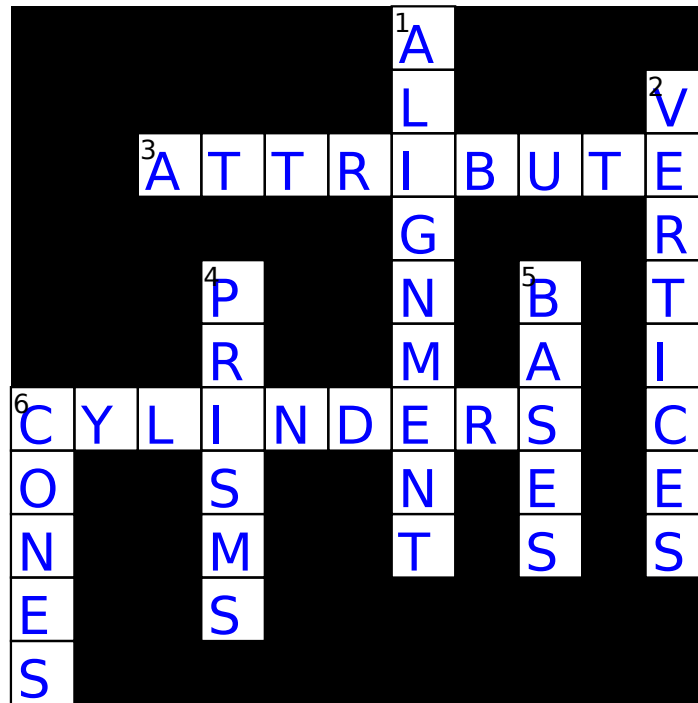


Crossword Puzzle



- | 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: _____





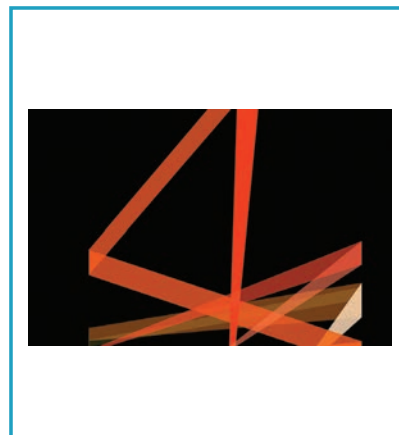
attribute
 vertices
 alignment
 bases
 cylinders
 cones
 prisms



attribute
 vertices
 alignment
 bases
 cylinders
 cones
 prisms



attribute
 vertices
 alignment
 bases
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 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
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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

