



MATH

FOR LANGUAGE DEVELOPMENT
BASED ON ALASKA MATH STANDARDS
GRADE 7 • BOOK 2



Sealaska Heritage Institute



UNIT 6
Geometry

Alaskan Math Standards (GLE's) for This Unit

These Alaskan math standards underly the language development of the unit. Many of these standards are addressed during the regular math program and in the concrete introduction of the key vocabulary words for the unit.

The student demonstrates an understanding of geometric relationships by

[7] G-1 using the attributes and properties of polygons (diagonals, number of sides and angles) to identify and classify regular or irregular polygons (M5.3.1)

[7] G-2 using the attributes and properties of prisms (vertices, length and alignment of edges, shape and number of bases, shape of faces) to identify and describe triangular or rectangular pyramids (M5.3.2)

The student demonstrates conceptual understanding of similarity, congruence, symmetry, or transformations of shapes by

[7] G-3 using a scale factor to solve problems involving similar shapes (e.g., scale drawings, maps) (M5.3.3)

[7] G-4 drawing or describing the results of applying transformations such as translations, rotations, reflections, or dilations to figures (L) (M5.3.5)

The student solves problems (including real-world situations) by

[7] G-5 determining the volume of cubes and rectangular prisms (M5.3.4)

[7] G-6 determining the surface area of rectangular prisms (M5.3.4)

[7] G-7 determining the circumference of a circle (M5.3.4)

Alaskan Language Standards (GLE's) for This Unit

AK.R.3.1. Reading: The student uses strategies to decode or comprehend the meaning of words in texts. (E.B.1)

[7] 3.2.2. Reading aloud short factual information (e.g., reports, articles) (L)

AK.R.3.3. Reading: The student restates/summarizes and connects information. (E.B.3)

AK.R.3.5. Reading: The student follows written directions. (E.C.2)

[7] 3.5.1. Completing a task by following written, multi-step directions (e.g., answer a multi-faceted text question) (L)

[7] 3.5.2. Identifying the sequence of steps in a list of directions (e.g., what is the first step, what is the second step)

[7] 3.3.4. Applying rules of capitalization (e.g., titles and proper nouns)

AK.W.3.4. Writing: The student revises writing. (E.A.5, E.A.8)

AK.E.A. A student should be able to speak and write well for a variety of purposes and audiences. A student who meets the content standard should:

E.A.1. Apply elements of effective writing and speaking. These elements include ideas, organization, vocabulary, sentence structure, and personal style.

E.A.2. In writing, demonstrate skills in sentence and paragraph structure, including grammar, spelling, capitalization, and punctuation.

E.A.3. In speaking, demonstrate skills in volume, intonation, and clarity.



INTRODUCTION OF MATH VOCABULARY

Geometry

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

Before the lesson begins, nail six or more small nails into a portion of wood. Use an elastic band to create different shapes on the nails. Have individual students create shapes using the elastic. Use this to introduce polygons to the students.

POLYHEDRON

Cut the shape of a pyramid from cardboard. Ask the students watch as you assemble the triangle. Direct their attention to the number of faces on the triangle. Show the pyramid picture from the back of this unit. Use it and your model to introduce polyhedron to the students.

REGULAR (POLYGON)

Before the lesson begins, prepare a number of regular and irregular polygons, using paper. Mix all of the polygons together. Introduce the features of regular and irregular polygons.

Have the students sort and classify the polygons according to regular and irregular.

Geometry

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DIAGONAL

Use masking tape to make a square on the floor. Use string or yarn to show a diagonal line. Draw an intersection on the board. Use it to show how pedestrians may cross the intersection diagonally.

CONGRUENT

Before the lesson begins, collect pairs of identical items (i.e. cans of food, coins, containers, etc.). Mix all of the items together and have the students sort and match the different pairs. Use the pairs of items to introduce congruent shapes to the students.

Geometry

Concrete Introduction of Key Vocabulary

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RADIUS

Make a large masking tape circle on the floor. Group the students around the circle; and place a flashlight in the center of the circle. Dim the lights and turn on the flashlight. Direct the students' attention to the light from the center of the circle to the masking tape. Introduce this as the radius of the circle.

DIAMETER

Place another flashlight in the center of the masking tape circle, from exercise above. Place the flashlight so that the light shines in the opposite direction from the first flashlight. Use the bar of light to introduce diameter to the students.

CIRCUMFERENCE

Direct the students' attention to the masking tape circle, used above; and use it to introduce circumference. Demonstrate the use of pi to determine a circle's circumference: π (3.14) \times the radius of the circle. Give the students circles of different sizes. Have them determine the circumferences of the circles.

Geometry

Concrete Introduction of Key Vocabulary

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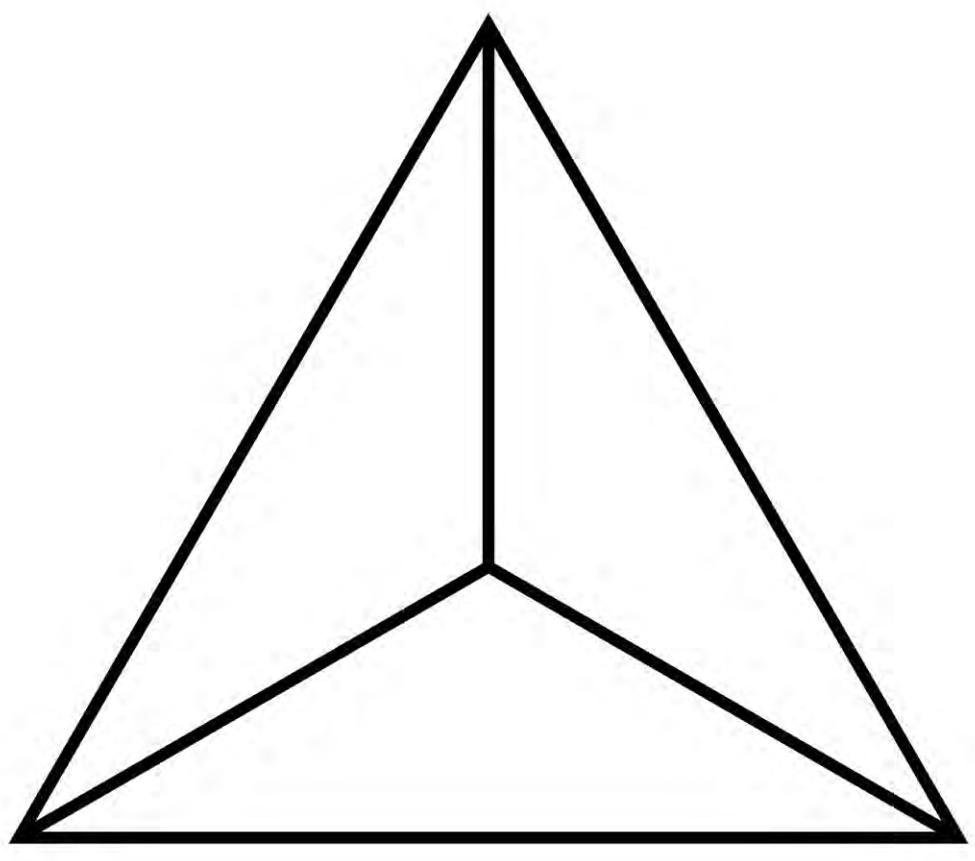
Definitions for all of the key words can be found in the glossary at the back of this program.

QUADRANT

Show the students a pizza or a cut-out of a pizza. As they watch, cut one quarter of the pizza off. Use this to introduce quadrant as it relates to a circle.

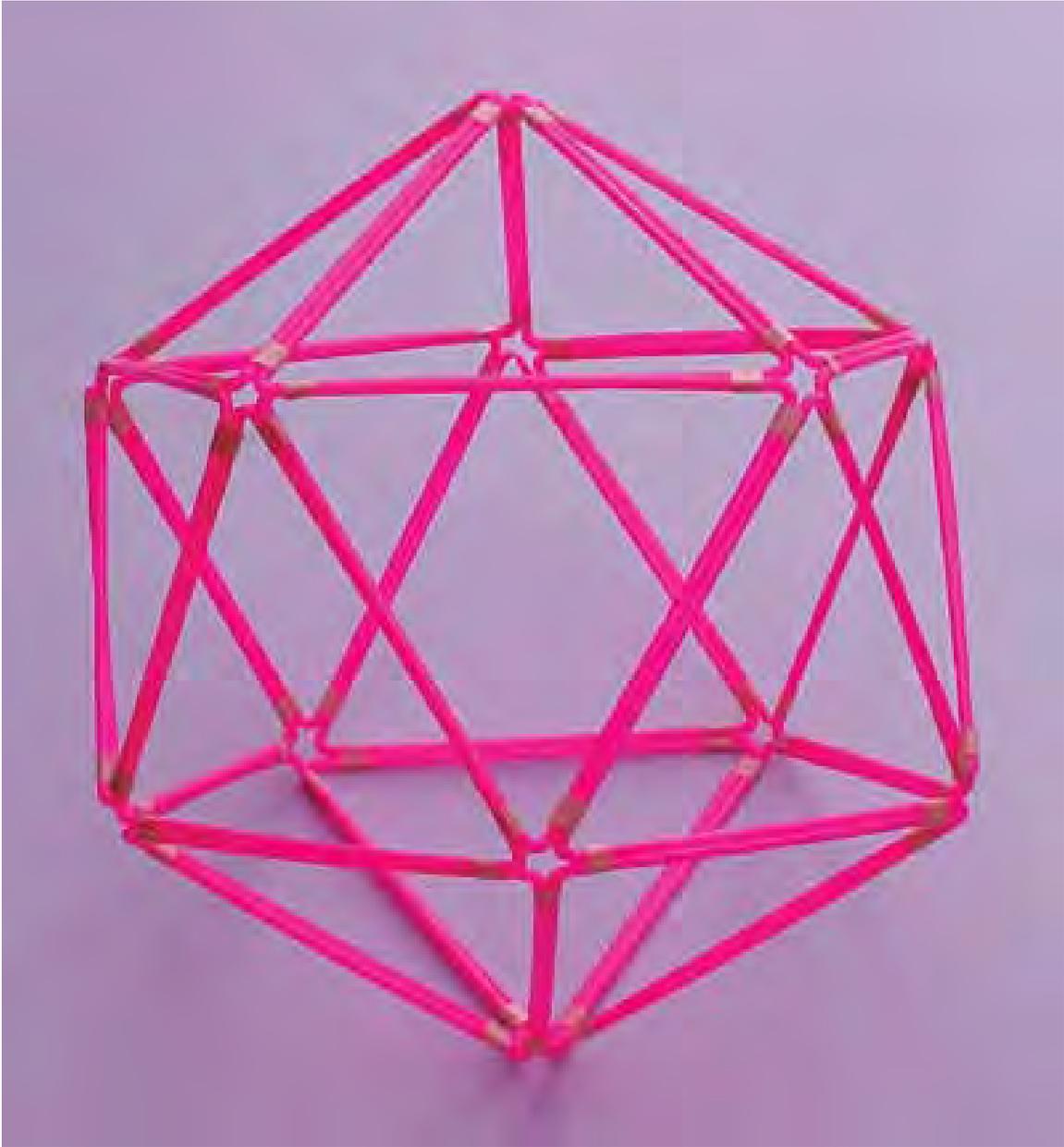


VOCABULARY PICTURES



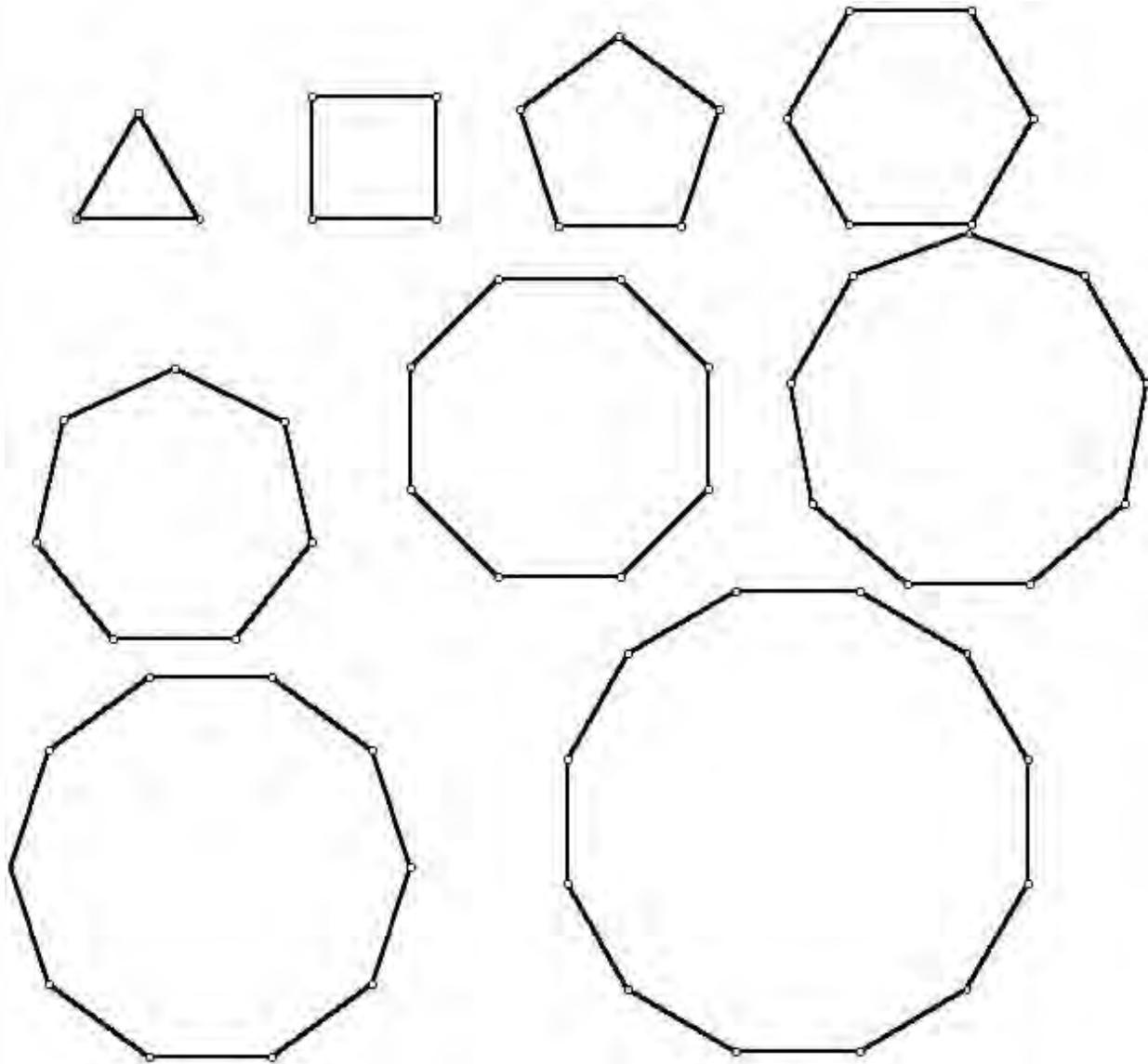


POLYGON



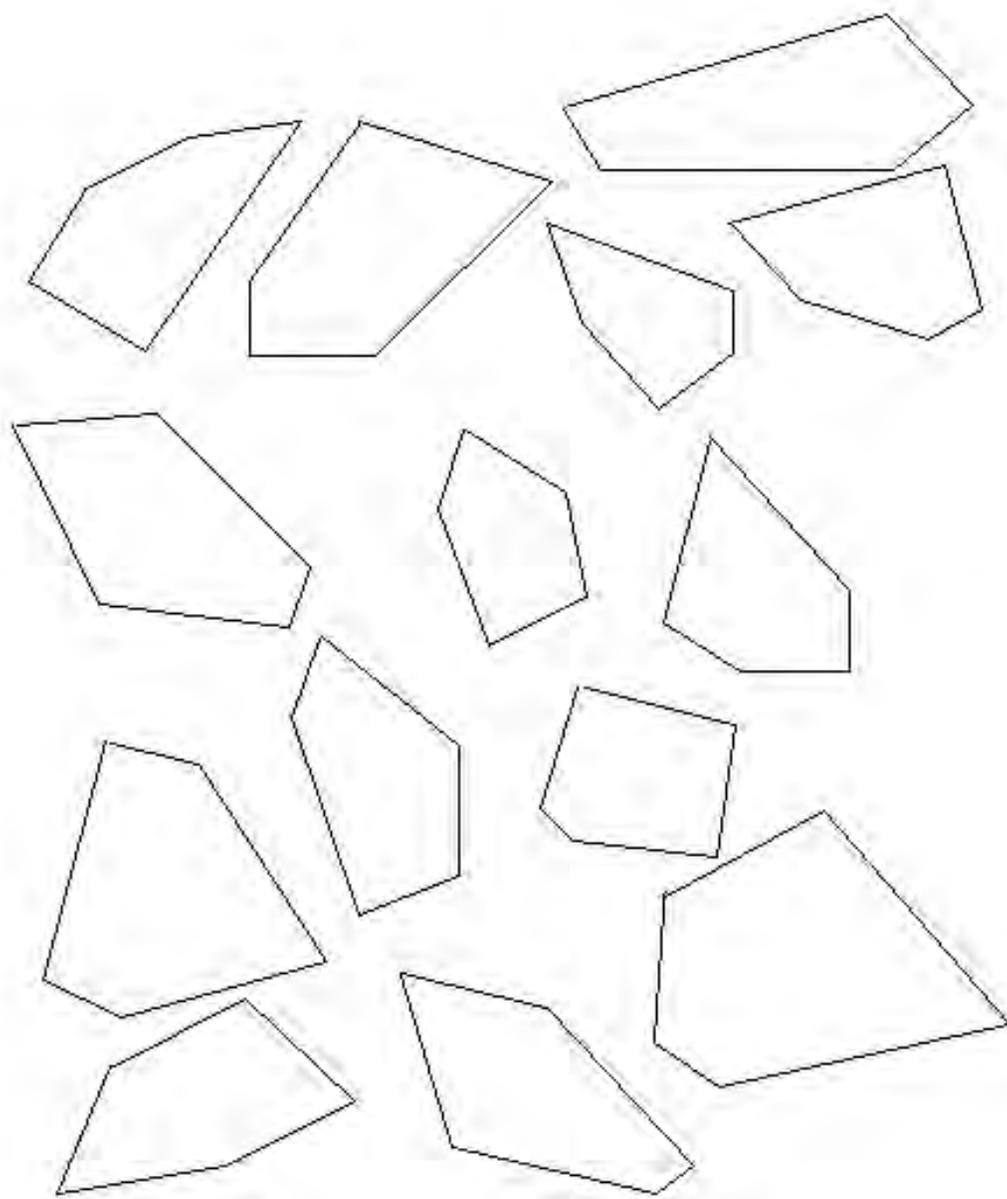


POLYHEDRON



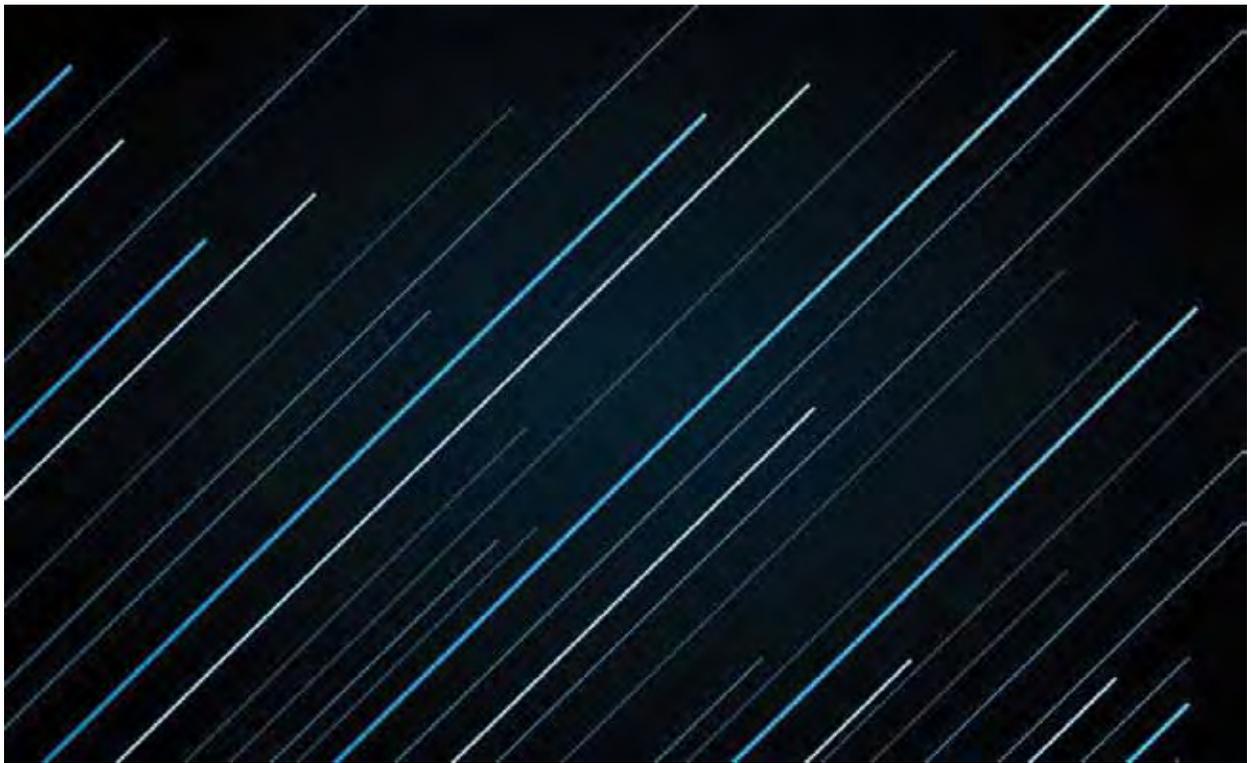


REGULAR (POLYGON)





IRREGULAR (POLYGON)



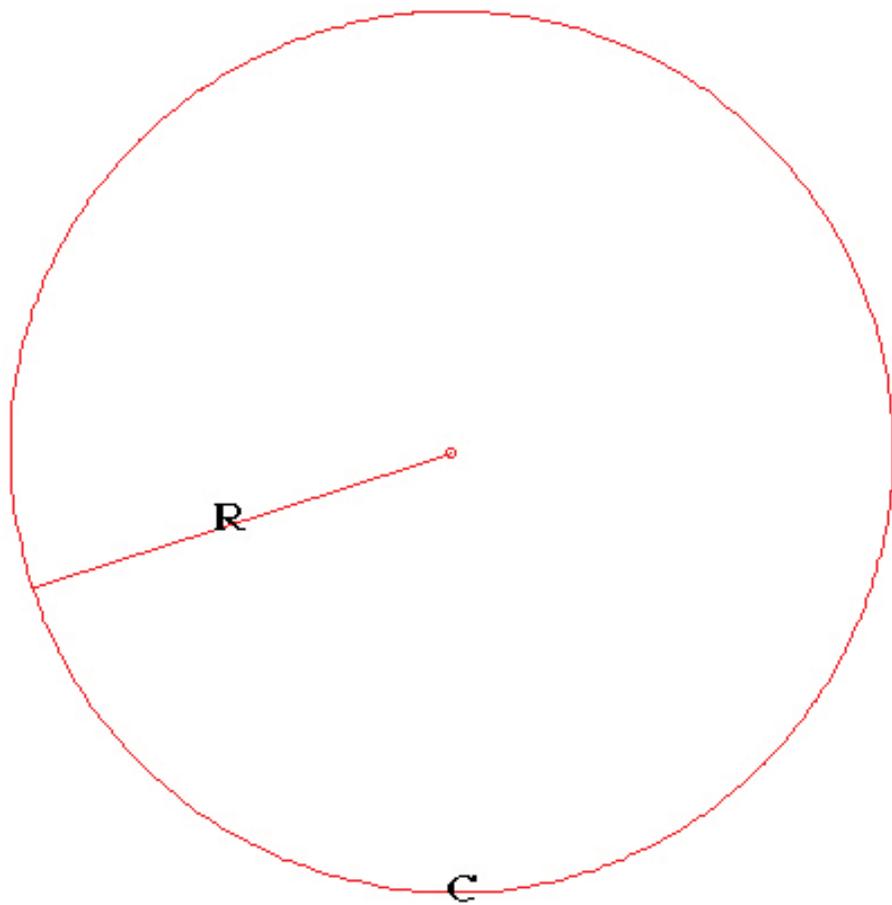


DIAGONAL



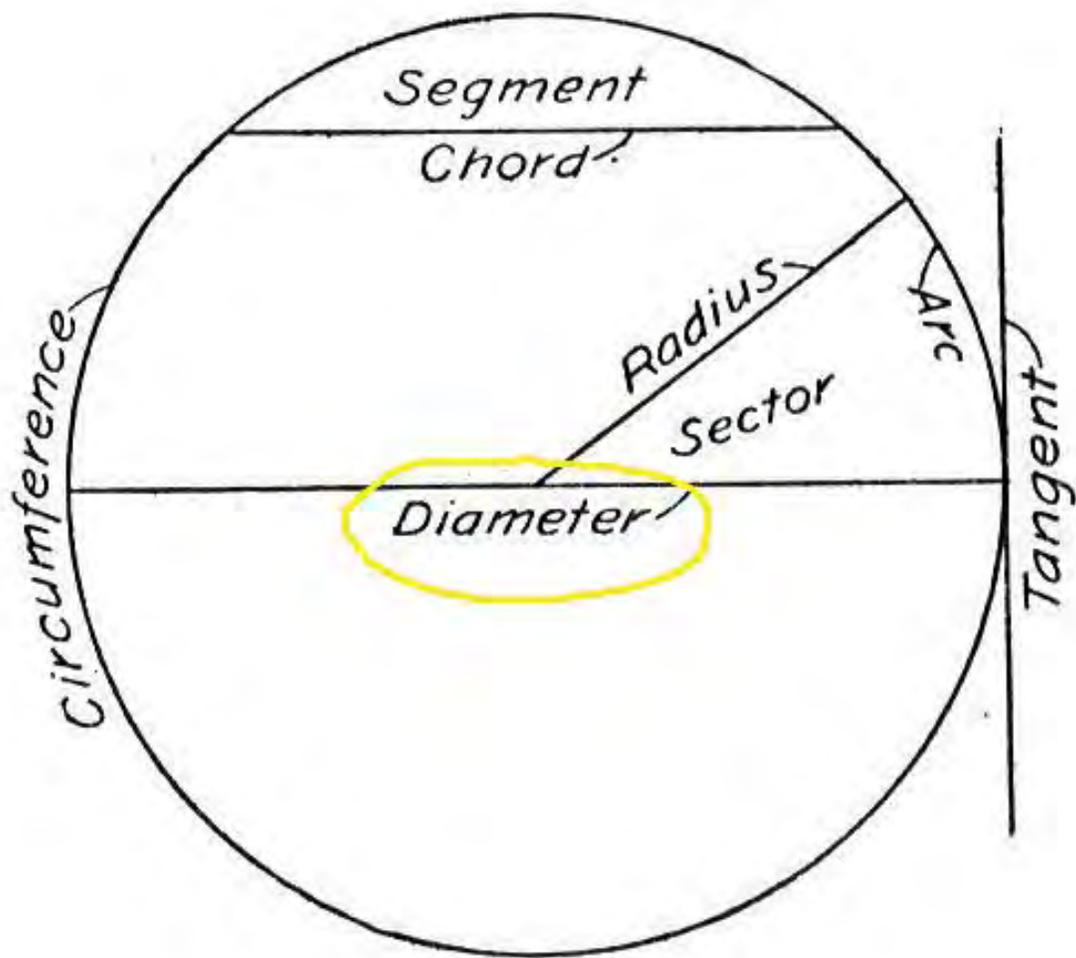


CONGRUENT



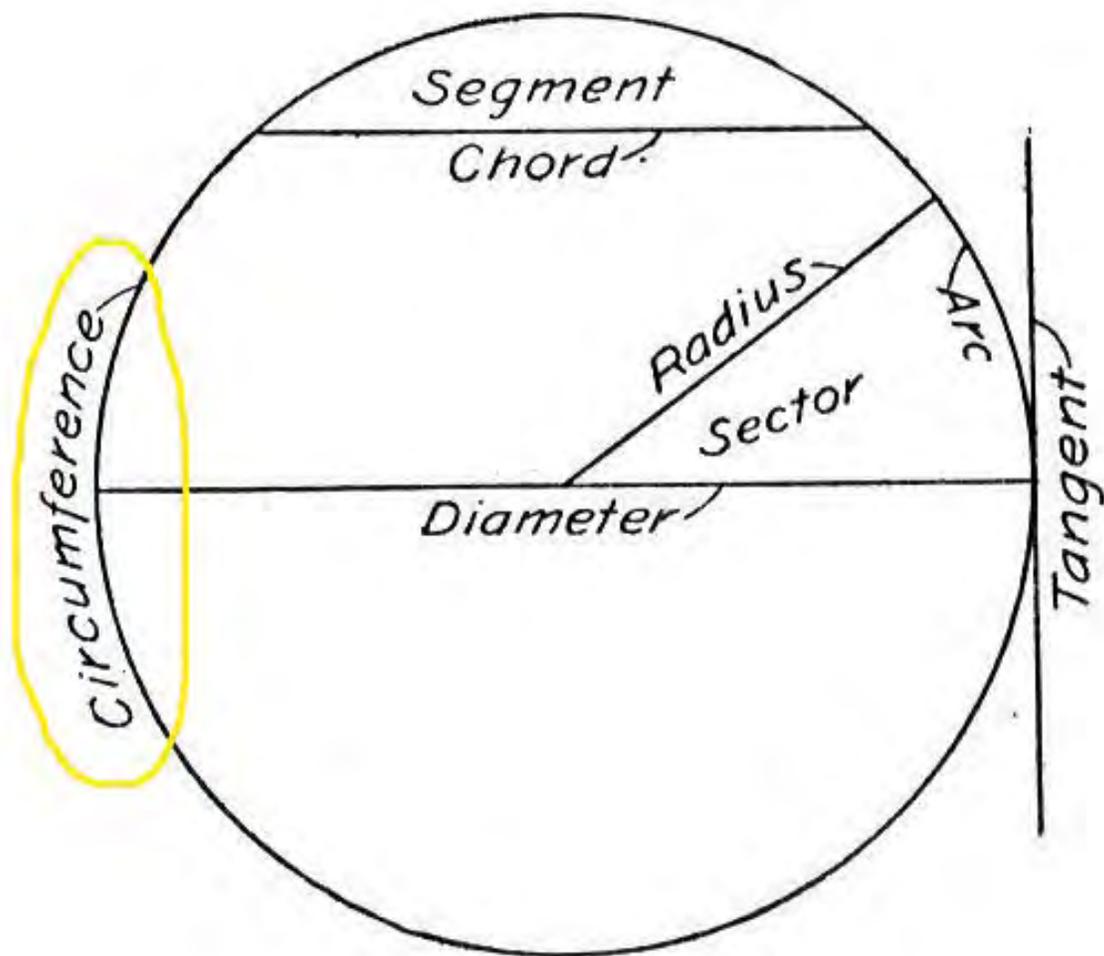


RADIUS



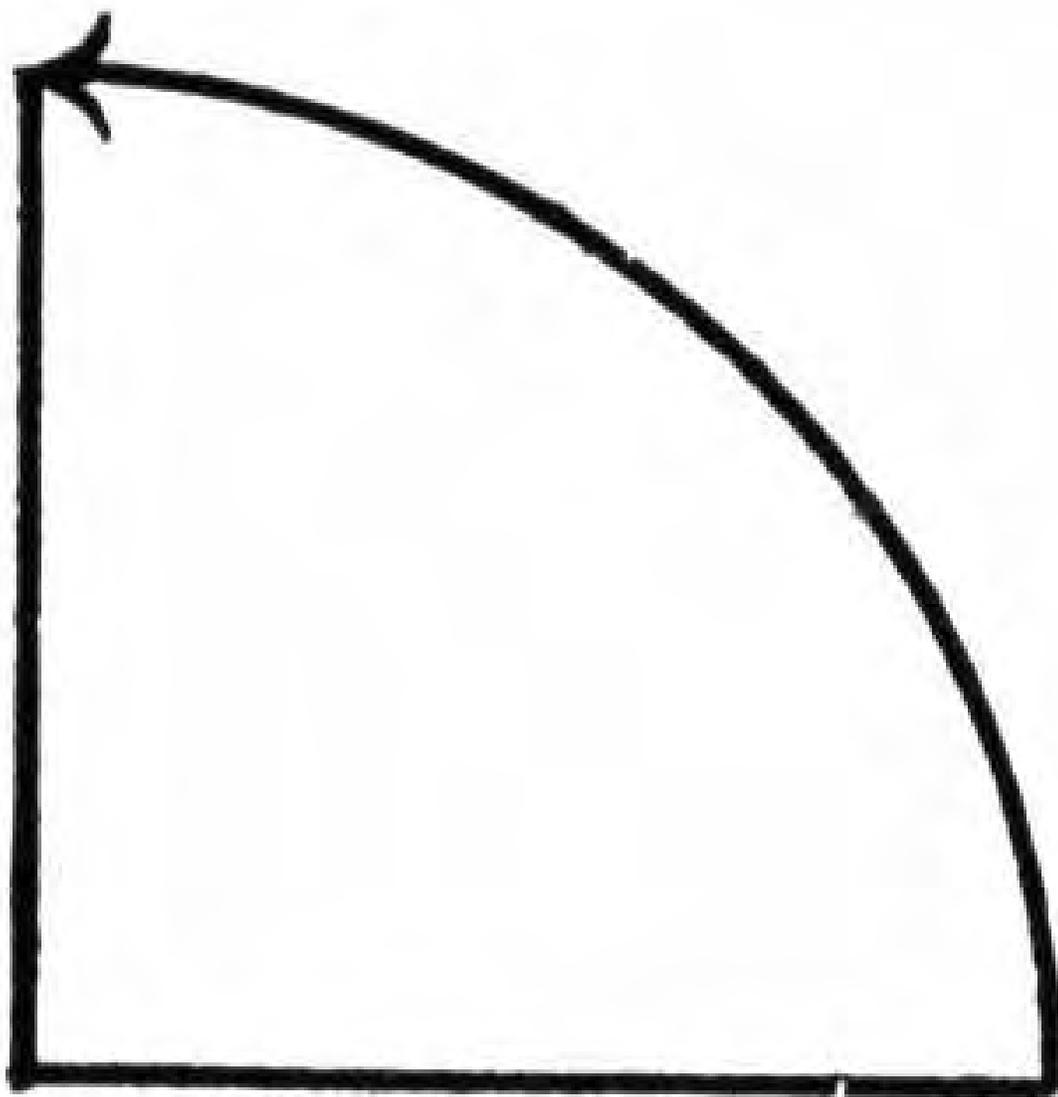


DIAMETER





CIRCUMFERENCE





QUADRANT



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.



Mini Pictures

Provide each student with a copy of the mini-pictures page from the Student Support Materials. When you say the key words, the students must find the pictures for them. Then, have the students cut out the pictures. Say the keywords and the students should hold up the pictures for them.

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.

Half Match

Collect the picture halves from the previous activity. Mix all of the halves together and give them to the students. Say a sentence, leaving out the key word. The two students who have the illustration halves for the word that completes the sentence should show their halves. Continue in this way until all of the illustration halves have been presented.

Searchlight

Have two students stand, facing one another. Mount the vocabulary graphics on the board and number them. The object of the activity is for the two students to look at each other without laughing. The first student to laugh must then identify a vocabulary picture by a number from the board. If both students laugh, then both students must identify a vocabulary picture for the numbers you say from the board. Repeat with other pairs of students.



Language and Skills Development

Three Sentences

Provide each student with three blank flashcards. Each student should then write the numbers 1 to 3 on his/her cards (one number per card). Say three sentences, only one of which contains a vocabulary word. The students should listen carefully to the three sentences that you say. After saying the three sentences, each student should then show his/her number card that represents the number of the sentence which contained the vocabulary word. Repeat with other sets of sentences.

Funnel Vision

Before the activity begins, collect a large funnel. Have a student stand at the front of the classroom with his/her back to the other students. Give the student the funnel. Give the vocabulary pictures to the other students in the class. The students should hold their pictures up, facing the front of the classroom. Say a vocabulary word. When you say “Go,” the student with the funnel should place the funnel over his/her eyes and turn to face the other students. The student must then look through the funnel to find the picture for the vocabulary word you said. This activity may be conducted with two players (each player having a funnel). The winner of each round is the student who locates the correct picture first. Have the students in the class exchange pictures for each new round of the activity. Repeat.

Language and Skills Development

SPEAKING



Visual Memory

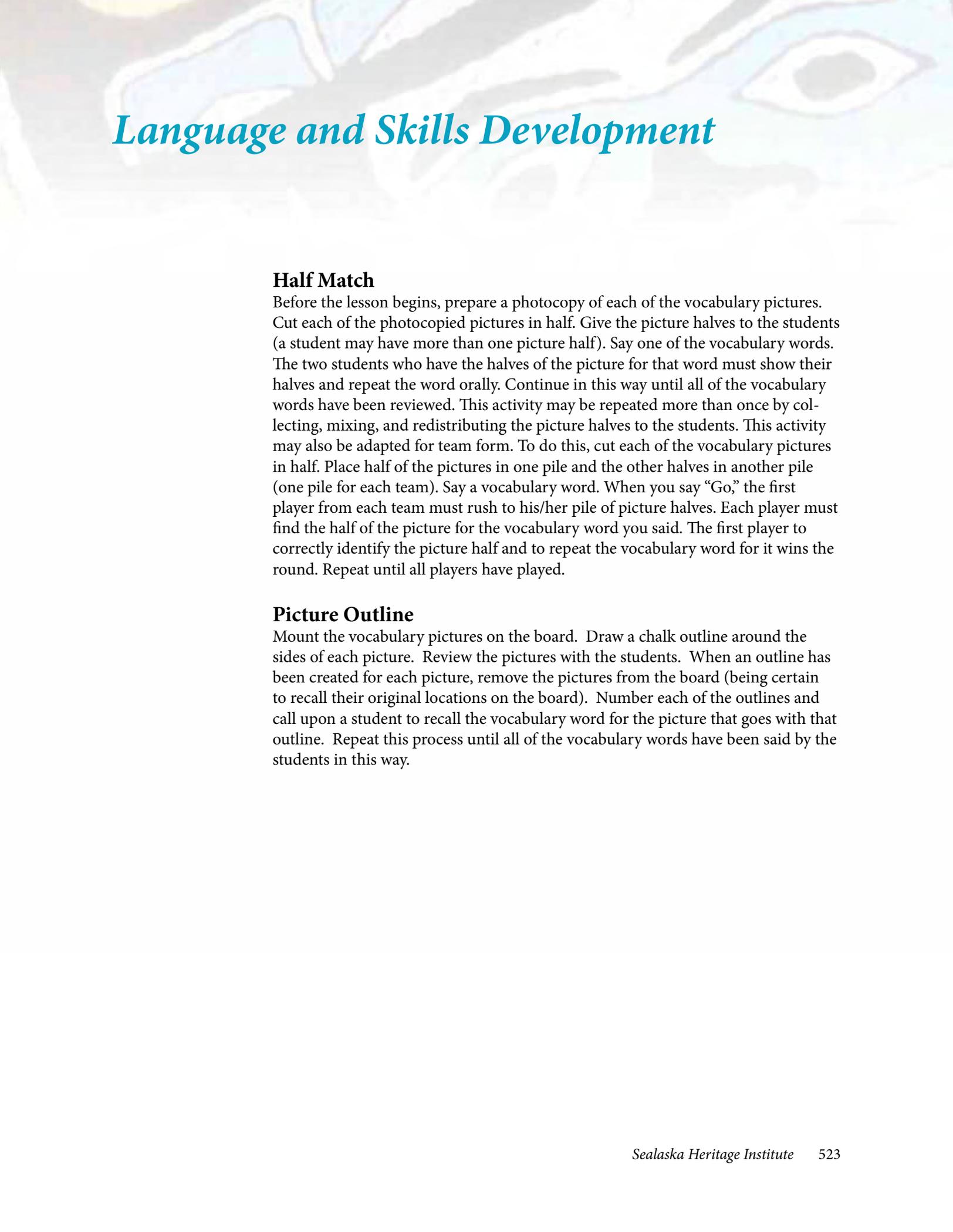
Mount the vocabulary pictures on the board. The students should look carefully at the pictures. Then, ask the students to close their eyes. Remove one of the pictures from the board and place it to the side. The students should then open their eyes and identify the “missing picture.” Continue in this way until all of the pictures have been removed. This activity can also be done in reverse. In this way, prepare two or three extra sets of vocabulary pictures. Mount a number of pictures on the board. The students should look carefully at the pictures. Then, have the students close their eyes. Add another picture to the board. The students should open their eyes and identify the “new picture.” This activity (and the previous form of the activity) may be done in team form. In this case, the first player to identify the new or missing picture wins the round.

Number What?

Mount the vocabulary graphics on the chalkboard. Number each graphic. Call one of the numbers and the students should identify the graphic that is labeled with that number. Continue in this way until all of the vocabulary graphics have been identified a number of times. To add “spice” to the activity, you may wish to say a simple oral math problem, the answer to which is equal to one of the numbers on the chalkboard. (For example, you could say, “Six plus four, minus three, plus one.” The answer would be “Eight.” In this case, the students should identify the vocabulary graphic with the numeral “8” beside it.) This activity may also be done in team form. The first player to solve the math problem and then to identify the graphic that is labeled with the number answer to the math problem, wins the round.

Hand Tag

Group the students in a circle on the floor. Have the students place their hands on the floor, palms down. Stand in the center of the circle with the vocabulary picture and a flashlight. The object of the activity is to attempt to tag a student’s hand or hands with the light of the flashlight. The students must pull their hands from the circle when they think they are about to be tagged. When you eventually tag a student’s hand or hands, he/she must then say a complete sentence using the word for a vocabulary picture that you show. Repeat this process until many students have responded.



Language and Skills Development

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.

Picture Outline

Mount the vocabulary pictures on the board. Draw a chalk outline around the sides of each picture. Review the pictures with the students. When an outline has been created for each picture, remove the pictures from the board (being certain to recall their original locations on the board). Number each of the outlines and call upon a student to recall the vocabulary word for the picture that goes with that outline. Repeat this process until all of the vocabulary words have been said by the students 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.



Sight Recognition

Right or Wrong?

Mount the sight words on the board. Point to one of the sight words and name it. The students should repeat the sight word. However, when you point to a sight word and say the wrong word for it, the students should remain silent. Repeat this process until the students have responded accurately to all of the sight words a number of times.

Configurations

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

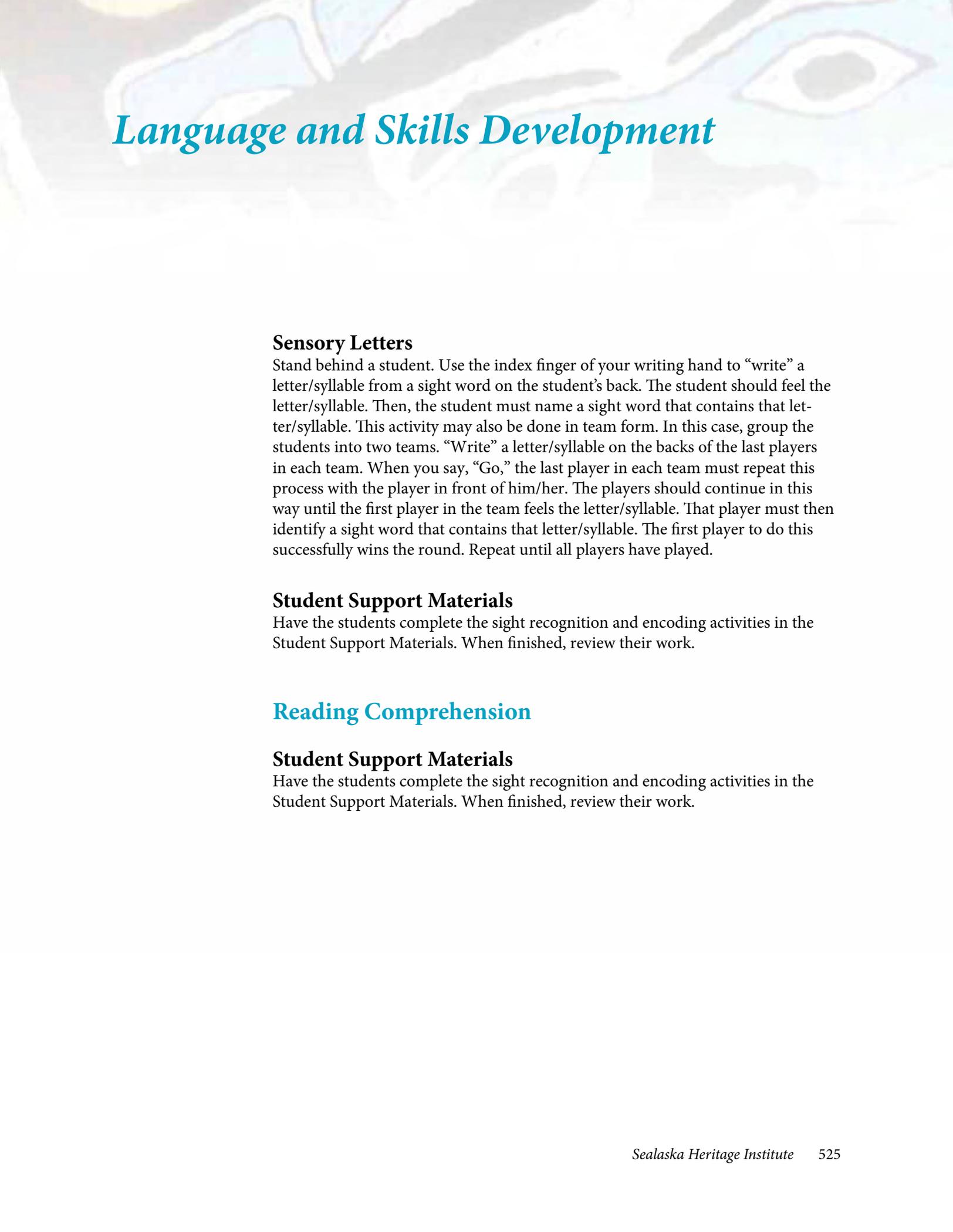
Student Support Materials

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

Decoding/Encoding

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.



Language and Skills Development

Sensory Letters

Stand behind a student. Use the index finger of your writing hand to “write” a letter/syllable from a sight word on the student’s back. The student should feel the letter/syllable. Then, the student must name a sight word that contains that letter/syllable. This activity may also be done in team form. In this case, group the students into two teams. “Write” a letter/syllable on the backs of the last players in each team. When you say, “Go,” the last player in each team must repeat this process with the player in front of him/her. The players should continue in this way until the first player in the team feels the letter/syllable. That player must then identify a sight word that contains that letter/syllable. The first player to do this successfully wins the round. Repeat until all players have played.

Student Support Materials

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

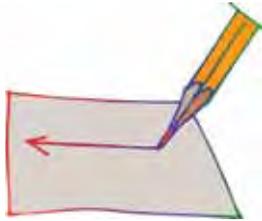
Reading Comprehension

Student Support Materials

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

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.

What’s Your Letter?

Provide each student with writing paper and a pen. Say a sight word. Each student should then write ONE letter from that word (any letter) on their paper. Review the students’ responses to determine if all letters from the sight word were used. If all letters from the sight word were not used, ask the students to identify the letters that are “missing.” Repeat with other sight words.

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.



Language and Skills Development

Dash

Group the students into two teams. Make two sets of dashes on the board — each set should be the same and should represent the number of letters in a sight word. When you say “Go,” the first player in each team must rush to his/her set of dashes on the board. Each player must then write a sight word that fits the number of dashes. Accept any sight word that fits the dashes. The first player to do this correctly wins the round. Repeat with other sets of dashes until all students have had an opportunity to participate.

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

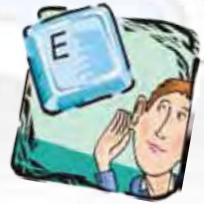
Have the students work on the activity pages from the Student Support Materials from this unit. Afterward, review their work.



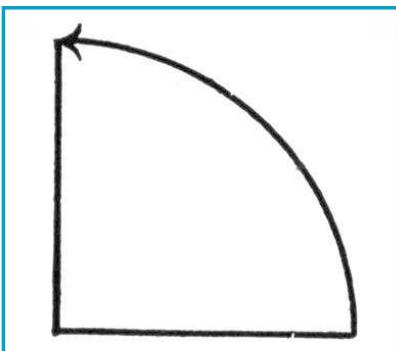
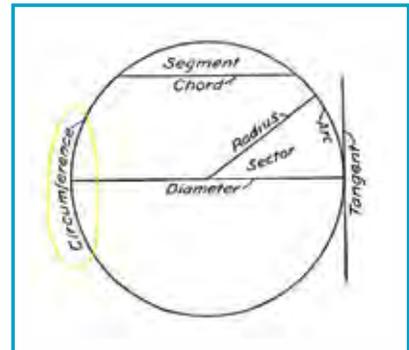
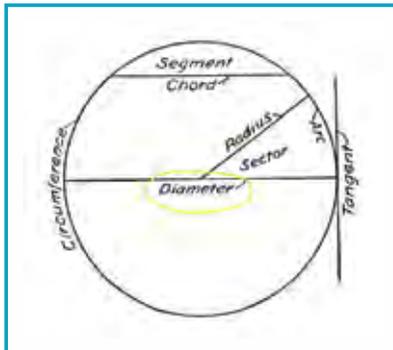
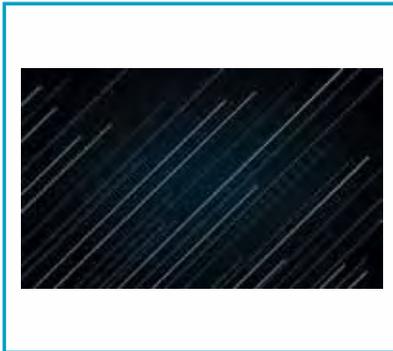
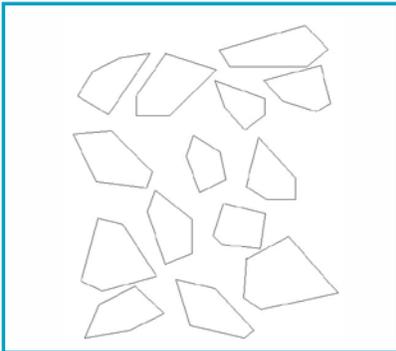
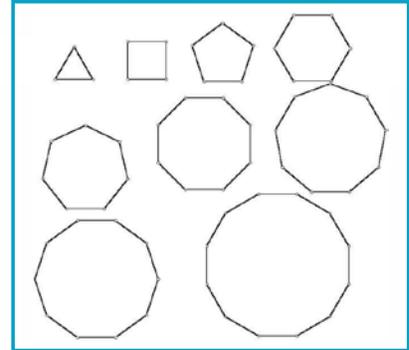
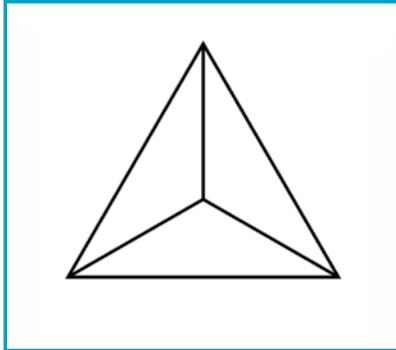
STUDENT SUPPORT MATERIALS

Listening • Mini Pictures

Listening: Mini Pictures



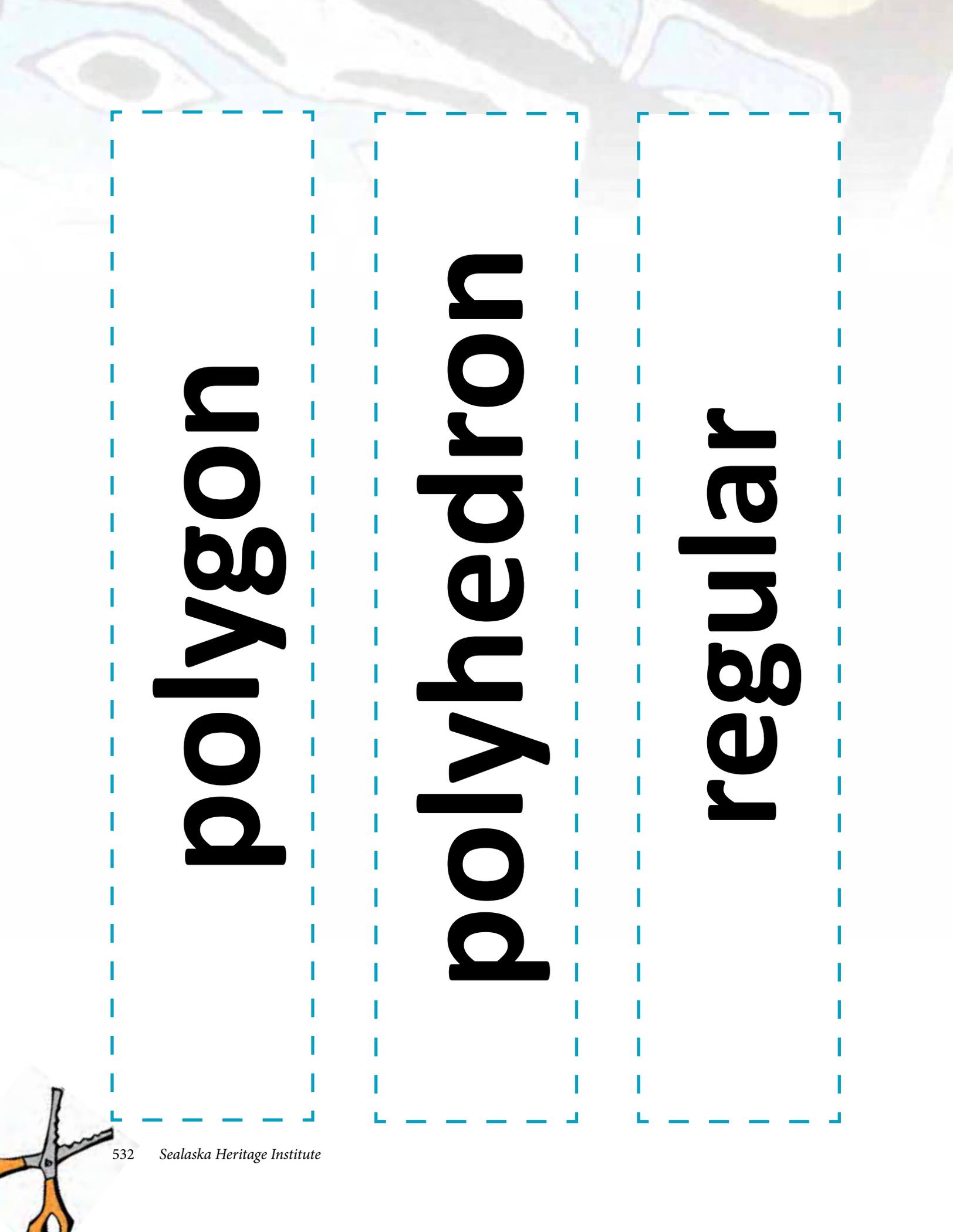
Have the students cut out the pictures. Say the key math words from this unit, and the students should hold up the pictures for them.





STUDENT SUPPORT MATERIALS

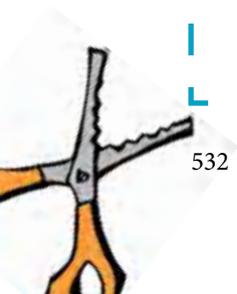
Sight Words

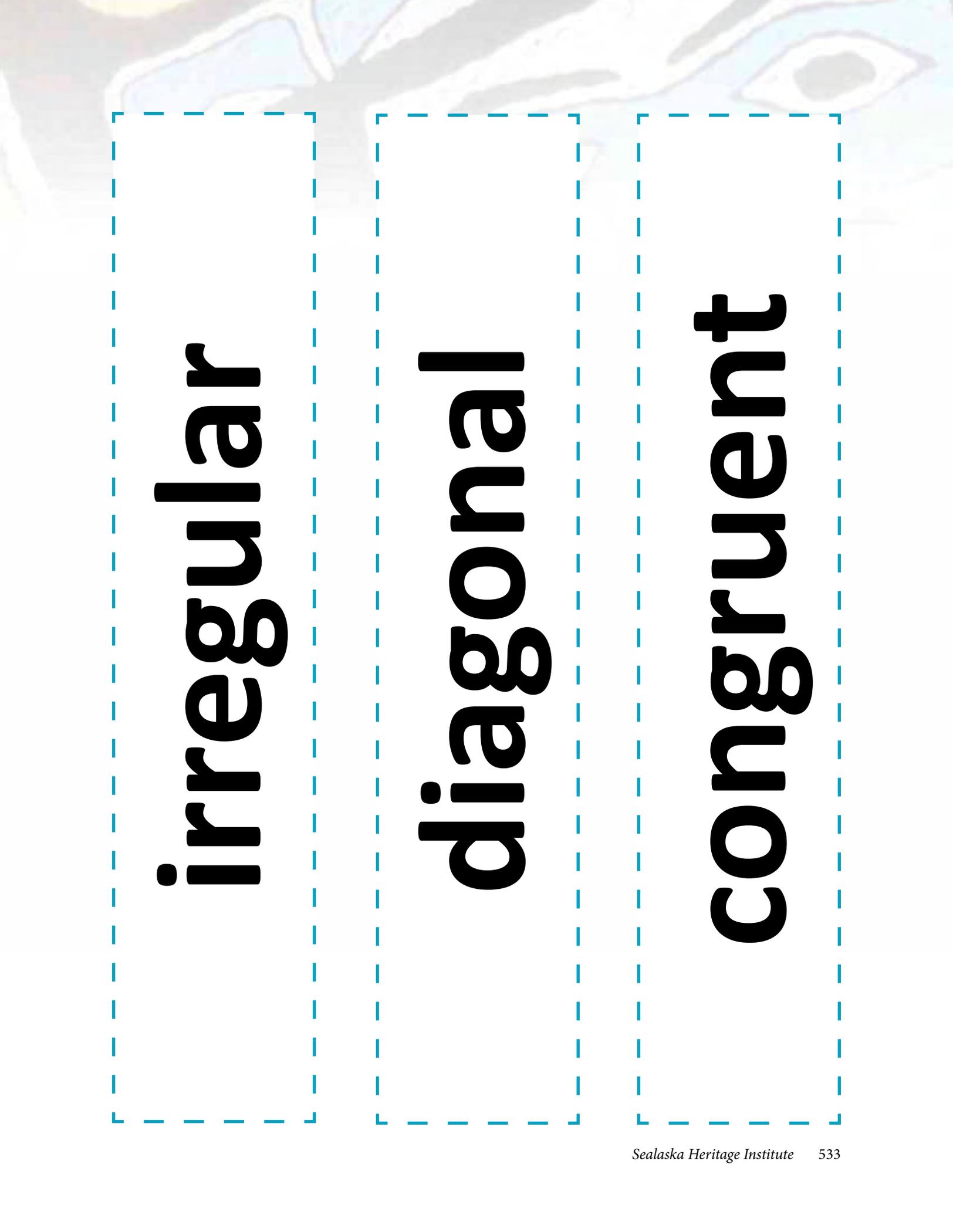


polygon

polyhedron

regular

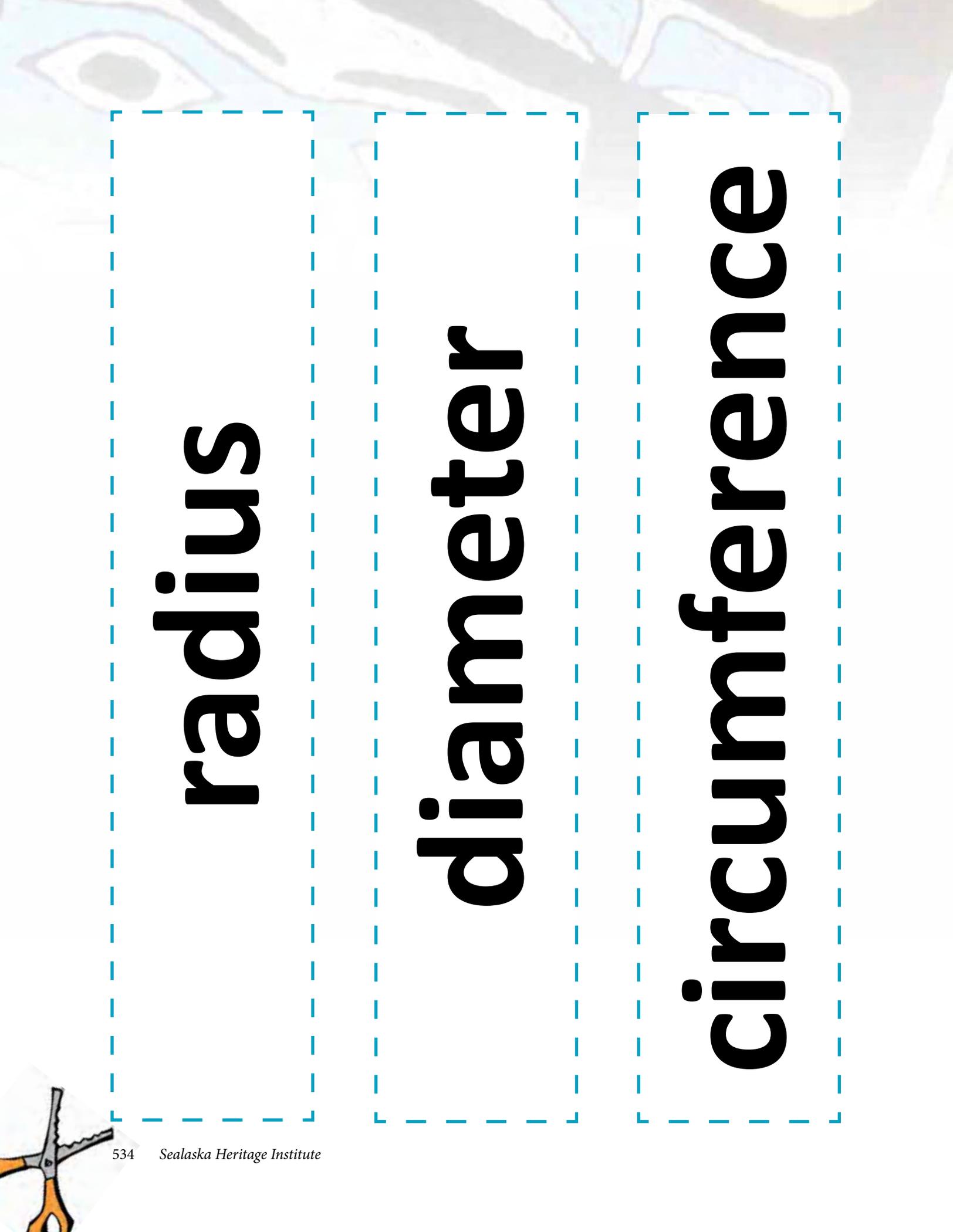




irregular

diagonal

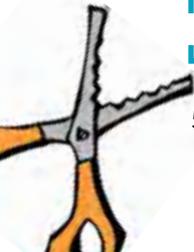
congruent

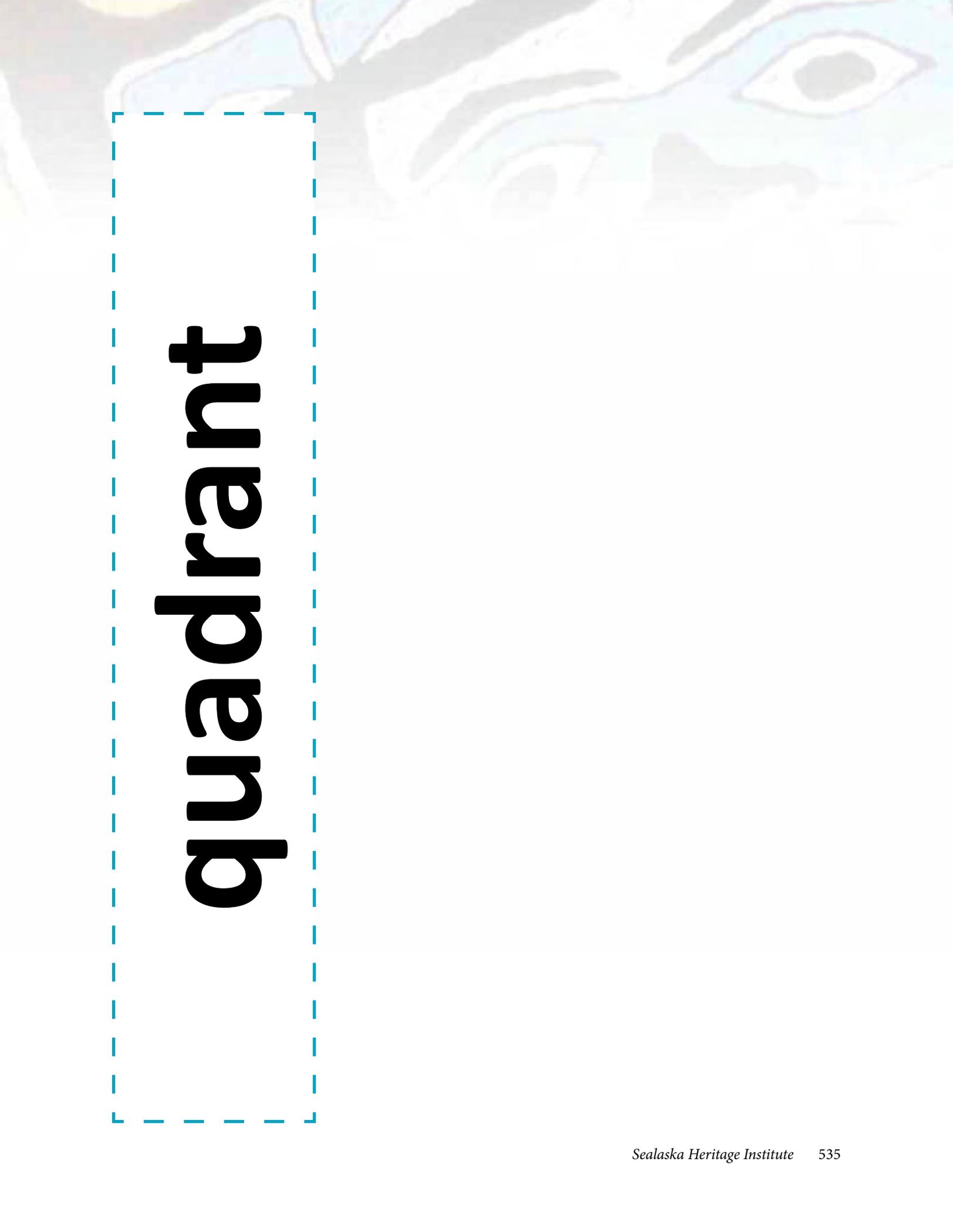


radius

diameter

circumference





quadrant



STUDENT SUPPORT MATERIALS

Reading • Sight Recognition

Sight Words Activity Page



Have the students circle the word for each picture.



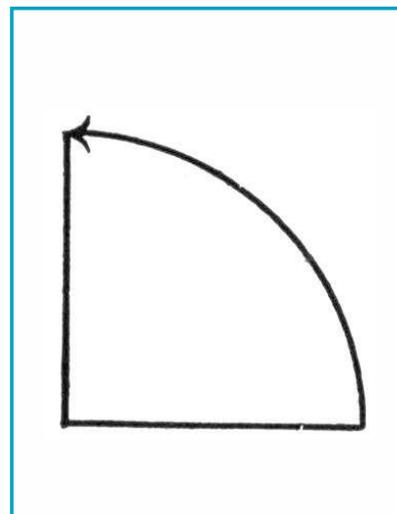
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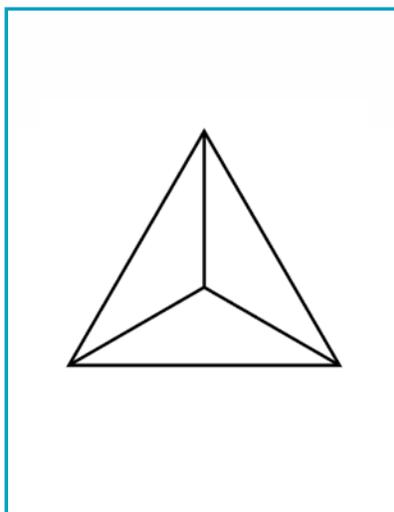
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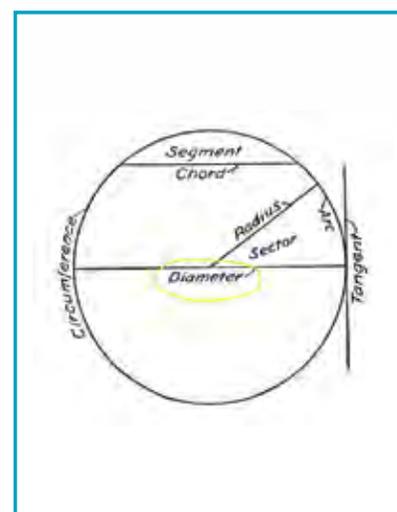
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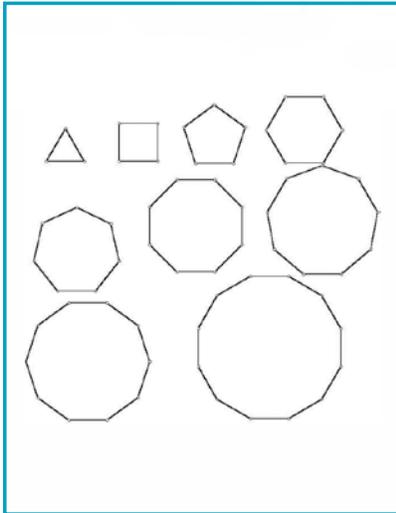


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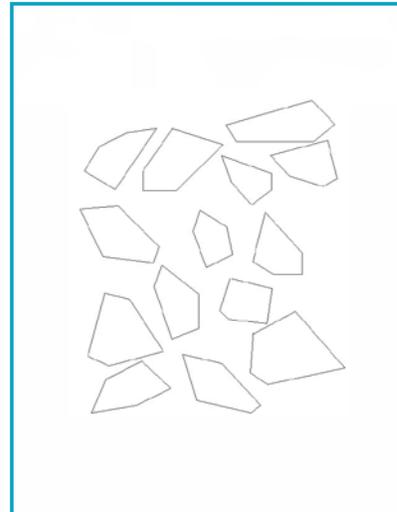


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Sight Words Activity Page



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congruent
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diameter
circumference
quadrant



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irregular
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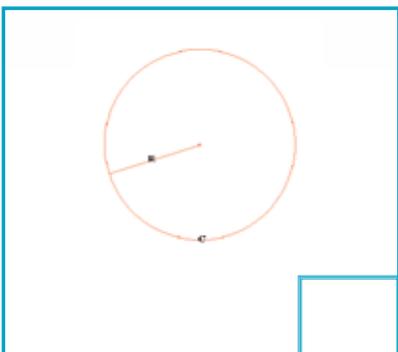
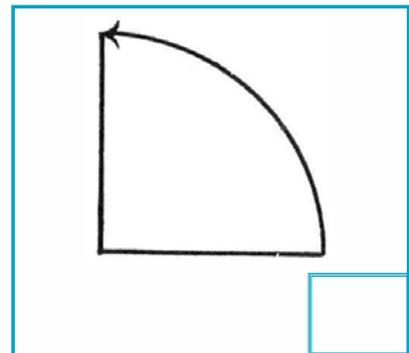
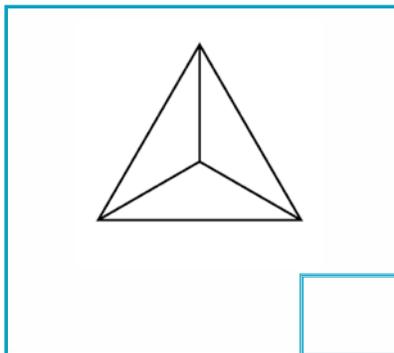
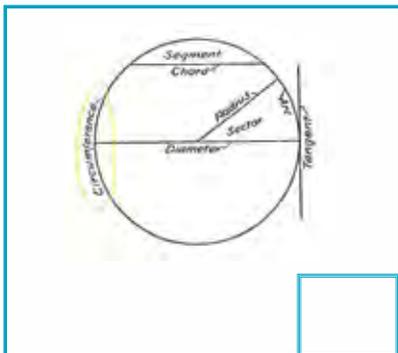
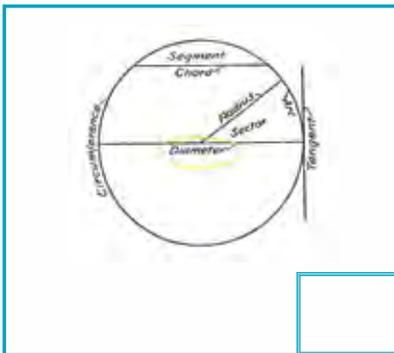
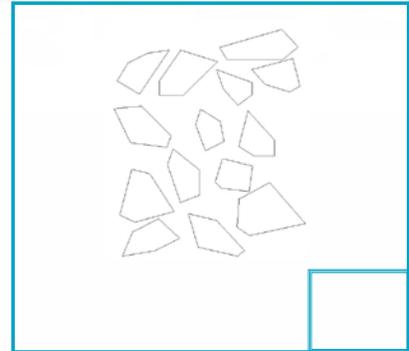
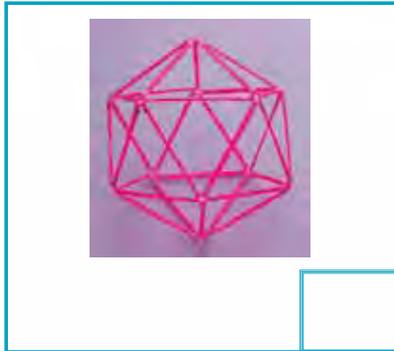
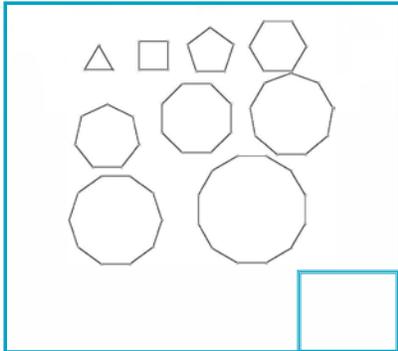


polygon
polyhedron
regular
irregular
diagonal
congruent
radius
diameter
circumference
quadrant

Sight Words Activity Page



Write the numbers on their correct vocabulary graphics.



1. polygon
2. polyhedron
3. regular
4. irregular
5. diagonal
6. congruent
7. radius
8. diameter
9. circumference
10. quadrant

Sight Words Activity Page



Highlight or circle the words in this word find.

diameter
polyhedron
radius
quadrant

diagonal
regular
irregular
polygon

circumference
congruent

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

Sight Words Activity Page

ANSWER KEY



diameter
polyhedron
radius
quadrant

diagonal
regular
irregular
polygon

circumference
congruent

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



STUDENT SUPPORT MATERIALS

Reading • Encoding

Encoding Activity Page

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



poly_____

poly_____dron

re_____lar

i_____egular

di_____onal

he	rr	ag
----	----	----

gu	ra
----	----



Encoding Activity Page



con_____ent

_____dius

d_____meter

circum_____ence

quad_____

ia	gon	gru
----	-----	-----

fer	rant
-----	------

Encoding Activity Page

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



poly

gruent

polyhe

ular

reg

onal

irregu

gon

diag

dus



Encoding Activity Page



con

lar

ra

ference

diam

dron

circum

drant

qua

eter

Encoding Activity Page

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



ly ||| dron ||| po ||| he

ir ||| lar ||| reg ||| u



Encoding Activity Page



cum || **cir** || **ence** || **fer**

ter || **di** || **me** || **a**



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 1. A polygon is a
 - function.
 - two dimensional shape.
 - three dimensional shape.
 - diagonal line.

- ② 2. A polyhedron is a
 - two dimensional polygon with irregular faces.
 - three dimensional polygon with irregular faces.
 - solid with flat faces that are polygons.
 - congruent shape with no faces.

- ③ 3. A regular polygon has
 - irregular angles and equal sides.
 - equal angles and irregular sides.
 - has equal angles and equal sides.
 - congruent angles and a variable.

- ④ 4. An irregular polygon does not have equal angles or sides
 - ever.
 - sometimes.
 - only with prime numbers.
 - always.

- ⑤ 5. A diagonal line in a shape runs from
 - a congruent shape to a radius.
 - one corner to another.
 - the circumference to the radius.
 - one side to another.

- ⑥ 6. Congruent shapes are
 - composites.
 - irregular.
 - the same.
 - similar.

What's the Answer?



- 7 The radius of a circle is
- the length of the diameter.
 - a diagonal line.
 - is congruent.
 - half of its diameter.
- 8 The diameter is a straight line going through the center of a circle
- connecting two points on the circumference.
 - connecting an irregular polygon to a radius.
 - connecting the radius to a regular angle.
 - connecting three points near the circumference.
- 9 The circumference is
- the diameter of a circle.
 - a radius that touches the edge of a circle.
 - an irregular polygon with equal angles.
 - the distance around the edge of a circle.
- 10 A quadrant is
- a quarter of a circle.
 - half the radius of a circle.
 - a half circle.
 - a third of a circle.

What's the Answer?

ANSWER KEY



1. A polygon is a
 - function.
 - two dimensional shape.
 - three dimensional shape.
 - diagonal line.

2. A polyhedron is a
 - two dimensional polygon with irregular faces.
 - three dimensional polygon with irregular faces.
 - solid with flat faces that are polygons.
 - congruent shape with no faces.

3. A regular polygon has
 - irregular angles and equal sides.
 - equal angles and irregular sides.
 - has equal angles and equal sides.
 - congruent angles and a variable.

4. An irregular polygon does not have equal angles or sides
 - ever.
 - sometimes.
 - only with prime numbers.
 - always.

5. A diagonal line in a shape runs from
 - a congruent shape to a radius.
 - one corner to another.
 - the circumference to the radius.
 - one side to another.

6. Congruent shapes are
 - composites.
 - irregular.
 - the same.
 - similar.

What's the Answer?



- 7 The radius of a circle is
- the length of the diameter.
 - a diagonal line.
 - is congruent.
 - half of its diameter.
- 8 The diameter is a straight line going through the center of a circle
- connecting two points on the circumference.
 - connecting an irregular polygon to a radius.
 - connecting the radius to a regular angle.
 - connecting three points near the circumference.
- 9 The circumference is
- the diameter of a circle.
 - a radius that touches the edge of a circle.
 - an irregular polygon with equal angles.
 - the distance around the edge of a circle.
- 10 A quadrant is
- a quarter of a circle.
 - half the radius of a circle.
 - a half circle.
 - a third of a circle.

Reading Comprehension Activity Page

Write the numbers/letters for sentence halves that match.



- | | | |
|---|---|---|
| ① A polygon is a plane shape | ① A polygon is a plane shape | Ⓐ equal angles and sides. |
| ② A polyhedron is a solid with flat faces | ② A polyhedron is a solid with flat faces | Ⓑ unequal sides and angles. |
| ③ A regular polygon has | ③ A regular polygon has | Ⓒ are the same in shape. |
| ④ An irregular polygon has | ④ An irregular polygon has | Ⓓ such as a pyramid. |
| ⑤ A diagonal line in a shape runs | ⑤ A diagonal line in a shape runs | Ⓔ the center of a circle. |
| ⑥ Congruent shapes | ⑥ Congruent shapes | Ⓕ (two-dimensional) with straight sides, such as triangles, rectangles and pentagons. |
| ⑦ The radius is | ⑦ The radius is | Ⓖ is the edge of a circle. |
| ⑧ The diameter runs through | ⑧ The diameter runs through | Ⓗ from one corner to another. |
| ⑨ The circumference | ⑨ The circumference | Ⓘ a quarter of a circle. |
| ⑩ A quadrant is | ⑩ A quadrant is | Ⓝ half the diameter of a circle. |

1 → _____ 2 → _____ 3 → _____ 4 → _____
5 → _____ 6 → _____ 7 → _____ 8 → _____
9 → _____ 10 → _____

Reading Comprehension Activity Page

ANSWER KEY



- | | | |
|---|-----------------------------------|---|
| ① A polygon is a plane shape | ⑤ A diagonal line in a shape runs | Ⓐ equal angles and sides. |
| ② A polyhedron is a solid with flat faces | ⑥ Congruent shapes | Ⓑ unequal sides and angles. |
| ③ A regular polygon has | ⑦ The radius is | Ⓒ are the same in shape. |
| ④ An irregular polygon has | ⑧ The diameter runs through | Ⓓ such as a pyramid. |
| | ⑨ The circumference | Ⓔ the center of a circle. |
| | ⑩ A quadrant is | Ⓕ (two-dimensional) with straight sides, such as triangles, rectangles and pentagons. |
| | | Ⓖ is the edge of a circle. |
| | | Ⓗ from one corner to another. |
| | | Ⓘ a quarter of a circle. |
| | | ⓵ half the diameter of a circle. |

1 → F 2 → D 3 → A 4 → B
5 → H 6 → C 7 → J 8 → E
9 → G 10 → I

Reading Comprehension Activity Page

Cut out the words and glue them under their definitions.



This is half the diameter of a circle.

This shape has equal sides and angles.

This is a line that runs through the center of a circle.

This is a solid shape.

This polygon has equal angles and sides.

These are shapes that are the same.

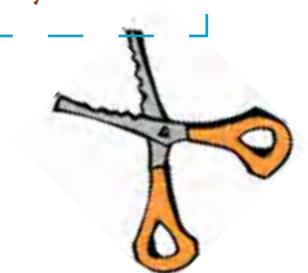
This polygon does not have equal angles and sides.

This is the edge of a circle.

This is a line in a shape that goes from one corner to another.

This is a quarter of a circle.

polygon	diagonal	radius	regular
congruent	irregular	quadrant	polyhedron
diameter	circumference		



Reading Comprehension Activity Page

ANSWER KEY



This is half the diameter of a circle.

radius

This shape has equal sides and angles.

polygon

This is a line that runs through the center of a circle.

diameter

This is a solid shape.

polyhedron

This polygon has equal angles and sides.

regular

These are shapes that are the same.

congruent

This polygon does not have equal angles and sides.

irregular

This is the edge of a circle.

circumference

This is a line in a shape that goes from one corner to another.

diagonal

This is a quarter of a circle.

quadrant

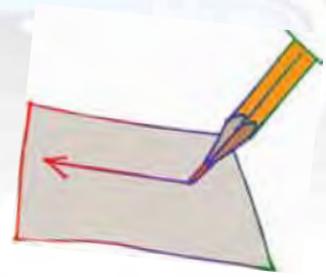


STUDENT SUPPORT MATERIALS

Writing

Writing Activity Page

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



po_____gon

poly_____dron

re_____lar

_____regular

diag_____al

congr_____t

rad_____s

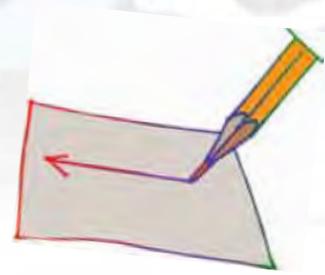
d_____meter

circum_____ence

quadr_____t

Writing Activity Page

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



po _____ n

p _____ n

re _____ r

ir _____ r

di _____ l

co _____ t

ra _____ s

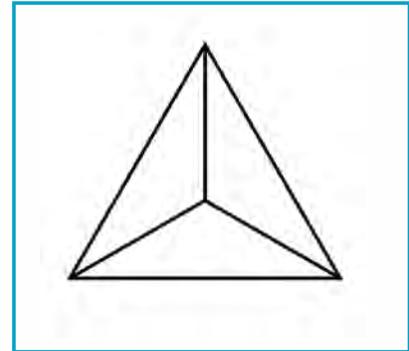
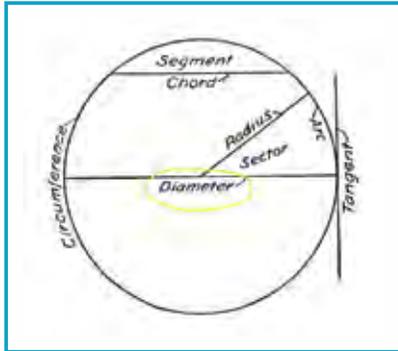
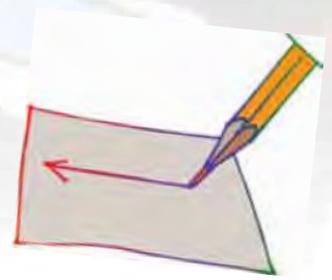
d _____ er

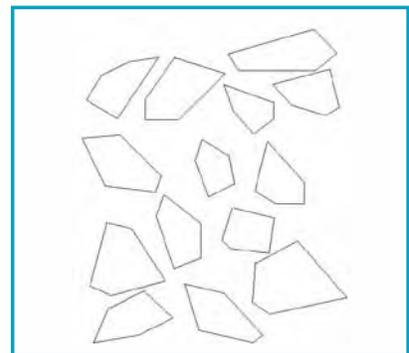
ci _____ ce

qu _____ t

Basic Writing Activity Page

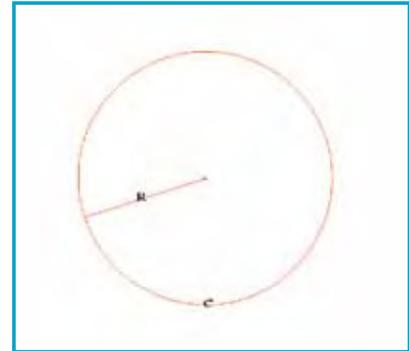
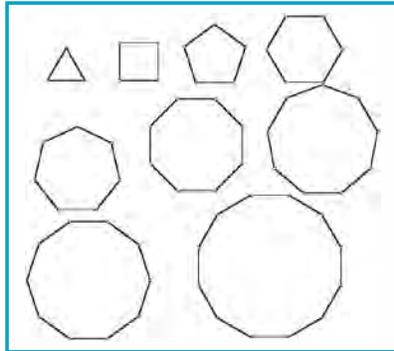
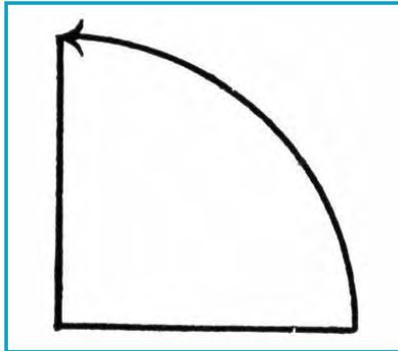
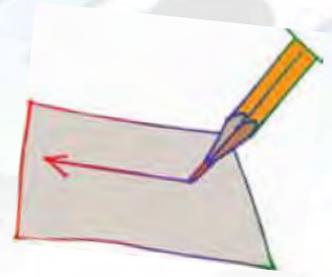
Have the students write the word for each picture.

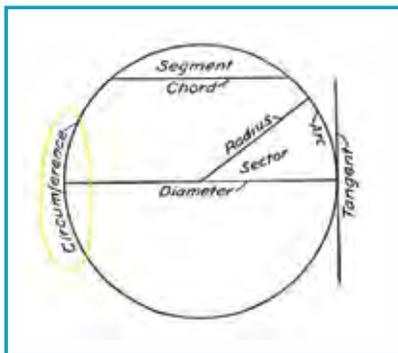




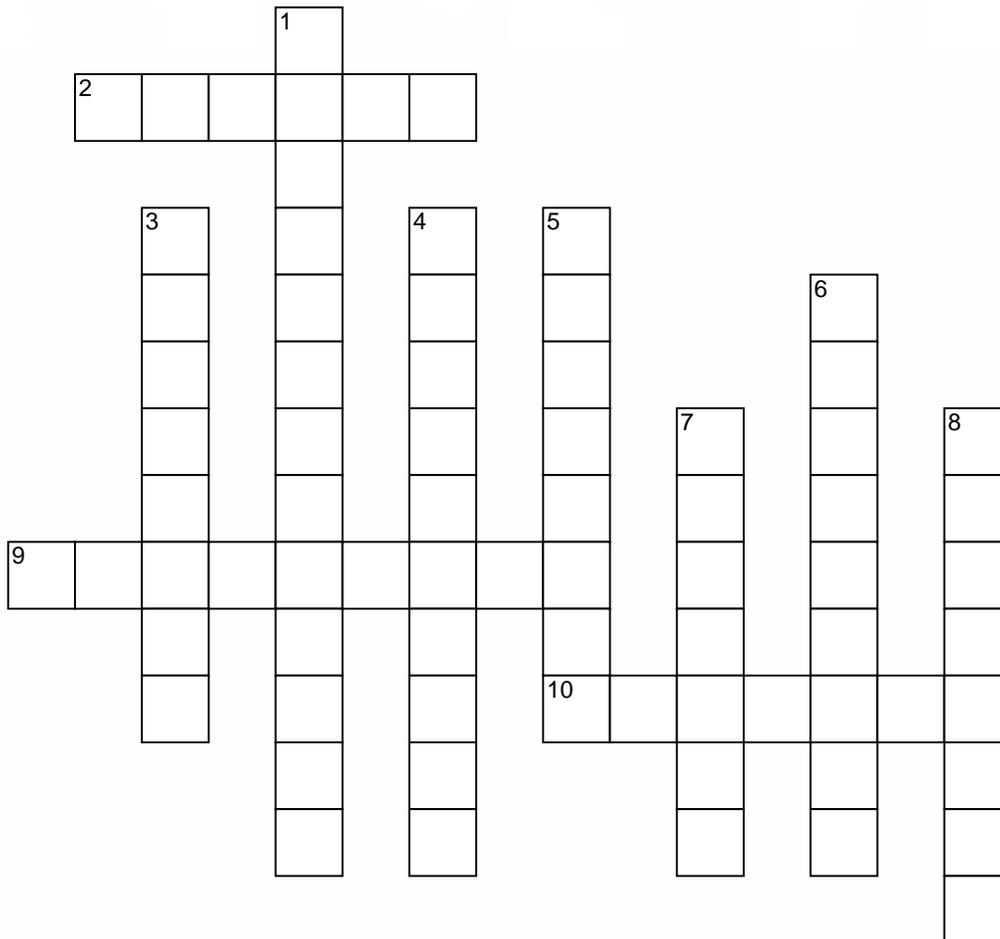
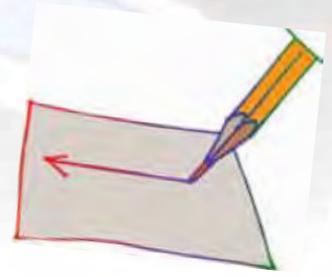
Basic Writing Activity Page

Have the students write the word for each picture.





Crossword Puzzle



www.CrosswordWeaver.com

ACROSS

- 2 This is half the diameter of a circle.
- 9 These are shapes that are the same.
- 10 This polygon has equal angles and sides.

DOWN

- 1 This is the edge of a circle.
- 3 This is a line in a shape that goes from one corner to another.
- 4 This is a solid shape.
- 5 This is a line that runs through the center of a circle.
- 6 This polygon does not have equal angles and sides.
- 7 This shape has equal sides and angles.
- 8 This is a quarter of a circle.





UNIT ASSESSMENT



Geometry

Unit Assessment Teacher's Notes
Grade 7 • 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 **POLYGON**.
2. Write the number 2 by the picture for **POLYHEDRON**.
3. Write the number 3 by the picture for **REGULAR POLYGON**.
4. Write the number 4 by the picture for **IRREGULAR POLYGON**.
5. Write the number 5 by the picture for **DIAGONAL**.
6. Write the number 6 by the picture for **CONGRUENT**.
7. Write the number 7 by the picture for **RADIUS**.
8. Write the number 8 by the picture for **DIAMETER**.
9. Write the number 9 by the picture for **CIRCUMFERENCE**.
10. Write the number 10 by the picture for **QUADRANT**.

SIGHT RECOGNITION

Turn to pages 2 and 3 in your test. Look at the pictures in the boxes. Circle the word for each picture.

DECODING/ENCODING

Turn to pages 4 and 5 in your test. Look at the word parts in the boxes. Circle the other half or part of each word.



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.

READING COMPREHENSION

Turn to page 6 in your test. Write each word under its definition.
Refer to Student Support Materials for answer key.

BASIC WRITING

Turn to page 7 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.



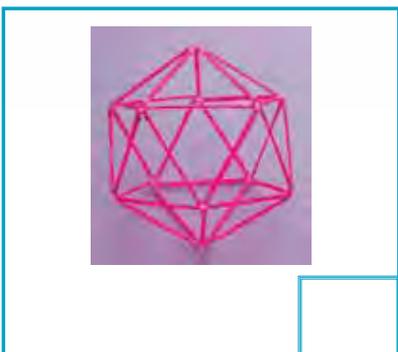
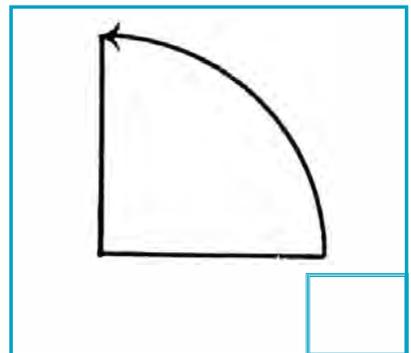
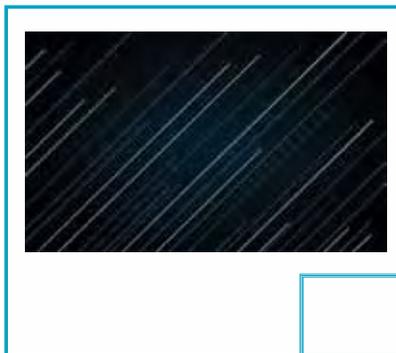
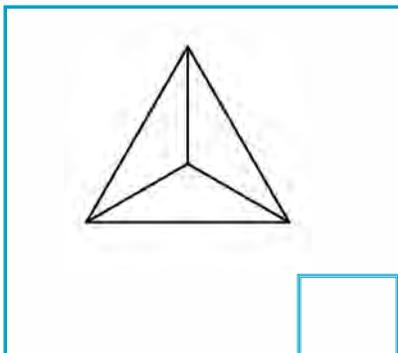
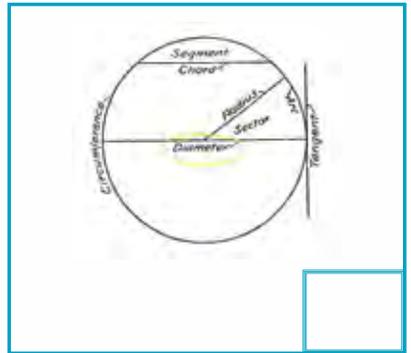
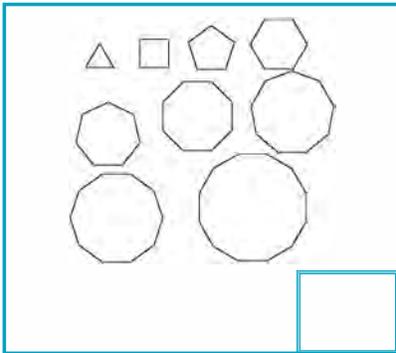
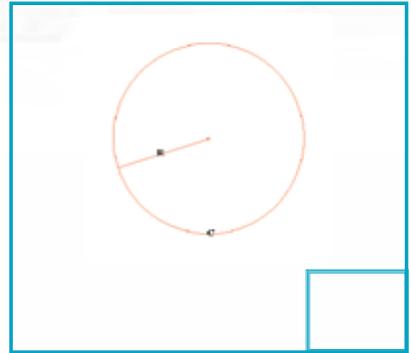
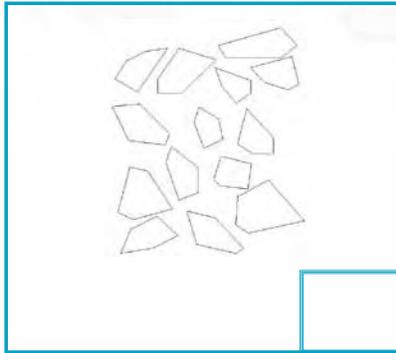
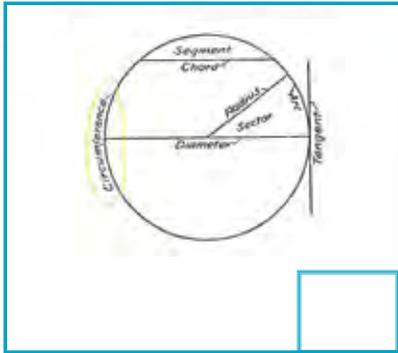


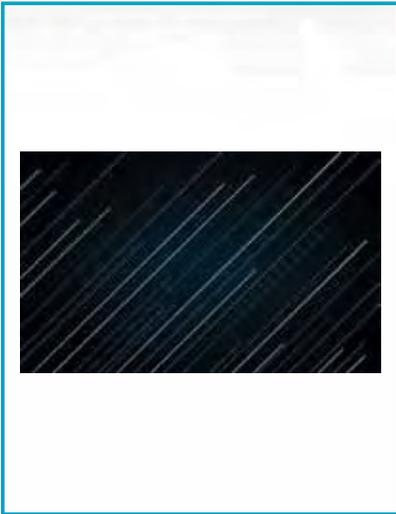
MATH PROGRAM

Unit Assessment Student Pages
Grade 7 • Unit 6

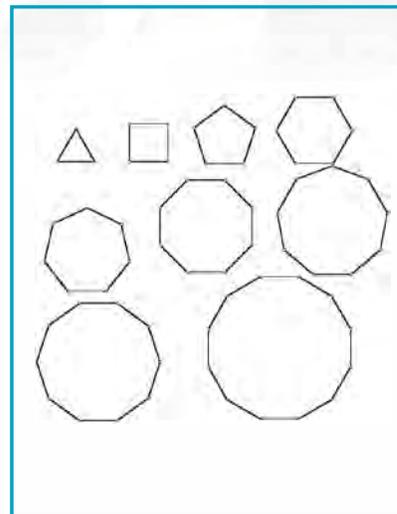
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Number Correct: _____ Percent Correct: _____

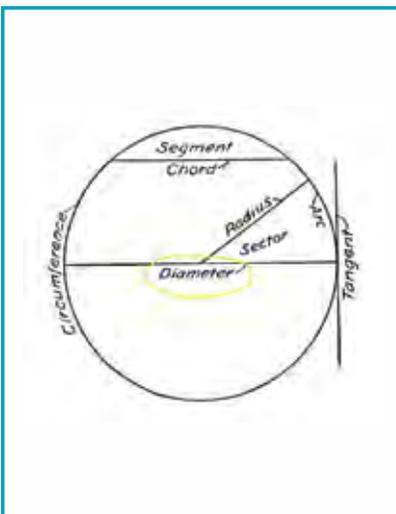




polygon
 polyhedron
 regular
 irregular
 diagonal
 congruent
 radius
 diameter
 circumference
 quadrant



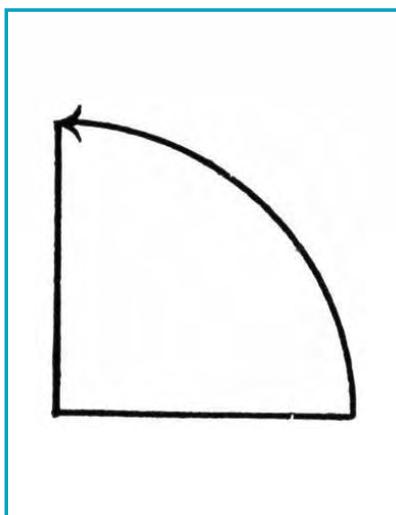
polygon
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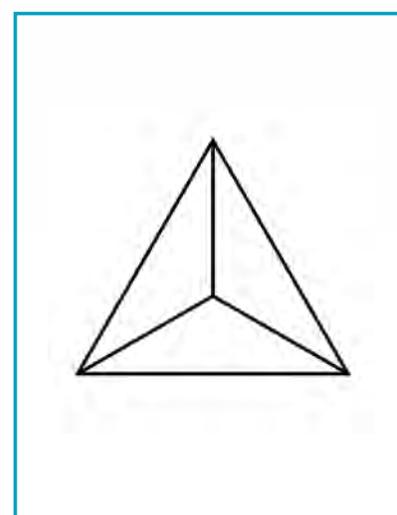
polygon
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 radius
 diameter
 circumference
 quadrant



polygon
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 radius
 diameter
 circumference
 quadrant



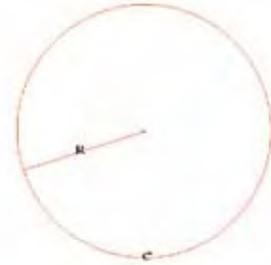
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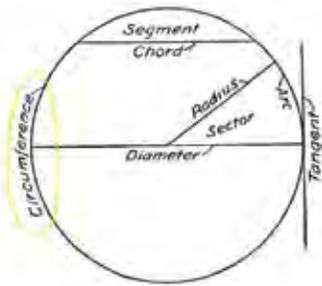
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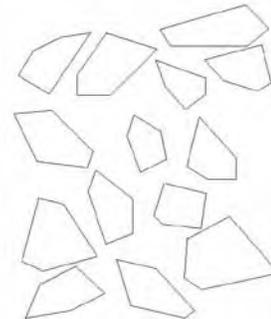
polygon
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polygon
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drant

poly

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This is half the diameter of a circle.

This shape has equal sides and angles.

This is a line that runs through the center of a circle.

This is a solid shape.

This polygon has equal angles and sides.

These are shapes that are the same.

This polygon does not have equal angles and sides.

This is the edge of a circle.

This is a line in a shape that goes from one corner to another.

This is a quarter of a circle.

irregular

diagonal

radius

regular

quadrant

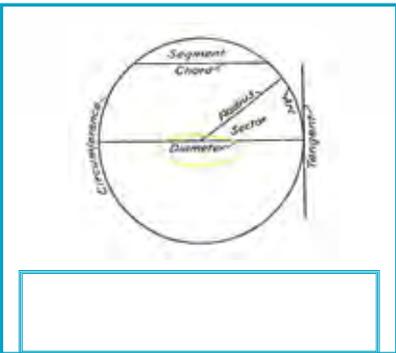
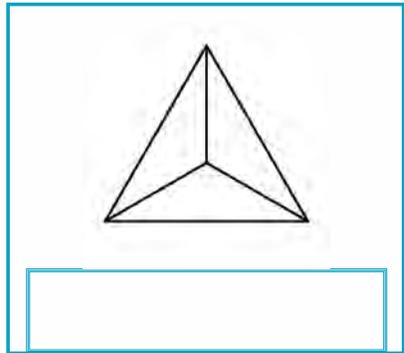
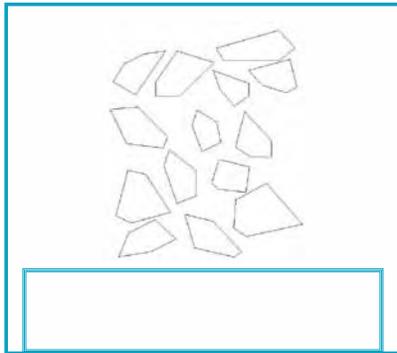
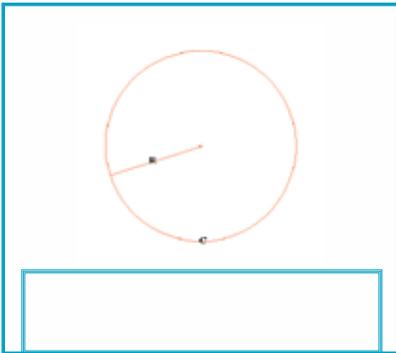
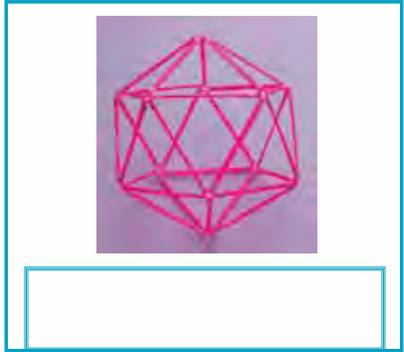
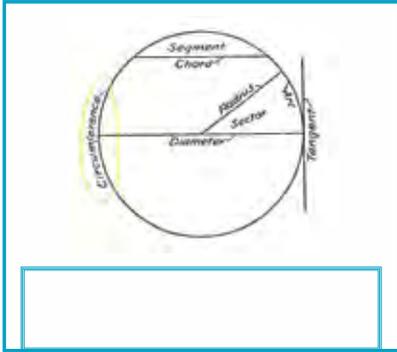
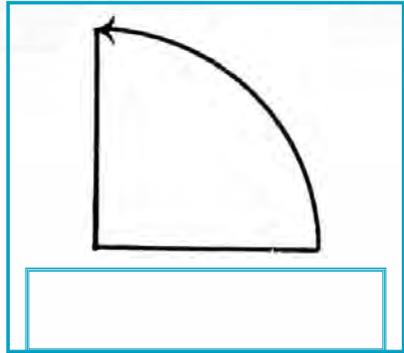
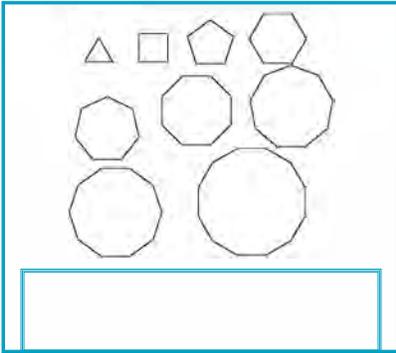
polyhedron

congruent

circumference

polygon

diameter





UNIT 7
Geometry

Alaskan Math Standards (GLE's) for This Unit

These Alaskan math standards underly the language development of the unit. Many of these standards are addressed during the regular math program and in the concrete introduction of the key vocabulary words for the unit.

The student demonstrates an understanding of geometric relationships by:

[7] G-1 using the attributes and properties of polygons (diagonals, number of sides and angles) to identify and classify regular or irregular polygons (M5.3.1)

[7] G-2 using the attributes and properties of prisms (vertices, length and alignment of edges, shape and number of bases, shape of faces) to identify and describe triangular or rectangular pyramids (M5.3.2)

The student demonstrates conceptual understanding of similarity, congruence, symmetry, or transformations of shapes by:

[7] G-3 using a scale factor to solve problems involving similar shapes (e.g., scale drawings, maps) (M5.3.3)

[7] G-4 drawing or describing the results of applying transformations such as translations, rotations, reflections, or dilations to figures (L) (M5.3.5)

The student solves problems (including real-world situations) by:

[7] G-5 determining the volume of cubes and rectangular prisms (M5.3.4)

[7] G-6 determining the surface area of rectangular prisms (M5.3.4)

[7] G-7 determining the circumference of a circle (M5.3.4)

Alaskan Language Standards (GLE's) for This Unit

AK.R.3.1. Reading: The student uses strategies to decode or comprehend the meaning of words in texts. (E.B.1)

[7] 3.2.2. Reading aloud short factual information (e.g., reports, articles) (L)

AK.R.3.3. Reading: The student restates/summarizes and connects information. (E.B.3)

AK.R.3.5. Reading: The student follows written directions. (E.C.2)

[7] 3.5.1. Completing a task by following written, multi-step directions (e.g., answer a multi-faceted text question) (L)

[7] 3.5.2. Identifying the sequence of steps in a list of directions (e.g., what is the first step, what is the second step)

[7] 3.3.4. Applying rules of capitalization (e.g., titles and proper nouns)

AK.W.3.4. Writing: The student revises writing. (E.A.5, E.A.8)

AK.E.A. A student should be able to speak and write well for a variety of purposes and audiences. A student who meets the content standard should:

E.A.1. Apply elements of effective writing and speaking. These elements include ideas, organization, vocabulary, sentence structure, and personal style.

E.A.2. In writing, demonstrate skills in sentence and paragraph structure, including grammar, spelling, capitalization, and punctuation.

E.A.3. In speaking, demonstrate skills in volume, intonation, and clarity.



INTRODUCTION OF MATH VOCABULARY

Geometry

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.

VERTEX

Darken the room. Give two students each a flashlight. Have the students stand diagonally from each other. The students should turn on the flashlights and shine the beams so that they intersect. Use this intersection point to introduce vertex related to a polygon.

VERTICES

Darken the room. Give two students each a flashlight. Have the students stand diagonally from each other. The students should turn on the flashlights and shine the beams so that they intersect. Use this intersection point to introduce vertex related to a polygon.

Introduce the plural form vertices to the students.

PRISM (TRIANGULAR)

Before the lesson begins, cut a box so that it lies flat and has 3 sides. As the students watch, fold two of the sides up, creating a triangular prism. Show the students the tent picture from the back of this unit - use it to reinforce the concept of triangular prisms.

Geometry

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.

EDGE

Use the cut-up box (from the previous page) to introduce edges to the students. Direct their attention to the edges of the prism. Have the students identify other edges in the classroom.

SYMMETRY

Fold a white sheet of paper in half. Use crayons or colored oil pastels to create a design on ONE side of the paper and touching the crease. When finished, re-fold the paper and rub vigorously with the side of a ruler. Open the paper to display the mirror image. Use this to introduce symmetry to the students.

DILATION

Make a small ball of dough using flour and water. Show a packet/jar of yeast and the dough to the students. Have them suggest the effect the yeast would have on the dough, in the process of making bread. Use this to introduce dilation of scale to the students. Cite other examples of dilation (i.e. inflating a balloon, the growth of living things, etc.).

Geometry

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.

PERIMETER

Place a tray of soil in front of the students. Place a toy house on the soil. Have the students suggest how the owner of the house can show the land that he/she owns. The students may suggest a fence--use your finger to create a mock fence around the house. Use this to introduce perimeter to the students. Cite other examples of perimeters, such as clan territories, city boundaries, etc.

RECTANGULAR (PRISM)

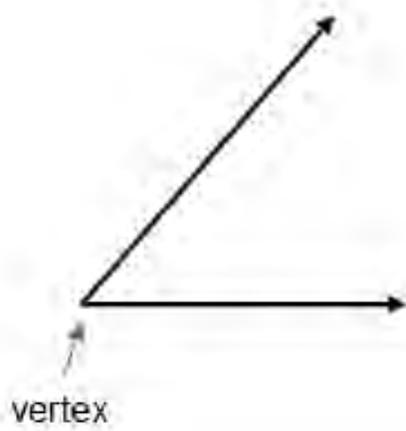
Show the students the rectangular prism from the back of this unit. Have the students name the properties of the prism--the number of sides, shapes of the sides, etc. If an actual rectangular prism is available, show it to the students.

TRAPEZOID

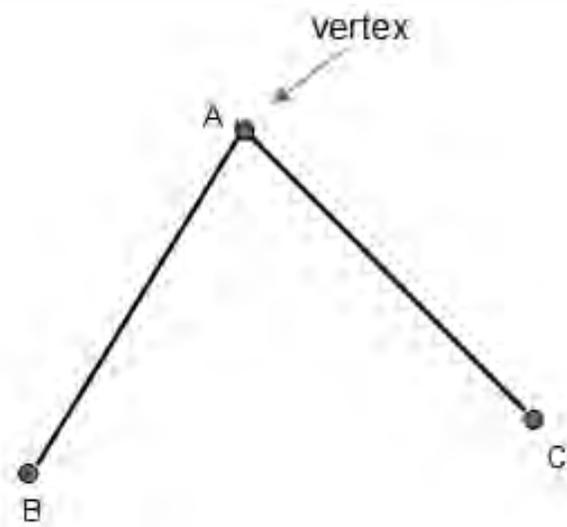
Open a cardboard box and cut it so that it can be folded to represent a trapezoid--two of the sides should be parallel.



VOCABULARY PICTURES



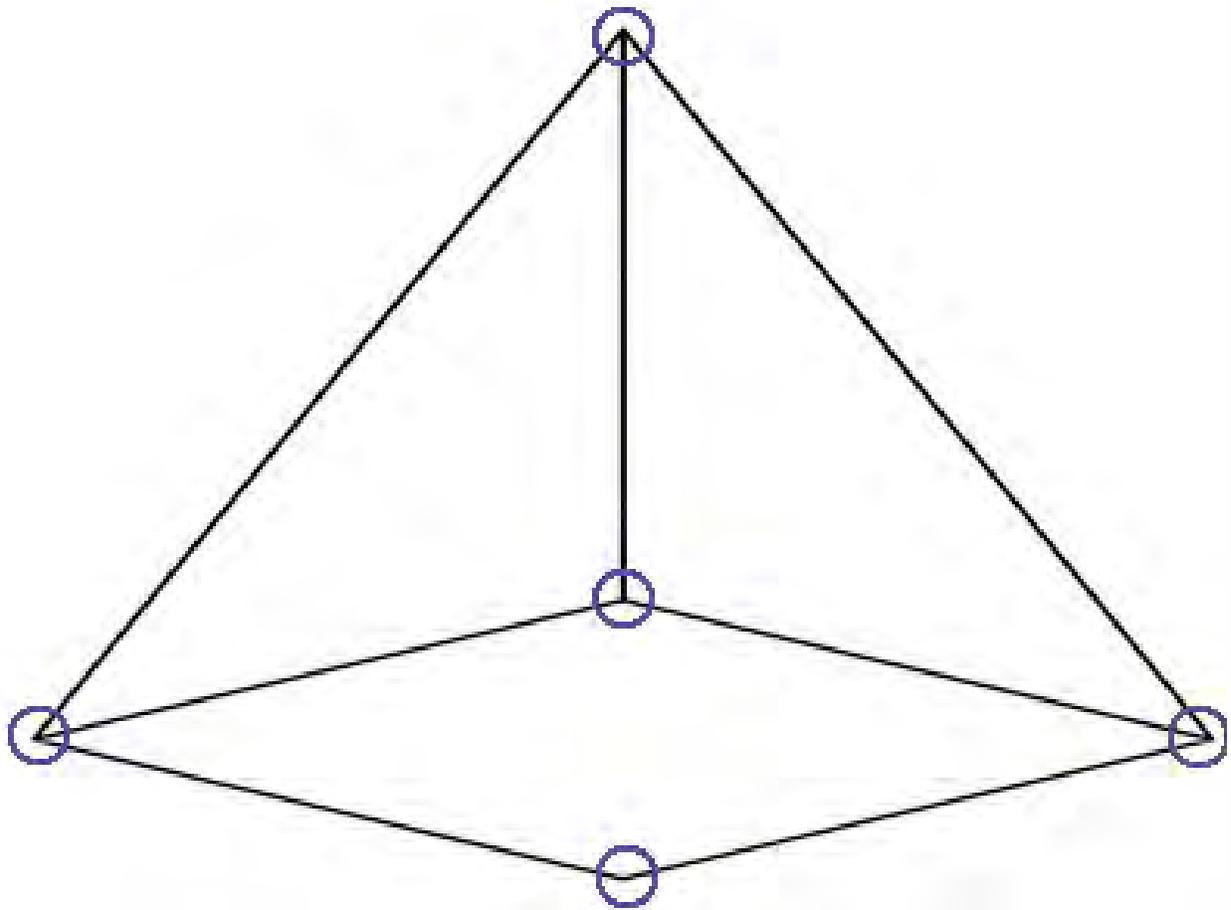
Common point of two rays



Common point of two line segments

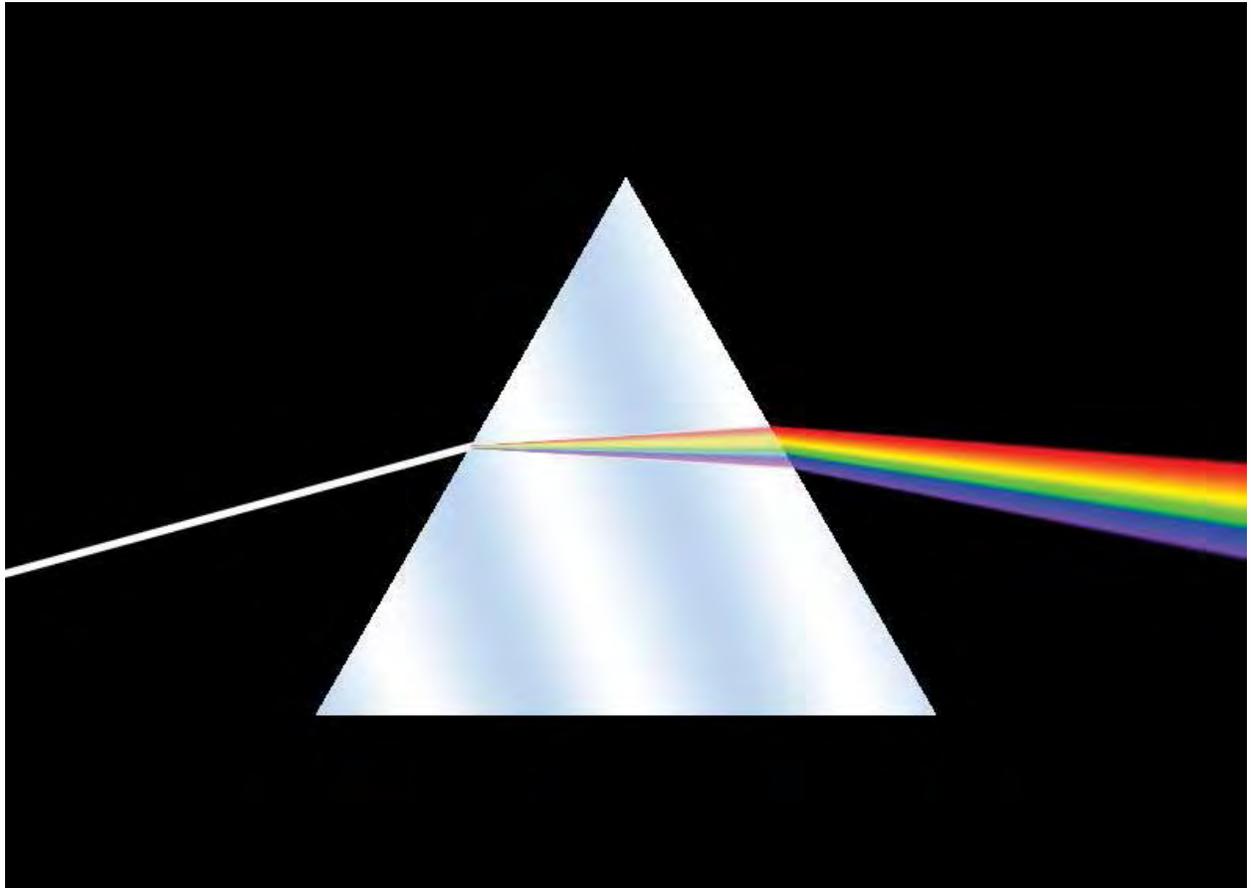


VERTEX





VERTICES





PRISM (TRIANGULAR)





EDGE



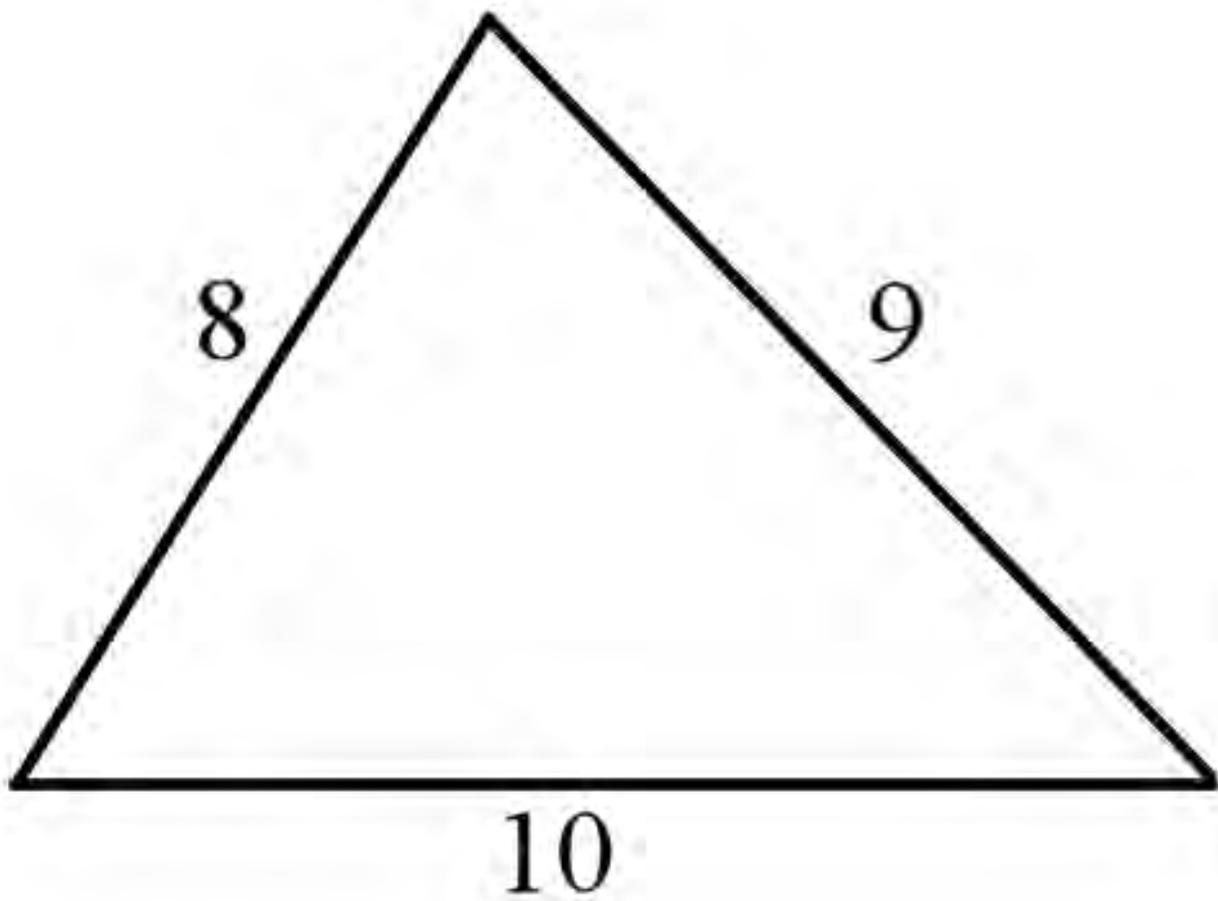


SYMMETRY





DILATION





PERIMETER





RECTANGULAR (PRISM)





TRAPEZOID



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.



Mini Pictures

Provide each student with a copy of the mini-pictures page from the Student Support Materials. When you say the key words, the students must find the pictures for them. Then, have the students cut out the pictures. Say the keywords and the students should hold up the pictures for them.

Tissue Drop

Group the students in a circle. Stand in the center of the circle with a small piece of tissue paper or an inflated balloon. Give the vocabulary illustration to the students. The students should pass the illustration around the circle in a clockwise direction until you clap your hands. Then, the students should stop passing around the illustration. Toss something like a tissue paper or ball into the center and say a vocabulary word. The student who has the illustration for that word must rush into the circle to catch the object before it hits the floor.

Over and Under

Group the students into two teams. Mount the vocabulary pictures on the board. Give the first player in each team a ball. When you say, “Go,” the first player in each team must pass the ball to the next player, over his/her head. The next player must then pass the ball to the third player, between his/her legs. The players should continue with this over/under sequence until the last player in a team receives the ball. When the last player receives the ball, he/she must rush to the board and identify a picture for a vocabulary word that you say. The first player to do this successfully wins the round. Repeat until all players in each team have had a chance to respond in this way.

Roll ‘Em Again Sam

Provide each student with two flashcards. Each student should then write a number between 1 and 6 on each of his/her cards — one number per card. When the students’ number cards are ready, toss two dice. Call the two numbers showing on the dice. Any student or students who have those two numbers on their number cards must then find a vocabulary graphic you name (you may wish to have the vocabulary graphics mounted on the board and numbered, for easy identification). The students may change number cards after each round of the activity.

Language and Skills Development

Knock Knees

Mount the vocabulary pictures on the board. Group the students into two teams. Give a small, hard ball to the first player in each team. The first player in each team must place the ball between his/her knees. Say a vocabulary word. When you say “Go,” the two players must then walk to the pictures without losing the balls. The first player to reach the vocabulary pictures and identify the picture for the word you said wins the round. If a player loses his/her ball, he/she must return to his/her team and begin again. Repeat until all players have played.

Toothpick Pass

Mount the vocabulary graphics on the board and number each graphic. Group the students in a circle. Give each student a toothpick. Place a lifesaver over one or more of the toothpicks. When you say “Go,” the students should pass the lifesaver(s) around the circle in a clockwise direction. When you clap your hands, the students should stop passing the lifesaver(s). Say a vocabulary word. The student or students who have the lifesavers must identify the NUMBER of a graphic that describes the word you named. Repeat until many students have responded in this way.

All in Knots

Group the students into two teams. Tie two lengths of rope in a knot (use the same knot for each rope). Skipping ropes are ideal for this activity. Mount the vocabulary graphics on the board. Give a knotted rope to the first player in each team. Say a vocabulary word. When you say “Go,” the first player in each team must then attempt to untie the knot he/she has. The first player who unties his/her knot, rushes to the board, and identifies the vocabulary graphic for the word you said, wins the round. Repeat until all players have participated.

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.

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.”

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.

Colander

Before the activity begins, obtain a sheet of construction paper equal in size to the size of your vocabulary pictures. Use a single hole punch to punch holes in the sheet. Place the sheet over one of the vocabulary pictures. Hold the sheet and vocabulary picture up so that the students can see them. The students should attempt to identify the vocabulary picture from the parts they can see through the holes in the construction paper. The first student to do this correctly wins the round. This activity may also be done in team form. In this case, the first player to correctly identify the vocabulary picture wins the round.

Language and Skills Development

Illustration Build-Up

Mount the vocabulary illustrations on the chalkboard. Point to two of the illustrations. The students should then say the vocabulary words for those two illustrations. Then, point to another illustration. The students should repeat the first two vocabulary words and then say the vocabulary word for the third illustration you pointed to. Continue in this way until the students lose the sequence of words.

Flip of the Coin

Provide each student with a penny. Keep one penny for yourself. Mount the vocabulary pictures on the board. Have the students (gently) toss their pennies into the air. Each student should look to see which side of his/her penny is face-up. Toss your penny into the air in the same way. Call the side of your penny that is face-up. The students who have the same side of coin face up must then identify (orally) a vocabulary picture you point to. For example, if the heads side of your coin is face up, the students who have heads showing on their coins must then orally identify the vocabulary picture you point to. Repeat this process a number of times.

Number Draw

Provide each student with a blank flashcard. Say a number to each student (between one and the number of students in your class). Each student should write his/her number on his/her number card. Prepare a matching set of number cards and place the cards in a container. Reach into the container and remove one of the number cards. Call the number showing on it. The student who has that number must identify a vocabulary picture on the board (or repeat a sentence that you said at the beginning of the round). 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.



Sight Recognition

Face

Mount the sight words around the classroom on the walls, board, and windows. Group the students into two teams. Give the first player in each team a flashlight. Darken the classroom, if possible. Say one of the sight words. When you say “Go,” the students should turn their flashlights on and attempt to locate the sight word you said. The first player to do this correctly wins the round. Repeat until all players in each team have participated.

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.

Student Support Materials

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

Decoding/Encoding

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.

Language and Skills Development

The Lost Syllable

Say a syllable from one of the sight words. Call upon the students to identify the sight word (or words) that contain that syllable. Depending upon the syllable you say, more than one sight word may be the correct answer. This activity may also be done in team form. In this case, lay the sight word cards on the floor. Group the students into two teams. Say a syllable from one of the sight words. When you say “Go,” the first player in each team must rush to the sight word cards and find the sight word that contains the syllable you said.

Flashlight Encode

Cut each of the sight words in half. Mount all of the word halves in a scattered form on the chalkboard. Stand in front of the chalkboard with two flashlights. Shine the light of one flashlight on a word half. Then, shine the light of the other flashlight on its matching half. The students should say the sight word. However, when the lights of the two flashlights are shining on word halves that do not go together, the students should remain silent. If four flashlights are available, this activity may be done in team form. In this case, give the first player in each team two flashlights. Say a sight word. The first player in each team must then use his/her two flashlights to illuminate the word halves for the sight word you said. The first player to do this correctly wins the round.

Student Support Materials

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

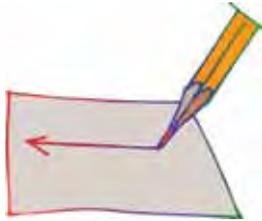
Reading Comprehension

Student Support Materials

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

Language and Skills Development

WRITING



Word Build

Provide each student with writing paper and a pen. Cut each of the sight words into its individual letters. Give each student one of the cut out letters. Each student should then glue the cut out letter onto his/her sheet of writing paper. Then, each student should add the missing letters to complete the original sight word. Afterwards, review the students' responses. You may wish to provide each student with more than one cut out letter so that he/she writes a number of the sight words.

Backwards Spell

Provide each student with writing paper and a pen. Spell one of the sight words, backwards. When you have completed the spelling of the word in this way, each student should then write the word you spelled on his/her sheet of paper, writing the letters of the word in their correct order. The students should not begin to write the word until AFTER you have completed the backwards spelling of the word. Repeat this process with other sight words. This activity may also be done in team form. In this case, group the students into two teams. Spell one of the sight words backwards. When you say "Go," the first player from each team must rush to the chalkboard and write the word that you said - writing the letters of the word in their correct sequence. The first player to do this correctly wins the round. Repeat until all players have participated.

What's Missing?

Before the activity begins, prepare a page that contains clozure sentences - the sight words having been left out. Provide each student with a copy of the page. The students should read the clozure sentences carefully and then each student should write the vocabulary words in the sentences. This activity may also be done in team form. In this case, write a clozure sentence on the chalkboard (omitting the sight word or words). Group the students into two teams. When you say "Go," the first player from each team must rush to the chalkboard and write the sight word(s) on the chalkboard that complete the sentence correctly. The first player to do this wins the round. Repeat until all players have had a chance to participate.



Language and Skills Development

Word Descriptions

Mount the sight words on the chalkboard. Provide the students with writing paper and pens. Then, describe the features of one of the sight words. This may include the number of letters, syllables, etc. After describing the features of the sight word, each student should write the sight word he/she feels fits the description you gave. Repeat this process with other sight words. Afterwards, review the students' responses.

Student Support Materials

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



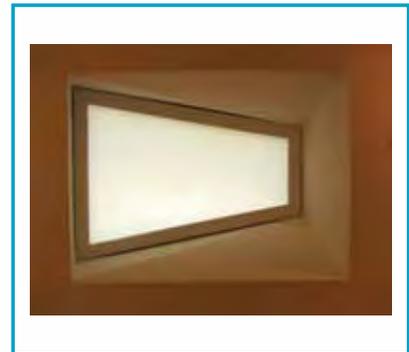
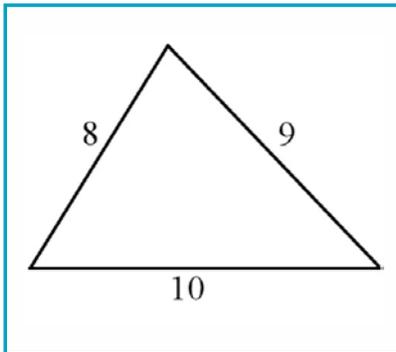
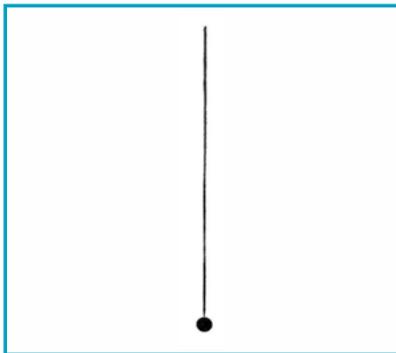
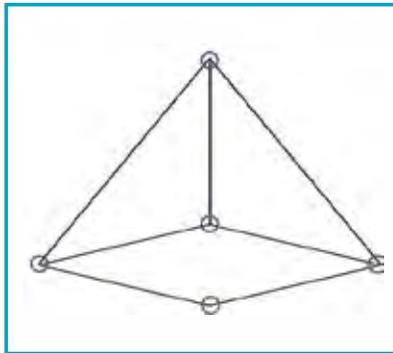
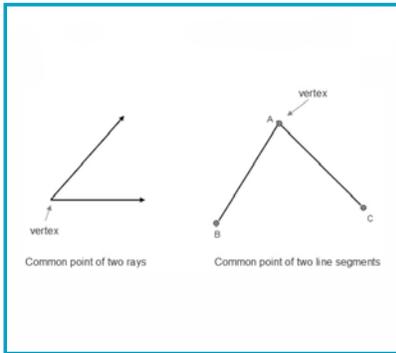
STUDENT SUPPORT MATERIALS

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

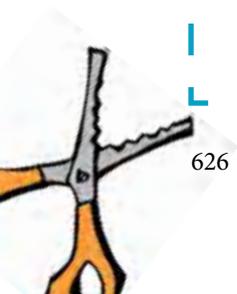
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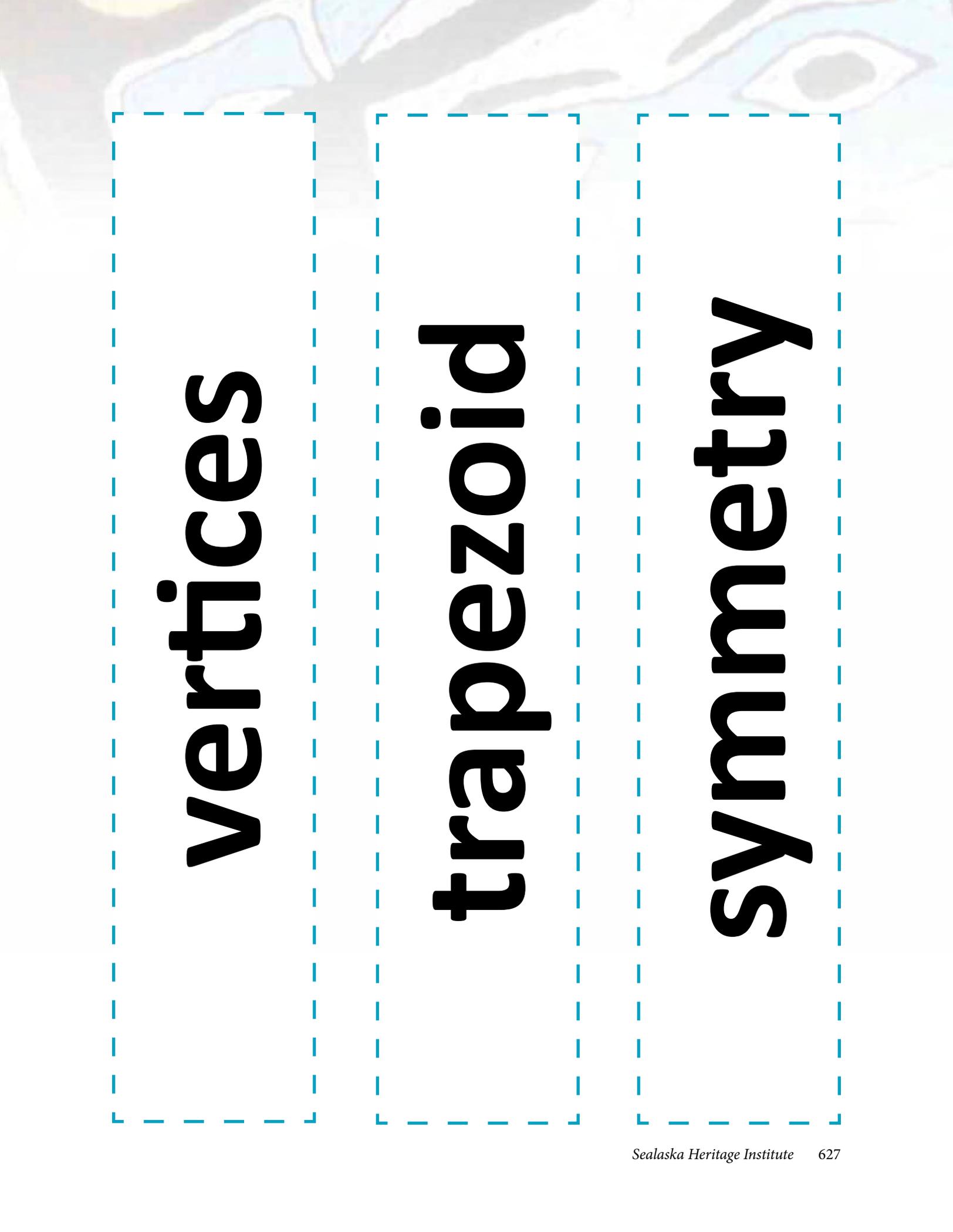


prism

edge

vertex

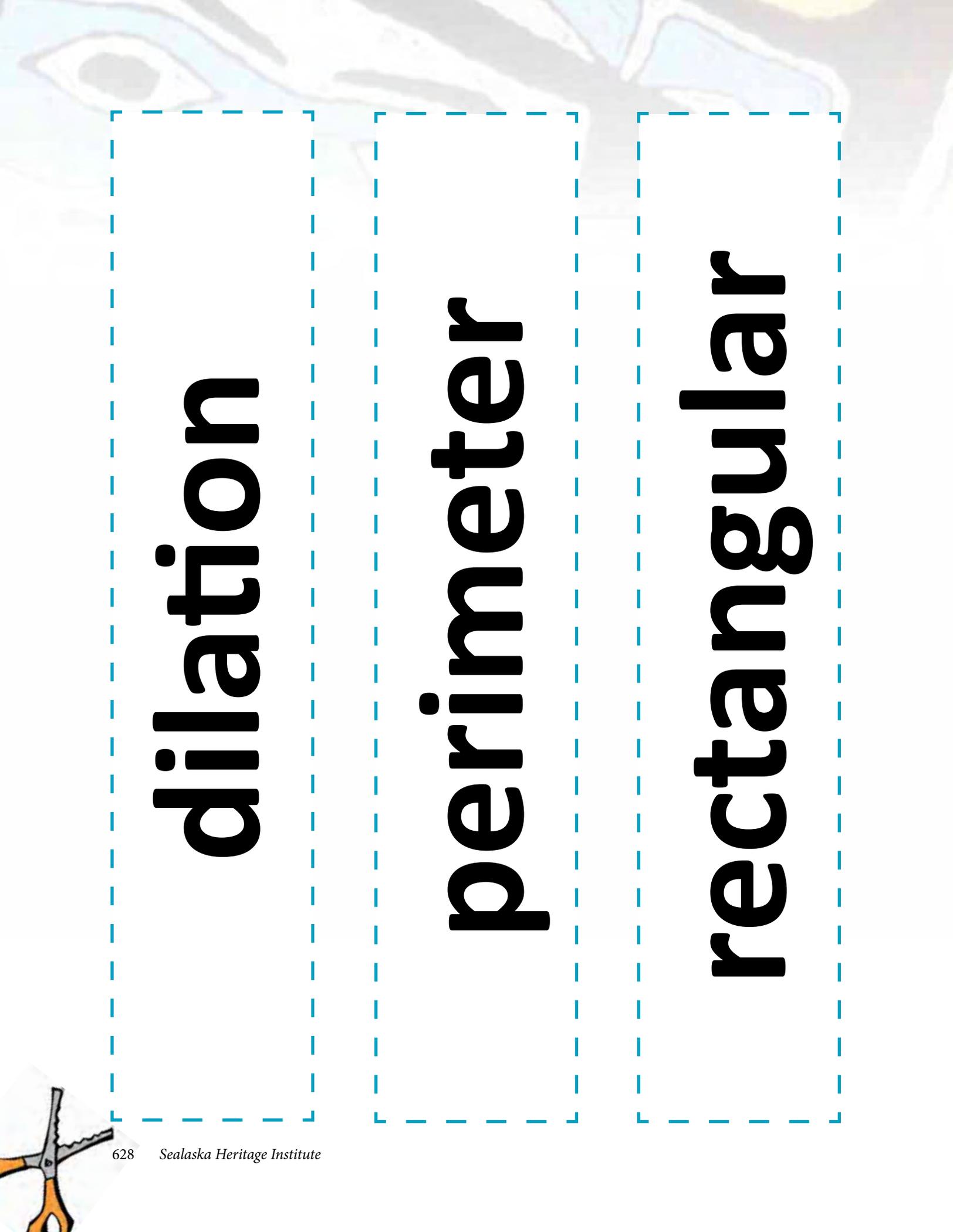




vertices

trapezoid

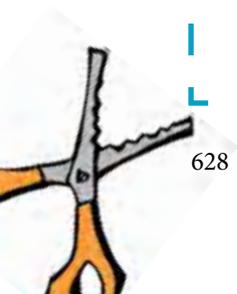
symmetry



dilation

perimeter

rectangular





STUDENT SUPPORT MATERIALS

Reading • Sight Recognition

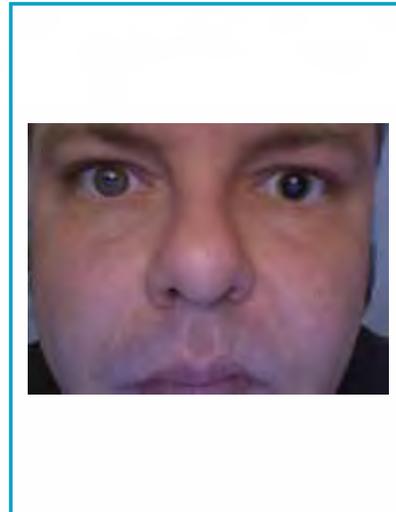
Sight Words Activity Page



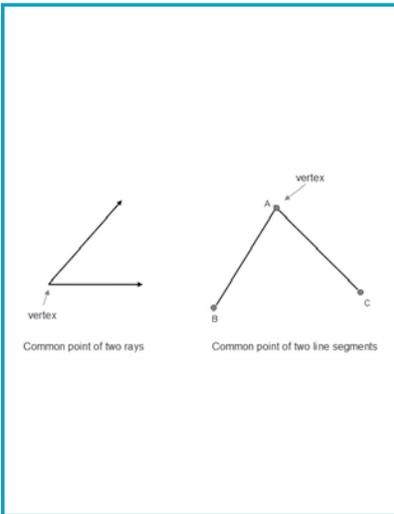
Have the students circle the word for each picture.



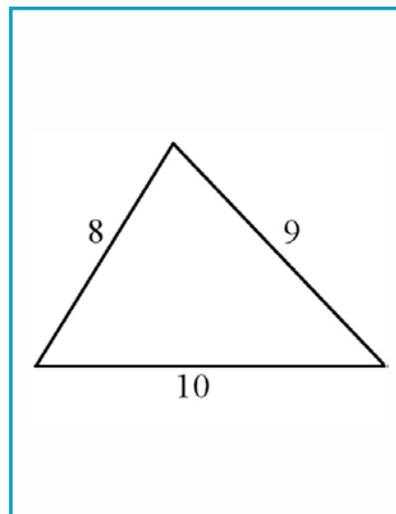
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- edge
- vertex
- vertices
- trapezoid
- symmetry
- dilation
- perimeter
- rectangular



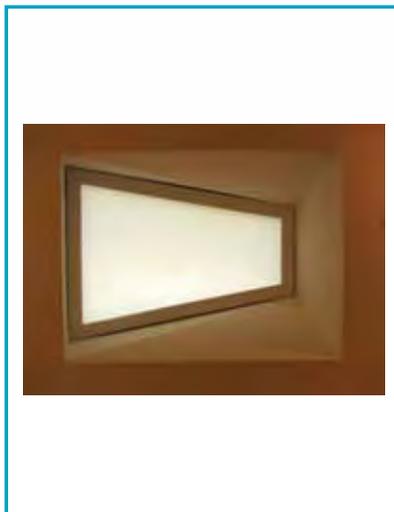
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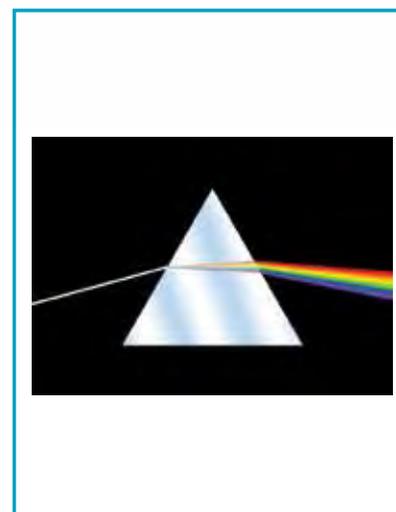
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- prism
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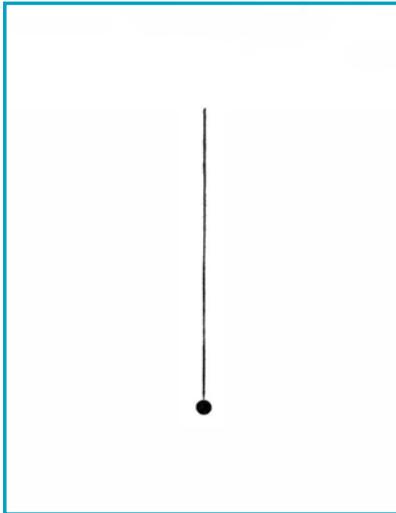


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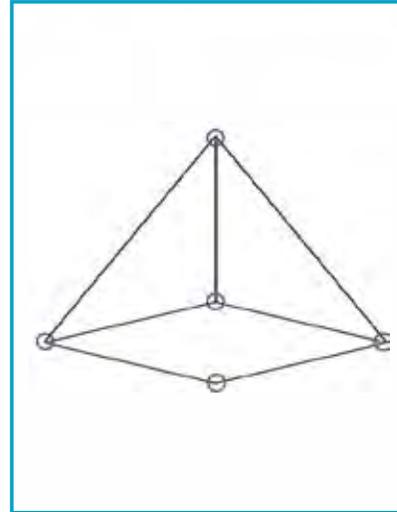


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- edge
- vertex
- vertices
- trapezoid
- symmetry
- dilation
- perimeter
- rectangular

Sight Words Activity Page



prism
edge
vertex
vertices
trapezoid
symmetry
dilation
perimeter
rectangular



prism
edge
vertex
vertices
trapezoid
symmetry
dilation
perimeter
rectangular

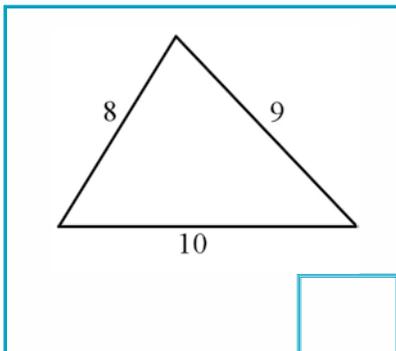
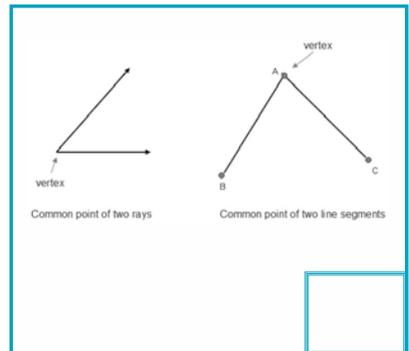
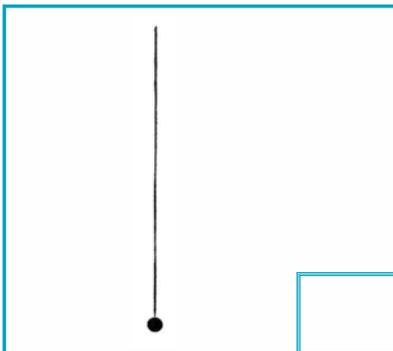
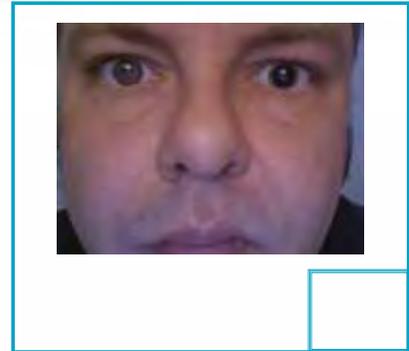
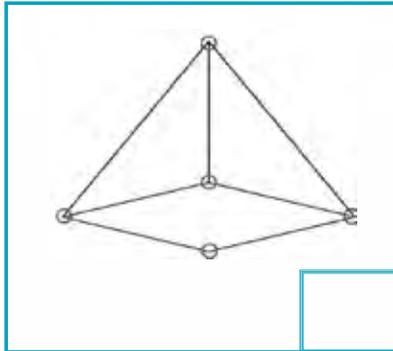
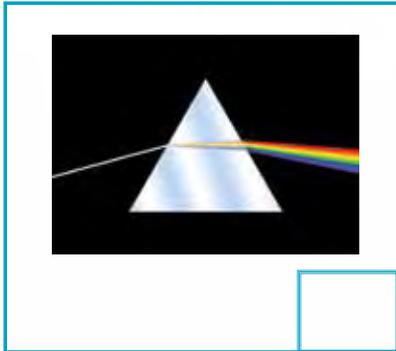


prism
edge
vertex
vertices
trapezoid
symmetry
dilation
perimeter
rectangular

Sight Words Activity Page



Write the numbers on their correct vocabulary graphics.



1. prism
2. edge
3. vertex
4. vertices
5. trapezoid
6. symmetry
7. dilation
8. perimeter
9. rectangular

Sight Words Activity Page



Highlight or circle the words in this word find.

prism
perimeter
dilation

trapezoid
vertices
vertex

symmetry
rectangular
edge

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

Sight Words Activity Page

ANSWER KEY



prism
perimeter
dilation

trapezoid
vertices
vertex

symmetry
rectangular
edge

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



STUDENT SUPPORT MATERIALS

Reading • Encoding

Encoding Activity Page

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



_____ism

ed_____

ver_____

ver_____ces

trapez_____d

mm	ti	oi
----	----	----

ge	tex
----	-----



Encoding Activity Page



sy_____etry

di_____tion

peri_____ter

rectangu_____

pr	la
lar	me



Encoding Activity Page

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



pr

ge

ed

tices

ver

lation

ver

meter

trape

ism



Encoding Activity Page



sym

zoid

di

ular

peri

tex

rectang

metry



Encoding Activity Page



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

u || rec || tang || lar

ter || pe || me || ri

zoid || tra || pe



Encoding Activity Page



ver ces ti





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 triangular prism
 - is a solid object that has one end and A all flat sides.
 - is a solid object that has irregular sides and irregular ends.
 - is a solid object that has two identical ends and all flat sides.
 - is a solid object that has different dimensions at both ends.

- ② The edge is
 - the line where two surfaces meet.
 - the radius of a polygon.
 - the scale of an average area.
 - the diameter of a polyhedron.

- ③ A vertex is
 - the radius of a circle.
 - a point where two or more straight lines meet.
 - a point where a congruent shape is on a diagonal.
 - the diameter of a circle.

- ④ Corners of polygons are
 - whole numbers.
 - circumference.
 - vertices.
 - irregular.

- ⑤ A trapezoid is a
 - pattern made from functions and congruent shapes.
 - quadrilateral with one pair of opposite sides parallel.
 - shape that has no opposite sides.
 - triangle with one pair of opposite sides.

- ⑥ Symmetry is when
 - a shape dilates and its ratio changes.
 - one shape is regular and the other is irregular.
 - an ordered pair is part of a formula.
 - one shape becomes exactly like another if you flip, slide or turn it.

What's the Answer?



- 7 Dilation is when something gets
- displayed.
 - bigger.
 - smaller.
 - rules.
- 8 The perimeter of a circle is called the
- parentheses.
 - vertex.
 - degree.
 - circumference.
- 9 A rectangular prism is a
- circle with a big diameter.
 - polyhedron that has six sides that are rectangles.
 - polygon that has six sides.
 - diagonal line found inside a shape.

What's the Answer?

ANSWER KEY



- ① A triangular prism
 - is a solid object that has one end and A all flat sides.
 - is a solid object that has irregular sides and irregular ends.
 - is a solid object that has two identical ends and all flat sides.
 - is a solid object that has different dimensions at both ends.

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 - the line where two surfaces meet.
 - the radius of a polygon.
 - the scale of an average area.
 - the diameter of a polyhedron.

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 - a point where two or more straight lines meet.
 - a point where a congruent shape is on a diagonal.
 - the diameter of a circle.

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 - circumference.
 - vertices.
 - irregular.

- ⑤ A trapezoid is a
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 - quadrilateral with one pair of opposite sides parallel.
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What's the Answer?



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 - vertex.
 - degree.
 - circumference.
- 9 A rectangular prism is a
- circle with a big diameter.
 - polyhedron that has six sides that are rectangles.
 - polygon that has six sides.
 - diagonal line found inside a shape.

Reading Comprehension Activity Page

Write the numbers/letters for sentence halves that match.



- | | | | |
|---------------------------------------|---------------------------------------|--------------------------------|---|
| ① In a triangular prism | ⑨ A rectangular prism has | Ⓐ called vertices. | Ⓘ six faces or sides. |
| ② The circumference of a circle | ⑧ The line where 2 surfaces meet is | Ⓑ called vertices. | ⓗ the cross section is the same all along its length. |
| ③ A vertex is where | ⑦ Dilation is when | Ⓒ a figure gets bigger. | Ⓙ produce symmetry. |
| ④ More than one vertex is | ⑥ Flipping a shape over can | Ⓓ an edge. | |
| ⑤ A trapezoid is a quadrilateral with | ⑤ A trapezoid is a quadrilateral with | Ⓔ two or more lines meet. | |
| ⑥ Flipping a shape over can | ⑥ Flipping a shape over can | Ⓛ can be called its perimeter. | |
| ⑦ Dilation is when | ⑦ Dilation is when | | |
| ⑧ The line where 2 surfaces meet is | ⑧ The line where 2 surfaces meet is | | |
| ⑨ A rectangular prism has | ⑨ A rectangular prism has | | |

1 → _____ 2 → _____ 3 → _____ 4 → _____

5 → _____ 6 → _____ 7 → _____ 8 → _____

9 → _____

Reading Comprehension Activity Page

ANSWER KEY



- | | | | |
|---------------------------------------|---------------------------------------|---------------------------|---|
| ① In a triangular prism | ⑨ A rectangular prism has | ① called vertices. | ⑨ six faces or sides. |
| ② The circumference of a circle | ⑧ The line where 2 surfaces meet is | ② called vertices. | ⑧ the cross section is the same all along its length. |
| ③ A vertex is where | ⑦ Dilation is when | ③ a figure gets bigger. | ⑦ produce symmetry. |
| ④ More than one vertex is | ⑥ Flipping a shape over can | ④ an edge. | ⑥ can be called its perimeter. |
| ⑤ A trapezoid is a quadrilateral with | ⑤ A trapezoid is a quadrilateral with | ⑤ two or more lines meet. | ⑤ two or more lines meet. |

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

Reading Comprehension Activity Page

Cut out the words and glue them under their definitions.



This is triangular and has two ends that are the same.

This is the line where two surfaces meet.

This is a point where two or more lines meet.

These can be the corners of polygons.

This is a quadrilateral with two opposite sides that are parallel.

This can relate to "mirror" imaging.

This relates to something that gets bigger.

This is the distance around two dimensional shapes.

This prism has six sides or faces.

vertex	trapezoid	dilation	edge
vertices	perimeter	symmetry	
prism	rectangular		



Reading Comprehension Activity Page

ANSWER KEY



This is triangular and has two ends that are the same.

prism

This is the line where two surfaces meet.

edge

This is a point where two or more lines meet.

vertex

These can be the corners of polygons.

vertices

This is a quadrilateral with two opposite sides that are parallel.

trapezoid

This can relate to “mirror” imaging.

symmetry

This relates to something that gets bigger.

dilation

This is the distance around two dimensional shapes.

perimeter

This prism has six sides or faces.

rectangular

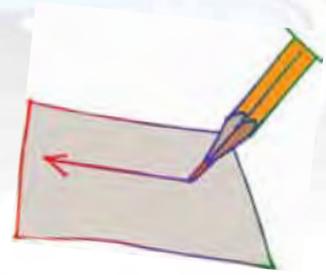


STUDENT SUPPORT MATERIALS

Writing

Writing Activity Page

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



_____ism

ed_____

ver_____x

ver_____ces

trapez_____d

sy_____etry

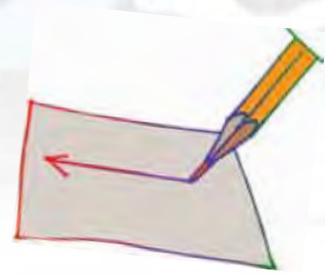
di_____tion

peri_____ter

rectang_____ar

Writing Activity Page

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



p _____ **m**

e _____ **e**

v _____ **x**

v _____ **es**

tr _____ **d**

sy _____ **y**

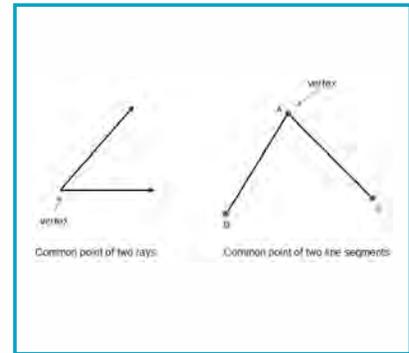
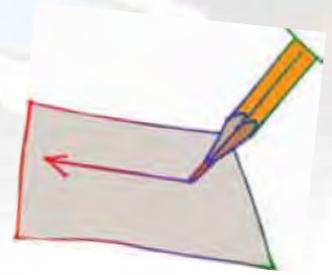
di _____ **n**

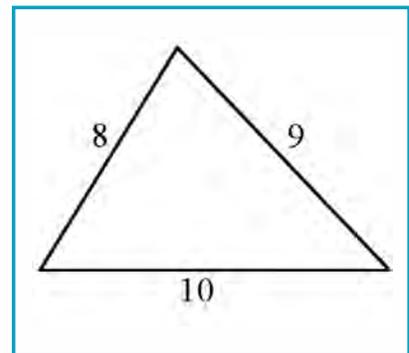
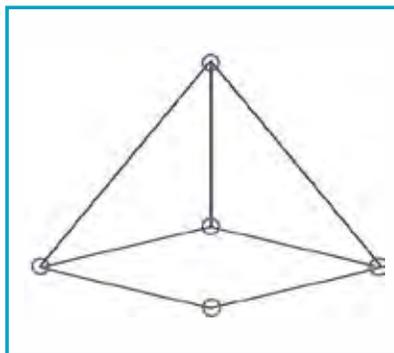
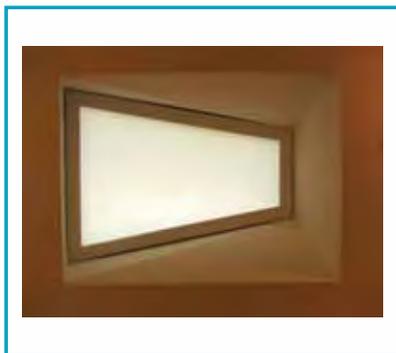
p _____ **er**

r _____ **ar**

Basic Writing Activity Page

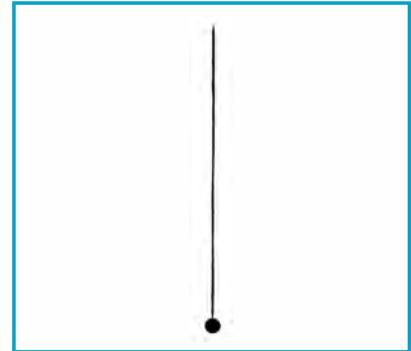
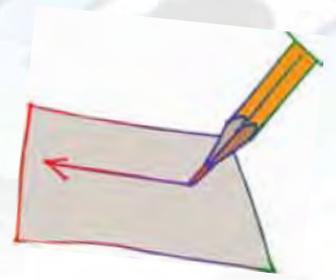
Have the students write the word for each picture.



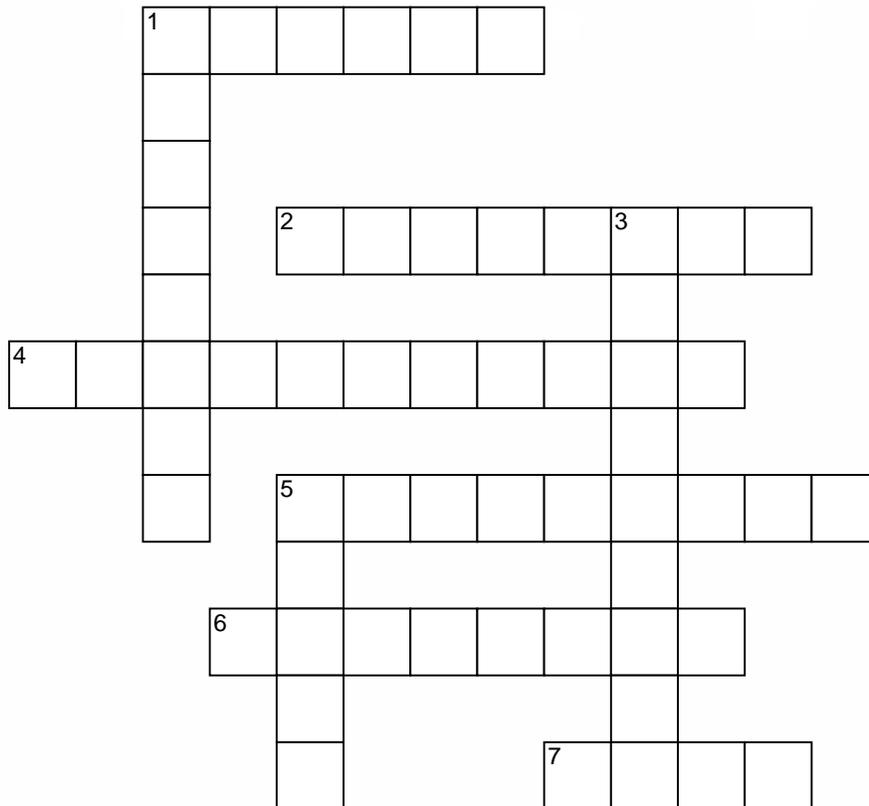
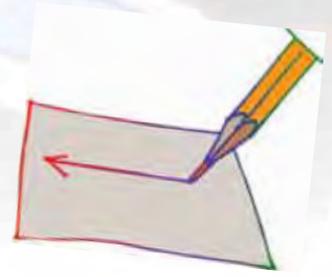


Basic Writing Activity Page

Have the students write the word for each picture.



Crossword Puzzle



www.CrosswordWeaver.com

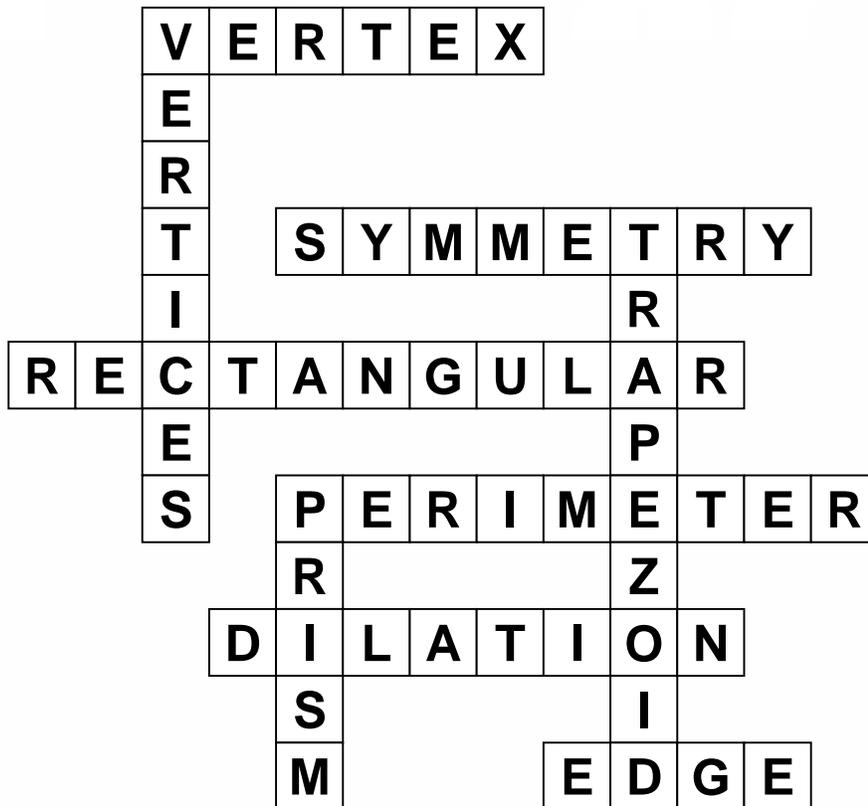
ACROSS

- 1 This is a point where two or more lines meet.
- 2 This can relate to "mirror" imaging.
- 4 This prism has 6 sides or faces.
- 5 This is the distance around two dimensional shapes.
- 6 This relates to something that gets bigger.
- 7 This is the line where two surfaces meet.

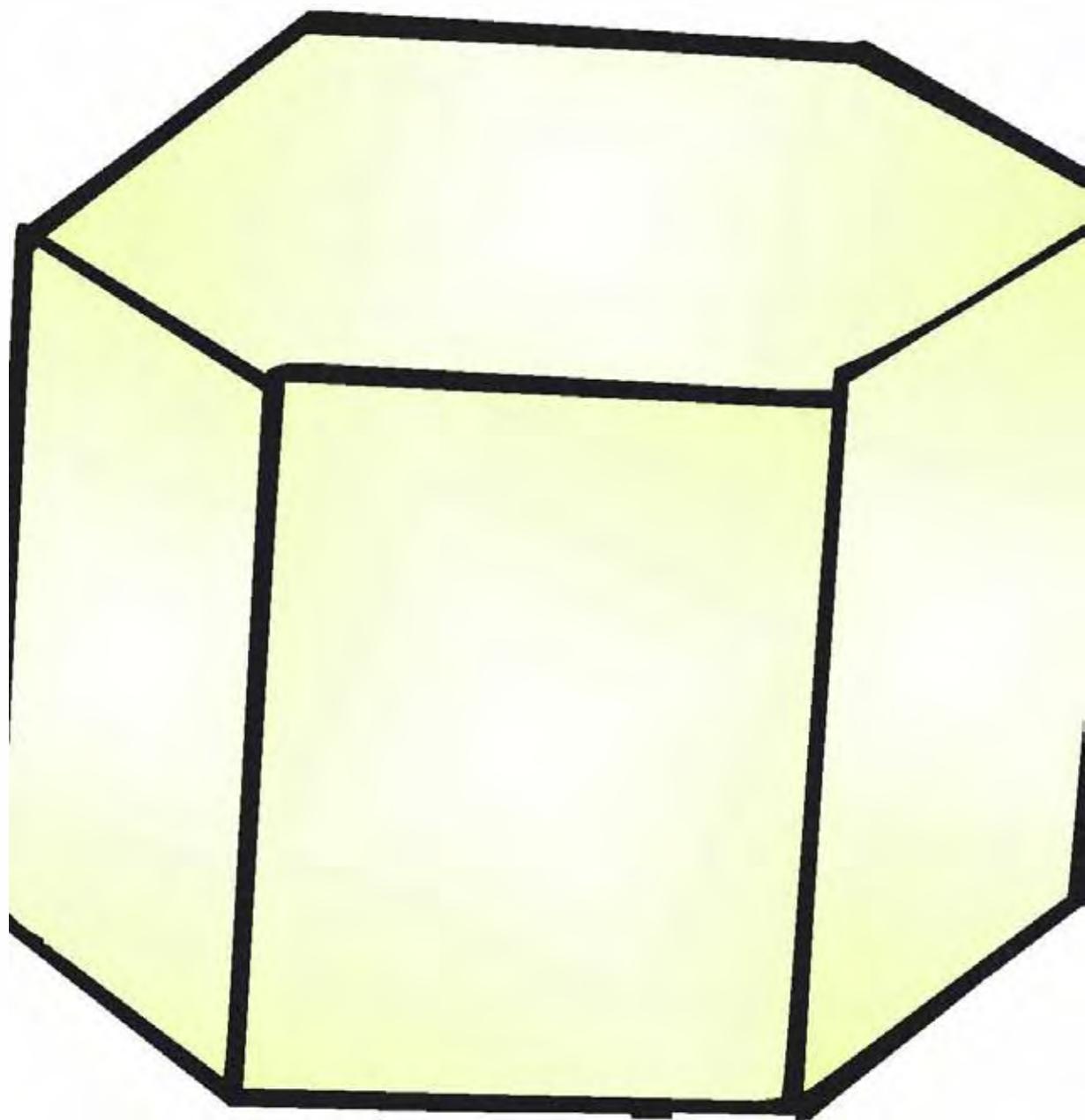
DOWN

- 1 These can be the corners of polygons.
- 3 This is a quadrilateral with two opposite sides that are parallel.
- 5 This is triangular and has two ends that are the same.

Crossword Puzzle Answers









UNIT ASSESSMENT



GEOMETRY

Unit Assessment Teacher's Notes

Grade 7 • 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 **PRISM**.
2. Write the number 2 by the picture for **EDGE**.
3. Write the number 3 by the picture for **VERTEX**.
4. Write the number 4 by the picture for **VERTICES**.
5. Write the number 5 by the picture for **TRAPEZOID**.
6. Write the number 6 by the picture for **SYMMETRY**.
7. Write the number 7 by the picture for **DILATION**.
8. Write the number 8 by the picture for **PERIMETER**.
9. Write the number 9 by the picture for **RECTANGULAR**.

SIGHT RECOGNITION

Turn to page 2 and 3 in your test. Look at the pictures in the boxes. Circle the word for each picture.

DECODING/ENCODING

Turn to page 4 and 5 in your test. Look at the word parts in the boxes. Circle the other half or part of each word.



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.

READING COMPREHENSION

Turn to page 6 in your test. Write each word under its definition.
Refer to Student Support Materials for answer key.

BASIC WRITING

Turn to page 7 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.



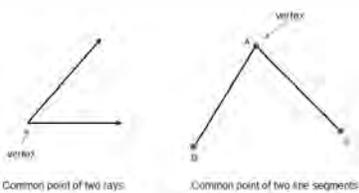
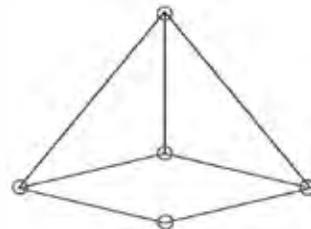
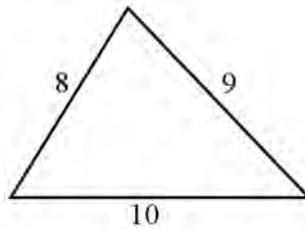
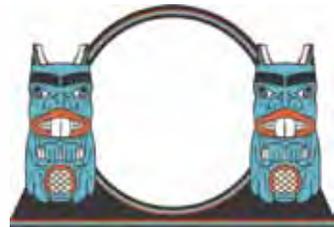


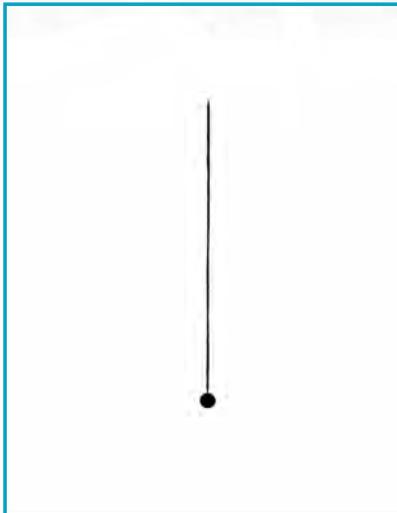
MATH PROGRAM

Unit Assessment Student Pages
Grade 7 • Unit 7

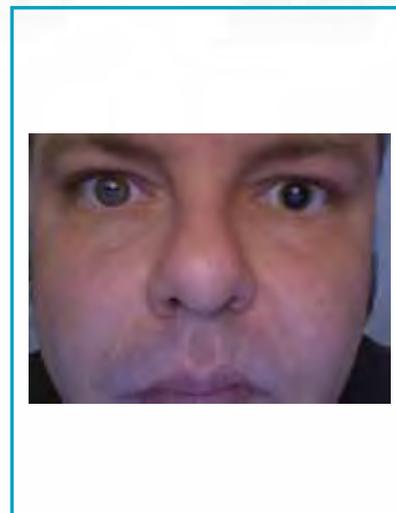
Date: _____ Student's Name: _____

Number Correct: _____ Percent Correct: _____

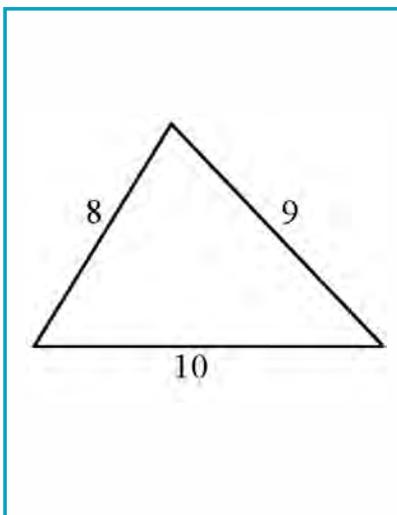




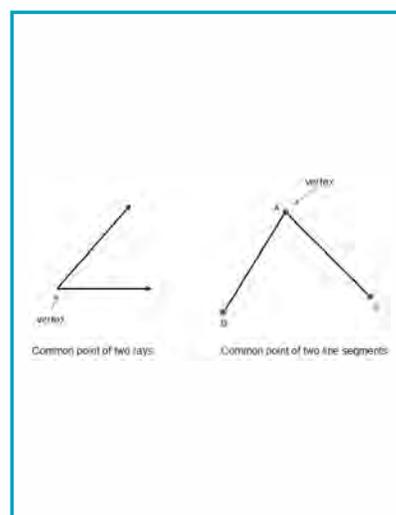
prism
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vertices
trapezoid
symmetry
dilation
perimeter
rectangular



prism
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vertices
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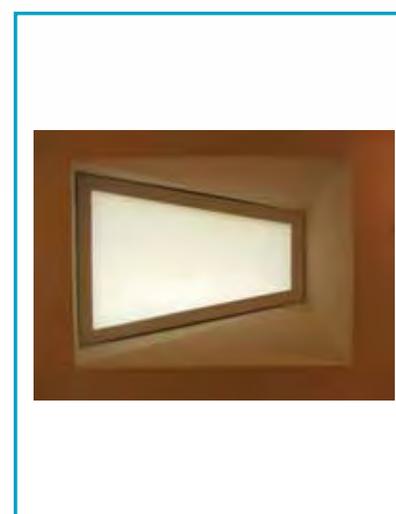
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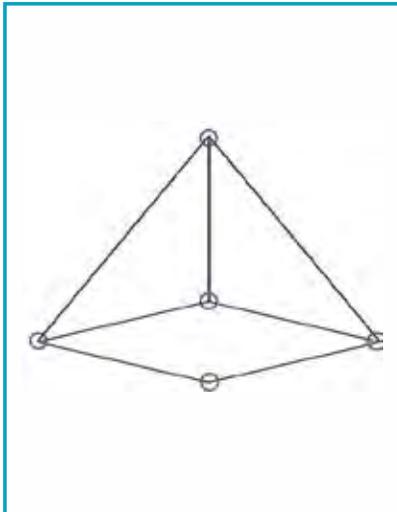
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This is triangular and has two ends that are the same.

This is the line where two surfaces meet.

This is a point where two or more lines meet.

These can be the corners of polygons.

This is a quadrilateral with two opposite sides that are parallel.

This can relate to “mirror” imaging.

This relates to something that gets bigger.

This is the distance around two dimensional shapes.

This prism as six sides or faces.

edge

vertex

vertices

trapezoid

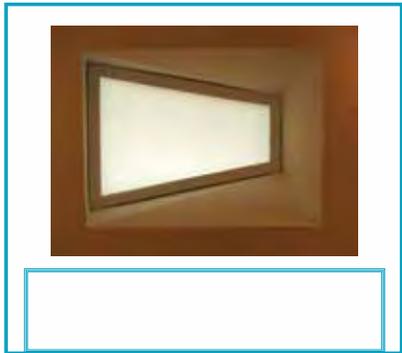
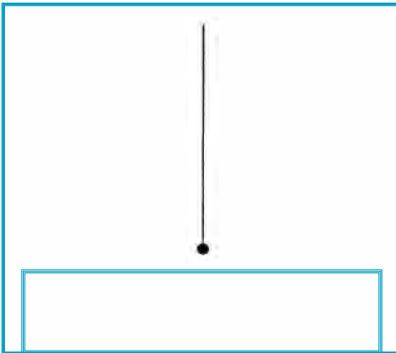
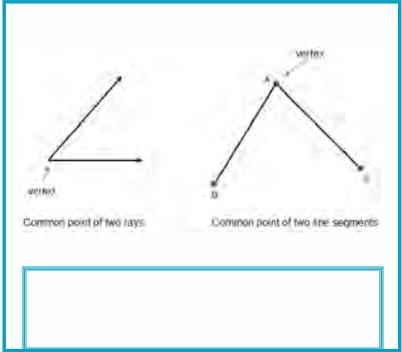
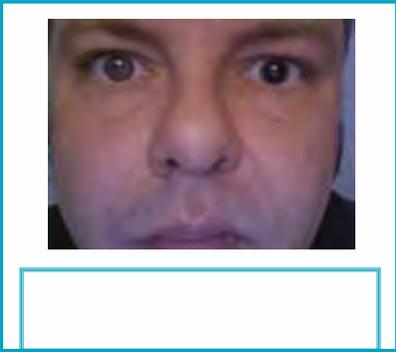
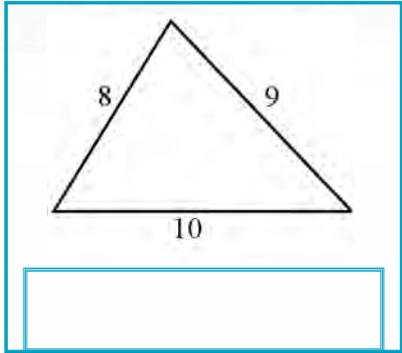
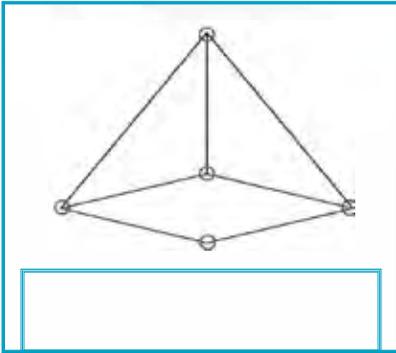
dilation

symmetry

perimeter

prism

rectangular





UNIT 8
Geometry

Alaskan Math Standards (GLE's) for This Unit

These Alaskan math standards underly the language development of the unit. Many of these standards are addressed during the regular math program and in the concrete introduction of the key vocabulary words for the unit.

The student demonstrates an understanding of geometric relationships by:

[7] G-1 using the attributes and properties of polygons (diagonals, number of sides and angles) to identify and classify regular or irregular polygons (M5.3.1)

[7] G-2 using the attributes and properties of prisms (vertices, length and alignment of edges, shape and number of bases, shape of faces) to identify and describe triangular or rectangular pyramids (M5.3.2)

The student demonstrates conceptual understanding of similarity, congruence, symmetry, or transformations of shapes by:

[7] G-3 using a scale factor to solve problems involving similar shapes (e.g., scale drawings, maps) (M5.3.3)

[7] G-4 drawing or describing the results of applying transformations such as translations, rotations, reflections, or dilations to figures (L) (M5.3.5)

The student solves problems (including real-world situations) by:

[7] G-5 determining the volume of cubes and rectangular prisms (M5.3.4)

[7] G-6 determining the surface area of rectangular prisms (M5.3.4)

[7] G-7 determining the circumference of a circle (M5.3.4)

Alaskan Language Standards (GLE's) for This Unit

AK.R.3.1. Reading: The student uses strategies to decode or comprehend the meaning of words in texts. (E.B.1)

[7] 3.2.2. Reading aloud short factual information (e.g., reports, articles) (L)

AK.R.3.3. Reading: The student restates/summarizes and connects information. (E.B.3)

AK.R.3.5. Reading: The student follows written directions. (E.C.2)

[7] 3.5.1. Completing a task by following written, multi-step directions (e.g., answer a multi-faceted text question) (L)

[7] 3.5.2. Identifying the sequence of steps in a list of directions (e.g., what is the first step, what is the second step)

[7] 3.3.4. Applying rules of capitalization (e.g., titles and proper nouns)

AK.W.3.4. Writing: The student revises writing. (E.A.5, E.A.8)

AK.E.A. A student should be able to speak and write well for a variety of purposes and audiences. A student who meets the content standard should:

E.A.1. Apply elements of effective writing and speaking. These elements include ideas, organization, vocabulary, sentence structure, and personal style.

E.A.2. In writing, demonstrate skills in sentence and paragraph structure, including grammar, spelling, capitalization, and punctuation.

E.A.3. In speaking, demonstrate skills in volume, intonation, and clarity.



INTRODUCTION OF MATH VOCABULARY

Geometry

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.

SCALENE

Lay white flour on a portion of black paper. Use your finger to create the isosceles, equilateral, and scalene triangles.

(continued below)

ISOSCELES

Provide the students with lengths of yarn or string. Have them practice making the isosceles, equilateral, and scalene triangles, using the yarn or string.

(continued below)

EQUILATERAL

Use a flashlight to draw the different triangles on a wall. After drawing a triangle with the light of the flashlight, call upon the students to identify it by its type (isosceles, scalene, or equilateral).

Geometry

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.

ACUTE

Introduce right, acute, and obtuse angles using the yarn/string.

(continued below)

OBTUSE

Provide each student with a pipe cleaner. Create an angle using your string/yarn; the students must then create the same angle using their pipe cleaners. Repeat the names of the angles many times.

(continued below)

RIGHT

Direct the students' attention to angles in the classroom — e.g., window frames, door, etc. Attempt to locate samples of the different angles in the room.

Have two students stand — name one of the angles; the two students should lay on the floor to create that angle. Repeat, with other pairs of students.

Geometry

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.

END POINTS

Obtain a length of rope. Have two students hold the rope at the front of the class to represent a clothesline. Draw the students' attention to the ends of the clothesline; use this to introduce end points to the students.

QUADRILATERAL

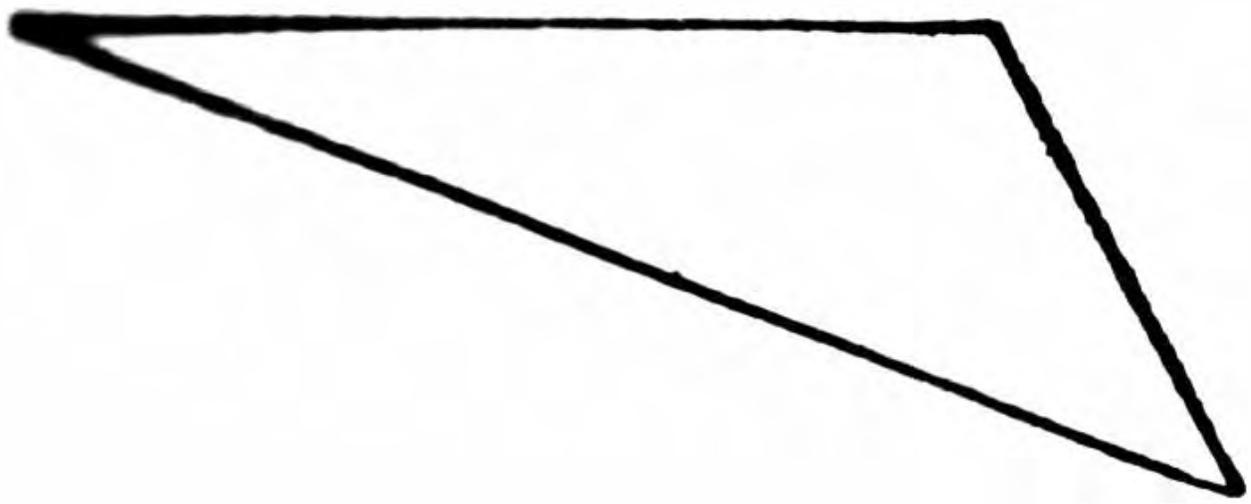
Collect a variety of photographs of different sizes. Mix all of the pictures together and lay them out in front of the students. Have the students tell what is the same about all of the pictures. Lead them to suggest that all of the pictures have four straight sides.

PYRAMID

Show the students the picture of the human pyramid from the back of this unit. Relate this to the picture of the pyramid, also at the back of this unit. Use moist soil on a tray to create a pyramid as the students watch. Direct their attention to the base, sides, and edges of the triangle.

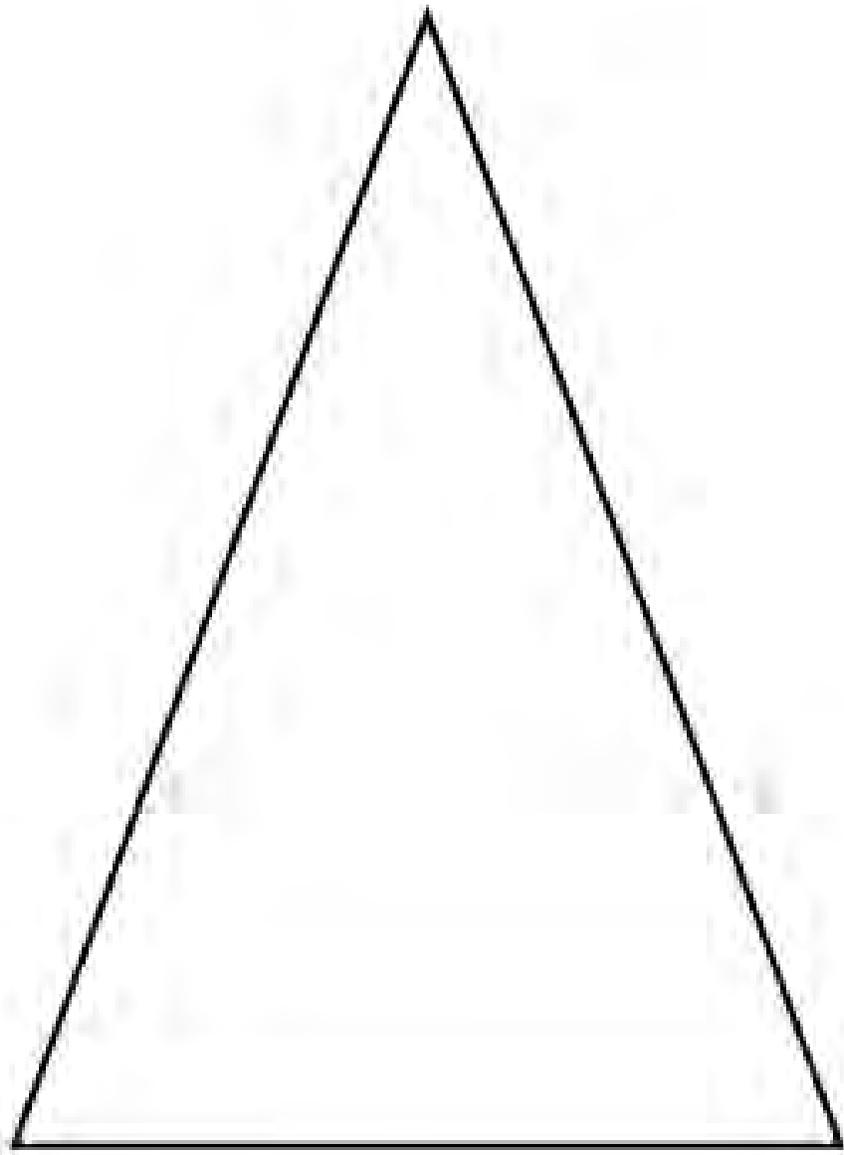


VOCABULARY PICTURES



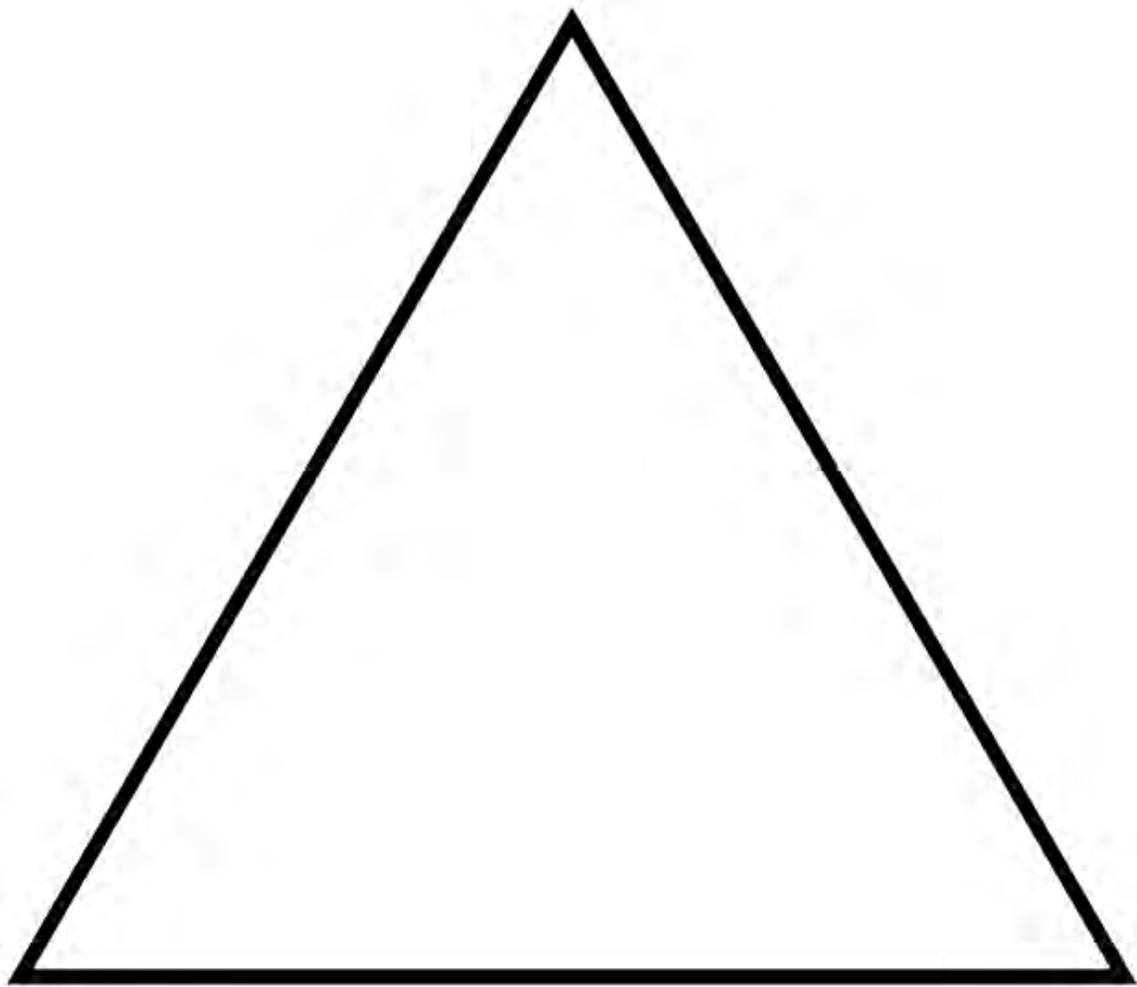


SCALENE



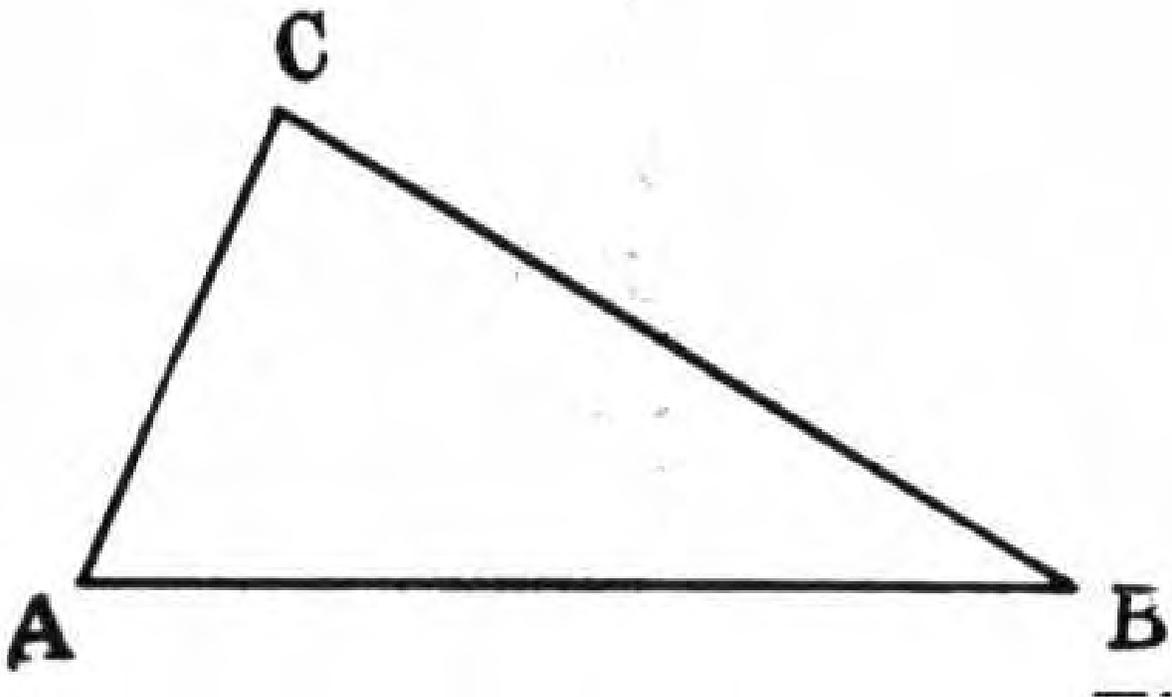


ISOSCELES



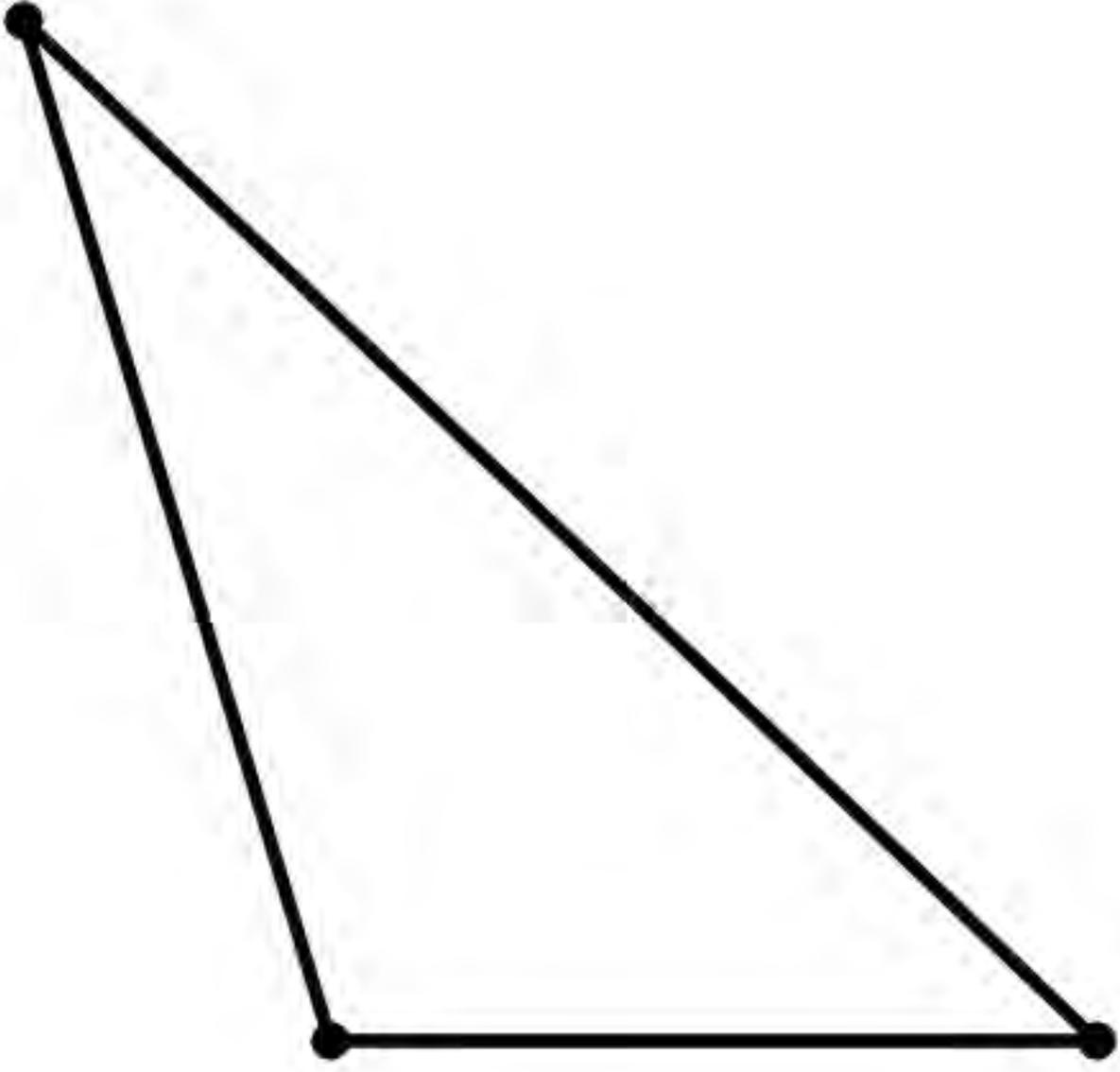


EQUILATERAL



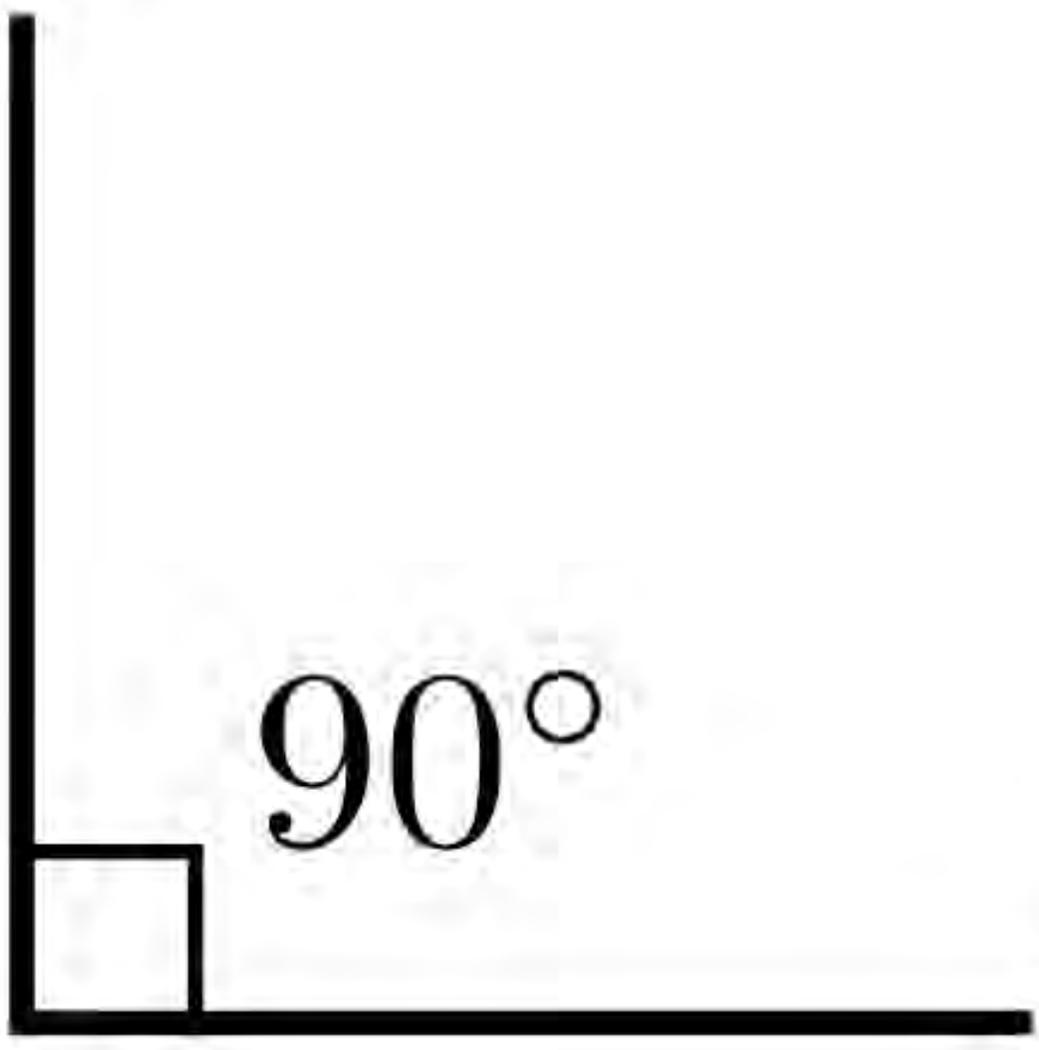


ACUTE



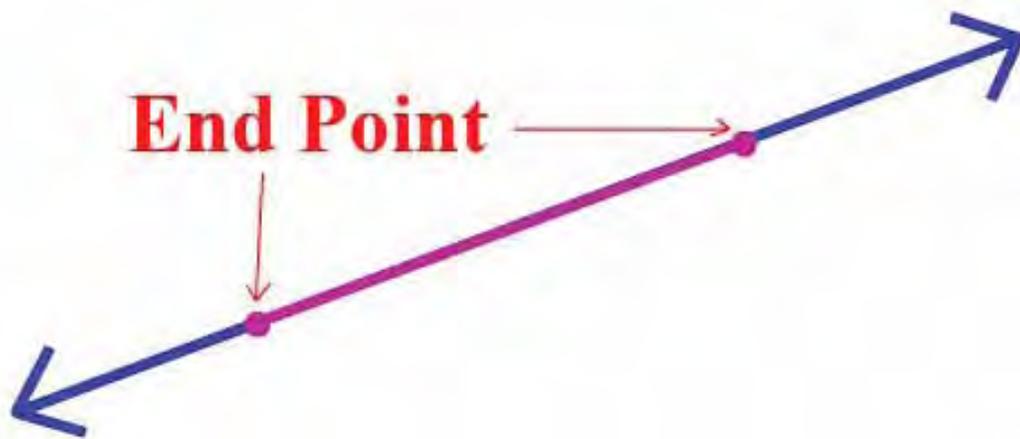


OBTUSE





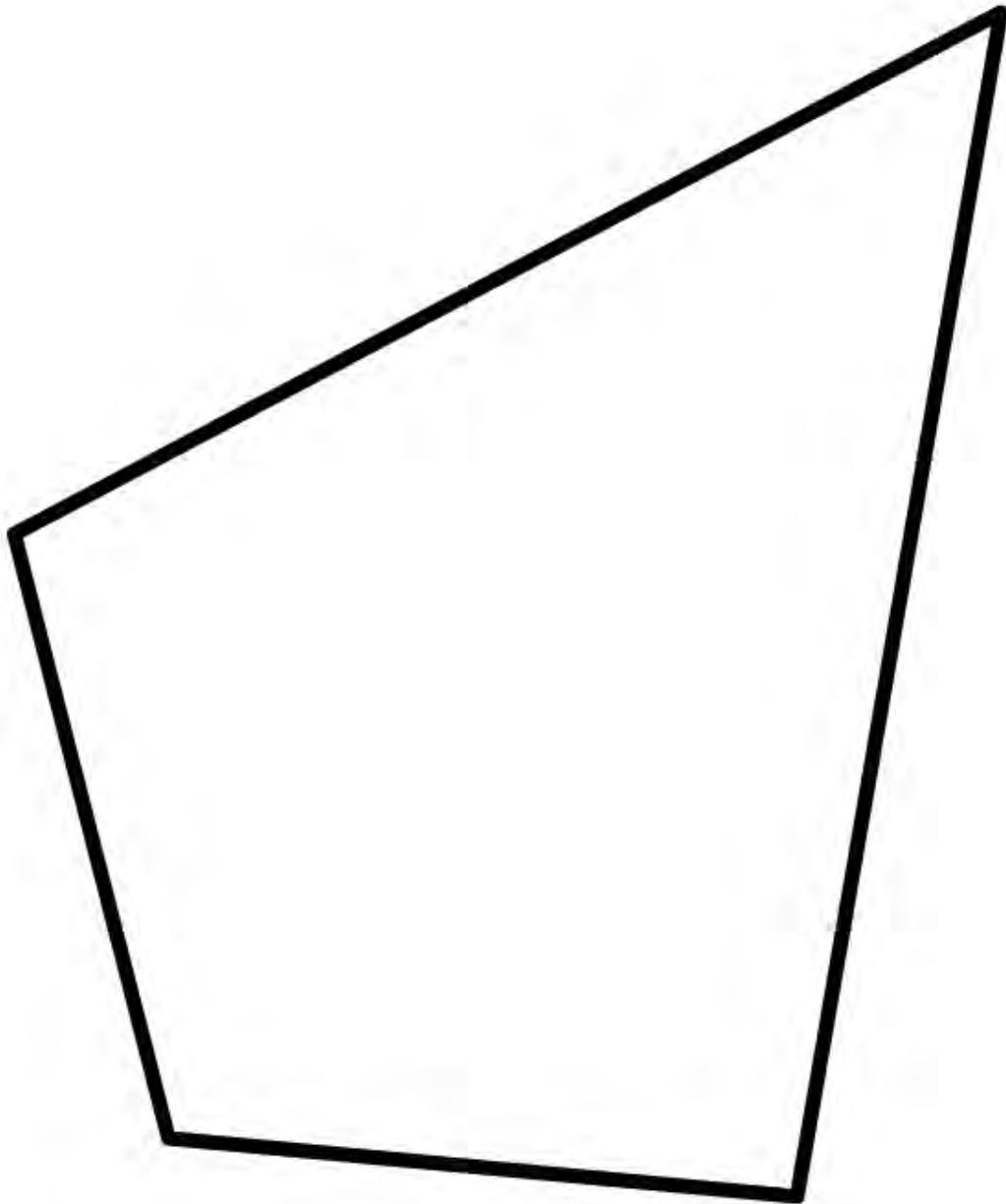
RIGHT ANGLED



Line Segment



END POINTS





QUADRILATERAL





PYRAMID



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.



Mini Pictures

Provide each student with a copy of the mini-pictures page from the Student Support Materials. When you say the key words, the students must find the pictures for them. Then, have the students cut out the pictures. Say the keywords and the students should hold up the pictures for them.

Change

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

Hop the Line

Make a masking tape line on the floor. Have the students stand on the line—their toes touching the masking tape. Have the students listen for a specific word or sentence. Say a number of other words or sentences, eventually repeating the word or sentence you said at the beginning of the round. When the students hear that word or sentence, they must hop to the other side of the line. When the students hop to the other side of the line, they should then turn around and place their toes on the line once again. Repeat this process using a number of different vocabulary words or sentences.

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.



Language and Skills Development

Join Those Halves

Make an extra set of vocabulary pictures. Cut each of the vocabulary illustrations in half. Spread the illustration halves on the floor in a scattered form. Group the students into two teams. Give the first two players in each team a long length of string or yarn. Say a vocabulary word. When you say “Go,” the first two players in each team must rush to the illustration halves. The object of the activity is for the players to use the string/yarn to join together the two halves which make up the illustration for the word you said. The first pair of players to do this successfully wins the round. Repeat until all players have participated.

Roll ‘Em Again Sam

Provide each student with two flashcards. Each student should then write a number between 1 and 6 on each of his/her cards — one number per card. When the students’ number cards are ready, toss two dice. Call the two numbers showing on the dice. Any student or students who have those two numbers on their number cards must then find a vocabulary graphic you name (you may wish to have the vocabulary graphics mounted on the board and numbered, for easy identification). The students may change number cards after each round of the activity.

Language and Skills Development

SPEAKING



Run and Catch

Group the students in a circle. Say a number to each student. Then, give each student a vocabulary picture. Stand in the center of the circle with a small portion of tissue paper. When you say “Go,” the students should pass the vocabulary pictures around the circle in a clockwise direction. When you clap your hands, the students should stop passing the pictures. Call one of the students’ numbers and toss the tissue paper into the circle at the same time. The student who has the number that you called must orally identify the vocabulary picture he/she has and then rush into the circle to catch the tissue paper before it hits the floor. Repeat this process until many students have responded.

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.

Number What?

Mount the vocabulary graphics on the chalkboard. Number each graphic. Call one of the numbers and the students should identify the graphic that is labeled with that number. Continue in this way until all of the vocabulary graphics have been identified a number of times. To add “spice” to the activity, you may wish to say a simple oral math problem, the answer to which is equal to one of the numbers on the chalkboard. (For example, you could say, “Six plus four, minus three, plus one.” The answer would be “Eight.” In this case, the students should identify the vocabulary graphic with the numeral “8” beside it.) This activity may also be done in team form. The first player to solve the math problem and then to identify the graphic that is labeled with the number answer to the math problem, wins the round.

Language and Skills Development

Back Match

Prepare a photocopy of each of the vocabulary pictures. Cut the photocopied pictures in half. Group the students in a circle. Walk around the outside of the circle, attaching the picture halves to the students' backs. Do not let the students see which picture halves they have on their backs. When each student has a picture half on his/her back, say "Go." The students must then match themselves together, according to the picture halves on their backs. Since the students will not know which pictures halves they have, they will have to rely on each other for assistance. When the students have correctly matched themselves together, have the students in each pair verbally identify the vocabulary word represented by the picture.

Flip of the Coin

Provide each student with a penny. Keep one penny for yourself. Mount the vocabulary pictures on the board. Have the students (gently) toss their pennies into the air. Each student should look to see which side of his/her penny is face-up. Toss your penny into the air in the same way. Call the side of your penny that is face-up. The students who have the same side of coin face up must then identify (orally) a vocabulary picture you point to. For example, if the heads side of your coin is face up, the students who have heads showing on their coins must then orally identify the vocabulary picture you point to. Repeat this process a number of times.

Draw

Give all of the cards from a deck of playing cards to the students (preferably, all students should have the same number of cards). Have another deck of cards for yourself. Mount the vocabulary illustrations on the chalkboard. Hold one of your playing cards next to a vocabulary illustration. The student who has the matching playing card must then say the word for that picture. The student should then place that playing card to the side. The first student who has no playing cards left in his/her hands wins the game. This activity may be repeated more than once by collecting, mixing, and redistributing the playing cards to the students.

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.



Sight Recognition

Right or Wrong?

Mount the sight words on the board. Point to one of the sight words and name it. The students should repeat the sight word. However, when you point to a sight word and say the wrong word for it, the students should remain silent. Repeat this process until the students have responded accurately to all of the sight words a number of times.

Face

Mount the sight words around the classroom on the walls, board, and windows. Group the students into two teams. Give the first player in each team a flashlight. Darken the classroom, if possible. Say one of the sight words. When you say “Go,” the students should turn their flashlights on and attempt to locate the sight word you said. The first player to do this correctly wins the round. Repeat until all players in each team have participated.

Student Support Materials

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

Decoding/Encoding

Group Spell

Group the students into two groups. Identify one group as “consonants” and the other group as “vowels.” Say a sight word. Then, the students should spell the word — the students in the “consonant” group saying the consonants and the students in the “vowels” groups saying the vowels. The students should continue in this way until the sight word has been correctly spelled. Repeat with other sight words, switching the groups periodically during the activity.



Language and Skills Development

Find the Other Half

Group the students into two teams. Give the first player in each team a flashlight. Cut each of the sight words in half. Mix the word halves together and attach them to the chalkboard in a scattered form. Stand between the two teams with a flashlight. Shine the light of your flashlight on a word half. The first player in each team must turn on his/her flashlight and find the other half of the word for the word half your light is shining on. The first student to do this correctly wins the round. Repeat.

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

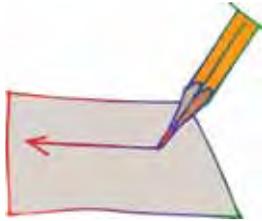
Reading Comprehension

Student Support Materials

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

Language and Skills Development

WRITING



Student Support Materials

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



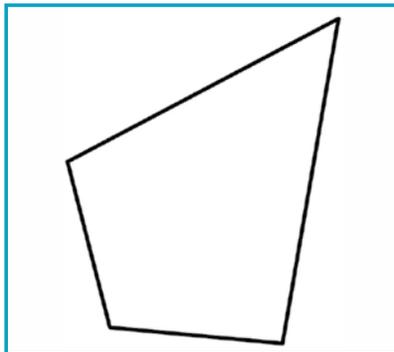
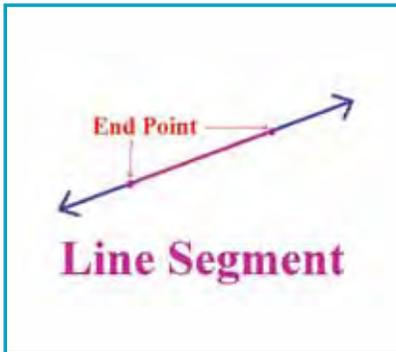
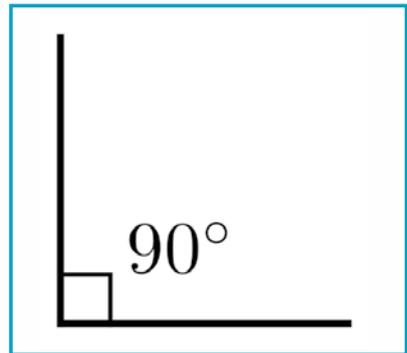
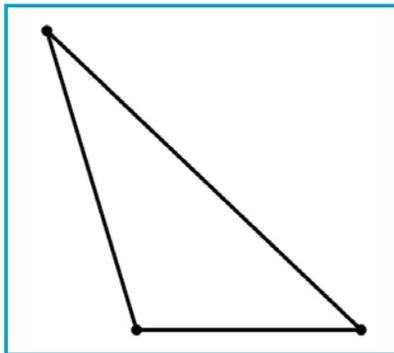
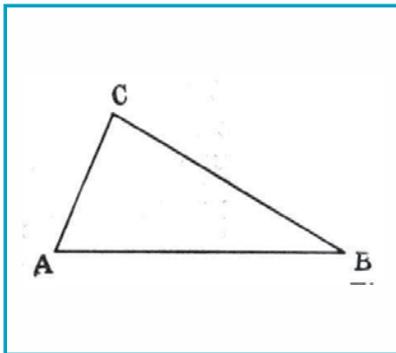
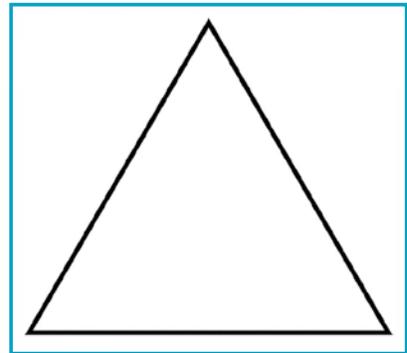
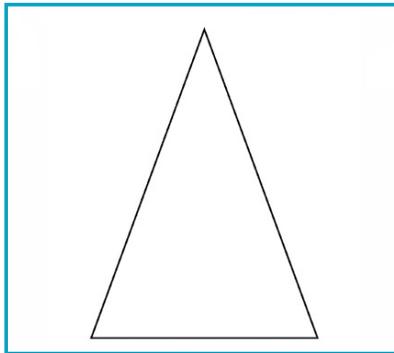
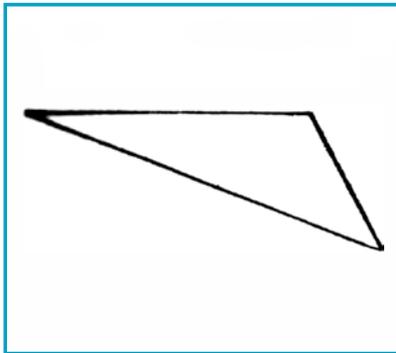
STUDENT SUPPORT MATERIALS

Listening • Mini Pictures

Listening: Mini Pictures



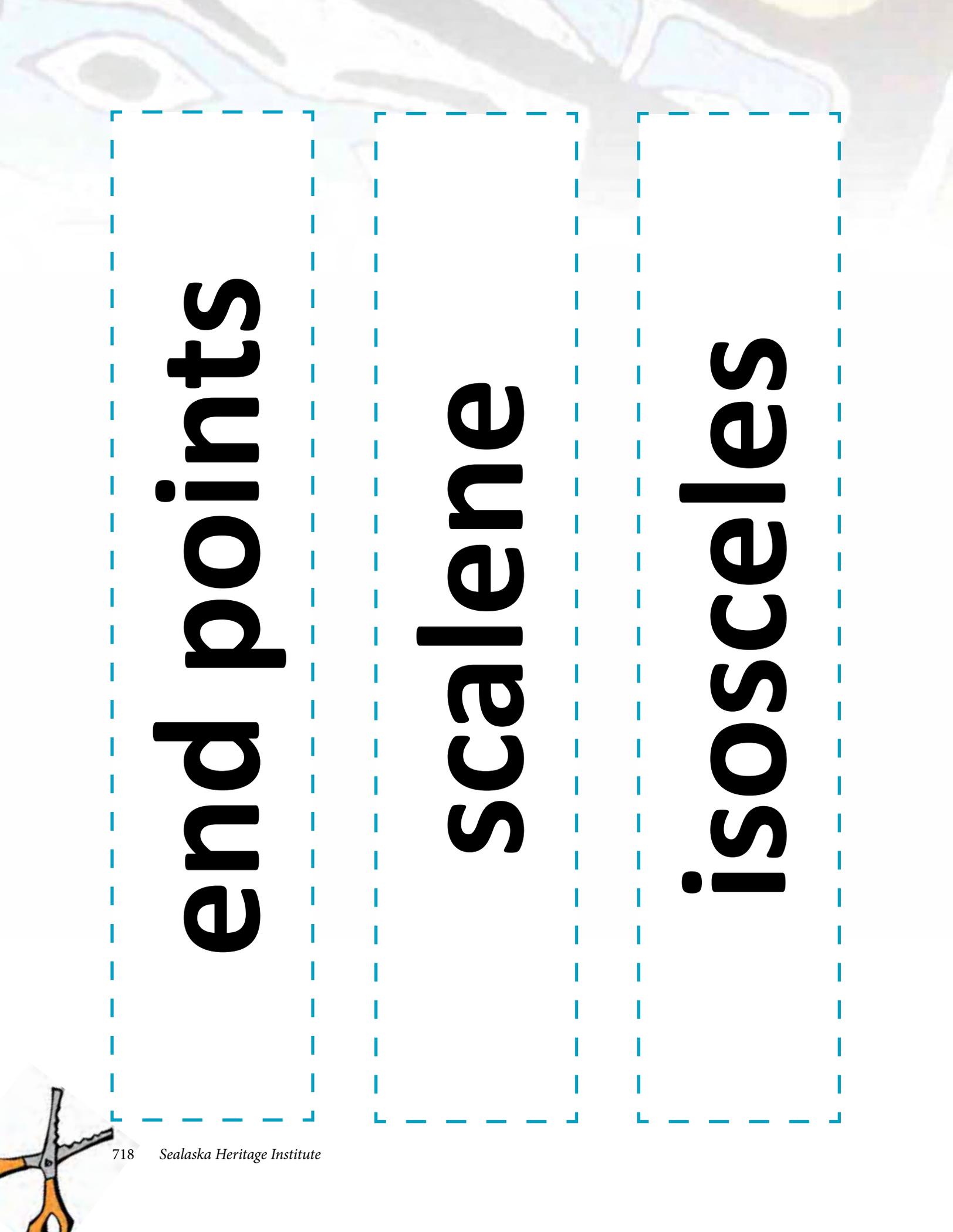
Have the students cut out the pictures. Say the key math words from this unit, and the students should hold up the pictures for them.





STUDENT SUPPORT MATERIALS

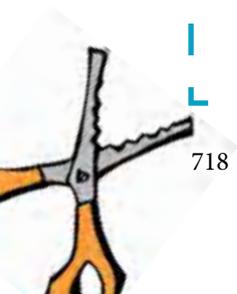
Sight Words

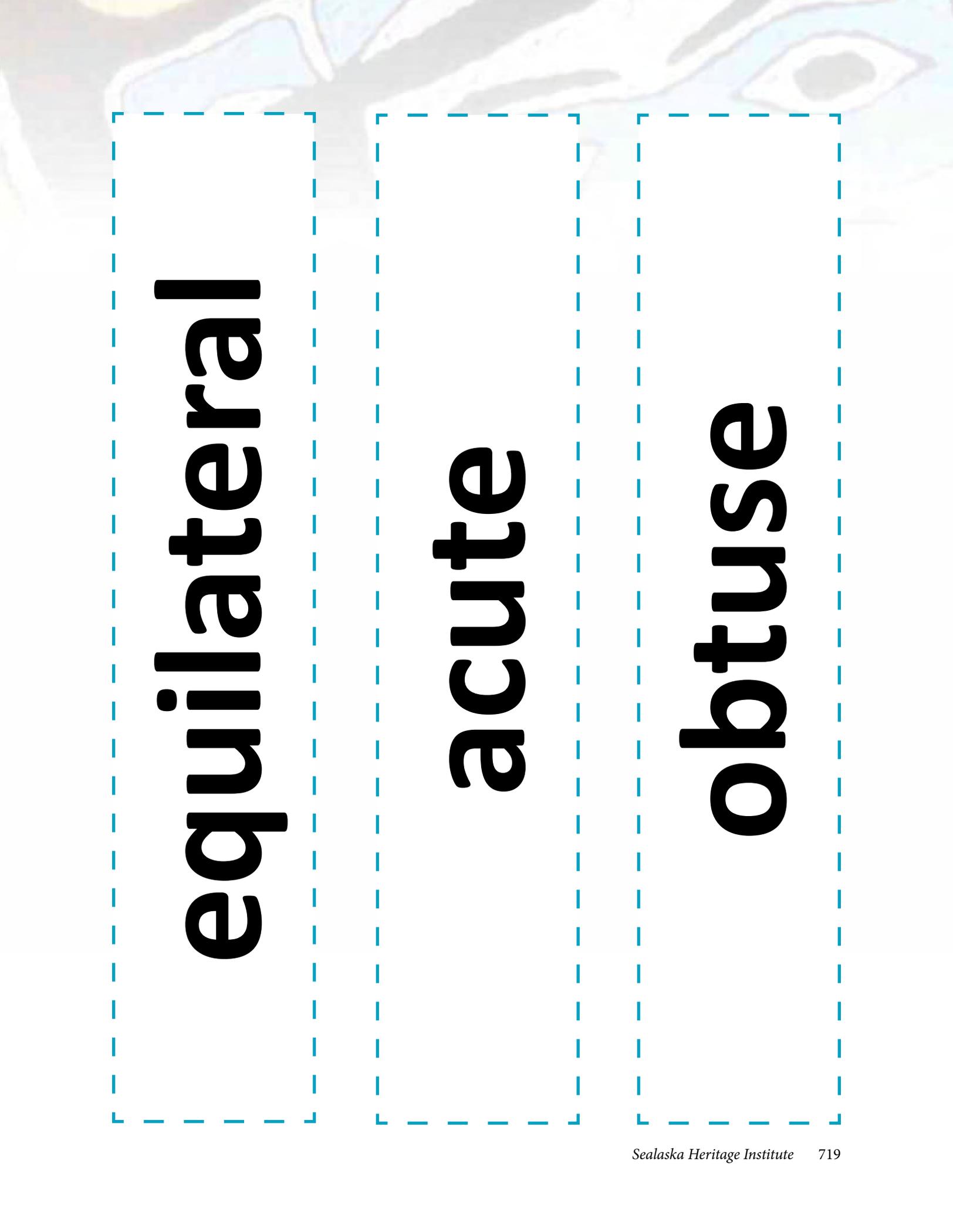


end points

scalene

isosceles





equilateral

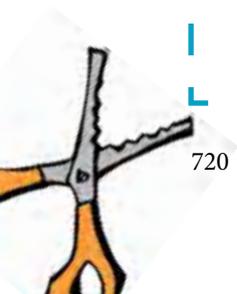
acute

obtuse

right angled

quadrilateral

pyramid





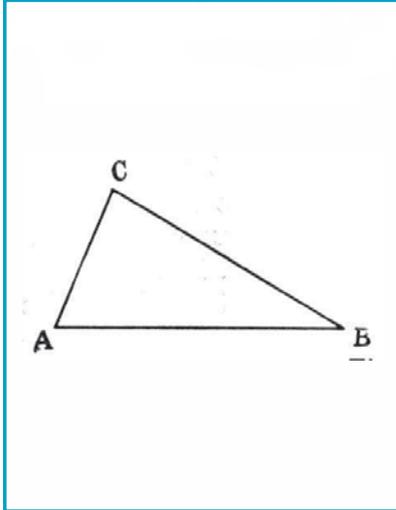
STUDENT SUPPORT MATERIALS

Reading • Sight Recognition

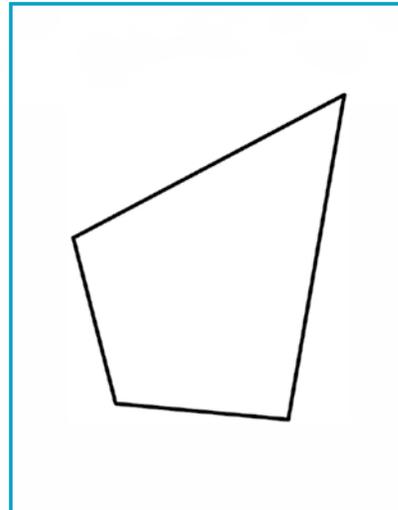
Sight Words Activity Page



Have the students circle the word for each picture.



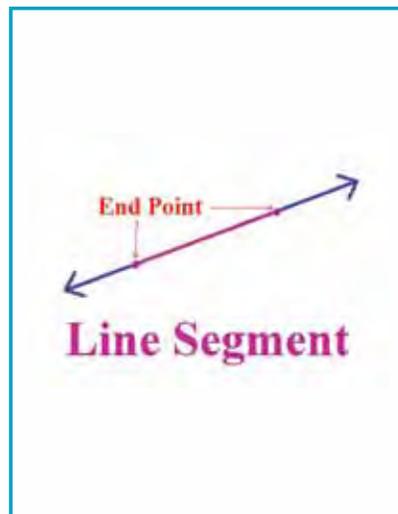
end points
scalene
isosceles
equilateral
acute
obtuse
right angled
quadrilateral
pyramid



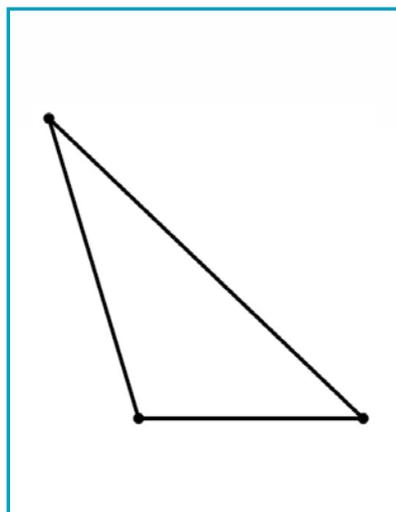
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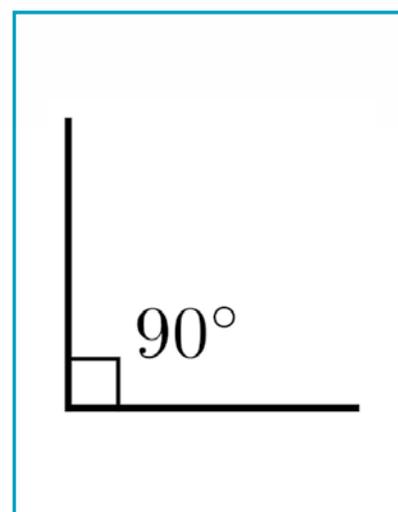
end points
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end points
scalene
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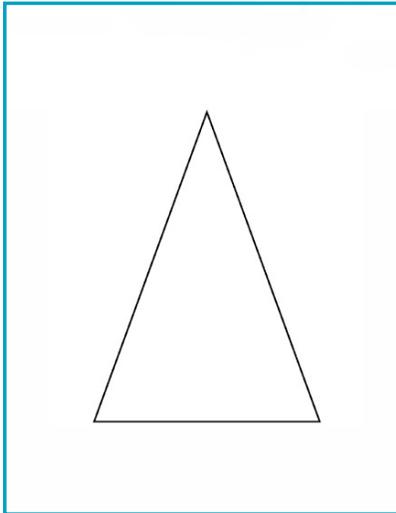


end points
scalene
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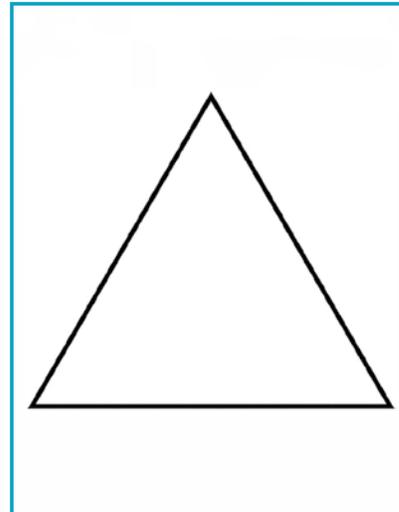


end points
scalene
isosceles
equilateral
acute
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quadrilateral
pyramid

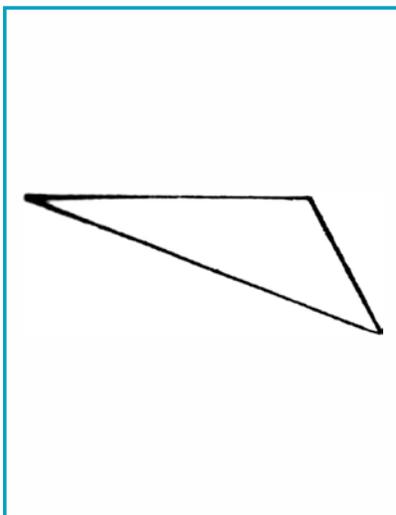
Sight Words Activity Page



end points
scalene
isosceles
equilateral
acute
obtuse
right angled
quadrilateral
pyramid



end points
scalene
isosceles
equilateral
acute
obtuse
right angled
quadrilateral
pyramid

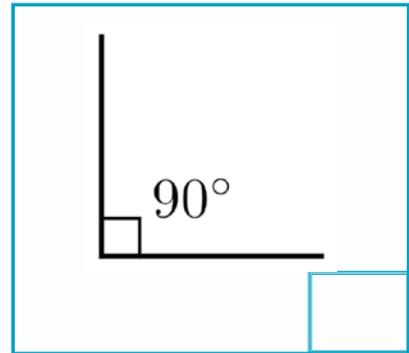
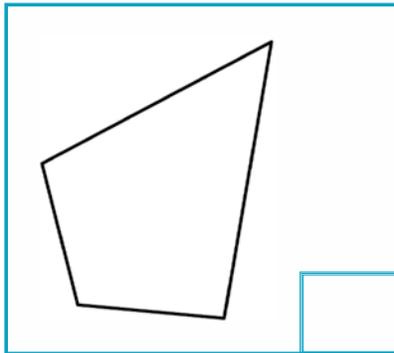
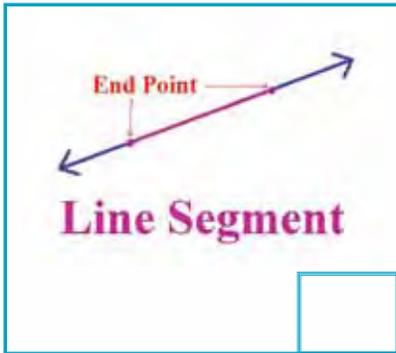
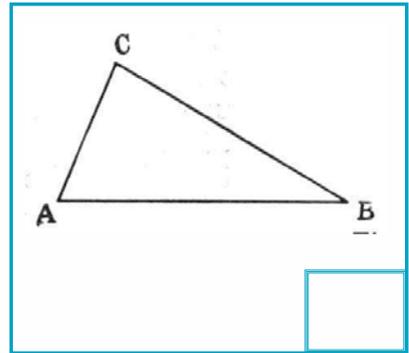
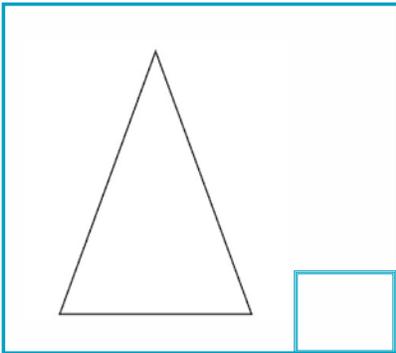
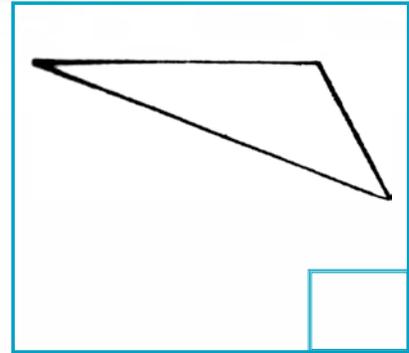
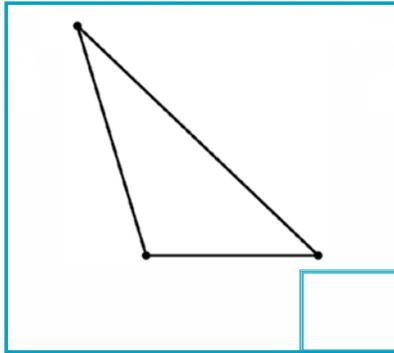
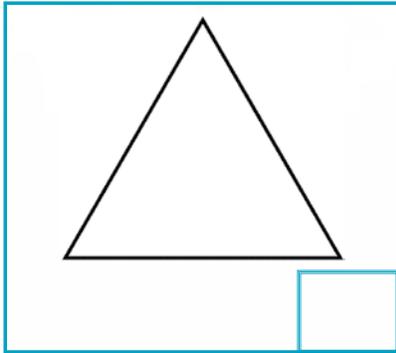


end points
scalene
isosceles
equilateral
acute
obtuse
right angled
quadrilateral
pyramid

Sight Words Activity Page



Write the numbers on their correct vocabulary graphics.



1. end points
2. scalene
3. isosceles
4. equilateral
5. acute
6. obtuse
7. right angled
8. quadrilateral
9. pyramid

Sight Words Activity Page



Highlight or circle the words in this word find.

equilateral
end points
pyramid

quadrilateral
isosceles
obtuse

right angled
acute
scalene

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

Sight Words Activity Page

ANSWER KEY



equilateral
end points
pyramid

quadrilateral
isosceles
obtuse

right angled
acute
scalene

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



STUDENT SUPPORT MATERIALS

Reading • Encoding

Encoding Activity Page

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



end p_____ts

_____alene

equilat_____al

_____cute

_____tuse

sc	a	oin
----	---	-----

er	dri
----	-----



Encoding Activity Page



right ang_____

qua_____lateral

_____ramid

is_____eles

ob	led
py	osc



Encoding Activity Page

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



end po

tuse

sca

les

isosce

led

equila

ints

a

teral



Encoding Activity Page



ob

teral

right ang

lene

quadri-la

mid

pyra

cute



Encoding Activity Page

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



sos || les || i || ce

la || e || ter || qui || al

dri || qua || al || la || ter



Encoding Activity Page



ra py mid





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 Endpoints mark...
- the vertices of quadrilaterals.
 - the edges of irregular polygons.
 - the end of line segments.
 - the exponents in whole numbers.
- ② In a scalene triangle...
- all sides and angles are the same.
 - all sides are the same but angles are different.
 - all angles are the same but sides are different.
 - all sides and angles are different.
- ③ In an isosceles triangle...
- two sides are the same length.
 - all sides and angles are different.
 - all sides are the same length.
 - no sides are the same length.
- ④ An equilateral triangle has...
- two congruent sides.
 - no congruent sides.
 - an irregular radius.
 - three congruent sides.
- ⑤ In an acute triangle, all angles are...
- more than 180° .
 - less than 90° .
 - more than 90° .
 - obtuse.
- ⑥ An obtuse triangle has...
- one angle that is more than 90° and less than 180° .
 - two angles are less than 180° but more than 90° .
 - all angles are less than 90° .
 - all angles are right angles.

What's the Answer?



- 7 A right angled triangle has...
- two obtuse angles.
 - three congruent vertices.
 - one 90° angle.
 - two angles that are more than 180° .
- 8 A quadrilateral is...
- a polyhedron with 4 faces.
 - a flat shape with four straight sides.
 - a four sided shape with no straight lines.
 - a polygon with equal vertices.
- 9 The base of a pyramid is a...
- polyhedron.
 - quadrilateral.
 - polygon.
 - vertex.

What's the Answer?

ANSWER KEY



- ① Endpoints mark...
- the vertices of quadrilaterals.
 - the edges of irregular polygons.
 - the end of line segments.
 - the exponents in whole numbers.
- ② In a scalene triangle...
- all sides and angles are the same.
 - all sides are the same but angles are different.
 - all angles are the same but sides are different.
 - all sides and angles are different.
- ③ In an isosceles triangle...
- two sides are the same length.
 - all sides and angles are different.
 - all sides are the same length.
 - no sides are the same length.
- ④ An equilateral triangle has...
- two congruent sides.
 - no congruent sides.
 - an irregular radius.
 - three congruent sides.
- ⑤ In an acute triangle, all angles are...
- more than 180° .
 - less than 90° .
 - more than 90° .
 - obtuse.
- ⑥ An obtuse triangle has...
- one angle that is more than 90° and less than 180° .
 - two angles are less than 180° but more than 90° .
 - all angles are less than 90° .
 - all angles are right angles.

What's the Answer?



- 7 A right angled triangle has...
- two obtuse angles.
 - three congruent vertices.
 - one 90° angle.
 - two angles that are more than 180° .
- 8 A quadrilateral is...
- a polyhedron with 4 faces.
 - a flat shape with four straight sides.
 - a four sided shape with no straight lines.
 - a polygon with equal vertices.
- 9 The base of a pyramid is a...
- polyhedron.
 - quadrilateral.
 - polygon.
 - vertex.

Reading Comprehension Activity Page

Write the numbers/letters for sentence halves that match.



- | | | | |
|------------------------------------|-----------------------------------|---|-------------------------------------|
| ① End points show | ⑨ A pyramid has | ① three congruent sides. | ⑩ angles are less than 90° . |
| ② In a scalene triangle, all | ⑧ A quadrilateral is a flat shape | ② an outside angle that is more than 90° . | ⑨ the ends of a line segment. |
| ③ In an isosceles triangle | ⑦ A right angled triangle has one | ③ a polygon as a base. | ⑧ with four flat sides. |
| ④ In an isosceles triangle | ⑥ An obtuse triangle has | ④ angles and sides are different in size. | ⑦ two sides are the same length. |
| ⑤ In an acute triangle, all inside | ⑤ A right angled triangle has one | ⑤ 90° angle. | ⑥ with four flat sides. |
| ⑥ An obtuse triangle has | ④ In an isosceles triangle | ⑥ two sides are the same length. | ⑤ the ends of a line segment. |
| ⑦ A right angled triangle has one | ③ In an isosceles triangle | ⑦ angles and sides are different in size. | ④ with four flat sides. |
| ⑧ A quadrilateral is a flat shape | ② In a scalene triangle, all | ⑧ angles and sides are different in size. | ③ two sides are the same length. |
| ⑨ A pyramid has | ① End points show | ⑨ angles and sides are different in size. | ② two sides are the same length. |

1 → _____ 2 → _____ 3 → _____ 4 → _____
5 → _____ 6 → _____ 7 → _____ 8 → _____
9 → _____

Reading Comprehension Activity Page

ANSWER KEY



- ① End points show
- ② In a scalene triangle, all
- ③ In an isosceles triangle
- ④ In an isosceles triangle
- ⑤ In an acute triangle, all inside
- ⑥ An obtuse triangle has
- ⑦ A right angled triangle has one
- ⑧ A quadrilateral is a flat shape
- ⑨ A pyramid has
- ① three congruent sides.
- ② an outside angle that is more than 90° .
- ③ a polygon as a base.
- ④ angles and sides are different in size.
- ⑤ 90° angle.
- ⑥ two sides are the same length.
- ⑦ with four flat sides.
- ⑧ the ends of a line segment.
- ⑨ angles are less than 90° .

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

Reading Comprehension Activity Page

Cut out the words and glue them under their definitions.



These mark the ends of a line segment.

In this triangle, all sides are different lengths and no sides or angles are equal.

In this triangle, two sides are the same length.

This triangle has three congruent sides.

In this triangle, all inside angles are less than 90° .

This triangle has an outside angle that is more than 180° .

This triangle has one 90° angle.

This is a flat shape with four straight sides.

This shape has a polygon as a base.

acute	right angled	end points	equilateral
obtuse	scalene	pyramid	
isosceles	quadrilateral		



Reading Comprehension Activity Page

ANSWER KEY



**These mark the ends
of a line segment.**

end points

**In this triangle, all
sides are different
lengths and no sides
or angles are equal.**

scalene

**In this triangle, two
sides are the same
length.**

isosceles

**This triangle has
three congruent
sides.**

equilateral

**In this triangle, all
inside angles are
less than 90° .**

acute

**This triangle has an
outside angle that is
more than 180° .**

obtuse

**This triangle has one
 90° angle.**

right angled

**This is a flat shape
with four straight
sides.**

quadrilateral

**This shape has a
polygon as a base.**

pyramid

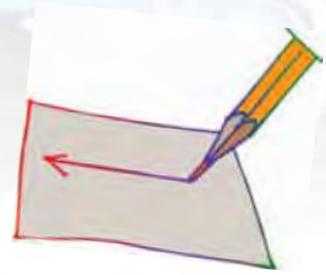


STUDENT SUPPORT MATERIALS

Writing

Writing Activity Page

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



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iso_____les

equi_____eral

ac_____

_____tuse

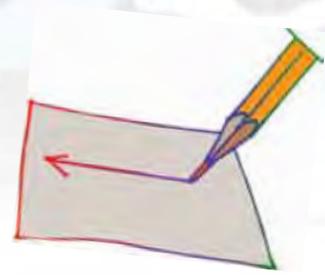
right _____led

quadr_____eral

_____amid

Writing Activity Page

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



e _____ ts

sc _____ e

is _____ s

eq _____ l

ac _____ e

ob _____ e

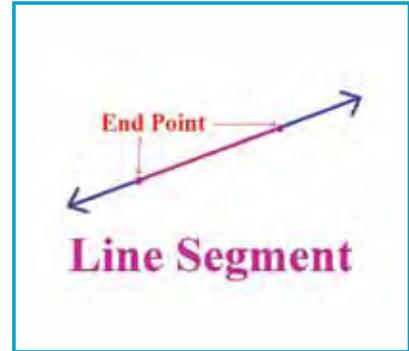
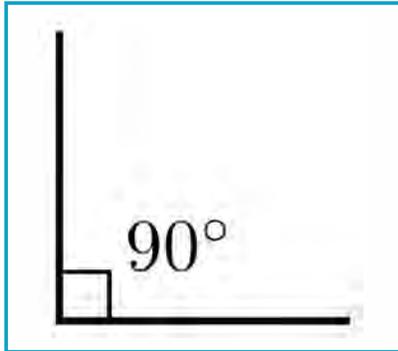
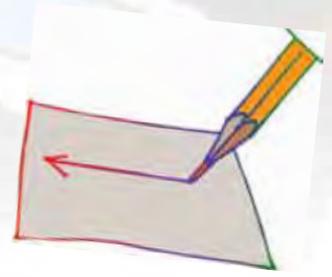
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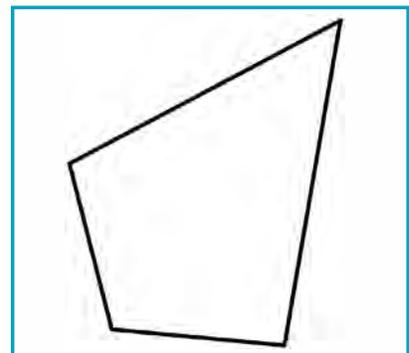
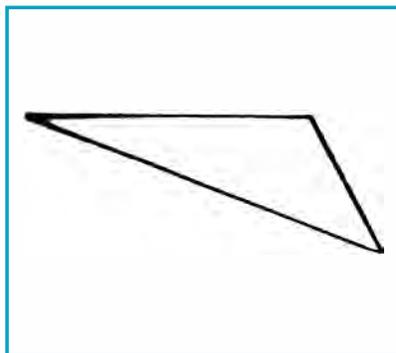
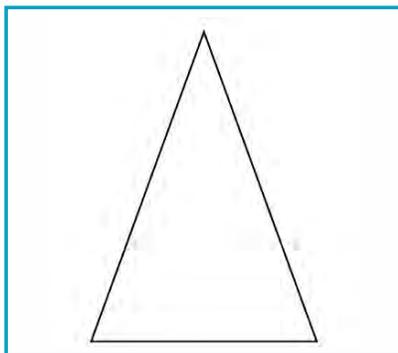
qu _____ l

py _____ d

Basic Writing Activity Page

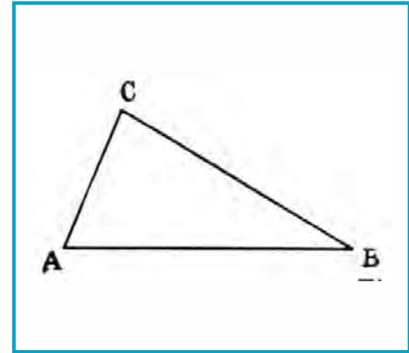
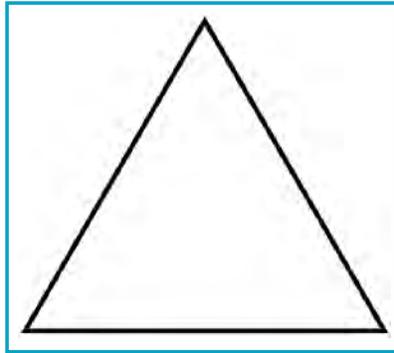
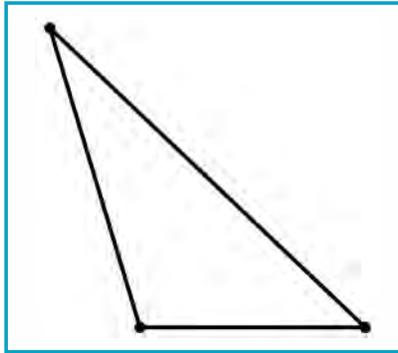
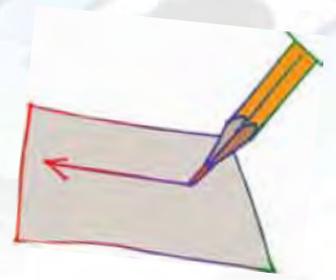
Have the students write the word for each picture.



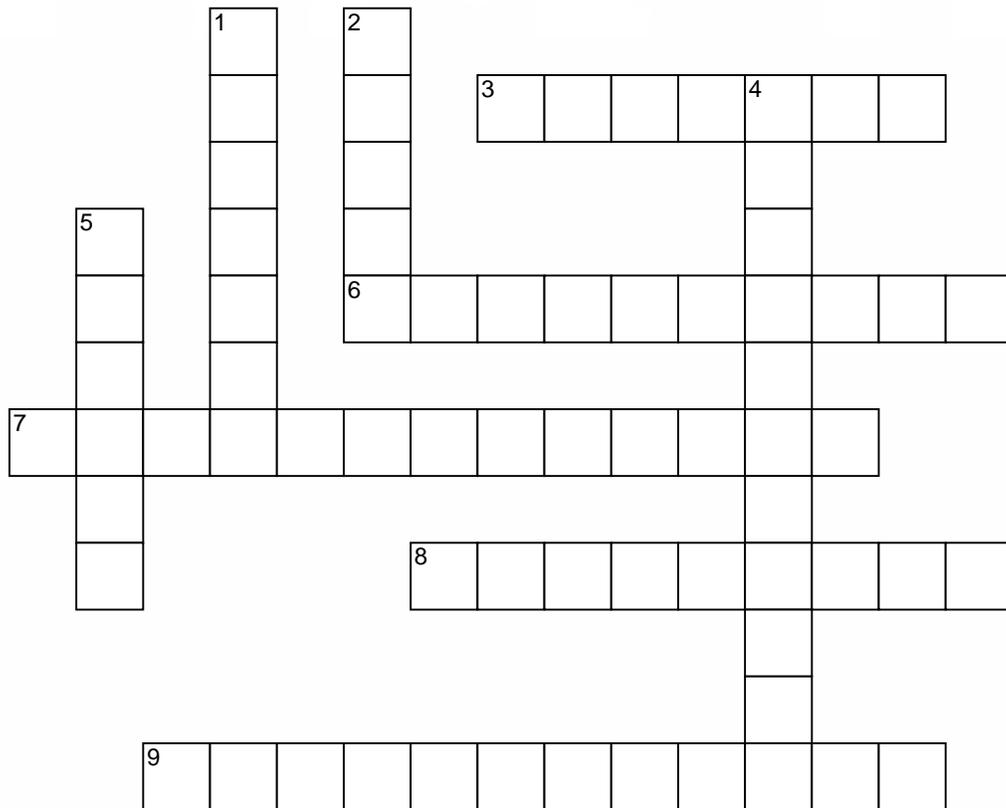
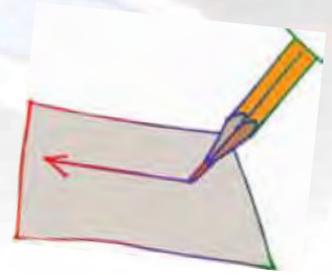


Basic Writing Activity Page

Have the students write the word for each picture.



Crossword Puzzle



www.CrosswordWeaver.com

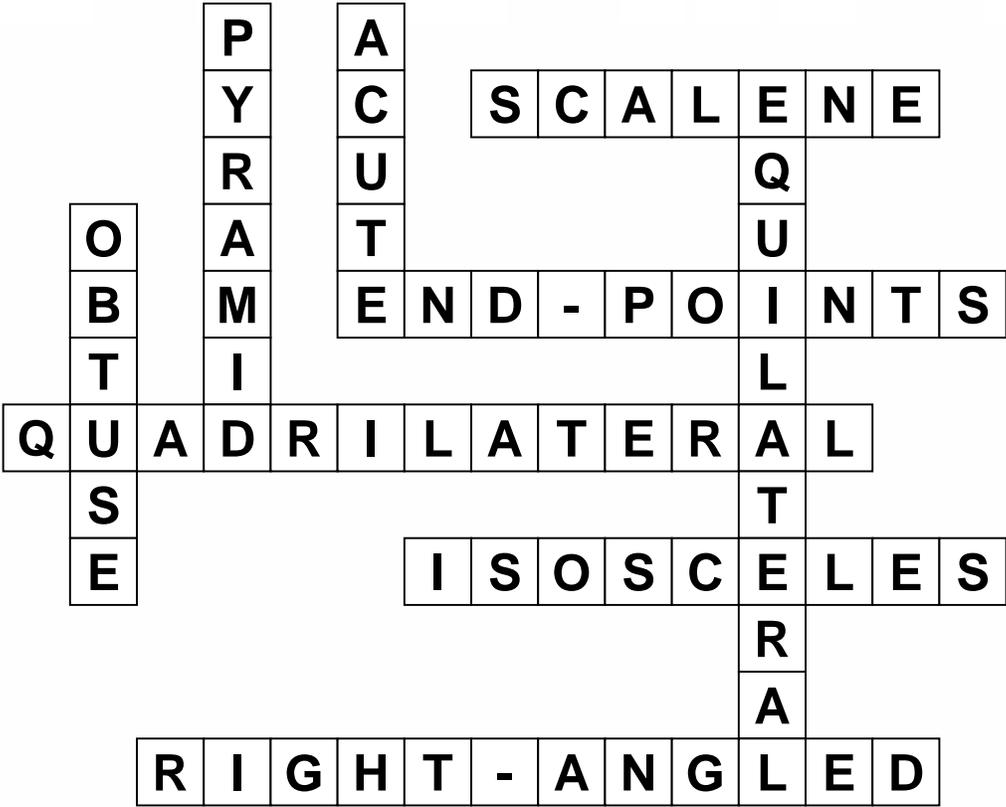
ACROSS

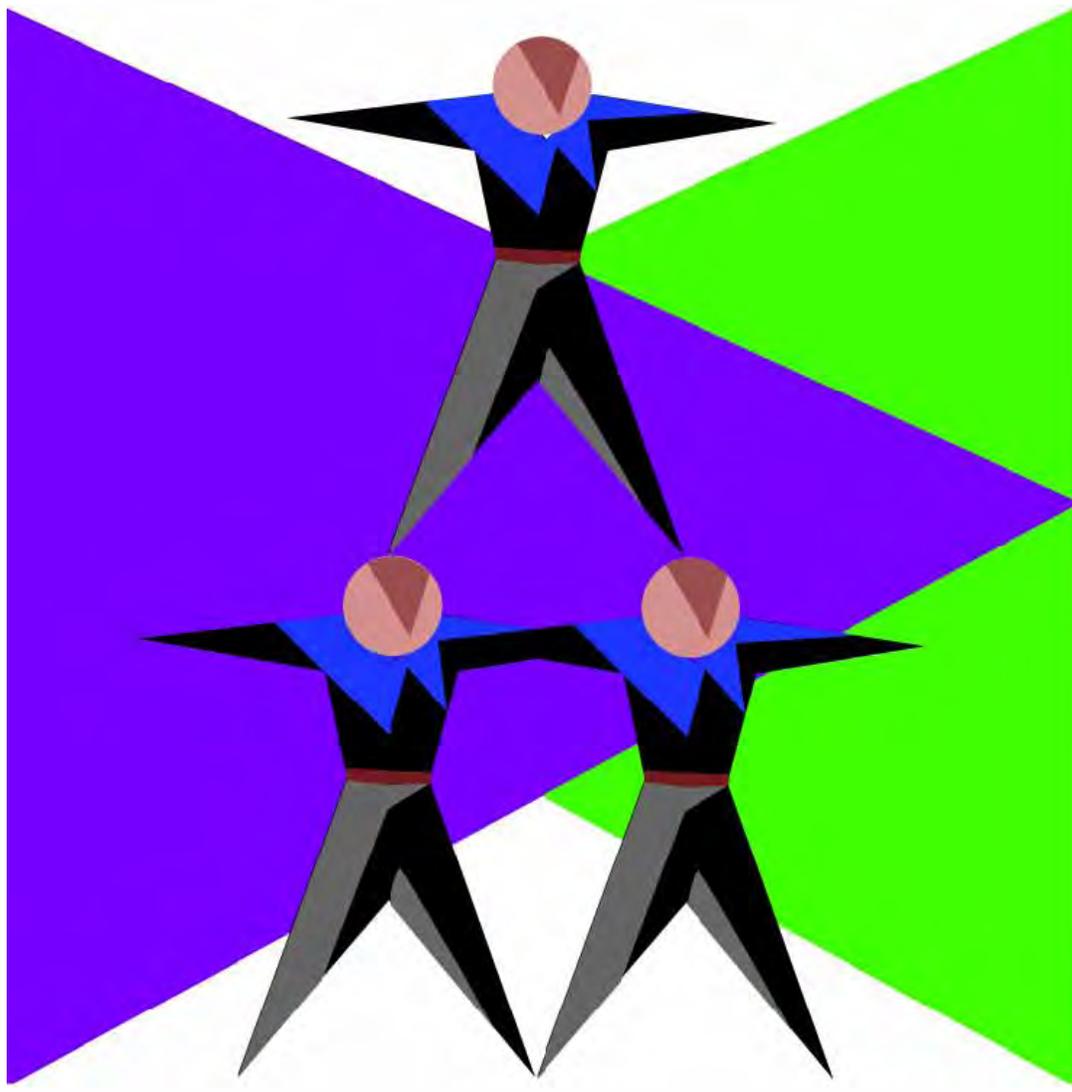
- 3 In this triangle, all sides are different lengths and no sides or angles are equal.
- 6 These mark the ends of a line segment.
- 7 This is a flat shape with four straight sides.
- 8 In this triangle, 2 sides are the same length.
- 9 This triangle has one 90 degree angle.

DOWN

- 1 This shape has a polygon as a base.
- 2 In this triangle, all inside angles are less than 90 degrees.
- 4 This triangle has three congruent sides.
- 5 This triangle has an outside angle that is more than 180 degrees.

Crossword Puzzle Answers









UNIT ASSESSMENT



GEOMETRY

Unit Assessment Teacher's Notes

Grade 7 • 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 **END POINTS**.
2. Write the number 2 by the picture for a **SCALENE TRIANGLE**.
3. Write the number 3 by the picture for an **ISOSCELES TRIANGLE**.
4. Write the number 4 by the picture for an **EQUILATERAL TRIANGLE**.
5. Write the number 5 by the picture for an **ACUTE ANGLE**.
6. Write the number 6 by the picture for an **OBTUSE ANGLE**.
7. Write the number 7 by the picture for a **RIGHT ANGLED TRIANGLE**.
8. Write the number 8 by the picture for a **QUADRILATERAL**.
9. Write the number 9 by the picture for a **PYRAMID**.

SIGHT RECOGNITION

Turn to page 2 and 3 in your test. Look at the pictures in the boxes. Circle the word for each picture.

DECODING/ENCODING

Turn to page 4 and 5 in your test. Look at the word parts in the boxes. Circle the other half or part of each word.



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.

READING COMPREHENSION

Turn to page 6 in your test. Write each word under its definition.
Refer to Student Support Materials for answer key.

BASIC WRITING

Turn to page 7 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.



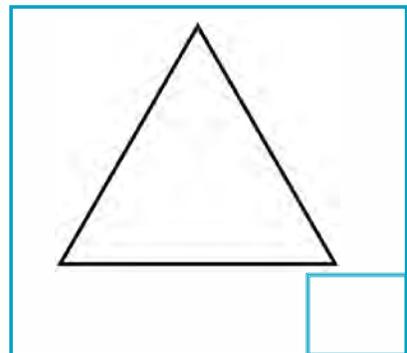
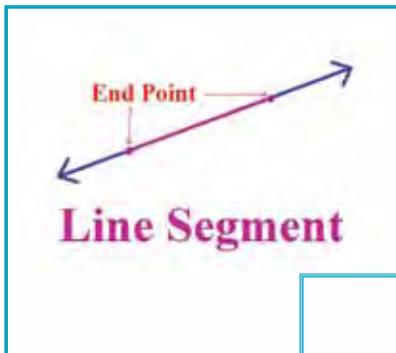
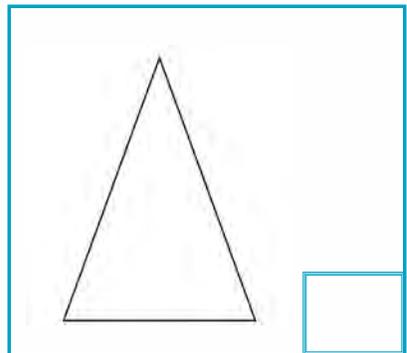
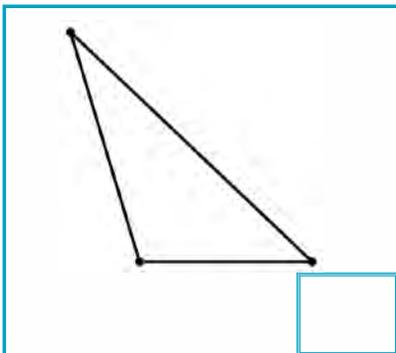
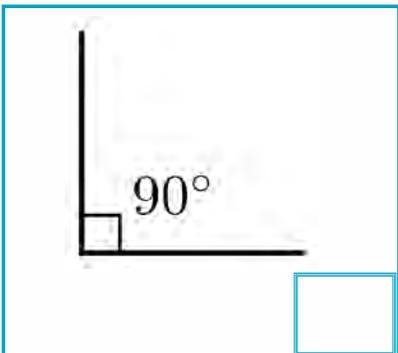
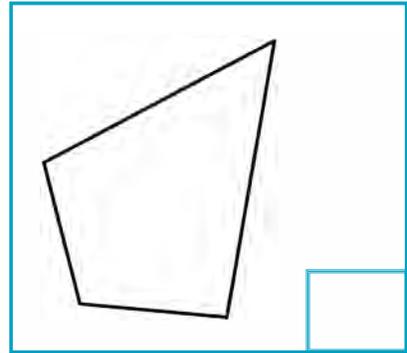
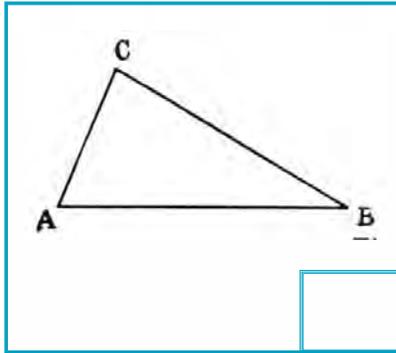
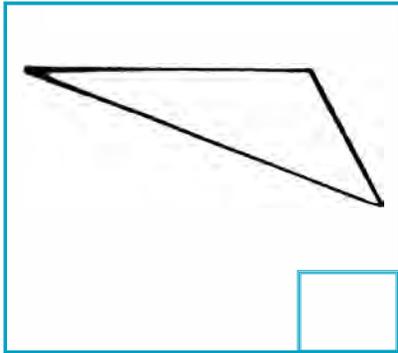


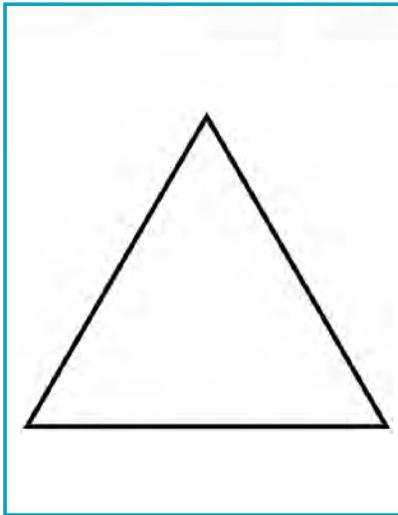
MATH PROGRAM

Unit Assessment Student Pages
Grade 7 • Unit 8

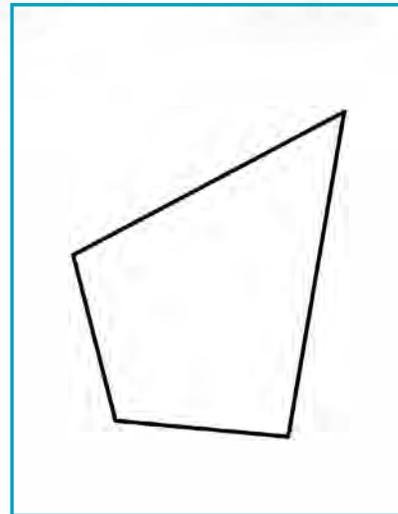
Date: _____ Student's Name: _____

Number Correct: _____ Percent Correct: _____

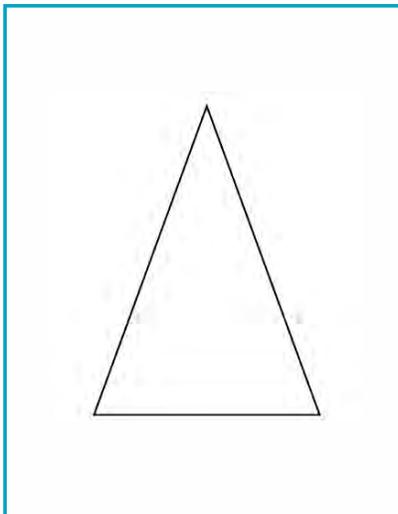




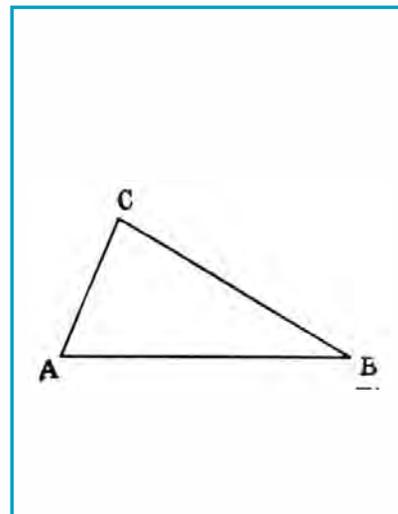
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 isosceles
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 right angled
 quadrilateral
 pyramid



end points
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 right angled
 quadrilateral
 pyramid



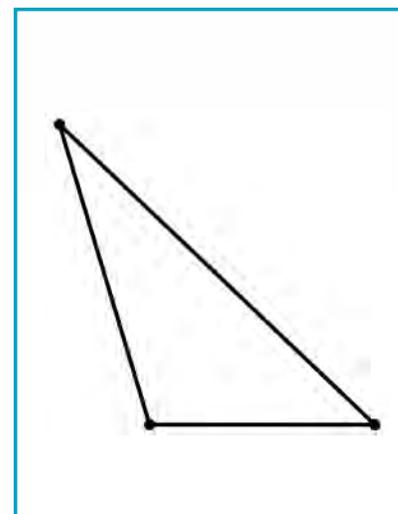
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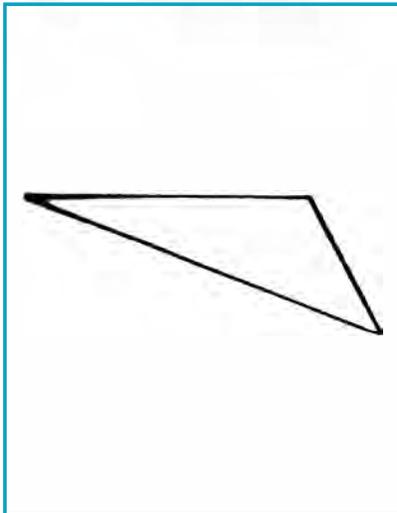
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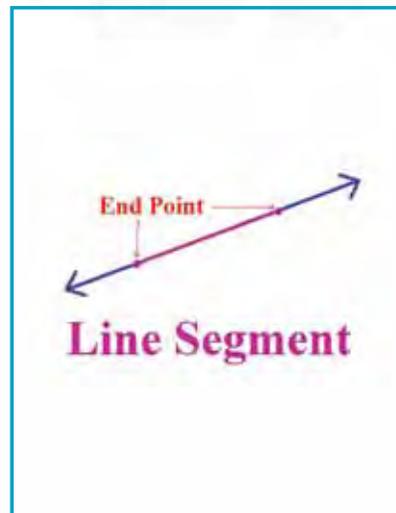
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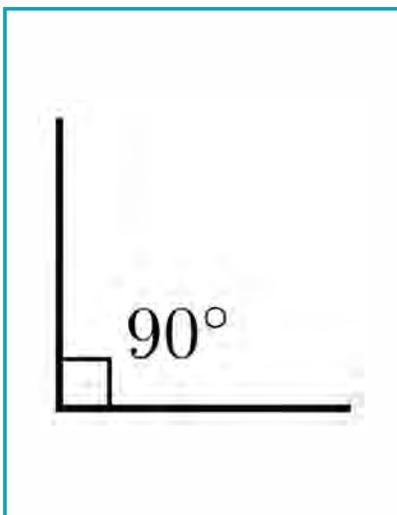
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**These mark the ends
of a line segment.**

**In this triangle, all
sides are different
lengths and no sides
or angles are equal.**

**In this triangle, two
sides are the same
length.**

**This triangle has
three congruent
sides.**

**In this triangle, all
inside angles are
less than 90° .**

**This triangle has an
outside angle that is
more than 180° .**

**This triangle has one
 90° angle.**

**This is a flat shape
with four straight
sides.**

**This shape has a
polygon as a base.**

equilateral

acute

end points

obtuse

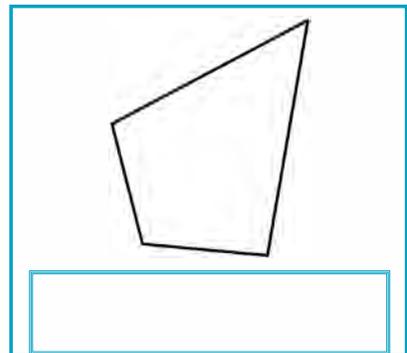
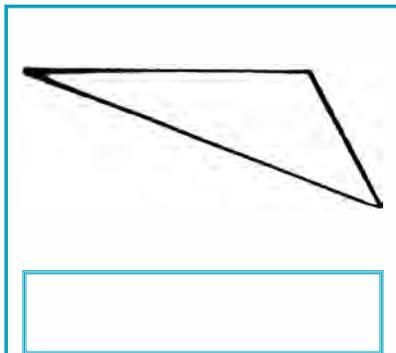
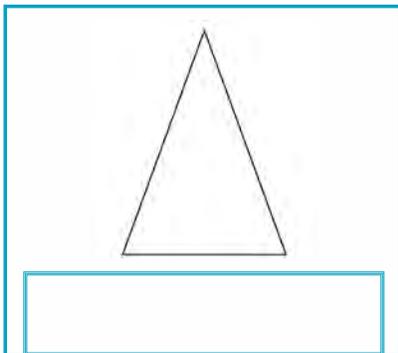
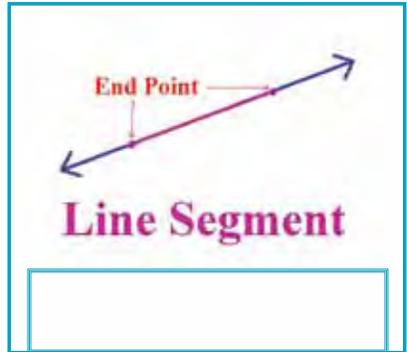
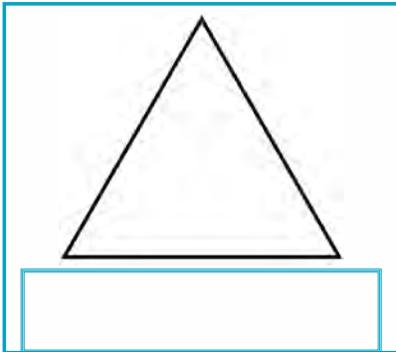
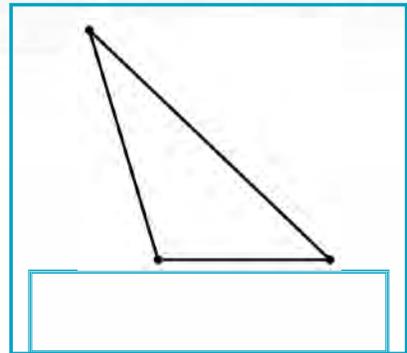
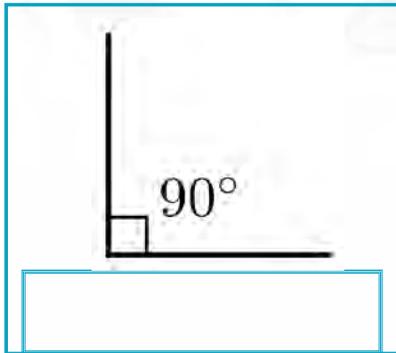
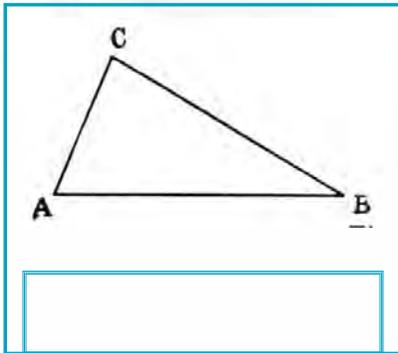
right angled

pyramid

quadrilateral

isosceles

scalene





UNIT 9

Measurement

Alaskan Math Standards (GLE's) for This Unit

These Alaskan math standards underly the language development of the unit. Many of these standards are addressed during the regular math program and in the concrete introduction of the key vocabulary words for the unit.

The student demonstrates understanding of measurement techniques by

[7] MEA-3 applying a given scale factor to find missing dimensions of similar figures (M2.3.4)

[7] MEA-4 measuring various dimensions to one-sixteenth of an inch or millimeter (M2.3.1)

[7] MEA-5 accurately measuring a given angles using a protractor to the nearest plus or minus 2 degrees (M2.3.1)

[7] MEA-6 solving real-world problems involving elapsed time between world time zones (M2.3.5)

Alaskan Language Standards (GLE's) for This Unit

AK.R.3.1. Reading: The student uses strategies to decode or comprehend the meaning of words in texts. (E.B.1)

[7] 3.2.2. Reading aloud short factual information (e.g., reports, articles) (L)

AK.R.3.3. Reading: The student restates/summarizes and connects information. (E.B.3)

AK.R.3.5. Reading: The student follows written directions. (E.C.2)

[7] 3.5.1. Completing a task by following written, multi-step directions (e.g., answer a multi-faceted text question) (L)

[7] 3.5.2. Identifying the sequence of steps in a list of directions (e.g., what is the first step, what is the second step)

[7] 3.3.4. Applying rules of capitalization (e.g., titles and proper nouns)

AK.W.3.4. Writing: The student revises writing. (E.A.5, E.A.8)

AK.E.A. A student should be able to speak and write well for a variety of purposes and audiences. A student who meets the content standard should:

E.A.1. Apply elements of effective writing and speaking. These elements include ideas, organization, vocabulary, sentence structure, and personal style.

E.A.2. In writing, demonstrate skills in sentence and paragraph structure, including grammar, spelling, capitalization, and punctuation.

E.A.3. In speaking, demonstrate skills in volume, intonation, and clarity.



INTRODUCTION OF MATH VOCABULARY

Measurement

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.

SCALE

Show the students a toy car (or other toy model). Relate it to the actual item. If possible, tell the students the ratio of the model to the real thing. For example, (1:10) for 1 inch to 10 inches. Show the students a map; use it to reinforce the concept of scale.

DATA

Place a number of canned green beans in a bowl. Have each student select one bean; the students should open their beans and count the number of seeds inside. Record the data on the chalkboard, indicating the total number of seeds found. Have the students determine the average number of seeds found (review from unit 4).

WHOLE NUMBER

Lay a number of whole and partial cookies in front of the students. Have them locate the whole cookies. Use this to introduce whole numbers. The students should understand that those cookies that are not whole are fractions of the whole.

Measurement

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.

DEGREE

Show the students a wall clock that has moveable hands. As they watch, rotate the hour hand from 12 completely around to 12 again. Use this to introduce degrees to the students. They should understand that there are 360° in a circle. As the students watch, open a book to 180° (half open). Use the book to demonstrate 90° .

SIMILAR

Collect small and large cans of food. The cans should all be the same shape. Use the cans to lead the students to the concept of similar as it relates to shapes. Identify other similar items in the classroom (i.e. books, glasses, etc.).

TIME ZONE

Have a student hold a basketball in front of the class. Use a flashlight to represent the sun, shining on the earth (the ball). Have the student rotate the ball to represent the parts of the earth that have daylight and those that have night. Mount a map of the world on the board. Outline the 24 time zones on the map, noting the Alaska time zone in particular.

Measurement

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.

PARENTHESES

Introduce a few food containers to the students (i.e. a bag, box, and can). Lead the students to understand that all of the containers contain the foods within them. Lead this to the math container — parentheses. Demonstrate the use of parentheses as containers that hold or group things together (i.e. $(4,5)$, $4x(5+2)$, etc.).

DIMENSIONS

Obtain two chocolate bars of the same make but different sizes (i.e. a regular bar and a mini bar of the same chocolate). Use this to draw the students' attention to the dimensions of the chocolate bars. Show samples of other dimensions that reflect width, depth, and height.

PROTRACTOR

Show a number of common items used to measure different things (i.e. a meat thermometer, a ruler, a measuring tape, etc.). Have the students suggest what is the same about all of the items. Lead them to suggest that they all measure something. Introduce the protractor as an instrument for measuring degrees. Show the students how to use the protractor.



VOCABULARY PICTURES





SCALE





DATA





WHOLE NUMBER



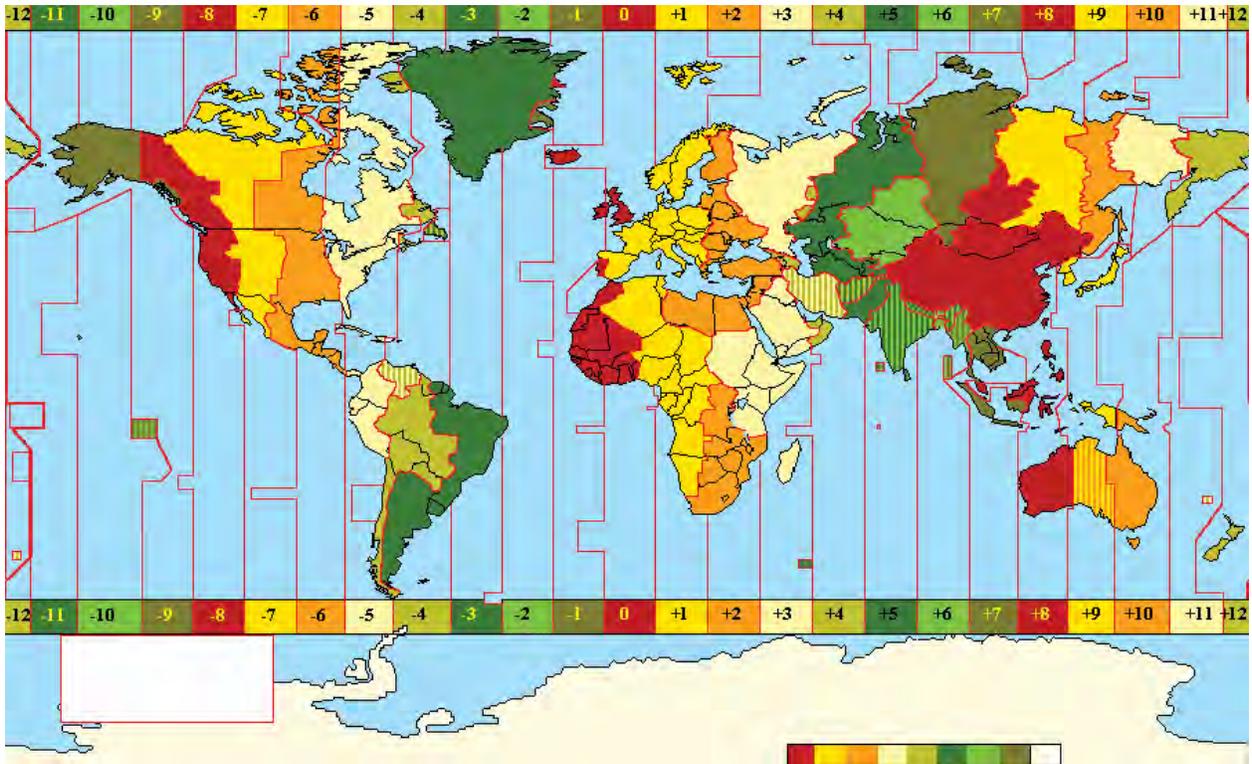


DEGREE





SIMILAR



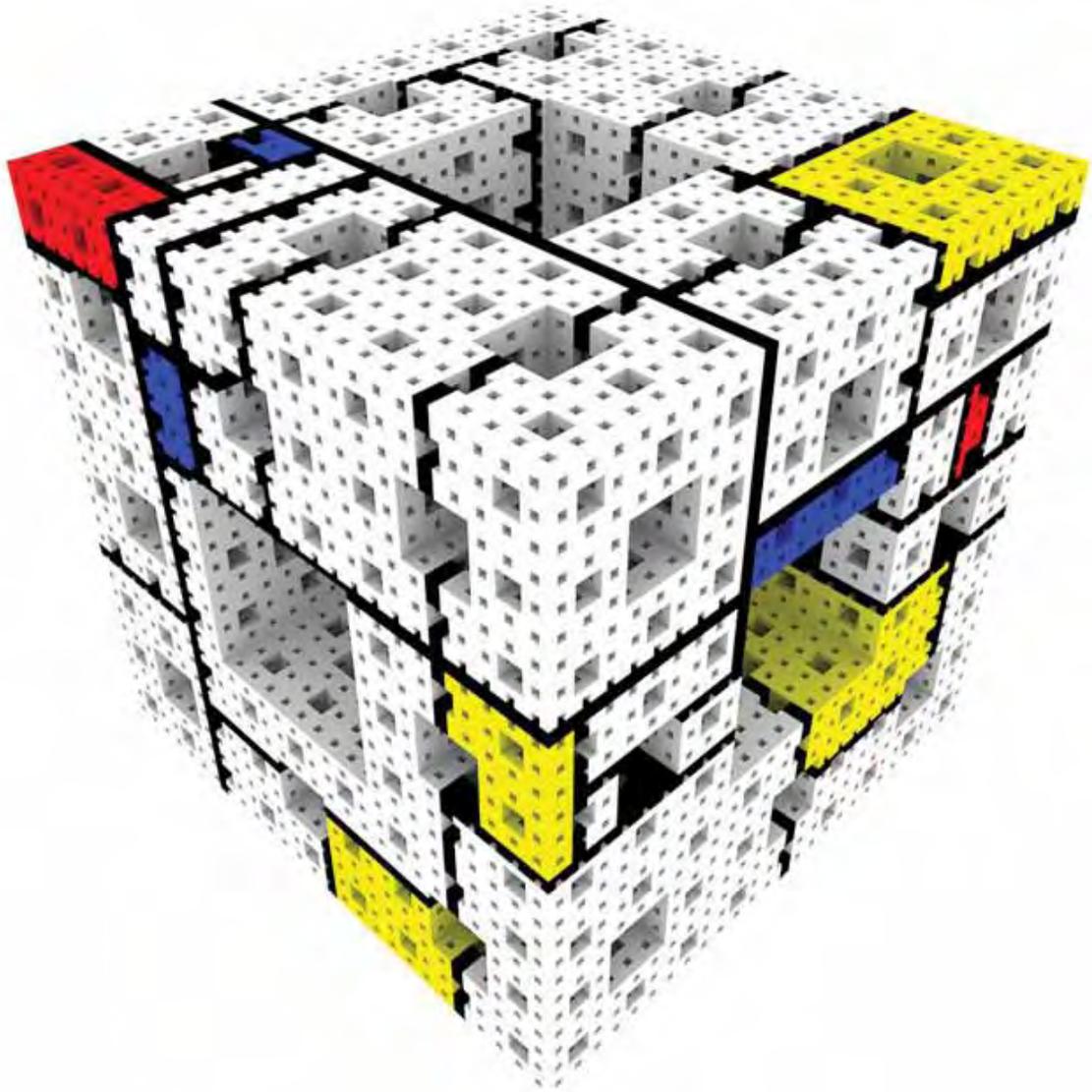


TIME ZONE



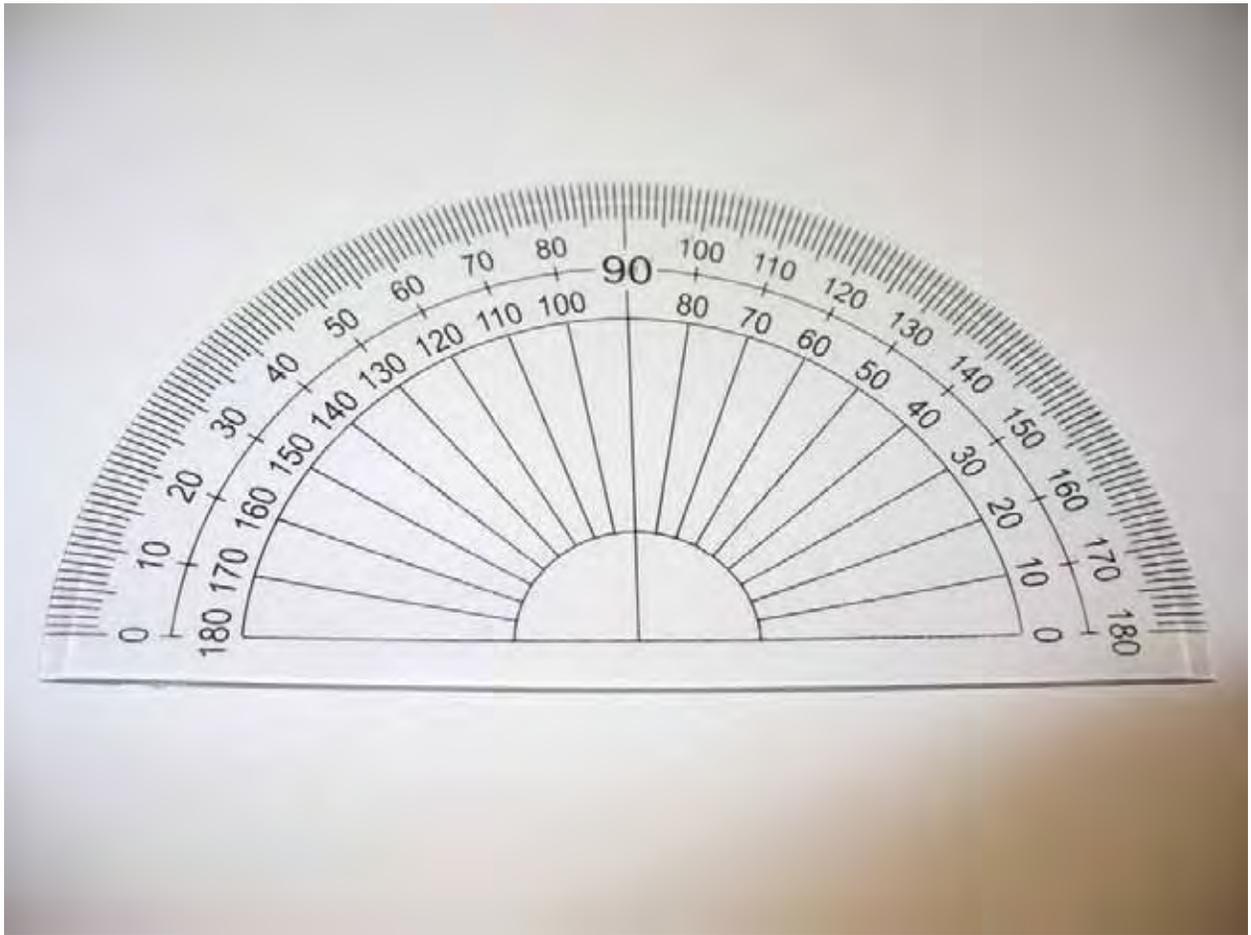


PARANTHESES





DIMENSIONS





PROTRACTOR



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.



Mini Pictures

Provide each student with a copy of the mini-pictures page from the Student Support Materials. When you say the key words, the students must find the pictures for them. Then, have the students cut out the pictures. Say the keywords and the students should hold up the pictures for them.

Airplane Land

Scatter the vocabulary pictures on the floor. Have the students sit in a large circle around the pictures. Prepare two paper airplanes. Give the airplanes to two students. Say one of the vocabulary words. The students should toss their airplanes, attempting to land them on the picture for the vocabulary word you said. Repeat until all students have participated.

Stare

Group the students into two teams. Tape the vocabulary graphics to a sheet. Have two students hold the sheet vertically so that the players in each team can see the graphics. Have the first player from each team stand behind the sheet. Give these two players flashlights. Say a vocabulary word. When you say "Go," the two players must shine the lights of their flashlights through the sheet. The players should move the lights around on the surface of the sheet. When a player's light is behind the graphic for the vocabulary word you said, the players in his/her team should clap. The player who first reaches the vocabulary graphic in this way wins the round. Repeat until all players in each team (and the two players holding the sheet) have had an opportunity to participate.

Knock Knees

Mount the vocabulary pictures on the board. Group the students into two teams. Give a small, hard ball to the first player in each team. The first player in each team must place the ball between his/her knees. Say a vocabulary word. When you say "Go," the two players must then walk to the pictures without losing the balls. The first player to reach the vocabulary pictures and identify the picture for the word you said wins the round. If a player loses his/her ball, he/she must return to his/her team and begin again. Repeat until all players have played.

Language and Skills Development

Join Those Halves

Make an extra set of vocabulary pictures. Cut each of the vocabulary illustrations in half. Spread the illustration halves on the floor in a scattered form. Group the students into two teams. Give the first two players in each team a long length of string or yarn. Say a vocabulary word. When you say “Go,” the first two players in each team must rush to the illustration halves. The object of the activity is for the players to use the string/yarn to join together the two halves which make up the illustration for the word you said. The first pair of players to do this successfully wins the round. Repeat until all players have participated.

Over and Under

Group the students into two teams. Mount the vocabulary pictures on the board. Give the first player in each team a ball. When you say, “Go,” the first player in each team must pass the ball to the next player, over his/her head. The next player must then pass the ball to the third player, between his/her legs. The players should continue with this over/under sequence until the last player in a team receives the ball. When the last player receives the ball, he/she must rush to the board and identify a picture for a vocabulary word that you say. The first player to do this successfully wins the round. Repeat until all players in each team have had a chance to respond in this way.

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.

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.

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.”

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.

Language and Skills Development

Slip String

Mount the vocabulary pictures on the board. Join all of the students together with a long length of string. Before tying the ends of the string together, insert a roll of tape over one end of the string (a large washer can also be used). Then, tie the ends of the string together. Face away from the students. The students should then pass the roll of tape as quickly as possible along the string. When you clap your hands, the student who is holding the roll of tape, must identify (orally) a vocabulary picture you point to. For added motivation, you may wish to place more than one roll of tape (or washer) on the line of string. Repeat until many students have responded.

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.

Colander

Before the activity begins, obtain a sheet of construction paper equal in size to the size of your vocabulary pictures. Use a single hole punch to punch holes in the sheet. Place the sheet over one of the vocabulary pictures. Hold the sheet and vocabulary picture up so that the students can see them. The students should attempt to identify the vocabulary picture from the parts they can see through the holes in the construction paper. The first student to do this correctly wins the round. This activity may also be done in team form. In this case, the first player to correctly identify the vocabulary picture wins the round.

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.



Sight Recognition

Balloon Burst

Before the activity begins, write sight words on small strips of paper. Roll each strip of paper and insert it into a balloon. Inflate each balloon and tie its end. Group the students into two teams. Have the teams sit on the floor in two lines, facing one another, with legs outstretched. The members of each team should sit as close together as possible. Place one of the balloons between the feet of the first player in each team. When you say “Go,” the players in each team must pass the balloon to the person next to them, using only their feet. When the last player receives the balloon, he/she must remove it from between his/her feet and then sit on it to burst it. When the balloon has popped, the student must retrieve the sight word strip and read it to the other students. The first team to complete this sequence correctly wins the round. Repeat until all or many of the students have responded.

Face

Mount the sight words around the classroom on the walls, board, and windows. Group the students into two teams. Give the first player in each team a flashlight. Darken the classroom, if possible. Say one of the sight words. When you say “Go,” the students should turn their flashlights on and attempt to locate the sight word you said. The first player to do this correctly wins the round. Repeat until all players in each team have participated.

Student Support Materials

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

Decoding/Encoding

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.

Language and Skills Development

Whispered Syllables

Group the students into two teams. Mount the sight word cards on the chalkboard. Whisper a syllable from one of the sight words to the first player in each team. When you say “Go,” the first player in each team must whisper the same syllable to the next player in the team. The players should continue to whisper the syllable in this way until the last player in the team hears it. When the last player hears the syllable, he/she must rush to the chalkboard and point to a sight word that contains that syllable. Repeat this process until all players have had an opportunity to identify a sight word in this way.

Fancy Foot

Cut each of the sight words into its individual letters/syllables. Mix all of the letters/syllables together. Have the students stand side by side, in a straight line (depending upon the number of students in your class, you may wish to select a group of students for this activity). Tape a cut out letter/syllable to one of each student’s feet so that he/she can read it. When each student has a letter/syllable taped to one of his/her feet in this way, say a sight word. The students who have the letters/syllables on their feet for the sight word you said, should then encode the sight word by placing their feet side by side so that the sight word is correctly spelled. Repeat this process until all of the sight words have been encoded correctly.

Student Support Materials

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

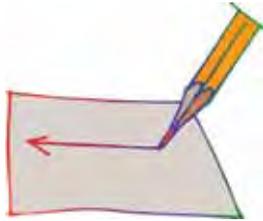
Reading Comprehension

Student Support Materials

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

Language and Skills Development

WRITING



Student Support Materials

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

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.

What's Your Letter?

Provide each student with writing paper and a pen. Say a sight word. Each student should then write ONE letter from that word (any letter) on their paper. Review the students' responses to determine if all letters from the sight word were used. If all letters from the sight word were not used, ask the students to identify the letters that are "missing." Repeat with other sight words.

Dash

Group the students into two teams. Make two sets of dashes on the board — each set should be the same and should represent the number of letters in a sight word. When you say "Go," the first player in each team must rush to his/her set of dashes on the board. Each player must then write a sight word that fits the number of dashes. Accept any sight word that fits the dashes. The first player to do this correctly wins the round. Repeat with other sets of dashes until all students have had an opportunity to participate.

Mysterious Writing

Provide each student with writing paper and a pen. Stand in front of the students with a pad of paper and a pencil. Hold the pencil in such a way that the students can see the top of it but not the point. Write one of the sight words. The students should watch the top of the pencil carefully while you write the word. Each student should guess what word you wrote, and write it on his/her own paper. Repeat this process with other sight words and review the students' responses.



Language and Skills Development

Meshy Words

Write a “meshword” on the chalkboard. To create a meshword, combine two word halves from different words. For example, for “scale” and “data” you might write “scada.” Provide each student with writing paper and a pen. The students should look at the meshword written on the chalkboard and attempt to identify the original words from which the halves were chosen. Each student should then write those two sight words on his/her sheet of paper. Repeat this process with other meshwords. This activity may be conducted in team form by writing a meshword on the chalkboard and having players from different teams attempt to identify the original words.

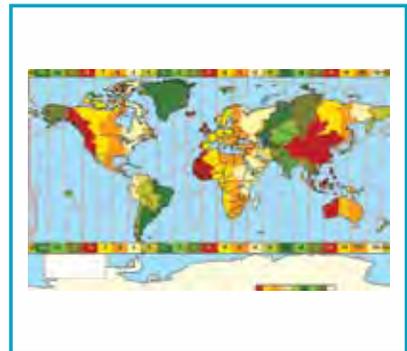
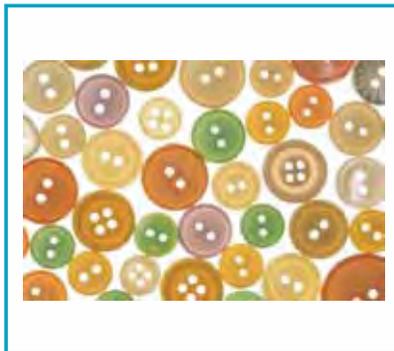
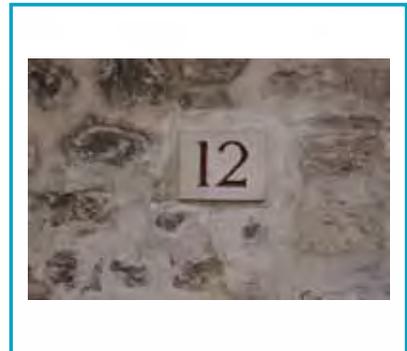


STUDENT SUPPORT MATERIALS

Listening • Mini Pictures

Listening: Mini Pictures

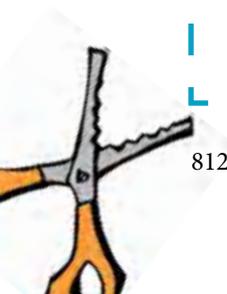
Have the students cut out the pictures. Say the key math words from this unit, and the students should hold up the pictures for them.





STUDENT SUPPORT MATERIALS

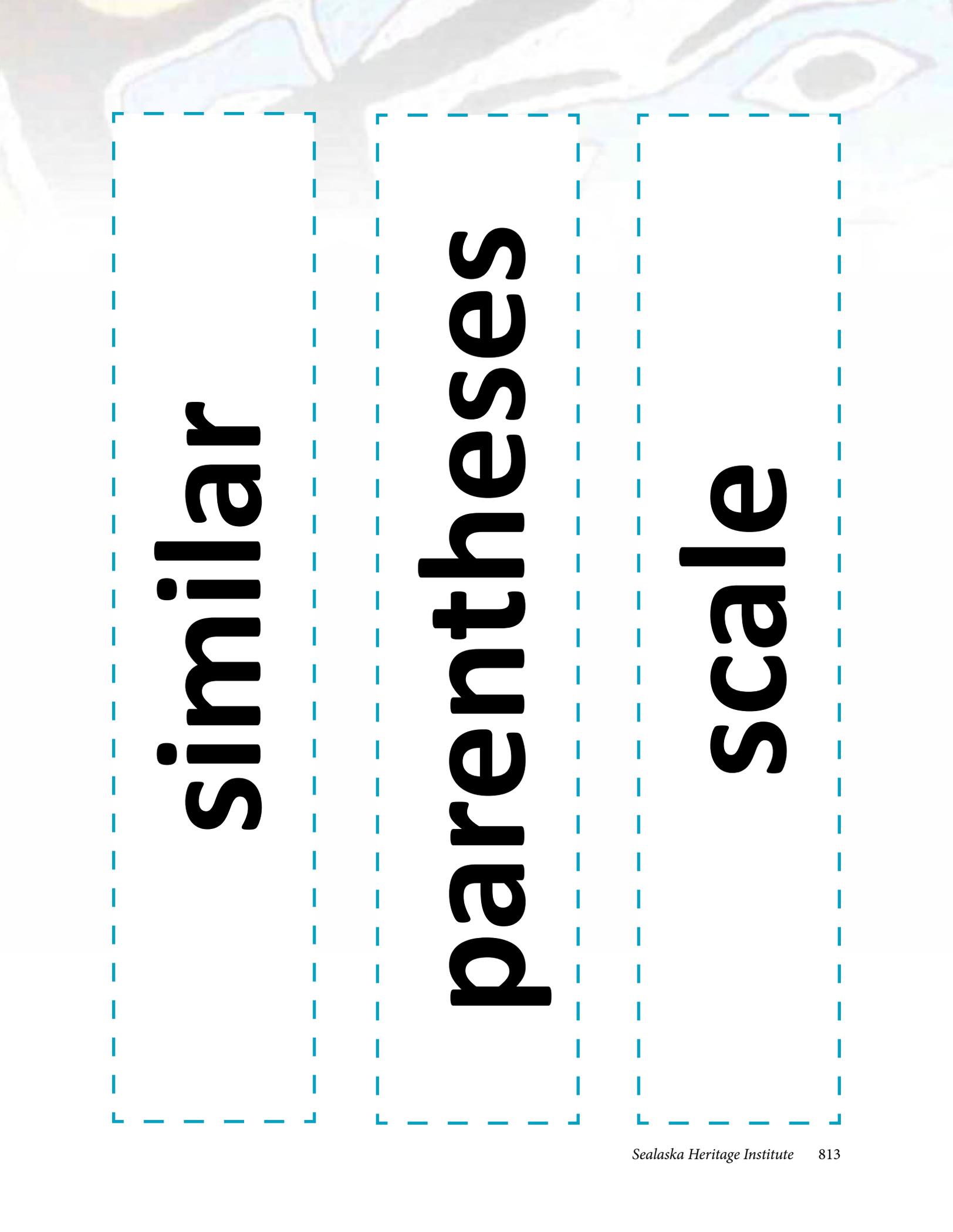
Sight Words



data

whole number

degree



similar

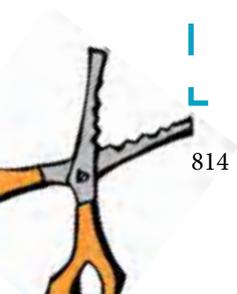
parentheses

scale

dimensions

protractor

time zone





STUDENT SUPPORT MATERIALS

Reading • Sight Recognition

Sight Words Activity Page



Have the students circle the word for each picture.



data
whole number
degree
similar
parentheses
scale
dimensions
protractor
time zone



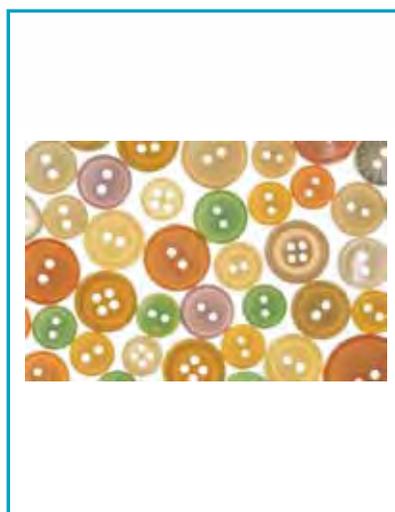
data
whole number
degree
similar
parentheses
scale
dimensions
protractor
time zone



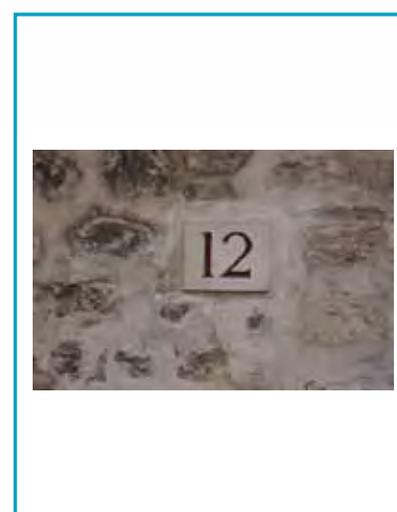
data
whole number
degree
similar
parentheses
scale
dimensions
protractor
time zone



data
whole number
degree
similar
parentheses
scale
dimensions
protractor
time zone



data
whole number
degree
similar
parentheses
scale
dimensions
protractor
time zone



data
whole number
degree
similar
parentheses
scale
dimensions
protractor
time zone

Sight Words Activity Page



data
whole number
degree
similar
parentheses
scale
dimensions
protractor
time zone



data
whole number
degree
similar
parentheses
scale
dimensions
protractor
time zone

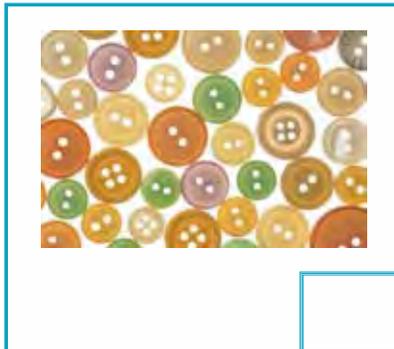
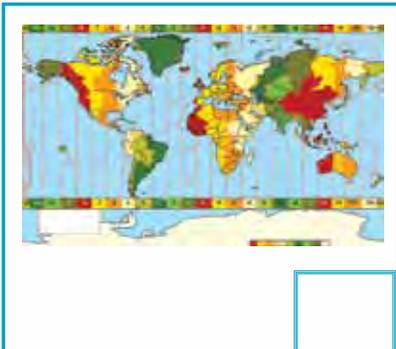
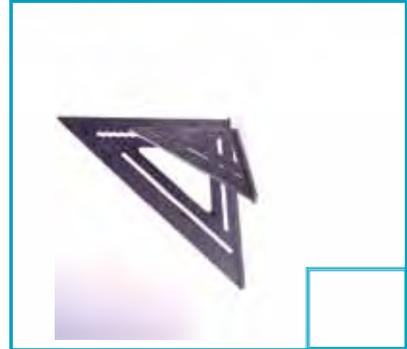


data
whole number
degree
similar
parentheses
scale
dimensions
protractor
time zone

Sight Words Activity Page



Write the numbers on their correct vocabulary graphics.



1. data
2. whole number
3. degree
4. similar
5. parentheses
6. scale
7. dimensions
8. protractor
9. time zone

Sight Words Activity Page



Highlight or circle the words in this word find.

whole number
degree
similar

time zone
dimensions
parentheses

scale
data
protractor

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

Sight Words Activity Page

ANSWER KEY



whole number
degree
similar

time zone
dimensions
parentheses

scale
data
protractor

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



STUDENT SUPPORT MATERIALS

Reading • Encoding

Encoding Activity Page

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



da _____

whole _____ ber

deg _____

si _____ lar

paren _____ es

ree	sc	num
-----	----	-----

mi	thes
----	------



Encoding Activity Page



_____ale

di_____sions

pro_____tor

time_____ne

ta	men
trac	zo



Encoding Activity Page

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



da

theses

whole n

gree

de

tor

simi

ale

paren

sions



Encoding Activity Page



sc

ta

dimen

lar

protrac

one

time z

umber



Encoding Activity Page

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



ren || ses || the || pa

men || sions || di

trac || tor || pro



Encoding Activity Page



lar mi si





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 Data show
- ordered pairs of prime numbers.
 - the value of equivalent numbers.
 - collections of facts.
 - the commutative property.
- ② A whole number has
- no prime numbers.
 - no exponents.
 - no value.
 - no fractions.
- ③ These are used to measure angles:
- ratios
 - estimates
 - degrees
 - composite numbers
- ④ When things are similar, they are
- different in size.
 - different in shape.
 - different in the number of exponents they have.
 - average.
- ⑤ Another word for parentheses is
- formula
 - bracket
 - ratio
 - numeral
- ⑥ Which of these words goes with *scale*?
- ordered pair
 - variable
 - ratio
 - protractor

What's the Answer?



- 7 Which of these would be a dimension of an object?
- area
 - width
 - digit
 - variable
- 8 A protractor measures
- the area of a surface.
 - data.
 - degrees in an angle.
 - exponents.
- 9 How many time zones are there around the world?
- 12
 - 365
 - 24
 - 180

What's the Answer?

ANSWER KEY



- ① Data show
- ordered pairs of prime numbers.
 - the value of equivalent numbers.
 - collections of facts.
 - the commutative property.
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- 9 How many time zones are there around the world?
- 12
 - 365
 - 24
 - 180

Reading Comprehension Activity Page

Write the numbers/letters for sentence halves that match.



- | | | | |
|------------------------------|---------------------------------|---|-------------------------------------|
| ① Data show | ⑨ There are 24 | Ⓐ degrees in a circle. | Ⓘ measure degrees in an angle. |
| ② A whole number | ⑧ A protractor is used to | Ⓑ ratio of the length in a drawing or object. | Ⓜ group things together. |
| ③ There are 360 | ⑦ Height would be an example of | Ⓒ a dimension. | Ⓝ has no fractions. |
| ④ Shapes are similar | ⑥ Scale shows the | Ⓓ facts, such as measurements or values. | Ⓓ if their only difference is size. |
| ⑤ Parentheses can be used to | ④ Shapes are similar | Ⓔ time zones around the world. | Ⓗ has no fractions. |

1 → _____ 2 → _____ 3 → _____ 4 → _____
5 → _____ 6 → _____ 7 → _____ 8 → _____
9 → _____

Reading Comprehension Activity Page

ANSWER KEY



- ① Data show
- ② A whole number
- ③ There are 360
- ④ Shapes are similar
- ⑤ Parentheses can be used to
- ⑥ Scale shows the
- ⑦ Height would be an example of
- ⑧ A protractor is used to
- ⑨ There are 24
- Ⓐ degrees in a circle.
- Ⓑ ratio of the length in a drawing or object.
- Ⓒ a dimension.
- Ⓓ facts, such as measurements or values.
- Ⓔ time zones around the world.
- Ⓕ if their only difference is size.
- Ⓖ has no fractions.
- Ⓗ group things together.
- Ⓘ measure degrees in an angle.

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

Reading Comprehension Activity Page

Cut out the words and glue them under their definitions.



This is when things are the same shape but different in size.

This is the ratio of length in a drawing or model.

This is the unit of measurement for angles.

This is an instrument used to measure degrees.

These are collections of facts.

These can be used to group things together.

These numbers have no fractions.

Alaska is in one of these.

This is the measurement of length, in one direction.

data	whole number	degree	similar
parentheses	scale	dimensions	
protractor	time zone		



Reading Comprehension Activity Page

ANSWER KEY



This is when things are the same shape but different in size.

similar

This is the ratio of length in a drawing or model.

scale

This is the unit of measurement for angles.

degree

This is an instrument used to measure degrees.

protractor

These are collections of facts.

data

These can be used to group things together.

parentheses

These numbers have no fractions.

whole number

Alaska is in one of these.

time zone

This is the measurement of length, in one direction.

dimensions

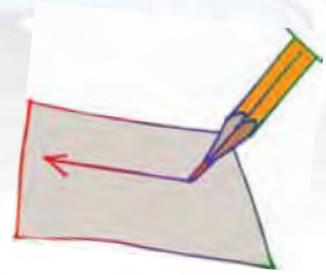


STUDENT SUPPORT MATERIALS

Writing

Writing Activity Page

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



d _____ t _____

_____ole n _____mbers

degr _____

si _____lar

paren _____ses

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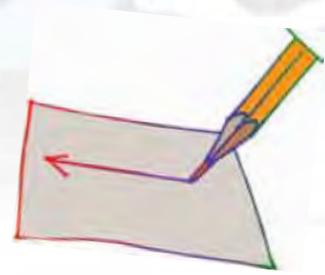
di _____sions

_____tractor

time _____ne

Writing Activity Page

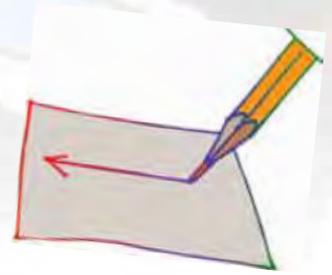
Have the students complete the writing of the key math words.



d _____ **a**
wh _____ **r**
de _____ **e**
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Basic Writing Activity Page

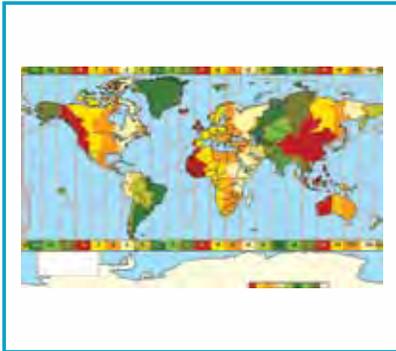
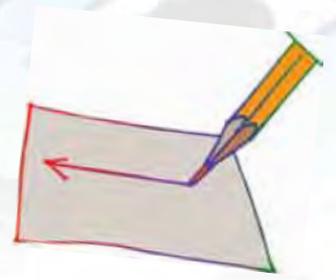
Have the students write the word for each picture.



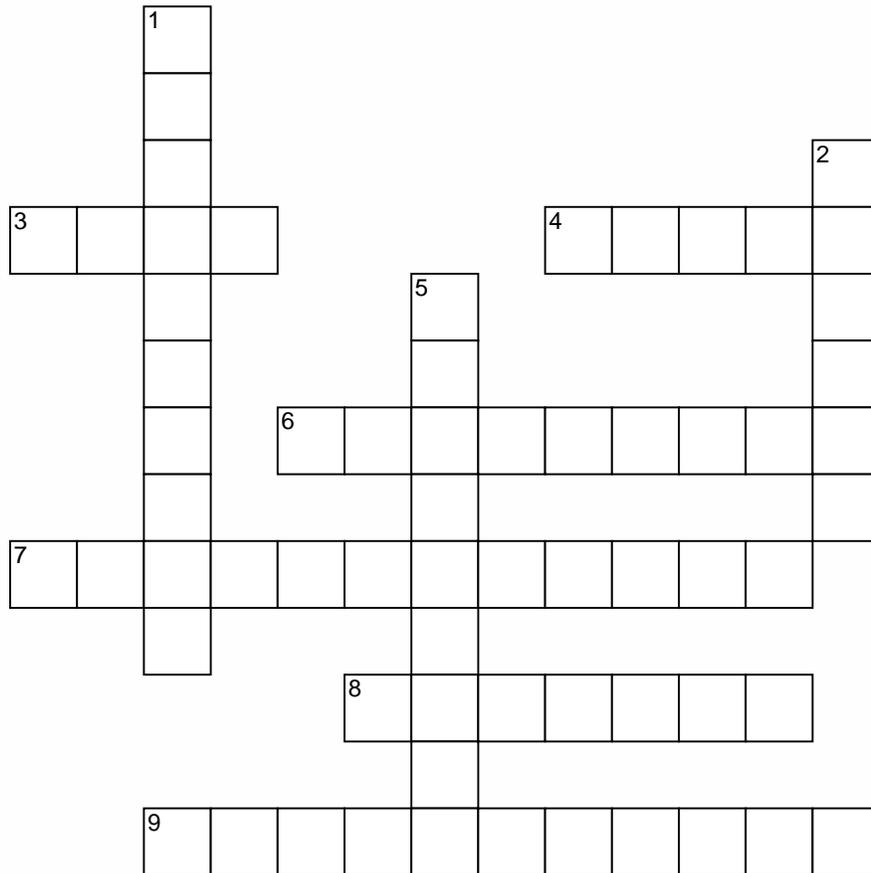
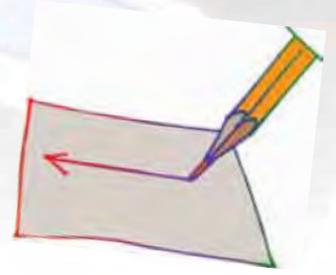


Basic Writing Activity Page

Have the students write the word for each picture.



Crossword Puzzle



www.CrosswordWeaver.com

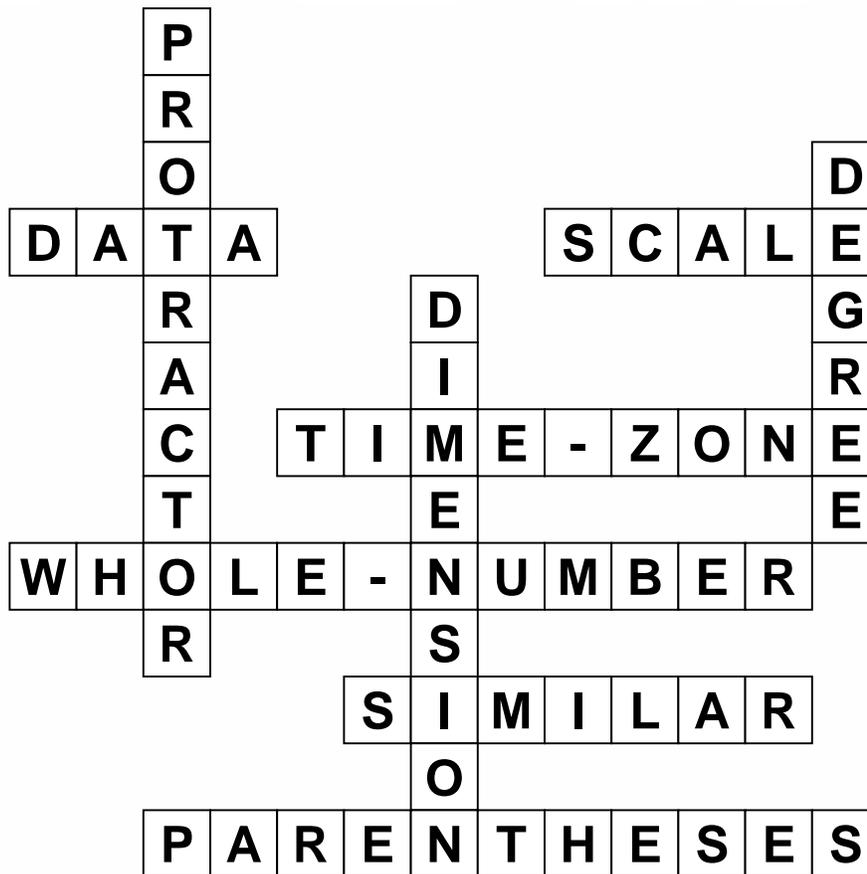
ACROSS

- 3 These are collections of facts.
- 4 This is the ratio of length in a drawing or model.
- 6 There are 24 of these.
- 7 These numbers have no fractions.
- 8 This is when things are the same shape but different in size.
- 9 These can be used to group things together.

DOWN

- 1 This is an instrument used to measure degrees.
- 2 This is the unit of measurement for angles.
- 5 This is the measurement of length, in one direction.

Crossword Puzzle Answers







UNIT ASSESSMENT



MEASUREMENT

Unit Assessment Teacher's Notes

Grade 7 • 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 **DATA**.
2. Write the number 2 by the picture for **WHOLE NUMBERS**.
3. Write the number 3 by the picture for **DEGREE**.
4. Write the number 4 by the picture for **SIMILAR**.
5. Write the number 5 by the picture for **PARENTHESSES**.
6. Write the number 6 by the picture for **SCALE**.
7. Write the number 7 by the picture for **DIMENSIONS**.
8. Write the number 8 by the picture for **PROTRACTOR**.
9. Write the number 9 by the picture for **TIME ZONE**.

SIGHT RECOGNITION

Turn to page 2 and 3 in your test. Look at the pictures in the boxes. Circle the word for each picture.

DECODING/ENCODING

Turn to page 4 and 5 in your test. Look at the word parts in the boxes. Circle the other half or part of each word.



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.

READING COMPREHENSION

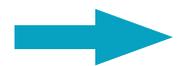
Turn to page 6 in your test. Write each word under its definition.
Refer to Student Support Materials for answer key.

BASIC WRITING

Turn to page 7 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.



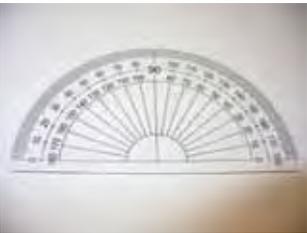
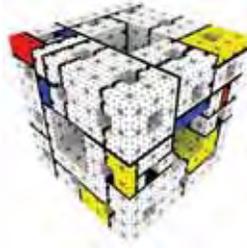


MATH PROGRAM

Unit Assessment Student Pages
Grade 7 • Unit 9

Date: _____ Student's Name: _____

Number Correct: _____ Percent Correct: _____





data
whole number
degree
similar
parentheses
scale
dimensions
protractor
time zone



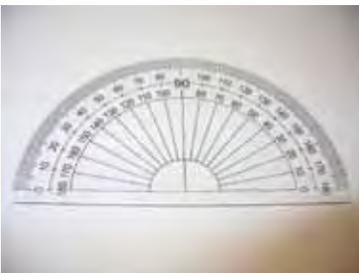
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parentheses
scale
dimensions
protractor
time zone



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scale
dimensions
protractor
time zone



data
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This is when things are the same shape but different in size.

This is the ratio of length in a drawing or model.

This is the unit of measurement for angles.

This is an instrument used to measure degrees.

These are collections of facts.

These can be used to group things together.

These numbers have no fractions.

Alaska is in one of these.

This is the measurement of length, in one direction.

data

scale

whole number

similar

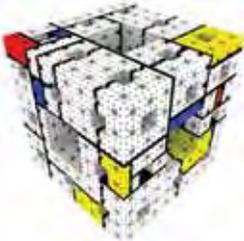
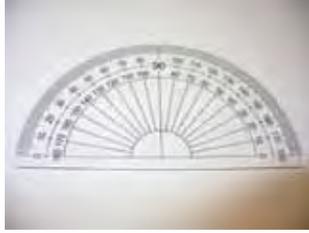
degree

parentheses

dimensions

protractor

time zone





UNIT 10

Statistics

Alaskan Math Standards (GLE's) for This Unit

These Alaskan math standards underly the language development of the unit. Many of these standards are addressed during the regular math program and in the concrete introduction of the key vocabulary words for the unit.

The student demonstrates understanding of position and direction by:

[7] G-8 graphing or identifying values of variables on a coordinate grid (M5.3.6)

The student demonstrates an ability to analyze data (comparing, explaining, interpreting, evaluating or making predictions; or drawing or justifying conclusions) by:

[7] S&P-2 using information from a variety of displays (e.g., as found in graphical displays in newspapers and magazines) (M6.3.2)

[7] S&P-3 determining range, mean, median, or mode (M6.3.3)

The student demonstrates an ability to problem solve by:

[7] PS-1 selecting, modifying, and applying a variety of problem-solving strategies (e.g., working backwards, drawing a picture, Venn diagrams and verifying the results) (M7.3.2)

[7] PS-2 evaluating, interpreting, and justifying solutions to problems (M7.3.3)

The student demonstrates an ability to classify and organize data by:

[7] S&P-1 [collecting, L] displaying, organizing, or explaining the classification of data in realworld problems (e.g., science or humanities, peers or community), using circle graphs, frequency distributions, stem and leaf, [or scatter plots L] with appropriate scale (M6.3.1)

Alaskan Language Standards (GLE's) for This Unit

AK.R.3.1. Reading: The student uses strategies to decode or comprehend the meaning of words in texts. (E.B.1)

[7] 3.2.2. Reading aloud short factual information (e.g., reports, articles) (L)

AK.R.3.3. Reading: The student restates/summarizes and connects information. (E.B.3)

AK.R.3.5. Reading: The student follows written directions. (E.C.2)

[7] 3.5.1. Completing a task by following written, multi-step directions (e.g., answer a multi-faceted text question) (L)

[7] 3.5.2. Identifying the sequence of steps in a list of directions (e.g., what is the first step, what is the second step)

[7] 3.3.4. Applying rules of capitalization (e.g., titles and proper nouns)

AK.W.3.4. Writing: The student revises writing. (E.A.5, E.A.8)

AK.E.A. A student should be able to speak and write well for a variety of purposes and audiences. A student who meets the content standard should:

E.A.1. Apply elements of effective writing and speaking. These elements include ideas, organization, vocabulary, sentence structure, and personal style.

E.A.2. In writing, demonstrate skills in sentence and paragraph structure, including grammar, spelling, capitalization, and punctuation.

E.A.3. In speaking, demonstrate skills in volume, intonation, and clarity.



INTRODUCTION OF MATH VOCABULARY

Measurement

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.

COMBINATIONS

Put sandwich ingredients on a table in front of the students. Have them determine if the order in which you put the sandwich ingredients together makes any difference. For example, does it matter if you put the cheese on and then the meat, or the meat and then the cheese? Lead the students to understand that in this case order is not important. Use this to introduce combinations in math (i.e. $2+3$ or $3+2$).

LINE GRAPH

Show the students a globe of the earth. Direct their attention to the lines of longitude and latitude. In particular, have them find their community and the nearest longitude/latitude lines near it. Use this to introduce a line graph to the students. Show examples of line graphs.

MODE

Place 10 or more food items that are the same on a table (i.e. candies, mini-bars, etc.). Add 2 or 3 different items to those on the table. Have the students identify the most frequent food item. Use this to introduce mode to the students.

Measurement

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.

RANGE

Give each student a small amount of trail mix. Each student should separate the ingredients of his portion. When this is done, they should count the number of each ingredient. Have them identify the smallest number and the greatest number of items. Use this to introduce range to the students.

MEAN

Put play money in a box and have five students reach into the box to get a handful of money. Each student should count his/her money. Write the five totals on the board; divide the total by five (for the five totals) to reach the mean in relation to the money. Repeat.

MEDIAN

Place a tray of soil on a table where the students can readily see it. Using your hands, create a 4 lane highway in the sand. When completed, draw the students' attention to the land between the sets of lanes — the median. Use this to introduce median as a mathematical concept.

Measurement

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.

AXIS

Mount a map of Europe on the board. Direct the students' attention to Germany and Italy. Use your finger to draw a line from one country to the next, creating a line of axis. Introduce these as two of the countries that made up the axis powers in World War II. Relate axis to lines of symmetry on a graph. Show examples.

PARABOLA

Show the students the picture of the St. Louis Arch, from the end of this unit. Give a student a straw or other bendable item. The student should bend it to create an arch or parabola. Show the use of parabolas on graphs.

(TO) PLOT

Mount a highway map of Alaska on the board. Tell the students that they are in a specific location, such as Haines. Have them suggest the route(s) that could be used to reach Fairbanks. Use this to introduce plotting a route on a map. Relate this to plotting on a graph.

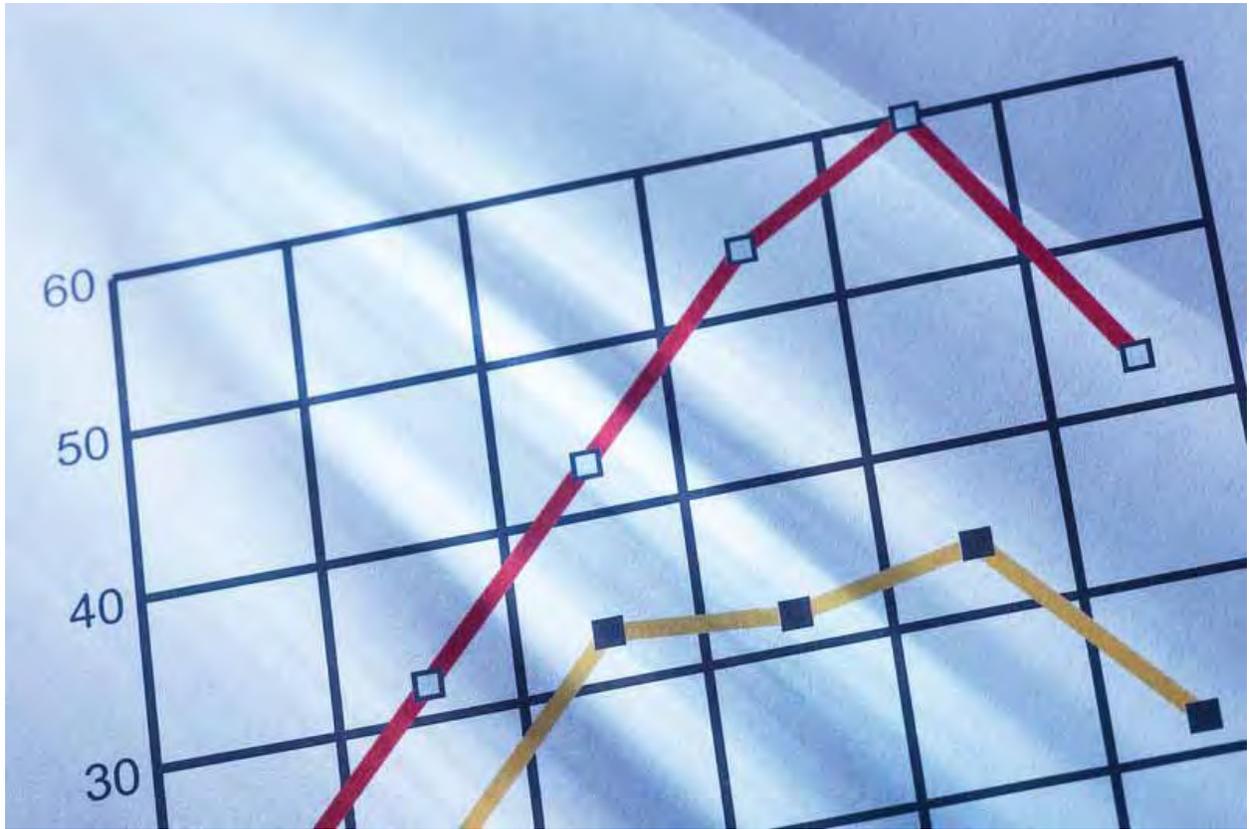


VOCABULARY PICTURES





COMBINATIONS





LINE GRAPH

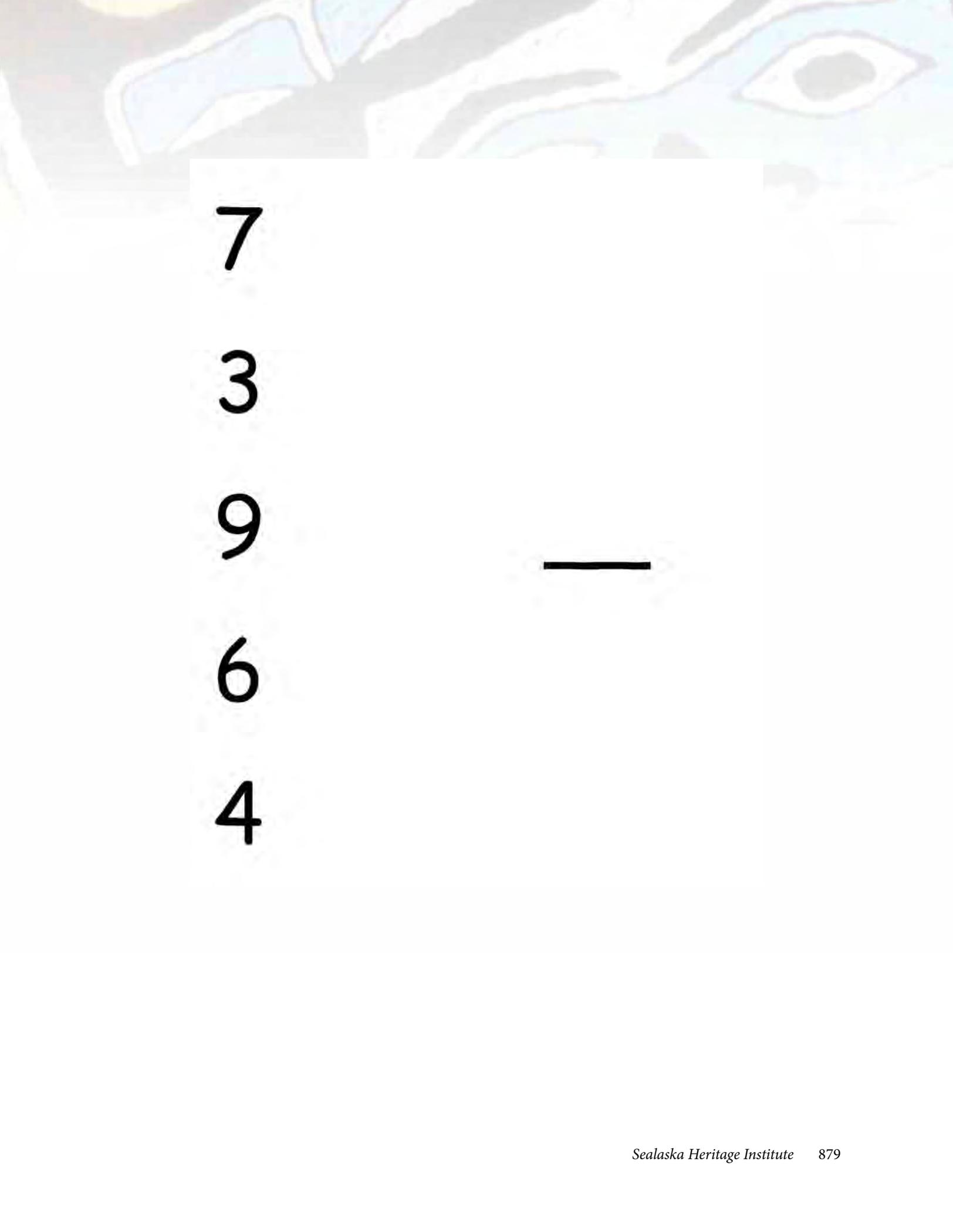


1 2 3 4 4 4 5 6 7 8 9

—



MODE



7

3

9

—

6

4



RANGE



101

50

$$\underline{\quad} / \underline{\quad} = \underline{\quad}$$

75

84



MEAN



3, 5, 7, 12, 13, 14, 21, 23

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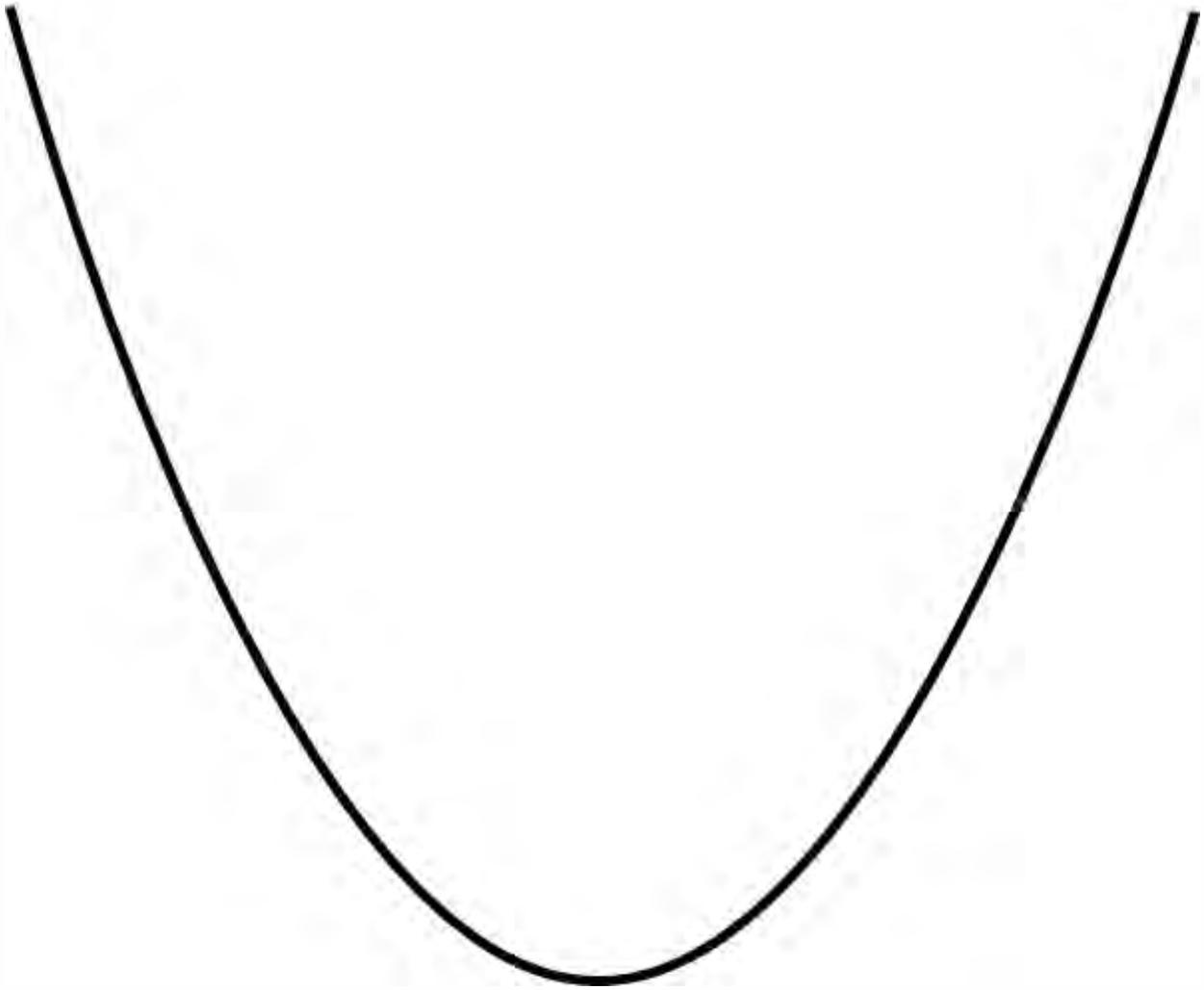


MEDIAN





AXIS





PARABOLA





(TO) PLOT



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.



Mini Pictures

Provide each student with a copy of the mini-pictures page from the Student Support Materials. When you say the key words, the students must find the pictures for them. Then, have the students cut out the pictures. Say the keywords and the students should hold up the pictures for them.

Number That Word

Mount the vocabulary graphics on the board. Provide each student with three blank flashcards. Each student should write the numbers 1, 2, and 3 on his/her cards - one number per card. Point to one of the vocabulary graphics. Then, say three vocabulary words. Each student should show the number card that matches the picture you pointed to. Repeat with other graphics and vocabulary words.

Back-to-Back Race

Have two pairs of students stand in the center of the classroom. The students in each pair should stand back-to-back with arms interlocked. Lay the vocabulary illustrations on the floor in a scattered form. Say one of the vocabulary words. The two pairs of students must then race to the illustration for the vocabulary word you said without unlocking their arms. The first pair to reach the correct illustration wins the round. Repeat with other pairs of students.

Airplane Land

Scatter the vocabulary pictures on the floor. Have the students sit in a large circle around the pictures. Prepare two paper airplanes. Give the airplanes to two students. Say one of the vocabulary words. The students should toss their airplanes, attempting to land them on the picture for the vocabulary word you said. Repeat until all students have participated.



Language and Skills Development

Fanball

Tape the vocabulary pictures to the floor and group the students around them. Give a “hand fan” and an inflated balloon to two students. Say one of the vocabulary words. The two students should then use their fans to move the balloons to the picture that represents the vocabulary word you said. The first player to fan his/her balloon over the correct picture wins the round. Repeat.

Circle Hop

Scatter the vocabulary pictures on the floor. Using masking tape, make a circle around each picture. Have two or more students stand in the center of the classroom. Say one of the vocabulary words. The students should then hop to the circle which contains the picture that represents the vocabulary word you said. Then, remove the picture from the circle and say another vocabulary word. Continue until all the pictures have been removed from the floor. The students must remember where the graphics were in order to hop to the correct masking tape circles.

Language and Skills Development

SPEAKING



Illustration Build-Up

Mount the vocabulary illustrations on the chalkboard. Point to two of the illustrations. The students should then say the vocabulary words for those two illustrations. Then, point to another illustration. The students should repeat the first two vocabulary words and then say the vocabulary word for the third illustration you pointed to. Continue in this way until the students lose the sequence of words.

Picture Bingo

Give the students the mini pictures used earlier. Each student should place them face down on his/her desk. Then, have each student turn one picture face up. Say a vocabulary word. Any student or students who have the picture for that word face up must say a complete sentence using that vocabulary word. Those pictures should then be put to the side and other pictures turned over. Continue in this way until a student or students have no pictures left on their desks.

Centered Speaker

Group the students into two teams of equal numbers. The two teams should stand, facing one another, about ten feet apart. Have one student stand between the two teams as IT for the first round of the activity. Give each player in Team One a number. Then, give each player in Team Two a number. The numbers you give the players should be “scattered” so that, for example, number One in each team is not directly opposite one another. Call a number. The two players from the teams who have that number must then exchange places as quickly as possible. However, IT must attempt to reach one of the vacated positions before the other player arrives. The player who is “stuck in the middle” becomes IT, and must then identify a vocabulary picture that you show him/her. To add spice to this activity, all students in each team may pretend to run when you call a number. In this way, IT will not be as certain as to which players are exchanging places. Repeat until many students have identified vocabulary pictures.



Language and Skills Development

Stick of Chance

Before the activity begins, obtain four or five popsicle sticks. Break the popsicle sticks into different lengths. Hold the popsicle sticks in your hands so that they all appear to be the same length. Have individual students remove the sticks from your hands. The “winner” is the student who receives the longest stick; he/she must then identify a vocabulary picture you point to, or repeat a sentence that you said at the beginning of the round. Repeat this process until many students have responded in this way.

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.

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.



Sight Recognition

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.

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.

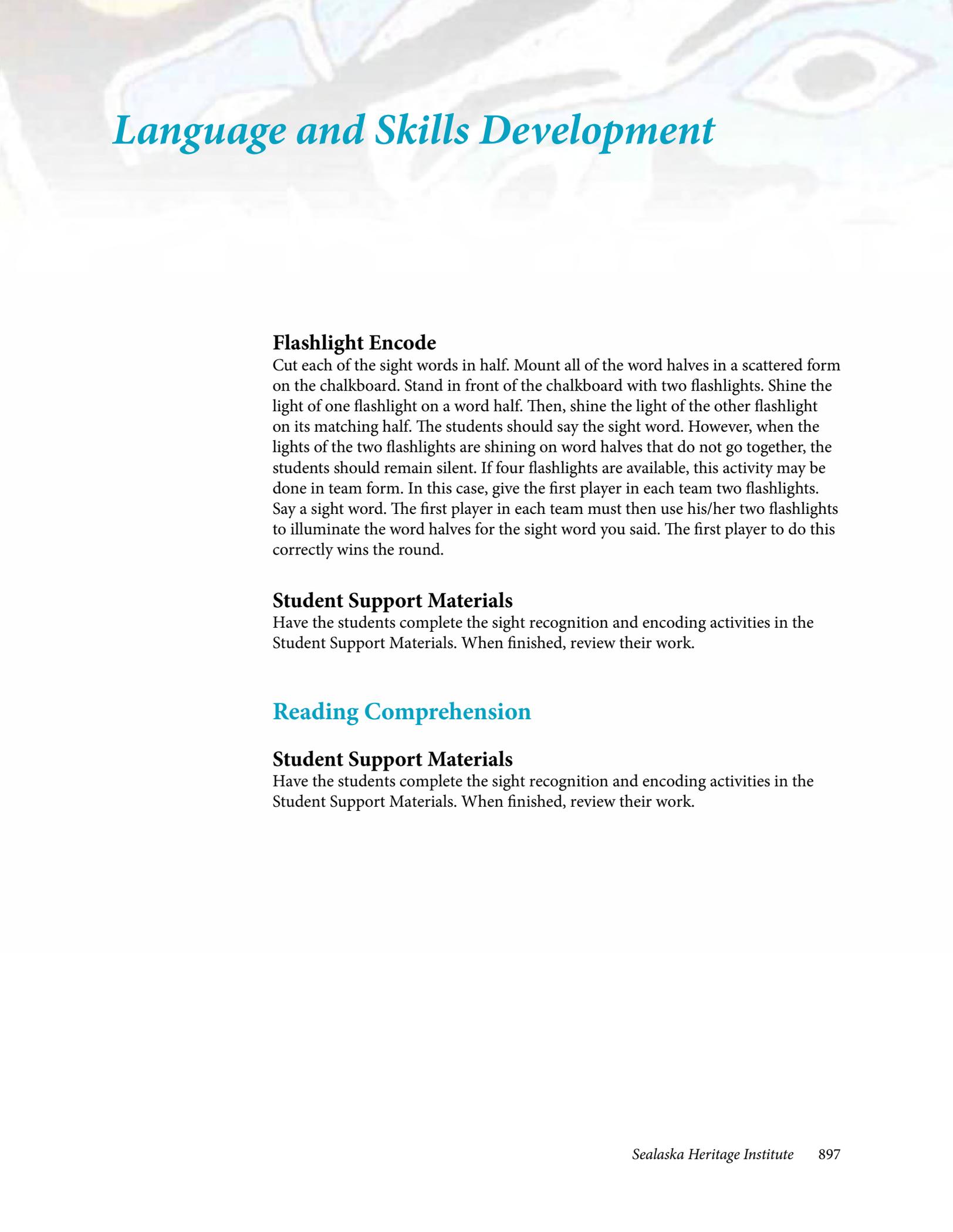
Student Support Materials

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

Decoding/Encoding

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.



Language and Skills Development

Flashlight Encode

Cut each of the sight words in half. Mount all of the word halves in a scattered form on the chalkboard. Stand in front of the chalkboard with two flashlights. Shine the light of one flashlight on a word half. Then, shine the light of the other flashlight on its matching half. The students should say the sight word. However, when the lights of the two flashlights are shining on word halves that do not go together, the students should remain silent. If four flashlights are available, this activity may be done in team form. In this case, give the first player in each team two flashlights. Say a sight word. The first player in each team must then use his/her two flashlights to illuminate the word halves for the sight word you said. The first player to do this correctly wins the round.

Student Support Materials

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

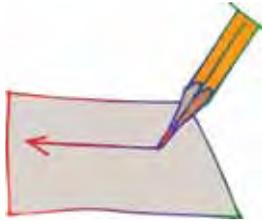
Reading Comprehension

Student Support Materials

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

Language and Skills Development

WRITING



Say Again

Group the students into two teams. Whisper a sight word to the first player in each team. When you say “Go,” the first player in each team must whisper the same sight word to the next player in the team. The students should continue in this way until the last player in the team hears the sight word. When the last player in the team hears the sight word, he/she must rush to the chalkboard and write the word on the board. The first team to do this correctly wins the round. Repeat until each player has written a sight word in this way.

Numbered Pictures

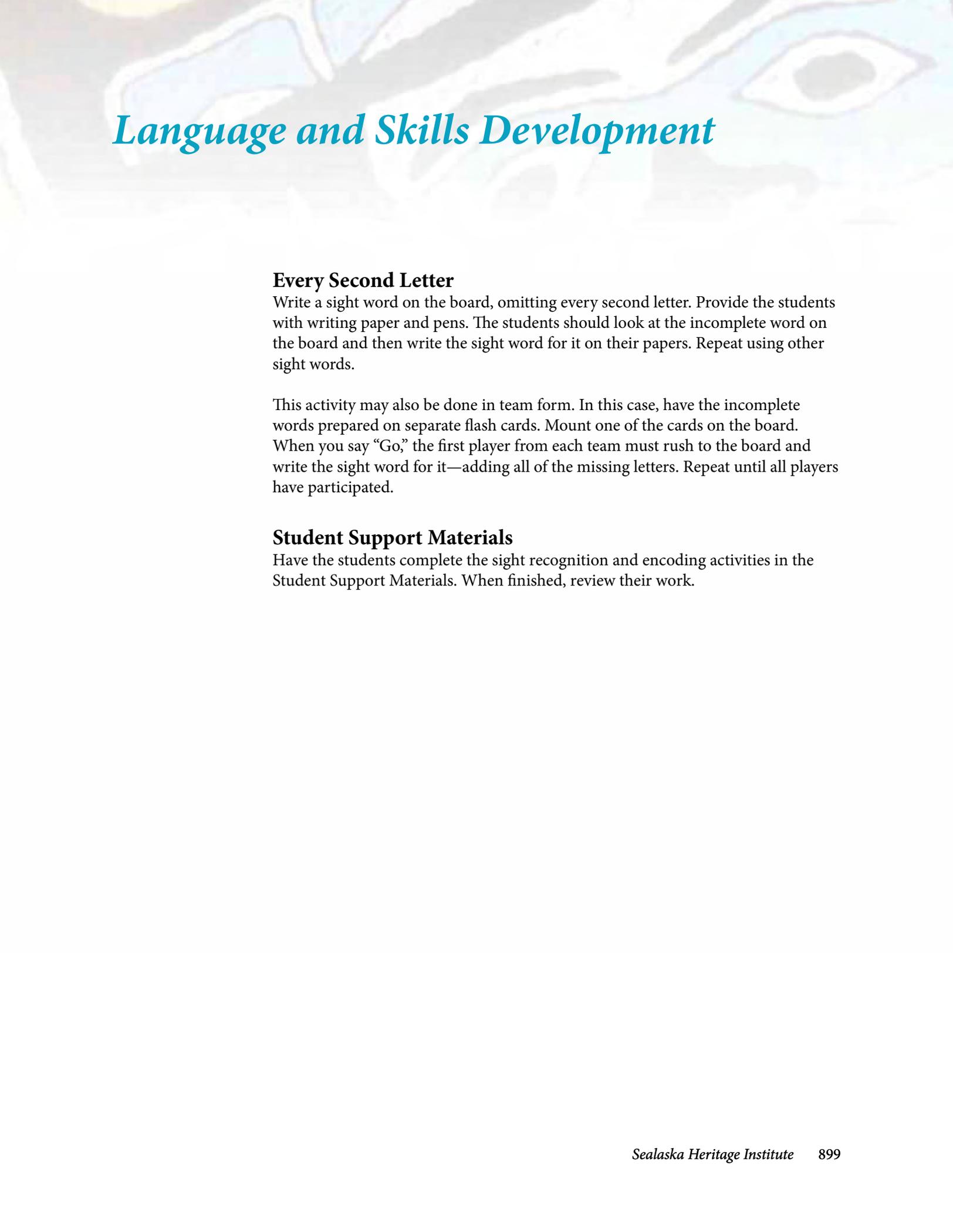
Mount the vocabulary pictures on the chalkboard and number each one. Provide each student with writing paper and a pen. Call the number of a picture. Each student should write the vocabulary word for the picture represented by that number. Repeat until all vocabulary words have been written. Review the students’ responses.

Back Writing

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

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).



Language and Skills Development

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.

Student Support Materials

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

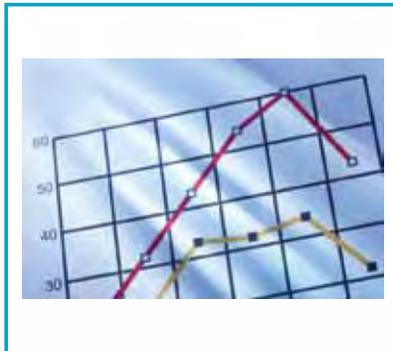


STUDENT SUPPORT MATERIALS

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.



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101

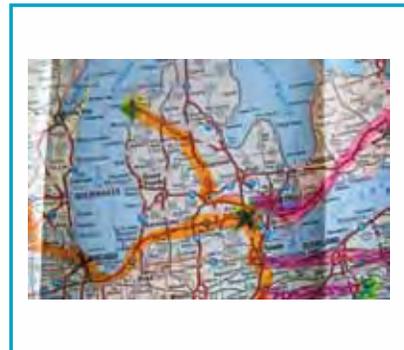
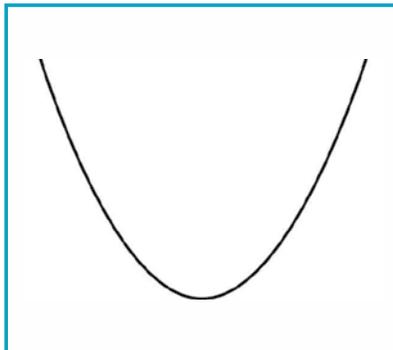
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3, 5, 7, 12, 13, 14, 21, 23

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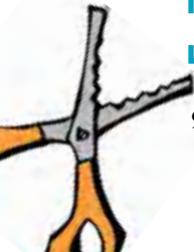
STUDENT SUPPORT MATERIALS

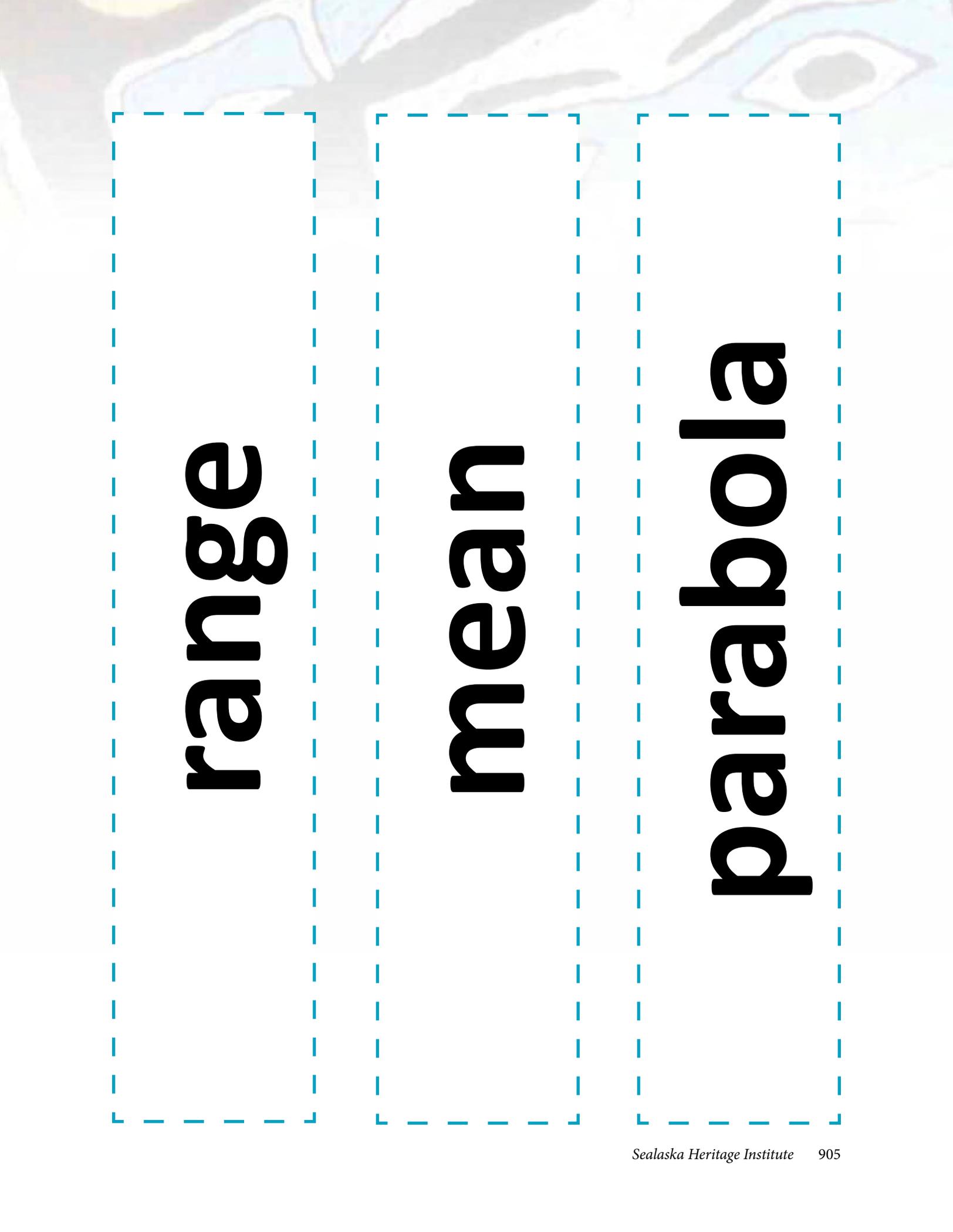
Sight Words

combinations

line graph

axis





range

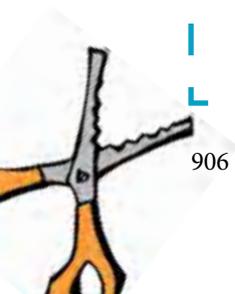
mean

parabola

mood

median

plot





STUDENT SUPPORT MATERIALS

Reading • Sight Recognition

Sight Words Activity Page



Have the students circle the word for each picture.

3, 5, 7, 12, 13, 14, 21, 23

—

combinations
line graph
axis
range
mean
median
mode
parabola
plot

combinations
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axis
range
mean
median
mode
parabola
plot

combinations
line graph
axis
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mean
median
mode
parabola
plot

combinations
line graph
axis
range
mean
median
mode
parabola
plot

1 2 3 4 4 4 5 6 7 8 9

—

combinations
line graph
axis
range
mean
median
mode
parabola
plot

101

50 ___ / ___ = ___

75

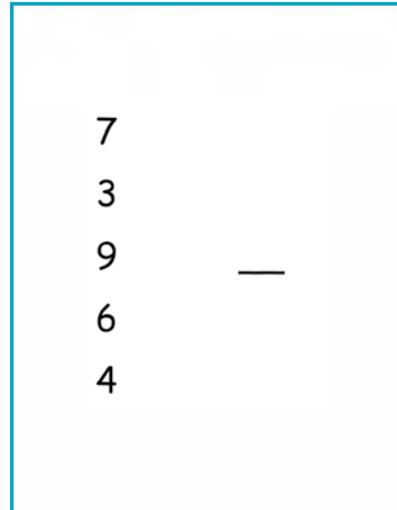
84

combinations
line graph
axis
range
mean
median
mode
parabola
plot

Sight Words Activity Page



combinations
line graph
axis
range
mean
median
mode
parabola
plot



combinations
line graph
axis
range
mean
median
mode
parabola
plot



combinations
line graph
axis
range
mean
median
mode
parabola
plot

Sight Words Activity Page



Write the numbers on their correct vocabulary graphics.

7
3
9
6
4

—

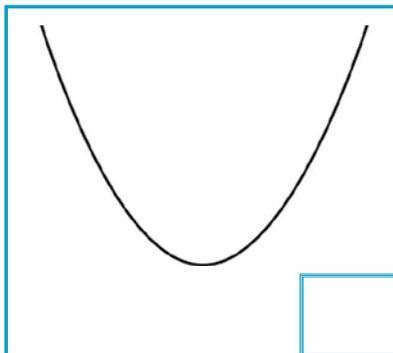
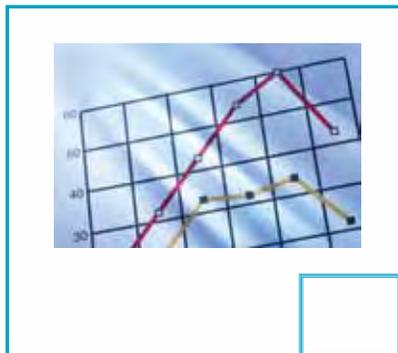


1 2 3 4 4 4 5 6 7 8 9

—

3, 5, 7, 12, 13, 14, 21, 23

—



101

50 — / — = —

75

84

- | | |
|----------------|-------------|
| 1. combination | 6. median |
| 2. line graph | 7. mode |
| 3. axis | 8. parabola |
| 4. range | 9. plot |
| 5. mean | |

Sight Words Activity Page



Highlight or circle the words in this word find.

combinations
plot
parabola

mean
mode
median

line graph
axis
range

g p a n b o o n a t a x i s n n x i
m n n t p a r a b o l a a a o l h b
i o r r t m t h a a g d o g d i m t
h e a h o a i e x t s i x c o n p l
t t l i n e g r a p h p m e i o l l
t a m e d i n n e b n n g e a l i o
m n d n n r p i e r a n g e c e o i
i m a n c o m b i n a t i g i a d a
n a e g s g g p l o t o g a a r a b
l a i c o m b i n a t i o n s a s t
a a b x n e p a r a b o l o n i e c
p o a o t g h o m x r c a m b d t e
s s l n g e a m o d e n o g s e e s
p m m e a n e r e b i i n l s n g m
b a e g a a i a n a c a a l m a m r
a t e o l a x e i l a l s d i a d s
i p e x n a p o n n m e d i a n a e
o t a d l i n e a n a i l r e i p n
n a o e p i a l i n e g r a r o e d
b n o o e d c e a a r e x m n g m o

Sight Words Activity Page

ANSWER KEY



combinations
plot
parabola

mean
mode
median

line graph
axis
range

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



STUDENT SUPPORT MATERIALS

Reading • Encoding

Encoding Activity Page

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



_____binations

line gra _____

ax _____

ran _____

m _____ n

is	ge	od
----	----	----

ia	bo
----	----



Encoding Activity Page



med _____ n

m _____ e

para _____ la

_____ ot

ea	com
pl	ph



Encoding Activity Page

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



combi

is

line gr

ot

ax

nations

ran

an

me

de



Encoding Activity Page



medi

bola

mo

aph

para

ge

pl

an



Encoding Activity Page



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

bi || tions || com || na

di || an || me

ra || la || pa || bo





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 Combinations are collections of things in which
 - order is very important.
 - all things are congruent.
 - all angles are right angles.
 - order is not important.

- ② Line graphs compare
 - equivalent variables.
 - exponents of whole numbers.
 - two variables.
 - values of vertices.

- ③ An axis is a
 - diameter of a perimeter.
 - line of symmetry for a graph.
 - prism.
 - polyhedron.

- ④ A range is the difference between
 - the lowest and highest values.
 - the mean value.
 - dilation and a perimeter.
 - addends.

- ⑤ Another word for mean is
 - range.
 - average.
 - radius.
 - formula.

- ⑥ The median is the
 - dilation of shapes over time.
 - middle value in a list of numbers.
 - the center of a circle's radius.
 - the center of a circle.

What's the Answer?



- 7 The mode is the number that can be seen in
- a polygon.
 - a polyhedron.
 - a ratio.
 - a list of numbers.
- 8 A parabola is shaped like an
- expression.
 - edge.
 - arch.
 - isosceles triangle.
- 9 When we plot, we can use
- a graph or map.
 - the product of addends in a trapezoid.
 - dilation.
 - parentheses and irregular polygons.

What's the Answer?

ANSWER KEY



- ① Combinations are collections of things in which
- order is very important.
 - all things are congruent.
 - all angles are right angles.
 - order is not important.
- ② Line graphs compare
- equivalent variables.
 - exponents of whole numbers.
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- 9 When we plot, we can use
- a graph or map.
 - the product of addends in a trapezoid.
 - dilation.
 - parentheses and irregular polygons.

Reading Comprehension Activity Page

Write the numbers/letters for sentence halves that match.



- | | | | |
|--|------------------------------------|---|--------------------------------------|
| ① In combinations, | ⑨ A person can plot values | Ⓐ and highest values is the range. | Ⓘ shape like an arch. |
| ② A line graph plots two variables and | ⑧ The parabola is a | Ⓑ a line on a graph. | ⓗ have to be in order. |
| ③ An axis is | ⑦ The mode is the number that | Ⓒ as the average. | Ⓙ each one is plotted along an axis. |
| ④ The difference between the lowest | ⑥ To find the median, your numbers | Ⓓ shows up most in a list of numbers. | Ⓚ on a map or graph. |
| ⑤ The mean is the same | ⑤ The mean is the same | Ⓔ the order of things is not important. | |

1→ _____ 2→ _____ 3→ _____ 4→ _____
5→ _____ 6→ _____ 7→ _____ 8→ _____
9→ _____

Reading Comprehension Activity Page

ANSWER KEY



- | | | | |
|--|------------------------------------|---|--------------------------------------|
| ① In combinations, | ⑨ A person can plot values | Ⓐ and highest values is the range. | Ⓘ shape like an arch. |
| ② A line graph plots two variables and | ⑧ The parabola is a | Ⓑ a line on a graph. | ⓗ have to be in order. |
| ③ An axis is | ⑦ The mode is the number that | Ⓒ as the average. | Ⓙ each one is plotted along an axis. |
| ④ The difference between the lowest | ⑥ To find the median, your numbers | Ⓓ shows up most in a list of numbers. | Ⓚ on a map or graph. |
| ⑤ The mean is the same | ⑤ The mean is the same | Ⓔ the order of things is not important. | |

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

Reading Comprehension Activity Page

Cut out the words and glue them under their definitions.



This is the difference between the lowest and highest values.

In these, the order of things is not important.

This is the middle value in a list of numbers.

This compares two variables using an axis for each one.

This is the number that appears most in a list of numbers.

This is a line of symmetry for a graph.

We can do this on graphs and maps.

This is another way of saying average.

This is a shape that is sometimes used over a doorway.

combinations	line graph	axis	range
mean	median	mode	
parabola	plot		



Reading Comprehension Activity Page

ANSWER KEY



This is the difference between the lowest and highest values.

range

In these, the order of things is not important.

combinations

This is the middle value in a list of numbers.

median

This compares two variables using an axis for each one.

line graph

This is the number that appears most in a list of numbers.

mode

This is a line of symmetry for a graph.

axis

We can do this on graphs and maps.

plot

This is another way of saying average.

mean

This is a shape that is sometimes used over a doorway.

parabola

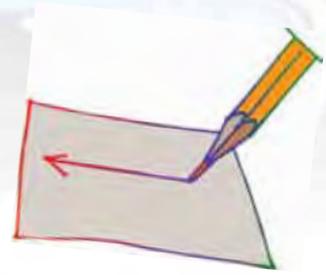


STUDENT SUPPORT MATERIALS

Writing

Writing Activity Page

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



com_____nation

line gra_____

ax_____

ran_____

m_____n

me _____n

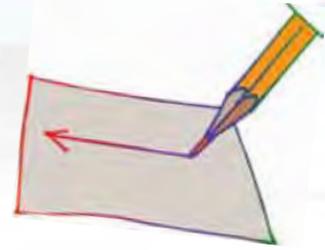
m_____e

para_____la

pl_____

Writing Activity Page

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



co _____ **n**

l _____ **ph**

a _____ **s**

r _____ **e**

m _____ **n**

pl _____

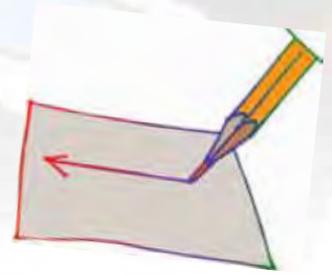
m _____ **an**

m _____ **e**

pa _____ **a**

Basic Writing Activity Page

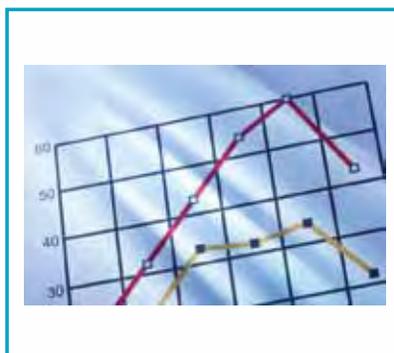
Have the students write the word for each picture.



1 2 3 4 4 4 5 6 7 8 9

—

7
3
9 —
6
4

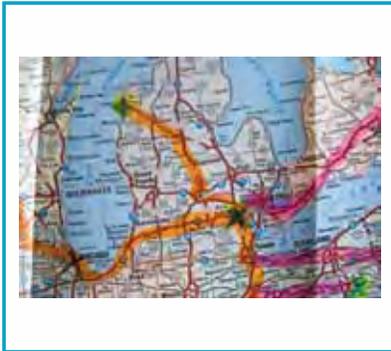
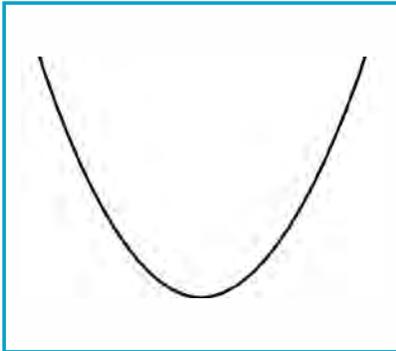
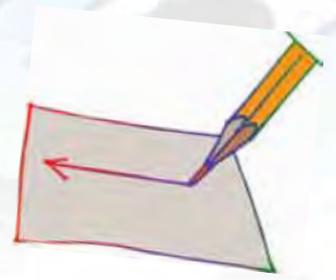


3, 5, 7, 12, 13, 14, 21, 23

—

Basic Writing Activity Page

Have the students write the word for each picture.



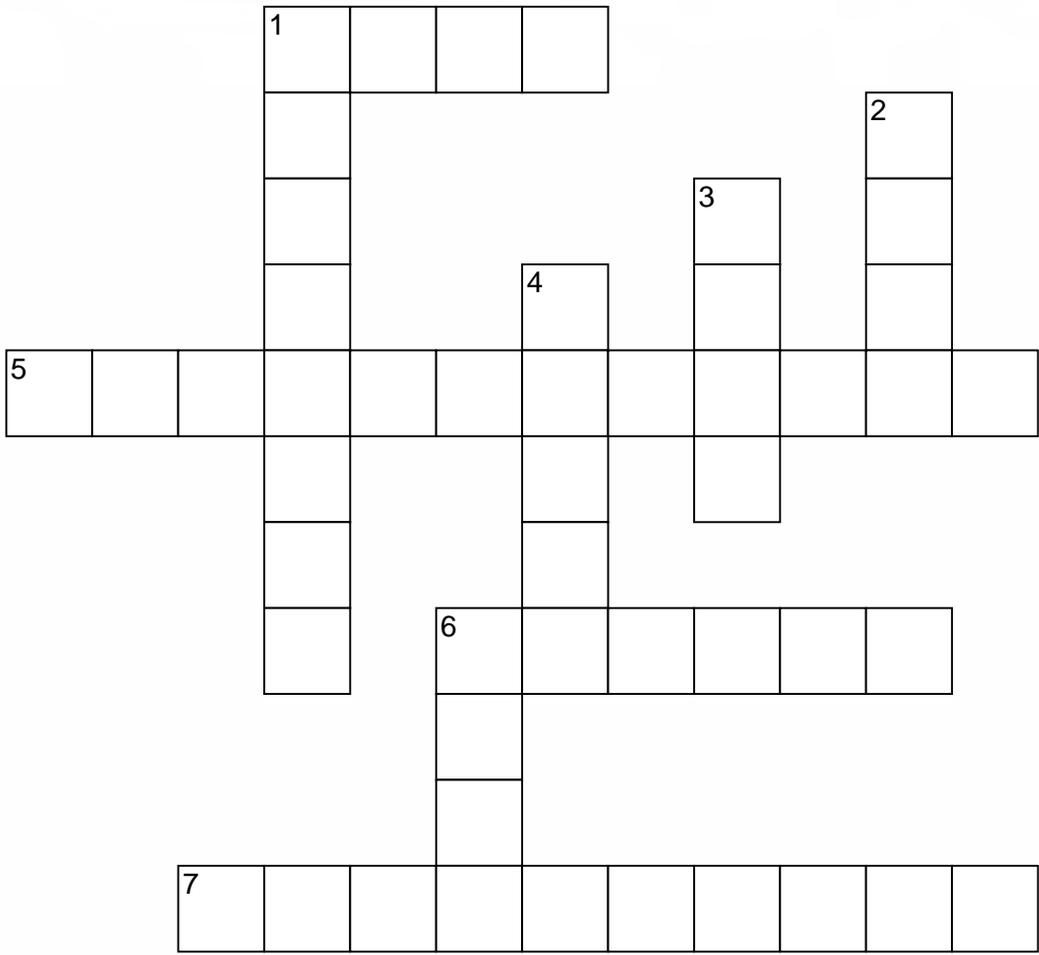
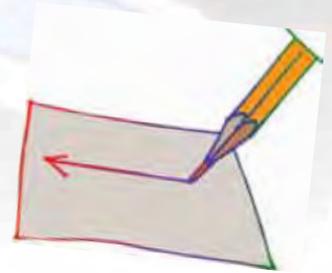
101

50 $\underline{\quad} / \underline{\quad} = \underline{\quad}$

75

84

Crossword Puzzle



www.CrosswordWeaver.com

ACROSS

- 1 We can do this on graphs and maps.
- 5 In these, the order of things is not important.
- 6 This is the middle value in a list of numbers.
- 7 This compares two variables using an axis for each one.

DOWN

- 1 This is a shape that is an arch.
- 2 This is another way of saying "average."
- 3 This is a line of symmetry for a graph.
- 4 This is the difference between the lowest and highest values.
- 6 This is the number that appears most in a list of numbers.



UNIT ASSESSMENT



Statistics

Unit Assessment Teacher's Notes

Grade 7 • 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 **COMBINATIONS**.
2. Write the number 2 by the picture for **LINE GRAPH**.
3. Write the number 3 by the picture for **AXIS**.
4. Write the number 4 by the picture for **RANGE**.
5. Write the number 5 by the picture for **MEAN**.
6. Write the number 6 by the picture for **MEDIAN**.
7. Write the number 7 by the picture for **MODE**.
8. Write the number 8 by the picture for **PARABOLA**.
9. Write the number 9 by the picture for **PLOT**.

SIGHT RECOGNITION

Turn to page 2 and 3 in your test. Look at the pictures in the boxes. Circle the word for each picture.

DECODING/ENCODING

Turn to page 4 and 5 in your test. Look at the word parts in the boxes. Circle the other half or part of each word.



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.

READING COMPREHENSION

Turn to page 6 in your test. Write each word under its definition.
Refer to Student Support Materials for answer key.

BASIC WRITING

Turn to page 7 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.



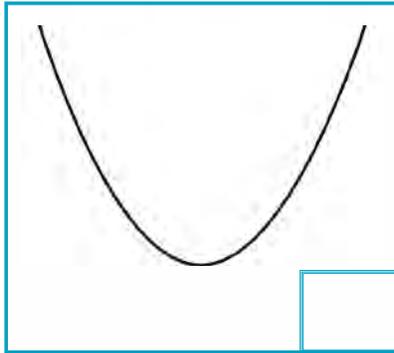


MATH PROGRAM

Unit Assessment Student Pages
Grade 7 • Unit 10

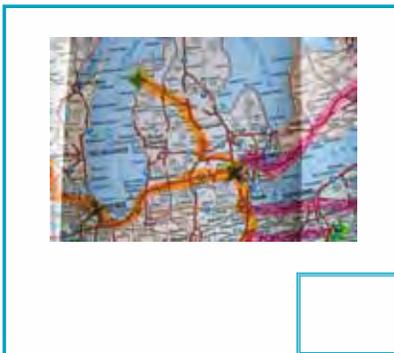
Date: _____ Student's Name: _____

Number Correct: _____ Percent Correct: _____



1 2 3 4 4 4 5 6 7 8 9

—



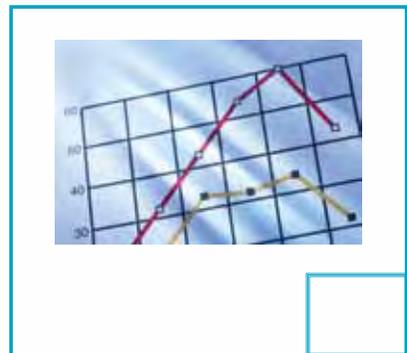
7
3
9
6
4

—

101
50 — / — = —
75
84

3, 5, 7, 12, 13, 14, 21, 23

—

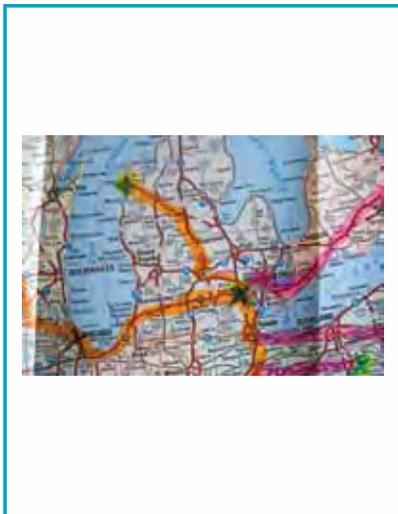




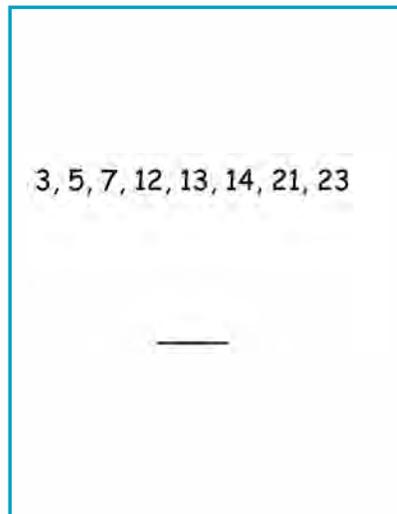
combinations
 line graph
 axis
 range
 mean
 medium
 mode
 parabola
 plot



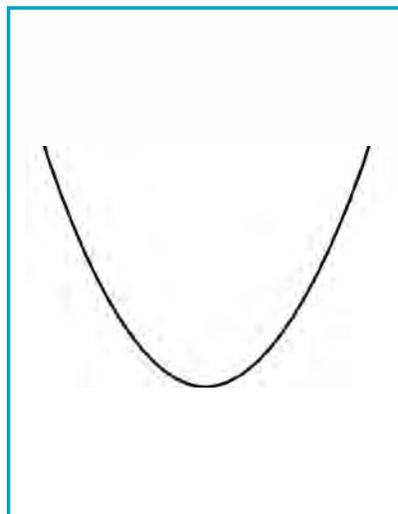
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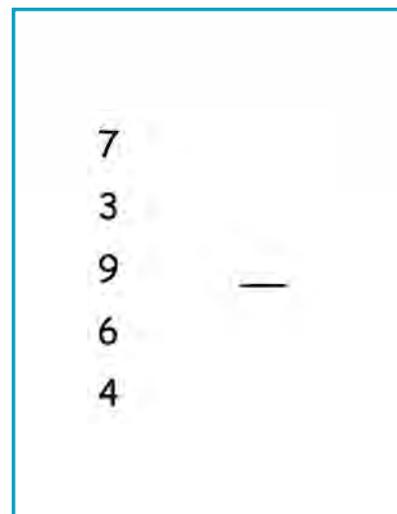
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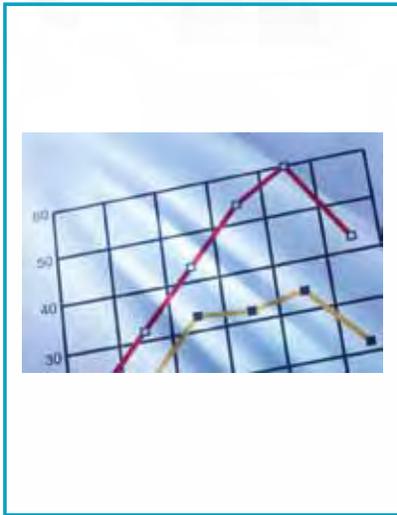
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 parabola
 plot



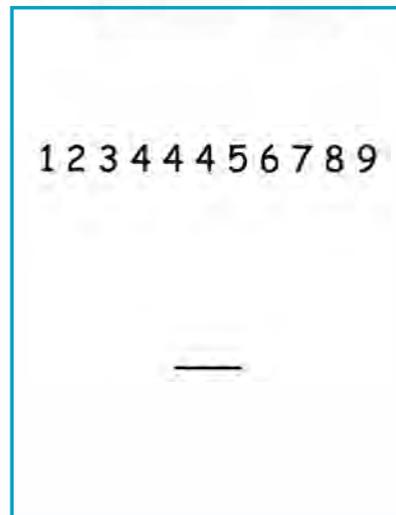
combinations
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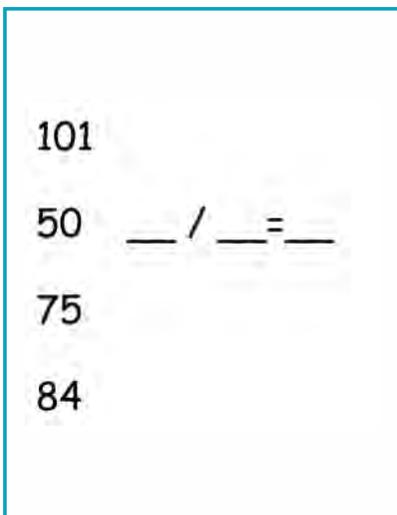
combinations
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 parabola
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combinations
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combinations
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This is the difference between the lowest and highest values.

In these, the order of things is not important.

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combinations

line graph

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axis

mean

mean

range

parabola

mode

1 2 3 4 4 4 5 6 7 8 9

—



101

50 — / — = —

75

84

7

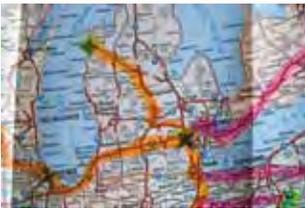
3

9

6

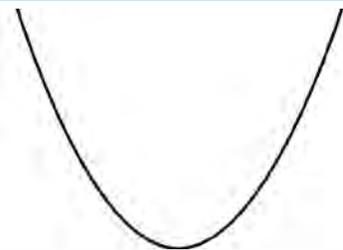
4

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3, 5, 7, 12, 13, 14, 21, 23

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GLOSSARY

Glossary

A

Actual

Something that is real and not just imagined.

Acute

A triangle for which all interior angles are acute – less than 90degrees.

Addends

Any of the numbers that are added together. Example: In $2 + 3 = 5$, the 2 and the 3 are addends.

Additive (inverse)

The number you add to another number to get zero. The negative of a number. For example: The additive inverse of -5 is 5, because $-5 + 5 = 0$. Also the additive inverse of 5 is -5.

Affected

Acted upon; influenced. Numbers can be affected in a variety of ways, e.g through computation.

Approximately

Almost exact or correct

Area

The size of a surface. The amount of space inside the boundary of a flat (2-dimensional) object such as a triangle or circle.

Arrange

To place in proper, desired, or convenient order; adjust properly:

Average

The average could be any single number that represents the center of a set of values.

Glossary

Axis

A line of symmetry for a graph. The two sides of a graph on either side of the axis of symmetry look like mirror images of each other.

An axis is also a reference line drawn on a graph (you can measure from it to find values).

C

Calculate

To solve (one or more problems) by a mathematical procedure; compute.

Circumference

The distance around the edge of a circle (or any curvy shape).

Combinations

A collection of things, in which the order does not matter.

Commutative

Is the Law that says you can swap numbers around and still get the same answer when you add or when you multiply.

Examples:

You can swap when you add: $3 + 6 = 6 + 3$

You can swap when you multiply: $2 \times 4 = 4 \times 2$

Complete

Having all parts or elements; lacking nothing.

Composite

A Composite Number can be divided evenly by numbers other than 1 or itself. Example: 9 can be divided evenly by 1, 3 and 9, so 9 is a composite number.

Glossary

Congruent

Exactly equal in size and shape. Congruent sides or segments have the exact same length. Congruent angles have the exact same measure. For any set of congruent geometric figures, corresponding sides, angles, faces, etc. are congruent.

Consider

Think carefully about (something), typically before making a decision.

D

Data

A collection of facts, such as values or measurements.

Decimal

The numbers we use in everyday life are decimal numbers, because there are 10 of them (0,1,2,3,4,5,6,7,8 and 9). Often “decimal number” is also used to mean a number that uses a decimal point followed by digits as a way of showing values less than one.

Example: 1.9 is a decimal number (one and nine tenths)

Degree

A unit of angle measure equal to $\frac{1}{360}$ of a complete revolution. There are 360 degrees in a circle. Degrees are indicated by the ° symbol, so 35° means 35 degrees.

Describe

Give an account in words of (someone or something), including all the relevant characteristics, qualities, or events.

Determine

To find out or come to a decision about by investigation, reasoning, or calculation.

Glossary

Diagonal

A straight line inside a shape that goes from one corner to another (but not an edge). So, if you join two vertices of a polygon which are not already joined by an edge, you get a diagonal.

Diameter

A straight line going through the center of a circle connecting two points on the circumference.

Digit

A symbol used to make numerals. **0, 1, 2, 3, 4, 5, 6, 7, 8** and **9** are the ten digits we use in everyday numbers. Example: the numeral 153 is made up of 3 digits (“1”, “5” and “3”).

Dilation (of scale)

A transformation in which a figure grows larger. Dilations may be with respect to a point (dilation of a geometric figure) or with respect to the axis of a graph (dilation of a graph). Some school textbooks erroneously use the word *dilation* to refer to all transformations in which the figure changes size, whether the figure becomes larger or smaller. Unfortunately the English language has no word that refers collectively to both stretching and shrinking.

Dimensions

A measurement of length in one direction. Examples: width, depth and height are dimensions.

Display

To present or hold up to view.

Divisible

Capable of being divided, usually with no remainder.

E

Edge

The line where two surfaces meet. It can also be the boundary of a shape, such as the circumference of a circle.

Glossary

End Points

Either of two points marking the end of a line segment.

Equilateral

A triangle with three congruent sides.

Equivalent

Something that is essentially equal to another.

Estimate

A close guess of the actual value, usually with some thought or calculation involved. Example: Alex estimated there were 10,000 sunflowers in the field by counting rows.

Evaluate

To calculate the value of. Example: Evaluate the cost of each pie if 3 pies cost \$6. Answer: \$2 each.

Explain

To make plain or comprehensible.

Exponent

The exponent of a number shows you how many times the number is to be used in a multiplication. It is written as a small number to the right and above the base number. In this example: $8^2 = 8 \times 8 = 64$ (Another name for exponent is index or power)

Expression

Numbers, symbols and operations (such as + and \times) grouped together that show the value of something. Example 2×3 is an expression

Extend

To stretch or spread (something) out to greater or fullest length.

Glossary

F

Formula

Numbers and symbols that show how to work something out. For example, the formula for finding the volume of a box is “ $V = w \times d \times h$ ” (V stands for volume, w for width, d for depth and h for height. If $w=4$, $d=5$ and $h=10$, then $V = 4 \times 5 \times 10 = 200$.) It is a special type of equation that shows the relationship between different variables.

Function

A function is a special relationship between values: Each of its input values gives back exactly one output value. It is often written as “ $f(x)$ ” where x is the value you give it. Example: $f(x) = x/2$ (“f of x is x divided by 2”) is a function, because for every value of “x” you get another value “ $x/2$ ”. So:

* $f(2) = 1$

* $f(16) = 8$

* $f(-10) = -5$

G

Greatest (common factor- GCF)

The highest number that divides exactly into two or more numbers. If you find all the factors of two or more numbers, and you find some factors are the same (“common”), then the largest of those common factors is the Greatest Common Factor. Example: the GCF of 12 and 30 is 6, because 1, 2, 3 and 6 are factors of both 12 and 30, and 6 is the greatest.

I

Illustrate

To clarify, as by use of examples or comparisons.

Integers

All positive and negative whole numbers (including zero).

Glossary

Inverse

Opposite in effect. The reverse of. The inverse of adding 9 is subtracting 9. The inverse of multiplying by 5 is dividing by 5.

Irregular (polygon)

A polygon that does not have all sides equal and all angles equal. A polygon is “regular” only if all angles are equal and all sides are equal otherwise it is irregular.

Isosceles

A triangle with two sides that are the same length.

L

Least (common multiple)

A common multiple is a number that is a multiple of two or more numbers. The common multiples of 3 and 4 are 0, 12, 24, The least common multiple (LCM) of two numbers is the smallest number (not zero) that is a multiple of both.

Line graph

Line graphs compare two variables. Each variable is plotted along an **axis** . A line graph has a vertical axis and a horizontal axis.

M

Matrix

A matrix (plural **matrices**, or less commonly *matrixes*) is a rectangular array of numbers, symbols, or expressions. The individual items in a matrix are called its *elements* or *entries*. An example of a matrix with six elements is

$$\begin{bmatrix} 1 & 9 & 13 \\ 20 & 55 & 6 \end{bmatrix}.$$

Matrices of the same size can be added or subtracted element by element.



Glossary

Mean

Another word for average. To find the mean, you add up all the numbers and then divide by the number of numbers.

Median

The “median” is the “middle” value in a list of numbers. To find the median, your numbers have to be listed in numerical order.

Mode

The “mode” is the number that occurs most often in a list of numbers. If no number is repeated, then there is no mode for the list.

Models

Models represent patterns found in graphs and/or data.

Multiplicative (property)

The product of any number and one is that number. For example $5 \times 1 = 5$.

N

Numeral

A symbol or name that stands for a number. Examples: 3, 49 and twelve are all numerals

O

Obtuse (triangle)

A triangle which has an obtuse angle as one of its interior angles. An obtuse angle has measure more than 90° and less than 180° .

Ordered Pair

Two numbers written in a certain order. Usually written in parentheses like this: (4,5)

Glossary

Can be used to show the position on a graph, where the “x” (horizontal) value is first, and the “y” (vertical) value is second.

P

Parabola

A special curve, shaped like an arch.

Parallel

Lines on a plane that never meet. They are always the same distance apart.

Parentheses

Parentheses or “round brackets” are the familiar () symbols used in pairs to group things together. For example, $(3 + 2) \times (6 - 4) = 5 \times 2 = 10$

Pattern

Things that are arranged following a rule or rules. Example: there is a pattern in these numbers: 2, 7, 12, 17, 22, ... The rule is “start at 2 and add 5 each time”

Percent

Percent means parts per 100. The symbol is %. Example: 25% means 25 per 100

Perimeter

The distance around a two-dimensional shape. The perimeter of a circle is called the circumference.

(To) Plot

To draw on a graph or map.

Polygon

A plane shape (two-dimensional) with straight sides, such as triangles, rectangles and pentagons. A circle is not a polygon because it has a curved side).

Glossary

Polyhedron

A solid with flat faces (from Greek poly- meaning “many” and -edron meaning “face”), such as pyramids and prisms

Each flat surface (or “face”) is a polygon.

Prime

A Prime Number can be divided evenly only by 1 or itself and it must be greater than 1. For example, 7 can be divided evenly only by 1 or 7, so it is a prime number.

Product

The answer when two or more numbers are multiplied together.

Property

An attribute or character that something has, such as color, height, weight, etc.

Protractor

An instrument used in measuring or drawing angles.

Pyramid

A solid object where the base is a polygon (a straight-sided flat shape) and the sides are triangles which meet at the top (the apex).

Q

Quadrant

A quarter of a circle (made by two radiuses at right angles and the connecting arc).

Quadrilateral

A flat shape with four straight sides.

Glossary

R

Radius

The distance from the center to the edge of a circle - it is half of the circle's diameter.

Range

The difference between the lowest and highest values. In {4, 6, 9, 3, 7} the lowest value is 3, and the highest is 9, so the range is $9 - 3 = 6$.

Ratio

A ratio shows the relative sizes of two or more values. Ratios can be shown in different ways. Using the “:” to separate example values, or as a single number by dividing one value by the total.

Example: if there is 1 boy and 3 girls you could write the ratio as:
1:3 (for every one boy there are 3 girls)

Rectangular (prism)

A solid (3-dimensional) object which has six faces that are rectangles. It is a prism because it has the same cross-section along a length.

Regular (polygon)

If all angles are equal and all sides are equal, then it is a regular polygon (otherwise it is “irregular”).

Respond

To make a reply; answer.

Right angled (triangle)

A triangle that has a right angle (90°)

Rounding

Rounding means reducing the digits in a number while trying to keep its value similar. The result is less accurate, but easier to use.

Glossary

Rules

The rules of mathematics are designed so everyone gets the same answer to a problem. Rules are based on basic properties of numbers and the four operations--addition, subtraction, multiplication and division.

S

Scale

The ratio of the length in a drawing (or model) to the length of the real thing – for example, in a drawing anything with the size of “1” might have a size of “10” in the real world, so a measurement of 150mm on the drawing would be 1500mm on the real item.

Scalene

A triangle with all sides of different lengths and no sides are equal and no angles are equal

Select

To take as a choice from among several; to pick out.

Similar

In Geometry, two shapes are similar if the only difference is size (and possibly the need to turn or flip one around).

Solve

To work out a correct solution to a problem.

Sum

The result of adding two or more numbers.

Symmetry

Symmetry is when one shape becomes exactly like another if you flip, slide or turn it. The simplest type of symmetry is “reflection” (or “mirror”) symmetry.

Glossary

T

Terms

In algebra a term is either a single number or a variable, or numbers and variables multiplied together.

Time zones

The time in any of 24 time zones, usually the mean solar time at the central meridian of each zone. In the continental United States, there are four standard time zones: Eastern, using the 75th meridian; Central, using the 90th meridian; Mountain, using the 105th meridian; and Pacific, using the 120th meridian. The Alaskan time zone is at 135°W and used throughout Alaska except for the western Aleutian Islands. Also called *Alaska Time*.

Trapezoid

A trapezoid is a quadrilateral with one pair of opposite sides parallel. It is not a parallelogram because only one pair of sides is parallel. It is called a regular trapezoid if the sides that aren't parallel are equal in length and both angles coming from a parallel side are equal.

Triangular Prism

A solid object that has two identical ends and all flat sides. The cross section is the same all along its length. The shapes of the ends give the prism the name “triangular prism” because it has triangular ends. It is a polyhedron.

U

Units

How many ones. How many single items. Used to show the “ones” place value (units, tens, hundreds, etc). For example, 27 has two tens and 7 units.

V

Value

The result or ‘output’ of a calculation – for example: 3×4 gives the value of 12.



Glossary

Variable

A symbol for a number we don't know yet. It is usually a letter like x or y . for example: in $x + 2 = 6$, x is the variable

Variety

A number or collection of varied things, especially of a particular group; an assortment.

Vertex/Vertices

A point where two or more straight lines meet. For example, a corner of a polygon (2D) or of a polyhedron (3D).

W

Whole Numbers

The numbers $\{0, 1, 2, 3, \dots\}$ etc. There is no fractional or decimal part. And no negatives. For example: 5, 49 and 980 are all whole numbers.

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