# MATH

FOR LANGUAGE DEVELOPMENT
BASED ON ALASKA MATH STANDARDS
GRADE 7 • BOOK 1

Sealaska Heritage Institute

# *Integrating culturally responsive place-based content with language skills development for curriculum enrichment*

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# *Introduction to the Developmental Language Process in Math*

**OVER THE YEARS**, much has been written about the successes and failures of students in schools. There is no end to the solutions offered, particularly for those students who are struggling with academics. For example, there have been efforts to bring local cultures into the classroom, thus providing the students with familiar points of departure for learning.

While the inclusion of Native concepts, values,and traditions into a curriculum provide a valuable foundation for self-identity and cultural pride, they may not, on their own, fully address improved academic achievement.

Through math lessons, students are exposed to new information and to the key vocabulary that represents that information. While the students may acquire, through various processes, the scientific information, the vocabulary is often left at an exposure level and not internalized by the students. Over time, this leads to language delay that impacts negatively on a student's ongoing achievement.

Due to weak language bases, many Native Alaskan high school students struggle with texts that are beyond their comprehension levels and writing assignments that call for language they do not have.

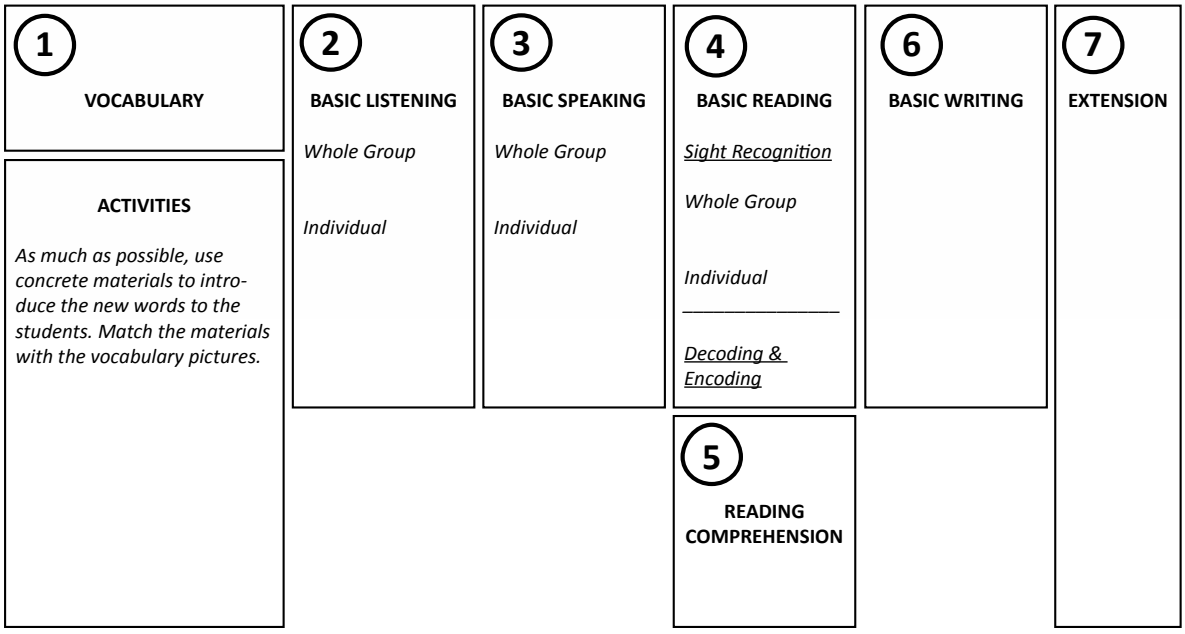
This program is designed to meet the academic realities faced by high school students every day, using a developmental process that integrates culture with skills development.

To this end, each key vocabulary word, in math, is viewed as a concept. The words are introduced concretely, using place-based information and contexts. Whenever possible, the concept is viewed through the Native heritage cultural perspectives. Using this approach, the students have the opportunity to acquire new information in manageable chunks, the sum total of which represent the body of information to be learned in the math program.

When the key vocabulary/concepts have been introduced, the students are then taken through a sequence of listening, speaking, reading, and writing activities designed to instill the vocabulary into their long-term memories.

This is the schema for the Developmental Language Process:

## The Developmental Language Process—Math



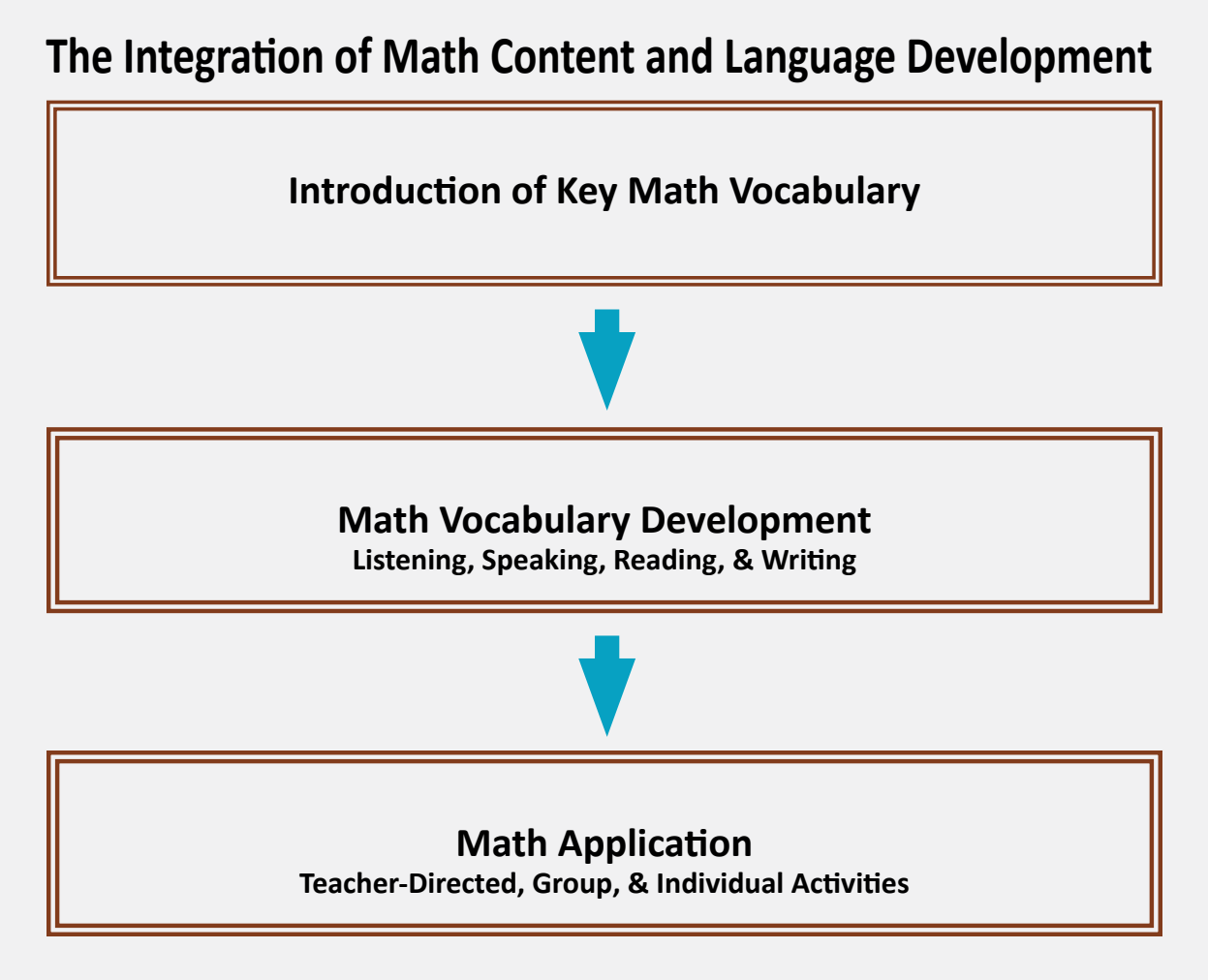
# *Introduction to the Developmental Language Process in Math*

Finally, at the end of each unit, the students will participate in enrichment activities based on recognized and research-based best practices. By this time, the math information and vocabulary will be familiar, adding to the students' feelings of confidence and success. These activities will include place-based and heritage culture perspectives of the information learned.

This approach is radically different from current practices in most math classes. Historically, little or no formal vocabulary development takes place. It is assumed that the vocabulary is being internalized during the learning process, which is most often an erroneous assumption.

Increasing the language bases of the students will lead to improved comprehension in listening and reading, and higher levels of production in creative speaking and writing.

This, coupled with the place-based and culturally-responsive content, will provide the students with the foundations necessary for ongoing confidence and achievement.



# UNIT 1
## *Process Skills*

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

# *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 a conceptual understanding of probability and counting techniques by**

[7] S&P-4 determining the [experimental] (L) and theoretical probability of a simple event (M6.3.5)

[7] S&P-5 using a systematic approach to finding sample spaces or to making predictions about the probability of independent events (M6.3.5)

[7] S&P-6 designing and conducting a simulation to study a problem and communicate the results (L) (M6.3.6)

**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 use logic and reason by**

[7] PS-4 using informal deductive and inductive reasoning in concrete contexts or stating counterexamples to disprove statements; or justifying and defending the validity of mathematical strategies and solutions using examples (M9.3.1, M9.3.2, & M9.3.3)

**The student understands and applies mathematical skills and processes across the content strands by**

[7] PS-5 using real-world contexts such as science, humanities, peers, and community (M10.3.1 & M10.3.2)

# INTRODUCTION OF MATH VOCABULARY

# Process Skills

**Concrete Introduction of Key Vocabulary**
**Note:** *A vocabulary graphic is provided in this unit for each of the key words. Definitions for all of the key words can be found in the glossary at the back of this program.*

**SOLVE**

***Show the students a boxed food item (i.e. a cake mix). Tell the students that you have what you need to make the cake but no cake pan. They should suggest how you can solve this problem. Relate this to solving problems in math. Cite examples.***

**EXTEND**

***Show the students an object and an elastic band. Have them demonstrate extending the elastic to fit the object. Use this to introduce extend as it applies to ideas and other situations, such as extended stay hotels, vacations, etc.***

**ARRANGE**

***Show the students a variety of spice containers. Have the students suggest how the items might be arranged (i.e. smallest to largest or reverse, alphabetical order, etc.). Show the picture from the end of this unit. Have the students determine how the items in the picture were arranged.***

# *Process Skills*

**Concrete Introduction of Key Vocabulary**
**Note:** *A vocabulary graphic is provided in this unit for each of the key words. Definitions for all of the key words can be found in the glossary at the back of this program.*

**CALCULATE**

***Show the students the photo of the hot dogs on a bbq from the end of this unit. Have them suggest how a person knows the number of food items to prepare for a gathering (i.e. by calculating the food amounts based on the numbers attending). Relate calculating to other situations.***

**ILLUSTRATE**

***Show the students the picture from the end of this unit that shows a person presenting information using a graph. Use this to introduce illustrating information. Relate this to illustrating the use of something, such as new equipment, using examples to make something clearer, etc.***

**RESPOND**

***Show the students the picture of a person using a computer from the end of this unit. Have them suggest what the person is doing with the computer. Lead them to suggest that he may be answering a letter. Use this to introduce respond. Have the students cite other methods that can be used to respond to others.***

# Process Skills

**Concrete Introduction of Key Vocabulary**
**Note:** *A vocabulary graphic is provided in this unit for each of the key words.*
*Definitions for all of the key words can be found in the glossary at the back of this program.*

**CONSIDER**

***Show the students the picture from the end of this unit that shows a winner. Have the students suggest ways in which he might spend his money. Use this to introduce consider as it relates to the man's options for spending the money.***

**EVALUATE**

***Show the students the picture from the end of this unit that shows a person taking an eye test. Use it to introduce evaluate as it relates to the vision test. Have the students cite other examples that involve evaluations, such as academic tests, tasting food, etc.***

**ACTUAL**

***On a blank sheet of paper, draw an illustration of a book. Show the students an actual book. Use this to introduce actual as opposed to imagined. Have the students suggest other actual things, such as planning a trip vs. going on the trip, a picture of a car vs. the actual car, etc.***

# Process Skills

**Concrete Introduction of Key Vocabulary**
**Note:** *A vocabulary graphic is provided in this unit for each of the key words. Definitions for all of the key words can be found in the glossary at the back of this program.*

**APPROXIMATELY**

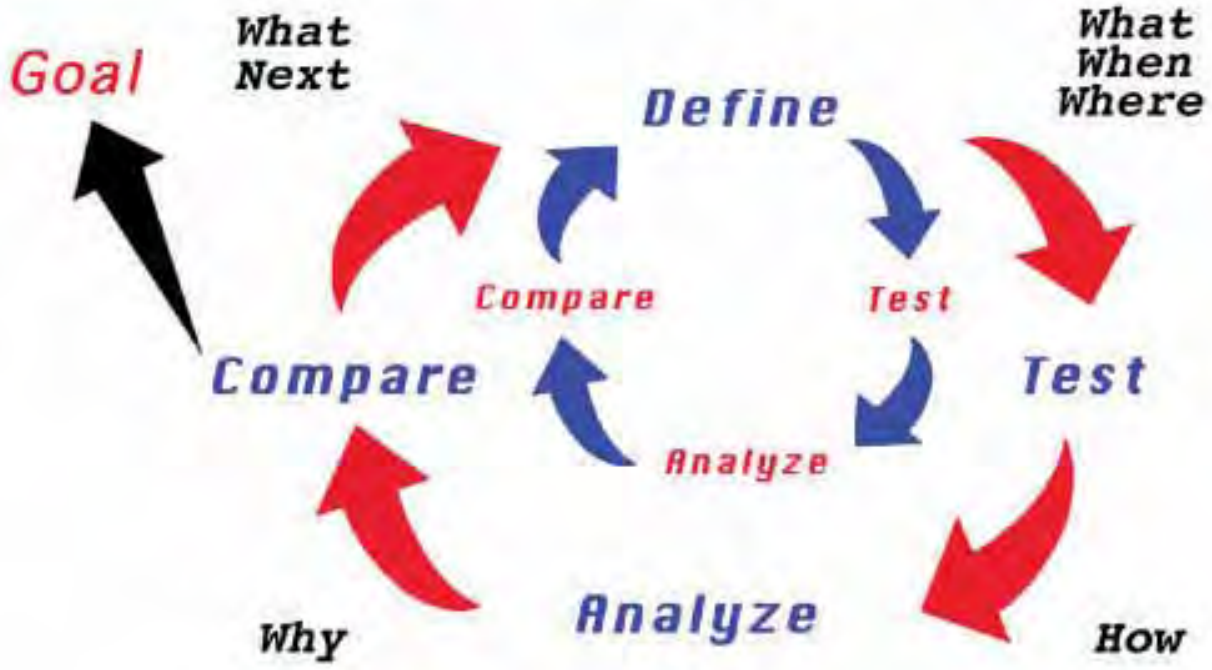
***Show the students the picture of the fish from the end of this unit. Ask the students to estimate the number of fish in the picture. Use this to introduce approximately. Cite other examples where numbers are approximate as opposed to actual.***

**SELECT**

***Show the students the picture of jars of food from the end of this unit. Use the jars to introduce the concept of selecting. Cite other examples in which people have to select, such as soda machines and clothing.***

# VOCABULARY PICTURES

# Problem Solving Process



# SOLVE

# EXTEND

Ground
Cloves

# ARRANGE

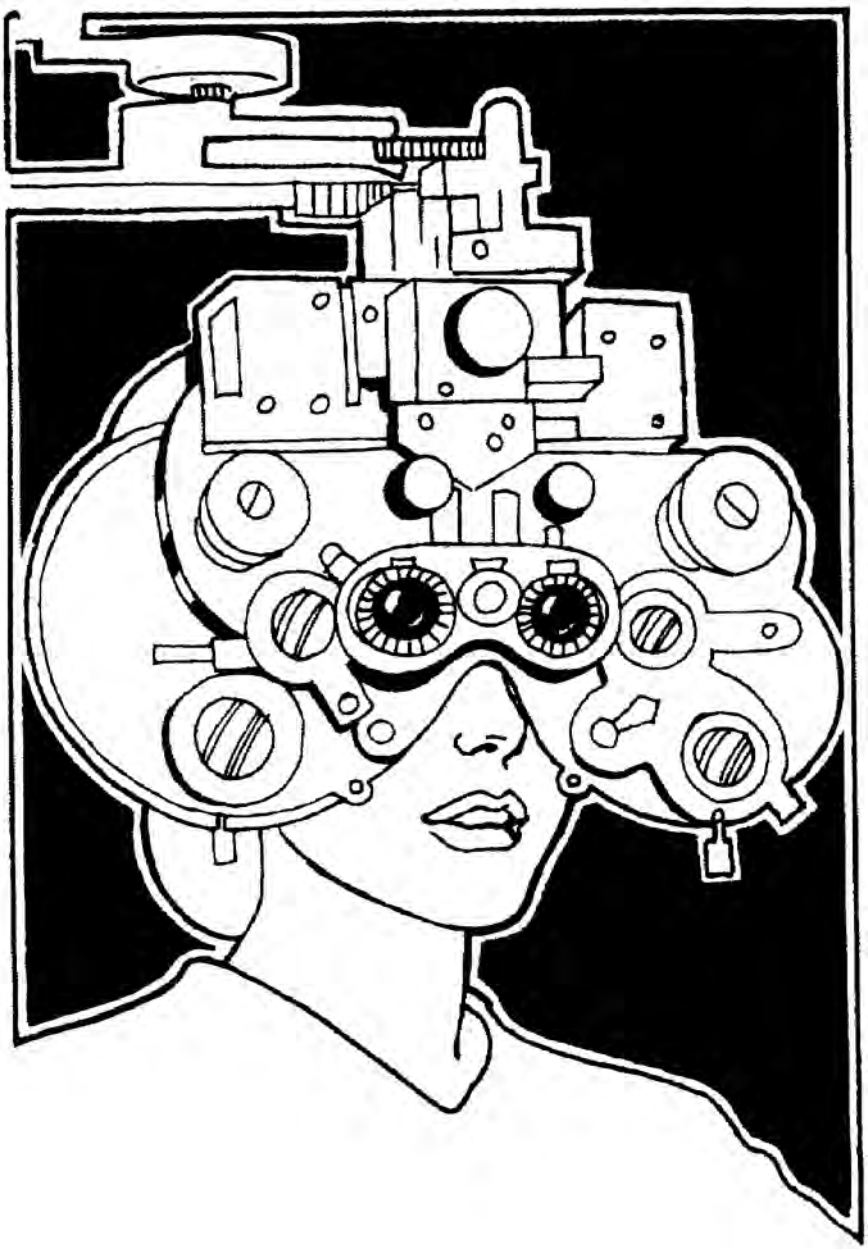
# CALCULATE

# ILLUSTRATE

# RESPOND

INSTANT WIN!
LOTTERY
$10,000.00

# CONSIDER



# EVALUATE

# ACTUAL

# APPROXIMATELY

# SELECT

# 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.

### Collander

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

Provide each student with four copies of the Alphabet Page, found on page 72 in the Student Support Materials. The students should cut out their letters and place them in individual envelopes. These cut-out letters will be used throughout the program for letter encode activities. You may wish to have the students write their names on their envelopes. Then, 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.

### 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.

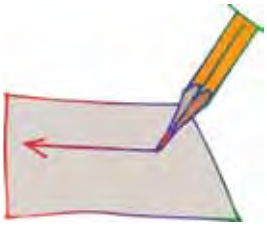
### Student Support Materials
Have the students complete the sight recognition and encoding activities in the Student Support Materials. When finished, review their work.

## 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

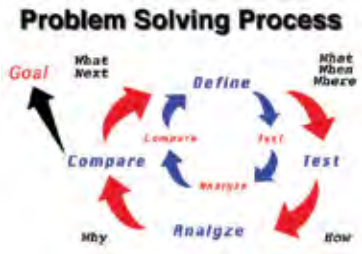
Have the students complete the sight recognition and encoding activities in the Student Support Materials. When finished, review their work.

# STUDENT SUPPORT MATERIALS

**Listening • Mini Pictures**

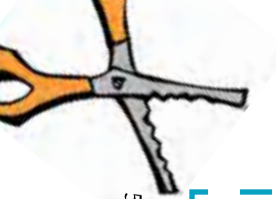
# *Listening: Mini Pictures*

*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

## Sight Words





solve

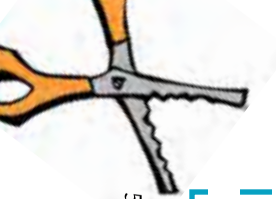
extend

arrange

consider

evaluate

actual





calculate

illustrate

respond

approximately

select

# STUDENT SUPPORT MATERIALS

## Reading • Sight Recognition

# *Sight Words Activity Page*

*Have the students circle the word for each picture.*

solve
extend
arrange
calculate
illustrate
respond
consider
evaluate
actual
approximately
select

solve
extend
arrange
calculate
illustrate
respond
consider
evaluate
actual
approximately
select

solve
extend
arrange
calculate
illustrate
respond
consider
evaluate
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approximately
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calculate
illustrate
respond
consider
evaluate
actual
approximately
select

solve
extend
arrange
calculate
illustrate
respond
consider
evaluate
actual
approximately
select

# Sight Words Activity Page

solve
extend
arrange
calculate
illustrate
respond
consider
evaluate
actual
approximately
select

solve
extend
arrange
calculate
illustrate
respond
consider
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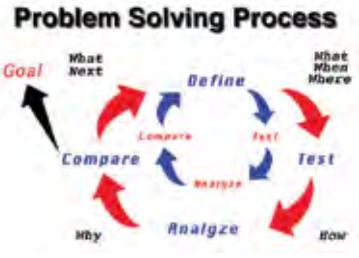
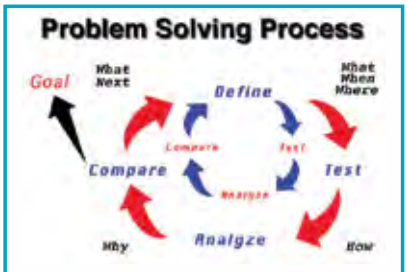



solve
extend
arrange
calculate
illustrate
respond
consider
evaluate
actual
approximately
select

# *Sight Words Activity Page*

*Write the numbers on their correct vocabulary graphics.*



1. **select**
2. **extend**
3. **evaluate**
4. **calculate**
5. **illustrate**
6. **approximately**
7. **respond**
8. **consider**
9. **actual**
10. **arrange**
11. **solve**

# Sight Words Activity Page

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

# *Sight Words Activity Page*

*Highlight or circle the words in this word find.*

select
illustrate
arrange
extend

respond
consider
approximately
actual

evaluate
calculate
solve

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

# Sight Words Activity Page

*ANSWER KEY*

select
illustrate
arrange
extend

respond
consider
approximately
actual

evaluate
calculate
solve

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

# STUDENT SUPPORT MATERIALS

**Reading • Encoding**

# *Encoding Activity Page*

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

**sol_____**

**_____tend**

**cal_____late**

**_____spond**

**con_____der**

| | | |
|---|---|---|
| ge | cu | ve |
| tr | ex | |

# *Encoding Activity Page*

e_____uate

ac_____al

app_____imately

_____lect

| | | |
|---|---|---|
| si | se | val |
| tu | rox | re |

# *Encoding Activity Page*

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

| | |
|---|---|
| **sol** | **range** |
| **ex** | **trate** |
| **ar** | **tend** |
| **calcu** | **uate** |
| **illus** | **lect** |

# *Encoding Activity Page*

| | |
|---|---|
| re | mately |
| consi | ve |
| eval | tual |
| ac | late |
| approxi | spond |
| approxi | der |

# *Encoding Activity Page*

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

| ma | ap | i | prox |
|---|---|---|---|
| _____ | _____ | _____ | _____ |

| ly | te |
|---|---|
| _____ | _____ |

| cu | late | cal |
|---|---|---|
| _____ | _____ | _____ |

# *Encoding Activity Page*

| trate | lus | il |
|---|---|---|
| _____ | _____ | _____ |

| val | u | e | ate |
|---|---|---|---|
| _____ | _____ | _____ | _____ |

# *Alphabet Page Letter Encode*

| | | | | | |
|---|---|---|---|---|---|
| a | b | c | d | e | f |
| g | h | i | j | k | l |
| m | n | o | p | q | r |
| s | t | u | v | w | x |
| y | z | | | | |

# 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. To solve a problem is to
   - ❍ create an axis for a polygon.
   - ❍ calculate the ordered pair in a set of triangles.
   - ❍ get its answer.
   - ❍ use a protractor to find prime numbers.

2. When something is extended, it is
   - ❍ congruent.
   - ❍ the median.
   - ❍ made shorter.
   - ❍ made longer.

3. Which one of these can be used to arrange things?
   - ❍ exponent
   - ❍ protractor
   - ❍ size
   - ❍ scalene

4. Which one of these can be used to calculate a value?
   - ❍ product
   - ❍ 10
   - ❍ 6x9
   - ❍ isosceles

5. When we illustrate something, we try to
   - ❍ make it clear.
   - ❍ leave out data.
   - ❍ keep it secret.
   - ❍ find an exponent.

6. When we respond we
   - ❍ scale.
   - ❍ answer.
   - ❍ function.
   - ❍ dilation.

# What's the Answer?

**7** When we consider something we
- ❍ answer without thinking.
- ❍ don't answer a problem.
- ❍ ask someone else to solve a problem.
- ❍ think carefully.

**8** To evaluate something is to
- ❍ draw a polyhedron.
- ❍ calculate the value of something.
- ❍ use a protractor to draw a circle.
- ❍ leave out the value of something.

**9** Actual is the opposite of
- ❍ vertex.
- ❍ mode.
- ❍ real.
- ❍ pretend.

**10** Which of these words is close to approximately?
- ❍ exact
- ❍ almost
- ❍ actual
- ❍ dimensions

**11** Which of these words goes with select?
- ❍ choose
- ❍ extend
- ❍ calculate
- ❍ find an exponent.

# What's the Answer?

*ANSWER KEY*

1. To solve a problem is to
   - ❍ create an axis for a polygon.
   - ❍ calculate the ordered pair in a set of triangles.
   - ● get its answer.
   - ❍ use a protractor to find prime numbers.

2. When something is extended, it is
   - ❍ congruent.
   - ❍ the median.
   - ❍ made shorter.
   - ● made longer.

3. Which one of these can be used to arrange things?
   - ❍ exponent
   - ❍ protractor
   - ● size
   - ❍ scalene

4. Which one of these can be used to calculate a value?
   - ❍ product
   - ❍ 10
   - ● 6x9
   - ❍ isosceles

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   - ❍ keep it secret.
   - ❍ find an exponent.

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- ❍ exact
- ● almost
- ❍ actual
- ❍ dimensions

11 Which of these words goes with select?
- ● choose
- ❍ extend
- ❍ calculate
- ❍ find an exponent.

# Reading Comprehension Activity Page

*Write the numbers/letters for sentence halves that match.*

| | | | |
|---|---|---|---|
| 1 | When we 1 solve something we | A | find values. |
| 2 | To extend something is to | B | that is almost exact. |
| 3 | Things can be arranged | C | make it longer. |
| 4 | We calculate to | D | we calculate its value. |
| 5 | When a person illustrates something | E | by their values. |
| 6 | When we respond we | F | a pretend thing. |
| 7 | When we consider we | G | get the answer. |
| 8 | When we evaluate something | H | answer something. |
| 9 | An actual thing is the opposite of | I | he/she tries to make it clearer. |
| 10 | Approximately relates to something | J | choose it. |
| 11 | When we select something we | K | think carefully about something. |

1→_____ 2→ _____ 3→ _____ 4→ _____

5→ _____ 6→ _____ 7→ _____ 8→ _____

9→ _____ 10→ _____ 11→ _____

# *Reading Comprehension Activity Page*

*ANSWER KEY*

| | | | |
|---|---|---|---|
| 1 | When we 1 solve something we | A | find values. |
| 2 | To extend something is to | B | that is almost exact. |
| 3 | Things can be arranged | C | make it longer. |
| 4 | We calculate to | D | we calculate its value. |
| 5 | When a person illustrates something | E | by their values. |
| 6 | When we respond we | F | a pretend thing. |
| 7 | When we consider we | G | get the answer. |
| 8 | When we evaluate something | H | answer something. |
| 9 | An actual thing is the opposite of | I | he/she tries to make it clearer. |
| 10 | Approximately relates to something | J | choose it. |
| 11 | When we select something we | K | think carefully about something. |

1→ G  2→ C  3→ E  4→ A

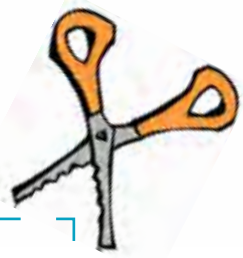
5→ I  6→ H  7→ K  8→ D

9→ F  10→ B  11→ J

# *Reading Comprehension Activity Page*

*Cut out the words and glue them under their definitions.*

| | | |
|---|---|---|
| **To work out a correct way to solve a problem.** | **To make longer.** | **To organize things.** |
| **To find the answer to something.** | **To explain something.** | **To answer.** |
| **To think carefully about something.** | **To calculate the value of something.** | **The real thing.** |
| **Almost exact.** | **To choose something** | |



**extend** **calculate** **evaluate** **consider**

**arrange** **respond** **select** **solve**

**illustrate** **actual** **approximately**

# *Reading Comprehension Activity Page*

*ANSWER KEY*

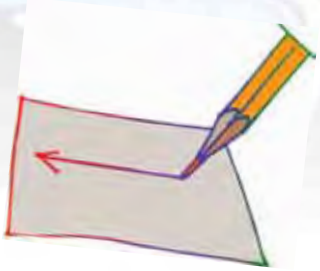
| | | |
|---|---|---|
| **To work out a correct way to solve a problem.** solve | **To make longer.** extend | **To organize things.** arrange |
| **To find the answer to something.** calculate | **To explain something.** illustrate | **To answer.** respond |
| **To think carefully about something.** consider | **To calculate the value of something.** evaluate | **The real thing.** actual |
| **Almost exact.** approximately | **To choose something** select | |

# STUDENT SUPPORT MATERIALS

## Writing

# *Writing Activity Page*

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



**sol_____**

**_____ tend**

**_____ range**

**calcu_____ late**

**i_____ trate**

**_____ spond**

**con_____ der**

**e_____ uate**

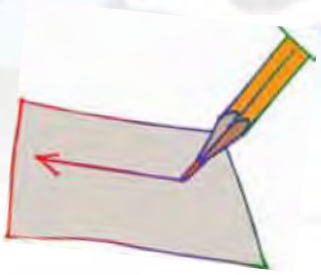
**ac_____ al**

**app_____ imately**

**_____ lect**

# *Writing Activity Page*

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



s_____e

ex_____d

ar_____e

ca_____e

ill_____e

re_____d

co_____r

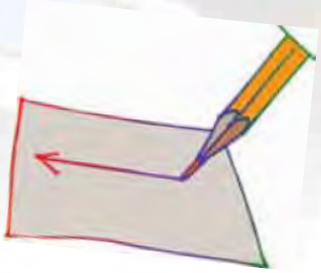
ev_____e

ac_____l

ap_____ly

s_____t

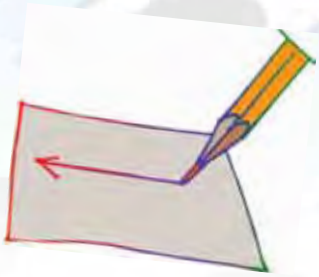
# Basic Writing Activity Page

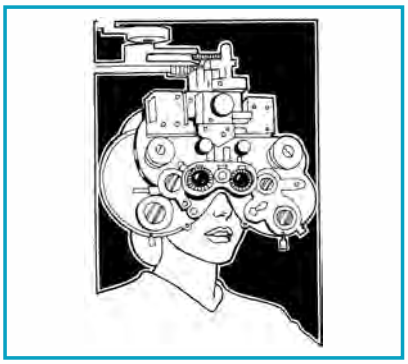


*Have the students write the word for each picture.*

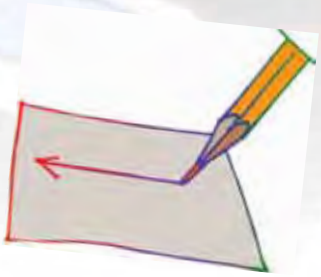
# Basic Writing Activity Page

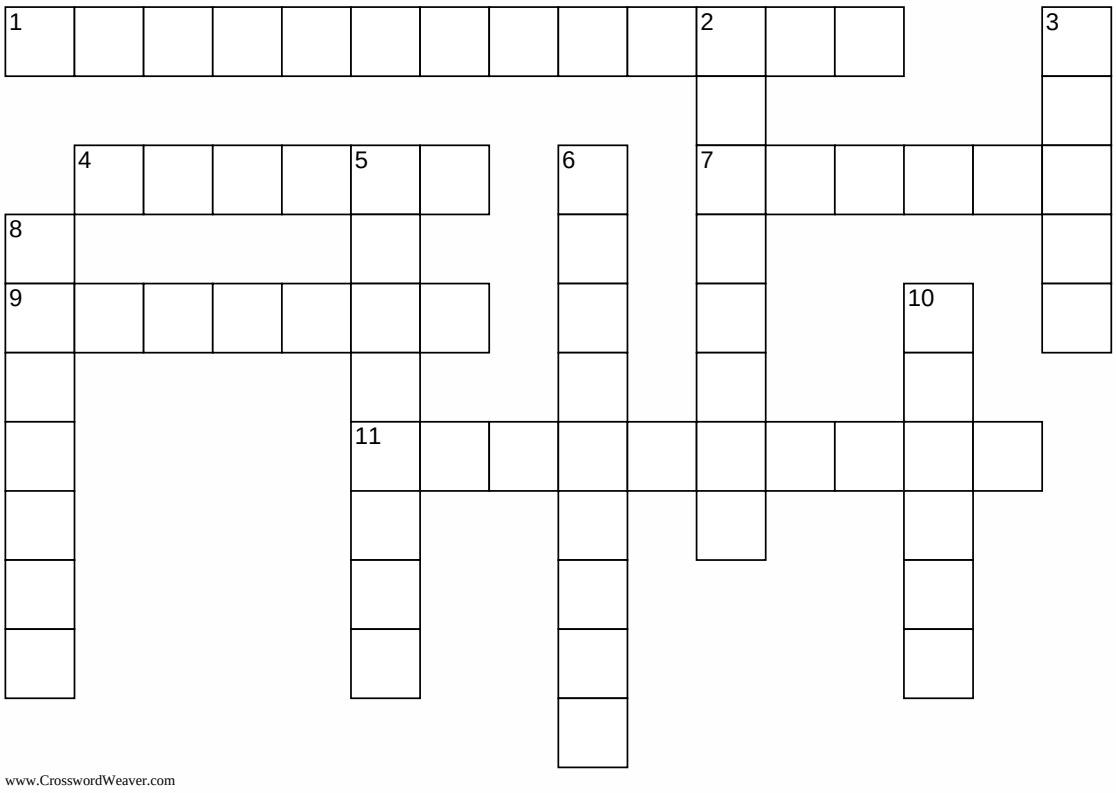
*Have the students write the word for each picture.*





# Crossword Puzzle






www.CrosswordWeaver.com

## ACROSS

**1** almost exact
**4** To choose something.
**7** the real thing
**9** To answer.
**11** To explain something.

## DOWN

**2** To calculate the value of something.
**3** To work out a correct way to solve a problem.
**5** To think carefully about something.
**6** To Find the answer to something.
**8** To organize things.
**10** To make longer.

# Crossword Puzzle Answers

Solution:

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | P | P | R | O | X | I | M | A | T | E | L | Y | | | | S |
| | | | | | | | | | | V | | | | | | O |
| | S | E | L | E | C | T | | C | | A | C | T | U | A | | L |
| A | | | | | O | | | A | | L | | | | | | V |
| R | E | S | P | O | N | D | | L | | U | | | E | | | E |
| R | | | | | S | | | C | | A | | | X | | | |
| A | | | | | I | L | L | U | S | T | R | A | T | E | | |
| N | | | | | D | | | L | | E | | | E | | | |
| G | | | | | E | | | A | | | | | N | | | |
| E | | | | | R | | | T | | | | | D | | | |
| | | | | | | | | E | | | | | | | | |

# UNIT ASSESSMENT

# PROCESS SKILLS

## Unit Assessment Teacher's Notes
## Grade 7 • Unit 1

**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 **SOLVE**.
2. Write the number 2 by the picture for **EXTEND**.
3. Write the number 3 by the picture for **ARRANGE**.
4. Write the number 4 by the picture for **CALCULATE**.
5. Write the number 5 by the picture for **ILLUSTRATE**.
6. Write the number 6 by the picture for **RESPOND**.
7. Write the number 7 by the picture for **CONSIDER**.
8. Write the number 8 by the picture for **EVALUATE**.
9. Write the number 9 by the picture for **ACTUAL**.
10. Write the number 10 by the picture for **APPROXIMATELY**.
11. Write the number 11 by the picture for **SELECT**.

## 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.

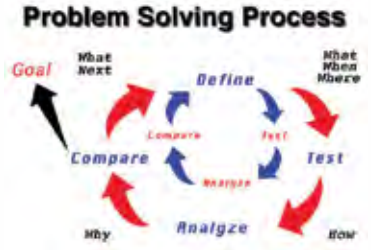
*Teacher: To get a percentage for this student's assessment, divide the total number of questions correct by the total number of questions, then multiply this answer by 100 to determine the percentage of questions answered correctly.*

# MATH PROGRAM

## Unit Assessment Student Pages
## Grade 7 • Unit 1

**Date:_____** **Student's Name:_____**

**Number Correct:_____** **Percent Correct:_____**


Problem Solving Process
Goal
What Next
Define
What When Where
Compare
Test
Analyze
Why
How

INSTANT WIN!
LOTTERY
$10,000.00

solve
extend
arrange
calculate
illustrate
respond
consider
evaluate
actual
approximately
select

solve
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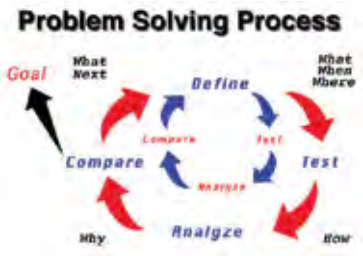


solve
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select

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**eval**

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**approx**

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imately
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| | |
|---|---|
| **ex** | ve<br>tend<br>range<br>late<br>trate<br>spond<br>sider<br>uate<br>tual<br>imately<br>lect |
| **calcu** | ve<br>tend<br>range<br>late<br>trate<br>spond<br>sider<br>uate<br>tual<br>imately<br>lect |
| **con** | ve<br>tend<br>range<br>late<br>trate<br>spond<br>sider<br>uate<br>tual<br>imately<br>lect |
| **se** | ve<br>tend<br>range<br>late<br>trate<br>spond<br>sider<br>uate<br>tual<br>imately<br>lect |
| **ac** | ve<br>tend<br>range<br>late<br>trate<br>spond<br>sider<br>uate<br>tual<br>imately<br>lect |

| | | |
|---|---|---|
| To work out a correct way to solve a problem. | To make longer. | To organize things. |
| To find the answer to something. | To explain something. | To answer. |
| To think carefully about something. | To calculate the value of something. | The real thing. |
| Almost exact. | To choose something. | |

| | | | |
|---|---|---|---|
| extend | calculate | evaluate | consider |
| arrange | respond | select | solve |
| illustrate | actual | approximately | |

Problem Solving Process
Goal
What Next
Define
What When Where
Compare
Test
Analyze
Why
How

INSTANT WIN!
LOTTERY
$10,000.00

# UNIT 2
## *Numeration*

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

# *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 rational numbers (fractions, decimals, percents, or integers) by**

[7] N-1 ordering rational numbers (M1.3.1)

[7] N-2 modeling (place value blocks) or identifying place value positions of whole numbers and decimals (L) (M1.3.2)

[7] N-3 converting between expanded notation (multiples of ten) and standard form for decimal numbers (M1.3.3)

**Of positive fractions, decimals, or percents by**

[7] N-4 identifying or representing equivalents of numbers (M1.3.4 & M3.3.5)

**The student demonstrates conceptual understanding of number theory by**

[7] N-6 using commutative, [associative L], inverse, or identity properties with rational numbers (M1.3.6)

[7] N-7 applying rules of divisibility to whole numbers (M1.3.5)

[7] N-8 identifying prime and composite numbers (M1.3.5)

[7] N-9 [using distributive property with rational numbers L] (M1.3.6)

# *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

# Numeration

**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.*

**INTEGERS**

***Mix whole and broken pilot bread together. Have the students locate the whole piece of pilot bread. Use these to introduce integers — whole numbers, not fractions.***

**LEAST (common multiple)**

***Place a slice of bread in front of the students. Place a number of items that can be used with bread and others that usually aren't (i.e. butter, glue). The students should identify the items that go with the bread. Use this as an analogy to introduce least common multiples (i.e. 8 and 12 are the least common multiples of 24, but 11, for examPle, is not). Show other examples of least common multiples.***

**GREATEST (common factor)**

***Show pictures or boxes of two different pizzas. Both pizzas should have pepperoni, even though the other ingredients vary. Have the students determine what is the same about both pizzas — both have pepperoni. Use this as an analogy for greatest common factor. For example, 1,2,3 and 6 are factors for both 12 and 30, with 6 being the greatest common factor. Cite other examples of greatest common factors.***

# *Numeration*

**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.*

| | |
|---|---|
| **DISPLAY** | ***Show the students a picture of items that are on display. Have the students suggest other things that can be displayed.*** |
| **PERCENT** | ***Lay a slice of bread on a cutting board on a table. Direct the students' attention to the "whole" slice of bread. Introduce this as 100 percent. Use a knife to cut the bread slice in half; and introduce 50 percent. Repeat this process, introducing 25 percent. Locate items that are on sale. Have the students notice the percent of savings on the different items. Introduce the percent symbol to the students.*** |
| **DECIMAL** | ***Place 4 and a half pilot breads on a table. Write the number using a decimal number(4.5). Repeat, using other examples.*** |

# Numeration

**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.*

**MODELS**

***Show the students different samples of patterned materials. Have them compare and contrast the materials. Use this to relate models to patterns found in graphs and data. Show actual graphs that contain models.***

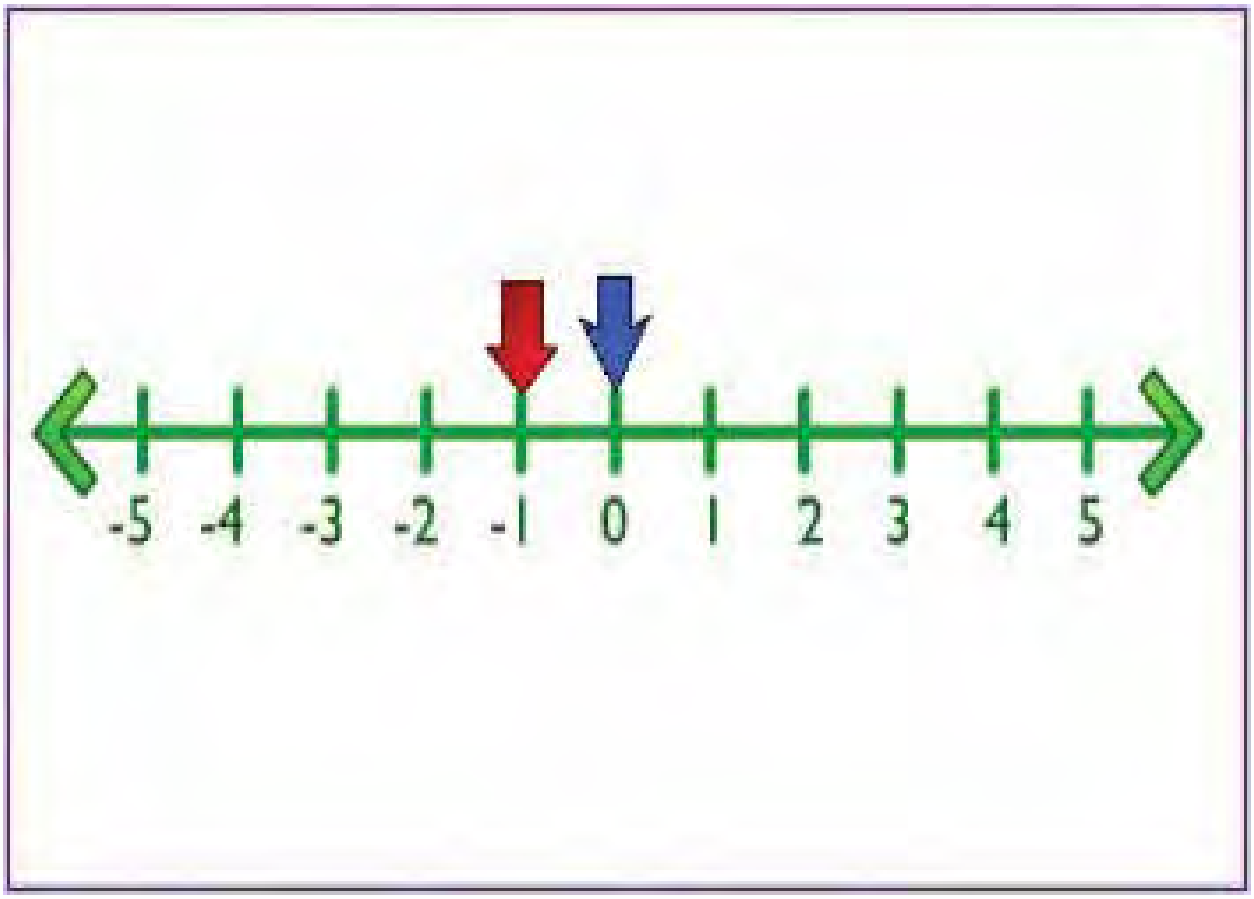
**COMMUTATIVE (law)**

***Show the students a cup of tea. Show cream and sugar. Lead the students to suggest that it doesn't matter which you put in the tea first — the tea will taste the same. Use this as an analogy for the commutative law in addition and multiplication. Show samples, such as 4+5=9 and 5+4=9.***

**PROPERTY**

***Place a number of different items in front of the students. Have the students describe each one — its texture, taste, sound, etc. (as appropriate for the different items).Use this to introduce the properties of items. Relate this to the properties of shapes, such as triangles, polygons, etc.***

# VOCABULARY PICTURES


-5 -4 -3 -2 -1 0 1 2 3 4 5

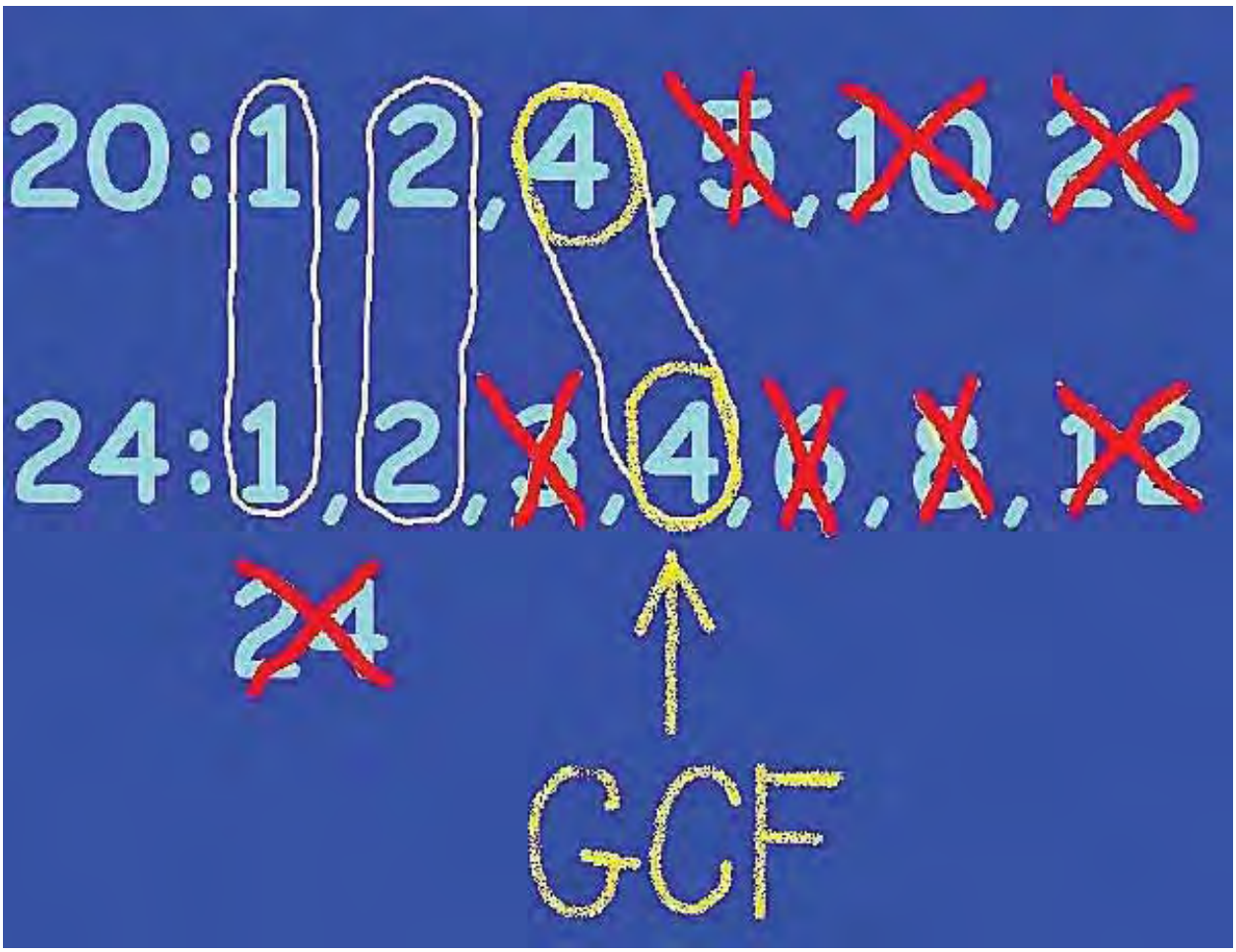
# INTEGERS

$\frac{1}{2}$ $\frac{1}{3}$ $\frac{3}{4}$

$12 = 2 \times 2 \times 3$

LCD

# LEAST
# (common multiple)


20: 1, 2, 4, 5, 10, 20
24: 1, 2, 3, 4, 6, 8, 12
24
GCF

# GREATEST
# (common factor)

# DISPLAY

# PERCENT

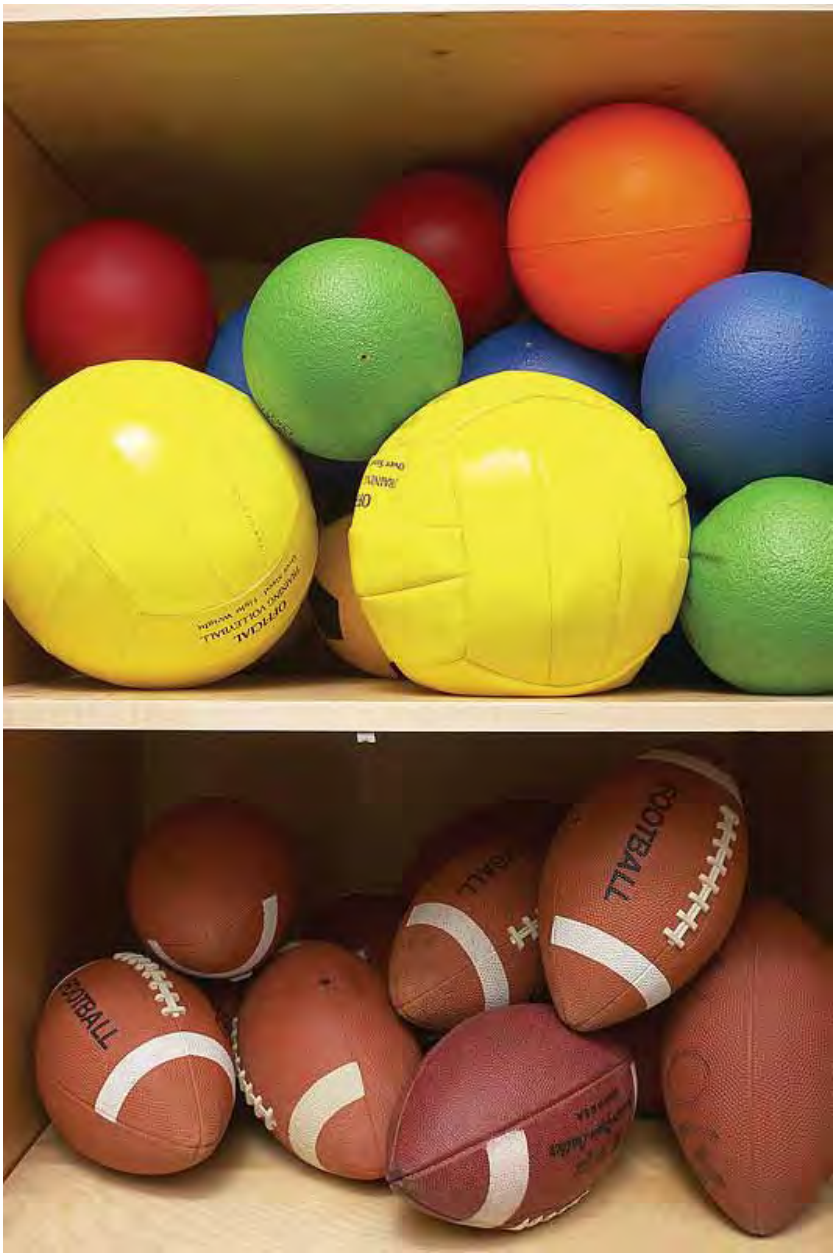
0.50

# DECIMAL

Sales vs Profit by Month
Profit
Sales
$475
$350
$225
$100
$-25
$-150
Value
January
February
March
April
May
June
Month

# MODELS

# COMMUTATIVE
# (law)



# PROPERTY

# 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.*

### Same or Different?

Provide each student with two blank flashcards. Each student should then make a happy face on one of his/her cards and a sad face on the other card. When the students' cards are ready, say two sentences, using the math terms from this unit. If the two sentences are exactly the same, the students should hold up their happy face cards. However, if there is any difference between the two sentences, the students should hold up their sad face cards. Repeat, using a number of different pairs of sentences.

### 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.

## 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.

# *Language and Skills Development*

## SPEAKING

### Visual Memory

Mount the vocabulary pictures on the board. The students should look carefully at the pictures. Then, have the students 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. Another way to conduct this activity is to do the reverse. In this case, 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.

### 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.

# *Language and Skills Development*

## 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.

## 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.

## 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.

# *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.

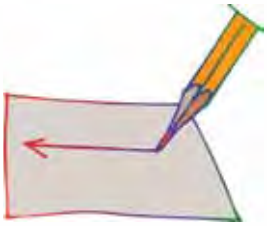
### Student Support Materials
Have the students complete the sight recognition and encoding activities in the Student Support Materials. When finished, review their work.

## 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.

### 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

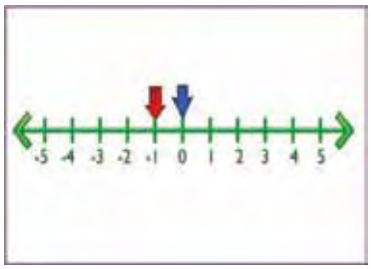
Write a "meshword" on the chalkboard. To create a meshword, combine two word halves from different words. For example, for "scale" and "data" you might write "scada." Provide each student with writing paper and a pen. The students should look at the meshword written on the chalkboard and attempt to identify 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.

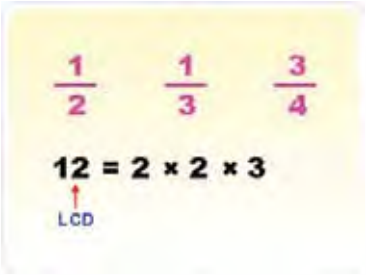
# STUDENT SUPPORT MATERIALS

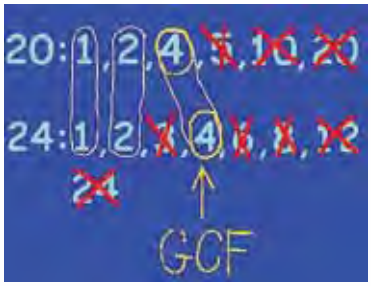
**Listening • Mini Pictures**

# *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.*



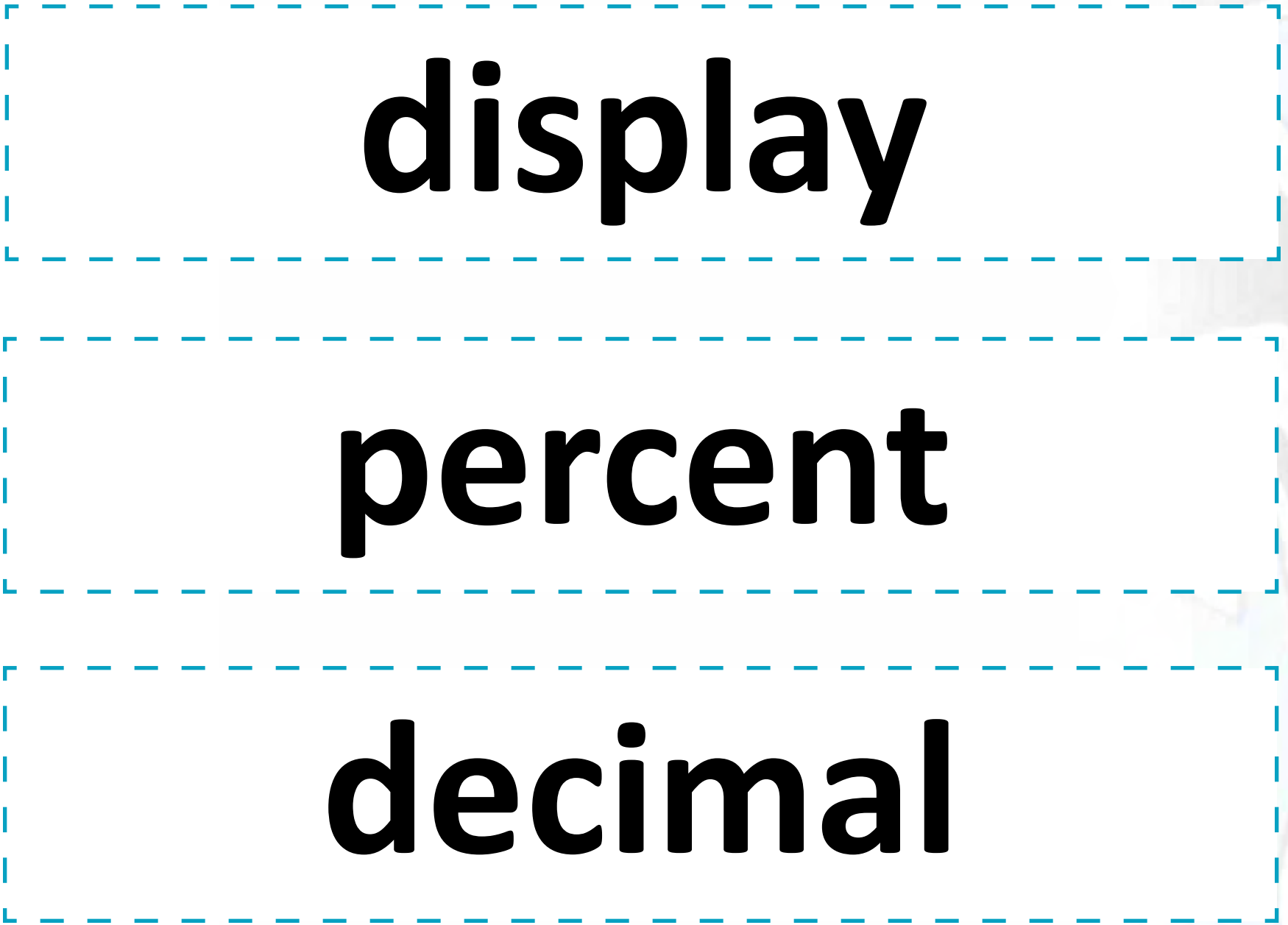
# STUDENT SUPPORT MATERIALS

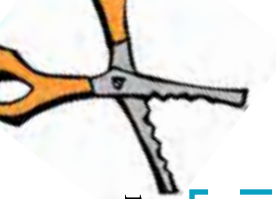
## Sight Words

integers

least

greatest


display
percent
decimal





models

commutative

property

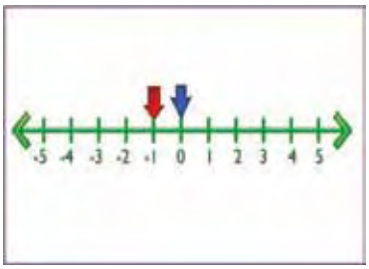
# STUDENT SUPPORT MATERIALS

**Reading • Sight Recognition**

# *Sight Words Activity Page*

*Have the students circle the word for each picture.*

integers
least
greatest
display
percent
decimal
models
commutative
property

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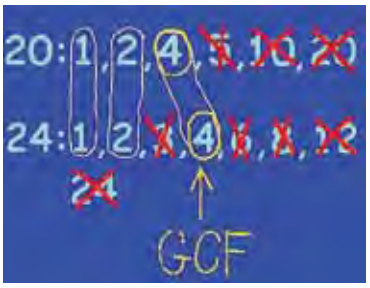


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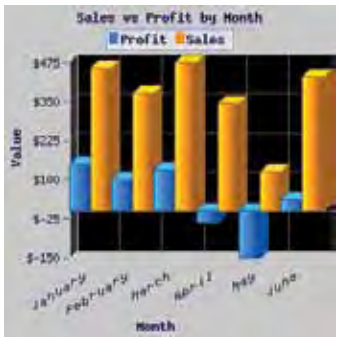


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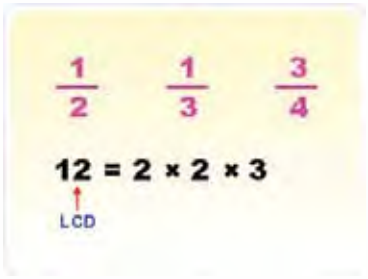
# *Sight Words Activity Page*

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models
commutative
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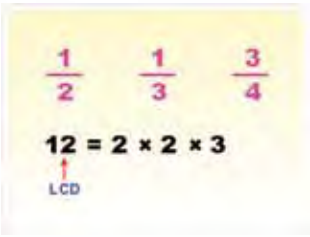
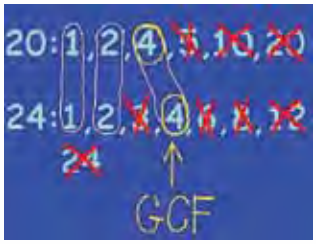
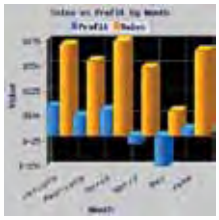
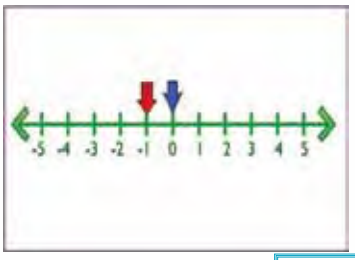
# Sight Words Activity Page

*Write the numbers on their correct vocabulary graphics.*







1. **integers**
2. **least**
3. **greatest**
4. **display**
5. **percent**
6. **decimal**
7. **commutative**
8. **models**
9. **property**

# Sight Words Activity Page

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

# *Sight Words Activity Page*

*Highlight or circle the words in this word find.*

least
greatest
display
decimal
commutative
integers
percent
models
property

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

# Sight Words Activity Page

*ANSWER KEY*

least
greatest
display
decimal
commutative
integers
percent
models
property

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

# STUDENT SUPPORT MATERIALS

**Reading • Encoding**

# *Encoding Activity Page*

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

**in_____s**

**l_____t**

**gr_____t**

**d_____y**

**pe_____t**

| | | |
|---|---|---|
| eas | rcen | eatis |
| cima | ispla | |

# *Encoding Activity Page*

de_____l

m_____ls

com_____ve

pro_____ty

| | |
|---|---|
| ode | teger |
| per | mutati |

# *Encoding Activity Page*

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

| | |
|---|---|
| **inte** | **est** |
| **le** | **mal** |
| **great** | **tative** |
| **dis** | **dels** |
| **perc** | **perty** |

# *Encoding Activity Page*

| | |
|---|---|
| deci | gers |
| mo | play |
| commu | ent |
| pro | ast |

# *Encoding Activity Page*

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

| com | tive | mu | ta |
|---|---|---|---|
| _____ | _____ | _____ | _____ |

| ci | de | mal |
|---|---|---|
| _____ | _____ | _____ |

| per | pro | ty |
|---|---|---|
| _____ | _____ | _____ |

# 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. An integer is
   - ❍ a fraction of a whole number.
   - ❍ a whole number.
   - ❍ a model based on a graph.
   - ❍ is a property of a shape.

2. The least common multiple is
   - ❍ the greatest number that can be divided by itself.
   - ❍ a triangle with the same angles on all sides.
   - ❍ the smallest number that is a multiple of two numbers.
   - ❍ a number that can be multiplied by 0.

3. The greatest common factor
   - ❍ is the lowest number that divides evenly into two or more numbers.
   - ❍ is the difference between two fractions.
   - ❍ is the highest number that divides evenly into two or more numbers.
   - ❍ is the one that has the most points.

4. When something is displayed, it is
   - ❍ written in a book so that it can be read later.
   - ❍ buried until it is ready to be shown to people.
   - ❍ cut in half to make it easier to see.
   - ❍ in a place to be seen by people.

5. 25% is
   - ❍ 25 of 100.
   - ❍ 100 of 25.
   - ❍ a % of 25 before addition.
   - ❍ the number of things found in a dozen.

6. Models are
   - ❍ percentages of integers.
   - ❍ the least common factors of integers.
   - ❍ patterns that can be found in graphs.
   - ❍ properties of living things.

# What's the Answer?

**7** A decimal can be used to show

- ❍ whole integers.
- ❍ whole numbers and tenths.
- ❍ the greatest common factor.
- ❍ the least common multiple.

**8** Which one of these shows the commutative property?

- ❍ 3 + 5 = 8
- ❍ 10 = 8 + 2
- ❍ 8 - 5 + 4 = 5 + 2
- ❍ 3 x 2 = 2 x 3

**9** Which one of these is a property of a triangle?

- ❍ sound
- ❍ shape
- ❍ taste
- ❍ brightness

# What's the Answer?

*ANSWER KEY*

1. An integer is
   - ❍ a fraction of a whole number.
   - ● a whole number.
   - ❍ a model based on a graph.
   - ❍ is a property of a shape.

2. The least common multiple is
   - ❍ the greatest number that can be divided by itself.
   - ❍ a triangle with the same angles on all sides.
   - ● the smallest number that is a multiple of two numbers.
   - ❍ a number that can be multiplied by 0.

3. The greatest common factor
   - ❍ is the lowest number that divides evenly into two or more numbers.
   - ❍ is the difference between two fractions.
   - ● is the highest number that divides evenly into two or more numbers.
   - ❍ is the one that has the most points.

4. When something is displayed, it is
   - ❍ written in a book so that it can be read later.
   - ❍ buried until it is ready to be shown to people.
   - ❍ cut in half to make it easier to see.
   - ● in a place to be seen by people.

5. 25% is
   - ● 25 of 100.
   - ❍ 100 of 25.
   - ❍ a % of 25 before addition.
   - ❍ the number of things found in a dozen.

6. Models are
   - ❍ percentages of integers.
   - ❍ the least common factors of integers.
   - ● patterns that can be found in graphs.
   - ❍ properties of living things.

# What's the Answer?

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**9** Which one of these is a property of a triangle?

- ❍ sound
- ● shape
- ❍ taste
- ❍ brightness

# Reading Comprehension Activity Page

*Write the numbers/letters for sentence halves that match.*

| | | | |
|---|---|---|---|
| 1 | An integer | A | how many out of a 100. |
| 2 | The least common mulitple is the | B | tenths. |
| 3 | The greatest common factor is the | C | graphs or data. |
| 4 | When something is displayed | D | addition and multiplication. |
| 5 | Models can be found in | E | is a whole number. |
| 6 | The commutative law is related to | F | a property. |
| 7 | Heat is an example of | G | smallest number that is a multiple of two numbers. |
| 8 | Percent relates to | H | people can see it. |
| 9 | Decimals can be used to show | I | highest number that divides evenly into 2 or more numbers. |

1→_____ 2→ _____ 3→ _____ 4→ _____

5→ _____ 6→ _____ 7→ _____ 8→ _____

9→ _____

# *Reading Comprehension Activity Page*

*ANSWER KEY*

| | | | |
|---|---|---|---|
| 1 | An integer | A | how many out of a 100. |
| 2 | The least common mulitple is the | B | tenths. |
| 3 | The greatest common factor is the | C | graphs or data. |
| 4 | When something is displayed | D | addition and multiplication. |
| 5 | Models can be found in | E | is a whole number. |
| 6 | The commutative law is related to | F | a property. |
| 7 | Heat is an example of | G | smallest number that is a multiple of two numbers. |
| 8 | Percent relates to | H | people can see it. |
| 9 | Decimals can be used to show | I | highest number that divides evenly into 2 or more numbers. |

1→ E  2→ G  3→ I  4→ H

5→ C  6→ D  7→ F  8→ A

9→ B

# *Reading Comprehension Activity Page*

*Cut out the words and glue them under their definitions.*

| | | |
|---|---|---|
| **This is a whole number.** | **This is the smallest multiple of 2 or more numbers.** | **This is a common factor that divides equally into 2 or more numbers.** |
| **This is when something is shown so others can see it.** | **This tells how many out of a 100.** | **This can be used to show whole integers and tenths.** |
| **These are patterns that can be found in graphs and data.** | **This is a law that says the order of numbers we add can be changed to get the same answer.** | **Color would be an example of this.** |

**integers** **least (common multiple)** **greatest (common factor)** **display**

**percent** **decimal** **models**

**commutative property**

# *Reading Comprehension Activity Page*

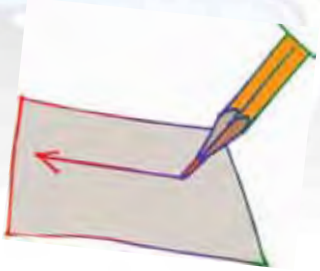
*ANSWER KEY*

| | | |
|---|---|---|
| **This is a whole number.** integer | **This is the smallest multiple of 2 or more numbers.** least | **This is a common factor that divides equally into 2 or more numbers.** greatest |
| **This is when something is shown so others can see it.** display | **This tells how many out of a 100.** percent | **This can be used to show whole integers and tenths.** decimal |
| **These are patterns that can be found in graphs and data.** models | **This is a law that says the order of numbers we add can be changed to get the same answer.** commutative | **Color would be an example of this.** property |

# STUDENT SUPPORT MATERIALS

## Writing

# *Writing Activity Page*



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

**in_____eg_____s**

**l_____st**

**gr_____est**

**dis_____ay**

**p_____cent**

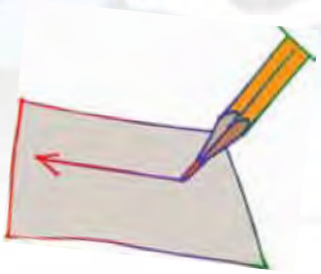
**de_____mal**

**mo_____s**

**com_____tive**

**pro_____ty**

# *Writing Activity Page*



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

**i_____s**

**l_____t**

**g_____t**

**d_____y**

**p_____t**

**d_____l**

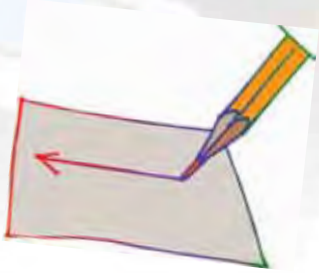
**m_____l**

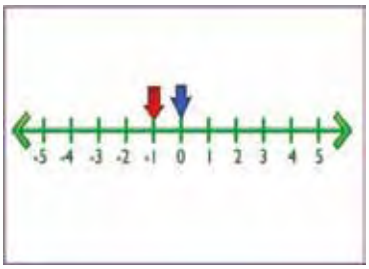
**c_____e**

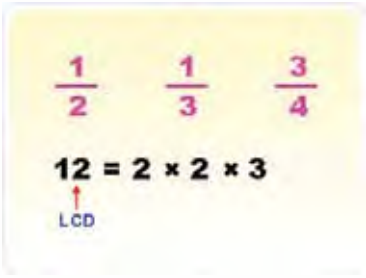
**p_____y**

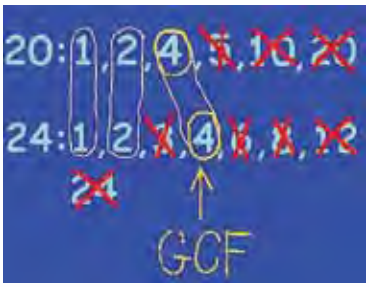
# Basic Writing Activity Page

*Have the students write the word for each picture.*



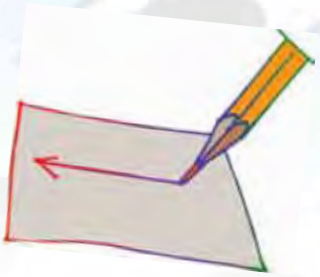


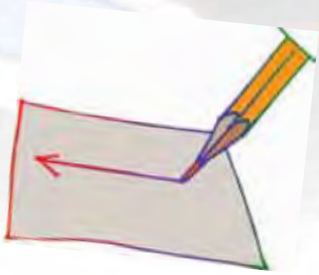



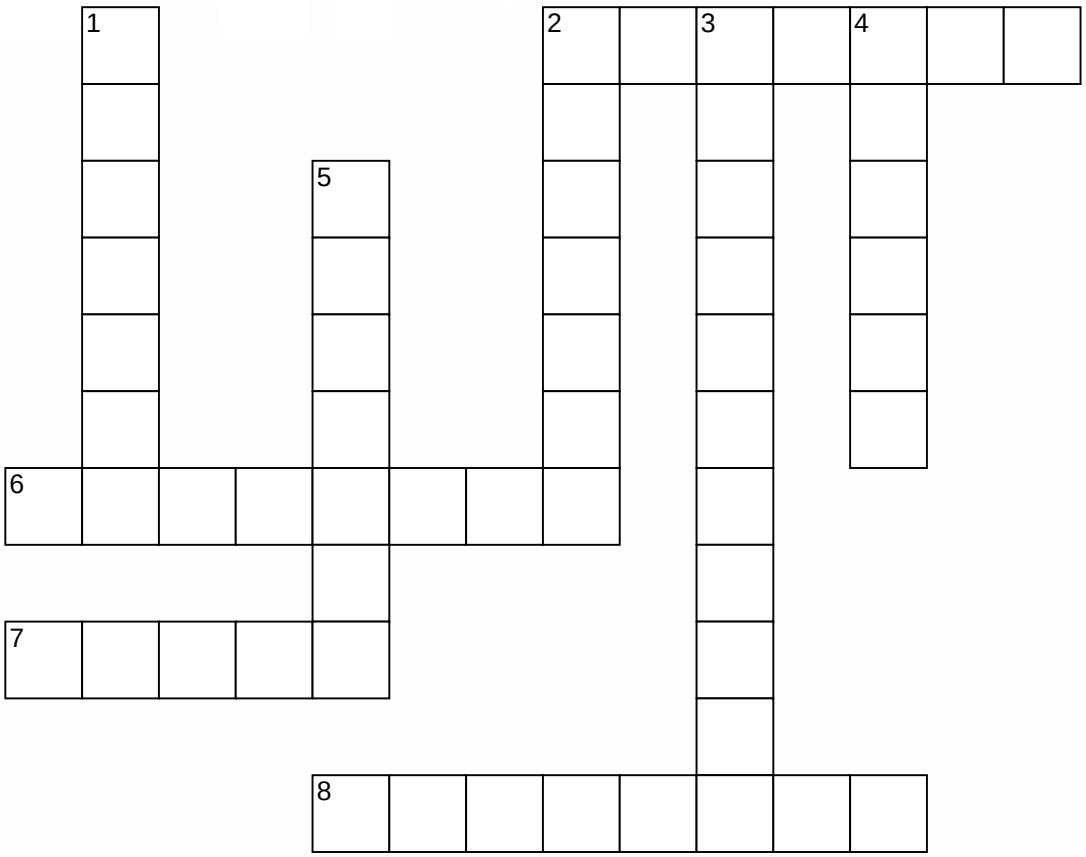
# Basic Writing Activity Page

*Have the students write the word for each picture.*



# Crossword Puzzle






www.CrosswordWeaver.com

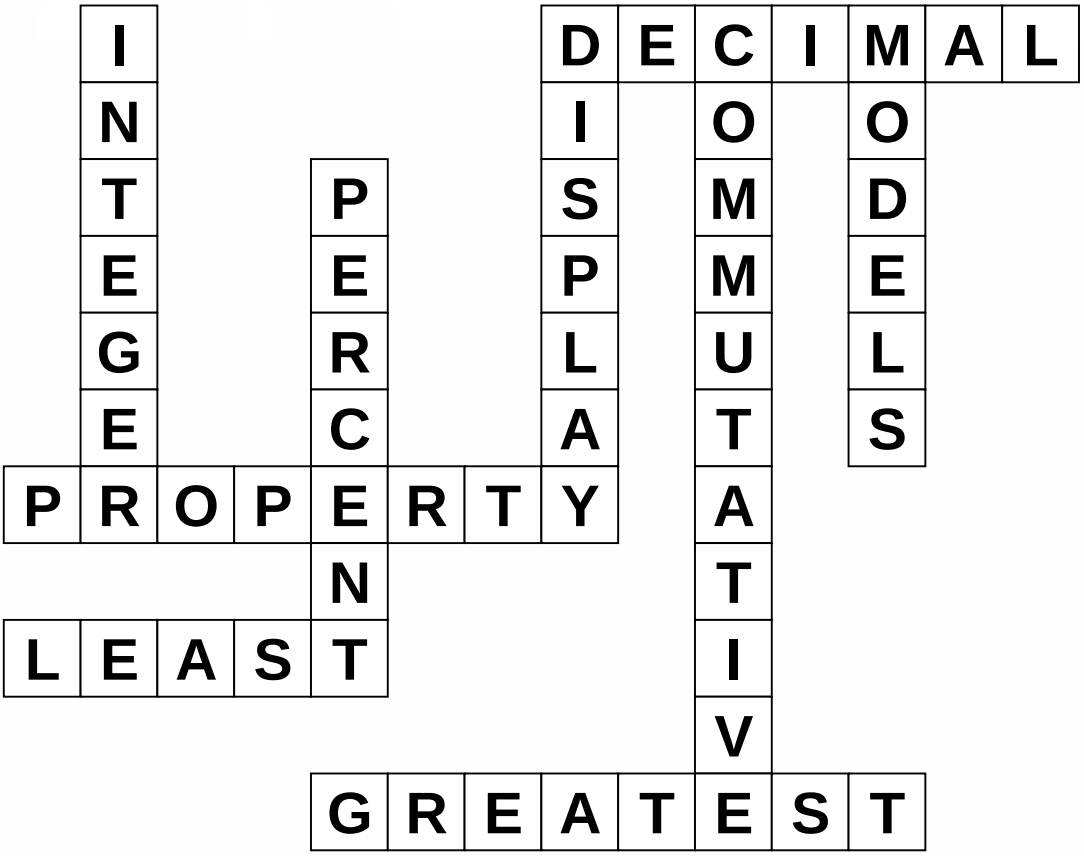
## ACROSS

**2** This can be used to show whole integers and tenths.
**6** Color would be an example of this.
**7** This is the smallest multiple of 2 or more numbers.
**8** This is a common factor that divides equally into 2 or more numbers.

## DOWN

**1** This is a whole number.
**2** This is when something is shown so others can see it.
**3** This is a law that says the order of numbers we add can be changed to get the same answer.
**4** These are patterns that can be found in graphs and data.
**5** This tells how many out of 100.

# Crossword Puzzle Answers



# UNIT ASSESSMENT

# NUMERATION

## Unit Assessment Teacher's Notes
## Grade 7 • Unit 2

**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 **INTEGERS**.
2. Write the number 2 by the picture for the **LEAST COMMON MULTIPLE**.
3. Write the number 3 by the picture for the **GREATEST COMMON FACTOR**.
4. Write the number 4 by the picture for **DISPLAY**.
5. Write the number 5 by the picture for **PERCENT**.
6. Write the number 6 by the picture for **DECIMAL**.
7. Write the number 7 by the picture for **MODELS**.
8. Write the number 8 by the picture for the **COMMUTATIVE PROPERTY**.
9. Write the number 9 by the picture for **PROPERTY**.

## 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 2

**Date:_____** **Student's Name:_____**

**Number Correct:_____** **Percent Correct:_____**

$\frac{1}{2}$ $\frac{1}{3}$ $\frac{3}{4}$

$12 = 2 \times 2 \times 3$

LCD

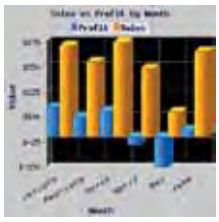
20: 1, 2, 4, 5, 10, 20

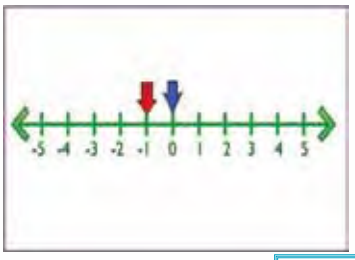
24: 1, 2, 3, 4, 6, 8, 12

24

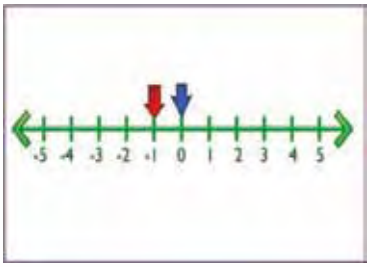
GCF

0.50





integers
least
greatest
display
percent
decimal
models
commutative
property




integers
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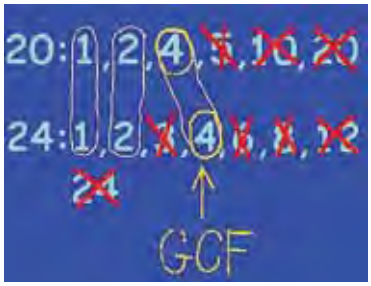
percent
decimal
models
commutative
property

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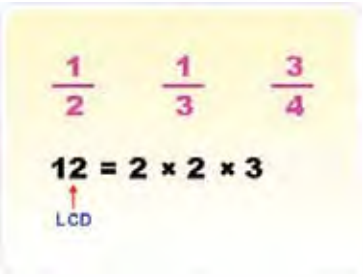


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integers
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greatest
display
percent
decimal
models
commutative
property

| | |
|---|---|
| **deci** | gers<br>st<br>est<br>play<br>ent<br>mal<br>dels<br>tative<br>perty |
| **perc** | gers<br>st<br>est<br>play<br>ent<br>mal<br>dels<br>tative<br>perty |
| **mo** | gers<br>st<br>est<br>play<br>ent<br>mal<br>dels<br>tative<br>perty |
| **inte** | gers<br>st<br>est<br>play<br>ent<br>mal<br>dels<br>tative<br>perty |
| **commu** | gers<br>st<br>est<br>play<br>ent<br>mal<br>dels<br>tative<br>perty |
| **great** | gers<br>st<br>est<br>play<br>ent<br>mal<br>dels<br>tative<br>perty |

**pro**

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perty

**lea**

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dels
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perty

**dis**

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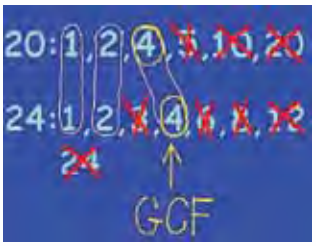
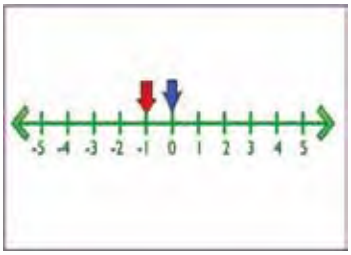
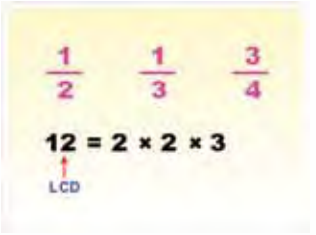
| | | |
|---|---|---|
| This is a whole number. | This is the smallest multiple of 2 or more numbers. | This is a common factor that divides equally into 2 or more numbers. |
| This is when something is shown so others can see it. | This tells how many out of a 100. | This can be used to show whole integers and tenths. |
| These are patterns that can be found in graphs and data. | This is a law that says the order of numbers we add can be changed to get the same answer. | Color would be an example of this. |

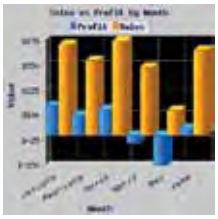
| | | | |
|---|---|---|---|
| greatest | property | least | percent |
| models | decimal | display | integer |
| commutative | | | |


20: 1, 2, 4, 5, 10, 20
24: 1, 2, 4, 8, 12
24
GCF

0.50


-5 -4 -3 -2 -1 0 1 2 3 4 5


1/2 1/3 3/4
12 = 2 × 2 × 3
LCD



# UNIT 3
## *Numeration*

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

# *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 rational numbers (fractions, decimals, percents, or integers) by**

[7] N-1 ordering rational numbers (M1.3.1)

[7] N-2 modeling (place value blocks) or identifying place value positions of whole numbers and decimals (L) (M1.3.2)

[7] N-3 converting between expanded notation (multiples of ten) and standard form for decimal numbers (M1.3.3)

**Of positive fractions, decimals, or percents by**

[7] N-4 identifying or representing equivalents of numbers (M1.3.4 & M3.3.5)

**The student demonstrates conceptual understanding of number theory by**

[7] N-6 using commutative, [associative L], inverse, or identity properties with rational numbers (M1.3.6)

[7] N-7 applying rules of divisibility to whole numbers (M1.3.5)

[7] N-8 identifying prime and composite numbers (M1.3.5)

[7] N-9 [using distributive property with rational numbers L] (M1.3.6)

# *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

# Numeration

**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.*

**MULTIPLICATIVE**

***Fill 5 or 6 paper bags with varying numbers of cookies (i.e. 1, 4, 6, etc.). Use these to introduce the multiplicative property--each bag represents "1" x the number of cookies in the bag (1x1=1, 1x4=4, etc.). The students should understand that any number multiplied by 1 equals that number.***

**INVERSE**

***Collect concrete materials that are opposites — black/white, big/small, etc. Use these to introduce inverse properties in math (i.e. adding/subtracting).***

**ADDITIVE INVERSE**

***Show the students a made-up bank statement. The statement should show that you are 1 dollar overdrawn in your account (-1). Show a dollar bill. Have the students determine your balance when you deposit the dollar (-1+1=0). Use this to introduce additive inverse to the students.***

# Numeration

**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.*

**DIVISIBLE**

***Show the students a jigsaw puzzle and a photograph. Have the students compare/contrast the two. Lead the students to realize that the jigsaw puzzle is divisible and the photo is not. Relate indivisible to its use in the Pledge of Allegiance. Relate divisible to its mathematical concept.***

**COMPOSITE**

***Show the students a pizza or a picture of a pizza. Present them with a pizza cutter. Lead them to suggest that the pizza cutter can be used to divide the pizza into individual slices. The students should understand that the pizza can be cut into different numbers of slices. Use this to introduce composite numbers (i.e. 9 can be divided by 1, 3, and 9).***

**PRIME**

***The students should understand that there are composite and prime numbers and that they are different. Show a carton of 12 eggs. Then, show one more egg — it won't fit into the carton. Relate the 12 eggs to 13 eggs in terms of 12 as a composite number (can be divided by 1, 2, 3, etc.) and 13 as a prime number (can be divided by 1 and 13). All numbers are either composite or prime.***

# Numeration

**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.*

**SUM**

***Collect all of the items necessary to make a sandwich. Lay out the ingredients (il.e. bread + butter + jam + peanut butter). Put an = sign at the end of the materials and a complete sandwich - use the sandwich to represent the sum of all the ingredients. Relate this to addition sums in math.***

**EXPRESSION**

***Place yeast, flour, water, salt and sugar on a table. Encourage the students to tell you what can be made with the ingredients (bread). Use this as an analogy for a math expression (i.e. all of the ingredients can produce bread, just as a math expression can produce an answer (sum, product, etc.).***

**NUMERAL**

***Write a number word on the board. Have a student write its numeral (i.e. two : 2). The students should realize that numeral is the name for the symbols that represent numbers.***

# Numeration

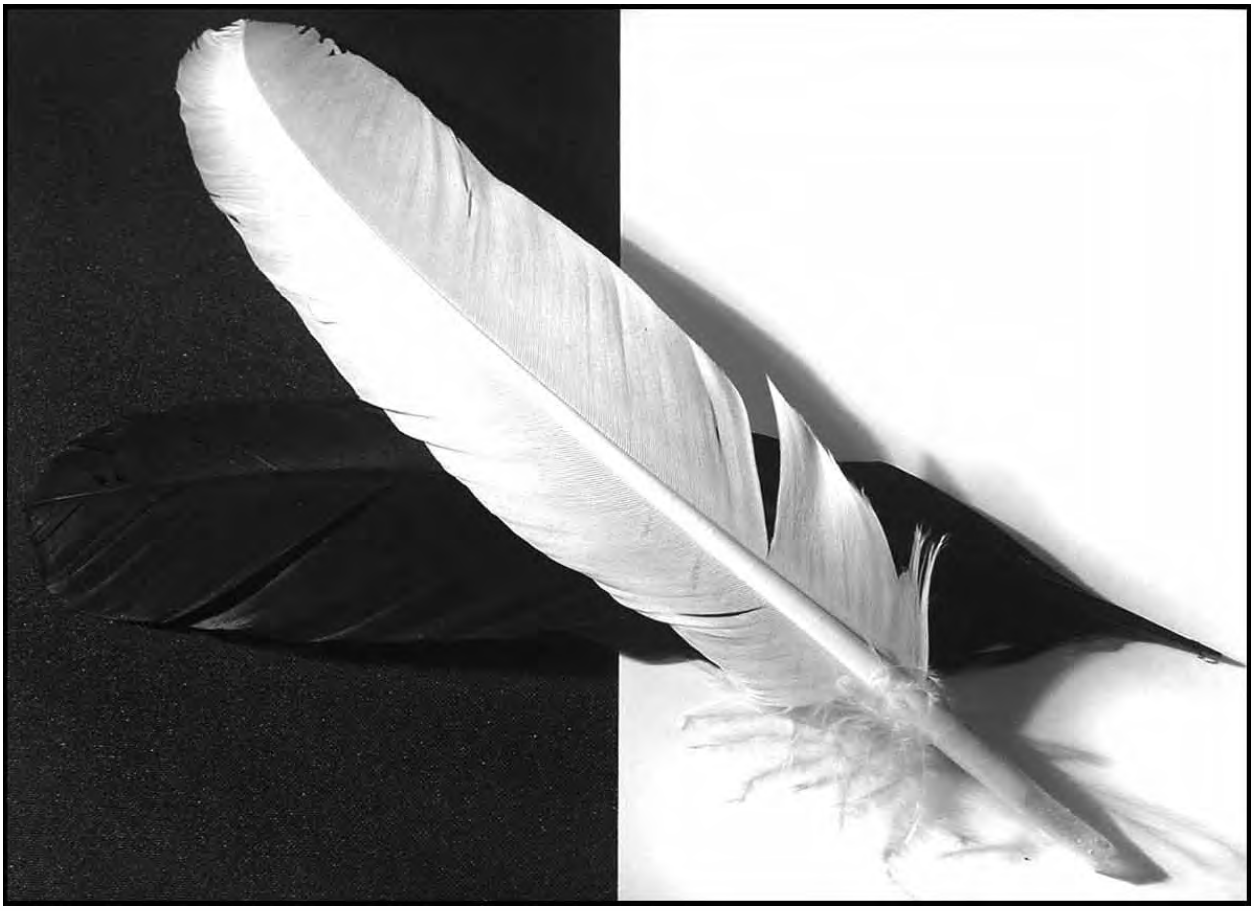
**Concrete Introduction of Key Vocabulary**
**Note:** *A vocabulary graphic is provided in this unit for each of the key words. Definitions for all of the key words can be found in the glossary at the back of this program.*

**DIGIT**

***Draw an outline of a car on the board, omitting the license plate. Direct the students' attention to the drawing, calling upon them to determine what is missing. When they name the license plate as missing, add it to the drawing — showing the digits in it, using any digits from 0 to 9. Relate "digit" to digital watches.***

# VOCABULARY PICTURES

# MULTIPLICATIVE



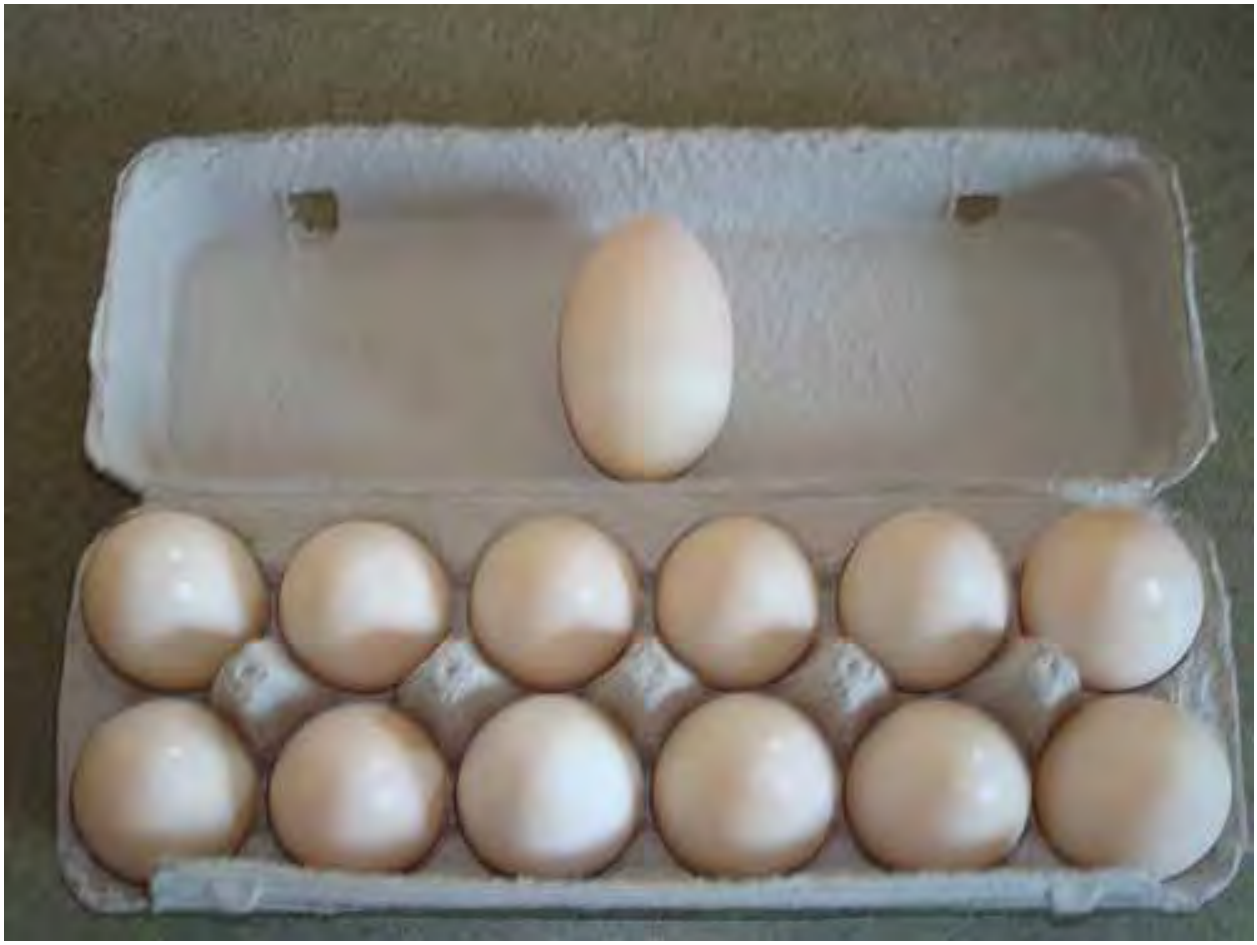
# INVERSE

$5 + -5 = 0$

# ADDITIVE INVERSE

# DIVISIBLE

# COMPOSITE



# PRIME

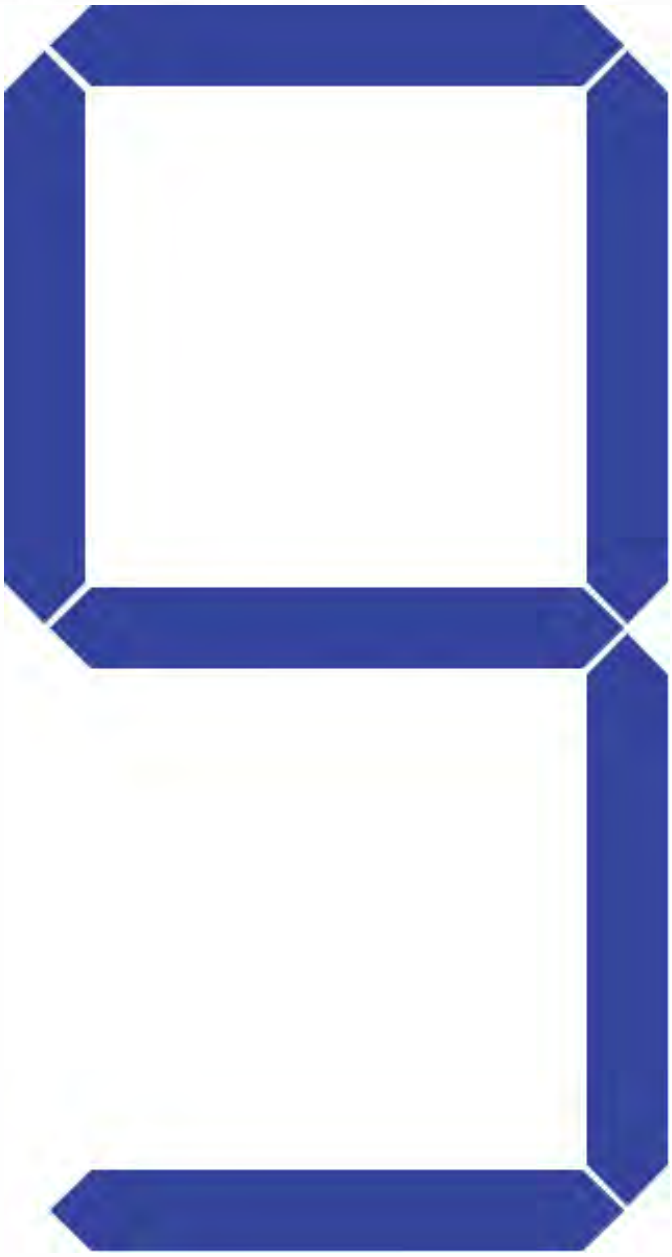
# SUM

Farine
de blé
Bio
Béghin
Say
ONVILLIERS
POUDRE
Karo
Pure
ing Soda
RUMFORD
BAKING
POWDER

# EXPRESSION

5

# NUMERAL



# DIGIT

# 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.

### 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.

### 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.

### 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*

## Stare

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.

## Pencil of Fortune

Before the activity begins, prepare a stencil that contains small versions of the vocabulary graphics. Provide each student with a copy of the stencil. Each student should cut out his/her graphics. The students should then lay the graphics on their desks (around the edges of their desks). When the students have arranged their graphics in this way, each student should then place a pen or pencil in the center of his/her desk. Say a vocabulary word. The students should then spin their pencils/pens on their desks. When the pencils/pens stop spinning, any student or students whose pencils/pens are pointing to the vocabulary picture for the word you said win(s) the round, and he/she may remove that picture from his/her desk. The winner or winners of this activity are those students who have no graphics left on their desks.

# *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.

### 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.

### Visual Memory

Mount the vocabulary pictures on the board. The students should look carefully at the pictures. Then, have the students 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. Another way to conduct this activity is to do the reverse. In this case, 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.

# *Language and Skills Development*

## Balloon Volleyball

Group the students into two teams. The two teams should stand, facing one another. Toss a round, inflated balloon to the members of Team One. The members of Team One must then bounce the balloon to the members of Team Two. The players should continue to bounce the balloon back and forth in this way until a team loses the balloon. You may wish to establish the rule that players may not move their feet during the activity. When a team loses the balloon, show them a vocabulary picture and all team members in that team must say the vocabulary word for it. Repeat until players in both teams have responded a number of times.

## The Disappearing Pictures

Mount five or six pictures on the board, vertically. Point to the picture at the top and tell the students to name it. Continue in this way until the students have named all of the pictures from top to bottom. Then, remove the last picture and repeat this process—the students should say all of the vocabulary words, including the name for the "missing" picture. Then, remove another picture from the board and have the students repeat this process. Continue in this way until the students are saying all of the vocabulary words from a blank board or until the students cannot remember the "missing pictures."

## Flashlight Name

Mount the vocabulary pictures on the board and the walls of the classroom. Darken the classroom as much as possible. Use a strong flashlight to direct the students' attention to one of the pictures. The students should identify the picture that is illuminated by the light of the flashlight. Continue in this way until all of the vocabulary words have been said a number of times.

# *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

#### Elbow Lock

Group the students into pairs. There should be one student without a partner to be IT during the first round of the activity. Mount a set of sight words on the board. Have the students in each pair stand back to back, with elbows interlocked. Say one of the sight words. Tell the students to listen for that word. Then say a number of vocabulary words, eventually repeating the sight word you said at the beginning of the round. At that point, the students should drop arms and find new partners. However, IT must also find a partner, thus producing a new IT for the next round of the activity. Give the new IT a sight word card and he/she must read it to you. Repeat until many students have responded and until all sight words have been read a number of times.

#### Sight Word Bingo

Before the activity begins, prepare a page that contains the sight words. Provide each student with a copy of the page. The students should cut out the sight words. When the students have cut out their sight words, each student should lay all of the sight words, but one, face down on his/her desk. Show a vocabulary picture. Any student or students who have the sight word for that picture face-up on their desks should show the sight word to you. Then, those sight words should be placed to the side and other sight words turned over in their place. Continue in this way until a student or students have no sight words left on their desks.

#### 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*

## 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.

### Half Time Concentration

Before the activity begins, cut each of the sight words in half. Mix all of the word halves together and spread them on the floor, face down. Group the students around the word halves. Call upon a student to select one of the word halves. The student should show that word half to the other students. Then, the student should take another word half. The student should show that word half to the other students. If the two word halves go together to create a sight word, the student should keep the two halves. However, if the two halves do not go together, he/she should place them in their original locations on the floor. Continue in this way until all of the sight word cards have been encoded correctly. The winner or winners of this activity are those students who collect the greatest number of sight words.

### Student Support Materials

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

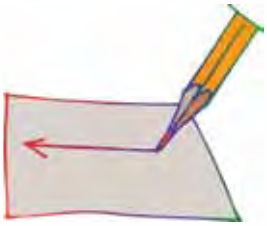
## Reading Comprehension

### 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



### Flashlight Writing

If possible, darken the classroom. Give a student a flashlight. Say one of the vocabulary words and the student should write that word with the light of the flashlight on a wall or on the board. Repeat until many students have had a chance to participate. An alternative is to provide each student with writing paper and a pen. Darken the classroom, if possible. Use the light of a flashlight to write one of the sight words on the wall or board. When you have completed the writing of the word, each student should then write the same word on his/her sheet of paper. Repeat until all sight words have been written in this way.

This activity may also be done in team form. In this case, group the students into two teams. Darken the classroom. Use the light of a flashlight to write one of the sight words on the board. When you say "Go," the first player in each team should rush to the board and use chalk to write the same word on the board. The first player to do this correctly wins the round. Repeat until all players have played.

### The Other Half

Cut each of the sight words in half. Give each student a sheet of writing paper, a pen, and one of the word halves. Each student should glue the word half on his/her writing paper and then complete the spelling of the word. You may wish to have enough word halves prepared so that each student completes more than one word. Afterwards, review the students' responses.

### Watch Your Half

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

# *Language and Skills Development*

## Over/Under Picture

Group the students into two teams. Give a vocabulary picture to the first player in each team. When you say "Go," the first player in each team must pass the picture over his/her head to the next player. The second player in each team must then pass the picture to the next player between his/her legs. The students should continue with this over/under sequence until the last player in the team receives the picture. When the last player in the team receives the picture, he/she must rush to the board and write the vocabulary word for that picture. The first player to do this successfully wins the round. Repeat until all players have played (each picture can be used a number of times in this activity).

## 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

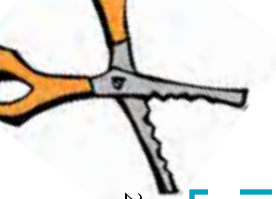
**Listening • Mini Pictures**

# *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





multiplicative

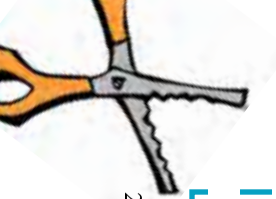
inverse

additive inverse

divisible

composite

prime





sum

expression

numeral

# digit

# STUDENT SUPPORT MATERIALS

## Reading • Sight Recognition

# *Sight Words Activity Page*

*Have the students circle the word for each picture.*

multiplicative
inverse
additive inverse
divisible
composite
prime
sum
expression
numeral
digit

multiplicative
inverse
additive inverse
divisible
composite
prime
sum
expression
numeral
digit

multiplicative
inverse
additive inverse
divisible
composite
prime
sum
expression
numeral
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multiplicative
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expression
numeral
digit

# Sight Words Activity Page

multiplicative
inverse
additive inverse
divisible
composite
prime
sum
expression
numeral
digit

multiplicative
inverse
additive inverse
divisible
composite
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sum
expression
numeral
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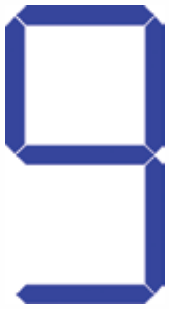
multiplicative
inverse
additive inverse
divisible
composite
prime
sum
expression
numeral
digit

multiplicative
inverse
additive inverse
divisible
composite
prime
sum
expression
numeral
digit

# *Sight Words Activity Page*

*Write the numbers on their correct vocabulary graphics.*



1. **multiplicative**
2. **inverse**
3. **additive inverse**
4. **divisible**
5. **composite**
6. **prime**
7. **sum**
8. **expression**
9. **numeral**
10. **digit**

# Sight Words Activity Page

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

# *Sight Words Activity Page*

*Highlight or circle the words in this word find.*

additive inverse
numeral
divisible
composite
expression
prime
multiplicative
inverse
digit
sum

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

# Sight Words Activity Page

*ANSWER KEY*

| | | |
|---|---|---|
| additive inverse | expression | digit |
| numeral | prime | sum |
| divisible | multiplicative | |
| composite | inverse | |

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

# STUDENT SUPPORT MATERIALS

**Reading • Encoding**

# *Encoding Activity Page*

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

**mul_____tive**

**in_____se**

**ad_____tive inverse**

**divi_____ble**

**com_____site**

| | | |
|---|---|---|
| si | po | pr |
| di | um | |

# *Encoding Activity Page*

_____ime

s_____

ex_____sion

nu_____al

di_____

| | | |
|---|---|---|
| tiplica | pres | mer |
| ver | git | |

# *Encoding Activity Page*

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

| | |
|---|---|
| **multipli** | **ible** |
| **in** | **um** |
| **addi** | **al** |
| **divis** | **verse** |
| **compo** | **sion** |

# *Encoding Activity Page*

| | |
|---|---|
| pr | cative |
| s | site |
| expres | git |
| numer | tive inverse |
| di | ime |

# *Encoding Activity Page*

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

| ti | mul | ca | pli |
|---|---|---|---|
| _____ | _____ | _____ | _____ |

| tive |
|---|
| _____ |

| si | vi | ble | di |
|---|---|---|---|
| _____ | _____ | _____ | _____ |

# *Encoding Activity Page*

di tive ad verse

_____ _____ _____ _____

in

_____

site com po

_____ _____ _____

# 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. The multiplicative property says that
   - ❍ the product is always a prime number.
   - ❍ the product is always a composite number.
   - ❍ the product of any number and 1 is that number.
   - ❍ an expression must have two prime numbers.

2. Addition and subtraction are
   - ❍ prime numbers.
   - ❍ inverse functions.
   - ❍ properties of composite numbers.
   - ❍ decimals that show tenths.

3. The additive function is when
   - ❍ you get a sum that is a prime number.
   - ❍ you get a sum that is a composite number.
   - ❍ you add numbers to get 0.
   - ❍ you add numbers with fractions.

4. Divisible means that a number can
   - ❍ be divided only A by prime numbers.
   - ❍ be divided only by composite numbers.
   - ❍ be the sum of all its numbers.
   - ❍ be divided evenly.

5. A composite number
   - ❍ can be divided by numbers besides 1 and itself.
   - ❍ lcan be divided by 1 and itself.
   - ❍ cannot be divided by prime numbers.
   - ❍ cannot be divided by composite numbers.

6. A prime number can be
   - ❍ divided by prime numbers only.
   - ❍ divided by composite numbers only.
   - ❍ divided by 1 and itself.
   - ❍ divided by many numbers.

# What's the Answer?

7 A sum is
- ❍ the answer to a subtraction A expression.
- ❍ the answer to a multiplication expression.
- ❍ the answer to a division expression.
- ❍ the answer to an addition expression.

8 A mathematical expression
- ❍ always shows the percent of something.
- ❍ shows the value of something.
- ❍ always has a decimal in it.
- ❍ always shows the prime numbers.

9 A numeral is
- ❍ always one digit long.
- ❍ the property of a prime number.
- ❍ always a composite number.
- ❍ a symbol that stands for a number.

10 Numerals always have
- ❍ decimals.
- ❍ percents.
- ❍ digits.
- ❍ sums.

# What's the Answer?

*ANSWER KEY*

1. 1. The multiplicative property says that
   - ❍ the product is always a prime number.
   - ❍ the product is always a composite number.
   - ● the product of any number and 1 is that number.
   - ❍ an expression must have two prime numbers.

2. Addition and subtraction are
   - ❍ prime numbers.
   - ● inverse functions.
   - ❍ properties of composite numbers.
   - ❍ decimals that show tenths.

3. The additive function is when
   - ❍ you get a sum that is a prime number.
   - ❍ you get a sum that is a composite number.
   - ● you add numbers to get 0.
   - ❍ you add numbers with fractions.

4. Divisible means that a number can
   - ❍ be divided only A by prime numbers.
   - ❍ be divided only by composite numbers.
   - ❍ be the sum of all its numbers.
   - ● be divided evenly.

5. A composite number
   - ● can be divided by numbers besides 1 and itself.
   - ❍ lcan be divided by 1 and itself.
   - ❍ cannot be divided by prime numbers.
   - ❍ cannot be divided by composite numbers.

6. A prime number can be
   - ❍ divided by prime numbers only.
   - ❍ divided by composite numbers only.
   - ● divided by 1 and itself.
   - ❍ divided by many numbers.

# What's the Answer?

7. A sum is
   - ❍ the answer to a subtraction A expression.
   - ❍ the answer to a multiplication expression.
   - ❍ the answer to a division expression.
   - ● the answer to an addition expression.

8. A mathematical expression
   - ❍ always shows the percent of something.
   - ● shows the value of something.
   - ❍ always has a decimal in it.
   - ❍ always shows the prime numbers.

9. A numeral is
   - ❍ always one digit long.
   - ❍ the property of a prime number.
   - ❍ always a composite number.
   - ● a symbol that stands for a number.

10. Numerals always have
    - ❍ decimals.
    - ❍ percents.
    - ● digits.
    - ❍ sums.

# Reading Comprehension Activity Page

*Write the numbers/letters for sentence halves that match.*

| | | | |
|---|---|---|---|
| 1 | The multiplicative 1 property says that | A | show and write numerals. |
| 2 | The inverse of addition | B | digits. |
| 3 | Adding the additive inverse to a number | C | by more than 1 and itself. |
| 4 | Divisible means that a number | D | is subtraction. |
| 5 | A composite number can be divided | E | can be divided evenly. |
| 6 | A prime number can only be divided | F | the product of any number and 1 is that number. |
| 7 | The sum is the answer | G | is a mathematical expression. |
| 8 | 2 + 3 | H | makes a sum of 0. |
| 9 | Digits are used to I to | I | to an addition expression. |
| 10 | 2,3,4,5,6,7,8, and 9 are | J | by 1 and itself. |

1→_____ 2→ _____ 3→ _____ 4→ _____

5→ _____ 6→ _____ 7→ _____ 8→ _____

9→ _____ 10→ _____

# *Reading Comprehension Activity Page*

*ANSWER KEY*

| | | | |
|---|---|---|---|
| 1 | The multiplicative 1 property says that | A | show and write numerals. |
| 2 | The inverse of addition | B | digits. |
| 3 | Adding the additive inverse to a number | C | by more than 1 and itself. |
| 4 | Divisible means that a number | D | is subtraction. |
| 5 | A composite number can be divided | E | can be divided evenly. |
| 6 | A prime number can only be divided | F | the product of any number and 1 is that number. |
| 7 | The sum is the answer | G | is a mathematical expression. |
| 8 | 2 + 3 | H | makes a sum of 0. |
| 9 | Digits are used to I to | I | to an addition expression. |
| 10 | 2,3,4,5,6,7,8, and 9 are | J | by 1 and itself. |

1→ F  2→ D  3→ H  4→ E

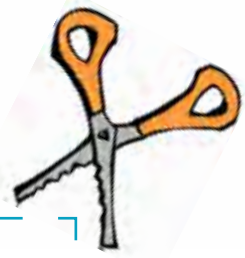
5→ C  6→ J  7→ I  8→ G

9→ A  10→ B

# Reading Comprehension Activity Page

*Cut out the words and glue them under their definitions.*

| | | |
|---|---|---|
| **This property says that the product of any number and 1 is that number.** | **Addition and subtraction are examples of this.** | **This inverse process is when you add two numbers to get 0.** |
| **This means that a number can be evenly divided.** | **This kind of number can be divided by more than 1 and itself.** | **This kind of number can be divided by 1 and itself.** |
| **This is the answer to an addition expression.** | **4x6 is an example of this.** | **354 is an example of this.** |
| **9 is an example of this.** | | |



**additive inverse** **composite** **multiplicative** **divisible**

**inverse** **prime** **expression** **sum**

**numeral** **digit**

# Reading Comprehension Activity Page

*ANSWER KEY*

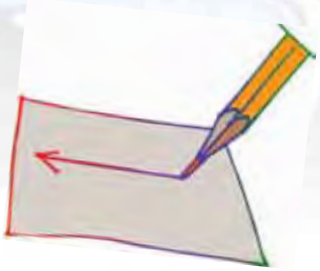
| | | |
|---|---|---|
| **This property says that the product of any number and 1 is that number.**<br>multiplicative | **Addition and subtraction are examples of this.**<br>inverse | **This inverse process is when you add two numbers to get 0.**<br>additive inverse |
| **This means that a number can be evenly divided.**<br>divisible | **This kind of number can be divided by more than 1 and itself.**<br>composite | **This kind of number can be divided by 1 and itself.**<br>prime |
| **This is the answer to an addition expression.**<br>sum | **4x6 is an example of this.**<br>expression | **354 is an example of this.**<br>numeral |
| **9 is an example of this.**<br>digit | | |

# STUDENT SUPPORT MATERIALS

## Writing

# *Writing Activity Page*

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



**mul_____pli_____tive**

**in_____se**

**addi_____ in_____**

**di_____ible**

**compos_____**

**_____ime**

**s_____**

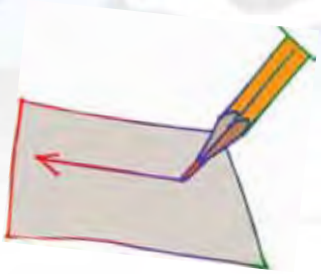
**expres_____**

**nu_____ al**

**di_____**

# *Writing Activity Page*

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



**m**_____**e**

**in**_____**e**

**ad**_____**e**

**di**_____**e**

**co**_____**e**

**p**_____**e**

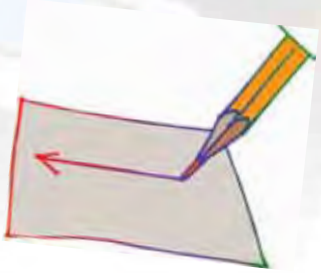
**s**_____**m**

**ex**_____**n**

**nu**_____**l**

**di**_____**t**

# Basic Writing Activity Page

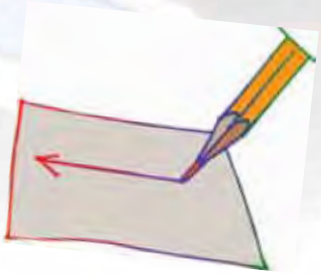


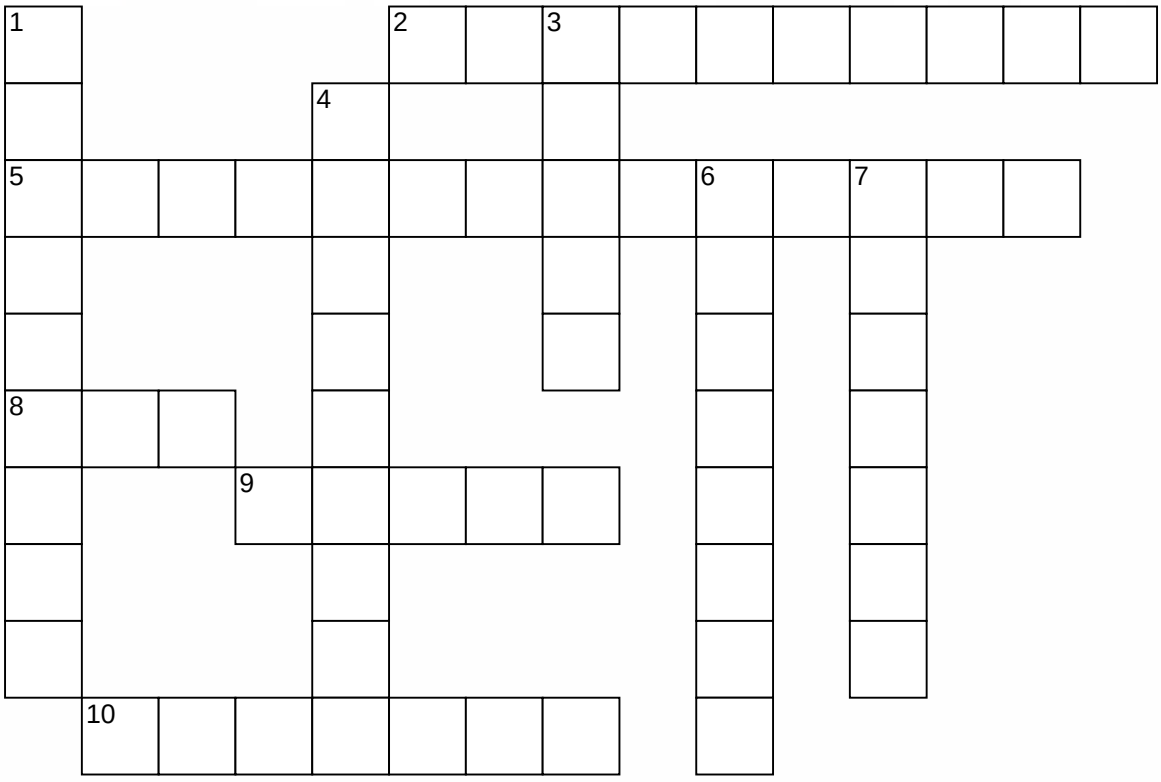
*Have the students write the word for each picture.*

# Basic Writing Activity Page

*Have the students write the word for each picture.*

# Crossword Puzzle






www.CrosswordWeaver.com

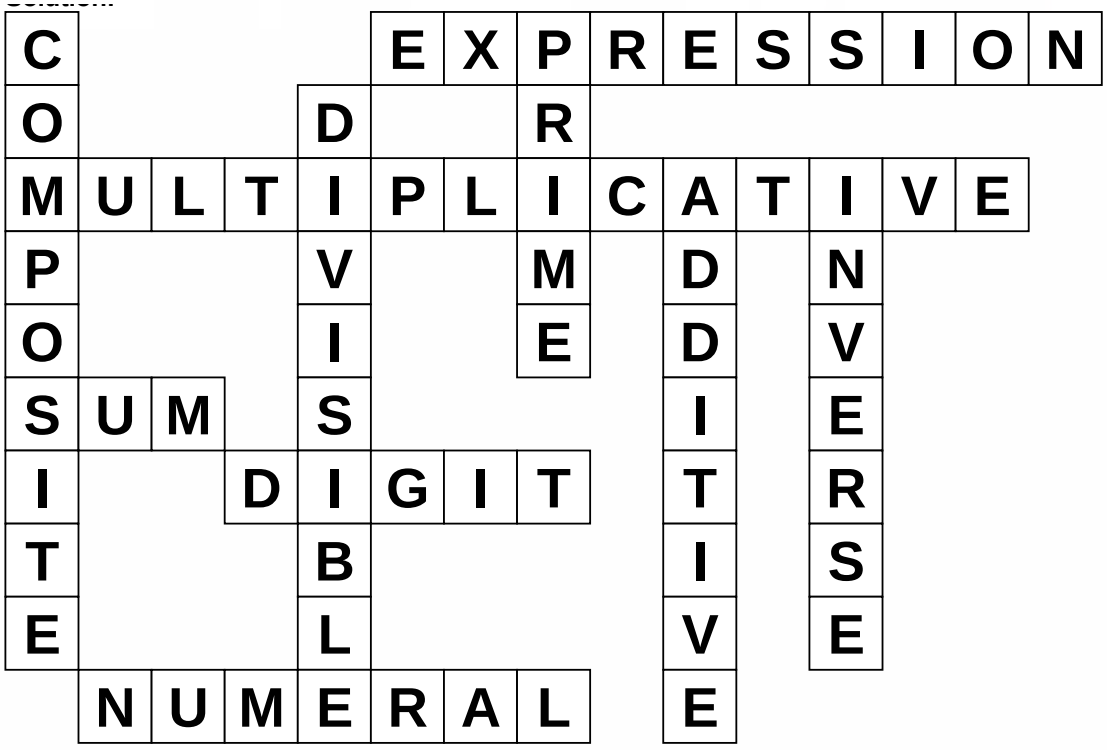
## ACROSS

**2** 4x6 is an example of this.
**5** This property says that the product of any number and 1 is that number.
**8** Ths is the answer to an addition expression.
**9** 7 is an example of this.
**10** 234 is an example of this.

## DOWN

**1** This kind of number can be divided by more than 1 and itself.
**3** This kind of number can be divided by 1 and itself.
**4** This means that a number can be evenly divided.
**6** This inverse process is when you add two numbers to get 0.
**7** Addition and subtraction are examples of this.

# Crossword Puzzle Answers



# UNIT ASSESSMENT

# PROCESS SKILLS

## Unit Assessment Teacher's Notes
## Grade 7 • Unit 1

**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 **MULTIPLICATIVE**.
2. Write the number 2 by the picture for **INVERSE**.
3. Write the number 3 by the picture for **ADDITIVE**.
4. Write the number 4 by the picture for **DIVISIBLE**.
5. Write the number 5 by the picture for **COMPOSITE NUMBERS**.
6. Write the number 6 by the picture for **PRIME NUMBERS**.
7. Write the number 7 by the picture for **SUM**.
8. Write the number 8 by the picture for **EXPRESSION**.
9. Write the number 9 by the picture for **NUMERAL**.
10. Write the number 10 by the picture for **DIGIT**.

## 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 3

**Date:_____** **Student's Name:_____**

**Number Correct:_____** **Percent Correct:_____**

5+-5=0

multiplicative
inverse
additive inverse
divisible
composite
prime
sum
expression
numeral
digit

multiplicative
inverse
additive inverse
divisible
composite
prime
sum
expression
numeral
digit

multiplicative
inverse
additive inverse
divisible
composite
prime
sum
expression
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sum
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numeral
digit

| | |
|---|---|
| compo | cative<br>verse<br>tive<br>ible<br>site<br>ime<br>um<br>sion<br>al<br>git |
| expres | cative<br>verse<br>tive<br>ible<br>site<br>ime<br>um<br>sion<br>al<br>git |
| pr | cative<br>verse<br>tive<br>ible<br>site<br>ime<br>um<br>sion<br>al<br>git |
| addi | cative<br>verse<br>tive<br>ible<br>site<br>ime<br>um<br>sion<br>al<br>git |
| di | cative<br>verse<br>tive<br>ible<br>site<br>ime<br>um<br>sion<br>al<br>git |
| numer | cative<br>verse<br>tive<br>ible<br>site<br>ime<br>um<br>sion<br>al<br>git |

| | |
|---|---|
| in | cative<br>verse<br>tive<br>ible<br>site<br>ime<br>um<br>sion<br>al<br>git |
| divis | cative<br>verse<br>tive<br>ible<br>site<br>ime<br>um<br>sion<br>al<br>git |
| multipli | cative<br>verse<br>tive<br>ible<br>site<br>ime<br>um<br>sion<br>al<br>git |
| s | cative<br>verse<br>tive<br>ible<br>site<br>ime<br>um<br>sion<br>al<br>git |

| | | |
|---|---|---|
| This property says that the product of any number and 1, is that number. | Addition and subtraction are examples of this. | This inverse process is when you add two numbers to get 0. |
| This means that a number can be evenly divided. | This kind of number can be divided by more than 1 and itself. | This kind of number can be divided by 1 and itself. |
| This is the answer to an addition expression. | 4x6 is an example of this. | 354 is an example of this. |
| 9 is an example of this. | | |

| | | | |
|---|---|---|---|
| multiplicative | additive | inverse | divisible |
| composite | sum | digit | expression |
| numeral | prime | | |

9

5+-5=0

# UNIT 4

## *Estimation & Computation*

# *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 conceptual understanding of mathematical operations by**

[7] N-5 [using models, explanations, number lines, real-life situations L], describing or illustrating the effects of arithmetic operations on rational numbers (fractions, decimals) (M1.2.3)

**The student demonstrates understanding of measurable attributes by**

[7] MEA-1 estimating length to the nearest sixteenth of an inch or millimeter, volume to the nearest cubic centimeter or milliliter or angle to the nearest 30 degrees (L) (M2.3.1)

[7] MEA-2 identifying or using equivalent English (square inches, square feet, square yards) or metric systems (square centimeters, square meters) (M2.3.2)

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

[7] E&C-1 identifying or using [a variety of L] strategies, including truncating, rounding, frontend estimation, compatible numbers, to check for reasonableness of solutions (M3.3.1)

[7] E & C 2 comparing results of different strategies (L) (M3.3.1)

# *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

# *Estimation & Computation*

**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.*

**ESTIMATE**

***Cut pictures of items from a catalog. Note the actual cost of each item. Show one item and have each student estimate its cost. Repeat with the other pictures. Determine the student(s) who estimate closest to the actual costs of the items. Use this to introduce estimate.***

**ROUNDING**

***Show the students two items: introduce one as costing $19.98 and the other as $36.45 (or similar costs). Show the students 2 $20.00 bills. Lead them to tell that a single $20.00 will cover the $19.98 item and the two bills together would cover the $36.45 item. Use this to introduce rounding off in math. Use some actual numerical examples with the students.***

**PRODUCT**

***Collect food items from around the world and/or the U.S. (as shown on the food labels). Lay a map of the world on the floor. Have the students place the products on their countries of origin. Relate this to math products, in multiplication.***

# *Estimation & Computation*

**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.*

**VARIETY**

***Collect a variety of food items (i.e. vegetables). Introduce them to the students, having the students compare and contrast their attributes. Have the students suggest other varieties of items.***

**VALUE**

***Place a box of cake mix, a bag of pancake mix, and any other such food containers in front of the students. Have the students tell what food can be produced with each item. Use this as an analogy for values that can be produced through operations in math. Show examples, such as 2+4=6, 3x5=15, etc.***

**EQUIVALENT**

***Show the students a fruit, such as an orange, then cut another orange in half. Lead the students to realize that the 2 halves equal the whole orange. Use this to introduce equivalent fractions.***

# Estimation & Computation

**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.*

**UNITS**

***Mount a length of paper on the board. Tell the students that you are going to draw a number house. Make a place value chart, the columns of which are the rooms (tens and ones will suffice). Direct the students' attention to the ones' room. Put small 1 to 9 cards in the ones' room. Use this to introduce units or ones (1 to 9).***

**EXPONENT**

***Cut a slit in the bottom of a cardboard box. Place three pilot bread crackers in the box. Drop the crackers through the slit. Show the number of biscuits created by drawing a circle on the board and writing a small 3 in the upper right of the circle--this indicates how many crackers were made. Relate this to exponents (i.e. 2x2x2=).***

**ADDENDS**

***Collect sandwich ingredients. Stress adding bread, plus butter, plus cheese, plus bread, etc. Use the ingredients to represent addends (i.e. 1+1+1+1=4) .***

# VOCABULARY PICTURES

Screamer Spyders
big wheel in back, mini-wheel in front
AS SEEN IN
· LOOK · LIFE · BOYS' LIFE
Injection molded seat has built-in side, rear reflectors
Butterfly handle-bars . . . grab hold and go
5-speed stick shift with safety parking brake . . . tools, man
5-speed with torsion spring front suspension to smooth out bumps in the roughest roads
$78.95
Built-in coil-spring shocks in rear and dual rear handbrakes
One of the newest ideas from Sears Sports Center
$49.95
20-inch 3-speed with new "sissy" backbar
$58.95
20-inch with 3-speed with the new big wheel that's really bess
$58.95
20-inch 5-speed has fully padded backbar and smooth derailleur shift
Sears 479

# ESTIMATE

PORK SHOULDER
ROAST
48 ¢ LB
CENTER CUT
PORK TENDERLOIN
$3.89 LB
CABEZA
1'20 €
PER KG

# ROUNDING

# PRODUCT

www.Online-Tutorials.com

# VARIETY

teacake

# VALUE

# EQUIVALENT

# UNITS

$$2 \times 2 = 2^2 = 4$$

$$2 \times 2 \times 2 = 2^3 = 8$$

$$2 \times 2 \times 2 \times 2 = 2^4 = 16$$

$$2 \times 2 \times 2 \times 2 \times 2 = 2^5 = 32$$

$$2 \times 2 \times 2 \times 2 \times 2 \times 2 = 2^6 = 64$$

$$2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 = 2^7 = 128$$

# EXPONENT

$6 + 1 = 7$

# ADDENDS

# 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.

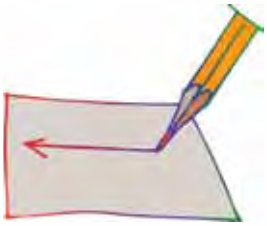
## Reading Comprehension

### 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

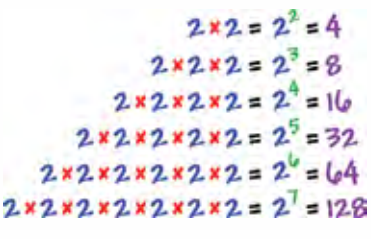
Have the students complete the sight recognition and encoding activities in the Student Support Materials. When finished, review their work.

# STUDENT SUPPORT MATERIALS

**Listening • Mini Pictures**

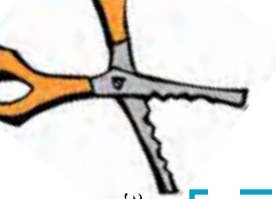
# *Listening: Mini Pictures*

*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.*



# STUDENT SUPPORT MATERIALS

## Sight Words





estimate

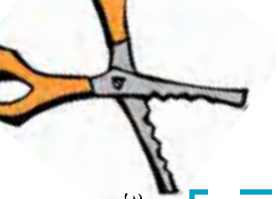
rounding

product

variety

value

equivalent





units

exponent

addends

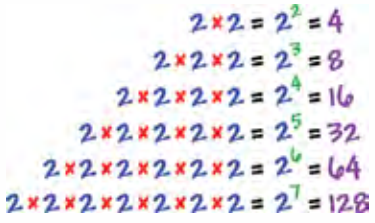
# STUDENT SUPPORT MATERIALS

## Reading • Sight Recognition

# *Sight Words Activity Page*

*Have the students circle the word for each picture.*

estimate
product
rounding
variety
value
equivalent
units
exponent
addends




estimate
product
rounding
variety
value
equivalent
units
exponent
addends

estimate
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exponent
addends

estimate
product
rounding
variety
value
equivalent
units
exponent
addends

# *Sight Words Activity Page*

**estimate**
**product**
**rounding**
**variety**
**value**
**equivalent**
**units**
**exponent**
**addends**

**estimate**
**product**
**rounding**
**variety**
**value**
**equivalent**
**units**
**exponent**
**addends**

**estimate**
**product**
**rounding**
**variety**
**value**
**equivalent**
**units**
**exponent**
**addends**

# *Sight Words Activity Page*

*Write the numbers on their correct vocabulary graphics.*

$$2\times2=2^2=4$$
$$2\times2\times2=2^3=8$$
$$2\times2\times2\times2=2^4=16$$
$$2\times2\times2\times2\times2=2^5=32$$
$$2\times2\times2\times2\times2\times2=2^6=64$$
$$2\times2\times2\times2\times2\times2\times2=2^7=128$$

1. **estimate**
2. **product**
3. **rounding**
4. **variety**
5. **value**
6. **equivalent**
7. **units**
8. **exponent**
9. **addends**

# *Sight Words Activity Page*

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

# *Sight Words Activity Page*

*Highlight or circle the words in this word find.*

variety
estimate
exponent

equivalent
product
addends

value
rounding
units

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

# *Sight Words Activity Page*

*ANSWER KEY*

variety
estimate
exponent

equivalent
product
addends

value
rounding
units

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

# STUDENT SUPPORT MATERIALS

**Reading • Encoding**

# *Encoding Activity Page*

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

**es_____mate**

**pro_____t**

**r_____ding**

**var_____ty**

**val_____**

| | | |
|---|---|---|
| **ie** | **duc** | **ue** |
| **oun** | **uiv** | |

# *Encoding Activity Page*

**eq_____alent**

**un_____**

**ex_____nent**

**add_____**

| | |
|---|---|
| its | ti |
| po | ends |

# *Encoding Activity Page*

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

| | |
|---|---|
| **esti** | **duct** |
| **pro** | **ue** |
| **roun** | **alent** |
| **var** | **nits** |
| **val** | **mate** |

# *Encoding Activity Page*

| | |
|---|---|
| equiv | iety |
| u | nent |
| expo | ends |
| add | ding |

# *Encoding Activity Page*

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

va | e | lent | qui

_____ _____ _____ _____

po | ex | nent

_____ _____ _____

ri | ty | va | e

_____ _____ _____ _____

# *Encoding Activity Page*

**mate** **es** **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. When we estimate we
   - ❍ display composite numbers.
   - ❍ find prime numbers.
   - ❍ guess at a value of something.
   - ❍ demonstrate the inverse expression.

2. A product is what we get when we
   - ❍ add two composite numbers.
   - ❍ multiply numbers.
   - ❍ divide numbers.
   - ❍ subtract two prime numbers.

3. With numbers, we round
   - ❍ to the farthest number.
   - ❍ only to prime numbers.
   - ❍ to the nearest integer.
   - ❍ only to composite numbers.

4. A variety is
   - ❍ when all things in a group are the same.
   - ❍ different things from the same group.
   - ❍ an exponent that has a prime number.
   - ❍ an integer that is a composite number.

5. In the equation, 3x4=12, 12 shows
   - ❍ the sum of the equation.
   - ❍ the addends of the equation.
   - ❍ the value of the equation.
   - ❍ the exponent of the equation.

6. When things are equivalent, they are
   - ❍ different.
   - ❍ products.
   - ❍ estimates.
   - ❍ the same.

# What's the Answer?

**7** The digits from 1 to 9 are

- ❍ addends.
- ❍ exponents.
- ❍ units.
- ❍ products.

**8** An exponent shows...

- ❍ how many times a number is used in multiplication.
- ❍ how often a prime number is used in addition.
- ❍ how often a composite number is used in subtraction.
- ❍ how often rounding is done in division.

**9** In this expression, 2+4+5, what are the numbers (2, 4, 5)?

- ❍ They are exponents.
- ❍ They are addends.
- ❍ They are products.
- ❍ They are sums.

# What's the Answer?

*ANSWER KEY*

1. When we estimate we
   - ❍ display composite numbers.
   - ❍ find prime numbers.
   - ● guess at a value of something.
   - ❍ demonstrate the inverse expression.

2. A product is what we get when we
   - ❍ add two composite numbers.
   - ● multiply numbers.
   - ❍ divide numbers.
   - ❍ subtract two prime numbers.

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   - ● to the nearest integer.
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   - ● the value of the equation.
   - ❍ the exponent of the equation.

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   - ❍ different.
   - ❍ products.
   - ❍ estimates.
   - ● the same.

# What's the Answer?

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- ❍ They are exponents.
- ● They are addends.
- ❍ They are products.
- ❍ They are sums.

# Reading Comprehension Activity Page

*Write the numbers/letters for sentence halves that match.*

| | | | |
|---|---|---|---|
| 1 | We can estimate | A | different things within a group. |
| 2 | We get a product | B | to the nearest integers. |
| 3 | We round numbers | C | the value of the operation. |
| 4 | A variety is | D | are the same. |
| 5 | In the equation, 4-3=1, 1 is | E | also called units. |
| 6 | Things that are equivalent | F | the values of things. |
| 7 | The digits 1 to 9 are | G | when we multiply numbers. |
| 8 | Numbers that are added together | H | a number was used to multiply. |
| 9 | An exponent shows how many times | I | are called addends. |

1→_____ 2→ _____ 3→ _____ 4→ _____

5→ _____ 6→ _____ 7→ _____ 8→ _____

9→ _____

# *Reading Comprehension Activity Page*

*ANSWER KEY*

| | | | |
|---|---|---|---|
| 1 | We can estimate | A | different things within a group. |
| 2 | We get a product | B | to the nearest integers. |
| 3 | We round numbers | C | the value of the operation. |
| 4 | A variety is | D | are the same. |
| 5 | In the equation, 4-3=1, 1 is | E | also called units. |
| 6 | Things that are equivalent | F | the values of things. |
| 7 | The digits 1 to 9 are | G | when we multiply numbers. |
| 8 | Numbers that are added together | H | a number was used to multiply. |
| 9 | An exponent shows how many times | I | are called addends. |

1→ F  2→ G  3→ B  4→ A

5→ C  6→ D  7→ E  8→ I

9→ H

# Reading Comprehension Activity Page

*Cut out the words and glue them under their definitions.*

| | | |
|---|---|---|
| This is when we guess the value of something. | This is the answer we get when we multiply numbers. | This is when we go to the nearest integer. |
| A bunch of different vegetables would be an example of this. | This is what we get whenever we do a math operation. | This is when things are almost the same. |
| These are digits that show ones. | This tells how many times a number has been used in a multiplication expression. | These are the numbers that are added together in an addition expression. |

variety equivalent estimate value

rounding units product

exponent addends

# *Reading Comprehension Activity Page*

*ANSWER KEY*

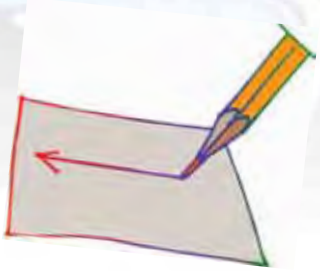
| | | |
|---|---|---|
| **This is when we guess the value of something.** estimate | **This is the answer we get when we multiply numbers.** product | **This is when we go to the nearest integer.** rounding |
| **A bunch of different vegetables would be an example of this.** variety | **This is what we get whenever we do a math operation.** value | **This is when things are almost the same.** equivalent |
| **These are digits that show ones.** units | **This tells how many times a number has been used in a multiplication expression.** exponent | **These are the numbers that are added together in an addition expression.** addends |

# STUDENT SUPPORT MATERIALS

## Writing

# *Writing Activity Page*

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



**es_____mate**

**_____oduct**

**r_____nding**

**var_____ty**

**val_____**

**equ_____alent**

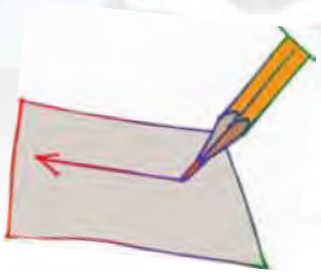
**un_____**

**ex_____nent**

**add____s**

# *Writing Activity Page*

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



**es**_____**e**

**pr**_____**t**

**r**_____**g**

**v**_____**y**

**v**_____**e**

**eq**_____**t**

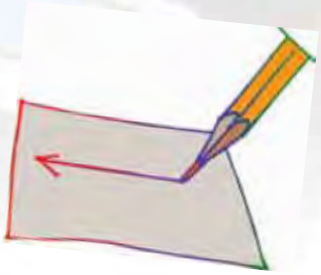
**u**_____**s**

**ex**_____**t**

**ad**_____**s**

# Basic Writing Activity Page

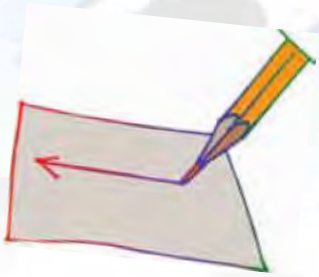
*Have the students write the word for each picture.*



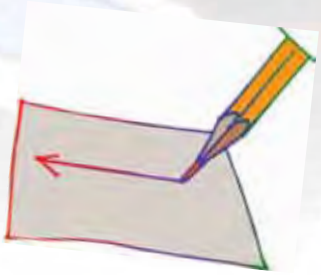
$2 \times 2 = 2^2 = 4$
$2 \times 2 \times 2 = 2^3 = 8$
$2 \times 2 \times 2 \times 2 = 2^4 = 16$
$2 \times 2 \times 2 \times 2 \times 2 = 2^5 = 32$
$2 \times 2 \times 2 \times 2 \times 2 \times 2 = 2^6 = 64$
$2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 = 2^7 = 128$

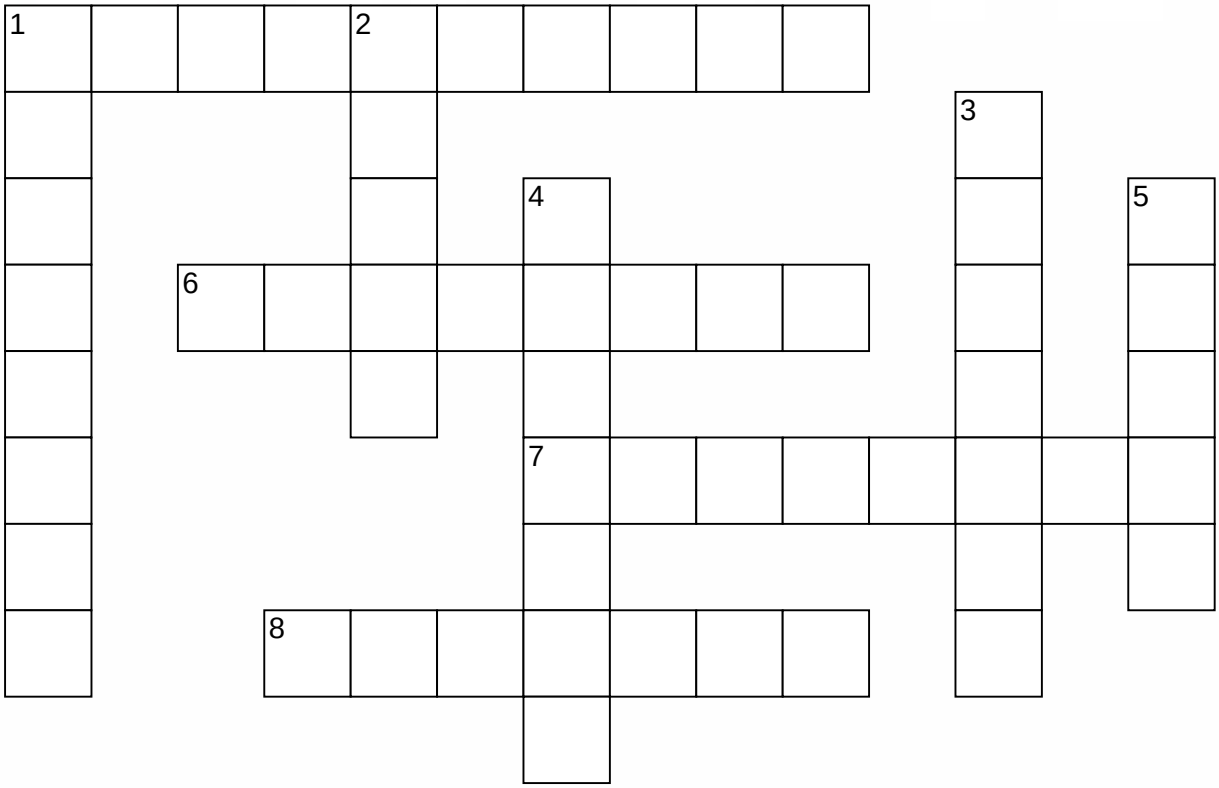
# Basic Writing Activity Page

*Have the students write the word for each picture.*



# Crossword Puzzle






www.CrosswordWeaver.com

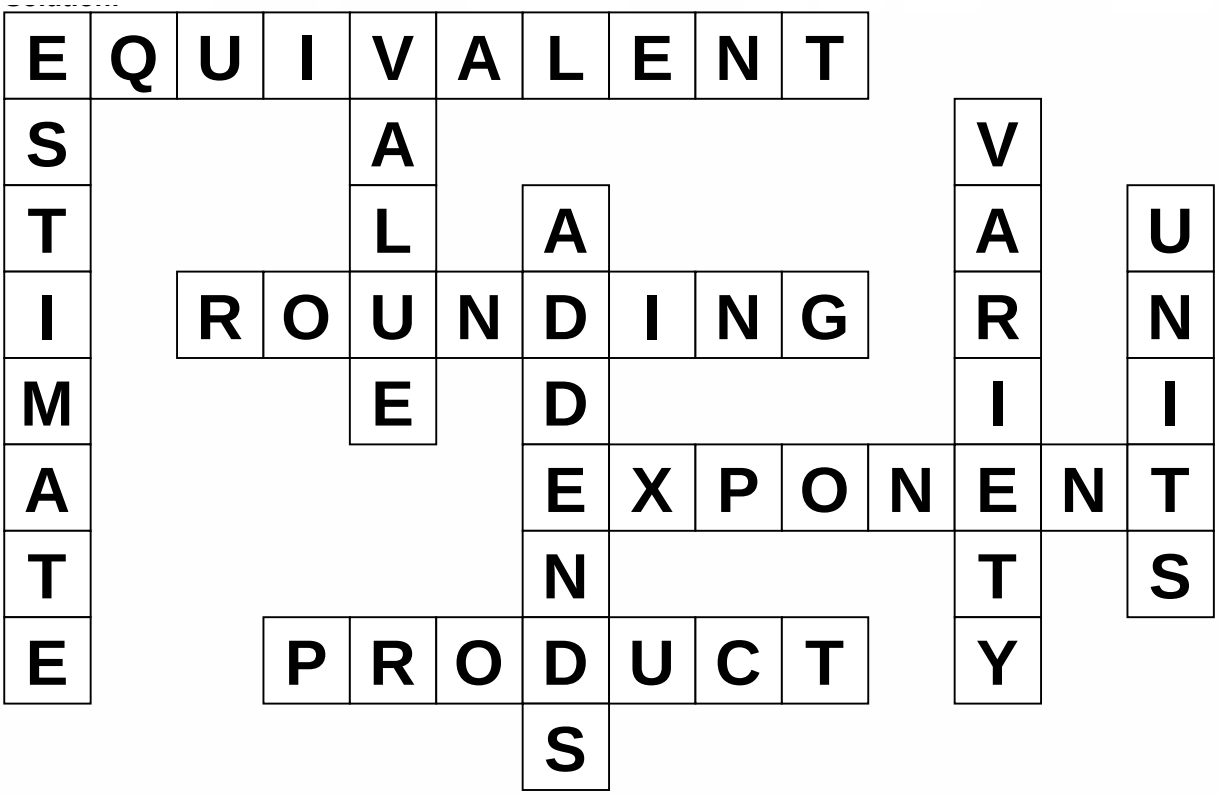
## ACROSS

**1** This is when things are almost the same.
**6** This is when we go to the nearest integer.
**7** This tells how many times a number has been used in a multiplication expression.
**8** This is the answer we get when we multiply numbers.

## DOWN

**1** This is when we guess the value of something.
**2** This is what we get whenever we do a math operation.
**3** A bunch of different vegetables would be an example of this.
**4** These are the numbers that are added together in an addition expression.
**5** These are digits that show ones.

# Crossword Puzzle Answers



# UNIT ASSESSMENT

# ESTIMATION & COMPUTATION

## Unit Assessment Teacher's Notes
## Grade 7 • Unit 4

**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 **ESTIMATE**.
2. Write the number 2 by the picture for **PRODUCT**.
3. Write the number 3 by the picture for **ROUNDING**.
4. Write the number 4 by the picture for **VARIETY**.
5. Write the number 5 by the picture for **VALUE**.
6. Write the number 6 by the picture for **EQUIVALENT**.
7. Write the number 7 by the picture for **UNITS**.
8. Write the number 8 by the picture for **EXPONENT**.
9. Write the number 9 by the picture for **ADDENDS**.

## 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.*

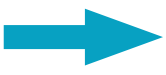
## READING COMPREHENSION

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 4

**Date:_____** **Student's Name:_____**

**Number Correct:_____** **Percent Correct:_____**

$$2\times2=2^2=4$$
$$2\times2\times2=2^3=8$$
$$2\times2\times2\times2=2^4=16$$
$$2\times2\times2\times2\times2=2^5=32$$
$$2\times2\times2\times2\times2\times2=2^6=64$$
$$2\times2\times2\times2\times2\times2\times2=2^7=128$$

6 + 1 = 7

estimate
product
rounding
variety
value
equivalent
units
exponent
addends

estimate
product
rounding
variety
value
equivalent
units
exponent
addends

estimate
product
rounding
variety
value
equivalent
units
exponent
addends

estimate
product
rounding
variety
value
equivalent
units
exponent
addends

estimate
product
rounding
variety
value
equivalent
units
exponent
addends

estimate
product
rounding
variety
value
equivalent
units
exponent
addends

estimate
product
rounding
variety
value
equivalent
units
exponent
addends

estimate
product
rounding
variety
value
equivalent
units
exponent
addends

$2 \times 2 = 2^2 = 4$
$2 \times 2 \times 2 = 2^3 = 8$
$2 \times 2 \times 2 \times 2 = 2^4 = 16$
$2 \times 2 \times 2 \times 2 \times 2 = 2^5 = 32$
$2 \times 2 \times 2 \times 2 \times 2 \times 2 = 2^6 = 64$
$2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 = 2^7 = 128$

estimate
product
rounding
variety
value
equivalent
units
exponent
addends

**equiv**

mate
duct
ing
ety
ue
alent
nits
nent
dends

**round**

mate
duct
ing
ety
ue
alent
nits
nent
dends

**u**

mate
duct
ing
ety
ue
alent
nits
nent
dends

**expo**

mate
duct
ing
ety
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**ad**

mate
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nent
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**vari**

mate
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ety
ue
alent
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**val**

mate
duct
ing
ety
ue
alent
nits
nent
dends

**pro**

mate
duct
ing
ety
ue
alent
nits
nent
dends

**esti**

mate
duct
ing
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ue
alent
nits
nent
dends

| | | |
|---|---|---|
| This is when we guess the value of something. | This is the answer we get when we multiply numbers. | This is when we go to the nearest integer. |
| A bunch of different vegetables would be an example of this. | This is what we get whenever we do a math operation. | This is when things are almost the same. |
| These are digits that show ones. | This tells how many times a number has been used in a multiplication expression. | These are the numbers that are added together in an addition expression. |

| | | | |
|---|---|---|---|
| variety | rounding | units | estimate |
| addends | equivalent | product | value |
| exponent | | | |

$$2\times2=2^2=4$$
$$2\times2\times2=2^3=8$$
$$2\times2\times2\times2=2^4=16$$
$$2\times2\times2\times2\times2=2^5=32$$
$$2\times2\times2\times2\times2\times2=2^6=64$$
$$2\times2\times2\times2\times2\times2\times2=2^7=128$$

# UNIT 5

## *Functions & Relationships*

# *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 conceptual understanding of functions, patterns, or sequences including those represented in real-world situations by**

[7] F&R-1 describing or extending patterns (linear), up to ten terms, represented in tables, sequences, or in problem situations (M4.3.1)

[7] F&R-2 generalizing relationships (linear) using a table of ordered pairs, a function, or an equation (M4.3.4)

[7] F&R-3 describing in words how a change in one variable in a formula affects the remaining variables (how changing the length affects the area of a quadrilateral) (M4.3.2)

[7] F&R-4 using a calculator as a tool when describing, extending, or representing patterns (L) (M4.3.3)

# *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

# *Functions & Relationships*

**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.*

**PATTERN**

***Direct the students' attention to patterns in their clothing items. Show the following number pattern: 2, 7, 12, 17, 22... — have the students determine how the pattern was created (adding 5 to each number). Show other number patterns.***

**TERMS**

***Show the students a sample of trail mix or another food that has different ingredients. Have the students identify the items that make up the sample. Relate these to the terms in math (numbers and symbols) — e.g., 4x-7=5 (4, x, 7, and 5 are terms).***

**RULES**

***Show the pictures of sports, from the back of this unit. Have the students suggest some of the rules of the different games. Relate this to math rules; show examples of math rules for addition, multiplication, subtraction, and division.***

# *Functions & Relationships*

**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.*

**ORDERED PAIRS**

***Show two slices of bread and one slice of cheese. Have the students suggest other ingredients that can be used to make sandwiches. Refer to the bread and cheese and show their numbers as ordered pairs: 2 slices of bread and 1 slice of cheese (2,1). Demonstrate the use of numbered pairs on a graph (x,y).***

**FORMULA**

***Show the students the picture of the cook from the end of this unit. Lead the students to understand that the cook is following a recipe. Use this to introduce formulas in math. Show sample formulas, e.g., finding the circumference of a circle, the volume of a box, the area of a triangle, etc.***

**VARIABLE**

***Make an overhead of the signs from the end of this section. Have the students identify the different signs and their messages. Lead the students to suggest why a picture sign is more effective than those that use written words (speed of recognition). Use this as an analogy for variables — just as the pictures represent words, in math letters and symbols can be used to represent numbers (e.g, xy).***

# *Functions & Relationships*

**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.*

**RATIO**

***Show the students a set of measuring spoons. Have them use the spoons to determine the ratio of teaspoons to tablespoons (3:1). Use measuring cups to show the ratios of cups to pints, quarts, and gallons (2:1, 4:1, and 16:1).***

**FUNCTION**

***Show the picture of the vending machine, from the back of this unit. Use this to represent input and output. Relate function to math; show examples of function (see the glossary for an example).***

**AVERAGE**

***Use a ruler and a fulcrum to create a teeter totter. When the ruler is perfectly balanced, direct the students' attention to the equal lengths on both sides of the center. Use this to introduce average in math. Give each student some play money. The students should add their money amd write the amounts on the board. Then, find the average by adding all of the amounts and dividing by the number of students.***

# *Functions & Relationships*

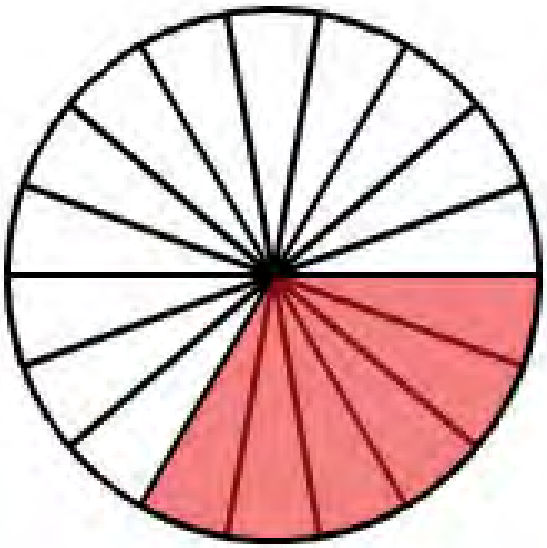
**Concrete Introduction of Key Vocabulary**
**Note:** *A vocabulary graphic is provided in this unit for each of the key words. Definitions for all of the key words can be found in the glossary at the back of this program.*

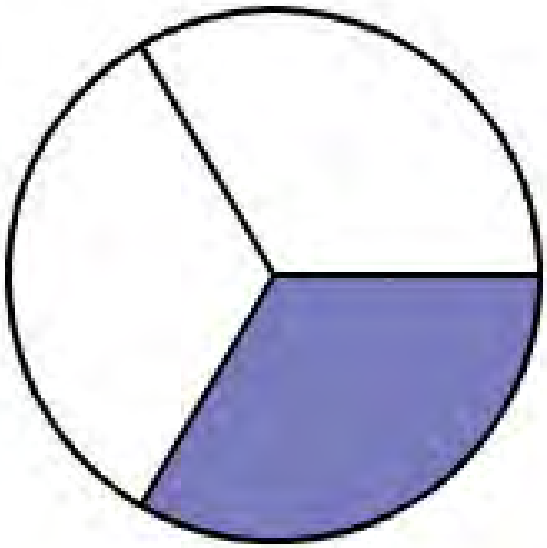
**AREA**

***Show the students 2 or 3 different table cloths, napkins, etc. Have the students contrast the materials. Lead them to note the difference in their areas. If possible, show a sample of an area rug. Draw shapes on the board and determine their areas, using the appropriate math formulas.***

# VOCABULARY PICTURES

# PATTERN



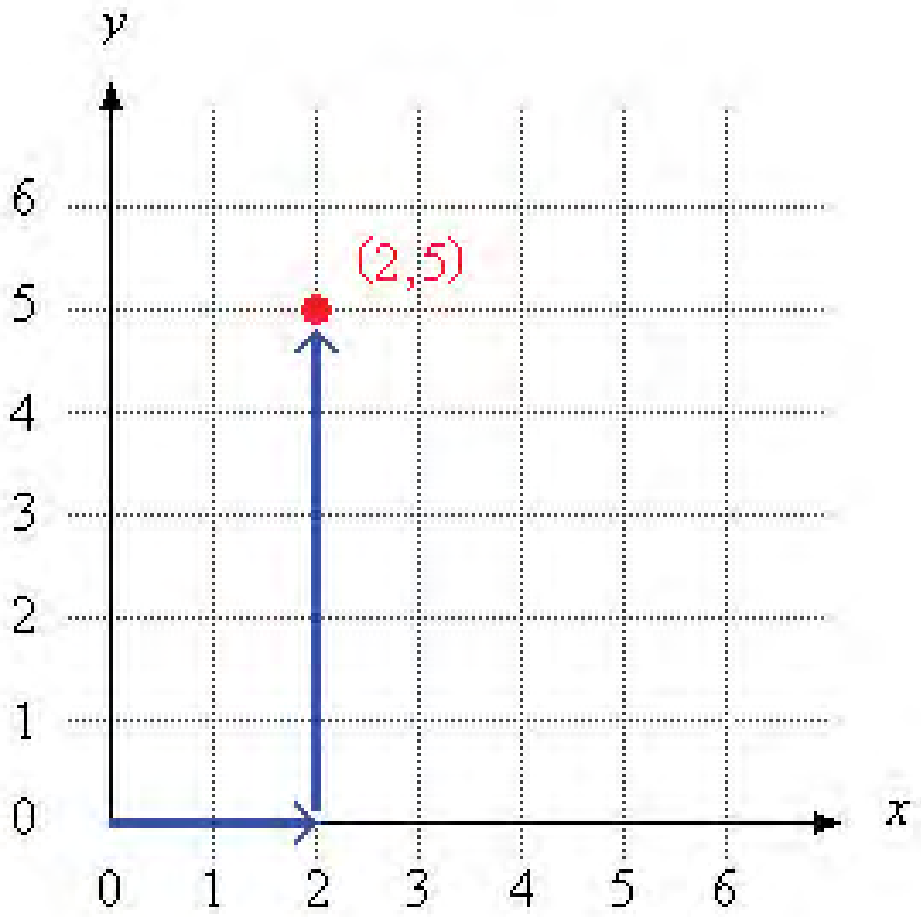


$$\frac{6}{18} \div \frac{6}{6} = \frac{1}{3}$$

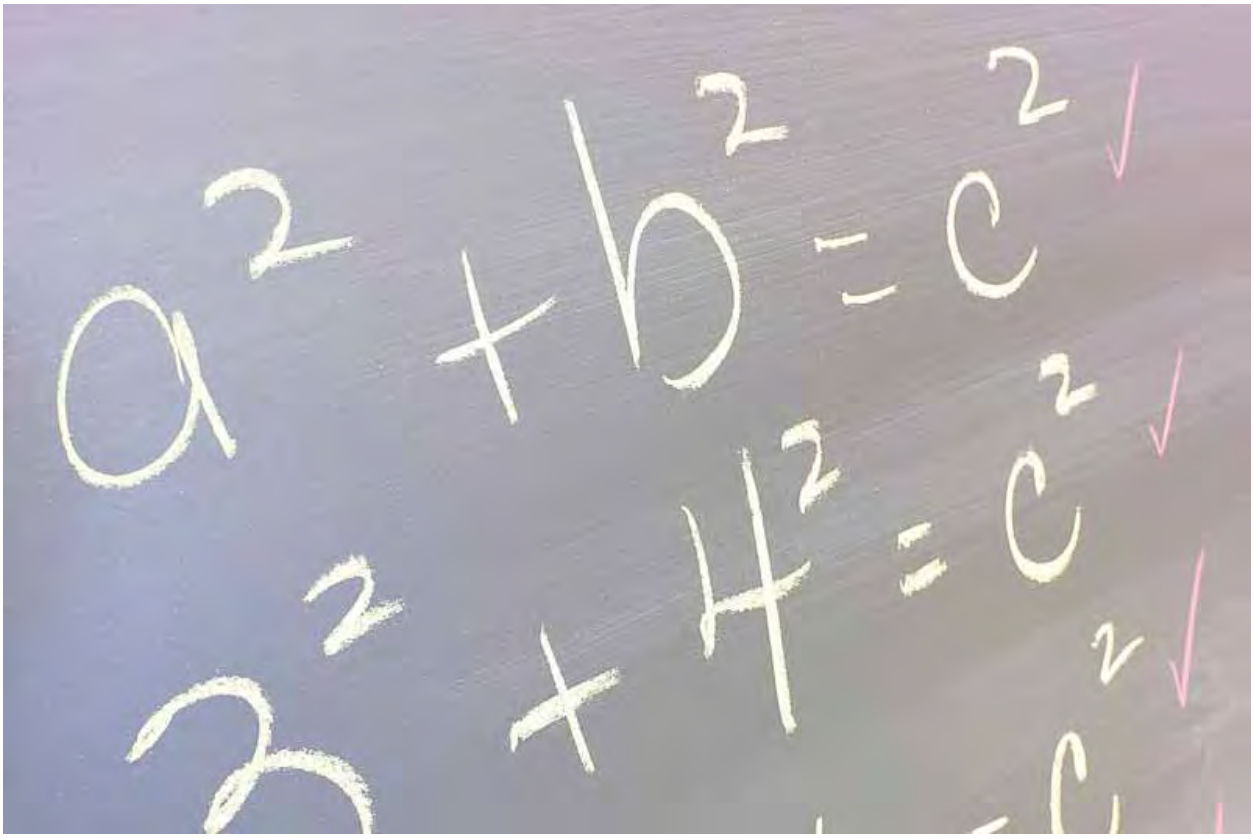
# TERMS

Class Rules
Respect
Every
Single
Person
Especially
Classmates &
Teachers
Respect yourself
Respect others
Respect our school

# RULES


y
x
(2,5)
0
1
2
3
4
5
6

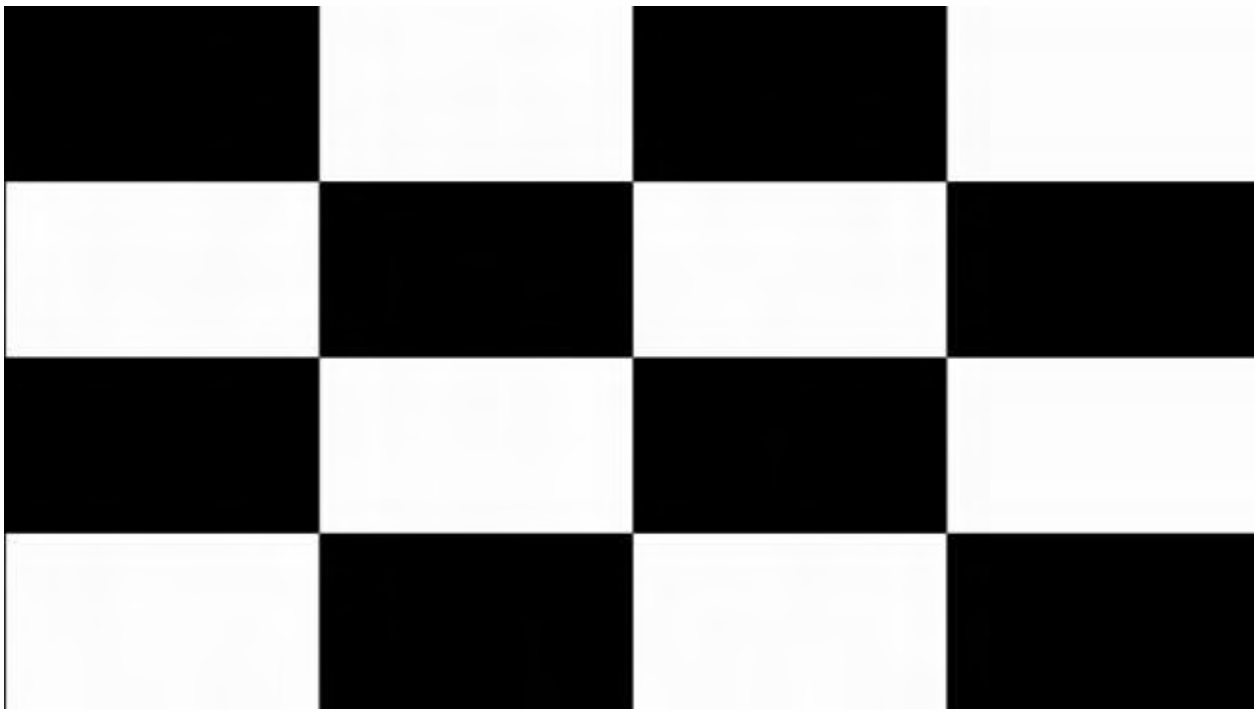
# ORDERED PAIRS


a² + b² = c²
a² + H² = c²

# FORMULA

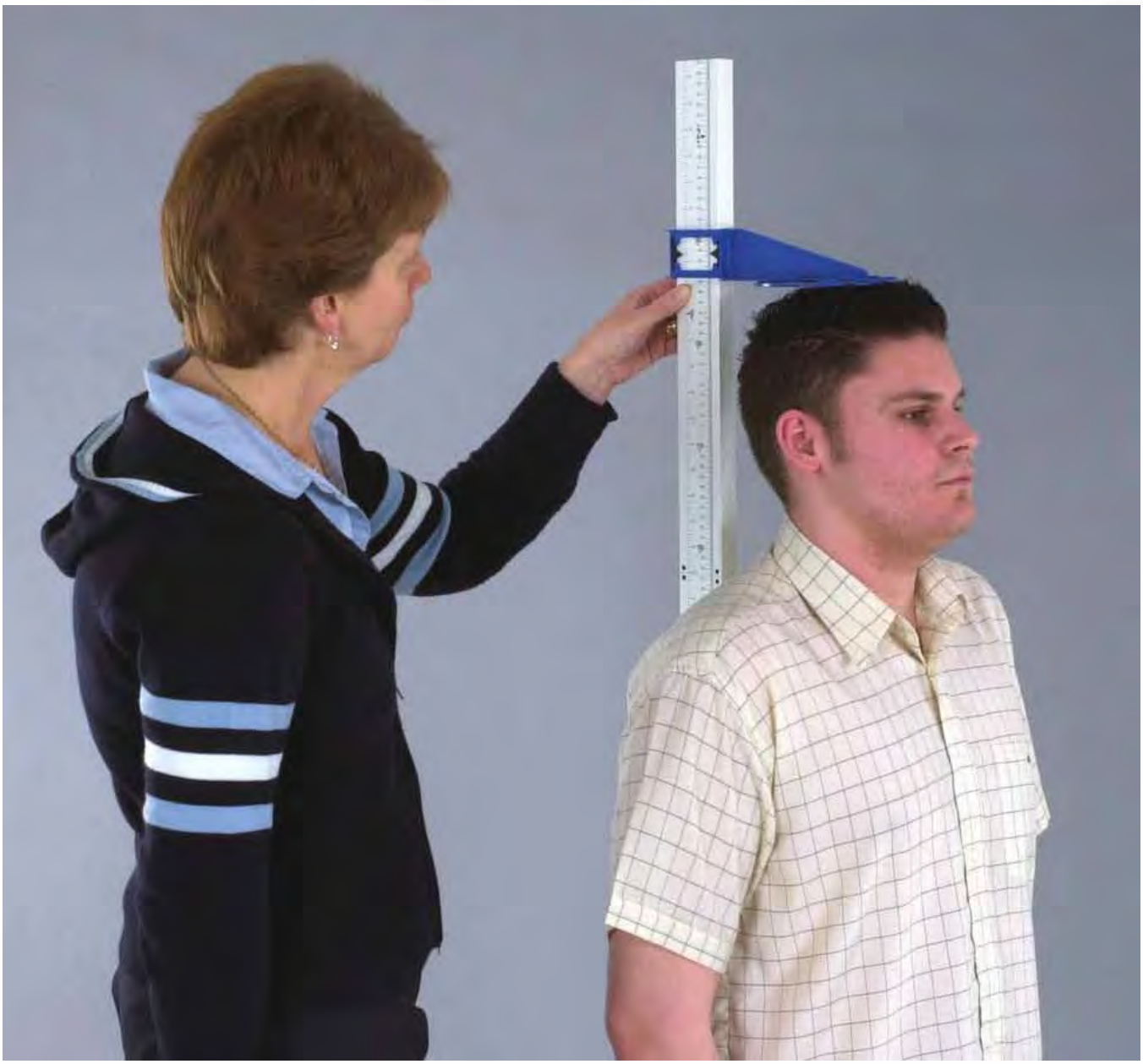
DO NOT
ENTER
ROUTE
66
MAIN ST.
YIELD
ONE
WAY
CAUTION
CONSTRUCTION
ZONE
ENTER AT
YOUR OWN RISK

# VARIABLE

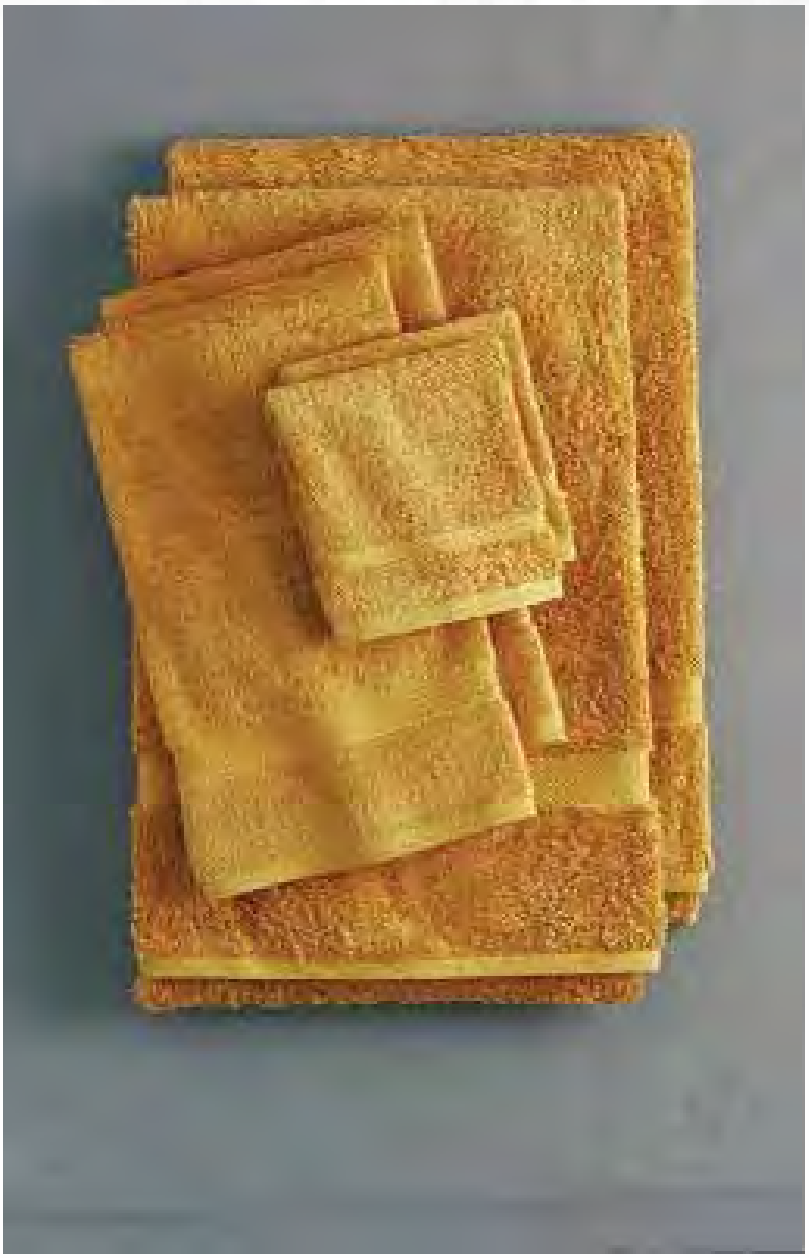


# RATIO

# FUNCTION



# AVERAGE



# AREA

# 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.

### Flick

Give a student a flashlight. Say a vocabulary word. Tell the student to listen for that word. Then, say a number of words, eventually repeating the vocabulary word that you said at the beginning of the round. The student should "flick" on his/her flashlight when he/she hears the vocabulary word. You may wish to insert the vocabulary word in a running story. This activity may also be done in team form. In this case, provide the first player in each team with a flashlight. The first player to turn his/her flash light on at the correct time wins the round. Repeat until all students have played.

### 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.

### Locomotive

Have the students stand in a straight line in the center of the room. Each student should place his hands on the shoulders of the student in front of him/her. Mount a picture on each of the four walls in the classroom. Tell the students that when they hear one of the four vocabulary words (for the four pictures on the walls), they should step in that direction while still holding onto the shoulders of the players in front of them. Say the four words a number of times; the students should step toward the pictures as they are named.

# *Language and Skills Development*

## 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.

# *Language and Skills Development*

## SPEAKING

### Sheet Golf

Before the activity begins, obtain an old sheet. Cut a hole (approximately two inches in diameter) in each end of the sheet. Group the students into two teams. Have the first player from each team hold opposite ends of the sheet. Place a marble or small ball in the center of the sheet. When you say "Go," the players must then lift their ends of the sheet and attempt to cause the marble or ball to fall through the hole in the other player's side of the sheet. When the ball or marble falls through one of the holes, the player on that side of the sheet must say the name of a vocabulary picture you show or he/she should repeat a sentence you said at the beginning of the round. Repeat with other pairs of students until all students have participated. If the sheet is large enough, all students can play—divide the students into four groups (one group for each side). Cut a hole in the sheet near each side. When the marble or ball falls through, all the players on that side must say the name of a vocabulary picture that you show. Repeat.

### 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."

### What's That Word?

Mount the vocabulary illustrations on the chalkboard. Tell a "running story" and point to the vocabulary illustrations as the words appear in the running story. When you point to an illustration, the students should say the vocabulary word for it. The running story is used to include the vocabulary words in natural flowing language. Repeat this process until the students have said the vocabulary words a number of times.

# *Language and Skills Development*

## Flashlight Name

Mount the vocabulary pictures on the board and the walls of the classroom. Darken the classroom as much as possible. Use a strong flashlight to direct the students' attention to one of the pictures. The students should identify the picture that is illuminated by the light of the flashlight. Continue in this way until all of the vocabulary words have been said a number of times.

## 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.

## Flashlight Spin

Group the students in a circle. Set a flashlight in the center of the circle. Turn the flashlight on and spin the flashlight on the floor. When the flashlight stops, the student at whom the flashlight is pointing must then identify a vocabulary picture you show, or he/she must repeat a sentence that you said at the beginning of the round. Repeat until many students have responded.

## Whose Name?

Mount the vocabulary pictures on the board. Provide each student with a blank flashcard. Each student should write his/her name on the card. When the students' cards are ready, collect them and mix them together. Redistribute the name cards to the students so that each student has the name card of another student. Point to a vocabulary picture on the board and call a student's name. The student whose name you called should then read the name on the name card he/she has. It is that student who should say a complete sentence about a vocabulary picture that you point to. 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

#### Word Length

Before the activity begins, cut a number of sight word cards into different lengths (e.g., 5 in., 15 cm., etc.). Place the sight word cards on the floor at one end of the classroom. Group the students into two teams at the other end of the classroom. Place two rulers on the floor beside the sight words. Say a different measurement to the first player in each team. When you say "Go," the first player in each team must rush to the sight word cards. Each player must then use the ruler to locate a sight word card that is the same length as the measurement you said. When a player has done this successfully, he/she should read the sight word on that card. Repeat until all players in each team have participated.

#### Ribbon Reading

Before the activity begins, lay a long length of wide ribbon on the floor and print sight words on the ribbon, using a felt pen. Group the students in a circle. Run the ribbon around the inside of the circle, having the students hold it. Tie the ends of the ribbon together. When you say "Go," the students must pass the ribbon around as quickly as they can until you clap your hands. When you clap your hands, each student should look at the sight word on the ribbon in front of him/her. Call upon each student to read the sight word closest to his/her hands. Repeat 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

#### Pilot's Alphabet

Introduce and practice the Pilot's Alphabet with the students (see the end of this unit). When the students know the alphabet, spell one of the sight words, using the words of the alphabet. For example, for ratio you would say, "Romeo, Alpha, Tango, India, Oscar." The students should listen to the words that you say and then name the sight word. Repeat using the other key math words from this unit.

# *Language and Skills Development*

### Run the Line
Have the students stand in a scattered form in the classroom. Cut the sight words into their individual letters/syllables. Give each of the students a cut out letter/syllable, except for two students who will be IT for the first round of the activity. Give the two players who have no letters/syllables cards a length of string or yarn. The students who have the letters/syllables cards must hold their cards up so that they can be easily read. Say a sight word to each of the two students who are IT (a different word to each student). When you say "Go," the two students must then join together those students who have the letters/syllables necessary to produce the sight word you said. The first player to "run his/her line" to the correct students/letters/syllables, wins the round. Repeat with other pairs of students until all students have had an opportunity to participate.

### 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.

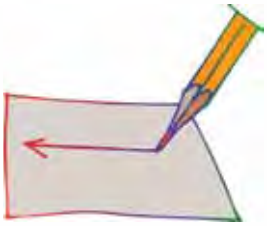
### Student Support Materials
Have the students complete the sight recognition and encoding activities in the Student Support Materials. When finished, review their work.

## 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



### Writing Relay

Group the students into two teams. Say one of the vocabulary words. When you say "Go," the first player from each team must rush to the chalkboard and write only the FIRST letter of the word. He/She should then run to the back of the team and the next player should rush to the chalkboard to add the SECOND letter, and so on. The winning team is the team that correctly completes the spelling of the word first. Repeat using other vocabulary words.

### Wrong!

Provide each student with writing paper and a pen. Write the sight words on the chalkboard, purposely misspelling some of them. The students should write only those words that are misspelled, correcting the errors as they write the words. Afterward, review the students' responses.

### Horizontal Completion

Before the activity begins, cut each of the sight word cards in half, horizontally. Provide each student with writing paper and a pen. Then, provide each student with one of the word halves. Each student should mount his/her word half on the sheet of writing paper. Then, the students should complete their words by writing in the missing halves. Some students should have the upper halves of the sight words and other students should have the lower halves. Afterwards, review the students' responses. You may wish to provide each student with more than one half so that he/she completes more than one sight word.

### Syllable Time

Provide each student with writing paper and a pen. Say a syllable that is found in one of the sight words. Each student should then write the sight word that contains that syllable. Depending upon the syllable that you say, more than one sight word may be correct. Repeat this process with other syllables. Afterwards, review the students' responses.

# *Language and Skills Development*

## Alphabet Code

Assign a number to each letter of the alphabet. Write the letters across the top of the chalkboard, and write the numbers for them underneath (one number for each letter). Provide each student with writing paper and a pen. Spell one of the sight words, using the numbers for the letters rather than the letters themselves. The students should write the numbers you say on their sheets of paper. Then, when the word has been spelled in this way, each student should write the word you spelled, using the letters for the numbers dictated.

## Student Support Materials

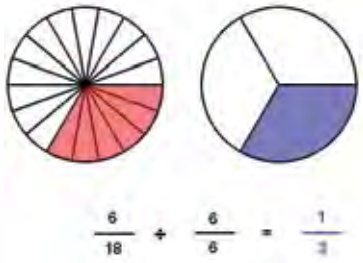
Have the students work on the activity pages from the Student Support Materials from this unit. Afterward, review their work.

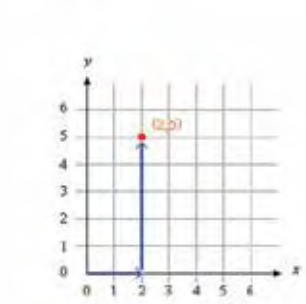
# STUDENT SUPPORT MATERIALS

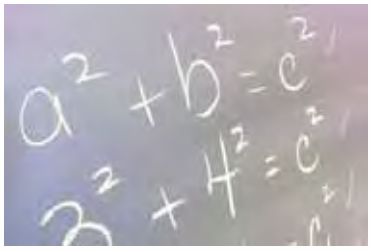
**Listening • Mini Pictures**

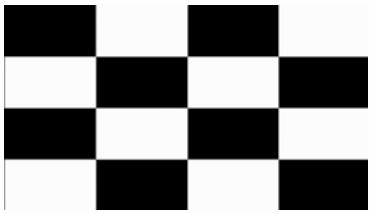
# *Listening: Mini Pictures*

*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.*



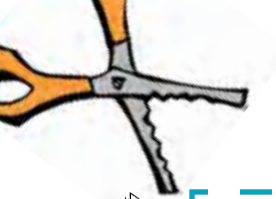




# STUDENT SUPPORT MATERIALS

## Sight Words





patterns

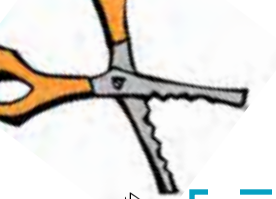
terms

rules

ordered pairs

formula

variable





average

function

ratio

area

# STUDENT SUPPORT MATERIALS

## Reading • Sight Recognition

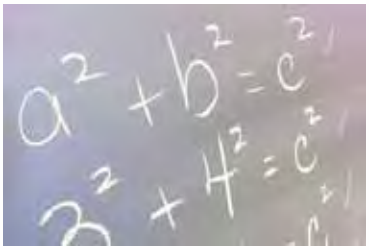
# *Sight Words Activity Page*

*Have the students circle the word for each picture.*

pattern
terms
rules
ordered pairs
formula
variable
ratio
function
average
area

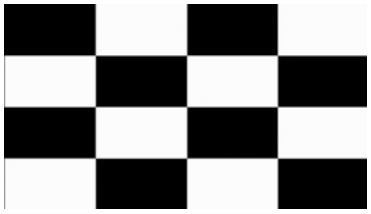
pattern
terms
rules
ordered pairs
formula
variable
ratio
function
average
area

pattern
terms
rules
ordered pairs
formula
variable
ratio
function
average
area



pattern
terms
rules
ordered pairs
formula
variable
ratio
function
average
area

pattern
terms
rules
ordered pairs
formula
variable
ratio
function
average
area

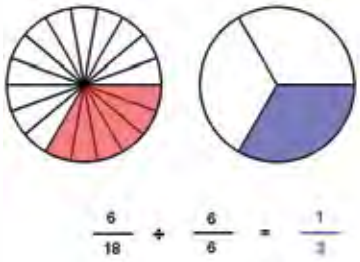


pattern
terms
rules
ordered pairs
formula
variable
ratio
function
average
area

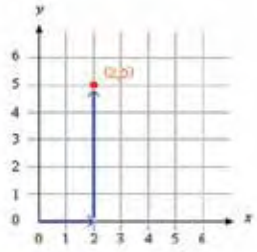
# *Sight Words Activity Page*

pattern
terms
rules
ordered pairs
formula
variable
ratio
function
average
area

pattern
terms
rules
ordered pairs
formula
variable
ratio
function
average
area



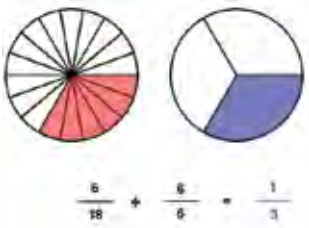

pattern
terms
rules
ordered pairs
formula
variable
ratio
function
average
area

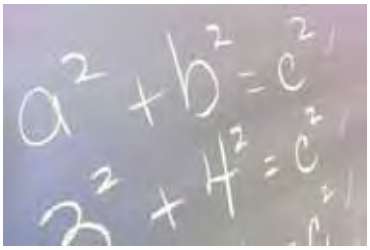


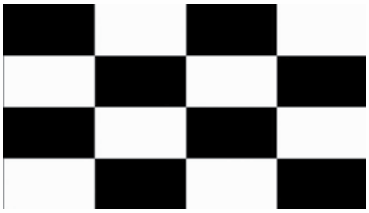

pattern
terms
rules
ordered pairs
formula
variable
ratio
function
average
area

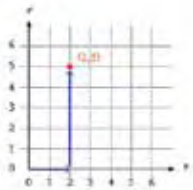
# *Sight Words Activity Page*

*Write the numbers on their correct vocabulary graphics.*









1. **pattern**
2. **terms**
3. **rules**
4. **ordered pairs**
5. **formula**
6. **variable**
7. **extend**
8. **function**
9. **average**
10. **area**

# *Sight Words Activity Page*

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

# *Sight Words Activity Page*

*Highlight or circle the words in this word find.*

variable
rules
extend
formula
pattern
average
terms
ordered pairs
area
function

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

# Sight Words Activity Page

*ANSWER KEY*

variable
rules
extend
formula
pattern
average
terms
ordered pairs
area
function

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

# STUDENT SUPPORT MATERIALS

**Reading • Encoding**

# *Encoding Activity Page*

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

**pa_____ern**

**t_____ms**

**rul_____**

**_____dered pairs**

**for_____la**

| | | |
|---|---|---|
| **mu** | **tt** | **ia** |
| **es** | **er** | |

# *Encoding Activity Page*

**var_____ble**

**ra_____**

**func_____**

**aver_____**

**ar_____**

| | | |
|---|---|---|
| tion | or | tio |
| age | ea | |

# *Encoding Activity Page*

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

| | |
|---|---|
| pat | ed pairs |
| ter | ble |
| ru | tio |
| order | les |
| for | tern |

# *Encoding Activity Page*

| | |
|---|---|
| varia | ea |
| ra | tion |
| func | ms |
| aver | mula |
| ar | age |

# *Encoding Activity Page*

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

| a | va | ri | ble |
|---|---|---|---|
| _____ | _____ | _____ | _____ |

| mu | for | la |
|---|---|---|
| _____ | _____ | _____ |

# *Encoding Activity Page*

| ver | age | a |
|---|---|---|
| _____ | _____ | _____ |

| ti | ra | o |
|---|---|---|
| _____ | _____ | _____ |

# 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. Which of these shows a pattern?
   - ❍ 1, 3, 4, 5, 6, 9
   - ❍ 0, 3, 2, 6, 7, 8
   - ❍ 2, 4, 6, 8, 10
   - ❍ 10-3=7

2. Which of these shows terms?
   - ❍ triangle
   - ❍ composite numbers
   - ❍ prime
   - ❍ 4x

3. Rules in math help all people...
   - ❍ to get the same answer.
   - ❍ to get different answers, using the same rules.
   - ❍ to find composite numbers.
   - ❍ to find the addends in an addition expression.

4. Which of these is an ordered pair?
   - ❍ 4x
   - ❍ x + y
   - ❍ (4, 5)
   - ❍ 3 + 5

5. A composite number
   - ❍ compare composite and prime numbers.
   - ❍ listen better.
   - ❍ work something out.
   - ❍ to find ratios in an expression.

6. Which of these is a variable?
   - ❍ 2,4,6
   - ❍ exponent
   - ❍ digit
   - ❍ Y

# What's the Answer?

7. Which of these shows a ratio?
   - ❍ (3:1)
   - ❍ (4,6,8)
   - ❍ 6x
   - ❍ 7 - 4

8. Which of these shows a function?
   - ❍ %
   - ❍ f(x)
   - ❍ (3:1)
   - ❍ 5 + 3

9. What is the average of these numbers: 5+3+2+6?
   - ❍ 4
   - ❍ 6
   - ❍ 8
   - ❍ 9

10. An area shows...
   - ❍ the number of integers in an expression.
   - ❍ the size of a surface.
   - ❍ the exponent for a multiplication expression.
   - ❍ the length of an object.

# What's the Answer?

*ANSWER KEY*

1. Which of these shows a pattern?
   - ❍ 1, 3, 4, 5, 6, 9
   - ❍ 0, 3, 2, 6, 7, 8
   - ● 2, 4, 6, 8, 10
   - ❍ 10-3=7

2. Which of these shows terms?
   - ❍ triangle
   - ❍ composite numbers
   - ❍ prime
   - ● 4x

3. Rules in math help all people...
   - ● to get the same answer.
   - ❍ to get different answers, using the same rules.
   - ❍ to find composite numbers.
   - ❍ to find the addends in an addition expression.

4. Which of these is an ordered pair?
   - ❍ 4x
   - ❍ x + y
   - ● (4, 5)
   - ❍ 3 + 5

5. A composite number
   - ❍ compare composite and prime numbers.
   - ❍ listen better.
   - ● work something out.
   - ❍ to find ratios in an expression.

6. Which of these is a variable?
   - ❍ 2,4,6
   - ❍ exponent
   - ❍ digit
   - ● Y

# What's the Answer?

**7** Which of these shows a ratio?

- ● (3:1)
- ❍ (4,6,8)
- ❍ 6x
- ❍ 7 - 4

**8** Which of these shows a function?

- ❍ %
- ● f(x)
- ❍ (3:1)
- ❍ 5 + 3

**9** What is the average of these numbers: 5+3+2+6?

- ❍ 4
- ❍ 6
- ● 8
- ❍ 9

**10** An area shows...

- ❍ the number of integers in an expression.
- ● the size of a surface.
- ❍ the exponent for a multiplication expression.
- ❍ the length of an object.

# Reading Comprehension Activity Page

*Write the numbers/letters for sentence halves that match.*

| | | | |
|---|---|---|---|
| 1 | Patterns are arranged | A | to get the same answer. |
| 2 | 6x shows | B | symbols to show how to work something out. |
| 3 | Rules in math help people | C | used to represent a number. |
| 4 | (4,5) is an example of | D | terms being multiplied. |
| 5 | A formula has numbers and E ratio | E | ratio of two things. |
| 6 | A variable is a symbol | F | of a surface. |
| 7 | (6:1) shows the | G | the center of a set of values. |
| 8 | A function is a special relationship | H | an ordered pair. |
| 9 | An average is | I | between values. |
| 10 | Area is the size | J | following a rule or rules. |

1→_____ 2→ _____ 3→ _____ 4→ _____

5→ _____ 6→ _____ 7→ _____ 8→ _____

9→ _____ 10→ _____

# *Reading Comprehension Activity Page*

*ANSWER KEY*

| | | | |
|---|---|---|---|
| 1 | Patterns are arranged | A | to get the same answer. |
| 2 | 6x shows | B | symbols to show how to work something out. |
| 3 | Rules in math help people | C | used to represent a number. |
| 4 | (4,5) is an example of | D | terms being multiplied. |
| 5 | A formula has numbers and E ratio | E | ratio of two things. |
| 6 | A variable is a symbol | F | of a surface. |
| 7 | (6:1) shows the | G | the center of a set of values. |
| 8 | A function is a special relationship | H | an ordered pair. |
| 9 | An average is | I | between values. |
| 10 | Area is the size | J | following a rule or rules. |

1→ J  2→ D  3→ A  4→ H

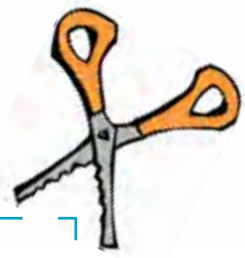
5→ B  6→ C  7→ E  8→ I

9→ G  10→ F

# Reading Comprehension Activity Page

*Cut out the words and glue them under their definitions.*

| | | |
|---|---|---|
| **This is something that is arranged following a rule or rules.** | **This can be numbers and variables that are multiplied together.** | **These help people to get the same math answers.** |
| **These can be used to show position on a graph, as in (4,5).** | **These show us how to work something out.** | **These can be letters that represent numbers.** |
| **How many teaspoons make a tablespoon would be an example of this.** | **This is a special relationship between values.** | **This is the center of a set of values.** |
| **This is the size of a surface.** | | |



**variable** **terms** **formula** **rules**

**ratio** **ordered pairs** **function** **pattern**

**area** **average**

# *Reading Comprehension Activity Page*

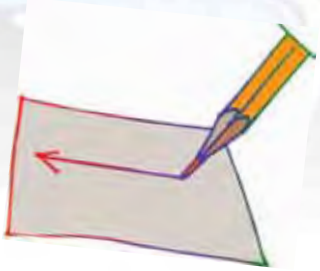
*ANSWER KEY*

| | | |
|---|---|---|
| **This is something that is arranged following a rule or rules.** pattern | **This can be numbers and variables that are multiplied together.** terms | **These help people to get the same math answers.** rules |
| **These can be used to show position on a graph, as in (4,5).** ordered pairs | **These show us how to work something out.** formula | **These can be letters that represent numbers.** variables |
| **How many teaspoons make a tablespoon would be an example of this.** ratio | **This is a special relationship between values.** function | **This is the center of a set of values.** average |
| **This is the size of a surface.** area | | |

# STUDENT SUPPORT MATERIALS

## Writing

# *Writing Activity Page*



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

**patt_____n**

**t_____ms**

**ru_____s**

**or_____ed pairs**

**for_____la**

**varia_____**

**ra_____**

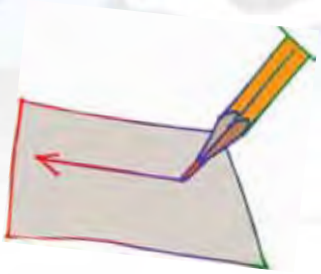
**func_____**

**a_____age**

**ar_____**

# *Writing Activity Page*

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



**p_____n**

**t_____s**

**r_____s**

**or_____s**

**fo_____a**

**va_____e**

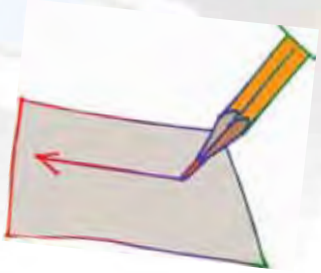
**r_____o**

**fu_____n**

**av_____e**

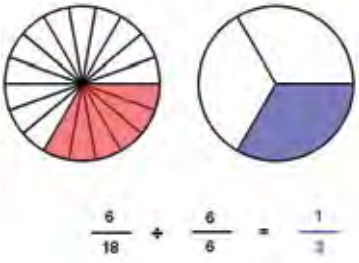
**a_____e**

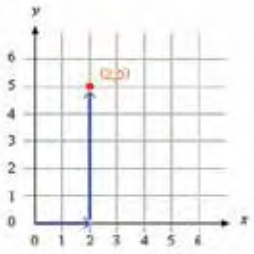
# Basic Writing Activity Page



*Have the students write the word for each picture.*

_____ _____ _____

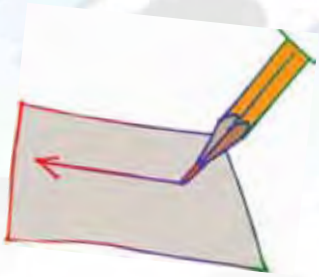


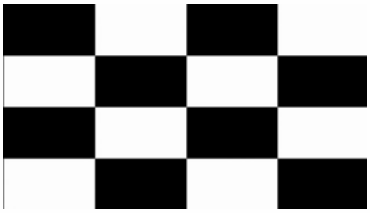


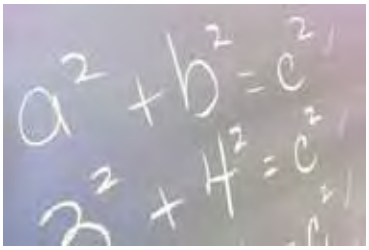

_____ _____ _____

# Basic Writing Activity Page

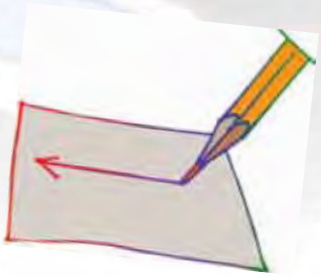
*Have the students write the word for each picture.*

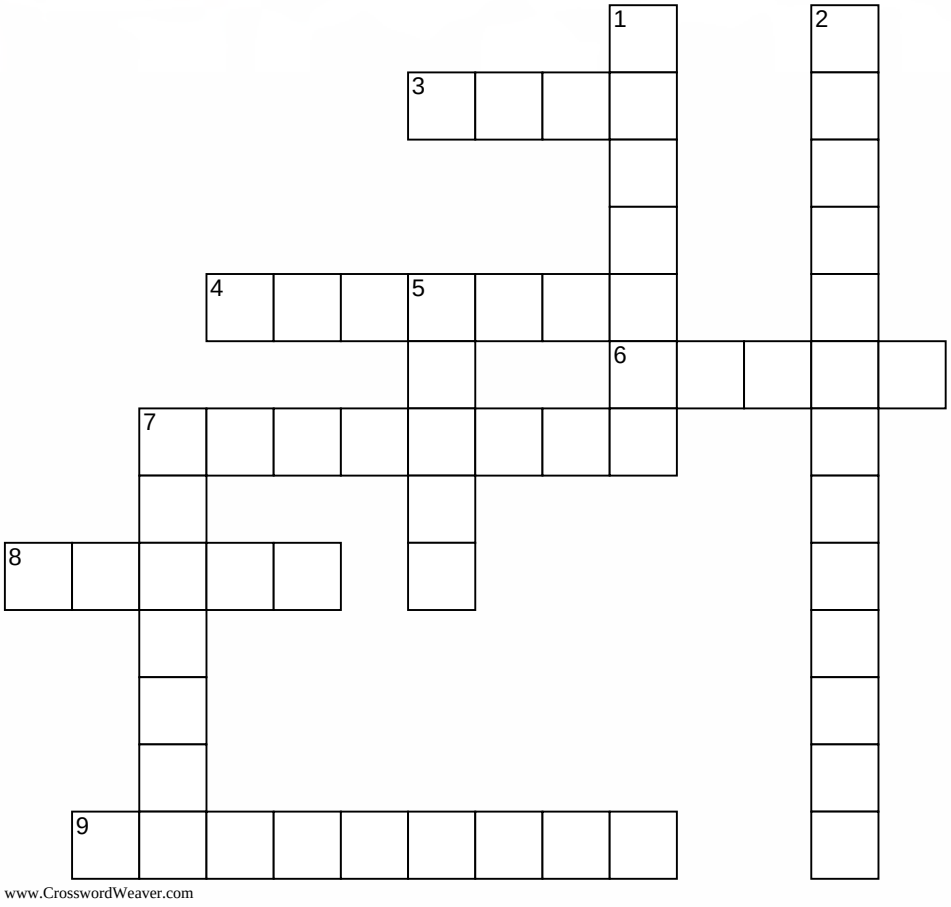






# Crossword Puzzle





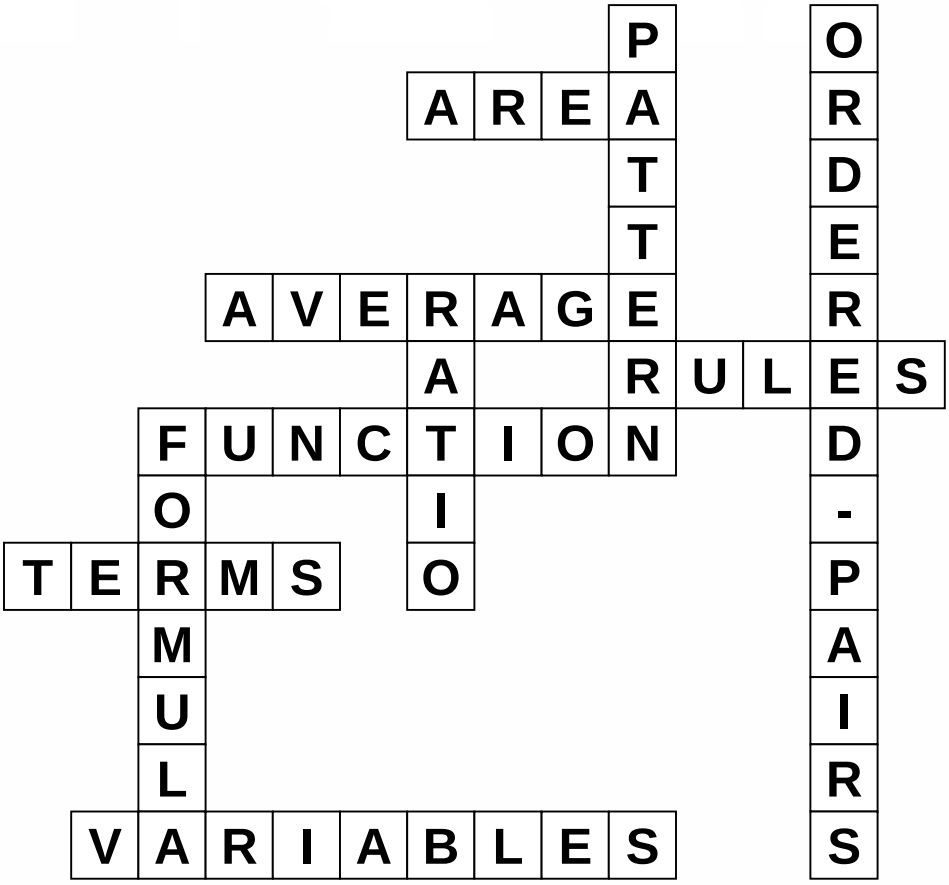

## ACROSS

**3** This is the size of a surface.
**4** This is the center of a set of values.
**6** These help people to get the same math answers.
**7** This is a special relationship between values.
**8** This can be numbers and variables that are multiplied together.
**9** These can be letters that represent numbers.

## DOWN

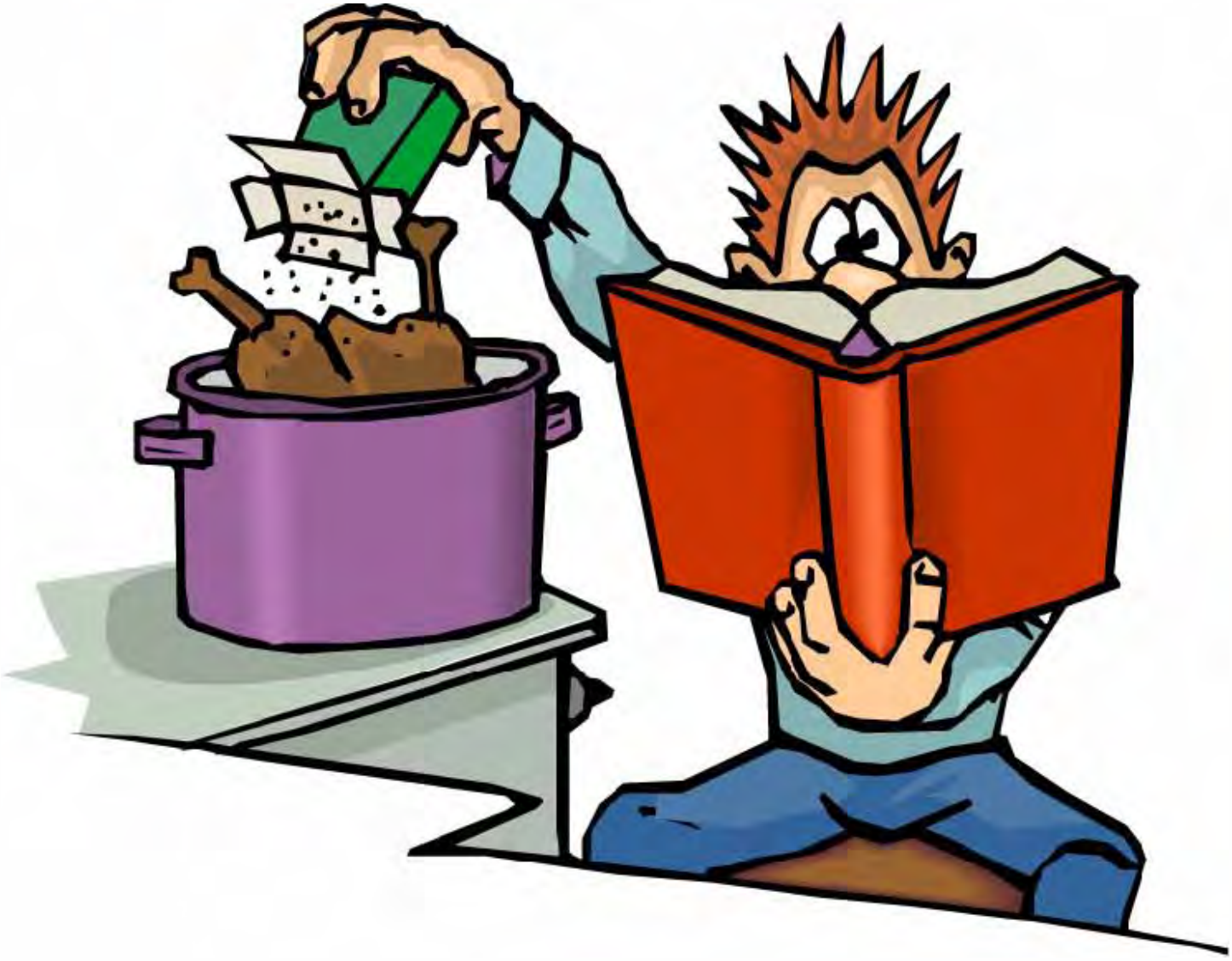
**1** This is smething that is arranged following a rule or rules.
**2** These can be used to show position on a graph, as in (4,5).
**5** How many cups make up a quart would be an example of this.
**7** These show us how to work something out.

# Crossword Puzzle Answers



# *The Pilot's Alphabet*

A - alpha
B - bravo
C - charlie
D - delta
E - echo
F - foxtrot
G - gulf
H - hotel
I - india
J - Juliette
K - kilo
L - lima
M - mike
N - November
O - oscar
P - papa
Q -Quebec
R - Romeo
S - Sierra
T - tango
U - uniform
V - Victor
W- whiskey
X - x-ray
Y - Yankee
Z - Zulu



# UNIT ASSESSMENT

# Functions & Relationships

## Unit Assessment Teacher's Notes
## Grade 7 • Unit 5

**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 **PATTERN**.
2. Write the number 2 by the picture for **TERMS.**
3. Write the number 3 by the picture for **RULES**.
4. Write the number 4 by the picture for **ORDERED PAIRS**.
5. Write the number 5 by the picture for **FORMULA**.
6. Write the number 6 by the picture for **VARIABLE.**
7. Write the number 7 by the picture for **RATIO**.
8. Write the number 8 by the picture for **FUNCTION**.
9. Write the number 9 by the picture for **AVERAGE**.
10. Write the number 10 by the picture for **AREA**.

## 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.

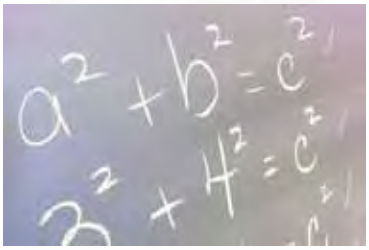
*Teacher: To get a percentage for this student's assessment, divide the total number of questions correct by the total number of questions, then multiply this answer by 100 to determine the percentage of questions answered correctly.*

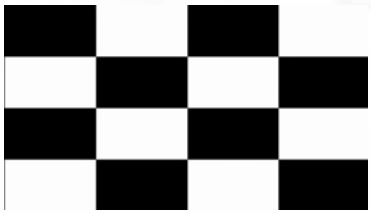
# MATH PROGRAM

## Unit Assessment Student Pages
## Grade 7 • Unit 5

**Date:_____** **Student's Name:_____**

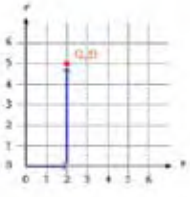
**Number Correct:_____** **Percent Correct:_____**

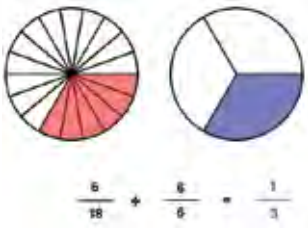

$a^2+b^2=c^2$
$3^2+4^2=c^2$



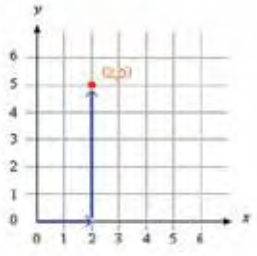
Class Rules
Respect yourself
Respect others
Respect our school

DO NOT ENTER
ROUTE 66
MAIN ST.
ONE WAY
YIELD
STOP
CAUTION
CONSTRUCTION ZONE




$\frac{6}{18} + \frac{6}{6} = \frac{1}{3}$

pattern
terms
rules
ordered pairs
formula
variable
ratio
function
average
area



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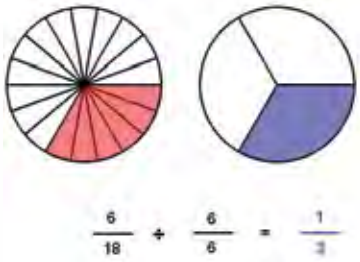

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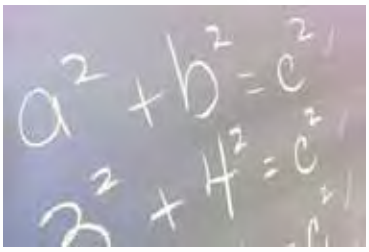

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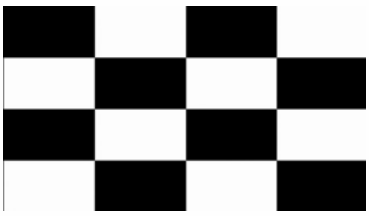

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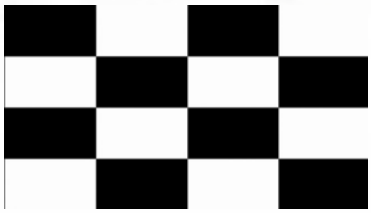
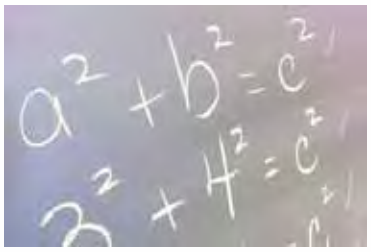
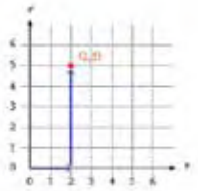
| | | |
|---|---|---|
| This is something that is arranged following a rule or rules. | This can be numbers and variables that are multiplied together. | These help people to get the same math answers. |
| These can be used to show position on a graph, as in (4,5). | These show us how to work something out. | These can be letters that represent numbers. |
| How many teaspoons make a tablespoon would be an example of this. | This is a special relationship between values. | This is the center of a set of values. |
| This is the size of a surface. | | |

| | | | |
|---|---|---|---|
| terms | variable | ratio | ordered pairs |
| rules | function | formula | average |
| pattern | area | | |



DO NOT
ENTER
ROUTE
66
MAIN ST.
ONE
WAY
YIELD
CAUTION
CONSTRUCTION
ZONE


$a^2 + b^2 = c^2$
$a^2 + b^2 = c^2$



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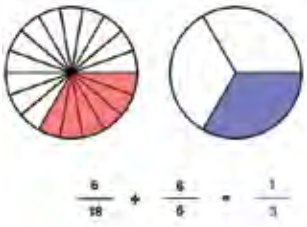
$\frac{6}{18} + \frac{6}{6} = \frac{1}{3}$