UNIT 11: Statistics & Probability

Data Display

Note: All key terms are based on the Math Standards for Alaska and reflect terms vital to academic achievement in math.
INTRODUCTION OF MATH VOCABULARY
Process Skills

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

- **frequency distribution**: Make a table of the students’ favorite Alaskan animals on the board. Now draw a frequency distribution of these favorites. Which animal won gold? Silver? Bronze?

- **circle graph**: Make a table of the students’ favorite Alaskan towns or cities. Place the percentages in a circle graph on the board. Which place won and why? Do they have a least favorite?

- **box and whisker plot**: Have the students draw their funniest cat faces on a sheet of paper. Did all students include whiskers? Show them the picture of the box and whisker plot on page 801. Explain that these whiskers represent the range of non-outlier data—perhaps those cats far beyond the norm!
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.

- **stem and leaf plot**
  
  List the ages of all students on the board. Show them how to arrange these ages on a stem and leaf plot. Can they brainstorm times that this may be useful?

- **histogram**
  
  Show the students the picture of a histogram and bridge on page 805. Explain that histograms have continuous data and can be helpful in finding trends. Climate change researchers are constantly looking for trends. What other occupations look for trends?

- **scatter plot**
  
  Make a table of the students’ favorite colors and separate them by gender. Then draw a scatter plot on the board using this data. Are there any obvious trends in color preference separating the two genders?
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.

Have the students design a new invention on a sheet of paper. Explain that a design is a sketch or outline of plans. Are their designs feasible?
VOCABULARY

PICTURES
FREQUENCY DISTRIBUTION
CIRCLE GRAPH
BOX AND WHISKER PLOT
STEM AND LEAF PLOT
SCATTER PLOT
DESIGN
LANGUAGE ACTIVITIES
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.

Let’s Move
Identify an appropriate body movement for each vocabulary word. This may involve movements of hands, arms, legs, etc. Practice the body movements with the students. When the students are able to perform the body movements well, say a vocabulary word. The students should respond with the appropriate body movement. You may wish to say the vocabulary words in a running story. When a vocabulary word is heard, the students should perform the appropriate body movement. Repeat, until the students have responded to each word a number of times.

What’s the Answer?
Before the activity begins, develop questions related to the concept being studied. For each question, prepare three answers—only one of which in each set is correct for the question asked. Ask the students the question and then read the three answers to them. The students should show you (using their fingers or prepared number cards) which answer is correct for the question asked. Repeat this process with other questions and answers.
### 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.

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

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 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.

**Letter Encode**

Prepare a page that contains large alphabet letters from A to Z. Make five copies for each student. The students should cut out their letters. When all of the letters have been cut out, show a vocabulary picture. The students should then use their letters to spell the word for that picture. Repeat, using the remaining pictures from this unit. Have the students store their cut out letters in individual envelopes.

**Student Support Materials**

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

Sentence Completion
Write a number of sentence halves on individual sentence strips. These should include both the beginning and ending halves of sentences. Mount the sentence halves on the board and number each one. Provide the students with writing paper and pencils/pens. Each student should then complete ONE of the sentence halves in his/her own words, writing his/her part of the sentence on the sheet of paper. When the students have completed their sentence halves, have a student read ONLY the sentence half he/she wrote. The other students must then attempt to identify the “other half” of the sentence on the board (by its number). Repeat until all of the students have shared their sentence halves in this way.

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

Listening • Mini Pictures
Listening: Mini Pictures

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

Sight Words
frequency distribution

circle graph

box and whisker plot
stem and leaf plot

histogram

scatter plot
design
STUDENT SUPPORT MATERIALS

Reading • Sight Recognition
Sight Words Activity Page

Have the students circle the word for each picture.

frequency distribution
circle graph
box and whisker plot
stem and leaf plot
histogram
scatter plot
design
Sight Words Activity Page

frequency distribution
circle graph
box and whisker plot
stem and leaf plot
histogram
scatter plot
design
Sight Words Activity Page

Write the numbers on their correct vocabulary graphics.

1. frequency distribution
2. circle graph
3. box and whisker plot
4. stem and leaf plot
5. histogram
6. scatter plot
7. design
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.

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</table>
Sight Words Activity Page

Highlight or circle the words in this word find.

scatter plot
stem and leaf plot
box and whisker plot
circle graph
design
frequency distribution
histogram
Sight Words Activity Page

**Answer Key**

scatter plot
design
stem and leaf plot
frequency distribution
box and whisker plot
histogram
circle graph

---

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

fre__________y distribution

circle g________

box and w________er plot

stem and ___________ plot

h__________gram

<table>
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<th>hisk</th>
<th>quenc</th>
<th>leaf</th>
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</tbody>
</table>
Encoding Activity Page

s__________r plot

d__________n

raph

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

- frequ
- circl
- box and
- stem
- hist
- and leaf plot
- whisker plot
- e graph
- sign
- tter plot
Encoding Activity Page

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

- cy
- fre
- quen

- distribution
- tribu

- cle
- cir
- graph
<table>
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<tr>
<th>and</th>
<th>box</th>
<th>plot</th>
<th>ker</th>
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<table>
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<tr>
<th>plot</th>
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<th>to</th>
<th>his</th>
<th>gram</th>
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</table>
STUDENT SUPPORT MATERIALS

Reading Comprehension
What’s the Answer?

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

1. A frequency distribution is a correspondence of a set of frequencies with a set of
   - Categories
   - Intervals
   - Values
   - All of the above

2. In a circle graph, a circle representing a whole is:
   - Subdivided
   - Eliminated
   - Stretched
   - Duplicated

3. A box and whisker plot displays all but which of the following
   - Median
   - Interquartile Range
   - Mode
   - Range of Non-Outlier Data

4. Which part of a stem and leaf plot represents the ones digits?
   - Stem
   - Roots
   - Leaf
   - Fruit

5. In a histogram, each bar represents a ______ of values and the data are ________.
   - Range, Discontinuous
   - Median, Continuous
   - Median, Discontinuous
   - Range, Continuous
In a scatter plot, two _______ form an ordered pair that is graphed on a coordinate plane.
omatic

- Lines
- Jets
- Variables
- Formulas

To design a totem is to work out its:
omatic

- Structure
- Wood Type
- Included Crests
- All of the above
What’s the Answer?

ANSWER KEY

1. A frequency distribution is a correspondence of a set of frequencies with a set of
   - Categories
   - Intervals
   - Values
   - All of the above

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- Lines
- Jets
- Variables
- Formulas

To design a totem is to work out its:

- Structure
- Wood Type
- Included Crests
- All of the above
Reading Comprehension Activity Page

Write the numbers/letters for sentence halves that match.

1. A frequency distribution is the correspondence of a set of frequencies with the set of
2. A person’s monthly budget can be viewed
3. The whiskers on a box and whisker plot
4. A stem and leaf plot is a way of showing the distribution of a set
5. A histogram is a type of statistical graph that uses bars, where each bar
6. A scatter plot displays ordered pairs on
7. To design a totem pole is to

A. as a circle graph, showing each category of spending.
B. categories, intervals or values into which a population is classified.
C. of data along a vertical axis.
D. represent the range of the non-outlier data.
E. work out the structure and form of it.
F. represents a range of values and the data are continuous.
G. a coordinate plane and shows the relationship between two variables.

1→__________ 2→__________ 3→__________ 4→__________
5→__________ 6→__________ 7→__________
Reading Comprehension Activity Page

ANSWER KEY

1. A frequency distribution is the correspondence of a set of frequencies with the set of
2. A person’s monthly budget can be viewed
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A as a circle graph, showing each category of spending.
B categories, intervals or values into which a population is classified.
C of data along a vertical axis.
D represent the range of the non-outlier data.
E work out the structure and form of it.
F represents a range of values and the data are continuous.
G a coordinate plane and shows the relationship between two variables.

1→ B  2→ A  3→ D  4→ C
5→ F  6→ G  7→ E
# Reading Comprehension Activity Page

Cut out the words and glue them under their definitions.

<table>
<thead>
<tr>
<th>Bars represent a range of discontinuous values</th>
<th>Sketch, Pattern or Plans</th>
<th>Showing each of the possible values of a variable</th>
</tr>
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<tbody>
<tr>
<td>Subdivided Circle</td>
<td>10s stems 1s leaves</td>
<td>Shows the relationship between two variables</td>
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<tr>
<td>Whiskers represent range of non-outlier data</td>
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- frequency distribution
- circle graph
- box and whisker plot
- stem and leaf plot
- histogram
- scatter plot
- design
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<td>design</td>
<td>frequency distribution</td>
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<tbody>
<tr>
<td>box and whisker plot</td>
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</table>
STUDENT SUPPORT MATERIALS

Writing
Writing Activity Page

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

freq_______y dist_________ion

cir_______e gr_________

box ______d w__________er

st_______ and l________ p______t

hi________________m

s__________er p__________

des_______________
Writing Activity Page

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

f___________ y d__________n

c____________ e g__________h

b___x a___d w_________________r

p_________t
Have the students write the word for each picture.
Across
5 Sketch, pattern or plans
7 Whiskers represent range of non-outlier data (4 Words)

Down
1 Showing each of the possible values of a variable (2 Words)
2 10s stems 1s leaves (4 Words)
3 Shows the relationship between two variables (2 Words)
4 Subdivided circle (2 Words)
6 Bars represent a range of discontinuous values
Crossword Puzzle Answers

Across
5 Sketch, pattern or plans
7 Whiskers represent range of non-outlier data (4 Words)

Down
1 Showing each of the possible values of a variable (2 Words)
2 10s stems 1s leaves (4 Words)
3 Shows the relationship between two variables (2 Words)
4 Subdivided circle (2 Words)
6 Bars represent a range of discontinuous values
UNIT ASSESSMENT
Data Display

Unit Assessment Teacher’s Notes
Grade 8  •  Unit 11
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 FREQUENCY DISTRIBUTION.
2. Write the number 2 by the picture for CIRCLE GRAPH.
3. Write the number 3 by the picture for BOX AND WHISKER PLOT.
4. Write the number 4 by the picture for STEM AND LEAF PLOT.
5. Write the number 5 by the picture for HISTOGRAM.
6. Write the number 6 by the picture for SCATTER PLOT.
7. Write the number 7 by the picture for DESIGN.

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

DECODING/ENCODING
Turn to page 3 in your test. Look at the word parts in the boxes. Circle the other half or part of each word.

READING COMPREHENSION
Turn to page 4 in your test. Write each word under its definition. Refer to Student Support Materials for answer key.

BASIC WRITING
Turn to page 5 in your test. Look at the pictures in the boxes. Write the word for each picture.
Teacher: To get a percentage for this student’s assessment, divide the total number of questions correct by the total number of questions, then multiply this answer by 100 to determine the percentage of questions answered correctly.
Date:___________      Student’s Name:____________________
Number Correct:__________       Percent Correct:__________
| frequ____ | anty  
| distribution | entry  
| | inty  
| | onty  
| | unty  
| | ancy  
| | ency  
| | incy  
| | oncy  
| circle g____ | raf  
| | ref  
| | rif  
| | rof  
| | ruf  
| | raph  
| | reph  
| | riph  
| | roph  
| box and | car  
| whis____ plot | cer  
| | cir  
| | cor  
| | cur  
| | kar  
| | ker  
| | kir  
| | kor  
| stem and | laf  
| ____ plot | lef  
| | lif  
| | lof  
| | luf  
| | leaf  
| | leef  
| | leif  
| | leof  
| histo____ | gran  
| | gren  
| | grin  
| | grin  
| | groan  
| | gram  
| | grem  
| | grim  
| | grom  
| sca_____ | ddar  
| | dder  
| | ddir  
| | ddor  
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| | ttar  
| | tter  
| | ttir  
| | ttor  
| de____ | sane  
| | sene  
| | sine  
| | sone  
| | sune  
| | sagn  
| | segn  
| | sign  
| | sogn  

3
Bars represent a range of discontinuous values

Sketch, Pattern or Plans

Showing each of the possible values of a variable

Subdivided Circle

10s stems 1s leaves

Shows the relationship between two variables

Whiskers represent range of non-outlier data

frequency distribution  circle graph  box and whisker plot  stem and leaf plot

histogram  scatter plot  design
UNIT 12: Statistics & Probability
Analysis & Central Tendency

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

**interpretation**

Show the students the picture of the Mona Lisa on page 875. How many students think that she is smiling? How many do not? Explain the definition of interpretation and that many things can be interpreted differently depending on the angle that it is viewed from.

**trends**

Trends occur all around us on a daily basis. From fashion to music to politics and hair styles, our lives are often in flux. What trends have the students recently seen? Perhaps in fishing success locally?

**justify**

Write on the board 2+2=5. Ask the students if this is correct and when they say no, ask them to explain why. Tell them that they are justifying their objection to your conclusion!
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.

**range**

Write the students’ ages on the board. What are the youngest and oldest ages in the class? Explain that these upper and lower limits define the range of ages.

**median**

Using a list of the students’ ages in ascending order, explain the definition of the median number and have the students tell you what it is.

**mean**

Make a list on the board of how many pets each student has in their home. Ask them to find the mean or “average” number of pets.
**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.

Make a list on the board of how many fish each student has caught in the past two years. Explain that mode is the number that occurs most frequently in the list of numbers. What is the mode for fish caught?

**Mode**
INTERPRETATION
TRENDS
RANGE
MEDIAN
Climate Chart (°C)

Max temp

Min temp

Jan  Feb  Mar  Apr  May  Jun  Jul  Aug  Sep  Oct  Nov  Dec

-3°  2°  4°  8°  14°  20°  22°  24°  24°  24°  19°  14°

-2°  4°  9°  12°  13°  13°  10°  6°  6°  1°  -1°  3°
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<th>Day</th>
<th>High</th>
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<td>Wednesday</td>
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<td>54°</td>
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<tr>
<td>Thursday</td>
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<td>52°</td>
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*Updated 8/11/12 2:49 PM*
MODE
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.

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.

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

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

SPEAKING

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.

High Roller
Give a die to each of two students. When you say “Go,” the students should roll their dice. The student who rolls the highest number on his/her die must then say a complete sentence about a vocabulary picture that you show. Repeat this process until many students have responded with sentences of their own.
**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.*

**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.

**What’s Your Sequence?**

Provide each student with four blank flashcards. Write four sight words on the board. Each student should write the same sight words on each of his cards (one word per card). When the students’ cards are ready, have them arrange their sight word cards in a specific sequence on their desks (each student should determine his/her own sequence of words). Then, say a sequence of the four words. Any student or students who have their sight words in the same sequence as you said win the round. The winner or winners of this activity are those students who collect the greatest number of wins. The students may change the sequence of their sight word cards after each round of the activity.

**Letter Encode**

Prepare a page that contains large alphabet letters from A to Z. Make five copies for each student. The students should cut out their letters. When all of the letters have been cut out, show a vocabulary picture. The students should then use their letters to spell the word for that picture. Repeat, using the remaining pictures from this unit. Have the students store their cut out letters in individual envelopes.
Language and Skills Development

WRITING

**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.

**Sentence Completion**
Write a number of sentence halves on individual sentence strips. These should include both the beginning and ending halves of sentences. Mount the sentence halves on the board and number each one. Provide the students with writing paper and pencils/pens. Each student should then complete ONE of the sentence halves in his/her own words, writing his/her part of the sentence on the sheet of paper. When the students have completed their sentence halves, have a student read ONLY the sentence half he/she wrote. The other students must then attempt to identify the “other half” of the sentence on the board (by its number). Repeat until all of the students have shared their sentence halves in this way.

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

Listening • Mini Pictures
Listening: Mini Pictures

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

Sight Words
interpretation
trends
justify
STUDENT SUPPORT MATERIALS

Reading ● Sight Recognition
Sight Words Activity Page

Have the students circle the word for each picture.

interpretation
trends
justify
range
median
mean
mode

interpretation
trends
justify
range
median
mean
mode

interpretation
trends
justify
range
median
mean
mode

interpretation
trends
justify
range
median
mean
mode
Sight Words Activity Page

interpretation
trends
justify
range
median
mean
mode
Sight Words Activity Page

Write the numbers on their correct vocabulary graphics.

1. interpretation
2. trends
3. justify
4. range
5. median
6. mean
7. mode
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.
Highlight or circle the words in this word find.

- trends
- mean
- justify
- median
- interpretation
- mode
- range
Sight Words Activity Page

ANSWER KEY

<table>
<thead>
<tr>
<th>trends</th>
<th>median</th>
<th>interpretation</th>
<th>range</th>
</tr>
</thead>
<tbody>
<tr>
<td>mean</td>
<td>justify</td>
<td>mode</td>
<td></td>
</tr>
</tbody>
</table>

trends
dgeoneaiauemastudeyrrameme
eotifntidtoardgrritenjtestnearodanaroeeeoeypdoadeumaurdronreeterostntntretontjeidsrinterverttttmenanirnjomntitrendsinterpretation
interparationttgoyalmyoeai
pnoertrsniritarnrdraonsdgtnriysannuenaudneftnsttetrenemjustitsttsttsdaefoprtnrptnnmettrarmnfnana
tunrendtdmutnmmeirsnirsirndremanaatidjaussmmnnuroetnyjtmnniinterpretationenrieeditrrmusneisaoeinsas
medianpiainnndirptutomyanaospagitaunaeeseefsijustifynerdmdtjjtempinnennrnenaenyfemengennemseeioraendyiiddpeeiotertumpntreairangetrangednddrrddtnmatteedmtnioattta
ddmeednepijgnattntametttdtdmtntstananretdjennennfnnuyaooodtmode
tfnyrmnogmtttrf
srrnsriasasaemfmimennirtfeesreyaenernnmraarrnrreffooadinmnrmpdppeeeotnouatptmttmmsamenspmsjneaiiddedfmani
STUDENT SUPPORT MATERIALS

Reading • Encoding
Encoding Activity Page

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

in_________tation

t_______s

j_______fy

r________

m________n

rend  ange  edia

ode   usti
Encoding Activity Page

m_________

terpre

ean

m_________
Encoding Activity Page

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

inter

ends

tr

pretation

jus

nge

ra

de

med

an
Encoding Activity Page

me

mo

ian
tify
Encoding Activity Page

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

in    ter    tion    ta    pre

_______  _______  _______  _______

trends

_______

fy    ti    jus

_______  _______  _______
Encoding Activity Page

range

di\ an\ me

mean\ mode
What’s the Answer?

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

1. The justices of the Alaska Supreme Court sometimes have different _____________ of the Alaska constitution.
   - Visions
   - Interpretations
   - Versions
   - Authors

2. Trends can occur in
   - Mathematics
   - Cultures
   - Fashion
   - All of the above

3. Some people feel guilty when they make a large purchase and may feel the need to ___________ that purchase.
   - Continue
   - Justify
   - Fake
   - Increase

4. The extent of area that black bears occupy in North America refers to their ________.
   - Range
   - Den
   - Population
   - All of the above

5. When values are listed in order of size, the ________ is in the middle.
   - Median
   - Lines
   - Chickens
   - Range
What’s the Answer?

6. The ______ number of clams collected in a day can be referred to as the mean.
   - Gross
   - Greatest
   - Least
   - Average

7. The mode is the value that appears ______ frequently in a set of data.
   - Least
   - Most
   - Never
   - Somewhat
What’s the Answer?

ANSWER KEY

1. The justices of the Alaska Supreme Court sometimes have different ______________ of the Alaska constitution.
   - Visions
   - Interpretations
   - Versions
   - Authors

2. Trends can occur in
   - Mathematics
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   - Greatest
   - Least
   - Average

7. The mode is the value that appears ______ frequently in a set of data.
   - Least
   - Most
   - Never
   - Somewhat
Reading Comprehension Activity Page

Write the numbers/letters for sentence halves that match.

1. One interpretation of climate change data is that
2. During the 1980s, mullets and rat-tails
3. Susan felt that she needed to justify her purchase of cross-country skis
4. The range of athletic ability in a group of people
5. The median of a dataset is the measure of central tendency.
6. The mean number of children born to parents in the U.S.
7. The mode is the value that appears most frequently in a set of data.

8. A. can vary from very poor to very great.
9. B. of central tendency.
10. C. were a fashion trend.
11. D. by vowing to use them at least four times per winter.
12. E. it has happened in the past, is normal, and there is nothing to worry about.
13. F. is about two.

1→__________ 2→__________ 3→__________ 4→__________
5→__________ 6→__________ 7→__________
Reading Comprehension Activity Page

ANSWER KEY

1. One interpretation of climate change data is that
2. During the 1980s, mullets and rat-tails
3. Susan felt that she needed to justify her purchase of cross-country skis
4. The range of athletic ability in a group of people
5. The median of a dataset is the measure
6. The mean number of children born to parents in the U.S.
7. The mode is the value that appears

A. can vary from very poor to very great.
B. of central tendency.
C. were a fashion trend.
D. by vowing to use them at least four times per winter.
E. most frequently in a set of data.
F. it has happened in the past, is normal, and there is nothing to worry about.
G. is about two.

1→F  2→C  3→D  4→A  
5→B  6→G  7→E
### Reading Comprehension Activity Page

Cut out the words and glue them under their definitions.

<table>
<thead>
<tr>
<th>Explanation of results</th>
<th>Variation between upper and lower limits</th>
<th>Prove reasonable</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Occurs most often</th>
<th>Average</th>
<th>Develop in a general direction</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Situated in the middle

**Words to Cut Out:**
- interpretation
- trends
- justify
- range
- median
- mean
- mode
<table>
<thead>
<tr>
<th>Explanation of results</th>
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<tr>
<th>Occurs most often</th>
<th>Average</th>
<th>Develop in a general direction</th>
</tr>
</thead>
<tbody>
<tr>
<td>mode</td>
<td>mean</td>
<td>trends</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Situated in the middle</th>
</tr>
</thead>
<tbody>
<tr>
<td>median</td>
</tr>
</tbody>
</table>
STUDENT SUPPORT MATERIALS

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

in______pretation

t_______ds

j______tify

r______ge

m______ian

me______n

mo_____e
Writing Activity Page

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

i____________________n

t____________________s

j_____________________y

r____________________e

m____________d__________n

m____________________n

m____________________e
Basic Writing Activity Page

Have the students write the word for each picture.
Crossword Puzzle

Across
2 Develop in a general direction
3 Average
4 Occurs most often
5 Variation between upper and lower limits
6 Prove reasonable
7 Situated in the middle

Down
1 Explanation of results
Crossword Puzzle Answers

Across
2 Develop in a general direction
3 Average
4 Occurs most often
5 Variation between upper and lower limits
6 Prove reasonable
7 Situated in the middle

Down
1 Explanation of results
UNIT ASSESSMENT
Analysis & Central Tendency

Unit Assessment Teacher’s Notes
Grade 8 • Unit 12
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 INTERPRETATION.
2. Write the number 2 by the picture for TRENDS.
3. Write the number 3 by the picture for JUSTIFY.
4. Write the number 4 by the picture for RANGE.
5. Write the number 5 by the picture for MEDIAN.
6. Write the number 6 by the picture for MEAN.
7. Write the number 7 by the picture for MODE.

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

DECODING/ENCODING
Turn to page 3 in your test. Look at the word parts in the boxes. Circle the other half or part of each word.

READING COMPREHENSION
Turn to page 4 in your test. Write each word under its definition. Refer to Student Support Materials for answer key.

BASIC WRITING
Turn to page 5 in your test. Look at the pictures in the boxes. Write the word for each picture.
Teacher: To get a percentage for this student’s assessment, divide the total number of questions correct by the total number of questions, then multiply this answer by 100 to determine the percentage of questions answered correctly.
interpretation
trends
justify
range
median
mean
mode
Explanation of results

Variation between upper and lower limits

Prove reasonable

Occurs most often

Average

Develop in a general direction

Situated in the middle

interpretation	trends	justify	range

median	mean	mode
UNIT 13:
Statistics & Probability

Probability

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

probability

Draw a plant on the board and explain to the students that it only flowers every other year. You do not know when the last time it flowered is. What is the probability that it will flower this year? Explain to the students that it has a 50/50 chance of flowering!

experimental probability

Have the students tell you the probability that a coin will land on heads. Toss a coin ten times and record its disposition on the board. Explain that you conducted an experiment to determine the probability. Was this the same result as the students theorized?

theoretical probability

Ask the students how many of them have a twin and/or know of twins. Explain that the theoretical probability of having a twin is about 1 in 40. This may be more or less within a family or cultural group!
**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.

- **systematic**
  - Have the students explain the process of making a peanut butter and jelly sandwich to you and write each step on the board. Explain that though some people may have variations in how they make these, it is a rather systematic process! Now try to make all the foods for Thanksgiving at the same time!

- **simulation**
  - Ask the students how many of them have played a video or computer game where a car had to be driven or a plane flown. Explain that this is a simulation of the real thing. Pilots and astronauts often train on simulators to keep them safe while they are learning!

- **prediction**
  - Ask the students to make a prediction on how many people will sneeze in the next hour. Keep track and give an award to those who guessed correctly! Explain that many predictions are based on some knowledge of an event and rather than being a random guess, they are educated guesses.
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.

Draw a detailed flower on the board. Under the flower, draw lines to various characteristics that you have the students come up with. Gradually expand to smaller and smaller details. Explain that the diagram helps you to view all of the component parts of the flower. The same can be done to help understand concepts and formulas in math!
VOCABULARY

PICTURES
PROBABILITY
EXPERIMENTAL PROBABILITY
THEORETICAL PROBABILITY
SYSTEMATIC
SIMULATION
PREDICTION
You are here.

Paranthropus group
Large teeth and powerful jaw; walked (but) group of early humans, relied on variety of foods.

Ardipithecus group
The earliest humans with a common link to other primates. They walked on All fours and took the first steps toward walking upright.

Homo group
With technological advances, group in today’s world is more diverse. Amazed how far we can go!
TREE DIAGRAM
LANGUAGE ACTIVITIES
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.

Let’s Move
Identify an appropriate body movement for each vocabulary word. This may involve movements of hands, arms, legs, etc. Practice the body movements with the students. When the students are able to perform the body movements well, say a vocabulary word. The students should respond with the appropriate body movement. You may wish to say the vocabulary words in a running story. When a vocabulary word is heard, the students should perform the appropriate body movement. Repeat, until the students have responded to each word a number of times.

Student Support Materials
Have the students work on the activity pages from the Student Support Materials from this unit. Afterward, review their work.
语言和技能发展

说

动作！
将学生分组到你面前。表演一个动作来代表其中一个关键词汇。学生们应该说你表演的动作对应的一个关键词汇。重复，使用不同的动作来对应每个关键词汇。

从一到六
提供每个学生两张空白闪卡。每个学生应该在每张闪卡上写一个1到6之间的数字（每张卡一个数字）。当学生的数字卡准备就绪时，掷两枚骰子并叫出显示的数字。任何有这些数字的学生都必须识别出你给出的词汇图片。学生们可以在活动期间不时地交换数字卡。

图片宾果
将学生给出的迷你图片放在早期的桌子上。每个学生都应该将它们放倒自己的桌子上。然后，让每个学生翻转一个图片面朝上。说出一个词汇。任何拥有该词汇图片的学生都必须说一个完整的句子使用那个词汇。这些图片应该被放一边，其他图片被翻过来。继续这样，直到学生或学生没有图片留在他们的桌子上。
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.

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.

Letter Encode
Prepare a page that contains large alphabet letters from A to Z. Make five copies for each student. The students should cut out their letters. When all of the letters have been cut out, show a vocabulary picture. The students should then use their letters to spell the word for that picture. Repeat, using the remaining pictures from this unit. Have the students store their cut out letters in individual envelopes.
Let’s Write
Provide the students with a copy of the creative writing page from the Student Support Materials. The students should write as much as they can about the graphic. Later, have each student read his/her writing to the class.

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

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

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
probability

experimental probability

theoretical probability
systematic
simulation
prediction
tree diagram
STUDENT SUPPORT MATERIALS

Reading • Sight Recognition
Sight Words Activity Page

Have the students circle the word for each picture.
Sight Words Activity Page

Write the numbers on their correct vocabulary graphics.

1. probability
2. experimental probability
3. theoretical probability
4. systematic
5. simulation
6. prediction
7. tree diagram
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.

theoretical probability
probability
experimental probability
prediction

simulation
systematic
tree diagram

I m e x p e r i m e n t a l p r o b a b i l i t y
t r e x p e r i m e n t a l p r o b a b i l i t y
n o o
T t r p t r t p r o b a b i l i t y
T t t p e a y b s
D a t t i t c i x e a l p b pl i t l b t b d i y
I t i p r o b a b i l i t y
B m t p d i e t b i b
L p t y r a b t r e e d i a g e t d p t e i n g i
I p t p t m p r e d i c t i o n n r n r b l a b
T r p o b a s o t o i d r g o b i i r p a
X i i t h e o r e t i c a l p r o b a b i l i t y
D b t l l s y s t e m a t i c r n n a b a t r l
T m a p e a l y b i a l r t s l t l o m n e e a i
O r g t c a i a a t r l g r c t p i a e i e o n r
P b o c l y r a r e h p e m g t b a p a t b m p i
R m e r r r t b r o b l s i m u l a t i o n s e i g
T r t i t t t o b i n c i i a s b t r a a r r t o
E i t o e t i t t r i d r l l i d l i t t
M y i b s i m u l a t i t i i t o e i p t a o t t d a
Y t t t i c r r e i a c l i l t c r b s a a a t a t
C s t a r t b i s p r i m c l c a y i l e i e i e x m
O t h e o r e t i c a l p r o b a b i l i t y b
C t o n t e l r s h t l r s h a e l l r r o o l l b
L t b i m p l i s a e o h t b a l e p r e d i c t
O a i n x t r o i s y s t e m a t i m m u d e p p
T l u r b b o h t g l y o y l e i i l r e y a l l
H i l p m a i t p t t r e e d i a g r a m m a i p
E c a e i m i i r i p i i l a d a e e m r i e o r
P i s b a i p b y t l o a t t l m a t t t b a o a
L a i c t y l o e u n y u t i b t l d m n t p b o
G e t r l o l o l o l o p l b i e d y b a e i s i b e m
Sight Words Activity Page

ANSWER KEY

theoretical probability
probability
experimental probability
prediction

simulation
systematic
tree diagram

---

The word search includes the following words:

- theoretical probability
- probability
- experimental probability
- prediction
- simulation
- systematic
- tree diagram

---

Sealaska Heritage Institute  985
STUDENT SUPPORT MATERIALS

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

**Encoding Activity Page**

- pro_______ity
- ex_______ental probability
- theor_______l probability
- sys_______tic
- s_______lation

---

perim	iagr	imu
etica	edict
pr_____ion

tree d____am
Encoding Activity Page

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

pro

experiment

thetic

syst

simulation

imental probability

bability

dee diagram

diction
Encoding Activity Page

pre

tr

tical probability

ematic
Encoding Activity Page

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

ба про би ти ли

ри экспериментальный

би ба ти прогли
Encoding Activity Page

la  si  mu  tion

dic  pre  tion

tree  ag  di  ram
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. We hope that the ________ of catching many fish this year is high!
   - Thought
   - Mood
   - Probability
   - Dream

2. What type of probability is derived from many tests in a laboratory?
   - Theoretical
   - Elemental
   - Probably
   - Experimental

3. What type of probability is derived on the basis of reasoning and not experimentation?
   - Theoretical
   - Elemental
   - Probable
   - Experiential

4. A systematic method of picking salmonberries is one that is:
   - Random
   - Diverse
   - Methodical
   - Lame

5. A computer simulation of a float plane trip from Wrangell to Craig is an:
   - Imitation of the Real Thing
   - Disaster
   - Scary Prospect
   - Real Adventure
What’s the Answer?

6. If someone makes a prediction about the weather next winter in Juneau, they are making a
   - Model
   - Mistake
   - Wish
   - Forecast

7. For someone who has never butchered a deer, a _______ ________ may be useful to visualize the process in increasing detail.
   - Tree Stand
   - Tree Branch
   - Tree Diagram
   - Leaf bag
1. We hope that the ________ of catching many fish this year is high!
   - Thought
   - Mood
   - Probability
   - Dream

2. What type of probability is derived from many tests in a laboratory?
   - Theoretical
   - Elemental
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- Model
- Mistake
- Wish
- Forecast

For someone who has never butchered a deer, a _______ _________ may be useful to visualize the process in increasing detail.
- Tree Stand
- Tree Branch
- Tree Diagram
- Leaf bag
Reading Comprehension Activity Page

Write the numbers/letters for sentence halves that match.

1. The probability that you will win the lottery in your lifetime
2. Experimental probability is determined through
3. Theoretical probability is determined on the basis of reasoning
4. A systematic process for filleting fish is likely more efficient
5. Baking soda and vinegar can be used to simulate
6. A prediction can be made using proven facts or
7. A tree diagram can be useful to break down the components of

1→__________  2→__________  3→__________  4→__________
5→__________  6→__________  7→__________
The probability that you will win the lottery in your lifetime

Experimental probability is determined through

Theoretical probability is determined on the basis of reasoning

A systematic process for filleting fish is likely more efficient

Baking soda and vinegar can be used to simulate

A prediction can be made using proven facts or

A tree diagram can be useful to break down the components of

that a random disorderly process.
on the basis of a mere guess.
the lava flow from a volcano.
and not through experimentation.
experiment.
a process in increasing detail.
is extremely low.

1→G  2→E  3→D  4→A
5→C  6→B  7→F
# Reading Comprehension Activity Page

Cut out the words and glue them under their definitions.

<table>
<thead>
<tr>
<th>Determined by Experimentation</th>
<th>Forecast</th>
<th>Likelihood</th>
</tr>
</thead>
<tbody>
<tr>
<td>Graph with increasing detail</td>
<td>Imitation</td>
<td>Methodical</td>
</tr>
</tbody>
</table>

**Determined by Reason**

- **probability**
- **experimental probability**
- **theoretical probability**
- **systematic**
- **simulation**
- **prediction**
- **tree diagram**
Reading Comprehension Activity Page

**Answer Key**

<table>
<thead>
<tr>
<th>Determined by Experimentation</th>
<th>Forecast</th>
<th>Likelihood</th>
</tr>
</thead>
<tbody>
<tr>
<td>experimental probability</td>
<td>prediction</td>
<td>probability</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Graph with increasing detail</th>
<th>Imitation</th>
<th>Methodical</th>
</tr>
</thead>
<tbody>
<tr>
<td>tree diagram</td>
<td>simulation</td>
<td>systematic</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Determined by Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>theoretical probability</td>
</tr>
</tbody>
</table>
STUDENT SUPPORT MATERIALS

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

pro_______ility
ex______imental pr_____ability
the______tical prob_______lity
sys________atic
sim________ion
pr________tion
tr_______ dia_______am
Writing Activity Page

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

p____________________y

e_________ p________y

t_________ p________y

s_____________________c

s_____________________n

p_____________________n

t_________ d___________m
Basic Writing Activity Page

Have the students write the word for each picture.

[Images of various objects and people]
Crossword Puzzle Answers

Across
1  Forecast
5  Determined by reason (2 Words)
6  Imitation

Down
2  Determined by experimentation (2 Words)
3  Likelihood
4  Methodical
5  Graph with increasing detail (2 Words)
UNIT ASSESSMENT
Probability

Unit Assessment Teacher’s Notes
Grade 8 • Unit 13
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 PROBABILITY.
2. Write the number 2 by the picture for EXPERIMENTAL PROBABILITY.
3. Write the number 3 by the picture for THEORETICAL PROBABILITY.
4. Write the number 4 by the picture for SYSTEMATIC.
5. Write the number 5 by the picture for SIMULATION.
6. Write the number 6 by the picture for PREDICTION.
7. Write the number 7 by the picture for TREE DIAGRAM.

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

DECODING/ENCODING
Turn to page 3 in your test. Look at the word parts in the boxes. Circle the other half or part of each word.

READING COMPREHENSION
Turn to page 4 in your test. Write each word under its definition. Refer to Student Support Materials for answer key.

BASIC WRITING
Turn to page 5 in your test. Look at the pictures in the boxes. Write the word for each picture.
Teacher: To get a percentage for this student’s assessment, divide the total number of questions correct by the total number of questions, then multiply this answer by 100 to determine the percentage of questions answered correctly.
<table>
<thead>
<tr>
<th>Problem</th>
<th>Solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>probabili____</td>
<td>alty elty ilty olty ulty laty lety lity lity loty</td>
</tr>
<tr>
<td>simula____</td>
<td>chin chen chan chon chun tian tien tion tiun</td>
</tr>
<tr>
<td>theoreti____</td>
<td>affy effy iffy offy uffy tafy tefy ical tofy</td>
</tr>
<tr>
<td>probability</td>
<td></td>
</tr>
<tr>
<td>predic____</td>
<td>chin chen chan chon chun tian tien tion tiun</td>
</tr>
<tr>
<td>experime____</td>
<td>ntlal ntle ntli ntlo ntlu ntal ntel ntil ntol</td>
</tr>
<tr>
<td>probability</td>
<td></td>
</tr>
<tr>
<td>tree dia____</td>
<td>gran gren grin gron grun gram grem grim grom</td>
</tr>
<tr>
<td>system____</td>
<td>adac adec adic adoc aduc atac atec atic atoc</td>
</tr>
<tr>
<td>Determined by Experimentation</td>
<td>Forecast</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>---------</td>
</tr>
<tr>
<td>Graph with increasing detail</td>
<td>Imitation</td>
</tr>
<tr>
<td>Determined by Reason</td>
<td></td>
</tr>
</tbody>
</table>

- probability
- experimental probability
- theoretical probability
- systematic
- simulation
- prediction
- tree diagram
UNIT 14: Problem Solving & Communication

Note: All key terms are based on the Math Standards for Alaska and reflect terms vital to academic achievement in math.
INTRODUCTION OF MATH VOCABULARY
**Process Skills**

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

**inductive reasoning**

Go around the room and ask students to write on the board their favorite flavor of ice cream. Explain that the flavor chosen the most helps you to generalize that students prefer it, perhaps more widely than your classroom alone? Many small data points helped you to come to this conclusion.

**deductive reasoning**

Ask the students if they’ve seen noticeable changes in deer populations near the community over time. Explain hypothetically that deer harvests have been low in recent years. Let them brainstorm what the reasons could be for this decline. Explain that they took a cause and worked backward to find an effect — deductive reasoning!

**Venn diagram**

Have three students list their three favorite holidays on the board. Then draw a Venn Diagram to show where the favorites overlap and where they are different. Do any of these students not overlap in their favorites?
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.

- **spreadsheet**
  
  Have a student give their favorite clothing brand, their height, birth place, favorite color, what they want to become, favorite sport and shoe size. Ask another student to quickly repeat all of these. Explain that a spreadsheet helps us to store, organize and analyze large (and small!) amounts of data.

- **numerical**
  
  Have the students write as many roman numerals as they are familiar with on a piece of paper. Explain that numerical refers to a number or series of numbers in a variety of formats. Did they know their roman numerals?

- **graphical**
  
  Sometimes a large set of data can be difficult to understand on paper and can be more easily understood on a graph. What types of data would students prefer to see on a graph? Why?
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.

Show the students the picture of the Bald Eagle on page 1043. Ask the students in the class to tell you what this animal reminds them of and make a list on the board. Explain that the Eagle is symbolic of many things, including—but not limited to—wilderness, patriotism, moieties and so on!
Conclusion

Main Points

Supporting Data, Facts, Examples and Evidence
INDUCTIVE REASONING
DEDUCTIVE REASONING
VENN DIAGRAM
## Artwork & Production

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<th></th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>I</th>
<th>J</th>
<th>K</th>
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<tr>
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## Total Advertising

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<th>Apr</th>
<th>May</th>
<th>Jun</th>
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<td>$3,000</td>
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</tbody>
</table>

**Catalog Budget**
NUMERICAL
GRAPHICAL
SYMBOLIC
LANGUAGE ACTIVITIES
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.

Change

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

Wild Cars

Make two “roads” on the floor using masking tape. Be certain that there are a number of curves and circles in the roads. The roads should stretch for at least ten feet. If you have a floor rug, chalk may be used to fashion the roads. Place a toy car at the beginning of each road. Lay the vocabulary pictures at the end of the roads. Have a student sit beside each car. Name one of the vocabulary pictures and say “Go.” The two students should “drive” their cars along the roads as quickly as they can. The winner is the player who first parks his car on the picture for the vocabulary word you said.

Student Support Materials

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

SPEAKING

Cat’s Cradle
Group the students in a circle, sitting on the floor. Provide each student with a vocabulary picture (prepare extra pictures if necessary). The students should stand their vocabulary pictures on the floor, leaning against their legs. Give a student in the circle a ball of string. The student should hold the end of the ball of string and then say the name of a vocabulary picture that another student has. After identifying the picture, he/she should then toss the ball of string to the student who has that picture (being careful to hold tightly to his/her end of the string). The student who receives the ball of string must then repeat this process—tossing the ball of string to another student in the circle. The students should continue in this way until a “cat’s cradle” has been created with the string in the center of the circle. This activity may be repeated more than once by collecting and redistributing the pictures for each new round.

Roll ‘Em Again!
Mount the vocabulary pictures on the board. Number each picture from one to six (repeat a number as often as necessary). Then, group the students into two teams. Give the first player in each team a die. When you say “Go,” the first player in each team must roll his/her die. He/She should call the number showing on it and then say a complete sentence about a vocabulary picture on the board that has the same number. Repeat this process until all students have participated.
Language and Skills Development

READING

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

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

Letter Encode
Prepare a page that contains large alphabet letters from A to Z. Make five copies for each student. The students should cut out their letters. When all of the letters have been cut out, show a vocabulary picture. The students should then use their letters to spell the word for that picture. Repeat, using the remaining pictures from this unit. Have the students store their cut out letters in individual envelopes.

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

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

Student Support Materials
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
<table>
<thead>
<tr>
<th>inductive reasoning</th>
<th>deductive reasoning</th>
<th>Venn diagram</th>
</tr>
</thead>
</table>

spreadsheet
numerical
graphical
symbolic
STUDENT SUPPORT MATERIALS

Reading • Sight Recognition
Have the students circle the word for each picture.
inductive reasoning
deductive reasoning
Venn diagram
spreadsheet
numerical
graphical
symbolic
Sight Words Activity Page

Write the numbers on their correct vocabulary graphics.

1. inductive reasoning
2. deductive reasoning
3. Venn diagram
4. spreadsheet
5. numerical
6. graphical
7. symbolic
**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.
Highlight or circle the words in this word find.

spreadsheet  symbolic  venn diagram  deductive reasoning

graphical  inductive reasoning  numerical

a v e d n a s n i n r i d y n r r n e p a u a i s
n c s g a s p r e a d s h e e t g r a p h i c r r
a e o i y d a p e c l g s n g v i o d c e e n i p
a t g n h d e d u c t i v e r e a s o n i n g p n
g g r d d n r e n t t i e t e a d d p d i n i m n n c
u s v s n h c r v e a e l e p e v a g b e p n y b
n l i n d u c t i v e r e a s o n i n e e a e y g
a v e n n d i a g r a m v r i e n i c e e p c i
h s i i v n g r a p h i c a l e d y e i g a d a n
l a n i u s a a s c v a m n s p r e a d s h e h s
e v p a a a s n c e g r s d n a l s o c m e n p r
e d i a i a l o a i a i d a i d a n i s y i p n s e a h
i g v p l a i a t e e s n u n i c g n v i a e a o
t r a s e i t m n r g e e e e g a r s o l r c i u
n e s n l e i v m c a y n s s p i h n i t g n m n
n s a i r i e n t u i l r v p n u m e r i c a l h h
n i a e l m a e u n e r n m h t h r d e s s g t
c r y p a o l o v t i n s a a i d g t e r a o n
e n m a o i s d e g c y a v d m n e u r n e h t t
s s d e d u c t i v e r e a s o n i t o r d n i h
v a u g i o s n d a i o v r a p a r u e s e a d a
g p n e a l m e t i a n y r a s y m b o l i c c g
a d i a r c o r s c n b r u c e u s y m b o l i i
e n y n n i a r t v d i c r m l c r d o t d d d m l
s d m e u a n d u c t i v e r e a s o n i n g l
r i c e a n i p n v e n n d i a g n i o r e h h g
m d m h d e n l i d i h i s i i n u a e c n a i r
d s e e r n g u m a v n u m e r i e m n d r u i
i l e d s t m t e m h c r r a i v t v v e e e d a
Sight Words Activity Page

ANSWER KEY

spreadsheet
symbolic
venn diagram
deductive reasoning

graphical
inductive reasoning
numerical

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

spreadsheet
deductive reasoning

venn diagram

numerical

graphical

inductive reasoning

Sealaska Heritage Institute
STUDENT SUPPORT MATERIALS

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

i__________tive reasoning

de__________ve reasoning

V__________ diagram

s___________sheet

nu____________al

mboli nduc enn

raph pread
Encoding Activity Page

g________ical

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

**induc**

**deductive r**

**Ve**

**spread**

**num**

**easoning**

**bolic**

**sheet**

**phical**

**tive reasoning**
Encoding Activity Page

gra

sym

erical

nn diagram
Encoding Activity Page

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

tive  in  duc

rea  ning  so

duc  de  tive

so  ning  rea
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. You have seen many early blooms on cloud berries and you predict that it will be a good year for them in general. What type of reasoning is this?
   - Inductive
   - Deductive
   - Insane
   - Wishful

2. You have seen spruce-bark beetles increasing in number and you believe this will be devastating to timber stands. What type of reasoning is this?
   - Inductive
   - Deductive
   - Resourceful
   - Uninformed

3. A Venn Diagram is often depicted using overlapping:
   - Circles
   - Squares
   - Triangles
   - Octagons

4. A list of cannery employees and their contact information may best be organized digitally on a:
   - Video Game
   - Website
   - Spreadsheet
   - DVD

5. Something that is numerical is of or relating to:
   - Numbers
   - Musicals
   - Graphs
   - Presentations
What’s the Answer?

6. A ________ representation of gumboot harvest data may be useful to researchers.
   - Silly
   - Erroneous
   - Limited
   - Graphical

7. In Tlingit and Haida culture, an Eagle is symbolic of a:
   - Moiety
   - Miner
   - Small Plant
   - Shellfish
What’s the Answer?

1. You have seen many early blooms on cloud berries and you predict that it will be a good year for them in general. What type of reasoning is this?
   - Inductive
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   - Erroneous
   - Limited
   - Graphical

7. In Tlingit and Haida culture, an Eagle is symbolic of a:
   - Moiety
   - Miner
   - Small Plant
   - Shellfish
Reading Comprehension Activity Page

Write the numbers/letters for sentence halves that match.

1. Inductive reasoning is a type of logic in which generalizations
2. Deductive reasoning is from general to the particular or
3. A Venn Diagram is useful to show areas
4. Organizing, storing, and analyzing data can be made easier
5. Something that is of or related to numbers
6. Displaying data in a graphical manner can make
7. To some people, natural disasters are symbolic of

A. it easier to understand and visualize.
B. the wrath of a higher power.
C. are based on a large number of specific observations.
D. from cause to effect.
E. of overlap.
F. if the data is entered into a spreadsheet.
G. is considered numerical.

1→__________  2→__________  3→__________  4→__________
5→__________  6→__________  7→__________
Reading Comprehension Activity Page

ANSWER KEY

1. Inductive reasoning is a type of logic in which generalizations
   A. it easier to understand and visualize.

2. Deductive reasoning is from general to the particular or
   B. the wrath of a higher power.

3. A Venn Diagram is useful to show areas
   C. are based on a large number of specific observations.

4. Organizing, storing, and analyzing data can be made easier
   D. from cause to effect.

5. Something that is of or related to numbers
   E. of overlap.

6. Displaying data in a graphical manner can make
   F. if the data is entered into a spreadsheet.

7. To some people, natural disasters are symbolic of
   G. is considered numerical.

1→ C  2→ D  3→ E  4→ F  5→ G  6→ A  7→ B
Reading Comprehension Activity Page

Cut out the words and glue them under their definitions.

<table>
<thead>
<tr>
<th>Reasoning from general to particular</th>
<th>Related to numbers</th>
<th>Generalizations based on observations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Serving as a symbol</td>
<td>Represented as a diagram</td>
<td>Overlapping circles</td>
</tr>
<tr>
<td>A grid that organizes data</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Inductive reasoning
- Deductive reasoning
- Venn diagram
- Spreadsheet
- Numerical
- Graphical
- Symbolic
### Reasoning from general to particular
- **deductive reasoning**

### Related to numbers
- **numerical**

### Generalizations based on observations
- **inductive reasoning**

### Serving as a symbol
- **symbolic**

### Represented as a diagram
- **graphical**

### Overlapping circles
- **Venn diagram**

### A grid that organizes data
- **spreadsheet**
STUDENT SUPPORT MATERIALS

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

in_______tive rea_______ing

ded_______ive re_______ning

V_______n di_______am

sp__________sh_______t

n_______rical

gra_______cal

s______bolic
Writing Activity Page

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

i_________ r_________g

d_________ r_________g

V_________ d_________m

s____________________t

n____________________l

g____________________l

s____________________c
Have the students write the word for each picture.
Across
6 Represented as a diagram
7 Generalizations based on observations (2 Words)

Down
1 Reasoning from general to particular (2 Words)
2 A grid that organizes data
3 Overlapping circles (2 Words)
4 Serving as a symbol
5 Related to numbers
Crossword Puzzle Answers

Across
6 Represented as a diagram
7 Generalizations based on observations (2 Words)

Down
1 Reasoning from general to particular (2 Words)
2 A grid that organizes data
3 Overlapping circles (2 Words)
4 Serving as a symbol
5 Related to numbers
UNIT ASSESSMENT
Problem Solving & Communication

Unit Assessment Teacher’s Notes
Grade 8 • Unit 14
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 **PINDUCTIVE REASONING**.
2. Write the number 2 by the picture for **DEDUCTIVE REASONING**.
3. Write the number 3 by the picture for **VENN DIAGRAM**.
4. Write the number 4 by the picture for **SPREADSHEET**.
5. Write the number 5 by the picture for **NUMERICAL**.
6. Write the number 6 by the picture for **GRAPHICAL**.
7. Write the number 7 by the picture for **SYMBOLIC**.

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

**DECODING/ENCODING**
Turn to page 3 in your test. Look at the word parts in the boxes. Circle the other half or part of each word.

**READING COMPREHENSION**
Turn to page 4 in your test. Write each word under its definition. Refer to Student Support Materials for answer key.

**BASIC WRITING**
Turn to page 5 in your test. Look at the pictures in the boxes. Write the word for each picture.
Teacher: To get a percentage for this student’s assessment, divide the total number of questions correct by the total number of questions, then multiply this answer by 100 to determine the percentage of questions answered correctly.
MATH PROGRAM

Unit Assessment Student Pages
Grade 8 • Unit 14

Date:___________      Student’s Name:____________________

Number Correct:__________       Percent Correct:__________
induction reasoning
deductive reasoning

___ diagram

Van
Ven
Vin
Von
Vun
Vann
Venn
Vinn
Vonn

numer___

acal
ecal
ical
ocal
ucal
acel
ecel
icel
ocel

spreadsh____

ates
etes
ites
otes
utes
aets
eets
iets
oets

graph____

acal
ecal
ical
ocal
ucal
acel
ecel
icel
ocel

symb____

alik
elik
ilik
olik
ulik
alic
elic
ilic
olic
Reasoning from general to particular

Related to numbers

Generalizations based on observations

Serving as a symbol

Represented as a diagram

Overlapping circles

A grid that organizes data

inductive reasoning  
deductive reasoning  
Venn diagram  
spreadsheet

numerical  
graphical  
symbolic
UNIT 15:
Process Skills & Abilities
Reasoning and Connections

Note: All key terms are based on the Math Standards for Alaska and reflect terms vital to academic achievement in math.
INTRODUCTION OF MATH VOCABULARY
Process Skills

Concrete Introduction of Key Vocabulary

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

**concrete context**

Show the students a brick. Explain that it is hard, heavy, red (or whatever color it is), rough, small... It is easy for them to talk about because it is concrete, there in front of their eyes and real. This is a concrete context.

**abstract context**

Ask the students to try to imagine extraterrestrial beings and what they might look like. Ask volunteers to draw some of these on the board. Explain that it is not proven or disproven that life exists on other planets but the topic is abstract, not tangible. Who had the best alien?!?

**strategy**

Show the students the football playbook strategy picture on page 1113. What are their dream careers and what strategy do they have for reaching those goals?
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.

- **validity**
  
  Ask the students how many of them believe that bigfoot exists. How have people tried to verify that it does? Is validity important?

- **verification**
  
  Ask a student how old he or she is. Tell them that you don’t believe them and ask them to verify it. What types of documentation would suffice?

- **humanities**
  
  Show the students the picture of the Thinking Man on page 1119. What do they “think” about this art form? Explain that subjects related to human thoughts and culture are considered the humanities. Do any of them want to pursue a career in the humanities?
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.

Ask the students how many of them have had to do a job from time to time. Did they enjoy this? Would they like to do it throughout their lives? Explain that many careers require special training and that there is a whole world of options out there!
VOCABULARY
PICTURES
CONCRETE CONTEXT
ABSTRACT CONTEXT
STRATEGY
VALIDITY
VERIFICATION
HUMANITIES
CAREER
LANGUAGE ACTIVITIES
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.

Turn and Face
Mount the vocabulary pictures on the walls and board. Group the students together in the center of the classroom. Say one of the vocabulary words and the students should turn to face the picture for the word you said. Depending upon the size of your class, this activity may be done in small groups. This activity may also be done in team form. In this case, have a player from each team stand in the center of the classroom. When a player faces the wrong direction (i.e., the wrong picture), he/she is “out” until a later round of the activity. Repeat until all players have had an opportunity to participate.

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

SPEAKING

**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.

**Roll ‘Em Again!**
Mount the vocabulary pictures on the board. Number each picture from one to six (repeat a number as often as necessary). Then, group the students into two teams. Give the first player in each team a die. When you say “Go,” the first player in each team must roll his/her die. He/She should call the number showing on it and then say a complete sentence about a vocabulary picture on the board that has the same number. Repeat this process until all students have participated.
**Deal**

Before the activity begins, obtain two decks of playing cards. Give all of the cards from one deck to the students (if possible, arrange it so that all students have the same number of cards). Mount the sight words on the board. Hold a playing card from the other deck of cards against one of the sight words on the board. The student who has the matching playing card must identify the sight word. When the student has done this correctly, he/she should place that playing card to the side. Continue in this way until a student or students have no playing cards left in their hands.

**Letter Encode**

Prepare a page that contains large alphabet letters from A to Z. Make five copies for each student. The students should cut out their letters. When all of the letters have been cut out, show a vocabulary picture. The students should then use their letters to spell the word for that picture. Repeat, using the remaining pictures from this unit. Have the students store their cut out letters in individual envelopes.

**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

Mirror Writing
Group the students into two teams. Have the first player from each team stand in front of the board. Give each of the two players a small, unbreakable mirror. Stand some distance behind the two players with pictures for the sight words. Hold up one of the pictures. When you say “Go,” the players must use the mirrors to look over their shoulders to see the picture you are holding. When a player sees the picture, he/she must write the sight word for that picture on the board. The first player to do this correctly wins the round. Repeat this process until all players in each team have had an opportunity to respond.

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).

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
career
STUDENT SUPPORT MATERIALS

Reading • Sight Recognition
Have the students circle the word for each picture.
concrete context
abstract context
strategy
validity
verification
humanities
career
Sight Words Activity Page

Write the numbers on their correct vocabulary graphics.

1. concrete context
2. abstract context
3. strategy
4. validity
5. verification
6. humanities
7. career
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.
Highlight or circle the words in this word find.

**Sight Words Activity Page**

**Verification**
- abstract context
- concrete context
- humanities
- career
- validity
- strategy

axadctancconcrotecontenteetictasfiiatysantierrcmude
srncareracuverificaticbeyd
iicmetarnerrityiuxeecttv
iottetrvnoisstrattetiiie
iirrtccabstractcontexttanai
itttdaretioexicttseaamitr
corbmenerraietivtntctede
aonecltvoaarevoiatottxcn
tnirutaanahumanitiesncoy
vrnrnitsrabstractcontexttiai
naexcelimhumanitiesatsotr
ccareerrerntetetyraieearsn
haeiaaaedcrressvtttrotecc
ciyctaitconcretecontextte
oxitauityitcxctfsernitxna
otvycsrreettasatiarxccad
ctdsimrrriaeaitycnattgnn
stitchitecotecoyctingtnoatge
enimbtaacbrbeuceretitsrrxbn
nvigyviierniejsairtrlafitr
oorccfverificatinrtrirs
rtcmiiitnrcannayeatelieir
archdtifneaelbnmtyetotxter
xxrctvaluidditytdestrategyb
validitytvcriyinecdreeeavt
seinanhsedvicesestmnnyrxe
nniiistrrrtannlrorcearxtna
eueinrsnxninhonfctcaetttdott
uatetrcmdditrfsccscscfyneet
Sight Words Activity Page

ANSWER KEY

verification
abstract context
concrete context

humanities
career
validity

strategy

a x a e d c t a n c c c o n c r e t e c o n t e e

abstract context

humanities

career

validity

strategy

a x a e d c t a n c c c o n c r e t e c o n t e e

Find each of the following words.

verification
abstract context
concrete context

humanities
career
validity

strategy

a x a e d c t a n c c c o n c r e t e c o n t e e
STUDENT SUPPORT MATERIALS

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

con__________e context

a__________ct context

st__________gy

va__________y

ver___________ation

bstra  cret  lidit

reer  uman
Encoding Activity Page

h__________ities

can__________

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

- con
- abstract con
- str
- val
- verif
- ategy
- text
- ities
- eer
- ication
Encoding Activity Page

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

con  con  crete  text

———  ————  ————  ————

text  con  ab  stract

———  ————  ————  ————

gy  te  stra

———  ————  ————
Encoding Activity Page

reer  ca

________  ________
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. Describing a halibut hook in terms of its dimensions and material is explaining it in a:
   - Abstract Context
   - Concrete Context
   - Ignorant Context
   - Limited Context

2. Describing a halibut hook in terms of a carved crest’s ability to aid in the capture of fish is explaining it in a:
   - Abstract Context
   - Concrete Context
   - Ignorant Context
   - Limited Context

3. Elizabeth Peratrovich’s ____________ for promoting civil rights for Alaska Natives was peaceful and political.
   - Spare Time
   - Reason
   - Lesson
   - Strategy

4. The ____________ of a congressional election is sometimes called into question when the vote counts are very close.
   - Strength
   - Support
   - Cost
   - Validity

5. Some tribes require member ____________ to vote in tribal elections.
   - Assistance
   - Advancement
   - Verification
   - Dancing
What’s the Answer?

6 The study of human thought and culture is part of the
   - Landscape
   - Biology
   - Aroma
   - Humanities

7 Which of the following is NOT a career?
   - Sleeping
   - Veterinarian
   - Fisherman
   - Politician
What’s the Answer?

ANSWER KEY

1. Describing a halibut hook in terms of its dimensions and material is explaining it in a:
   - Abstract Context
   - Concrete Context
   - Ignorant Context
   - Limited Context

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   - Lesson
   - Strategy

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   - Verification
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What’s the Answer?

6. The study of human thought and culture is part of the
   - Landscape
   - Biology
   - Aroma
   - Humanities

7. Which of the following is NOT a career?
   - Sleeping
   - Veterinarian
   - Fisherman
   - Politician
Reading Comprehension Activity Page

Write the numbers/letters for sentence halves that match.

1. Describing the importance of culture in one's own life is putting the
2. Describing the importance of another culture to another group of people
3. One strategy for getting better grades
4. The validity of a contract
5. Many restaurants and bars need verification of age
6. The study of human thought and culture is a part
7. Doctors and lawyers had to study hard to

A. is putting the concept in an abstract context.
B. can be called into question if both parties did not sign.
C. if one wants to order an alcoholic beverage.
D. make their desired careers a reality.
E. is to spend more time studying at home.
F. concept in a concrete context.
G. of the humanities.

1→__________  2→__________  3→__________  4→__________
5→__________  6→__________  7→__________
Describing the importance of culture in one’s own life is putting the concept in an abstract context.

Describing the importance of another culture to another group of people can be called into question if both parties did not sign.

One strategy for getting better grades if one wants to order an alcoholic beverage.

The validity of a contract make their desired careers a reality.

Many restaurants and bars need verification of age is to spend more time studying at home.

The study of human thought and culture is a part concept in a concrete context.

Doctors and lawyers had to study hard to of the humanities.

1→F  2→A  3→E  4→B  
5→C  6→G  7→D
### Reading Comprehension Activity Page

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

<table>
<thead>
<tr>
<th>Process of establishing truth</th>
<th>Soundness</th>
<th>Representing an actual substance or thing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Occupation or profession</td>
<td>Human thought and culture</td>
<td>Apart from concrete realities</td>
</tr>
<tr>
<td>Plan of action</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Concrete context
- Abstract context
- Strategy
- Validity
- Verification
- Humanities
- Career
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<td></td>
<td></td>
</tr>
<tr>
<td>strategy</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
STUDENT SUPPORT MATERIALS

Writing
Write Activity Page

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

con_______te con_______t
ab_______act c_______text
str________y
v________dity
ver________ation
hu_______ities
c______re______r
Writing Activity Page

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

c_________ c__________t
a___________ c__________t
s____________________y
v____________________y
v____________________n
h____________________s
c____________________r
Basic Writing Activity Page

Have the students write the word for each picture.
Crossword Puzzle

Across
1 Plan of action
5 Occupation or profession
6 Soundness
7 Representing an actual substance or thing (2 Words)

Down
2 Apart from concrete realities (2 Words)
3 Process of establishing truth
4 Human thought and culture
Crossword Puzzle Answers

Across
1. Plan of action
5. Occupation or profession
6. Soundness
7. Representing an actual substance or thing (2 Words)

Down
2. Apart from concrete realities (2 Words)
3. Process of establishing truth
4. Human thought and culture
UNIT ASSESSMENT
Reasoning and Connections

Unit Assessment Teacher’s Notes
Grade 8 • Unit 15
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 CONCRETE CONTEXT.
2. Write the number 2 by the picture for ABSTRACT CONTEXT.
3. Write the number 3 by the picture for STRATEGY.
4. Write the number 4 by the picture for VALIDITY.
5. Write the number 5 by the picture for VERIFICATION.
6. Write the number 6 by the picture for HUMANITIES.
7. Write the number 7 by the picture for CAREER.

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

DECODING/ENCODING
Turn to page 3 in your test. Look at the word parts in the boxes. Circle the other half or part of each word.

READING COMPREHENSION
Turn to page 4 in your test. Write each word under its definition. Refer to Student Support Materials for answer key.

BASIC WRITING
Turn to page 5 in your test. Look at the pictures in the boxes. Write the word for each picture.
Teacher: To get a percentage for this student’s assessment, divide the total number of questions correct by the total number of questions, then multiply this answer by 100 to determine the percentage of questions answered correctly.
MATH PROGRAM

Unit Assessment Student Pages
Grade 8 • Unit 15

Date:___________      Student’s Name:____________________

Number Correct:__________       Percent Correct:__________
concrete context
abstract context
strategy
validity
verification
humanities
career

concrete context
abstract context
strategy
validity
verification
humanities
career

concrete context
abstract context
strategy
validity
verification
humanities
career

concrete context
abstract context
strategy
validity
verification
humanities
career

concrete context
abstract context
strategy
validity
verification
humanities
career
Process of establishing truth

Soundness

Representing an actual substance or thing

Occupation or profession

Human thought and culture

Apart from concrete realities

Plan of action

Concrete context

Abstract context

Strategy

Validity

Verification

Humanities

Career