



Vocabulary Power

Lesson 1 Using Context Clues

Sometimes, we face new situations away from the comfort of our homes and families. Have you ever had to face an uncomfortable situation, wishing it were over before it started? Maybe your family moved, and you had to go to a new school where you didn't know anyone. Or perhaps you had to go to the dentist to get a filling for the first time. The words in the following list have to do with the feelings that you might have or actions you might take as you experience a new or uncomfortable situation.

Word List

alarm	cope	mortified	resent
anticipation	defiance	pang	unique
bewilderment	hostile		

EXERCISE A Context Clues

Fill in the blanks below with words from the list that best fit. Double-check your answers by looking up the meanings of these words in a dictionary.

- The purple mouse with orange polka dots is definitely a(n) _____ toy.
- I looked on in _____, hoping to see the new toy.
- Trisha didn't like the _____ looks Lucy was giving her.
- The fire _____ went off because I burned the bacon.
- Sally began to _____ the restrictions of her hospital stay.
- We looked on in _____ as the car salesman yelled at the car he was trying to sell.
- How can we _____ with students who won't sit still in class?
- I respect the _____ of Americans in the Revolutionary War.
- He felt a _____ for not taking Janet to the park.
- The monk _____ himself by penance and fasting.

EXERCISE B Usage

If the boldfaced word is used correctly in the sentence, write *correct* above it. If not, draw a line through the word and write the correct vocabulary word above it.

- The scientist was excited when he discovered a **hostile** kind of rock.



Vocabulary Power *continued*

2. With the bases loaded, the fans waited with great **anticipation** as their team's best batter stepped up to the plate.
3. He could tell from the **mortified** faces in the crowd that he was unwelcome.
4. The girls **resent** their classmates for telling on them.
5. The teacher realized that the students did not understand the question when she saw the look of **defiance** in their eyes.

EXERCISE C Multiple-Meaning Words

Several of the words in the list have more than one meaning. Fill in the word that best completes each sentence below. In the space provided to the left, write in the number of the definition that helped you make your choice.

hostile *adj.* 1. of or having to do with an enemy 2. unfriendly, opposed. *n.* 3. an enemy; a hostile person
pang *n.* 1. a sudden, short, piercing pain 2. a sharp, sudden feeling
anticipation *n.* 1. act of looking forward to; expectation 2. a prior action that takes into account a later action
alarm: *n.* 1. a call to arms 2. a signal 3. sudden, sharp apprehension resulting from the perception of imminent danger

- _____ 1. The soldiers crouched silently in the bushes, watching in _____ as the enemy troops marched by.
- _____ 2. In _____ of the governor's overnight visit, city officials booked a suite of rooms in their city's finest hotel.
- _____ 3. The villagers could tell from the pilot's uniform and speech that he was a(n) _____ and unwelcome visitor.
- _____ 4. The _____ went off as soon as the driver opened his door.
- _____ 5. The man felt a(n) _____ of regret as he left his homeland.

EXERCISE D Usage

On a separate sheet of paper, write sentences in which you use each of the words in the list correctly. The sentences should show that you understand the word meanings.



Lesson 2 The Prefixes *em-* and *en-*

A prefix is added to the beginning of a root or a base word to change its meaning. The prefixes *em-* and *en-* mean “in” or “into.”

Word List

embroider	employ	endeavor	engaging
emphasize	enable	endorse	envelop
emphatic	encounter		

EXERCISE A Synonyms

Synonyms are words with similar meanings. Each boldfaced vocabulary word is paired with a synonym whose meaning you probably know. Think of other words related to the meaning of the synonym and write your ideas on the line provided. Then, look up the vocabulary word in a dictionary and write its meaning.

1. **embroider** : sew _____

Dictionary definition _____

2. **emphasize** : stress _____

Dictionary definition _____

3. **emphatic** : forceful _____

Dictionary definition _____

4. **employ** : hire _____

Dictionary definition _____

5. **enable** : allow _____

Dictionary definition _____

6. **encounter** : meet _____


Dictionary definition _____

7. **endeavor** : try _____

Dictionary definition _____

8. **endorse** : support _____

Dictionary definition _____

 **Vocabulary Power** *continued*

9. **engaging** : charming _____

Dictionary definition _____

10. **envelop** : surround _____

Dictionary definition _____

EXERCISE B Multiple-Meaning Words

Several of the words in the list have more than one meaning. Fill in the word that best completes each sentence. In the space to the left, write in the number of the definition that helped you make your choice.

embroider *v.* 1. to ornament a piece of material with stitches that create a raised design or pattern 2. to make an ornament, pattern, or other design on cloth, leather, or other material with needlework 3. to exaggerate; to add untrue details to

employ *v.* 1. to provide with work and pay wages 2. to use; make use of (someone or something) 3. to occupy; to engage the attention of

endorse *v.* 1. to sign one's name on the back of (a check or other document) to indicate its transfer or to assure that it is paid 2. to express public support or approval of

_____ 1. The Fraternal Order of Police decided not to _____ any of the candidates for mayor in the upcoming election.

_____ 2. As the company expanded, the owner decided to _____ more people.

_____ 3. Bricklayers _____ a variety of different tools to build a chimney.

_____ 4. Sometimes, people _____ stories to make them sound more interesting to listeners.

_____ 5. Bank tellers watch people _____ their paychecks every day.

EXERCISE C Usage

On a separate sheet of paper, write a letter to a friend in which you use each of the words in the word list correctly. Your letter should show that you understand the meaning of each vocabulary word.

Vocabulary Power

Lesson 3 Using Synonyms

Home means different things to different people. It may mean the community we live in, our house or apartment, or anywhere we feel at home. The following words have to do with the place we call home.


Word List

abide	edifice	reliance	sentiment
communal	kindred	resident	vicinity
dwell	nurture		

EXERCISE A Synonyms

Each boldfaced vocabulary word is paired with a synonym whose meaning you probably know. Think of other words related to the meaning of the synonym and write them on the line provided. Then, look up the vocabulary word in a dictionary and write its meaning.

1. **abide** : tolerate _____
 Dictionary definition _____
2. **communal** : public _____
 Dictionary definition _____
3. **dwell** : live _____
 Dictionary definition _____
4. **edifice** : building _____
 Dictionary definition _____
5. **kindred** : family _____
 Dictionary definition _____
6. **nurture** : foster _____
 Dictionary definition _____
7. **reliance** : dependence _____
 Dictionary definition _____
8. **resident** : occupant _____
 Dictionary definition _____

 **Vocabulary Power** *continued*

9. **sentiment** : feeling _____

Dictionary definition _____

10. **vicinity** : neighborhood _____

Dictionary definition _____

EXERCISE B **Antonyms**

Write the vocabulary word that is most nearly *opposite* in meaning.

1. unrelated _____

2. independence _____

3. private _____

4. neglect _____

EXERCISE C **Etymology**

Latin is the origin of some words on the vocabulary list. For each Latin word given below, the definition has been provided. Write the vocabulary word that comes from the Latin root. Then, add another word that might be related to the same root. Check your word choices in the dictionary.

1. *residere*: to sit back, remain _____

2. *communis*: common _____

3. *vicinis*: neighborhood _____

4. *nutrire*: to suckle, nourish _____

5. *sentir*: to perceive, to feel _____

6. *religare*: to tie back _____

7. *aedificare*: to make a dwelling _____

EXERCISE D **Word Illustrations**

Think about how the vocabulary words in this lesson relate to your idea of home. On a separate sheet of paper, draw a picture that illustrates the meaning of one or two of the words. Then, write a caption for your drawing, using the words you chose.



Lesson 4 Using Reference Skills

Using a Thesaurus

Have you ever struggled to think of just the right word but couldn't find it in a dictionary? A thesaurus could help you. A thesaurus, which looks like a dictionary and contains lists of words like a dictionary, contains a different kind of information. Whereas a dictionary gives definitions, a thesaurus provides synonyms, or words with similar meanings, and sometimes supplies antonyms, or words with opposite meanings.

A thesaurus may list words in alphabetical order, just like a dictionary, or list words by category and provide an alphabetical index at the back. Below is a sample thesaurus entry.

sincere *adj.* candid, open, plain, honest, conscientious, scrupulous, honorable; **Antonym:** insincere, dishonest

EXERCISE A

The word *sincere* is used in each sentence. Using the sample thesaurus entry above, replace *sincere* with a synonym that fits better. For each replacement, write a sentence explaining your choice.

1. She answered in *sincere*, simple sentences. _____
2. Mary gave *sincere*, forthright testimony in court. _____
3. The *sincere* talk show host always told her guests exactly how she felt. _____
4. Acknowledging defeat was the *sincere* thing to do. _____

EXERCISE B

List five words or phrases that are synonyms of the word *mighty*. Use a thesaurus.

1. _____
2. _____
3. _____
4. _____
5. _____



Vocabulary Power



Review: Unit 1

EXERCISE

Circle the letter of the word that best completes the sentence.

- When a person is confused, he or she is in a state of _____.
a. endeavor b. anticipation c. nurture d. bewilderment
- If you resent a decrease in your allowance, you may be _____.
a. hostile b. emphatic c. mortified d. engaging
- Growing up requires the ability to _____.
a. emphasize b. embroider c. endorse d. cope
- Self- _____ is an important quality to develop.
a. reliance b. anticipation c. defiance d. bewilderment
- When the _____ sounded, the students filed out.
a. pang b. kindred c. alarm d. edifice
- A church is an example of a(n) _____.
a. resident b. edifice c. vicinity d. sentiment
- Opposition to the dam project helped join the townspeople in a(n) _____ cause.
a. communal b. unique c. emphatic d. mortified
- He was surprised to _____ poverty in a rich city.
a. envelop b. endeavor c. encounter d. employ
- In _____ of victory, the candidate threw a party.
a. bewilderment b. defiance c. alarm d. anticipation
- Going alone to Europe was a(n) _____ experience for her.
a. communal b. emphatic c. unique d. mortified



Vocabulary Power

Test: Unit 1

PART A

Circle the letter of the word that best completes the sentence.

- The lieutenant thought that it was a bad idea to enter _____ territory.
a. emphatic b. hostile c. communal d. mortified
- The two were so much alike that everyone called them _____ spirits.
a. hostile b. edifice c. kindred d. resident
- The crime took place in the _____ of Oak Road and West Avenue.
a. vicinity b. sentiment c. reliance d. anticipation
- The mail carrier _____ many different people as she walked her route.
a. endeavored b. dwelled c. enabled d. encountered
- The company _____ two new computer technicians.
a. resented b. employed c. enabled d. coped
- During the debate, the most popular mayoral candidate _____ the issue of education.
a. nurtured b. enveloped c. emphasized d. endeavored
- She bought a new outfit in _____ of her dinner date.
a. defiance b. reliance c. bewilderment d. anticipation
- The audience responded positively to the speaker's _____ smile.
a. engaging b. emphatic c. communal d. hostile
- The writer _____ the criticism leveled at his book.
a. employed b. enveloped c. resented d. enabled
- To show her _____, the girl refused to eat her supper.
a. bewilderment b. vicinity c. defiance d. reliance

PART B

Circle the letter of the best answer to each question.

- What is an example of your ability to cope with a conflict in a friendship?
a. avoiding your friend
b. asking for a chance to talk out the situation, in the presence of a counselor, if need be
c. creating a scene
d. gossiping behind your friend's back

Vocabulary Power *continued*

2. What is a synonym for *mortified*?
 - a. embarrassed
 - b. embalmed
 - c. embraced
 - d. embroidered

3. What might alarm a person?
 - a. a rainbow
 - b. a friendly letter
 - c. a sunny day
 - d. a sudden loud noise

4. How would a person be likely to react to a bewildering situation?
 - a. with pity
 - b. with anger
 - c. with puzzlement
 - d. with joy

5. What is an example of emphatic language?
 - a. Well, maybe so.
 - b. No! Definitely not!
 - c. Perhaps.
 - d. I imagine.

6. Which of the following is an edifice?
 - a. a swift current
 - b. a Web site
 - c. a candy counter
 - d. a law building

PART C

Circle the letter of the word that is most nearly *opposite* in meaning.

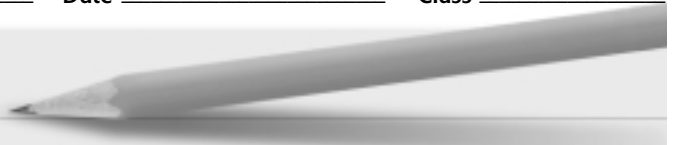
1. nurture
 - a. promote
 - b. neglect
 - c. understand
 - d. limit

2. defiance
 - a. obedience
 - b. challenge
 - c. anger
 - d. sadness

3. endorse
 - a. support
 - b. relate
 - c. recommend
 - d. criticize

4. communal
 - a. equal
 - b. holy
 - c. private
 - d. shared

Vocabulary Power



Lesson 5 Using Context Clues

Although animals are different from human beings in many ways, they also share many traits. The words in the following list deal with animals and their personalities, movements, and habitats. Don't be surprised, though, if the words can apply to humans too!

Word List

aquatic	gait	lure	shuffle
cunning	haughty	lurk	solitude
feline	lair		

EXERCISE A Context Clues

Study the paragraphs below. Fill in each blank with the word that best fits from the list. Double-check your answers by looking up the meanings of these words in a dictionary.

Always scorning people and her food, Princess the cat is known for being _____.

This morning she emerges from her _____—a cardboard box filled with soft blankets—and scrutinizes her surroundings.


Her owner begins to _____ papers at his desk. Then, he spots his cat and tries to _____ her toward him with a bowl of milk. Princess ignores him and watches that dumb dog Dino trot past her, his _____ quick and impatient. Panting, his tongue hanging out, Dino pads over to the aquarium to watch the turtle and other _____ creatures.

Princess doesn't feel like playing any of her _____ tricks on Dino. Instead, she decides to _____ in the corner next to the door, waiting for her opportunity to escape the house and be alone, for the one thing that this _____ loves is her _____.

EXERCISE B Synonyms

For each group of words and phrases, write the vocabulary word that best fits.

1. watery, oceanic, marine _____
2. tempt, entice, attract _____
3. proud, scornful, arrogant _____
4. clever, sly, tricky _____
5. sneak, slink, lie in wait _____


Vocabulary Power *continued*
EXERCISE C Multiple-Meanings Words

Several of the words in the list have more than one meaning. The word *shuffle* is an example. Study the meanings listed below for *shuffle* and read the sentences that follow. Determine which meaning of the word is correct for each sentence and, to the left, write in the number of that definition.

shuffle v. 1. to move about this way and that; mix 2. to rearrange so as to place in random order, as a deck of cards 3. to walk with a dragging step 4. to perform, as a dance, with a dragging motion of the feet. 5. to move back and forth from one place to another

- _____ 1. The magician **shuffled** the cards before asking the visitor to choose one.
- _____ 2. The banker **shuffled** the accounts from Chicago to Switzerland.
- _____ 3. Grandfather **shuffled** over to the kitchen sink to get a drink of water.
- _____ 4. The businessman **shuffled** the memos on his desk as he talked to a client.
- _____ 5. The tap dancers **shuffled** along the stage in time with the music.

EXERCISE D Usage

If the boldfaced word is used correctly in the sentence, write *correct* above it. If not, draw a line through the word and write the correct vocabulary word above it.

1. The dancers in the musical *Cats* moved with **feline** grace.
2. The lion emerged from his **gait**, rested and ready to hunt.
3. For people tired of the rat race, the perfect vacation spot offers peace and **solitude**.
4. The policeman walked to the scene of the crime with a strong and steady **shuffle**.
5. The store owners **lurk** potential customers away from their competitors with lower prices and free hot dogs.

EXERCISE E Word Illustrations

Think about how the vocabulary words in this list describe or relate to one or two particular animals. On a separate sheet of paper, draw a picture that illustrates the meaning of one or two of the words. Then, write a caption for your drawing using the words you chose.

Vocabulary Power

Lesson 6 The Word Roots *homo*, *humanus*, *anima*, *animus*, *anthropo*, and *bio*

The root part of a word carries the word's main meaning. The vocabulary words in this lesson have one of the following as their roots: *homo* or *humanus*, *anima* or *animus*, *anthropo* or *bio*. *Homo* means "man" and *humanus* means "belonging to a man." *Anima* means "the soul" and *animus* means "the mind." *Anthropos* means "human being," and *bio* means "life."

Word List

amphibious	antibiotic	homogeneous	philanthropy
anthropology	biology	humane	unanimous
animated	homicide		

EXERCISE A Etymology

Write down the word you think comes from the Latin words that are given. Then, write your own definition for the word. Double-check your answers in a dictionary.

1. *philos*, which means "loving," plus *anthropos*, which means "human being" _____

2. *anthropos*, which means "human being," plus *logy*, which means "science of" _____

3. *bio*, which means "life," plus *logy*, which means "science of" _____

4. *animare*, which means "to give life to" _____

5. *homo*, which means "man," plus *cida*, which means "to kill" _____

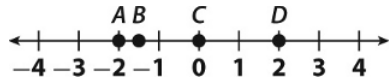
6. *anti*, which means "against," plus *bio*, which means "life" _____

7. *humanus*, which means "belonging to a man" _____

8. *homo*, which means "same," plus *genos*, which means "kind" _____

Beginning-of-Year Diagnostic Test

1. Which lettered point is graphed at the opposite of 2 on the number line below?



- A A C C
B B D D

2. Candice recorded outdoor temperatures as -5°C , 2°C and 1°C . Which of the following correctly compares the three temperatures?

- A $-5 < 1 < 2$
B $1 < 2 < -5$
C $2 < 1 < -5$
D $-5 < 2 < 1$

3. Which pair of numbers shows an integer and its opposite?

- A 7, -7
B $7, \frac{1}{7}$
C $-7, -\frac{1}{7}$
D $-\frac{1}{7}, \frac{1}{7}$

4. What is the absolute value of -5 ?

- A $-\frac{1}{5}$ C 0
B $\frac{1}{5}$ D 5

5. What is the greatest common factor of 4 and 8?

- A 1
B 2
C 4
D 8

6. What is the least common multiple of 10 and 20?

- A 1 C 10
B 5 D 20

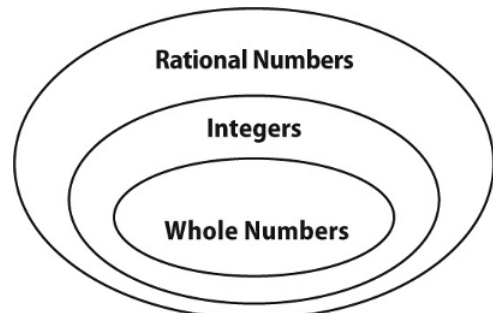
7. Jason plotted points on a number line at the four values below.

$$0.75, \frac{2}{3}, 0.25, \text{ and } \frac{7}{8}$$

Which of these values is farthest from zero?

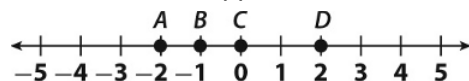
- A 0.75
B $\frac{2}{3}$
C 0.25
D $\frac{7}{8}$

8. To which set or sets below does the number $\frac{1}{2}$ belong?



- A whole numbers only
B rational numbers only
C integers and rational numbers only
D whole numbers, integers, and rational numbers

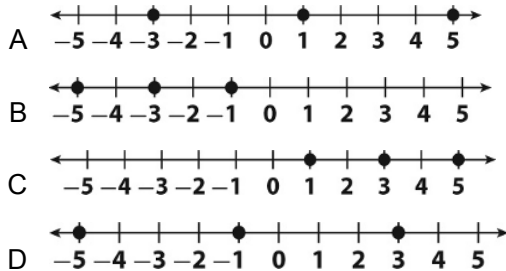
9. Which pair of points graphed below have values that are opposites?



- A A and B
B B and D
C C and E
D A and D

Beginning-of-Year Diagnostic Test

10. Which number line shows the values of $|1|$, $|-3|$ and $|5|$?



11. Susie divided a 3-pound bag of apples into 2 equal piles. How many pounds of apples are in each pile?

- A $\frac{1}{2}$ lb
 B $\frac{2}{3}$ lb
 C $1\frac{1}{2}$ lb
 D $2\frac{1}{3}$ lb

12. Stephen's glass holds 40 milliliters of milk. Farrah's glass holds $\frac{2}{5}$ as much milk. How many milliliters of milk does Farrah's glass hold?

- A 8 mL C 80 mL
 B 16 mL D 100 mL

13. Which of the following is equal to

$$7 \div \frac{9}{5}?$$

- A $9 \times \frac{7}{5}$
 B $7 \times \frac{9}{5}$
 C $9 \times \frac{5}{7}$
 D $7 \times \frac{5}{9}$

14. Leah cut a 7-inch piece of ribbon into pieces that are each $\frac{1}{2}$ an inch long.

How many pieces of ribbon did she cut?

- A 1 piece
 B 7 pieces
 C 14 pieces
 D 21 pieces

15. Jonas is making a trail mix recipe that calls for 3 cups of nuts and 1 cup of raisins. Jonas mixes the nuts and raisins together. He will then divide the mixture into plastic bags containing $\frac{1}{2}$ cup of trail

mix in each bag. How many plastic bags does Jonas need?

- A 1 plastic bag
 B 2 plastic bags
 C 8 plastic bags
 D 10 plastic bags

16. Serena has 6,000 seeds to plant in her vegetable garden. She will plant 100 seeds per row. How many rows of vegetables will she have?

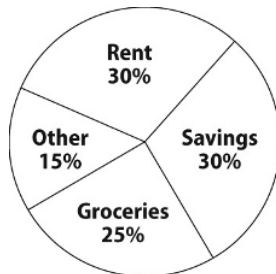
- A 6 rows
 B 60 rows
 C 600 rows
 D 6,000 rows

17. Jessica hit a golf ball 150.75 yards. Kayla hit a golf ball 130.25 yards. How much farther did Jessica hit a golf ball?

- A 10.25 yards
 B 20.5 yards
 C 30.5 yards
 D 281 yards

Beginning-of-Year Diagnostic Test

18. Gabriel drives 80 kilometers in one hour. How many kilometers does he drive in 1.5 hours?
- A 24.75 km
 B 30 km
 C 120 km
 D 300 km
19. A pitcher can hold 5.2 liters of water. How many 0.4-liter glasses of water can be poured from the pitcher?
- A 2.08 glasses
 B 5.8 glasses
 C 13 glasses
 D 52 glasses
20. Alissa's budget is shown in the circle graph below. Her total monthly budget is \$1,000. How much does Alissa spend on rent?



- A \$30
 B \$150
 C \$250
 D \$300
21. In Evan's math class, there are 7 boys and 10 girls. Which of the following is the ratio of boys to girls in Evan's math class?
- A $\frac{10}{7}$
 B $\frac{7}{10}$
 C $\frac{10}{17}$
 D $\frac{7}{17}$
22. Sara bought a 20-ounce jar of strawberry jam for \$4. What is the unit price?
- A \$0.20/oz
 B \$0.40/oz
 C \$2.00/oz
 D \$5.00/oz

23. Zach is making a recipe that requires 1 cup of vinegar and 2 cups of water. Which of the following combinations shows the same ratio of vinegar to water?
- A 2 cups of vinegar to 1 cup of water
 B 2 cups of vinegar to 4 cups of water
 C 4 cups of vinegar to 3 cup of water
 D 4 cups of vinegar to 5 cups of water
24. Liam bought 1 gallon of juice at the grocery. How many quarts of juice did he buy?
- A 1 qt
 B 2 qt
 C 3 qt
 D 4 qt
25. Delia measured a doorway to be 1 meter wide. Which of these is a nearly equivalent measurement?
- A 15 miles
 B 10.5 yards
 C 3.3 feet
 D 98.7 inches
26. Nora bikes 30 miles per hour. Jiro bikes 45 miles per hour. If Nora and Jiro each bike for 2 hours, how many more miles does Jiro bike?
- A 15 mi
 B 30 mi
 C 75 mi
 D 150 mi
27. The table below shows the number of books on shelves at a library. Which of the following represents the number of books?

Books	21	42	105	147
Shelves	1	2	5	7

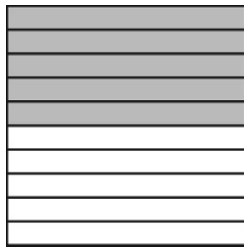
- A shelves \times 3
 B shelves \times 21
 C shelves $+$ 15
 D shelves $+$ 20

Beginning-of-Year Diagnostic Test

28. On a certain map, 2 inches represents 20 miles. Longwood and Milltown are 4 inches apart on the map. What is the actual distance between Longwood and Milltown?

A 20 mi C 80 mi
 B 40 mi D 100 mi

29. What percent of the rectangle below is shaded?



A 20% C 40%
 B 30% D 50%

30. What is the value of the power below?

$$4^2$$

A 1 C 8
 B 4 D 16

31. What are all the factors of 9?

A 1, 2, 3
 B 2, 3, 6, 9
 C 1, 3, 9
 D 1, 2, 3, 6, 9

32. Use the order of operations to simplify the expression below.

$$10 + (8 - 2)^2 \div 2$$

A 8 C 23
 B 16 D 28

33. Which of the following expressions is equivalent to the expression below?

$$2(7x + 3)$$

A $9x + 3$
 B $14x + 6$
 C $9x - 6$
 D $14x - 3$

34. Which is a solution of the equation below?

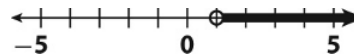
$$x - 9 = 4$$

A $x = -5$
 B $x = -13$
 C $x = 5$
 D $x = 13$

35. A 45° angle is complementary to angle x . Which of the following equations represents this situation?

A $45 + x = 90$
 B $45 = x - 90$
 C $45 + x = 180$
 D $45 = x + 180$

36. Which inequality is shown on the number line below?



A $p < 1$
 B $p \leq 1$
 C $p > 1$
 D $p \geq 1$

37. Write an algebraic expression for the phrase below.

2 less than twice a number n

A $2 - n - n$
 B $n - 2$
 C $6 - 2n$
 D $2n - 2$

38. Evaluate the expression below for $x = 4$.

$$6(x + 8)$$

A 6
 B 8
 C 60
 D 72

Beginning-of-Year Diagnostic Test

39. Combine like terms to simplify the expression below.

$$14x - (2x + y)$$

- A $12x$
 C $12x - y$
 B $14x - y$
 D $12x + 2$
40. The school band, has d drummers and 5 violinists. There are 2 more violinists than drummers. Which of the following equations represents the situation?
- A $d = 5 + 2$
 B $d = 5 - 2$
 C $d = 2 - 5$
 D $d = 2 \times 5$
41. A student bought a book for \$7 and a pen. The total cost was \$9. Which of the following equations can be used to find the cost of the pen?
- A $p = 7b$
 B $p = 9b$
 C $9 + p = 7$
 D $7 + p = 9$
42. Solve the equation below.

$$\frac{m}{2} = 5$$

- A $m = \frac{1}{5}$
 B $m = 5$
 C $m = \frac{1}{10}$
 D $m = 10$

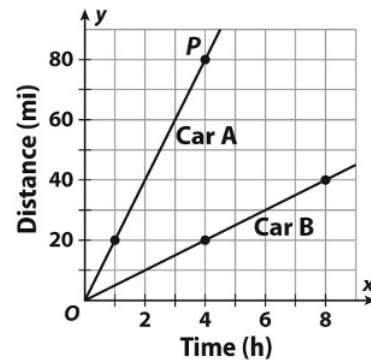
Use the table for 43 and 44.

Auto Repair Charges

Hours, x	1	2	5
Charge, y (\$)	90	180	450

43. Which equation expresses y in terms of x ?
- A $y = 90x$
 B $y = 180x$
 C $x = 90y$
 D $x = 2y$
44. What is the charge for a repair that takes 3 hours?
- A \$360 C \$150
 B \$270 D \$135

Use the graph for 45–47.



45. What are the coordinates of point P ?
- A (2, 8) C (6, 4)
 B (4, 80) D (80, 4)
46. What is the dependent variable?
- A Car A
 B Car B
 C time
 D distance

Beginning-of-Year Diagnostic Test

47. Which equation represents Car B?

- A $y = 6x$
- B $y = 5x$
- C $y = 60x$
- D $y = 50x$

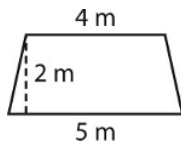
48. A parallelogram has a base of 10 centimeters and a height of 4 centimeters. What is the area of the parallelogram?

- A 4 cm^2
- B 10 cm^2
- C 40 cm^2
- D 100 cm^2

49. A rectangular prism has a volume of 210 cubic feet. The prism is 5 feet long and 7 feet wide. What is the height of the prism?

- A 6 ft
- B 13 ft
- C 21 ft
- D 111 ft

50. What is the area of the trapezoid below?

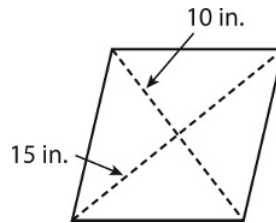


- A 9 m^2
- B 10 m^2
- C 20 m^2
- D 40 m^2

51. A right triangle has a height of 20 centimeters and a base of 10 centimeters. What is the area of the triangle?

- A 100 cm^2
- B 200 cm^2
- C 300 cm^2
- D 400 cm^2

52. What is the area of the rhombus shown below?



- A 25 in^2
- B 75 in^2
- C 150 in^2
- D 225 in^2

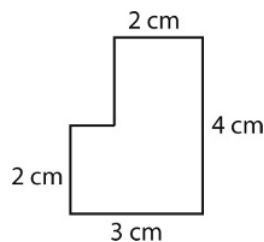
53. A triangle has an area of 240 square inches. The height of the triangle is 15 inches. What is the length of the base of the triangle?

- A 12 in.
- B 15 in.
- C 32 in.
- D 45 in.

54. A lawn in the shape of a trapezoid has an area of 1,800 square meters. The length of one base is 50 meters, and the length of the other base is 40 meters. What is the width of the lawn?

- A 25 m
- B 30 m
- C 35 m
- D 40 m

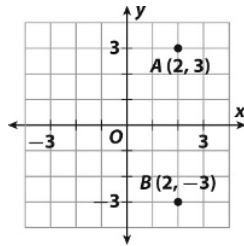
55. What is the area of the polygon shown below?



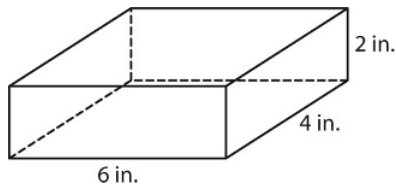
- A 2 cm^2
- B 8 cm^2
- C 10 cm^2
- D 12 cm^2

Beginning-of-Year Diagnostic Test

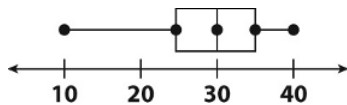
56. What is the distance between points A and B on the grid?



- A 3 units
 B 4 units
 C 6 units
 D 7 units
57. Charlene is wrapping the box below. How much wrapping paper will she need?

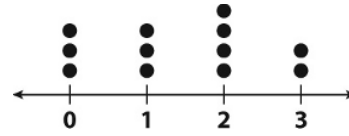


- A 24 in.^2
 B 44 in.^2
 C 48 in.^2
 D 88 in.^2
58. A swimming pool in the shape of a rectangular prism is 10 feet long, 20 feet wide, and 5 feet deep. How much water could the swimming pool hold?
- A 500 ft^3
 B $1,000 \text{ ft}^3$
 C $1,500 \text{ ft}^3$
 D $2,500 \text{ ft}^3$
59. What is the median of the data represented in the box plot below?



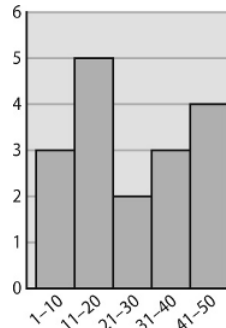
- A 10
 B 20
 C 30
 D 40

60. Which data value has the greatest frequency in the dot plot below?



- A 0
 B 1
 C 2
 D 3
61. Sandra worked 6 hours on Wednesday, 5 hours on Thursday, and 4 hours on Friday. What is the mean number of hours she worked over the three-day period?
- A 2 h
 B 3 h
 C 4 h
 D 5 h

62. The histogram below shows the number of hours per month students in Mr. Carter's class watch television. How many students watch television between 1 and 10 hours per month?



- A 3 students
 B 4 students
 C 5 students
 D 6 students

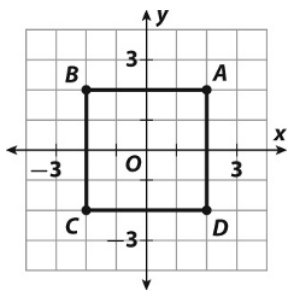
Beginning-of-Year Diagnostic Test

63. For 3 days in a row, Fiona and Gary timed how long they took to brush their teeth. Use the mean absolute deviation of each data set to determine which of the following statements is true.

Fiona's Time (seconds)
90, 93, 90

Gary's Time (seconds)
70, 67, 115

- A Fiona's teeth-brushing time is more variable than Gary's.
 B Gary's teeth-brushing time is more variable than Fiona's.
 C Fiona and Gary are equally variable in their teeth-brushing time.
 D Gary spends more time brushing his teeth than Fiona, on average.
64. Toni is designing a rug using a coordinate plane. She uses polygon $ABCD$ with vertices $A(2, 2)$, $B(-2, 2)$, $C(-2, -2)$, and $D(2, -2)$. Each unit on the grid represents 1 foot. What is the area of the actual rug?



- A 2 ft^2
 B 4 ft^2
 C 8 ft^2
 D 16 ft^2

65. Ava's dog weighs 52 kilograms. Marty's dog weighs $\frac{3}{4}$ as much. Find the weight of Marty's dog in kilograms.

- A 13 kg
 B 26 kg
 C 39 kg
 D 65 kg

66. Hayley cut an $10\frac{1}{2}$ -foot rope into pieces that are each $\frac{1}{2}$ a foot long. How many pieces of rope did she cut?

- A 2 pieces
 B 10 pieces
 C 21 pieces
 D 40 pieces

67. A caterpillar crawls 25 inches in one minute. How many inches does it crawl in 5 minutes?

- A 5 in.
 B 50 in.
 C 70 in.
 D 125 in.

68. Jungwon has \$15. Notepads cost \$2.50 each. How many notepads can Jungwon buy?

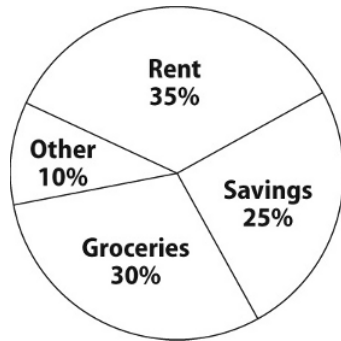
- A 6
 B 17
 C 37
 D 60

69. Noah bought 5 pounds of onions at \$2 per pound and a bag of salad greens for \$4. How much money did he spend?

- A \$10
 B \$14
 C \$20
 D \$22

Beginning-of-Year Diagnostic Test

70. Oliver's total monthly budget is shown in the circle graph below.



Oliver's monthly budget is \$2,000. How much money does he save each month?

- A \$200
 B \$500
 C \$600
 D \$700
71. Sara bought a 24-ounce can of tomato sauce for \$6. What is the unit price per ounce?
- A \$0.25
 B \$0.60
 C \$2.50
 D \$4.00
72. Conrad bought 1 gallon of bottled water at the supermarket. How many cups of water did he buy?
- A 4
 B 8
 C 16
 D 24
73. The table below shows the fees David charges for yard work.

David's Yard Work Fees

Hours	1	2	5
Fee (dollars)	35	70	175

How much money does David charge for yard work that takes 4 hours?

- A \$35
 B \$70
 C \$140
 D \$175

74. A falcon flies 300 kilometers per hour. A goose flies 140 kilometers per hour. If a falcon and a goose each fly for 2 hours, how many more kilometers will a falcon fly?

- A 160 km
 B 240 km
 C 320 km
 D 440 km

75. On a city map, 2 inches represents 10 miles. The library and the bank are 5 inches apart on the map. What is the actual distance in miles between the library and the bank?

- A 1 mile
 B 10 miles
 C 20 miles
 D 25 miles

76. What is the value of the expression below?

$$(7)^3$$

- A 1
 B 7
 C 49
 D 343

77. Use the order of operations to simplify the expression below.

$$990 \div (12 - 9)^2$$

- A 35
 B 110
 C 325
 D 5,402

78. Evaluate the expression below for $x = 5$.

$$5(x + 7)$$

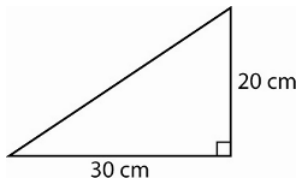
- A 12
 B 15
 C 50
 D 60

Beginning-of-Year Diagnostic Test

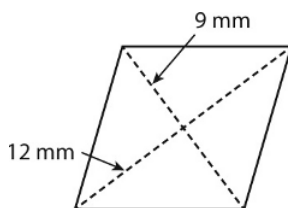
79. Last year, the tree in Pedro's front yard was 5 feet tall. This year, the tree is 2 feet less than the height of Pedro's house. Pedro's house is 17 feet tall. How tall is the tree?
- A 12 ft
 B 15 ft
 C 19 ft
 D 22 ft

80. A parallelogram has a base of 7 meters and a height of 10 meters. What is the area of the parallelogram in square meters?
- A 7 m^2 C 35 m^2
 B 14 m^2 D 70 m^2

81. What is the area of the triangle shown below?



- A 30 cm^2
 B 60 cm^2
 C 300 cm^2
 D 600 cm^2
82. What is the area of the rhombus shown below?



- A 36 mm^2
 B 54 mm^2
 C 108 mm^2
 D 216 mm^2

83. A triangle has an area of 400 square inches. The length of the base of the triangle is 10 inches. What is the height of the triangle?

- A 10 in.
 B 20 in.
 C 40 in.
 D 80 in.

84. A trapezoid has an area of 342 square yards. The length of one base is 17 yards, and the length of the other base is 21 yards. What is the height of the trapezoid?

- A 18 yd
 B 19 yd
 C 38 yd
 D 40 yd

85. A rectangular prism has a volume of 572 cubic inches. The prism is 4 inches long and 13 inches wide. What is the height of the prism?

- A 5 in.
 B 11 in.
 C 42 in.
 D 58 in.

MODULE
1

Integers

Module Quiz: B

1. What is the opposite and absolute value of -9 ?

2. What is the opposite and absolute value of 12 ?

3. 3 and -3 are _____.

- A absolute values C opposites
B positive D negative

4. Numbers with the same absolute value are equally distant from _____.

5. How would you use a number line to order integers from least to greatest?

6. Four workers are repairing a bridge at these distances from the roadway.

- Worker 1: 7 feet below the roadway
Worker 2: 13 feet above the roadway
Worker 3: 13 feet below the roadway
Worker 4: at the roadway

Write the distances in order from highest to lowest.

7. The farther an integer is from zero, the _____ its absolute value.

8. To represent the opposite of a loss of 5 points on the stock market, you could use

- A -5 C $\frac{1}{5}$
B 0 D 5

9. Five chemistry students observed the following mixture temperatures.

Student	Mixture Temperature ($^{\circ}\text{C}$)
Alex	-5
Casey	3
Gabriella	-4
Ernie	5
Morgan	-1

Write the temperatures in order from greatest to least.

10. Roger's dog Ty lost and gained weight over a six-week period.

Week	1	2	3	4	5	6
Loss/Gain	-3	2	-4	1	-2	0

Write Ty's weight changes in order from greatest loss to greatest gain.

MODULE
1

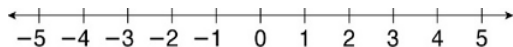
Integers

Module Quiz: B

11. Over a business week, the lost-and-found department at a train station received and returned several items. The table shows the items received (+) and returned (-).

Items Received and Returned				
Mon.	Tues.	Wed.	Thurs.	Fri.
4	-3	5	0	-5

Graph and label the changes on the number line.



12. Katia and Thomasina play a computer game and record these scores.
 Katia: 8, 6, -4, -7, 2, 0, 3
 Thomasina: -11, 0, 8, 7, 5, -7, 11
 Compare Katia's and Thomasina's least scores. _____
13. Complete. To find the absolute value of a number, find the _____ from zero and write the distance as a _____ integer.
14. Complete. The set of integers is made up of positive integers, _____ integers, and _____.
15. Complete. You can use the symbol _____ to show a number is greater than another and the symbol _____ to show a number is less than another.

16. Complete. The _____ of -7 and _____ is 7.
17. The opposite of the absolute value of -8 is _____. Explain.

For 18–20, use the table.

In an athletic event, competitors both climb and dive. The table below shows some of their climbs and dives.

Student	Climb (ft)	Dive (ft)
Al	25	-9
Beth	13	-12
Chaz	15	-7
Dora	24	-11
Earl	20	-13

18. Which competitor makes the shortest climb? _____
19. Which competitor makes the deepest dive? _____
20. Which competitor covers the greatest distance in climbs and dives?
 (Hint: Use absolute values.)

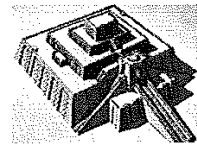
21. A submarine is at 756 feet. How many feet will it need to rise to be at the surface? _____

Ancient River Valley Civilizations: Sumer

A long, long time ago, thousands of years before today, but after the Paleolithic Age (hunting and gathering) and even after the Neolithic Age (farming), something special happened: **CIVILIZATION**. In an area called **MESOPOTAMIA** ('Meso' means middle; this happened in the middle, or in between, the Tigris and Euphrates rivers), the world's first civilization developed. This was the civilization of **SUMER**, and it was located in the southern part of Mesopotamia. **SUMER** was not just one city; it was a series of 12 independent city-states, each having its own ruler (king). Remember from class, a **CITY-STATE** is a city and the surrounding land. The biggest of these city states was a place called UR (sounds like "ERRRR!"), located very close to the Persian Gulf.

Inventions of the Sumerians: As the Sumerian civilization developed, they were able to accomplish great things. How great, you ask? Well, allow me to explain. First, they discovered that if you mine for copper and melt it, and mix it with just the right amount of tin, it makes a new metal called **BRONZE**, and bronze is much, much stronger. Better tools and weapons could be used, and you can bet that if the Sumerians were ever attacked, their weapons would have been far superior at the time, due to this. Of course, with this invention, we also moved from the stone age into the Bronze Age. Additionally, we all know about the **WHEEL** as a great invention, but very few know when it began to be used on vehicles. The Sumerians did this too, creating wheeled vehicles such as chariots in which people could travel more quickly. Advanced **IRRIGATION** systems brought water from the rivers (which two rivers? _____ and _____) to the fields when the summer months were a little too dry, and this allowed for a great number of crops to be developed (allowing for a bigger population!). Also, you all know about the circle, right? 360 degrees? The clock? 60 minutes? Both these are based off the number 60. Well, the Sumerians created this **numbering system, based off 60**, which is still used in some ways today.

Religion: Finally, these dudes saw the stars, and studied them quite a bit. They studied patterns in the skies, and often worshipped these. In doing so, they built massive temples, called **ZIGGURATS**, in which they could be closer to them. Fascinating really, how they could build these extremely tall buildings with the very few tools they had, but they did. These pyramid shaped monuments were often called "Mountains of the Gods," for they were used as a place of worship. To get to the top, one would often have to climb over 100 mud-brick stairs, often dragging a sheep or a goat to sacrifice to the gods (gods is plural because they were polytheistic!). In addition to worship, these ziggurats were often used to store things such as food, woven fabrics, grains, and gems.



Writing System: Perhaps the greatest achievement of all for the Sumerians, however, was their written record keeping and their system of writing called **CUNEIFORM**. Cuneiform means 'wedge-shaped,' and you could bet that their writing was just that—wedge-shaped characters pressed into moist clay tablets to create symbols. They wrote on these tablets for several reasons, but mainly to record the city's dramatic events—wars, natural disasters, and the reign of kings. These tablets and this civilization marks the beginning of written history.

Sumer had all the **characteristics that future civilizations** would have as well: **advanced cities** (the most famous of which was UR); **specialized workers** (teachers, metal workers, artisans, merchants, soldiers, priests, potters, farmers, weavers, scribes, government officials, etc...); **Record keeping** (cuneiform); **complex institutions** (formal government—kings and priests); and **advanced technology** (Bronze, wheel, plow). But how long would they last, and what do you think would eventually cause their downfall?

Name: _____

Sumer Questions

Introduction Paragraph:

1. The area of "Mesopotamia" is between what two rivers? _____
2. What civilization developed here? _____ How many city states did it have? _____
3. What is a city-state? _____
4. What was the biggest city-state of Sumer? _____

"Inventions of the Sumerians"

5. What two metals are used to make bronze? _____ and _____
An advantage of bronze is that it can be used to make better: _____
6. What did the Sumerians create that would make travel easier? _____
7. How does irrigation help farming? _____
8. What is the Sumerian number system based off of? _____

"Religion"

9. What was the name of the massive temples built to worship the gods? _____
10. How many stairs would they have to climb??? _____ Often dragging a _____!
11. What was another purpose of ziggurats? _____
12. Did they have one god or many gods in Sumer? _____

"Writing System"

13. What is the name of the writing system in Sumer? _____
14. What is the shape of the writing like? _____ What did they write about? _____

In class, we compared the characteristics of civilization to a class schedule. For each characteristic, give an example of how it applied to Sumer.

<u>Civilization Schedule</u>	<u>Characteristics of Civilizations</u>	<u>How it applied to Sumer</u>
Class Schedule	Rigid Class System	Sumer had kings, priests, etc.. at the top; artisans in the middle; peasants at the bottom
1 st Period – <u>Home Room</u>	<u>Hereditary Rulers</u>	Sumer had rulers that were hereditary (your dad was a king, now you are a king)
2 nd Period – <u>Writing</u>	<u>Writing System</u> /Record Keeping	Sumer had <u>Cuneiform</u> as their writing system
3 rd Period – <u>Cities</u>	<u>Cities</u>	Sumer had 12 city states, the largest was Ur
4 th Period – <u>Lunch</u>	Code of <u>Law</u>	Sumer had a law code
5 th Period – <u>Government</u>	Complex system of <u>Government</u>	Sumer had a formal government of 12 city-states, run by Kings and Priests
6 th Period – <u>Religion</u>	System of <u>Religion</u>	Sumer was Polytheistic (many gods) and built ziggurats to worship
7 th Period – Tools and Technology	Advanced tools & Technology	Bronze, # system based off 60, wheel, irrigation

Egypt and the Pyramids

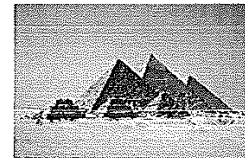
"Egypt is a gift of the Nile," a Greek historian once wrote. The **Nile** River, flowing 4,100 miles **northward** in Africa, surely made it possible for Egypt to develop into the civilization that it did. Compared to the Tigris and the Euphrates rivers, the Nile was much more reliable for **flooding** and leaving the rich material behind. The flooding of the river is as reliable as clockwork, and when the settlers of the time realized this, they were able to use it to create the greatest civilization of its time.

Still, life in Egypt had its risks. If the flooding was too low, thousands of people would starve. If it were just a few inches too high, the unwanted water destroyed houses, grainaries, and seeds. Also, with the surrounding desert, the Egyptians had very few places to live/move, except for the thin area beside the Nile River.

Egypt is divided into two sections – **upper** and **lower**. This is not based off the location on the map. Instead, it is based off its elevation. The **Upper Egypt is actually the southern part of the civilization**, where it rests atop a much higher elevation. **Lower Egypt** is the **northern** part of the country, and includes the **DELTA** region (a broad, marshy, triangular area that brings the river into the sea).

Egypt was once divided into two kingdoms (Upper and Lower), but by 3000 B.C., they united into one large kingdom. This kingdom would last 2,600 years and consist of **31 dynasties!** 31!!!!

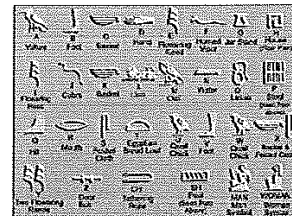
Their religion was **polytheistic**, meaning they worshiped many gods. To the Egyptians, the kings were gods. These Egyptian god-kings were called **PHARAOHS**, and were thought to be almost as powerful as the gods in the heavens. The Egyptians believed that these **Pharaohs** (god-kings) were responsible for the sun rising, the Nile flooding, and the crops growing. They worshipped them, and believed that the pharaohs even experienced a long life after death. Because of this, their tombs were often bigger than their palaces! The resting place for many of the kings were immense structures called **PYRAMIDS**, and these were built between 2660 and 2180 B.C.! Imagine the work! Each perfectly cut stone weighed at least 2 ½ tons (5000 pounds!); some weighed over 15 tons! Yet still, more than 2,000,000 of these blocks were cut and stacked to build the pyramids to almost 500 feet high! How did they do this? Slaves, that's how. **Slavery** was widely accepted in Egypt and it was through the slave labor, over hundreds of years, that they were able to build these.



The most important god for Egypt was Re (the sun god) and Osiris (the god of the dead); the most important goddess was Isis (represents the ideal mother and wife). They worshipped over 2,000 gods! Because they were strong believers in life after death, Egyptians practiced **mummification** on the bodies of royal and elite people (kings; the wealthy); this involved embalming and drying the corpse to prevent it from decaying. They took the brains out through the nostrils with an iron hook! After mummifying someone, they would fill the tomb with treasures, clothing, food, and jewelry to use in the afterlife!



The writing used by Egyptians at the time was **hieroglyphics**—'Sacred carving' in which a picture would stand for an idea. While the hieroglyphics were first used on stone, they eventually were written on a better writing surface – **papyrus** reeds. Papyrus is a plant that grows in the delta regions; they were able to split the reeds into strips, and create a paper-like sheet out of them!



Name: _____

Egypt Questions

Introduction Paragraph:

1. The main river in Egypt? _____ How far does it flow? _____ What direction? _____
2. Benefits when Nile floods? _____
3. Bad things that happens if Nile does not flood? _____

Paragraph Two and Three

4. The Nile / Egypt are divided into two sections...Upper is the _____ part, Lower is the _____ part
5. What is a delta? _____
6. Is the delta in lower or upper Egypt? _____
7. Egypt was united by 3000 BCE; how many dynasties would they have over the next 2,600 years? _____

Paragraph Four

8. What type of religion did Egyptians have? _____ What are Pharaohs? _____
9. Why did they build tombs for their pharaohs? _____
10. The biggest tombs/structures they built were the _____. Each block weighed _____!!!!
11. Was slavery common in Egypt? _____

Paragraph Five and Six

12. How many gods did they worship? _____ What did they do with royal people? _____
13. What was the system of writing used in Egypt? _____ What did they write on? _____

In class, we compared the characteristics of civilization to a class schedule. For each characteristic, give an example of how it applied to Sumer.

<u>Civilization Schedule</u>	<u>Characteristics of Civilizations</u>	<u>How it applied to Sumer</u>
Class Schedule	Rigid Class System	Egypt had Pharaohs (god-kings), priests, etc.. at the top; artisans in the middle; peasants at the bottom; slaves at very bottom
1 st Period – <u>Home Room</u>	<u>Hereditary Rulers</u>	Egypt had rulers that were hereditary (your dad was a king, now you are a king)
2 nd Period – <u>Writing</u>	<u>Writing System</u> /Record Keeping	Egypt had <u>Hieroglyphics</u> as their writing system
3 rd Period – <u>Citations</u>	<u>Cities</u>	Egypt had major cities develop around the Nile River
4 th Period – <u>Lunch</u>	Code of <u>Law</u>	Egypt had a law code
5 th Period – <u>Government</u>	Compex system of <u>Government</u>	Egypt had a formal government run by pharaohs and Priests
6 th Period – <u>Religion</u>	System of <u>Religion</u>	Egypt was Polytheistic (many gods) and built pyramids as tombs
7 th Period – Tools and Technology	Advanced tools & Technology	Used tools to build pyramids; wrote on papyrus

Ancient China Civilization

Geography – China is a huge area on the eastern part of Asia, surrounded by natural geographic barriers. To the east of China is the Yellow Sea (which the Yellow River, or Huang He River flows into), as well as the Pacific Ocean. To the Southwest is the Himalaya mountain range, and to the northwest is the Gobi Desert (the coldest desert in the world!), as well as the huge icy Plateau of Tibet. Imagine trying to cross that in ancient times! Mountain ranges and deserts create about 2/3 of China's landscape, and despite its size, only about 10% of China is suitable for farming. This area is mainly between its two main rivers—the Huang He River (Yellow River, named after the yellow silt deposits), and the Yangtze river, both of which go into the Yellow Sea.



Civilization Emerges in Shang Times – The first humans (not yet modern human, or homo sapien) emerged 500,000 years ago (known as the Peking man), but it was not until around 2000 BC first cities began to develop in China. Then, around the same time that Mesopotamia, Egypt, and Indus Valley were falling to invaders, the Shang dynasty rose to power in Northern China. This lasted from 1700 BC to 1027 BC, and this was the first family to leave written records.

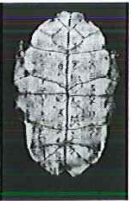
The first major city - Anyang - was built mainly of wood (not clay) near a forest; higher classes in timber framed homes of clay and straw, within city walls; lower classes lived outside of the city. This civilization believed in afterlife, and was known to build elaborate places and tombs. Additionally, fear of invasion from neighboring tribes led to this dynasty surrounding its cities with walls for protection; the Shang were constantly waging war. Horse-drawn chariot first introduced here during this time.

Development of Chinese Culture -- Family was always central to Chinese culture; children were always taught to respect parents and elders and women were seen as inferior. Marriages for females were arranged between 13 and 16 years old, and the woman could only hope to improve her status by having sons!

Social classes (rich and poor) - very sharply divided between nobles and peasants; a ruling class of noble-warriors chosen by a king governed the villages, and paid tribute (taxes, which they would collect from the people in their villages) to the Shang ruler in exchange for power.



The religion in China was polytheistic. They believed that they were not worthy of talking directly to the gods; only the priests and those who have died were. Therefore, the spirits of their ancestors had power to communicate with the gods and worshipped their ancestors for this reason. If one prayed to his/her ancestors and made sacrifices for their ancestors, one could hope for good fortune.



Chinese Writing and Oracle Bones – The first signs of Chinese writing was seen on Oracle Bones. These are animal bones with questions scratched into surface. A priest would crack the bone with a hot poker and interpret the way it cracked in order to find answers. These were widely used. The Chinese used characters to write, instead of letters. These characters represented ideas, not sounds. This was neat, because in different parts of China, where different languages are spoken, everyone can still read the same thing.

However, it was a lot to remember! You needed to know at least 1,500 characters to be barely literate.

Zhou and Dynastic Cycle – The Shang dynasty was eventually overthrown and the Zhou (joh) dynasty took over around 1027 BC. When ruler is no longer just, he no longer has command from the gods to be in power and someone new must rise (Mandate of Heaven). The Mandate of Heaven was central to the Chinese view of government; this was the Chinese explanation for why rebellions happened and why new rulers came to power. As unfit rulers are replaced by new dynasties, the dynastic cycle took place.



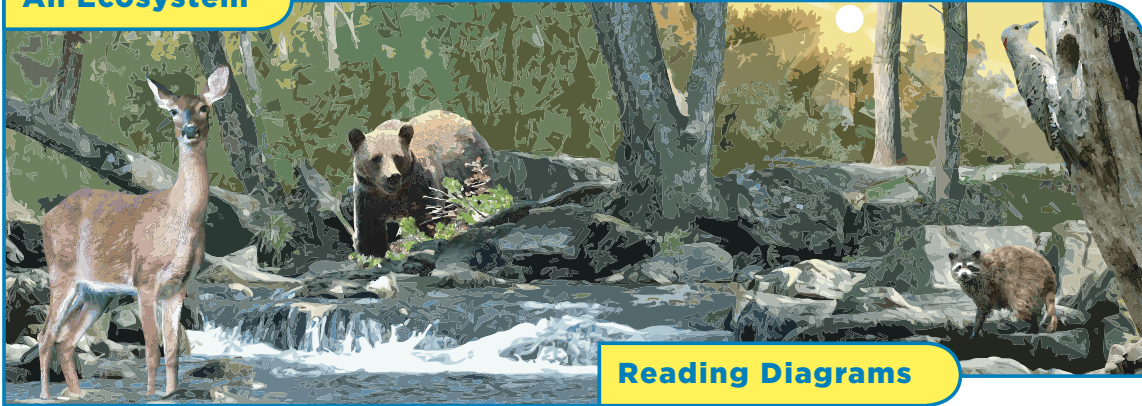
Improvements under Zhou dynasty – During most of the Zhou dynasty, China was at peace. This allowed time for more innovations and advances. Among these were: Advanced roads and canals to help trade and agriculture; Coined money; Blast furnaces to help produce iron (this would not be matched in Europe until the middle ages). With their iron, it was used to make axes and swords and better farm tools.

The least you need to know about China!

1. What is the main river in China?
2. What mountain range is to the Southwest? What desert is to the Northwest?
3. What were the first two dynasties in the China civilization?
4. Were the Shang peaceful or always at war?
5. Were the Zhou peaceful or always at war?
6. What are oracle bones?
7. What are three accomplishments/innovations of the Zhou?
8. What is the mandate of heaven?
9. Explain how Chinese viewed ancestors and why.
10. What is the Dynastic Cycle?
11. Explain Chinese writing.
12. Explain the difference in men/women in Chinese culture.
13. Explain the difference in social classes.

Lesson 1 Introduction to Earth's Ecosystems

An Ecosystem



Reading Diagrams

This diagram shows living and nonliving parts of a pond ecosystem.

What is an ecosystem?

A *system* is a group of things that work closely with each other. There are systems all around you. The planets are part of the solar system. Many organs in your body belong to various systems.

Living things are also part of a system. They belong to an

ecosystem (EK•oh•sis•tuhm). In an **ecosystem**, living things and nonliving things in an area interact together. The living things depend on the same conditions. They can all be affected by changes that happen around them. A major change such as a forest fire can affect the whole ecosystem.

✓ Quick Check

1. What kind of system is an ecosystem?

2. What do living things in an ecosystem depend on?

Parts of an Ecosystem?

All ecosystems have a nonliving part and a living part. The nonliving parts help make life possible. The table shows some nonliving and living parts of an ecosystem.

Living and Nonliving Parts of an Ecosystem

Nonliving Parts	Living Parts
• Sunlight	• Bacteria
• Temperature	• Plants
• Water	• Animals
• Soil	• Mushrooms
• Air	
• Weather patterns	
• Altitude	

Quick Check

3. Name five living parts of the ecosystem shown in the picture on page 2. _____,

_____, _____,

_____.

4. Name five nonliving parts of an ecosystem. _____,

_____, _____,

_____, _____.

Why are sunlight and temperature important?

The amount of sunlight an area receives affects the temperature of that area.

Areas near the Equator

Areas near the equator get a lot of direct sunlight. Temperatures there are high. They may be around 27°C (80°F) almost all the time. In these areas, many different kinds of plants and animals can live.

Parrots thrive in warm areas, such as the Amazon rain forest in Brazil. ▶



✓ Quick Check

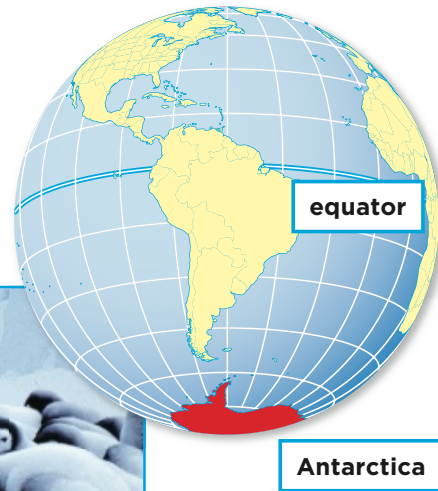
5. What are temperatures like near the equator? Explain your answer.

Areas Away from the Equator

Areas near Earth's poles get very little direct sunlight. Temperatures here are in general much cooler. These areas have fewer kinds of plants and animals.

What are temperatures like between the poles and the equator? In these areas, the amount of sunlight is more than at the poles—but less than at the equator. So temperatures vary throughout the year.

In areas with cold winters, some animals travel to a warmer place. Others become less active or sleep. Some, like penguins, have changed over time to fit the conditions where they live.



▲ Penguins learned to huddle to keep warm. They have a layer of fur-like feathers.

✓ **Quick Check**

6. Areas near the North and South Poles get _____ amounts of direct sunlight than areas near the equator.

7. Two things that some kinds of living things do to survive cold winters are _____ and _____.

Why is water important?

Living things need water. Your body is 60–70% water. Water carries nutrients to parts of your body. It helps to cool your skin.

The amount of water in an ecosystem affects its living things. Areas with little water, such as deserts, have fewer kinds of living things living there. These living things have features that help them survive with less water. For example, when it rains, the barrel cactus swells and stores water.

People have also developed ways to live in dry areas. They use irrigation to water their fields. For example, water taken from the Colorado River helps irrigate almost 1 million acres of land in Southern California.



Barrel cactus, California desert



Central Valley irrigation

Quick Check

8. Some kinds of living things can live in places where there is little water because _____.

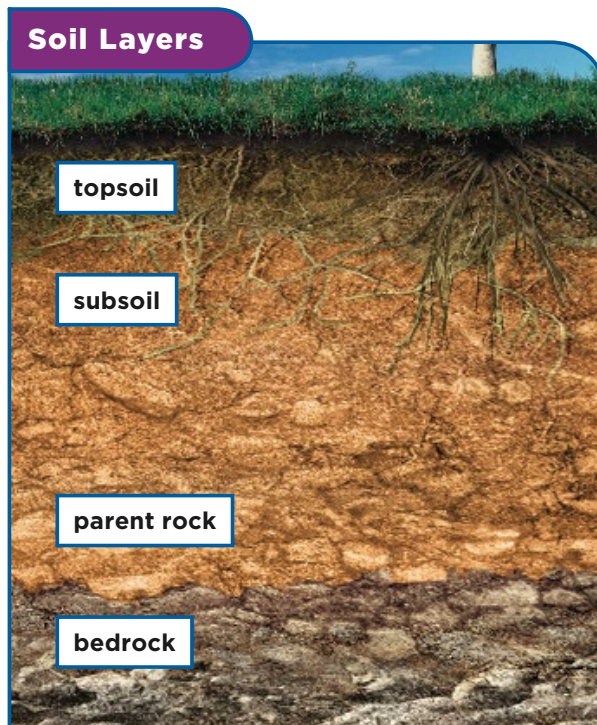
Why is soil important?

Soil supplies water, air, and food that plants need to grow. By helping plants grow, soil helps living things survive. It is important to conserve (or save) soil. For example, we put plants on hillsides so that wind and water will not carry soil away.

Soil is broken-down rock and humus (HYEW•muhs). *Humus* is the material in soil formed by the decay of dead plants and animals. Humus adds food to the soil.

Soil usually has four layers:

- *Topsoil*, the upper layer of soil, contains humus, water, air, and other things organisms need.
- Subsoil is the layer below the topsoil. It has some humus and minerals.
- Parent rock is the rock that made the soil. It has no humus.
- Bedrock is the lowest layer, of solid rock.



✓ Quick Check

9. Three things that soil supplies to plants are _____,
_____, and _____.

10. Unscramble the following soil layers. List them from the top to bottom: subsoil, topsoil, bedrock, parent rock.

_____ the top _____ the bottom _____