We have learned that nouns name persons, places, things, or ideas. Nouns can function in the following ways.

Noun Functions

subject
predicate nominative
direct object
indirect object
object of preposition
appositive
noun of direct address

We have learned the six classes of pronouns. A pronoun takes the place of a noun.

Classes of Pronouns

personal
interrogative
demonstrative
relative
reflexive
indefinite

A noun or pronoun has been underlined in each activity below. On the line indicate whether the underlined word functions as a subject, predicate nominative, direct object, indirect object, object of preposition, appositive, or noun of direct address.

Applying Wisdom Principles

(1) One of the changes resulting from Mr. Washington's _____
death affected George's schooling.

(2) He would not be able to travel to England, as _____
his brothers had done.

(3) Instead, he attended a one-room school, which _____
stood in a nearby field.

(4) During those seven or eight years, George _____
excelled in math.

(5) He loved to add, subtract, and measure. _____

(6) As a wise boy, he developed his God-given talents. _____

(7) At home, George's mother gave him daily _____
instruction in Scriptural principles.

(8) The character and wisdom gained from this _____
training are seen in his later life.

(9) George had applied the wisdom principle of _____
Proverbs 1:8.

(10) "My son . . . forsake not the law of thy mother." _____

(11) His decision to obey this commandment brought _____
George Washington honor many times.

(12) Thomas Jefferson, another famous man, said of him, _____

(13) "He was indeed . . . a wise . . . man . . . ." _____

Proportions and Properties of Proportions

A *proportion* is an equation stating that two ratios are equal. It is written in the form of $\frac{a}{b} = \frac{c}{d}$ where b and d are not equal to zero. The following are some examples of proportions:

$$\frac{12}{36} = \frac{1}{3} \qquad \frac{1}{2} = \frac{4}{8} \qquad \frac{2}{3} = \frac{10}{15}$$

Each of the positions in the proportion $\frac{a}{b} = \frac{c}{d}$ is numbered. The first term is a, b is the second term, c is the third term, and d is the fourth term.

$$\text{first term} \qquad \frac{4}{9} = \frac{12}{27} \qquad \text{third term}$$
$$\text{second term} \qquad \qquad \qquad \text{fourth term}$$

In any proportion, the first and fourth terms are called the extremes, and the second and third terms are called the means. Proportions are also written in the form 4:9 = 12:27. In this case, the extremes appear on the outside of the equation, and the means appear on the inside.

Theorem 84: In a proportion, the product of the extremes equals the product of the means.

Complete this proof of Theorem 84. Remember: You may abbreviate the reasons if you like, but do not include the postulate or theorem numbers. (They are provided for reference only.)

Given: $\frac{a}{b} = \frac{c}{d}$.

Prove: $a(d) = b(c)$.

I. Proof

Statements	Reasons
1. $\frac{a}{b} = \frac{c}{d}$	1. _____
2. $\frac{a}{b}(bd) = \frac{c}{d}(bd)$.	2. _____
3. $\frac{a}{b}\left(\frac{bd}{1}\right) = a(d);\ \frac{c}{d}\left(\frac{bd}{1}\right) = c(b)$.	3. Multiplication.
4. $a(d) = c(b)$.	4. Substitution Property. $a(d)$ was substituted for $\frac{a}{b}\left(\frac{bd}{1}\right)$, and $c(b)$ was substituted for $\frac{c}{d}\left(\frac{bd}{1}\right)$.
5. $\therefore a(d) = b(c)$.	5. Commutative Property. $c(b) = b(c)$.

Note: In the proportion $\frac{3}{2} = \frac{6}{4}$, the extremes are 2 and 6, and the means are 3 and 4. The product of 2 and 6 is 12, and the product of 3 and 4 is 12. This is one way to determine if two ratios form a true proportion.

If any three terms of a proportion are known, the fourth can be solved using Theorem 84.

Example:

Solve for x in this proportion. $\frac{x}{8} = \frac{3}{4}$

1. Multiply the extremes.	$x(4) = 4x$
2. Multiply the means.	$8(3) = 24$
3. Set the products equal to each other.	$4x = 24$
4. Solve for the unknown.	$x = 6$

(89) In the potassium nitrate compound, KNO_3, the nitrate radical, NO_3, has a valence of —1, so the potassium, K, must have a valence of _____.

(90) The calcium in calcium nitrate, $Ca(NO_3)_2$, must have a valence of _____, and the aluminum in aluminum nitrate, $Al(NO_3)_3$, must have a valence of _____.

On each blank, write the valence number of each of these metal ions.

(91) copper(I) _____   (93) tin(IV) _____

(92) cobalt(III) _____   (94) mercury(II) _____

Analyze these formulas by filling in the blanks with the number of atoms, the names of the elements, and the number and names of the radicals.

(95) $Al(HCO_3)_3$ = _____ atom(s) _____

_____ atom(s) _____

_____ atom(s) _____ > _____ _____ radical(s)

_____ atom(s) _____

(96) $(NH_4)_3PO_4$ = _____ atom(s) _____

_____ atom(s) _____ > _____ _____ radical(s)

_____ atom(s) _____

_____ atom(s) _____ > _____ _____ radical(s)

THINK! Write the chemical formulas for these compounds. Be sure to include enough atoms of each element or radical so that the valences total zero.

(97) Magnesium nitrate = _____
(The valence of magnesium, Mg, is +2; the valence of the nitrate radical, NO_3, is —1.)

(98) Tin(IV) oxide = _____
(The symbol for tin is Sn; oxide, the ion of oxygen, has a valence of —2.)

(99) Silver nitrate = _____
(Silver, Ag, has a valence of +1; nitrate, NO_3, has a valence of —1.)

(100) Lead(II) sulfate = _____
(The symbol for lead is Pb; the sulfate radical, SO_4, has a valence of —2.)

THINK! Write the names of these ionic compounds.

(101) $CaSO_4$ = _____
(Ca is the symbol for calcium; SO_4 is the symbol for the sulfate radical.)

(102) CuO = _____
(Copper may have a valence of +1 or +2; oxide, the ion of oxygen, has a valence of —2. Don't forget to indicate which ion of copper is used in the compound.)

Score exercises 72–102.   F

1. The county clerk is secretary to the commissioners court, records and keeps legal documents, registers deeds and mortgages, and generally supervises the clerical duties of the county.
2. The county treasurer, or county tax assessor and collector, assesses property values for tax purposes, collects taxes, and pays county bills.
3. The county auditor audits the books of the treasurer and all other county officials (and sometimes city officials) who collect tax money.
4. The county attorney prosecutes cases before the county courts and the county grand jury.
5. The county sheriff is the chief law officer of the county. He works with the district attorney and the county attorney and often runs the county jail. A group of deputies assists him in enforcing state and county laws.
6. The county coroner is usually a doctor. He examines bodies of those who die violently or unexpectedly to determine cause of death.
7. The county surveyor oversees building and maintenance of county roads and surveys land boundaries. Today he is often called the county engineer.
8. The county superintendent of schools is the administrator of the county public schools.

Because the county is a product of a rural society, it is a relatively loosely controlled unit of government. It is both created by and a *functionary* of the state government. It is the principal means by which state government contacts individual citizens. Some county functions are those of the state, and others are those of a *distinctive* governmental unit.

One of the primary county functions, enforcement of state laws, is the responsibility of the sheriff, the county attorney, and various county courts. The county government includes justice of the peace or precinct courts and precinct constables. These courts and officers usually handle small claims and very minor disorders, and they sometimes *arraign* arrested prisoners for the police or sheriff.

District courts, both civil and criminal, are usually located in the county courthouse. The district attorney serves these courts, which are somewhat independent courts of the state judiciary. The sheriff brings accused persons to these courts and holds their prisoners in the county jail. Local police officers may also serve district courts.

Counties are responsible for collecting state taxes and handling local problems over property valuation and failure to *remit* these taxes.
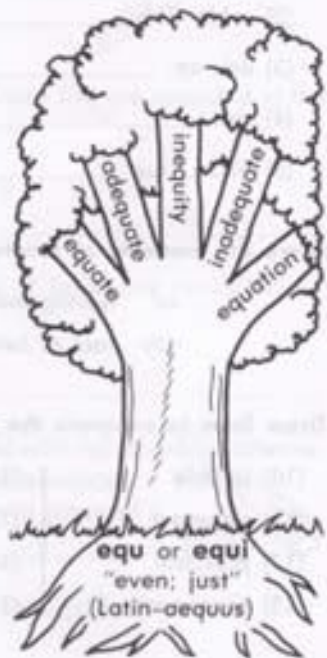
In the early twentieth century, the Georgia legislature passed a law providing that, in Democratic primaries, candidates for state offices would be elected by a majority of counties rather than by a majority of voters. Winning in these primaries had traditionally been *tantamount* to election to office in that heavily Democratic state. The law was an attempt by rural legislators to limit the increasing power of the cities—especially Atlanta. Under this law, rural areas have much more power than urban counties because there are so many more rural counties.

Number of Counties in Each State

The root "equ" or "equi" comes from a Latin word meaning "even; just."

Add the root "equ" to these prefixes and suffixes. Note: *Drop a final "y" before adding a suffix beginning with a vowel.*

(1) _____ + al + ity = _____

(2) in + _____ + al + ity = _____

(3) _____ + ate = _____

(4) _____ + ation = _____

(5) _____ + ator = _____

(6) _____ + ity = _____

(7) _____ + ity + able = _____

(8) in + _____ + ity + able = _____

(9) in + _____ + ity = _____

(10) ad + _____ + ate = _____

(11) in + ad + _____ + ate = _____

(12) un + _____ + al = _____

(tree illustration with branches labeled: equate, adequate, inequity, inadequate, equation; roots labeled)
equ or equi
"even; just"
(Latin-aequus)

Many words can be formed by combining the root "equ" or "equi" with another root. Write the new words on the lines below.

ROOT		ROOT	LATIN-MEANING		NEW WORD
(13) equ	+	animity	(animus – "mind")	=	equanimity
(14) equi	+	librium	(libra – "balance")	=	_____
(15) equi	+	nox	(noctem – "night")	=	_____
(16) equi	+	distance	(distare – "to stand off")	=	_____
(17) equi	+	vocal	(vocare – "to call")	=	_____
(18) equi	+	lateral	(latus – "side")	=	_____
(19) equi	+	valent	(valere – "to be strong")	=	_____
(20) equi	+	poise	(pensum – "weight")	=	_____

(21) What does the root "equ" or "equi" mean? _____