

A Completed 8th Grade Final Exam

Salina, Kansas, 1895

Grammar (Time, one hour)

1. Give nine rules for the use of Capital Letters.

- a.) Capitalize the first word in a sentence.
- b.) Capitalize the pronoun I and the interjection O.
- c.) Capitalize the first word in a quotation.
- d.) Capitalize the first word in a direct question falling within a sentence.
- e.) Capitalize all nouns referring to the deity and to the Bible and other sacred books.
- f.) Use a capital letter for *President* and *Presidency* when these refer to the office of President of the United States.
- g.) Use a capital letter for official titles before the names of officials.
- h.) Capitalize proper nouns and adjectives formed from proper nouns.
- i.) Capitalize every word, except conjunctions, articles and short prepositions in the titles of works of literature, music, art, books, etc. The first word of a title is always capitalized.

2. Name the Parts of Speech and define those that have no modifications.

- a.) Noun
- b.) Verb
- c.) Adjective
- d.) Adverb
- e.) Pronoun
- f.) Preposition
- g.) Conjunction
- h.) Interjection
- i.) Article

Articles, interjections, conjunctions and prepositions have no modifications.

3. Define Verse, Stanza and Paragraph.

a.) *Verse* - A sequence of words arranged metrically according to some system of design; a single line of poetry.

b.) *Stanza* - A group of lines of verse forming one of the divisions of a poem or song. It is typically made of four or more lines of verse and typically has a regular pattern in the number of lines and the arrangement of meter and rhyme.

c.) *Paragraph* - A distinct section or subdivision of a chapter, letter, etc. usually dealing with a particular point. It is begun on a new line, often indented.

4. What are the Principal Parts of a verb? Give Principal Parts of do, lie, lay and run.

For verb forms regarded as regular and not normally indicated include:

a.) *Present tenses* formed by adding *-s* to the infinitive (or *-es* after *o, s, x, z, ch, and sh*) as *waits, searches*;

b.) *Past tenses* and *past participles* formed by simply adding *-ed* to the infinitive with no other changes in the verb form, as *waited, searched*;

c.) *Present participles* formed by simply adding *-ing* to the infinitive with no other changes in the verb form, as *waiting, searching*;

Principal Parts - do, does, did, doing; lie, lies, lied, lying; lay, lays, laid, laying; run, runs, ran, running. These are all irregular verbs.

5. Define Case, Illustrate each Case.

a.) In English syntax the term "*case*" refers to the *subjective* (or *nominative*), *objective*, and *possessive* forms of pronouns and the possessive form of nouns. *I* is the *subjective* (or *nominative*) case of the personal pronoun, *me* is the *objective* case, and *my* or *mine* are the *possessive* case. *Mary's* is the *possessive* case of Mary showing ownership by Mary herself.

6. What is Punctuation? Give rules for principal marks of Punctuation.

- a.) *Punctuation* - the act, practice or system of using standardized marks in writing and printing in separate sentences or sentence elements, or to make the meaning clearer.
- b.) The *Period* [.] - use a period at the end of declarative sentences, indirect questions and most imperative sentences, after most abbreviations. Do not use a period at the end of a title of a book, article, poem, etc.; In a typed manuscript, abbreviations and the initials of names do not have spacing after the periods, i.e., U.S.A., T.S.Eliot, e.g.
- c.) The *Question Mark* [?] - use a question mark at the end of a direct question, after each query in a series if you wish to emphasize each element. Use a question mark enclosed in parentheses to express doubt about a word, fact or number. Do not use a question mark at the end of an indirect question.
- d.) The *Exclamation Mark* [!] - use the exclamation mark after a particularly forceful interjection or imperative sentence.
- e.) The *Semicolon* [;] - Use a semicolon between two independent clauses when they are not joined by a coordinating conjunction; to separate clauses joined only by conjunctive adverbs.
- f.) The *Colon* [:] - Use a colon before a long formal quotation, formal statement, or a list of items. Use a colon after a main clause when the succeeding clause or clauses explain the first clause.
- g.) The *Dash* [-] - Use a dash to indicate an abrupt break in the structure of the sentence or an unfinished statement. Use a dash to set off a summary or a long appositive.
- h.) *Parentheses* [()] - Use parentheses to enclose material that is explanatory, supplementary, or exemplifying. Use parentheses to enclose cross-references.
- i.) *Quotation Marks* [" "] - Use quotation marks to enclose all direct quotations. Use single quotation marks [' '] to enclose a quotation within another quotation. Use quotation marks to enclose words spoken of as words, words used in special senses, or words emphasized.
- j.) The *Apostrophe* ['] - Use the apostrophe to indicate the possessive case of the noun or pronoun. Use the apostrophe to

indicate the omission of letters or figures. Use the apostrophe to indicate the plurals of figures, letters, and words referred to as such, i.e., Watch your p's and q's. There are too many "and's" in your sentence.

k.) The *Hyphen* [-] - Use the hyphen to divide a word at the end of a line. Use a hyphen between parts of a compound modifier preceding a noun.

7-10. Write a composition of about 150 words and show therein that you understand the practical use of the rules of grammar.

Language can be thought of as articulate mind, as the means of becoming human, as the record of wit at play, as the right hand of thought, or as a great reservoir of symbol, but as a working tool it results from the use mankind has made of it.

Literally, no one can discover how a language is being employed, since language is always changing, and the shifts and appearances only become apparent later. Practically, however, we have devices for discovering what a language has been, what it is now, and even what it is becoming.

Not always has man improved his language. As more widespread communication between peoples comes to pass, most languages are losing their "purity", becoming a polyglot of the many. This is not all bad. Each people and language have something to give, something to share, and something to take, to enrich the lives of all mankind.

Arithmetic (Time, 1.25 hours)

1. Name and define the Fundamental Rules of Arithmetic.

- a.) The Fundamental Rules of Arithmetic are Addition, Subtraction, Multiplication and Division.
- b.) *Addition* - the summing of a set of numbers to obtain the total quantity of items to which the number set refers indicated in arithmetic by + .
- c.) *Subtraction* - the mathematical process of finding the difference between two numbers or quantities, indicated in arithmetic by - .
- d.) *Multiplication* - the mathematical process of finding a number or quantity (the *product*) obtained by repeating a specified number or quantity a (the *multiplicand*) a specified number of times (the *multiplier*), indicated in arithmetic by X .
- e.) *Division* - the mathematical process of finding how many times a number (the *divisor*) is contained in another number (the *dividend*); the number of times constitutes the *quotient*, indicated in arithmetic by ÷ .

2. A wagon box is 2 ft. deep, 10 feet long, and 3 ft. wide. How many bushels of wheat will it hold?

The wagon box contains $2 \times 10 \times 3 = 60$ cubic feet. A struck bushel equals $1 \frac{1}{4}$ cubic feet. A heaped bushel in general equals $1 \frac{1}{4}$ struck bushels. Therefore the wagon box if heaped contains 60 bushels and if struck, $\frac{1}{5}$ th less or 48 bushels.

3. If a load of wheat weighs 3942 lbs., what is it worth at 50 cts. per bu, deducting 1050 lbs. for tare?

The actual weight of the wheat, subtracting the tare of the wagon weight of 1050 lbs is 2892 lbs. A fully ripe and dried struck bushel of wheat weighs on average 58 lbs per bushel. Therefore the solution is $2892 \div 58 \times \$0.50 = \24.93

4. District No. 33 has a valuation of \$35,000. What is the necessary levy to carry on a school seven months at \$50 per month, and have \$104 for incidentals?

The cost of 7 months of school equals $\$50 \times 7 + \104 , therefore \$454. The mil levy is therefore $\$454 \div \$35,000$

which equals .013 levy or \$1.30 per \$100 valuation of the district.

5. Find cost of 6720 lbs. coal at \$6.00 per ton.

One ton equals 2000 lbs, therefore $6720 \div 2000 \times \$6 = \20.16

6. Find the interest of \$512.60 for 8 months and 18 days at 7 percent.

A banking month is 30 days, or 360 days per year. If the principal is held for 258 days the proportional interest for the period held is $258 \div 360 \times \$512.60 \times 7\%$ or \$25.72

7. What is the cost of 40 boards 12 inches wide and 16 ft. long at \$.20 per inch?

$$40 \times 12 \times \$.20 = \$96.00$$

To verify this, lumber costs \$150/1000 board feet, therefore -
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$$40 \times 16 \div 1000 \times \$150 = \$96.00$$

8. Find bank discount on \$300 for 90 days (no grace) at 10 percent.

90 days is 3 months, 1/4 of the banking year, therefore the discount is $.10 \div 4 \times \$300 = \7.50

9. What is the cost of a square farm at \$15 per acre, the distance around which is 640 rods?

An acre measure is 160 square rods. The farm has each side of 160 rods or 160 rods square, therefore 25600 square rods, is 160 acres in extent and is \$2400 in value.

10. Write a Bank Check, a Promissory Note, and a Receipt.

Bank Check

Farmer's Coop	1895
Bank	
Salina, Kansas	June 1, 1894
Received Of	<u>John Q. Parent</u> \$57.16

Fifty Seven and 16/100 ----- Dollars

*1894-95 Tuition -
James*

Roscoe R. Pound, Chmn.

U.S. History (Time, 45 minutes)

1. Give the epochs into which U.S. History is divided.

The History of the United States of America is divided into these several epochs:

- a.) Period of Discovery and Settlement (1492 - 1690)
- b.) Expansion of the Colonies (1690 - 1763)
- c.) Securing Independence (1763 - 1774)
- d.) The Critical Period (1774 - 1780)
- e.) Testing Self-Government and the Constitution (1780 - 1840)
- f.) Straining the Constitution (1840 - 1876)
- g.) The United States - A Greater Nation (to present)

2. Give an account of the discovery of America by Columbus.

Although **Leif the Lucky**, known to history as **Leif Ericson**, a hardy Norseman from Greenland, discovered and established outposts along the northern coasts of America fully 500 years before Columbus, **Christopher Columbus**, a Genoese Italian mariner, is generally accredited with the modern discovery of America, although he never set foot on the mainland.

In his boyhood Columbus had studied drawing, geography and astronomy. He had been a sailor on the Mediterranean. He made his way to Lisbon, Spain, where he became a mapmaker, under the tutelage of a mariner whose patron was Prince Henry the Navigator. Becoming convinced that the world was a sphere, he sought to prove that the shortest distance to the East Indies

was by sailing westward. He had the map of Toscanelli, and believed it was correct. Probably about 1474 he began to seek the means to furnish a fleet, seeking aid from Genoa, Portugal, Venice, France, and England. The King of Portugal sent a secret expedition westward to test the idea of Columbus, but they returned without sighting land. For ten long years Columbus endured these rebuffs, and secretly left Portugal for Spain toward the end of 1484. Queen Isabella finally gave her approval and remained his best friend during the rest of her life. She furnished fully half the money needed for the voyage. The fleet consisted of three vessels, small caravels furnished by the town of Palos. The largest, the *Santa Maria* was only sixty-three feet long and twenty feet in breadth. She had a small cabin, while the other two, the *Pinta* and the *Nina* were open boats with high bows and sterns, the better to ride the waves. Columbus commanded the *Santa Maria* as well as the fleet. The captains of the other two boats were the brothers Pinzon.

They sailed from Palos on August 3, 1492, and headed into unknown waters. It was not long before the crews wanted to turn back, threatening mutiny, as all kinds of fears and superstitions troubled them. The courage and determination of Columbus was equal to every occasion, holding the crews to their work. Early on the morning of **October 12, 1492** they sighted one of the Bahama Islands. They had found a new world. Columbus thought he had found a part of India, and so he called the natives there Indians. They have been called indians ever since. But we know they are not, they are the native Americans. We celebrate October 12 as a school holiday, Columbus Day.

3. Relate the causes and results of the Revolutionary War.

The causes of the War for Independence from Great Britain were many. The colonies had by 1763 already shown independence by quarreling with the royal governors, insisting on ever greater measures of self-government. In 1763, after the Treaty of Paris, France created New France, the province of Quebec. A line was drawn along the mountain sources of the

rivers flowing into the Atlantic, and the colonies were forbidden to plant settlements beyond that line.

In 1760 George III had become king and his attempts at arbitrary rule made the Englishmen at home fear for their liberties and finally helped drive the colonials into a rebellion.

George tried to enforce the Cromwell's old Navigation Act of 1651 to stop smuggling which was the life-blood of the colonials. To do this a mean measure was adopted. This was the issuing of Writs of Assistance. These were search warrants in blank. Any officer of the crown could write anybody's name in the blank line and proceed to search on the suspicion of there being smuggled goods in his home or store. Boston merchants resisted, engaging a lawyer James Otis to take the case to court. The case was lost, but Otis made the most eloquent speech that echoed through all the colonies. Among other things he claimed that "a man's home was his castle." When the case was lost, John Adams and the others left the crowded room ready to take up arms against the Writs of Assistance. "Then and there," wrote Adams, "the child, independence, was born."

The wrangle over taxation culminated with the Stamp Act of 1765. The colonials did not object to taxes, they knew that government costs money, that it was the duty of every citizen to pay his just share of the tax. But they objected mightily to the method of levying and collecting taxes. In Great Britain, no tax could be levied without the consent of Parliament. In the colonies, no tax could be levied without the consent of the legislatures. The colonials shouted: "Taxation without representation is tyranny!" King George and his ministers paid no attention to the legal rights of the colonials. Seeing that the Navigation Acts were not defeating smuggling, they adopted a new tax scheme, the Stamp Act, whereby every legal document, every newspaper, every bill of merchandise, almost every form of paper had to bear an official stamp. Benjamin Franklin was in London as agent for Pennsylvania and tried to prevent the

enactment of the law, but he said he might as well have tried to prevent the sun from setting.

From then on, throughout the larger cities the colonists organized a secret society, "The Sons of Liberty." They opposed the Stamp Act in every possible way, and were by no means gentle in their methods. The Stamp Act was repealed in 1766, but replaced by the even more onerous Townshend Acts of 1767. Samuel Adams, the "Father of the Revolution" started a new and effective kind of resistance, drawing up a circular letter, which was adopted by the Massachusetts legislature and sent to the other colonies. This produced united action of protest against the new acts.

General Gage arrived with four regiments as the new military governor of Massachusetts to enforce the acts. On June 17, 1774, Samuel Adams introduced a resolution to the legislature calling for a Colonial Congress to combat these oppressive measures and acts. Gage heard about the resolution and hurriedly sent a messenger to deliver a proclamation dissolving the assembly. The messenger found the door locked, and was not opened until the resolution was adopted. From then on the rest is history. The First Continental Congress met September 5, 1774. From that moment it was clear the colonies were ready to lay aside all their differences in the presence of threatened attacks upon their liberties.

4. Show the territorial growth of the United States.

After the War for Independence, the acknowledged boundaries of the United States in 1783 were:

On the north the St. Lawrence River and the Great Lakes, on the west the Mississippi River, and on the south, the northern border of the Floridas extending eastward from the mouth of the Mississippi, and of course, on the east the Atlantic Ocean.

In 1803, President Thomas Jefferson acquired the ownership of the French province of Louisiana, a vast

tract extending from the Gulf of Mexico at New Orleans west to the mountain sources of the Mississippi tributaries, more than doubling the size of the United States. He purchased the territory for \$15,000,000 from Napoleon, then at war with Britain. He had rather see it in the hands of the Americans than see it captured by the ancient enemy of France. The invention of the steamboat quickly opened up settlement of the territory.

In 1819 the Floridas were purchased from Spain, after a treaty framed by John Quincy Adams, for \$5,000,000, securing the southern border and the whole of the Atlantic seaboard. General Andrew Jackson, sent to stop Indian troubles along the Florida border with Georgia had, for all intents and purposes, already militarily secured the area.

By 1843 the northern border between Canada and the US west of the Great Lakes was fixed along the 49th parallel, and included all of the Oregon country below that line to the Pacific Ocean.

In 1835 Texas seceded from Mexico, and at once asked for admission to the Union. President Van Buren refused his assent, fearing war with Mexico. Texas then became the "Lone Star Republic." Northern opposition to annexation weakened by 1845 and the Polk administration, and Texas was admitted as a slave state.

Due to the dispute over the southern boundary of Texas, when Mexicans crossed the Rio Grande on April 23, 1846 and killed every man of a small army scouting party, war was declared with Mexico, May 13, 1846. General Zachary Taylor, immediately after the ambush of the scouting party, began to prosecute the war, and routed the Mexicans. Subsequently much of Mexico was conquered including Mexico City, which practically ended the war. With the treaty of peace of 1848, in which we annexed all of California and New Mexico, we paid Mexico

\$15,000,000 "in consideration of the extension acquired by the boundaries of the United States," as the words of the treaty put it. It was thought that the boundary dispute was now settled, but another arose over the boundary of what are now Arizona and New Mexico. This was settled by acquiring more land in 1853, and paying an additional \$10,000,000.

Such now are the boundary extents of the United States of America.

5. Tell what you can of the history of Kansas.

Kansas has had a dramatic history, even before it became the 34th state in 1861. Historians have reported that Native Americans were living in Kansas as early as 12,000 B.C. They were followed for centuries by many different tribes making the history of Kansas entwined with the first Americans.

Between 1541 and 1739 explorers from Spain and France came to the area in search of gold, knowledge, and trade with the Indians. In 1803, Kansas became a part of the United States as part of the Louisiana Purchase. Fifty-one years later it was organized as a territory, which included the eastern half of Colorado.

Conflict over slavery led to bloody battles between free-staters (anti-slavery) and pro-slavery forces. This led to the attack on Lawrence by pro-slavery forces and the widespread public outcry associated with "Bleeding Kansas." Kansas became part of the United States as a free state in 1861.

After the War for Southern Independence, expansion of the rail system to Kansas and the increasing stream of immigrants lured to the state by offers of cheap land, Native Americans were forced into smaller and smaller reservations. Ultimately their removal to Indian Territory forced the final confrontation in the late 1870s that ended the independent life of the Native Americans.

The establishment of military posts to protect the railroads and trails used by immigrants led to the establishment of small towns, which followed the posts. By 1870, the Kansas cow towns, following the westward expansion of the railroads, became well established. Such towns as Dodge City, Abilene, Caldwell, Newton, Wichita and Salina took their turns as the Queens of the Trail. To this day, the cattle industry remains an important part of the state's economy.

The introduction of Turkey Red Winter Wheat by Mennonites from Russia in 1874 was a milestone in Kansas agriculture. The wheat was ideally suited to the Kansas climate and has made Kansas one of the leading wheat-producing states in the nation.

6. Describe three of the most prominent battles of the Rebellion.

The Battle of Chancellorsville, May 2 - 3, 1863 marked the turning point for the Confederates, even though it was a victory. General Thomas "Stonewall" Jackson was killed and as General Lee said, he had lost his "right arm".

The Battle of Gettysburg, July 1-3, 1863, was the greatest battle of the world to that time. The Confederates were elated with their victories at Fredricksburg and Chancellorsville and Lee was urged to carry the war into the North and compel the granting of a peace satisfactory to the South. With an army of 70,000 men, he crossed the Potomac, marched across Maryland and into Pennsylvania. There he was overtaken by the Army of the Potomac, 90,000 strong, under General Meade at the village of Gettysburg. On the first and second days the Confederates gained ground and control. On the third day the Union troops ceased firing to let the cannons cool. Lee thought that he had "silenced" the enemy's guns, and ordered Pickett's division of infantry to charge across the valley and pierce the Union lines. As 15,000 men marched out of the forest of oaks into the open valley, the Union cannons opened fire. Great holes were torn in the ranks. As they drew nearer the Union rifles mowed them down. They closed ranks, charged the ridge, and the advance had reached a hand-to-hand fight when "retreat" was sounded,

leaving the valley strewn with dead. The point reached by that charge is marked by a monument in the form of a large bronze book on which is inscribed, "**High-water Mark of the Rebellion.**"

The Siege of Vicksburg, May 19 to July 4th, 1863, returned control of the entire Mississippi River and valley to the Union. Grant and Sherman had been repulsed in their first attempts to take that stronghold. Grant moved his army down the west bank of the river. He had his gunboats run past the forts, and marched his troops below Vicksburg, and re-crossed for an attack from the rear. He got between the Confederate armies of Generals Johnston and Pemberton, made Johnston retreat and drove Pemberton, after hard fighting, into Vicksburg. Grant then settled down (May 19) for a siege. Continually bombarding the city, he cut the city off from all supplies until the people were forced to eat the mules and rats. There was no relief and no escape. Pemberton surrendered with 32,000 prisoners (July 4), and the Union soldiers promptly shared their food with the starving men, women and children.

7. Who were the following: Morse, Whitney, Fulton, Bell, Lincoln, Penn, and Howe?

Samuel F.B. Morse -- inventor of the telegraph in 1840. After waiting for four years for the needed help, the first telegraph line in the world was built from Washington, D.C to Baltimore, and on May 24th, 1844, Professor Morse tapped out the first message "What hath God wrought?" in the Supreme Court room and it was returned from Baltimore. Those four words from the Bible announced one of the greatest inventions in the world's history.

Eli Whitney - Inventor of the cotton gin in 1793, which made raising cotton profitable in the South. Without the gin, slave holdings had been becoming unprofitable and were dying out. Before the gin, it took a day's work by a slave to pick the seeds from a pound of cotton. With the gin, a single slave could separate and clean a thousand pounds of cotton a day. This led to the expansion of cotton plantings all across the South into

Texas, releasing slaves to do field work instead of picking cottonseed from the linters, greatly prolonging the institution of slavery in the South.

Robert Fulton - the inventor of the first successful steam powered paddlewheel boat, the *Clermont*. It was powered by an engine brought from England. On March 11, 1807, it paddled up the Hudson River from New York to Albany, a distance of one hundred and fifty miles, in thirty-two hours. That was an event far greater than a victory in war, for it increased the power and advanced the civilization of the whole human race. The era of the steamboat has opened up the west, the rivers the highways of commerce. There have been over 10,000 steamboats operating on our rivers.

Alexander Graham Bell - inventor of the telephone, which made possible long-distance voice communication between people everywhere. The invention of the telephone grew out of improvements Bell had made to the telegraph. In 1875, along with his assistant Thomas A. Watson, Bell constructed instruments that transmitted recognizable voice-like sounds. Bell's first telephone patent was granted on March 7, 1876. The first telephone company, Bell Telephone Company, was founded on July 9, 1877. We have a telephone in our house in the hall. The line from our neighbor's to our house runs through the barbed wire on our fences.

Abraham Lincoln - a Representative from Illinois and 16th President of the United States; born in Hardin County, Ky., February 12, 1809. He moved with his parents to a tract on Little Pigeon Creek, Ind., in 1816 and attended a log-cabin school at short intervals and was mostly self-instructed in elementary branches. He moved with his father to Macon County, Ill. in 1830 and later to Coles County, Ill. He read the principles of law and works on surveying. During the Black Hawk War he volunteered in a company of Sangamon County Rifles organized April 21, 1832 and was elected its captain and served until May 27 following, when the company was mustered out of service. He reenlisted as a private and served until mustered

out June 16, 1832, returning to New Salem, Ill. He was unsuccessful as a candidate for the State house of representatives. He entered business as a general merchant in New Salem and was postmaster of New Salem from 1833-1836. He became deputy county surveyor from 1834-1836. Elected a member of the State house of representatives in 1834, 1836, 1838, and 1840, he declined to be a candidate for renomination. He was admitted to the bar in 1836, moved to Springfield, Ill. in 1837 and engaged in the practice of law. He was elected as a Whig to the Thirtieth Congress (March 4, 1847-March 3, 1849) but did not seek a renomination in 1848. As an unsuccessful applicant for Commissioner of the General Land Office under President Taylor, he was tendered the Governorship of Oregon Territory, but declined. Again he was an unsuccessful Whig candidate for election to the United States Senate before the legislature of 1855 and again unsuccessful Republican candidate for the United States Senate in 1858. He was elected as a Republican President of the United States in 1860 and reelected in 1864, serving from March 4, 1861, until his death by assassination. He was shot in the head by the actor John Wilkes Boothe as he attended a play in Ford's Theatre in Washington, D.C., April 14, 1865. He died the following day, April 15, 1865. He was our president and Commander-in-Chief during the War Between the States, determined that the Union should not perish.

William Penn - The founder of the colony of Pennsylvania in 1682, who had earlier bought the Jerseys as a refuge for Quakers. He was a prolific writer, and his greatest book was entitled "No Cross, No Crown", which gained him reputation even among those who hated his religion. The king of England owed Penn's estate a very large debt, fifteen thousand pounds, and by granting Penn's request for a tract of land, settled the debt. When the boundaries were finally set, the tract contained about 45,000 square miles. Penn was liberal to all white men and Indians, early deciding that in Pennsylvania there should be perfect freedom of conscience, and freedom of worship. Knowing that people loved freedom of government as well as

freedom of conscience, he decided that the people themselves should rule. In 1683 he laid out the plan of a city, which he called Philadelphia, meaning "brotherly love." All treaties and agreements that were made with the Indians and others were faithfully kept. The government that Penn established for his colony was true to his promises of freedom. Each settler as he became a landholder or taxpayer had the right to vote, electing the members of the council and the assembly. The people, in that way, made their own laws. The first laws provided for the kind treatment of the Indians, that prisoners should be treated humanely, that each child should be schooled and taught a trade, that trial by jury should be extended to all, and that death should be the penalty for only two crimes, murder and treason. His beneficent understanding of the importance of freedom to prosperity of a people presaged much of the ideals of our Constitution.

Elias Howe - Inventor of the sewing machine, was the son of a Massachusetts farmer, and worked in a factory for fifty cents a day. In his spare moments he worked on his invention, which appeared in 1845 as the first sewing machine. His patents earned for him more than two million dollars.

8. Name events connected with the following dates: 1607, 1620, 1800, 1849, and 1865?

1607 - Establishment of Jamestown colony, May 1607, in what is now Virginia. Captain John Smith had but one rule, "**He that will not work shall not eat.**"

1620 - On December 21, 1620, the landing of the Pilgrims in Plymouth harbor began the settlement of New England under William Bradford, loved and respected as a man of courage and gentleness from the time of his first election as governor in 1621 until his death in 1657. Myles Standish was the captain of the little army protecting the colony, a wise, courageous and helpful soldier, kind to the sick and needy.

1800 - In the election of 1800, Thomas Jefferson and Aaron Burr received an equal number of votes. As the Constitution provided that the person having the greatest number should be president, it became the duty of the House of Representatives, voting by states, to decide between the two. After thirty-five ballots the choice fell upon Thomas Jefferson, our third and greatest president, author of the Declaration of Independence, and the mentor of James Madison, "Father of the Constitution". It was on Jefferson's insistence that Madison championed the first 10 articles of amendment to the Constitution, "The Bill of Rights."

1849 - The Gold Rush to California began after discovery of gold at Sutter's Mill on the "American Fork" of the Sacramento river February, 1848. The great discovery was made just as California became American territory. In the first year more than 80,000 men flocked to the "diggings", risking all to the dangers from Indians, starvation, accident, mountains, deserts and plains, tropical fevers and of the sea in the voyage around Cape Horn. The rapid growth of California in people and business greatly affected the nation as a whole. At that time 300,000 people every year were streaming in from Europe to escape the tyranny and wars there.

1865 - The end of the War Between The States signified with the raising of the flag again at Fort Sumpter, April 14, 1865, the assassination of President Lincoln at Ford's Theater that day, and his death April 15, 1865. The war was over, a million troops of the Union armies marched through Washington in a last review, were mustered out, and returned to their homes to resume their work as citizens of a reunited nation.

Orthography (Time, one hour)

1. What is meant by the following: Alphabet, phonetic orthography, etymology, syllabication?

- a.) *Alphabet* - A system of characters, signs and symbols used to indicate letters or speech sounds, the basis of all writing.
- b.) *Phonetic orthography* - The standardization of the sounds of the letters of the alphabet in accordance with accepted usage. This varies from area to area within our nation, but is becoming more and more uniform as communication and travel between the sections increases.
- c.) *Etymology* -- The study of the origin and development of a word, tracing it back to its original language and to its sources in contemporary or earlier languages.
- d.) *Syllabication* - The process of dividing a word into syllables, to determine the phonemic sound, the accent, and roots, to enable the reader to better grasp the meaning and pronounce the word in speech and writing.

2. What are elementary sounds? How classified?

The elementary sounds are the *consonants* and *vowels*. A *consonant* is any speech sound produced by stopping and releasing the air stream (p, t, k, b, d, g), by stopping it at one point while it escapes at another (m, n, l, r), by forcing it through a loosely closed or vary narrow passage (f, v, s, z, sh, zh, th, H, kh, h, w, y) or a combination of these means. A *vowel* (a, e, i, o, u and sometimes y) is a voiced speech sound characterized by generalized friction of the air passing in a continuous stream through the pharynx and open mouth, but with no constriction narrow enough to produce local friction.

Phonemes include all significant differences of sound, including features of voicing, place and manner of articulation, accent, and secondary features of nasalization, glottalization, labialization, and the like. Labial sounds are mainly formed by the lips; glottal speech sounds are formed mainly by closure of the glottis; nasal sounds are formed primarily by resonance in the nasal passages.

3. What are the following, and give examples of each: Trigraph, subvocals, diphthong, cognate letters, linguals?

- a.) A *trigraph* is a combination of three letters representing one sound. An example is *eau* as in *bureau*.
- b.) A *subvocal* is beneath the voice, a silent or nearly silent sound.
- c.) A *diphthong* is a complex vowel sound made by gliding continuously from the position of one vowel to that for another within the same syllable. An example is (ou) as in *down*.
- d.) *Cognate* letters are related in derivation, for instance, *i* and *y*.
- e.) *Linguals* are sounds articulated by using the tongue, for instance the sound *th*.

4. Give four substitutes for caret 'u'.

Substitutes for caret 'u' are *oo* as in *tool*, *eau* as in *bureau*, *ew* as in *crew*.

5. Give two rules for spelling words with final 'e'. Name two exceptions under each rule.

- a.) When spelling words having a final silent *e*, drop the *e* when adding a suffix beginning with a vowel. Exceptions - *knowledgeable*, *despiteous*
- b.) If the suffix or verb ending begins with a consonant, keep the final *e*. Exceptions - *truly*, *judgment*

6. Give two uses of silent letters in spelling. Illustrate each.

Sometimes words have silent letters. These follow patterns that can be memorized.

Examples:

gn, pn, kn = n as in *gnome*, *pneumonia*, *knife*

rh, wr = r as in *rhyme*, *wrestle*

pt, ght = t as in *ptomaine*, *height*

ps, sc = s as in *psalm*, *science*

wh = h as in *whole*

7. Define the following prefixes and use in connection with a word: bi, dis, mis, pre, semi, post, non, inter, mono, super.

- a.) bi - having two elements or natures, i.e., biangular, bifurcated.
- b.) dis - meaning away or apart from, i.e., disassemble, disregard.
- c.) mis - meaning wrong, wrongly, bad, badly, i.e., misstep, misapply.
- d.) pre - meaning before, ahead of, i.e., predate, prescience.
- e.) semi - meaning not whole, partly, not fully, i.e., semicircle, semifinal.
- f.) post - meaning after, behind, i.e., postscript, postpartum.
- g.) non - meaning not, i.e., nonhuman, nonaggressive.
- h.) inter - meaning between, among, or reciprocal, i.e., intercede, interchangeable.
- i.) mono - meaning one, single, alone, i.e., monocline, monotheism.
- j.) super - meaning above, over, on top of, i.e., superabundant, superpose.

8. Mark diacritically and divide into syllables the following, and name the sign that indicates the sound: Card, ball, mercy, sir, odd, cell, rise, blood, fare, last.

[Note: due to the limitations of html, the "macron" diacritical mark for vowels, a dash over the vowel, signifying the sound of the vowel name, is shown as \bar{a} , \bar{e} , \bar{i} , \bar{o} , \bar{u}]

card = c \bar{a} rd, ball = b \bar{o} l; mercy = mur'c \bar{e} ; sir = sur; odd = \bar{a} d; cell = sel; rise = r \bar{i} s; blood = blud; fare = fer; last ~ last

9. Use the following correctly in sentences, Cite, site, sight, fane, fain, feign, vane, vain, vein, raze, raise, rays.

- a.) The *cite* which was given as a source for the quote was incorrect.
- b.) The *site* was surveyed yesterday.
- c.) My rifle has a front and a rear *sight*.
- d.) We celebrated the re-birth at *fane*.
- f.) She would *fain* stay with her husband.
- g.) Can she feign surprise and excitement?
- h.) The vanes on the windmill are broken.
- i.) It is vain to think you are better than others.
- j.) Mother has a varicose vein in her leg.

- k.) Tomorrow they will raze the old barn.
- l.) Today they started to raise a new barn.
- m.) The rays of the sun feel good in the spring.

10. Write 10 words frequently mispronounced and indicate pronunciation by use of diacritical marks and by syllabication.

- a.) anonymity == an' o nym' i ty
- b.) bestial == b̄ es' tyal
- c.) Capernaum == Ca pur' na um
- d.) datum == d̄ at' um
- e.) either == ē' ther
- f.) financier == fin' an sir'
- g.) get == get
- h.) homonym == häm' a nim
- i.) inchoate == in k̄ o' it
- j.) I couldn't think of one starting with a "j", so, Salina == Sa l̄ i' na , not Sa l̄ e' na

Geography (Time, one hour)

1. What is climate? Upon what does climate depend?

- a.) Climate is the prevailing or average weather of a place as determined by the temperature and meteorological changes over a period of years.
- b.) The climate of a place depends largely on the latitude of the place, the features of the surrounding terrain, the nearness to an ocean, or a mountain range which channels and directs wind patterns. We have seasons in our weather pattern, and changes in the length of the warming day throughout the year, due to the ecliptic of the earth's annual path around the sun. It is the daily warming and cooling of the land and oceans that is the prime generator of the world weather system.

2. How do you account for the extremes of climate in Kansas?

The extremes of climate in Kansas are predicated on the fact that the state is in the middle of the continent and the great plains, not near any mountains or oceans, exposed in winter to cold winds from the north in Canada, and in summer to heavy moisture laden winds from the Gulf of Mexico. It is the meeting of these two wind sources in fall that creates the huge wind vortices and deep moist convections which become the tornadoes that are a yearly danger in Kansas.

3. Of what use are rivers? Of what use is the ocean?

a.) Rivers have many uses: first, to drain off excess water from the land surface; secondly, to replenish the aquifers under their stream bed and underlying all of Kansas and from which we get most all of our water for irrigation and human consumption; thirdly, the river is a highway of commerce, with the steamboats reaching far into the west; and fourthly, as an area of recreation, fishing, boating and swimming.

b.) Oceans are the reservoir for the majority of heat received from the sun, for the runoff of all rivers and aquifers, the source of most all rain from the evaporation of the surface waters, and the engine which drives our weather patterns, and the moderator of coastal climates. The ocean fisheries are a major source of protein to many of the world's peoples. International commerce would not be possible except for the navigation of the oceans.

4. Describe the mountains of N.A.

The mountains of North America lay in four great chains, oriented generally north to south. They are in order from East to West, the Appalachian/Adirondack chain inland from the Atlantic coast which includes the Blue Ridge and Smokey mountains. They are an old range, worn down thru the aeons. Across the Great Planes from them, midway to the Rocky Mountains, are the Black Hills of the Dakotas, somewhat isolated from the Rockies. The Rocky Mountains, consisting of many parallel ranges, are located at the western boundary of Montana, running southeasterly from the Yukon to Arizona and

New Mexico. They form the Continental Divide, which determines the course of the rivers emptying into the Mississippi drainage, and those emptying into the Pacific Ocean. The high plateaus and basins of Utah and Nevada by and large intervene between the Rockies and the next great chain, the Sierra mountain range in California and the extension northward in Oregon and Washington State, where they are called the Cascade Range. Beyond the Sierra/Cascades across the interior valleys of California and Oregon are the Coastal Range, laying quite close to the Pacific Ocean. Westerly from the Cascades in Washington on the Pacific Coast is the Olympic range north of the Columbia River forming the Olympic peninsula. The Olympics have one of the important rainforests of the world and are a valuable source for timber, as are all the mountain ranges of North America. Most mining in North America is in the mountains, the Eastern mountains are a source of coal and iron, the Rockies and Sierras are a source of gold, silver and other metals.

5. Name and describe the following: Monrovia, Odessa, Denver, Manitoba, Hecla, Yukon, St. Helena, Juan Fernandez, Aspinwall and Orinoco.

a.) Monrovia City is the capital of the nation of Monrovia, on the Atlantic Ocean, at the mouth of the Saint Paul River. Situated on Bushrod Island and Cape Mesurado, it is the nation's chief port and commercial center. It has extensive docks. Iron ore and rubber are major exports; substantial quantities of imports are transhipped to neighboring countries. The University of Liberia (founded in 1862) is here. Monrovia was founded in 1822 by the American Colonization Society as a refuge for freed slaves from North America; it was named in honor of United States president James Monroe. Large numbers of former slaves have been resettled here.

b.) Odessa is capital of Odessa region of the Ukraine, a port on Odessa Bay of the Black Sea. The third largest Ukrainian city after Kiev and Kharkiv, Odessa is an important rail junction and transportation hub. Grain, sugar, coal, cement, metals, jute, and timber are the chief items of trade at the port of Odessa,

which is the leading Ukrainian Black Sea port. Odessa is also a naval base and the home port of a fishing and an antarctic whaling fleet. The city's industries include shipbuilding, machine building, metalworking, food processing, and the manufacture of chemicals, machine tools, clothing, and products made of wood, jute, and silk. Health resorts are located nearby. Odessa has a university (est. 1865), an opera and ballet theater (1809), a historical museum (1825), a municipal library (1830), an astronomical observatory (1871), an opera house (1883-87). Ukrainians, Russians, Jews, and Greeks predominate in Odessa's cosmopolitan population. The city is said to occupy the site of an ancient Miletian Greek colony (Odessos, Ordysos, or Ordas) that disappeared between the 3d and 4th century. In the 14th century the site, then under Lithuanian control, became a Crimean Tatar fortress and trade center called Khadzhi-Bei. In 1764 it passed to the Turks, who built a fortress (Yenu-Duniya) to protect the harbor. It was captured by the Russians in 1789.

c.) Sited on high plains at the eastern base of the Rocky Mountains, *Denver*, the capital of Colorado, has a sunny, cool, dry climate, averaging 13 inches of precipitation a year. The sun shines 300 days a year. *Denver* was established by a party of prospectors on November 22, 1858, after a gold discovery at the confluence of Cherry Creek and the South Platte River. Town founders named the dusty crossroads for James W. Denver, Governor of Kansas Territory, of which eastern Colorado was then a part. Other gold discoveries sparked a mass migration of some 100,000 in 1859-60, leading the federal government to establish Colorado Territory in 1861.

Before the great Colorado gold rush, the Rocky Mountains offered little to attract settlers, except "hairy bank notes," the beaver pelts prized by fur trappers, traders and fashionably hatted gentlemen in Eastern America and Europe. The gold rush changed that, as the rudely dispossessed Cheyenne and Arapaho soon discovered.

The Mile High City's aggressive leadership, spearheaded by William N. Byers, founding editor of the Rocky Mountain News,

and Territorial Governor John Evans, insisted that the Indians must go. After dispossessing the natives, Denverites built a network of railroads that made their town the banking, minting, supply and processing center not only for Colorado, but for neighboring states. Between 1870 when the first railroads arrived and 1890, Denver grew from 4,759 to 106,713. In a single generation, it became the second most populous city in the West, second only to San Francisco. Although founded as the main supply town for Rocky Mountain mining camps, Denver also emerged as a hub for high plains agriculture. Denver's breweries, bakeries, meat packing and other food-processing plants made it the regional agricultural center, as well as a manufacturing hub for farm and ranch equipment, barbed wire, windmills, seed, feed and harnesses.

d.) *Manitoba*, a province in south central Canada and the easternmost of Canada's three Prairie provinces, was part of the Hudson's Bay Company's holdings in North America known as Prince Rupert's Land, founded in 1670. Chief interests for its first two centuries were the fur trade, the province's major economic activity, exploration and settlement. After 1870, Prince Rupert's Land was incorporated into the Dominion of Canada. As large numbers of settlers came, agriculture and wheat growing became dominant. Manitoba province has been known as the Keystone Province ever since Canada's Governor-General Lord Dufferin described the province in 1877 as "the keystone of that mighty arch of sister provinces which spans the continent from the Atlantic to the Pacific." Manitoba lies in the geographic center of Canada. Winnipeg, Manitoba is a transportation and processing center for the agrarian west.

e.) *Mount Hecla* is one of the most active volcanic constructs in Iceland is also the site of descent into the interior in Jules Verne's "Journey to the Center of the Earth," which we have in the bookcase at the back of the room. One of my favorite poems, by Richard Hovey, that I just recently read is "The Quest of Merlin", which mentions Mount Hecla in the prelude: **"Interior of a cavern in the bowels of the earth, beneath Mount Hecla. Huge rock-fragments, amid which twists**

tortuously a great root of the tree Yggdrasil. A flickering flame, by the light of which are seen the NORNS, colossal but shadowy shapes, about a gigantic but indistinct Loom. Dull, heavy sounds, out of which arises a strange music, which resolves itself continually into imperfect harmonies, which leave the heart in unrest. A sense of striving and struggle beats through the music."

f.) The *Yukon* is Alaska's largest river. It originates in Canada in the Yukon Basin of the Northwest Territory and flows 2,000 miles west into the Bering Sea. From the third week in May when the ice breaks up until mid-October when it re-freezes, it is a summer waterway. After it freezes, it is a winter highway. About 200 riverboats and steamers carry freight during the summer months. I have heard that gold has been discovered along the Yukon.

g.) *St. Helena* is an island in the Atlantic about mid-way between South America and Africa. It was uninhabited when first discovered by the Portuguese in 1502. The island was garrisoned by the British during the 17th century. It became famous as the place of Napoleon Bonaparte's exile, from 1815 until his death in 1821. It is located at 15° 56' South Latitude, 5° 42' West Longitude.

h.) The *Juan Fernandez Islands*, (33° 50' S, 80° 00' W) have developed in isolation, about 400 miles west of Santiago in Chile, on two small islands of volcanic origin, Robinson Crusoe Island and Santa Clara Island. The most ancient of these islands, Robinson Crusoe Island, thought to be some 4 million years old, harbours plant communities including survivors of many ancient plant groups that were once much more widespread in the southern hemisphere. The first human occupation of the islands was in 1574 when the Spanish explorer Juan Fernandez discovered the islands.

i.) *Aspinwall* is a town in Georgia. It is in the area where the Seminole/Muskogee Indians lived.

j.) The *Orinoco River* in Venezuela is one of South America's longest rivers, extending 1,590 mi. Its source is in the Guiana Highlands, on the slopes of the Sierra Parima, in extreme southeastern Venezuela, on the border of Brazil. It flows northwest to a point near La Esmeralda, where it divides. One arm, the Casiquiare River, goes south and after a course of 180 mi enters the Rio Negro, a tributary of the Amazon River. The main branch continues northwest to the town of San Fernando de Atabapo and, flowing generally north, forms the border between Venezuela and Colombia. After passing over the Maipures and Atures Rapids it meets the Apure River. The Orinoco then turns northeast and traverses the plains of Venezuela before emptying into the Atlantic Ocean. The Orinoco averages 4 mi in width. The delta of the river begins 120 mi from the Atlantic. The Orinoco is navigable for oceangoing ships for 260 miles, from the mouth to the city of Ciudad Bolivar. It is navigable for smaller craft for a distance of 1,000 miles. The Orinoco was sighted in 1498 by Christopher Columbus and was first explored by Europeans (1530-1531) to the confluence with the Meta River. The German naturalist Alexander von Humboldt explored the upper reaches in 1799.

6. Name and locate the principal trade centers of the U.S.

The principal trade centers of the United States are *New York, New York*, located at the mouth of the Hudson River; *Boston, Massachusetts*, located in Boston Harbor; *Chicago, Illinois*, located at the south end of Lake Michigan; *Philadelphia, Pennsylvania*, located on the reaches of Delaware Bay; *Baltimore, Maryland*, located on the reaches of Chesapeake Bay; *New Orleans, Louisiana*, located between Lake Pontchartrain and the Mississippi River inland from the Gulf of Mexico; *St. Louis, Missouri*, located at the confluence of the Missouri River and the Mississippi; *Kansas City, Missouri*, located on the Missouri River at the Kansas River confluence, also being a great rail hub; *Denver, Colorado*, situated at the eastern slope of the Rockies as noted above; *Los Angeles, California*, in southern California at Los Angeles Harbor; *San Francisco* in the north of California at San Francisco Bay; and *Seattle, Washington*, located on east

side of Puget Sound in Washington State, now becoming an important trade center in addition to its primary lumber industry and naval shipyards.

7. Name all the republics of Europe and give capital of each.

France with its capital at Paris, and Switzerland with its capital at Bern are the only republics in Europe. There are no other republics in Europe as we know a republic to be, all the other nations are constitutional monarchies, or principalities. The major monarchies are Great Britain, London; Germany, Berlin; Russia, St. Petersburg; Ukraine, Kiev; Austria/Hungary, Vienna; Italy, Rome; Spain, Seville; Portugal, Lisbon; Belgium, Brussels; Holland, Amsterdam; Denmark, Copenhagen; Norway, Oslo; and Sweden, Stockholm.

8. Why is the Atlantic Coast colder than the Pacific in the same latitude?

The Atlantic coast is colder because the southward flow of the Japanese current prevents the majority of cold arctic air from sinking south along the Pacific coast, until east of the Rocky Mountains, sweeping thence across the northern plains, sinking to lower latitudes bringing freezing weather south as far as Florida.

9. Describe the process by which the water of the ocean returns to the sources of rivers.

As the sun heats the ocean waters the evaporate rises into the prevailing wind currents which flow generally from west to east. On reaching mountainous areas the wind currents rise and are cooled, condensing the evaporate into rain, hail, or snow, which then returns to earth, the excess which is not absorbed becoming run-off and forming rivulets, streams, then rivers, returning to the sea to repeat the process over again. Eventually, even the water which is absorbed in the earth also returns to the sea, as in our Colorado/Kansan aquifer, although that may take many thousands of years.

10. Describe the movements of the earth. Give inclination of the earth.

Today we know that the earth is involved in five motions, *Rotation, Revolution, Precession, Motion around the galactic nucleus, and Motion of the galaxy.* The rotation or spinning motion of a planet about an axis is the most basic of the five planetary motions. The earth rotates about its axis once every 24 hours, producing changes in what portion of the Earth is illuminated by the Sun, creating our day and night. The term "revolution" refers to the orbital motion of the earth as it travels an elliptical path around the sun. The earth's period of revolution, i.e., the time to complete a revolution, is 365.25 days. As the earth's axis is inclined 23.4 degrees relative to the orbital plane, this produces our seasons. The Earth's axis is "wobbling", meaning that the axis changes its orientation with respect to celestial objects. This wobbling motion is referred to as "precession". Precession is similar to the wobbling motion of a top as it spins. The earth's period of precession is about 26,000 years. As we look out into the nighttime sky we cannot help but ponder the vastness of space and the innumerable stars that fill it. Our Sun is one of 100 billion stars that are gravitationally bound and make up the *Milky Way Galaxy.* Because we are a part of the galaxy, it is difficult for us to determine its shape and size and our location in it. However, based on the best available information, the Milk Way is a spiral galaxy similar in structure to its nearest neighbor, the *Andromeda galaxy.* Our Sun is located in the flattened disk approximately two-thirds of the way from the central bulge in a spiral arm. Just as the planets orbit the Sun, the Sun orbits around the galactic nucleus. The velocity of the Sun and the planets around the galactic nucleus is consistent with the laws of Kepler and Newton. Astronomers calculate that this period of revolution around the galaxy center is 240,000,000 years. The suspected motion of the galaxy through space has not yet been determined.

Biology (Time, 45 minutes)

1. Where are the saliva, gastric juice, and bile secreted? What is the use of each in digestion?

a.) *Saliva* is secreted in the mouth by the salivary glands. Saliva is a somewhat alkaline fluid that moistens the mouth, softens food, and aids in digestion. The submaxillary glands are located around the mouth under the lower jaw, the sublingual glands are located beneath the tongue, and the parotid glands are found in front of each ear. The buccal glands, in the cheeks near the front of the mouth, also secrete saliva.

b.) *Gastric juice* is a thin, strongly acidic (pH varying from 1 to 3), almost colorless liquid secreted by the glands in the lining of the stomach. Its essential constituents are the digestive enzymes pepsin and rennin, hydrochloric acid, and mucus. Pepsin converts proteins into simpler, more easily absorbed substances; it is aided in this by hydrochloric acid, which provides the acid environment in which pepsin is most effective. Rennin aids the digestion of milk proteins. Mucus secreted by the gastric glands helps protect the stomach lining from the action of gastric juice. Gastric secretion is stimulated by a number of hormones and chemical substances, by the presence of food in the stomach, and by a number of psychological factors, such as the smell of a favorite food.

c.) *Bile* is a yellowish-brown or green fluid secreted by the liver in the bile duct. This liquid carries away waste from the processes of the liver and helps in the digestive process.

2. How does nutrition reach the circulation?

Nutrients reach the circulation by absorption thru the intestinal walls. The main purpose of the intestines is to take the partially digested food from the stomach and convert it into energy. The small intestine is about 20 feet long. The small intestine is divided into three sections, the duodenum, the jejunum and ileum. The small intestinal glands secrete intestinal juices that help with the digestive process. The liver dumps bile into the small intestine through the bile duct. The pancreas

secretes pancreatic enzymes into the small intestine. Bile and the pancreatic enzymes break down fats, proteins and carbohydrates. This partially digested mixture empties into the large intestine through an opening the ileocecal valve. The large intestine is about 4 1/2 feet long. The large intestine is divided into six parts. They are the cecum, ascending colon, transverse colon, descending colon, sigmoid colon, and the rectum. The large intestines main purpose is to further digest the food, releasing nutrients into the blood and to absorb fluids.

3. What is the function of the liver? Of the kidneys?

a.) The *liver* is the center for the storage of vitamins and nutrients which were dissolved and digested in the intestines. The nutrients are carried to the liver by two large veins. Blood passes through the liver at a rate of about 1 1/2 quarts per minute. At any given time the liver contains about 10% of all the blood in your body. The liver is divided into two main parts called lobes. The liver is protected by the bottom part of the ribs on the right side of your chest and the liver weighs between 3 and 4 pounds. The liver also works to make bile. Bile is used to break down fats in the small intestine. The bile is stored in the gall bladder until it is needed to help digest the food you eat. If you eat a real fatty food your body will need more bile to help digest those fats than it would need in comparison to a salad or some fruit.

b.) The *kidneys* are bean-shaped organs, each about the size of a fist. They are located near the middle of the lower back, just below the rib cage. The kidneys are sophisticated trash collectors. Every day, the kidneys process about 200 quarts of blood to sift out about 2 quarts of waste products and extra water. The waste and extra water become urine, which flows to the bladder through tubes called ureters. The bladder stores urine until you go to the bathroom. The wastes in the blood come from the normal breakdown of active muscle and from the food we eat. Our body uses the food for energy and self-repair. After our body has taken what it needs from the food, waste is sent to the blood. If our kidneys did not remove these wastes, the wastes would build up in the blood and damage our body.

4. How would you stop the flow of blood from an artery in the case of laceration?

If the laceration is in an arm or a leg, I would apply a tourniquet around the limb between the laceration and the heart, tightening it until the flow was stopped, loosening the tourniquet every 10 minutes to let blood pass to nourish the cells beyond the tourniquet, at the same time applying pressure over the laceration with a cloth pad to staunch the loss of blood. A laceration of the arteries of the neck obviously cannot be tourniqueted, so the only thing that can be done is to apply pressure with a cloth pad. Loss of blood and oxygen to the brain can quickly lead to death.

5. Give some general directions that you think would be beneficial to preserve the human body in a state of health.

- a.) Regular meals of a variety of foods, both animal and vegetable. I like a lot of vegetables and fruits.
- b.) Regular Exercise, which I get a lot of on the farm every day. Regular exercise keeps the muscles, heart and lungs in good tone.
- c.) Regular Rest of from 7 to 8 hours sleep a night
- d.) Regular personal hygiene, brushing teeth, washing skin and hair with good soap, etc. everyday. We usually get one good bath a week at home, heating well water on the stove, but in summer we swim in the river every day, and wash there.
- e.) Regular times of ease, prayer and meditation each day also help me to think about and solve the problems of the day. God sometimes gives me answers to problems that I can't solve by myself, and teaches me to ask for help with things I don't know, from my parents and my teacher, and others that do know. It is great fun learning things that I don't know!