Reading Context:

There are times when we are reading that a word is foreign to us. The easiest way to decipher the meaning of that word is to read the rest of the sentence and figure out what the context may be.

Example:

The woman was hesitant about skydiving due to all the risks that are associated with it.

If someone has not seen the word *hesitant* before they may need to read around the sentence in order to figure out its meaning. First you look at the subject: we have a woman that has notions of skydiving. We then must figure out what she wishes to do with skydiving. Notice that she is thinking about the risks that come with skydiving. Risks generally are associated with fear or concern. Therefore if the woman is thinking about skydiving, but is also considering the risks that are related to it she is being cautious.

Example 2:

The corrugated surface made it uneasy to keep any object level.

Corrugated is not a word that is seen often, but using our context we can figure out its definition. We can see that corrugated is referring to a surface so therefore it must be related to texture or evenness. The fact that it was uneasy to keep an object level shows that the surface must not be flat. A corrugated surface is a surface that is uneven.

Sample Questions
Please choose a word similar to the underlined word

1. The intoxicating aroma filled the air and made everyone who was present smile.

    A. Drunk
    B. Stimulating
    C. Toxic
    D. Infuriating

2. The cantankerous man would always being arguments and fights for no reason.

    A. Happy
    B. Wary
    C. Irritable
    D. Melancholy

Use of Tenses:

Describing an action in the English language must adhere to the time frame in which the action is set to occur or has occurred. A verb is the action word in a sentence. In order to describe events happening in the past, present, or future we must choose a verb tense. The use of the correct verb tense signifies when an event has happened.

Example:

The man had been invited to the party, but decided not to attend; had he attended he would have been treated to quite a feast.

The sentence we are given shows that someone decided to invite a man to a party. This sentence shows that the man had taken the time to make his decision and decided not to attend. We can determine what stage this event is in based on the words that are used in the sentence. The man had *been* invited: been is in the past. Since we are finding out after he has made his decision, the choice is now in the past. All these events have already been determined by the man.

Example 2:

Jimmy had to call Maggie to see if she might want to go to a Red Sox game later that week.

We, once again, have to look at the indications of *when* the sentence is occurring. We look at the cues "had to," "might," and "later that week" to see that the sentence is going to be happening in the future. Therefore the tense would have to be a present tense. It would not be "Jimmy had to calling Maggie" or "Jimmy had to called Maggie."

Sample Questions
Choose the right tense of the word

3. Colleen _____ (want) to go to the supermarket, but didn't have time.

   A. Want B. Wanted C. Wants D. Wanting

4. Ralph _____ (hate) sharing with other children.

   A. Hated B. Hates C. Hating D. Hate

Reading for Information

The medical field requires careful reading whether it is charts or graphs or patient history. One skill that must be developed is reading for detail and reading for the information given. The following paragraph is going to detail a young woman's trip to a department store. Read the paragraph and the questions ***carefully*** and give the answer that best supports it.

Nathalie was going to Express in the Pheasant Lane Mall. She was in need of 5 new shirts, 3 pairs of pants, and 4 new skirts. She had just received her biweekly paycheck from her job at State Street Financial Services in the amount of $1,260. She needed to save $500 total for her credit card and phone bills.

She entered the store and was greeted by a staff member who informed her that they were running a sale that for every 2 items that she purchases she would get one free. Skirts cost $20, pants cost $45, and shirts were $20. After hearing about the bargain, Nathalie wanted to get an extra skirt to take full advantage of the deal. She finished her purchases and had most of her money left over.

5. How much money did Nathalie spend total (not including the money that she is saving for her bills)?
   A. $250
   B. $520
   C. $1,260
   D. Not enough information

6. How much money did Nathalie have left over after her purchases (not including the money she is saving for her bills)?
   A. $600
   B. $510
   C. $250
   C. $500

7. If Nathalie took full advantage of the deals how many articles of clothing did she end up with including the buy two get one free deal?
   A. 5 new shirts, 3 pairs of pants, and 4 new skirts
   B. 6 new shirts, 3 pairs of pants, and 6 new skirts
   C. 5 new shirts, 6 pairs of pants, and 4 new skirts
   D. 6 new shirts, 6 pairs of pants, and 6 new skirts

8. If Nathalie's check was bi-weekly, how much did she earn per week?
   A. $1,260
   B. $600
   C. $630
   D. $500

Punctuation

Punctuation is the key to writing and speech in all languages; it gives us pause, gives us the opportunity to breathe, and separates thoughts to make them more comprehensive. We can use it to show possession or emotion. It is what turns a normal sentence into one that stands out.

Proper punctuation is key to making a sentence understandable. The classic example is from the popular book by Lynn Truss, Eats, Shoots, & Leaves: The Zero Tolerance Approach to Punctuation. The book emphasizes how even little changes in punctuation can change the meaning of a written sentence. Truss uses a comical reference to a panda bear:

> *"A panda walks into a cafe. He orders a sandwich, eats it, then draws a gun and fires two shots in the air.*
>
> *"Why?" asks the confused waiter, as the panda makes towards the exit. The panda produces a badly punctuated wildlife annual and tosses it over his shoulder.*
>
> *"I'm a panda," he says, at the door. "Look it up."*
>
> *The waiter turns to the relevant entry and, sure enough, finds an explanation.*
>
> *Panda. Large black-and-white bear-like mammal, native to China. Eats, shoots and leaves."*

In the last sentence, the writer adds an additional comma next to the word "Eats." It changes the meaning of the sentence from a panda eating shoots and leaves as a source of food to a panda that, as comical as it sounds, goes into restaurants, eats, shoots a gun, and exits the restaurant. That one additional comma changed what the whole sentence means. In writing, punctuation can enhance or detract from the given meaning primarily based on the way the author utilizes it.

Example:

Bobs dog runs all around the park he can never seem to keep up.

Correct:

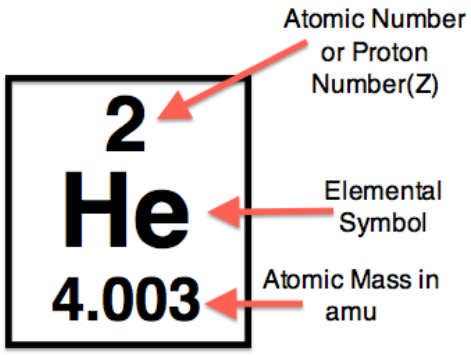
Bob's dog runs all around the park; he can never seem to keep up.

Bob is the owner of the dog. That is why we must place the "'s" after his name. It shows possession of a noun. There are also two separate thoughts within the sentence. It does not have the right flow unless it is broken up. A semicolon allows for a short break in the thought that continues on with a separate portion.

Sample (Choose the Correctly Punctuated Sentence):

9. A. Michaels friend's house is right in the middle of town.
   B. Michael's friend's house is right in the middle of town.
   C. Michaels friends house is right in the middle of town.
   D. Michael's friends house is right in the middle of town.

Science



Parts of an Atomic Symbol in the Periodic Table:

1. *The Atomic Number* – The atomic number represents the number of protons and neutrons within the nucleus of a cell. It is generally located in the top.

2. *The Elemental Symbol* – The elemental symbol is the symbol that represents an element. It is one to two letters.

3. *Atomic Mass* – The total number of protons, neutrons, and electrons within an element. It is generally found at the bottom.

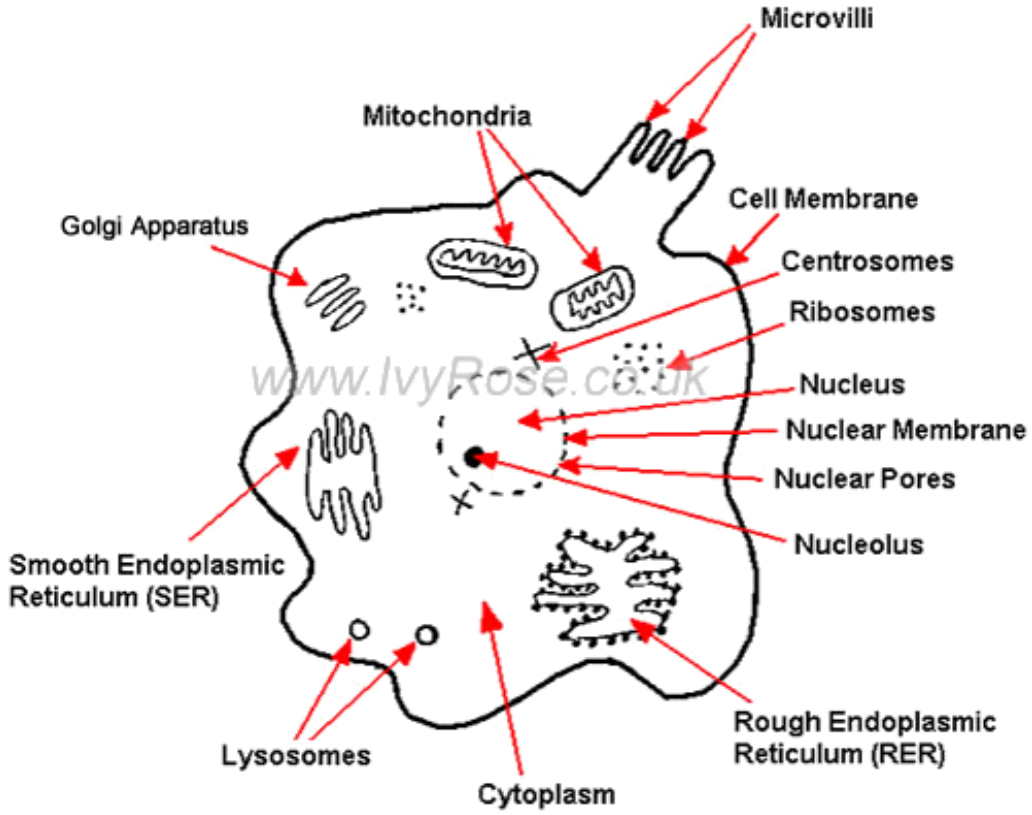
Overview of Cells:
Cells are the basic living unit of the human body. These units are formed from chemicals and structures and are found in all living things. Some organisms are composed of only a single cell. Practically all of the cells in our body are microscopic in size, ranging from about one third to one thirteenth the size of the dot on the exclamation point! What is amazing is that certain nerve cells can be two feet in length or longer! When we refer to the cells as the "building blocks" of our bodies, we immediately think of brick-shaped objects. However, cells can be flat, round, threadlike, or irregularly shaped. While the approximately 7.5 trillion cells found in the human body vary in size, shape and purpose, they normally work together to allow for proper functioning of processes necessary for life, such as digestion, respiration, reproduction, movement, and production of heat and energy.

Cell Structure:
Even though cells in our bodies can vary greatly in size, shape, and function, they share certain common traits. As previously stated, we consider cells the basic building blocks of the human body. However, to better understand them, let's look at cells as miniature cities with a variety of systems, structures, and organizations that are necessary for proper function. Almost all human cells possess a nucleus, (except mature red blood cells) organelles, cytoplasm, and a cell membrane. Each component of a cell has a special purpose.

Cell Membrane:
The cell membrane is the outside covering of the cell. We can think of the cell membrane as the city limits. This is a defined boundary that possesses a definite shape and actually holds the cell contents together. The cell membrane acts as a protective covering. For a city to thrive, people and materials must be able to travel in and out of the city. A cell membrane is responsible for allowing materials is responsible for allowing materials in and out of the cell. What is interesting is that the membrane allows only certain things in and out of the cell. Because it chooses what may pass through, we call it a selectively permeable (or semi-permeable) membrane. Each cell, regardless of its shape or function, must have a cell membrane in order to maintain its integrity and survive.

Cytoplasm: Cytoplasm carries on the work of the cell. It contains water, food, particles and pigment
Nucleus: The nucleus is located inside of the cell and is the controlling structure of the cell.
Nucleolus: Another component of the cell, located within the nucleus.

Chromosomes:
Chromosomes are located inside of the nucleus. They are small, thread-like structures, and transmit genetic information. There are usually 46 chromosomes in the nucleus. (except the egg and the sperm, each of which contains only half a set)
DNA: DNA, (deoxyribonucleic acid), is a molecule that is stored in the chromosomes. DNA contains thousands of genes, which carry the code for an individual's genetic makeup.



Systems of the Body

The central nervous system

Consists of the brain and spinal cord. The richness of connections here accounts for human intellect and talents.

- Brain - is the main switch of wired network of our body. The super computer (brain) has uniqueness of mind and memory. It can receive impulses, interpret impulses, coordinate impulses and send impulses for actions.
- Spinal Cord – is otherwise called the tail of the brain. It descends from the base of the brain through an opening in the base of the skull into the vertebral column. It connects the brain and body through spinal nerves.

1. Blood

Blood is the circulatory fluid of humans. It is the body's main transport network. Blood has been called the "river of life." The heart pumps blood around the body The blood remains within a closed cardiovascular system, which comprises, the heart, blood vessels and blood itself. Arteries, which have thick muscular walls, carry blood away from the heart to all parts of the body and veins, which have thin floppy walls which return blood to the heart.

The Functions of Blood

1. Blood carries digested food, oxygen and hormones to parts of the body that need it.
2. The carrying away of waste products and carbon dioxide.
3. Defending the body from infection.
4. Control and regulation.

The sequence of blood flow from the heart is: Heart – Artery – Small Artery – Capillaries

Blood can be divided into four major components.

1. **Red blood cells (erythrocytes):** Their function is to carry oxygen from the lungs to the tissues and cells of the body that need it for respiration. Red blood cells are red because they are full of a protein called hemoglobin. This is bound to oxygen from the lungs and becomes a bright red color. No one has blue blood, not even the Royal Family.
2. **White blood cells (leukocytes):** These are part of the immune system and are mainly involved in combating infection
3. **Platelets (thrombocytes):** These are microscopic cell fragments that help the blood to clot if the skin is cut.
4. **Plasma:** This is the liquid part of the blood and contains proteins and other chemicals. It is 91% water and is pale stray color. Plasma helps maintain blood pressure, distributes body heat and maintains the pH level in the body.

***Amazing Fact:** The human body contains 5.5 liters of blood and in one day blood is transported around the body approximately 1,000 times.

2. Skeletal System

The skeletal system (bones and joints), working interdependently with the skeletal muscle system (voluntary or striated muscles), provides basic functions that are essential to life:

- Protection: protects the brain and internal organs
- Support: maintains upright posture
- Blood cell information: *hematopoiesis*
- Mineral homeostasis
- Storage: stores fat and minerals
- Leverage: A lever is a simple machine that magnifies speed of movement or force. The levers are mainly the long bones of the body and the axes (fulcrum) are the joints where the bones meet.

3. The Heart

What is the Heart and Circulatory System?

The circulatory system is composed of the heart and blood vessels, including arteries, veins, and capillaries. Our bodies actually have two circulatory systems: The **pulmonary circulation** is a short loop from the heart to the lungs and back again, and the **systemic circulation** (the system we usually think of as our circulatory system) sends blood from the heart to all the other parts of our bodies and back again.

The heart is the key organ in the circulatory system. As a hollow, muscular pump, its main function is to propel blood throughout the body. It usually beats from 60 to 100 times per minute, but can go much faster when necessary. It beats about 100,000 times per day, more than 30 million times per year, and about 2.5 billion times in a 70 year lifetime.

The heart gets messages from the body that tell it when to pump more or less blood depending on a individual's needs. When we are sleeping, it pumps just enough to provide for the lower amounts of oxygen needed by our bodies at rest. When we're exercising or frightened, the heart pumps faster to increase the delivery of oxygen.

The heart has four chambers that are enclosed by thick, muscular walls. It lies between the lungs and just to the left of the middle of the chest cavity. The bottom part of the heart is divided into two chambers called the **right** and **left ventricles**, which pump blood out of the heart. A wall called the **interventricular septum** divides the ventricles.

The upper part of the heart is made up of the other two chambers of the heart, called the **right** and **left atria**. The right and left atria receive the blood entering the heart. A wall

called the **interatrial septum** divides the right and left atria, which are separated from the ventricles by the **atrioventricular valves**. The **tricuspid valve** separates the right atrium from the right ventricle, and the **mitral valve** separates the left atrium and the left ventricle.

Two other cardiac valves separate the ventricles and the large blood vessels that carry blood leaving the heart. These valves are called the **pulmonic valve**, which separates the right ventricle from the **pulmonary artery** leading to the lungs, and the **aortic valve**, which separates the left ventricle from the **aorta**, the body's largest blood vessel.

Blood vessels carrying blood away from the heart are called **arteries**. They are the thickest blood vessels, with muscular walls that contract to keep the blood moving away from the heart and through the body. In the systemic circulation, oxygen-rich blood is pumped from the heart into the aorta. This huge artery curves up and back from the left ventricle, then heads down infront of the spinal column into the abdomen. Two **coronary arteries** branch off at the beginning of the aorta and divide into a network of smaller arteries that provide oxygen and nourishment to the muscles of the heart.

Unlike the aorta, the body's other main artery, the **pulmonary artery**, carries oxygen-poor blood. From the right ventricle, the pulmonary artery divides into right and left branches, on the way to the lungs where blood picks up oxygen.

Math

Solving For Two Variables:

A. There are several different ways of solving two equations with two variables. This section will focus on only two ways:

1. *Substitution Method*
2. *Elimination Method*

B. Substitution Method

1. This method works under the assumption that you can solve for one variable (in terms of another) and plug this value into the other equation and solve.

Example:

If $2x + y = 5$ and $3x + 2y = 9$, then $x =$ ___.

a. In this problem, the 1stequation has a single 'y' so we can solve for y and get $y = 5 - 2x$. Now we can substitute this value into the 2^{nd} equation.

b. Doing so gives $3x + 2(5 - 2x) = 9$. Now we have an equation with one variable so we can solve for x. This yields: $3x + 10 - 4x = 9$ or $x = 1$.

c. The answer is 1. If the problem had wanted the y-value, you substitute $x = 1$ for one of the equations and solve for x. $2(1) + y = 5$. So $y = 3$.

C. Elimination Method

1. To use this method, you will have to "eliminate" one of the variables by adding the equations together. Sometimes you have to multiply one equation by a constant to get the same coefficient (but they must have opposite signs) so they will cancel each other out.

Example:

If $3x + 2y = 4$ and $-6x + 3y = 6$, then $y =$ ___.

a. In this equation, we can eliminate the x variable i f we multiply the first equation by 2 and add it to the second equation.

b. So multiplying the 1^{st} equation by 2 gives: $6x + 4y = 8$. Now we can add the two equations together and get $7y = 14$ or $y = 2$.

c. The answer is 2. If the question had asked for the x value we could plug y=2 into one of the equations and solve for x. 3x + 2(2) = 4 or 3x = 0 or x = 0.

D. Sometimes the problem can be solved much easier if the 2nd equation is a multiple of the first.

Example:

If 2x - 3y = 4 then 6x - 9y = _____

a. This problem is a little different from the ones above, but is much easier. If you notice the 2nd equation is 3 times the 1st. That means the answer is 3 x 4 or 12.

Should you get stuck answering a question, try replacing some of the variables with the numbers given in the answers. That is an efficient way in both time and effort to solve the equation.

Sample:

10. 3x + 4 = 16

A. 2
B. 4
C. 6
D. 1

11. 6x – 4y = 12

A. x = 4, y = 3
B. x = 2, y = 5
C. x = 3, y = 4
D. x = 0, y = 4

12. 7a + 3b = 37

A. a= 6, b = 1
B. a=9, b = 0
C. a=4, b = 3
D. a = 3, b=4

Answer Sheet

Reading Context
1. B. Stimulating
2. C. Irritable

Use of Tenses
3. B. Wanted
4. B. Hates

Reading for Information
5. A. $250
6. B. $510
7. B. 6 new shirts, 3 pairs of pants, 6 new skirts
8. C. $630

Punctuation
9. B. Michael's friend's house is right in the middle of town.

Math
10. B. 4
11. A. x=4, y=3
12. C. a=4, b=3