Dear Students:

I am so excited to have you in Honors Human Physiology this coming year! If you have an interest in pursuing a career in the medical field, will be working towards a science major in college, or just want to gain a better understanding how the human body is constructed (anatomy) or how those structures function to keep you alive (physiology), you have chosen the right class.

This a very rigorous, college preparatory class. You will need to work hard every day! The hard work will pay off academically and also help you be an advocate for your own health and wellbeing. I will always be available for extra help, so don't worry!

I am looking forward to a wonderful summer and then meeting you at the start of the new school year! Please do the summer assignments, how difficult it will be to start off our wonderful new year on a bad note! I will be checking my email weekly during the summer if you have any questions. Here is my information: I will check my email weekly.

Lori Crampton (Sass)  Remind:  586-447-7570 @mrscramp  Sign up after June 29th
Room N112
Phone:  586-648-2525 voicemail box:  7313
Email:  lcrampton@abs.misd.net
Website:  http://www.abhscramptonia.weebly.com

In order to get you thinking about the human body this summer, you will have a few summer assignments:

1. You will read the following book, *Stiff: The Curious Lives of Human Cadavers*, by Mary Roach. It is available for about $10.00 new on Amazon and at Barnes and Nobel. Check local libraries as well. After reading the book you will need to write a short paper. The paper should be between 2-4 pages, 12 point font, and 1 inch margins. You will also need to include a separate title page. This paper must be your own work. Internal examples and citations should be included to complement your paper. I am not looking for a summary of the book. I am interested in your thought and opinions. Each chapter brings a new look at
cadavers, so give examples of which chapters you liked and why, which did you hate and why, what are your opinions on the book's topic? How was this "creepy" topic handled by the author? Did it change your ideas of what donating your body to science means? What do you think you will do? THIS PAPER IS DUE ON THE FIRST FULL DAY OF SCHOOL, September 10, 2015.

2. Assignment number 2 is a review assignment. We will not be spending time in class going over basic chemistry or cellular biology. The attached review can be completed by using internet sources, but be sure to check several sites for accuracy. THIS ASSIGNMENT WILL ALSO BE DUE ON THE FIRST FULL DAY OF SCHOOL. THERE WILL BE A QUIZ OVER THIS INFORMATION ON THE FIRST FULL DAY OF SCHOOL.

Summer Assignment Review  DO ON SEPARATE SHEET OF PAPER! Remember you have already learned the following! THIS IS NOT TO BE TYPED!!!! IT MUST BE IN YOUR HANDWRITING!

Biochemistry:
1. What is the difference between matter and energy?
2. What is the difference between kinetic and potential energy?
3. What are four forms of energy? Give an example of each.
4. Define and use diagrams for the following terms: atom, proton, neutron, electron, ion, chemical bonds (ionic, covalent, and hydrogen)
5. What is a molecule? What "holds" atoms together in molecules?
6. How are electrons important in chemical bonds? What role do they play?
7. Define and give examples of the following types of chemical reactions: synthesis, decomposition, exchange (displacement), oxidation-reduction
8. What is the difference between anabolic and catabolic activities in cells?
9. What is an ion? How are they formed?
10. What is an acid, base, and buffer?
11. What are neutral, acidic, alkaline pH levels?
12. What is the pH of blood?
13. Make a chart to compare and contrast the chemical structures, properties, functions, and examples of the cellular macromolecules (proteins, lipids, carbohydrates, and nucleic acids). You must list at least 3 properties, 3 functions, and 2 examples for each!
14. What are the 4 shapes of functional proteins - include drawings.
15. Define enzyme and list 5 important characteristics or functions of enzymes.
16. What are the 2 types of nucleic acids? Diagram each type.
17. Define: replication, protein synthesis, transcription, translation, tRNA, rRNA, mRNA, exons, introns, DNA polymerase, RNA polymerase. Draw or print a diagram for the underlined words.
Biology:
1. Draw and color a detailed diagram of a typical animal cell.
2. Label on the cell drawing and on separate paper give the description and function for the following organelles: nucleus, nucleolus, ribosomes, Rough and smooth ER, mitochondria, Golgi apparatus or body, lysosomes, peroxisomes, cytoskeleton (microtubules, microfilaments), centrioles, cytoplasm or cytosol
3. What is the plasma membrane? Describe its structure and function (phospholipid bilayer).
4. Draw and label a detailed picture of the plasma membrane.
5. What is the difference between hydrophobic and hydrophilic?
6. Define: electrochemical gradient and concentration gradient.
7. State several factors that affect membrane permeability.
9. What is the difference between phagocytosis and pinocytosis?
10. What is osmosis and explain how solutions that are hypotonic, hypertonic, and isotonic affect cells?

Be thorough, I will expect you to be familiar with this information and it will enhance your understanding of how the body systems work.