**Anatomy and Physiology (A&P) Summer Work**

Welcome to Anatomy and Physiology! I am very happy that you have decided to take this course and embark upon what I hope you find an exciting and rewarding educational journey. This letter contains an outline and brief description of the summer work for A&P that is required to be completed BEFORE the next school year begins. By performing these tasks, you will take a huge step towards preparing for the upcoming year. I want you to understand that I, like you, enjoy summer break! This is not intended to be “busy work.” By completing these tasks, you will perform research and source information that we will be using throughout the year. Because there is so much information to cover during the year, I am assuming you are starting the class with a strong background in Biology and Chemistry. The summer assignments will help refresh your memory on some of these topics so we can hit the ground running when we return!

**Summer Tasks With Estimated Time Frames**

Complete the Biology Prep Activity (about 15 hours total)

You need to review material that you covered during Biology. You will review this information using CK12.org. If you are not familiar with how this website works, I am more than happy to help you get started. I would recommend that you at least log into CK12 before the end of school to make sure you are able to get into the system. Once you log in, you will join my class. I’ve created some assignments to cover major topics in Biology and Chemistry. Directions are provided on the assignment sheet for Biology.

After you go through the information in CK12, there are review questions listed on the assignment that you need to complete. Think of this as a study guide to major Biology topics. This assignment (both the online work and the review questions) is due on Friday, September 4, 2020.

Complete the Chemistry Prep Activity (about 5 hours total)

You also need to review material that you covered during Chemistry. You will also review these topics in CK12 (there are fewer Chemistry assignments than Biology assignments given to you). Directions are provided on the assignment sheet for Chemistry.

Again, after you go through the information in CK12, there are review questions listed on the assignment that you need to complete. This assignment (both the online work and the review questions) is due on Friday, September 4, 2020.

I will be available over the summer if you have questions. You can email me at [stoufang@wcps.k12.md.us](mailto:stoufang@wcps.k12.md.us) (I will check my email at least once a week). You can also join my remind group for A&P (text the code: @7e7h9h to 81010 to join). You can text me via remind and I will get back to you. Finally, you should join our google classroom for next year (6bhesqz).

I want you to enjoy your summer, so I don’t expect you to spend a huge amount of time on any of these assignments. Total, it should take you less than 20 hours (which is less than two hours a week). By putting this time in, you will end up with good, quality work and you will be very well prepared to start the year on a positive note.

Have a safe and enjoyable summer and I look forward to a great year with you!

Mrs. Stouffer

**A&P Biology Prep Activity**

There are many biology concepts that we will use during the year in A&P. These concepts are things you learned during your biology class, but it’s always helpful to review these topics again. Once school starts, I will assume that you have a solid understanding of general biology concepts. If there are topics that you are not comfortable with, it will be your responsibility to review these topics and ask for help as needed.

For the first part of the activity you will complete several activities in CK12.org. If you have not used CK12 in another class before, please stop in to see me at some point before the end of the year so I can quickly show you how it works.

To get into CK12, you need to activate your account. Go to CK12.org, click log in and then log in using google. This should automatically log you in. If that doesn’t work, feel free to create an account (I’d still use your WCPS information to make it easier). Once logged in, you need to join my class. The class code is **sobfw**. There will be 34 assignments for you to complete for both Biology and Chemistry (articles to read, short videos to watch and some quiz-type activities). None of the assignments are very long, but you are expected to do all of them. You should work through each until you know all of the information (I also recommend retaking any of the assessments until you get a 100%). The main topics that will be covered are:

1. Cell Structure and Function
2. Cell Growth and Reproduction
3. DNA Structure and Function
4. Enzymes

For each activity, you can do as much “work” as you feel you need. If there is a topic that you don’t feel comfortable with, you can also research that topic in CK12 for additional activities. Once you are finished with all of the activities, it will give me a grade for each. I will be using this as a grade for class so I recommend trying to get the best grade possible. All activities are due to me by Friday, September 4, 2020.

If you have any log in or computer issues, please contact me so we can work through the problem. If you come to me once school starts and you don’t have the assignments completed due to “technology issues” and you did not speak with me over the summer, the assignments will be put in as a zero.

Once you are finished with CK12, please answer the following questions. If there is a topic you are not sure about, look it up. Think of these questions as a note-taking sheet or study guide. Write as much information as possible for each question. Again, these questions are due by Friday, September 4, 2020.

1. What is the difference between organic and inorganic molecules?
2. What are the four main groups of macromolecules? What are their main functions?
3. What are the building blocks of DNA?
4. Proteins are made up of \_\_\_\_.
5. What is an enzyme and what does it do?
6. Define cell.
7. Describe the function of each organelle below.
   1. Lysosome
   2. Smooth ER
   3. Nucleus
   4. Riosome
   5. Vesicle
   6. Golgi Apparatus
8. What is the function of the cell membrane.
9. Describe diffusion.
10. Describe active transport.
11. Describe the differences between hypertonic, hypotonic and isotonic.
12. Describe the process of mitosis.
13. Describe the structure of DNA and RNA.
14. Describe the process of protein synthesis.
15. What is the chemical equation for cellular respiration? Why is cellular respiration important for cells?

**A&P Chemistry Prep Activity**

There are many chemistry concepts that we will use during the year in A&P. These concepts, again, are things you learned during your chemistry class, but it’s always helpful to review these topics again. Once school starts, I will assume that you have a solid understanding of general chemistry concepts. If there are topics that you are not comfortable with, it will be your responsibility to review these topics and ask for help as needed.

All of the activities are also found in CK12, just like for Biology. Once you are finished with each assignment, a grade will be submitted to me and I will count this as a grade for you in class. Once you finish the online work, answer the questions below. Again, these questions are due Friday, September 4, 2020.

**Atomic Review**

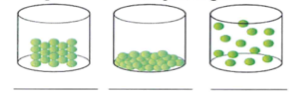
1. Remember, atoms are made up of three types of particles: protons, neutrons, and electrons. What charge does each particle have?
2. Draw an atom and label the parts.
3. The number of protons in one atom of an element determines the atom’s \_\_\_.
4. The atomic number gives the “identity” of an element as well as its location on the Periodic Table. What other information can we find out about an atom using the Periodic Table? (List at least 3 things)
5. Isotopes are atoms of the same element that differ in the number of \_\_\_\_.
6. Mass number of an atom is determined by the number of \_\_\_\_ plus the number of \_\_\_\_.

Fill in the following table. You will need to reference a periodic table.

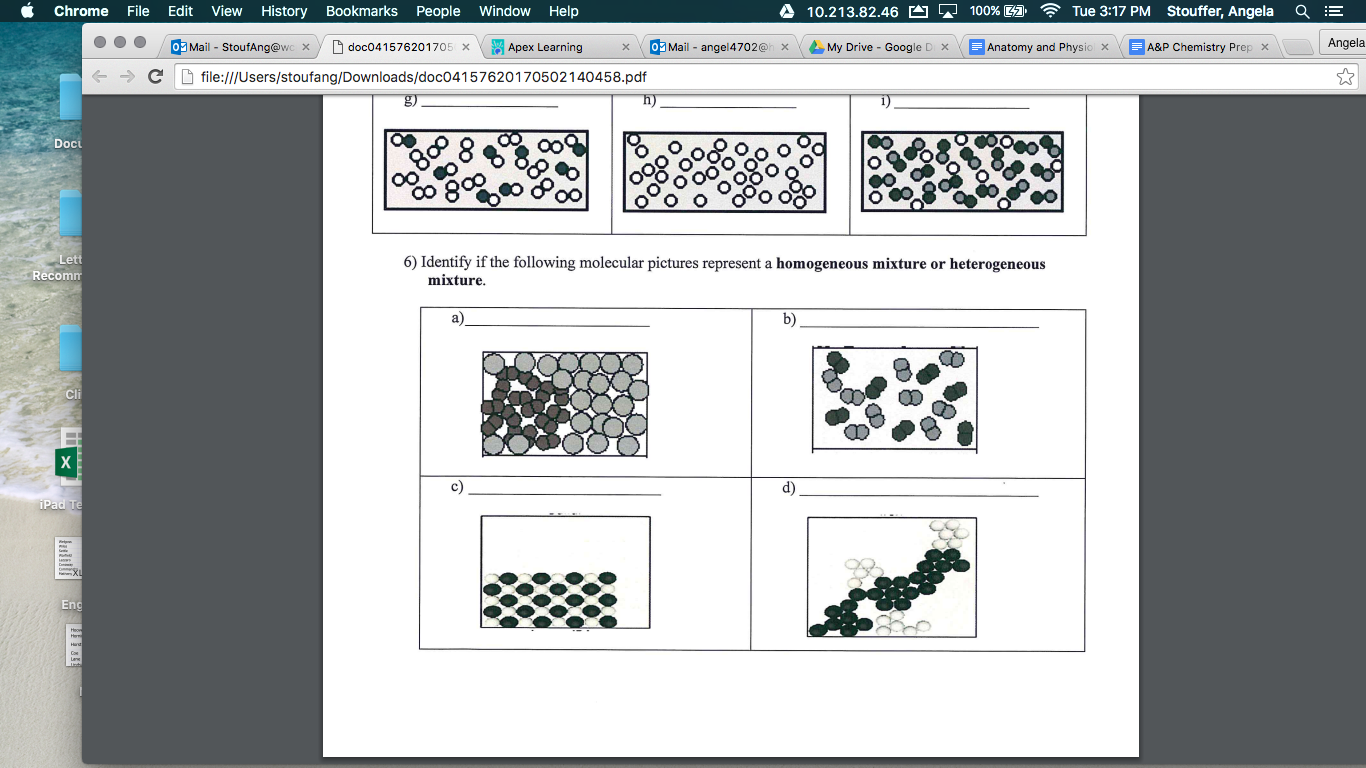
|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Isotope** | **Symbol** | **Atomic Number** | **Mass Number** | **Number of Protons** | **Number of Electrons** | **Number of Neutrons** |
| Silver-104 |  |  |  |  |  |  |
|  |  |  | 80 | 35 |  |  |
| Antimony-122 |  |  |  |  |  |  |
|  |  | 27 | 60 |  |  |  |
|  |  |  |  | 46 | 44 | 60 |
|  |  |  | 56 | 25 | 19 |  |
|  |  |  | 19 | 9 | 10 |  |
|  |  |  | 79 | 34 | 36 |  |

**Matter and Measurement**

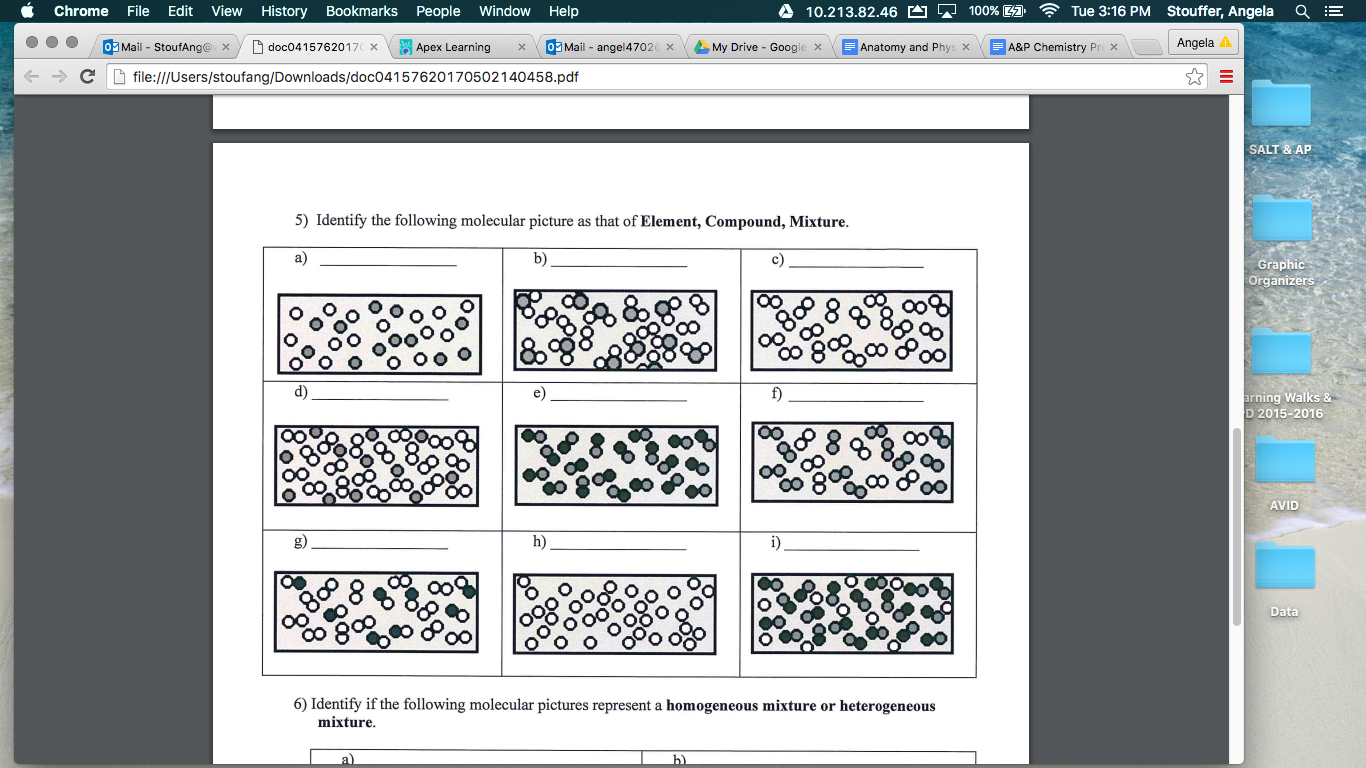
1. Label the following pictures as solid, liquid, or gas.



1. Classify each as a physical or chemical property:
   1. Carbon reacts with oxygen to form oxides.
   2. Carbon is virtually insoluble in water.
   3. Water boils.
   4. Leaves change color in autumn.
   5. Aspirin dissolving in your mouth or stomach.
   6. Bleaching clothes.
   7. Magnesium is a solid at 25°C, at 1 atm.
   8. Cooking beans.
   9. Carbon exists in several forms (diamond, graphite).
   10. Crushing a dry leaf in your hand.
2. Classify each of the following substances as: an element, a compound, a solution, or a heterogeneous mixture.
   1. Chocolate chip cookie
   2. Oxygen gas
   3. Salt water
   4. Taco
   5. Gold
   6. Carbon dioxide
   7. Water
   8. Lemonade
   9. Table salt
   10. Muddy water
   11. Potassium
   12. Steel
   13. Graphite
   14. Soft drink
   15. Air
   16. Antifreeze
3. Identify if the following molecule pictures represent a homogeneous mixture or heterogeneous mixture.



1. Identify the following molecular pictures as that of an element, compound, or mixture.



**Water and pH**

1. What are some main characteristics of water?
2. Describe the differences between acids and bases.