Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ S2 Final Exam Study Guide 2016

**Unit 3 (pgs 164-199)**

1. List and describe Earth’s 5 spheres.
2. What is the composition of Earth’s atmosphere?
3. Where is most of Earth’s water found?
4. What causes atmospheric pressure?
5. What are the four layers of the atmosphere from lowest to highest? In which layer do humans live?
6. As altitude increases, what happens to air pressure?
7. What happens to air density as air pressure increases?
8. Describe the energy transfer between an ice cube placed in a glass of warm water.
9. Describe how thermal energy changes as the temperature increases.
10. What is specific heat?
11. Why would the sand on the beach be warmer than the water in the ocean?
12. What happens in regards to kinetic energy and volume as temperature increases?
13. What are the 3 types of heat transfer?
14. Describe conduction and give 2 examples.
15. Describe convection and give 2 examples.
16. Describe radiation and give 2 examples.
17. In an ocean current, why is the water colder at the bottom than the water at the top?
18. When energy from the sun hits the air above land, the air warms and rises. Along a coastline, cooler air above the ocean flows toward the land to replace this rising air. What heat transfer processes are taking place and why?

**Unit 4 (pgs 242-313)**

1. A thermometer measures how hot or cold the air is. What does a thermometer measure?
2. If someone is using an anemometer, what are they studying?
3. What changes of state involve water absorbing energy?
4. What changes of state involve water releasing energy?
5. Name 3 processes that change water into a gaseous state.
6. Lydia poured some water into a shallow pan. She measured the level of water in the pan. She placed the pan on a sunny windowsill. One hour later, she measured the level of the water again and found that the water level was lower. What process did she observe?

**Unit 7 (448-498)**

1. Define genotype. Define phenotype.
2. If a plant that has two recessive alleles for white flowers is crossed with a plant that has two dominant alleles for purple flowers, what would the result be for any offspring? (genotype and phenotype)
3. Define what Gregor Mendel meant by a dominant trait.
4. What is a segment of DNA that determines a specific trait in a person, such as attached earlobes?
5. What is an allele?
6. Define an acquired trait and give 3 examples.
7. How do the chromosomes in a sex cell differ from those in a body cell?
8. When a human sperm cell fertilizes an egg, what does the sperm cell transmit to the offspring?
9. Where does each chromosome in a pair of homologous chromosomes come from?
10. What is the result of one sex cell undergoing meiosis in humans?
11. What is the function of sex cells?
12. What type of cells are produced from mitosis?
13. If a sexually reproducing organism has 28 chromosomes in its body cells, how many chromosomes did it inherit from each parent?
14. Draw and label the steps of mitosis and cytokinesis, in order.
15. Why does cell division take place in single-celled organisms?
16. List the steps of the cell cycle. Which is the longest stage?
17. What is the purpose of a Punnett square?
18. On a Punnett square, what do the letters at the top and left side represent?
19. Fill in the parent’s genotypes in the following Punnett square:

|  |  |
| --- | --- |
| Aa | Aa |
| Aa | aa |

1. Describe asexual reproduction, listing the advantages and disadvantages.
2. Describe sexual reproduction, listing the advantages and disadvantages.
3. What is a genetic disorder? List 3 examples.

**Unit 8 (514-521)**

1. What is DNA?
2. What are the four bases in DNA?
3. Which bases pair up in DNA?
4. What are the three types of mutations?