

FINAL EXAM REVIEW

Name: _____ Date: _____ Block: _____

Answer as many questions as you can without looking them up. This will show you how much you already know. Once you have filled in all that you can, use your text book and notebook to fill in the rest. Use your completed sheets to study!!!! You can also check out the Unit Reviews at the end of each unit.

Unit A – Cells and Systems

Chapter 1 – Cells

1. List the 6 characteristics of living things.
2. What is the cell theory?
3. Name the structures found in animal cells, as well as stating the function of each structure (seen with either a compound or electron microscope).
4. Name the structures found in plant cells, as well as stating the function of each structure (seen with either a compound or electron microscope).
5. What are the differences between plant and animal cells?
6. Know how to label and differentiate between plant and animal cell diagrams.
7. What is a flagellum and cilia?
8. What is an organelle?
9. Describe the difference between permeable, selectively permeable, and impermeable cell membranes. What type of membrane do cells have and why?
10. Explain the process of diffusion.
11. Explain the process of osmosis.
12. How are osmosis and diffusion different? How are they the same?

13. What determines the direction of water movement into or out of cells?

14. What is turgor pressure?

Chapter 1 – Cells and Cell Systems

1. State the levels of organization starting from a cell to organ system.
2. What are unicellular organisms or micro-organisms?
3. State characteristics of bacteria, protists (diatoms, euglena, amoebae, and paramecia), and fungi.
4. Explain why cells need to be small instead of large to perform properly. Discuss surface area and volume relationships.
5. What is a disease? What is an infection?
6. What types of invaders cause infection in humans? Give examples of each.
7. State two ways in which white blood cells protect the body from diseases.

Chapter 2 – Human Body Systems

1. What is respiration? What is your respiratory system?
2. What is the difference between respiration and breathing?
3. What are the main structures of the respiratory system? Draw and label a diagram with these structures.
4. How do the lungs draw in air (inhale) and push air out (exhale)?
5. What occurs in the alveoli (air sacs)?

6. What is your circulatory system?
7. Which blood vessels carry blood away from the heart? Which blood vessels carry blood to the heart? Where does nutrient and waste exchange occur?
8. What is deoxygenated blood? What is oxygenated blood?
9. Draw a diagram that shows the movement of blood through the four chambers (label) of the heart. Explain the movement of blood.
10. Explain the role of valves in the heart.
11. What is excretion? What is the excretory system?
12. List the main parts of the excretory system.
13. What is digestion? What is your digestive system?
14. List the main parts of the digestive system. Draw, label and state the function of each part of the digestive system.
15. What is a pathogen?
16. What is the body's first line of defense?
17. What is the body's second line of defense?
18. Which system is called into action when a pathogen gets past the first two lines of defense? What occurs?
19. Explain two ways that we become immune to diseases

Unit C – Optics

Chapter 4 – Light Energy and Its Sources

1. What is light? How does light travel to your eyes?
2. What is transparency? Give some examples of transparent, translucent, and opaque materials.
3. State 3 things that affect how light is absorbed or reflected.
4. What is the visible spectrum? How was the composition of white light discovered?
5. How do we see colours? What are the colours that make up white light?
6. What is the electromagnetic spectrum? List the 7 types of waves in order of lowest energy to highest energy.
7. Relate wavelength or frequency to the energy of the different parts of the electromagnetic spectrum.
8. Draw a simple sketch of waves to illustrate the meanings of the terms wavelength, crest, trough, amplitude, and frequency.

Chapter 5 – Mirrors and Lenses

1. Draw a diagram of an incident ray hitting a plane mirror and reflecting off in the opposite direction. Make sure you label the incident ray, reflected ray, angle of incident, angle of reflection, the normal, and the point of incidence.
2. What are the laws of reflection?
3. Explain the difference between specular and diffuse reflection. Which one produces an image?
4. What is an optical device? Give some examples.
5. What is the difference between real and virtual images?

6. What are some devices that use curved mirrors?
7. What is refraction? Draw a diagram showing an incident ray hitting a medium. Make sure you label the angle of refraction and refracted ray.
8. What is a lens? What are some devices that use lenses?
9. Why does light refract?
10. Describe the attitude and approximate size of an image when an object is very close to and far away from a convex lens and a concave lens. Draw a diagram of the image formed by a concave and a convex lens.

Chapter 6 – Light and Vision

1. Draw a simple sketch of the human eye. Label and state the function of each part.
2. How does light enter the eye? How does the iris control the amount of light entering the eye?
3. Explain how the ciliary muscles control how the eye focuses light. Explain what happens when the eye focuses on a distant object. Explain what happens when the eye focuses on nearby objects.
4. Where is an image produced in the eye? What is located on this area? Is the image up right or inverted?
5. What sends the nerve signal produced by the rods and cones to the brain?
6. Explain how the blind spot is produced.
7. What is normal vision?
8. What is myopia and how is it corrected?
9. What is hyperopia and how is it corrected?

10. What is astigmatism and presbyopia?
11. List some corrective measures for refractive vision problems.
12. Which sensory receptor detects colours in our eyes? Which colours does it detect?
13. What are the primary light colours and the secondary light colours?
14. What are complementary light colours? What do they produce?

Unit D – Fluids

Chapter 7 – Properties of Fluids

1. What are some unique properties that fluids have?
2. What is flow rate?
3. State the kinetic molecular theory. What are the three main points?
4. What are the three states of matter? Explain how increasing or decreasing temperature will affect each state. Use words such as melting, evaporation, condensation, solidification and sublimation.
5. What is viscosity?
6. What is cohesion? What is adhesion? What is surface tension? How are they related to viscosity?
7. How do you measure viscosity? What are some viscous substances?
8. What is weight? What is mass? How are they different?
9. What are the units of mass?
10. How you can directly and indirectly measure mass?
11. What is volume? What are the units of volume?

12. What is the formula for the volume of rectangular solids?
13. What is density? What is the formula for density? What are the units?
14. Explain how objects float or sink in another object.
15. What is the density of a piece of wood that has a mass of 25.0 grams and a volume of 29.4 cm³?
16. A piece of wood that measures 3.0 cm x 6.0 cm x 4.0 cm has a mass of 80.0 grams. What is the density of the wood? Would that piece of wood float in water? ($V = l \times w \times h$)
17. A cup of gold coloured metal beads was measured to have a mass of 425.0 grams. By water displacement, the volume of the beads was calculated to be 48.0 cm³. Given the following densities, identify the metal.

Gold:	19.3 g/ml
Copper:	8.86 g/ml
Bronze:	9.87 g/ml

Chapter 8

1. What is force? What are the units for force?
2. What is pressure? What is the formula for pressure? What are the units for pressure?
3. Calculate the pressure if you have a force of 600 N acting on an area of 150 cm².
4. If a piston in a cylinder has a radius of 2.0 cm, calculate the pressure exerted if a person pushes down on the piston with a force of 10 N. $A = \pi r^2$
5. What is the area if the pressure is 2.56 N/cm² and the force is 15 N?
6. What is the force if the pressure is 6.44 Pa and the area is 12 m²?
7. How do snowshoes help you walk across a snowy field?
8. What is atmospheric pressure? Does it increase or decrease as you get farther away from sea level?
9. What is water pressure? Does it increase or decrease as you go deeper into water?
10. How does temperature affect pressure?