

Science 8 Final Exam Review Questions

Scientific Method and Safety

1. What is the difference between an independent variable and a dependent variable.
2. In an experiment name the independent variable, dependent variable, and control group. (See your SpongeBob and Simpson's worksheets from the start of the year.)
3. Know your lab safety rules. (Page 389 and common sense.)

Biology (Unit A)

4. What are the 6 characteristics of living things? (Be able to give an example.)
5. What are the two main ideas in the cell theory?
6. Name the parts of a compound light microscope.
7. Find the magnification of the microscope for each objective lens. (ocular x objective lens)
8. How do you adjust the microscope to look at a slide on low power, medium power, and high power?
9. What is the difference between a eukaryotic cell and a prokaryotic cell?
10. Name the organelles in an animal cell and describe their functions. Label an animal cell.
11. Name the organelles in a plant cell and describe their functions. Label a plant cell.
12. What are the differences between plant and animal cells?
13. What is the difference between osmosis and diffusion? What do they have in common?
14. Why is a cell membrane described as being selectively permeable?
15. What would happen if you put a cell in a beaker of salt water? (Hint: page 26)
16. Why is turgor pressure important in plants?
17. Organize the following structures from smallest to largest: organ system, organ, tissue, cell
18. How are bacteria different from animal and plant cells?
19. How are protists different from bacteria?
20. Describe the differences between the two types of protists. Give an example of each.
21. When does a cell divide?
22. Why is a smaller cell "better" than a larger cell?
23. Why do active cells work better as a group of small cells, rather than as just one large cell?
24. Why is the shape of a nerve cell important for it to function?
25. What is a disease? What is an infection?
26. Why are viruses not living things?
27. How do white blood cells stop invaders?
28. How do antibodies protect the body?
29. Label the structures of the respiratory system. Describe their functions.
30. What is the difference between respiration and breathing?
31. Describe the process of inhaling. Describe the process of exhaling.
32. How does the respiratory system depend on diffusion? Where does diffusion occur?
33. What is the difference between an open and closed circulatory system?
34. Describe the flow of blood through the heart.
35. What is the purpose of the circulatory system?
36. How does the circulatory system work with the respiratory system?

37. What is a pathogen?
38. How does the first line of defense protect the body from invaders?
39. Describe how the body's second line of defense attacks invaders.
40. How does the immune system fight a pathogen if the first two lines of defense fail?
41. How does a vaccine protect the body?

Fluids (Unit B)

42. What is flow rate?
43. What three things does the Kinetic Molecular Theory state?
44. Name the six changes of state and give an example of each.
45. Define viscosity and give an example of a viscous fluid and a non-viscous fluid.
46. What is the difference between adhesion and cohesion. Give an example of each.
47. How does adding heat to a fluid effect it's viscosity? Explain why using the KMT.
48. What is the difference between mass and weight? If you were on the moon, which one would be the same as when you are on Earth?
49. Define volume. How do you measure the volume of a liquid? Of an irregular solid?
50. Calculate the density of an object that measures 5cm x 6cm x 2cm and has a mass of 30g.
51. Use the chart on page 122 and list the following substances in order of density (least first).
Silver, distilled water, wood (birch), helium, sugar, seawater, and nickel.
52. Why would an object have a negative buoyancy?
53. Use the KMT and explain how putting syrup in the fridge effects the viscosity and density.
54. Why can a fish survive the winter in a pond?
55. How does an increase in the density a fluid effect the buoyancy of a fluid?
56. Why would you prefer Ms. B to step on you with clown shoes rather than a high heel?
57. Calculate the pressure if you have a 400N force acting on an area of 200cm².
58. What happens to the pressure on your body as you go up a mountain?
59. What happens to the pressure on your body as you go down to the bottom of the ocean?
60. How does a fish control their depth in water?
61. What do scuba divers use to change their depth in water?
62. What is the difference between a hydraulic and a pneumatic system?
63. Give an example of a hydraulic system in the human body.
64. Give an example of a pneumatic system in the human body.

Water Systems (Unit C)

65. What is the distribution of salt and fresh water on Earth?
66. How have the Earth's oceans become salty?
67. What is an estuary?
68. Describe the water cycle.
69. How does water move through the ground?
70. What is the difference between weathering and erosion?
71. How is a delta formed?
72. What is a flood plain and a dike?
73. How is a glacier formed?
74. How are cirques and arêtes formed?

75. What is the difference between a U-shaped valley and a V-shaped valley?
76. What are moraines, eskers and erratics?
77. How is an iceberg formed?
78. How is a convection current formed and how is it important?
79. How are ocean currents formed?
80. What is the difference between weather and climate?
81. How are land breezes formed? How are sea breezes formed?
82. How do currents effect the climate?
83. What is a tsunami?
84. What are the different parts of a wave?
85. If you were floating in water, why would you move up and down in a circular pattern?
86. What are some of the positive and negative effects that waves can have on coastal areas?
87. What is a breakwater? Give an example of a breakwater in BC.
88. What causes tides to occur?
89. What are tidal bulges?
90. What is the alignment of the moon, sun and Earth during spring tides? During neap tides?
91. List two geological factors that affect tidal ranges.
92. What is biodiversity?

Optics (Unit D)

93. Give an example of a luminous object. Give an example of a non-luminous object.
94. Describe the six processes of emitting light. Give an example of each.
95. How is a shadow formed? What is the difference between an umbra and a penumbra?
96. How does a shadow change depending on the size of the light source?
97. Define transparent, translucent, and opaque. Give an example of each.
98. How does climate effect what material a builder chooses to construct a house?
99. What is white light made up of?
100. Why do we see objects in colour?
101. Calculate the frequency of a wave that has an amplitude of 2 and a wavelength of 4.
102. Which wavelength has a higher energy, radio waves or x-rays?
103. The angle of incidence of a ray hitting a plane mirror is 30° , what is the angle of reflection?
104. What is the difference between specular and diffuse reflection?
105. Which would you rather use for surveillance, a concave or a convex mirror?
106. Which type of mirror would a dentist rather use to see the back of your teeth?
107. Why does light refract?
108. Describe the characteristics of a concave lens. Describe a convex lens.
109. Give an example of a use for a concave lens and a use for a convex lens.
110. Label the different structures of the eye and describe their functions.
111. What is the difference between myopia and hyperopia?
112. What are the three types of cones in the eye?