

Practice Worksheet — Grade 8 Science

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Cells

1. A group of similar cells working together is called a:
 - a) organ
 - b) organ system
 - c) organism
 - d) tissue
2. A type of bacterial cell divides in two every 20 minutes. A sample starts with 5 cells and is kept warm for 2 hours. How many cells are in the sample at the end of the 2 hours?

Answer: _____

Cells and body systems

3. In the lungs, oxygen moves out of the air sacs and into the blood. What best explains that movement?
 - a) Oxygen is pushed across by the cell walls of the blood cells
 - b) Oxygen diffuses from where it is more concentrated to where it is less concentrated
 - c) The air sacs squeeze oxygen through their walls each time you breathe out
 - d) Red blood cells reach out and grab oxygen molecules from the air
4. After a set of stairs, a student takes her pulse and counts 21 beats in 10 seconds. What is her heart rate in beats per minute?

Answer: _____ (beats/min)

5. What is the basic unit of life?
 - a) the organ
 - b) the cell
 - c) the tissue
 - d) the organism
6. The heart is part of which body system?
 - a) circulatory system
 - b) respiratory system
 - c) nervous system
 - d) digestive system

Energy efficiency

7. A machine is supplied with 200 J and delivers 60 J of useful work. What is its efficiency as a percentage?

Answer: _____ (%)

8. Why is no machine 100% efficient?
- a) some energy is always lost overcoming friction
 - b) machines destroy energy as they run
 - c) energy is created inside the machine
 - d) the operator absorbs the missing energy

Fresh and salt water systems

9. What percentage of Earth's water is approximately fresh water?
- a) about 3%
 - b) about 25%
 - c) about 50%
 - d) about 97%
10. The area of land that drains into a particular river or lake is called a:
- a) estuary
 - b) reservoir
 - c) delta
 - d) watershed
11. A place where fresh river water mixes with salt ocean water is called a(n):
- a) watershed
 - b) glacier
 - c) estuary
 - d) aquifer

Light and optics

12. The bouncing of light off a surface is called:
- a) diffraction
 - b) reflection
 - c) refraction
 - d) absorption
13. The bending of light as it passes from one material into another, like air into water, is called:
- a) refraction
 - b) dispersion
 - c) absorption
 - d) reflection

14. A lens that is thicker in the middle than at the edges, and causes light rays to converge, is called a:
- a) convex lens
 - b) flat lens
 - c) concave lens
 - d) prism

Mechanical systems

15. A caretaker pushes a loaded cart down a hallway with a steady horizontal force of 45 N, moving it 12 metres in the direction of the push. How much work does he do on the cart, in joules?

Answer: _____ (J)

16. A mechanic uses a hydraulic jack to lift a car. A small force on the narrow piston produces a much larger force at the wide piston. Why does this work?
- a) The fluid becomes lighter under pressure, so the car is easier to lift
 - b) The wide piston travels the same distance as the narrow piston, so it must receive the same force
 - c) Pressure passes through the fluid in all directions, and the wider piston has more area to push on
 - d) The fluid is squeezed into a smaller volume, and the extra squeezing creates additional energy
17. A machine outputs 200 N of force when 50 N is applied to it. What is its mechanical advantage?

Answer: _____

Mixtures and fluid flow

18. A mixture where you can see the different parts is called a:
- a) pure substance
 - b) element
 - c) solution
 - d) mechanical mixture
19. A mixture where substances are evenly blended and you cannot see the individual parts is called a:
- a) suspension
 - b) pure substance
 - c) solution
 - d) mechanical mixture

20. The three common states of matter are solid, liquid, and:

- a) mixture
- b) plasma
- c) vapor
- d) gas