

Name \_\_\_\_\_

Key

### Introduction to Cells Study Guide

#### Concept 1. Biological Levels of Organization

Questions 1-9, List the Biological Levels of Organization in order from simplest to most complex.

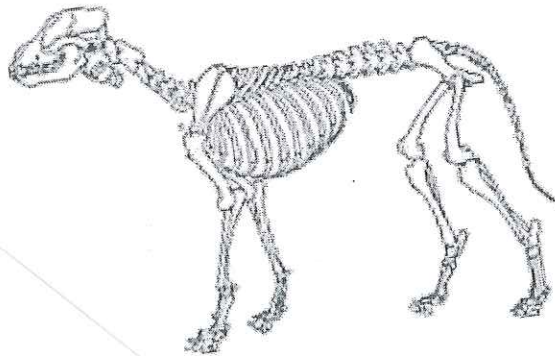
1. cell
2. tissue
3. organ
4. organ system
5. organism
6. population
7. community
8. ecosystem
9. biosphere

Questions 10-13, Write which level of organization is being described or shown.

10. All of the gray wolves, grizzly bears, bison, and douglas-fir that live in Yellowstone National Park. community

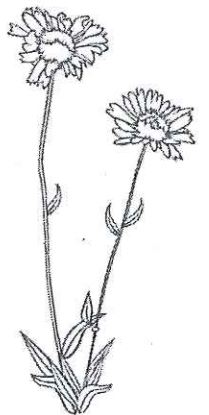
11. All of the river otters that live in Oxbow Bend, Wyoming. population

12.



system

13.



organism

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## Concept 2. Cell Theory and Microscopes

Questions 14-16, List the three parts of cell theory.

14. all living things are made of one or more cells
15. cell is basic unit of structure + function in living organisms
16. all cells come from pre-existing cells

Questions 17 -18, Provide 3 distinct characteristics for each prokaryotic cells and eukaryotic cells. Use the word blank below.

Has Nucleus Includes Animals, plants, fungi, and protists.	Has DNA	Lacks Nucleus Linear DNA	Bacteria Has Organelles	Circular DNA
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### 17. Prokaryotic cells

- A. circular DNA
- B. lacks nucleus
- C. bacteria

### 18. Eukaryotic Cells

- A. linear DNA
- B. has nucleus
- C. animals, plants, fungi, protists

19. Name two characteristics both Eukaryotic Cells and Prokaryotic cells have in common. Use the word bank from above.

- A. has DNA
- B. has organelles

Questions 20- 22, Calculate the Magnification of each Objective lens below.

20. Eye Piece 10 x X Low Power 4 x = 40 x

21. Eye Piece 10 x X Medium Power 10 x = 100 x

22. Eye Piece 10 x X High Power 40 x = 400 x

Questions 23-24, Answer the following questions about the Microscope and its usage.

23. On which power(s) is the coarse adjustment knob used? 4x
24. On which power(s) is the fine adjustment knob used? 4x, 10x, 40x

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### Concept 3. Structures inside the cell.

**Questions 25-35**, Fill in the blank with the organelle that best fits the description. Use the following terms: ~~Lysosome~~, ~~Cytoplasm~~, ~~Vacuole~~, ~~Ribosomes~~, ~~Golgi Complex~~, ~~Chloroplast~~, ~~Mitochondria~~, ~~Cell Wall~~, ~~Cell Membrane~~, ~~Nucleus~~, ~~Endoplasmic Reticulum~~

25. The cell membrane is the **outermost** living layer of the cell and it controls movement into and out of the cell.

26. The nucleus is the **control center** of the cell and it regulates the cells activities. Contains the DNA of the Cell.

27. The cytoplasm is a **jelly-like substance** that contains the organelles and allows them to move throughout the cell.

28. The mitochondria is the site of **cellular respiration**. It is often called the **powerhouse** of the cell.

29. The chloroplast captures energy from **sunlight** and uses it to produce food in **plants**.

30. The golgi complex **packages** materials for transport outside of the cell.

31. The ER is the organelle responsible for **transporting** materials within the cell.

32. The cell wall **supports** and protects **plant** cells.

33. A small sac in the cytoplasm which **breaks down** food, old cell parts, and dead, injured, or obsolete cells is the lysosome.

34. A large sac in the cytoplasm which **stores** food, water, or wastes is a vacuole.

35. Small grain shaped organelles that produce **protein** are called ribosomes

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Questions 36-46, Identify the organelles depicted in the cells below. Use the following terms: Ribosomes, Cytoplasm, Vacuole, Golgi Complex, Chloroplast, Mitochondria, Cell Wall, Cell Membrane, Nucleus, Endoplasmic Reticulum, Lysosome

- A. cytoplasm
- B. chloroplast
- C. nuclear membrane
- D. nucleus
- E. ER
- F. ribosomes
- G. golgi complex
- H. vacuole
- I. lysosome
- J. cell membrane
- K. mitochondria
- L. cell wall

47. Cell 1 is a: animal cell

48. Cell 2 is a: plant cell

