

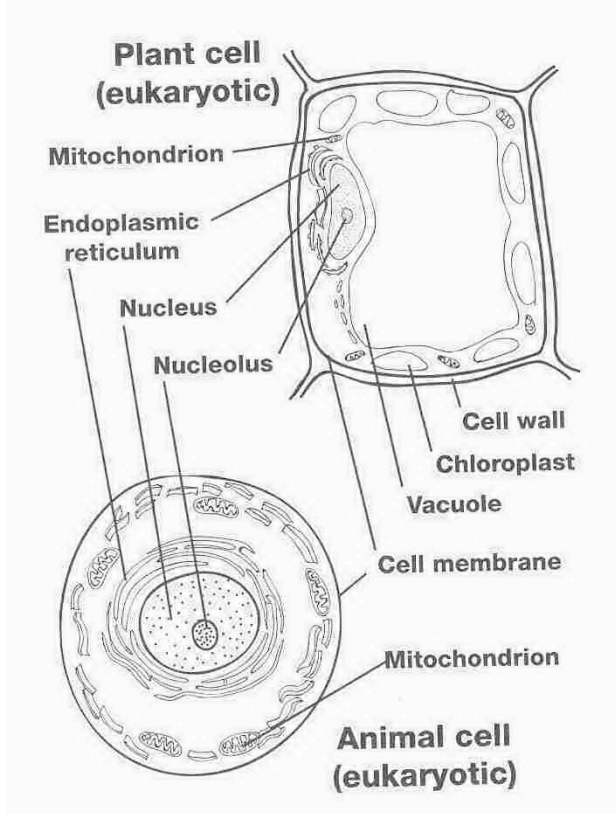
Name: _____

Cells, Heredity, and Classification
Review Exam

Circle the letter of the correct answer.

1. Members of kingdom Animalia depend on bacteria and fungi because bacteria and fungi:
 - a. do not perform photosynthesis.
 - b. recycle nutrients in dead organisms.
 - c. use sunlight to produce sugar.
 - d. are useful in synthesizing proteins.
2. What is smallest unit that can carry out all the processes necessary for life?
 - a. cell
 - b. nucleus
 - c. organelle
 - d. tissue

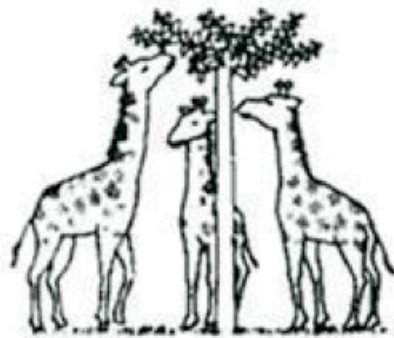
Figure 1. Structures of a plant cell and an animal cell.



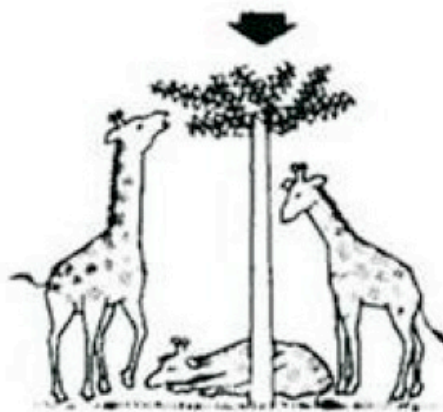
3. According to Figure 1, a structure that a plant cell has but an animal cell does not have is a:
 - a. mitochondrion
 - b. nucleus
 - c. cell wall
 - d. cell membrane

4. How does water move across a cell membrane from areas of higher concentration to areas of lower concentration?
 - a. by transportation
 - b. by active transport
 - c. by diffusion
 - d. by osmosis
5. Which of the following is an example of selective breeding?
 - a. Elephants passing the tuskless trait to their offspring
 - b. Male birds developing extremely colorful displays of feathers
 - c. Insects developing pesticide resistance
 - d. Dog owners breeding their pets to produce friendlier offspring
6. If a child has blond hair and both of her parents have brown hair, what does that tell you about the gene for blond hair?
 - a. It is recessive
 - b. It is dominant
 - c. It is an adaptation
 - d. It is not an inherited trait
7. Which statement is NOT part of the cell theory?
 - a. All organisms are made of one or more cells.
 - b. Animal and plant cells contain the same organelles.
 - c. The cell is the basic unit of living things.
 - d. All cells originate from other cells.
8. The organisms in what kingdom usually move by themselves and have specialized sense organs that allow them to respond to their environment?
 - a. Fungi
 - b. Animalia
 - c. Plantae
 - d. Protista
9. A characteristic that can be passed from parent to offspring through genes is called a:
 - a. zygote
 - b. eukaryote
 - c. genus
 - d. trait
10. Where does photosynthesis take place in a cell?
 - a. in the nucleus
 - b. in the mitochondria
 - c. in the chloroplasts
 - d. in the ribosomes

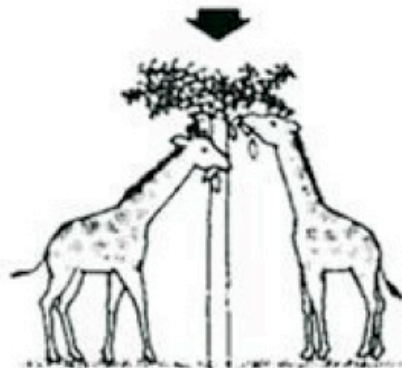
Figure 2. Explanation of Why Giraffes have Long Necks



Originally the necks of giraffes were not long. Occasionally however, some exceptional giraffes had necks just a bit longer than average ones.



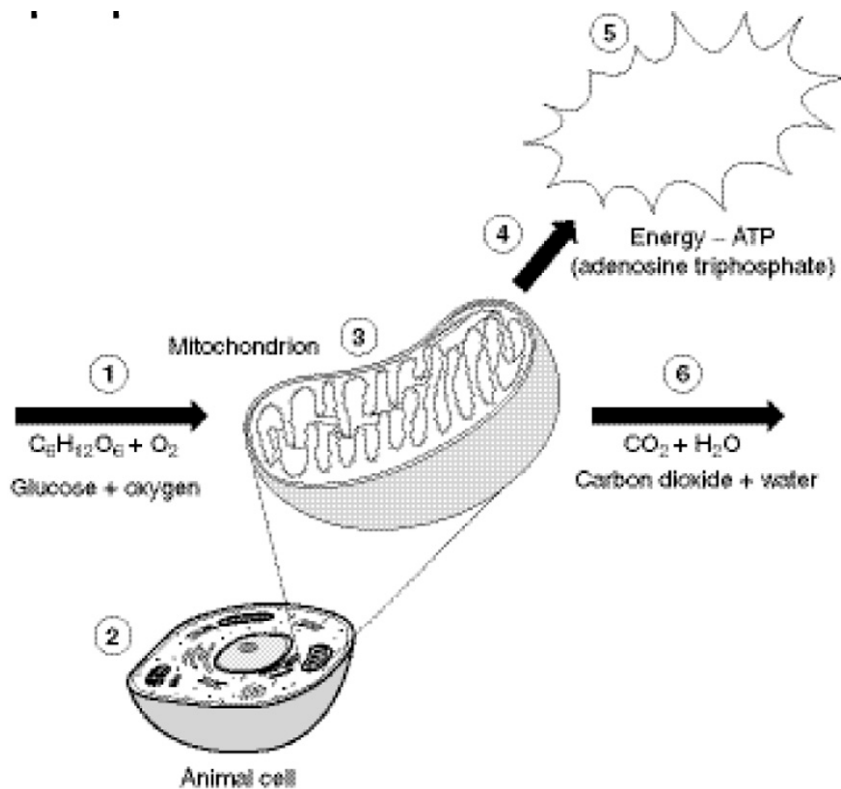
Those that had even a slightly longer neck survived by succeeding in the struggle for existence.



Generations and generations of those giraffes that had even a slightly longer neck than the others survived. That's what brought about today's long-necked giraffes.

11. Figure 2 presents the explanation of why giraffes have long necks based on:
- Use and Disuse Theory
 - Mendel's Laws of Heredity
 - Theory of Inheritance of Acquired Characteristics
 - Theory of Natural Selection

Use Figure 3, below, to answer question 12 and 13.



12. Figure 3 best represents what important cell process?

- a. photosynthesis
- b. osmosis
- c. fermentation
- d. cellular respiration

13. The organism in which this process is taking place is:

- a. eukaryotic, because the cell has a mitochondrion.
- b. eukaryotic, because the cell is photosynthesizing.
- c. prokaryotic, because the cell releases water and carbon dioxide.
- d. prokaryotic, because the cell has no cell wall.

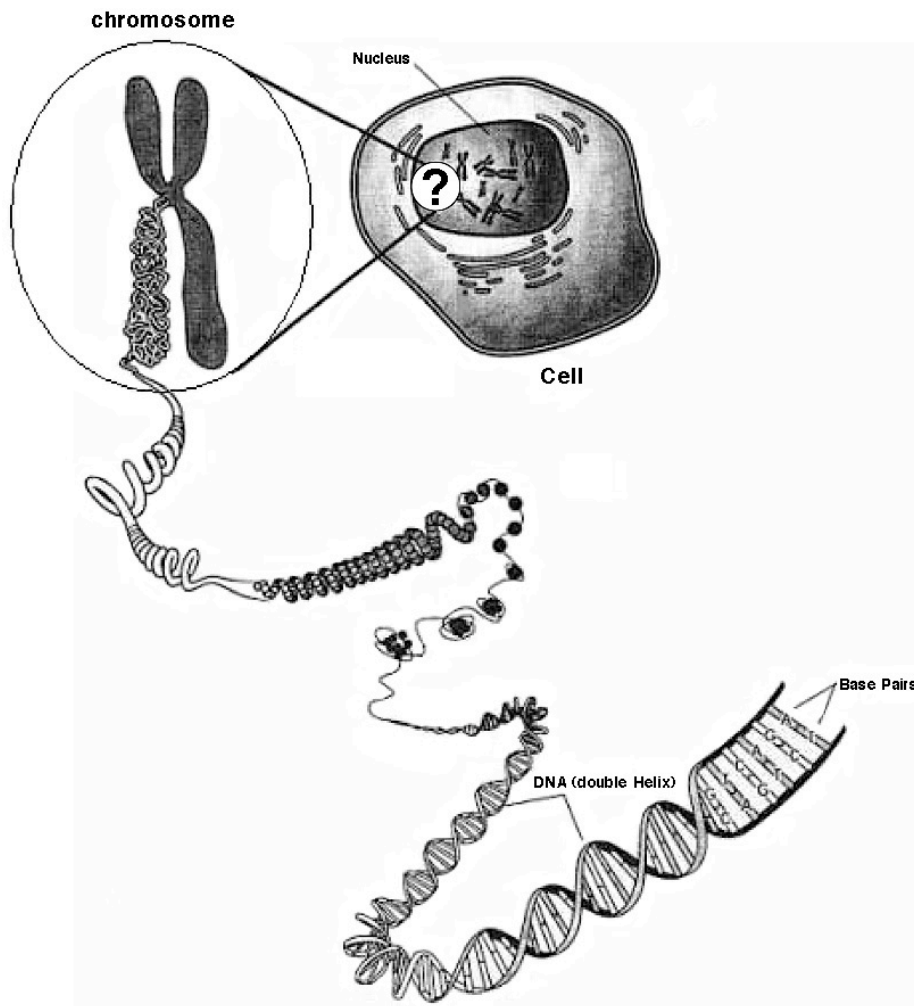
14. Osmosis is important to cells because:

- a. cells are filled with fluids that are made mostly of water.
- b. cells need to get rid of large particles they don't need.
- c. cells need to move from place to place.
- d. cells are usually dry.

15. What part of the cell forms a barrier between the cell and its environment?





- a. cell membrane
- b. ribosome
- c. nucleus
- d. endoplasmic reticulum

Figure 4. Structures of DNA



All living things are composed of cells, which typically have a nucleus that regulates metabolism, growth and/or reproduction.

16. Inside the nucleus in Figure 4, there is a small circle with a question mark in it - ? Which image of the following four images should be in the ?

- a. 
- b. 
- c. 
- d. 

17. A characteristic that improves an organism's ability to survive is a(n)
- adaptation
 - inherited variation
 - reproduction
 - selective breeding

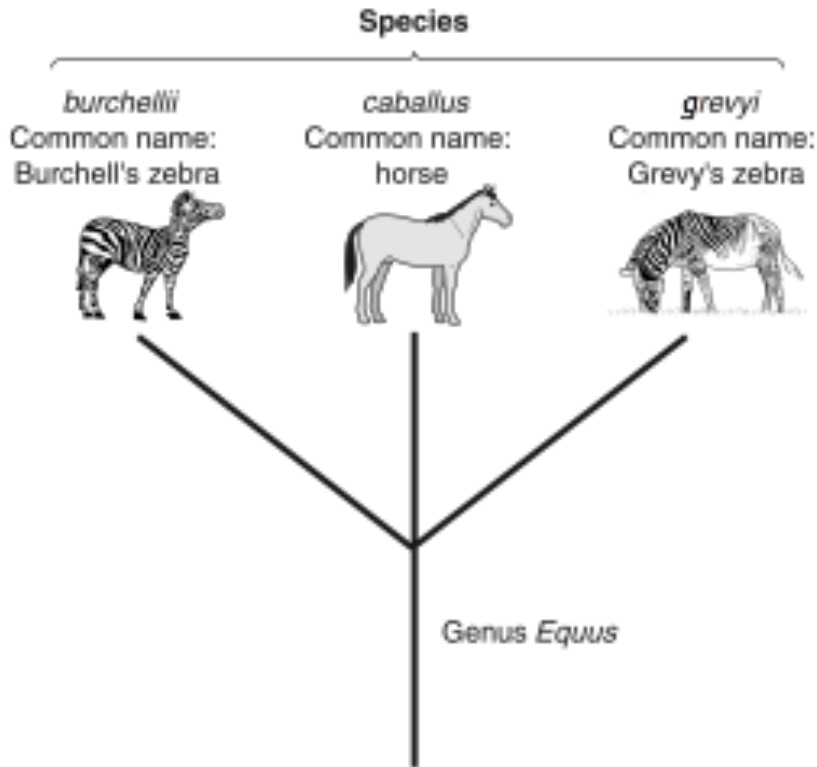
In humans, dimpled cheeks are a dominant trait, with a genotype of DD or Dd . Nondimpled cheeks are a recessive trait, with a genotype of dd . Imagine that Parent A, with the genotype Dd , has dimpled cheeks. Parent B also has the genotype Dd and also has dimpled cheeks. The Punnett below diagrams the cross between Parent A and Parent B. *Use the Punnett square to answer questions 19 and 20.*

		Parent A	
		D	d
Parent B	D	DD	Dd
	d	Dd	

18. What combination goes in the empty box?
- DD
 - Dd
 - dD
 - dd
19. Each of the four squares of a Punnett square represents a 25 percent probability that the offspring will have that particular genotype. What is the probability that the offspring of Parent A and Parent B will have dimpled cheeks?
- 25 percent
 - 50 percent
 - 75 percent
 - 100 percent
20. During the process of diffusion:
- a cell surrounds and absorbs large particles.
 - particles move from areas of lower concentration to higher concentration.
 - a cell surrounds and gets rid of large particles.
 - particles move from areas of higher concentration to lower concentration.

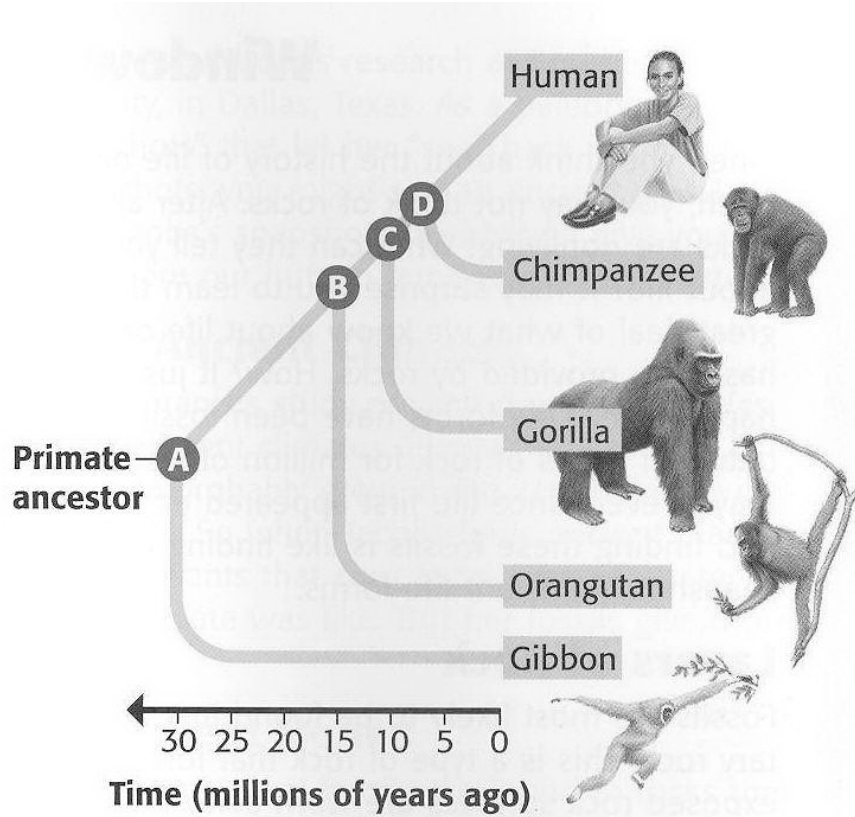
21. In the Labrador breed of dogs, black fur is a dominant trait and yellow fur is a recessive trait. If a puppy has a black phenotype, which of the following genotypes is NOT possible?
- a. two black alleles
 - b. a black allele and a yellow allele
 - c. two yellow alleles
 - d. all of these are possible

Use **Figure 5**, below, to answer question 23.



22. Based on Figure 5, what is the scientific name for a horse?
- a. *Equus caballus*
 - b. *Equus grevyi*
 - c. *Equus burchellii*
 - d. *Equus horse*
23. What can two different species have in common?
- a. populations
 - b. ancestors
 - c. individuals
 - d. offspring

Figure 6. Evolutionary relationships



24. According to Figure 6, gibbons first existed approximately how many years ago?
- a. 5 million
 - b. 10 million
 - c. 20 million
 - d. 30 million