

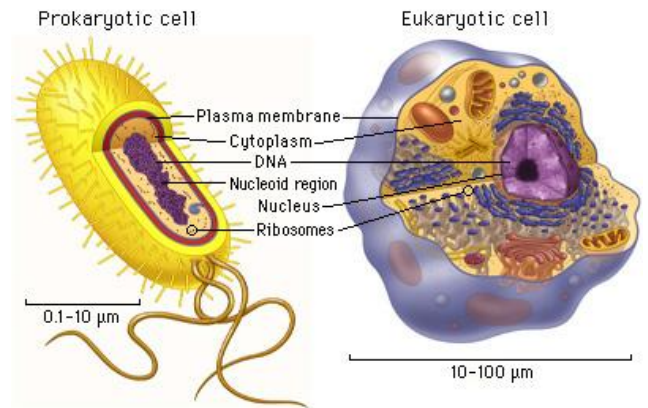
Name: _____

Date: _____

Cells and Their Processes

1. What element do organic compounds have that inorganic compounds do not?
2. List the **four** types of organic compounds, describe the **function** of each AND list a **food** where you will find them.

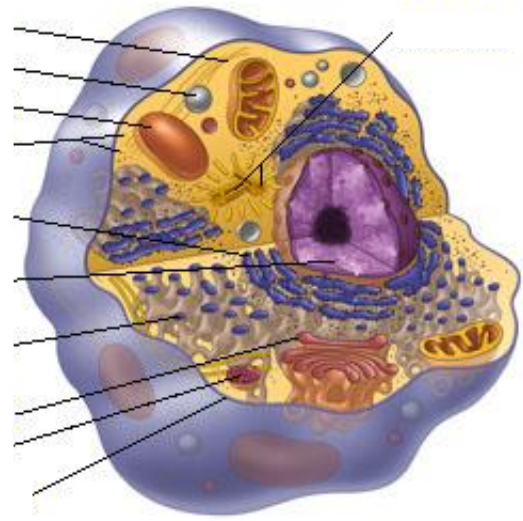
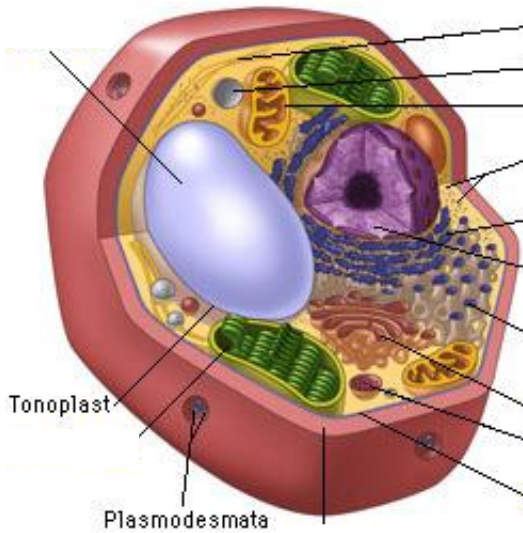
3. Explain the difference between a **eukaryotic cell** and a **prokaryotic cell**.



4. List the organelles found in an **animal cell** and describe the **function (job)** of each.

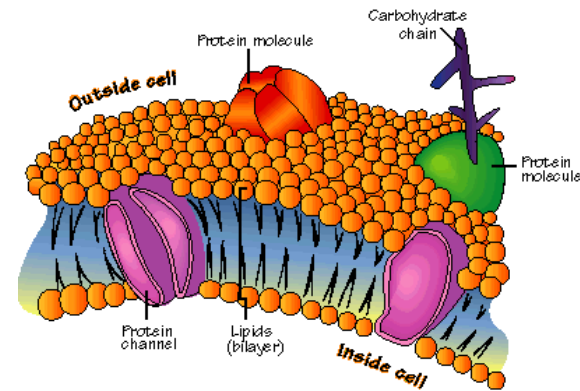
5. Which 2 organelles are found in **plant** cells but **not** animal cells? Describe the **function** of these 2 organelles.

6. Label the plant and animal cells below with the correct organelles.



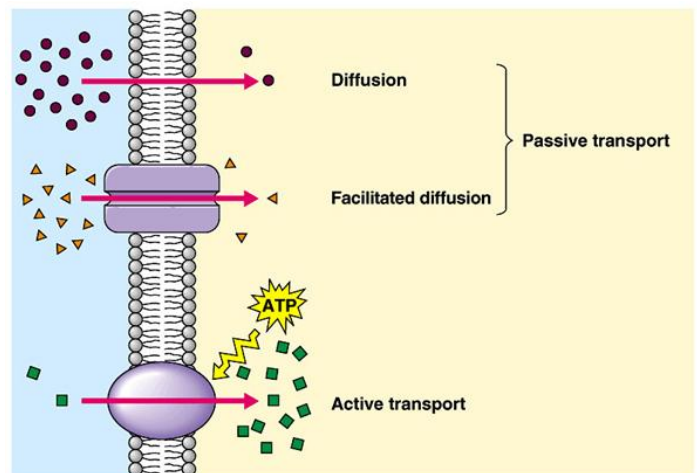
7. Describe 2 differences between bacteria and animal cells.

8. What is a **phospholipid bilayer**? Describe the jobs of its parts.



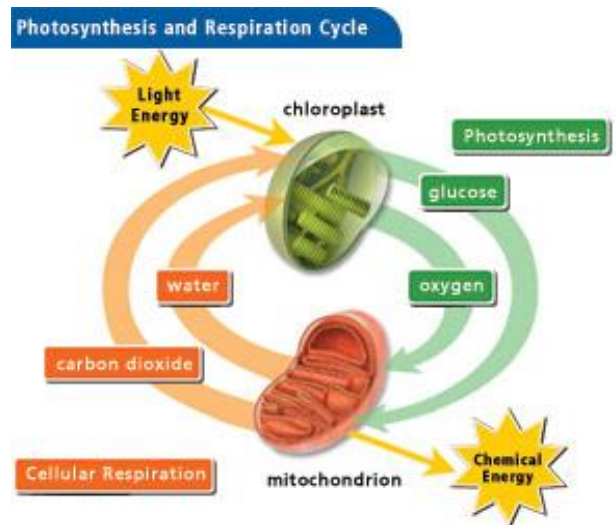
9. Explain the major **difference** between active and passive transport.

10. What is the **difference** between diffusion and osmosis?



11. a. What is **photosynthesis**? What does it use? What does it make?

b. What is the **chemical equation** for photosynthesis?



12. a. What is **cellular respiration**? What does it **use**? What does it **make**?

b. Name and describe the **two** types of cellular respiration.

c. What is the **chemical equation** for aerobic respiration?

13. a. What are **chromosomes**?

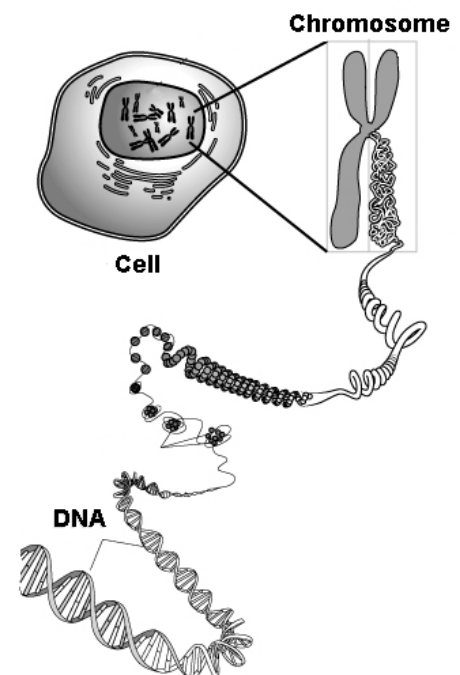
b. How many **types** of chromosomes do humans have? _____

c. How **many** chromosomes in all do humans have? _____

d. From whom do we get these chromosomes? _____

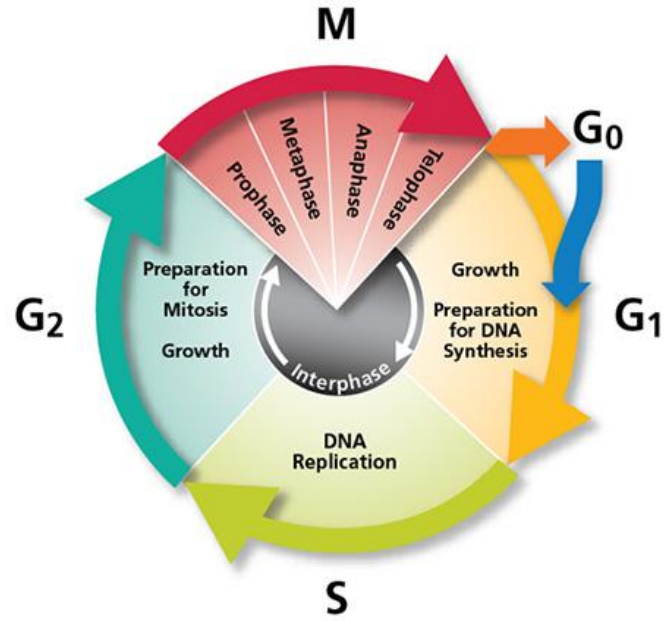
14. What are **diploid** cells? Give an **example** of a diploid cell in the **human body**.

15. What are **haploid** cells? Give an **example** of a haploid cell in the **human body**.



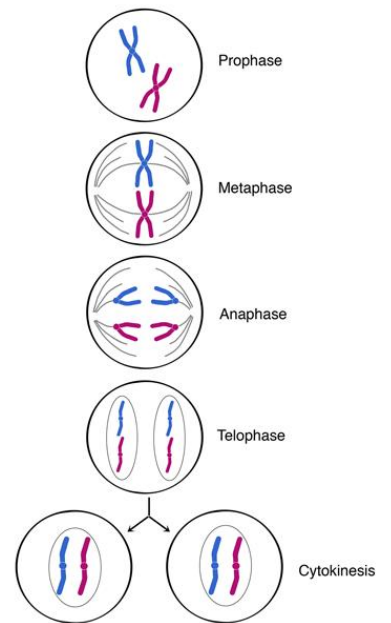
16. Explain the difference between **autosomes** and **sex** chromosomes.

17. What are the **four parts of the cell cycle** and **what happens** in each phase? Also, label the cell cycle diagram on the right.



18. What is mitosis?

19. List the **four phases of mitosis (PMAT)** and describe the events in each phase.

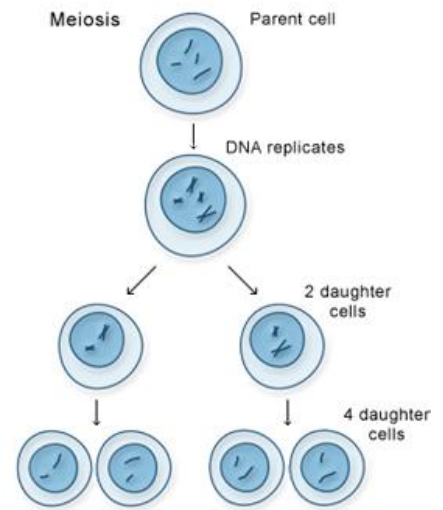
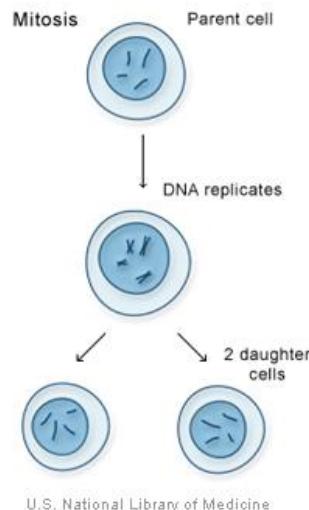


Genetics

1. What is **meiosis**?

2. Compare the **number of chromosomes** found in cells formed by mitosis and cells formed by meiosis.

3. What is fertilization?



4. What is the unique **shape** of DNA called? _____

5. What are the **four bases** of DNA and **how do they pair up?**

6. What is **DNA replication?**

7. What is the job of RNA?

8. Write the complementary **DNA** and then RNA sequences for the following:

ATG CCA TTG GCA

DNA:

RNA:

9. The process of making a **new DNA** is called _____.

10. The process of making a strand of **RNA** using a DNA template is called _____.

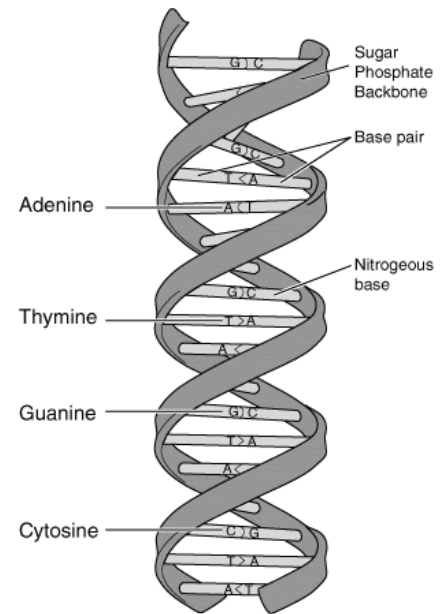
11. The process of making **protein** from RNA is called _____.

12. Which organelle translates the RNA into amino acid chains (proteins)? _____.

13. What is a **mutation?**

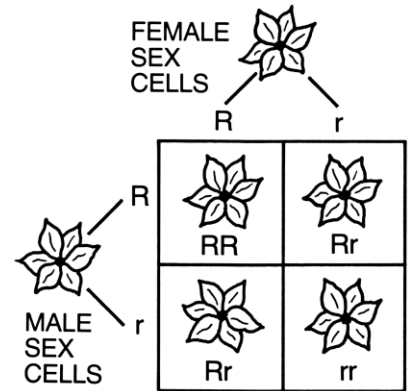
14. What is **genetics?**

15. What are **alleles?**



16. Explain the difference between a **dominant** and a **recessive** gene. Give an **example** of each.

17. Explain the difference between **homozygous** and **heterozygous**. Give an example of each.



18. Explain the difference between **genotype** and **phenotype**.

19. Draw a Punnett Square for the cross of a mother who is **heterozygous** for **brown** eyes (brown is dominant - B) and a father who has **blue** eyes (blue is recessive - b).

20. What **percentage** of the children above will have **brown** eyes? **Blue** eyes?

21. Explain the difference between **codominance** and **incomplete** dominance.

22. What is a **sex-linked** trait? Give an **example** of a sex-linked trait.

Evolution and Natural Selection

1. What is **evolution**?

2. What is **natural selection**?

3. What is **biodiversity**?

4. List and describe 5 pieces of **evidence** that support the theory of **evolution**.

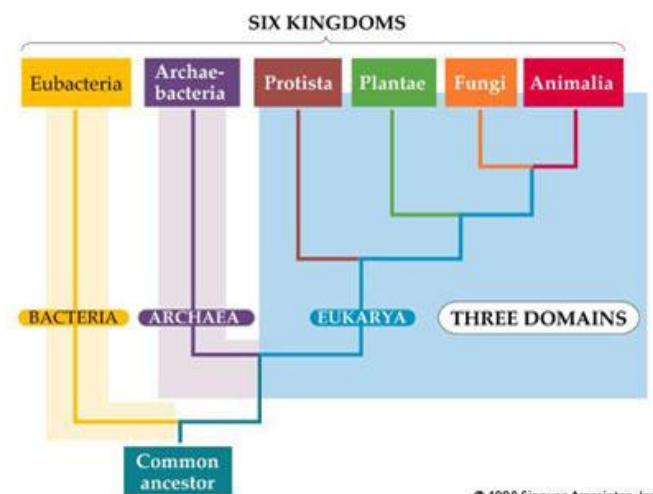
5. What is the **difference** between **homologous** structures and **vestigial** structures?

6. What is **taxonomy** (classification)?

7. What are the 7 different levels of taxonomy?

8. How can you figure out how closely related organisms are from their classification?

9. List and describe the six kingdoms of living things.



10. What is a scientific name?

11. List and describe the three domains.

Ecology

1. What is **ecology**?

2. What is an **ecosystem**?

3. What is the difference between **autotrophs** and **heterotrophs**?

4. List and describe the **three** types of heterotrophs (plant eaters, meat eaters, decomposers).

5. What is the difference between **biotic** and **abiotic** factors? Give an example of each.

6. Draw a **food chain** with four organisms and label the **producer**, **primary consumer**, **secondary consumer**, and **top consumer** (trophic levels).

7. How is energy moved through trophic levels? Who has the **MOST** energy? **Why**? The least energy? **Why**?

8. What is a **food web**?

9. Which organism in the food web is the **producer**?

10. Which organisms are **primary consumers**?

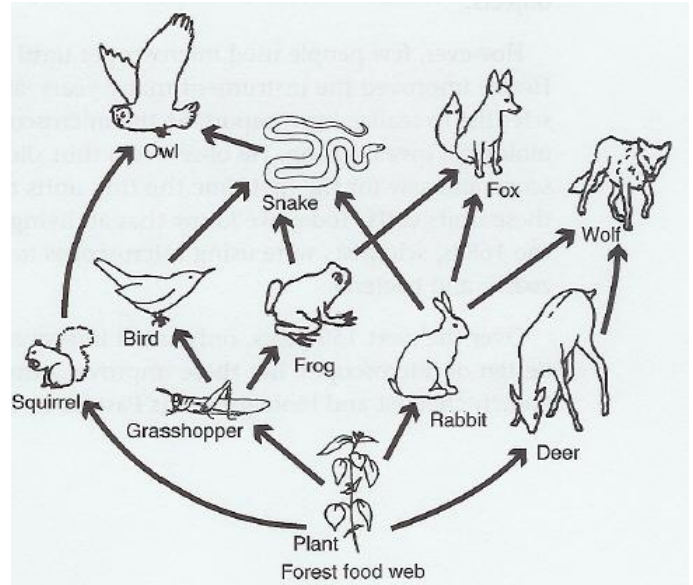
11. What do primary consumers **eat**?

12. Which organisms are **top consumers**?

13. What would happen to the snakes if all the plants were to die? **Why**?

14. Briefly explain the **nitrogen** cycle.

15. Briefly explain the **water** cycle.



16. Briefly explain the **oxygen-carbon** cycle.

17. What two cellular processes are involved in the oxygen-carbon cycle? (hint: one of these processes is done by plants).

18. What is **competition**?

19. What is **symbiosis**?

20. List and describe the **three** types of symbiosis.

21. What is an **adaptation**? Give an example.

