

Name KEY Period _____ Teacher 3 SA

Part 1: Biomolecules Match the monomers (subunits) on the left column to the biomolecules on the right column. Write the letters only.

- B 1. simple sugar or glucose
- D 2. fatty acids
- A 3. nucleotides
- C 4. amino acids

- A. nucleic acids
- B. carbohydrates
- C. proteins
- D. lipids

Match the functions on the left column to the biomolecules on the right column. Write the letters only.

- F 5. first source of energy
- G 6. builds cells & control reactions
- H 7. stores energy longer
- E 8. stores genetic information

- E. nucleic acids
- F. carbohydrates
- G. proteins
- H. lipids

Part 2: Prokaryotic vs. Eukaryotic Cells.

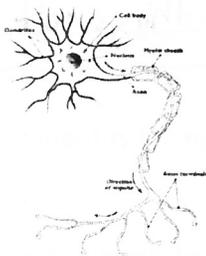
1. What is the key difference between prokaryotic cells and eukaryotic cells?

Pro - NO nucleus

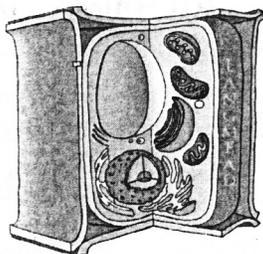
Euk - nucleus & organelles present. (true)

membrane bound organelles present.

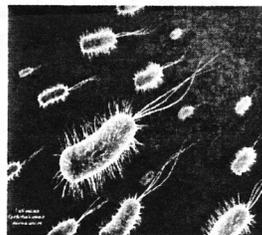
2. Identify the type of cell illustrated by each of the diagram below. Label if it's prokaryotic or eukaryotic.



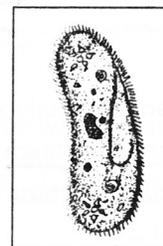
A neuron - Euk



B Plant - Euk



C bacteria - Pro



D Euk

Prokaryotic vs. Eukaryotic Cells. Read each statement and determine if it is True or False.

- 1. Prokaryotic and eukaryotic cells have DNA or genetic material. T
- 2. Prokaryotic and eukaryotic cells have membrane-bound organelles. F
- 3. Prokaryotic and eukaryotic cells have a cell membrane. T
- 4. Prokaryotic and eukaryotic cells have a nucleus. F
- 5. Prokaryotic and eukaryotic cells are single-celled organisms. T

Part 3: Identify the function of the cell organelles below.

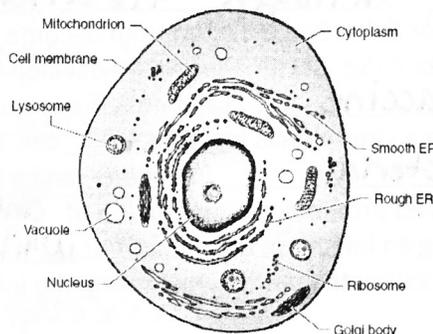
Mitochondria - Energy - Power House

Nucleus - Brain - control center

Cell membrane - Homeostasis - control in + out (fence)

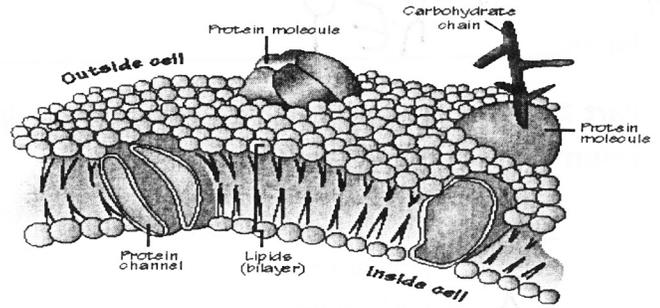
Which body system has a similar function as the nucleus?

Nervous system.



Cell membrane

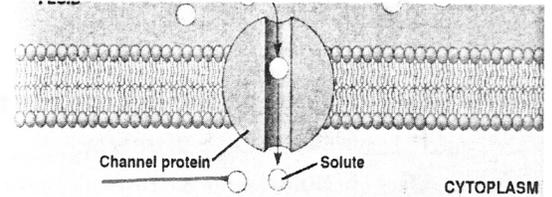
- The cell membrane is mostly composed of phospholipids.
- The cell/plasma membrane is like a strainer because it is semi permeable (selective).



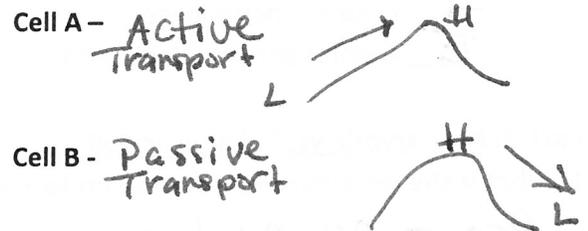
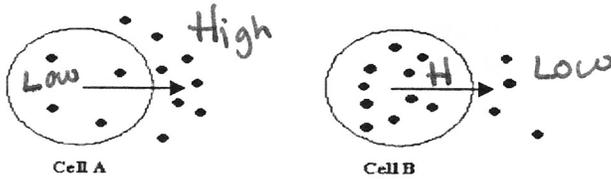
Cell Transport

- What type of diffusion is illustrated in the diagram to the right?
Facilitated diffusion

Why? needs help by protein channel



- Identify the diagram below as passive or active transport. Explain.

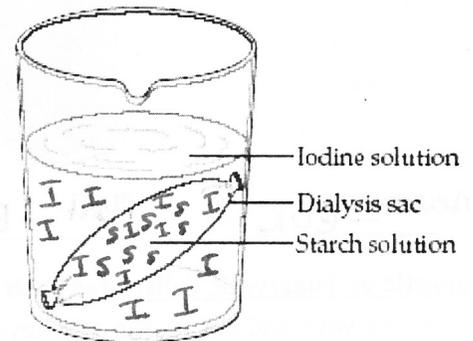


- Define the following and draw a picture to represent the concept:

- Hypertonic - cells lose water (shrink)
- Hypotonic - cells gain/grow (get big)
- Isotonic - cells no net gain/loss (stay same)
- Permeable - nothing in + nothing out all things in + all things out
- Impermeable - nothing in + nothing out

- In the diagram, the dialysis sac is selectively permeable to the iodine but will not allow the starch to pass through. The experimental setup is left undisturbed for 24 hours. Predict and explain what would occur in the set-up after 24 hours.

Iodine will diffuse into bag b/c selective permeable. Starch will stay in bag & not come out/pass.



Part 4: Bacteria vs. Viruses

- Bacteria are living (living, nonliving) while viruses are nonliving (living, nonliving).
- Name 2 other beneficial roles bacteria have:
 - they break down organic matter and recycle nutrients to the soil
 - aid/help in digestion
 - nitrogen fixation (add nitrogen to ground + plant)
- True or False. Some bacteria can become resistant to antibiotics. TRUE
- True or False. Bacteria grow and develop while viruses do not. TRUE
- A vaccine can boost the immune system and prevent viral infection such as smallpox, flu, or rubella.
- When a virus infects a host cell, it inserts its DNA into the cell's DNA in order to reproduce.
- Bacterial infections can be treated with antibiotics.
- Vaccines promote the production of antibodies (antigens, antibodies) in the human body.
- During an infection, the amount of white blood cells increases in order to fight and destroy the pathogens causing the infection.

10. The immune system works closely with the Circulatory system in order to distribute the blood cells necessary for fighting infections.

11. Compare and contrast bacteria and viruses listing at least 2 similarities and 2 differences.

Compare / same = both cause disease; both contain DNA or genetic material.

contrast / different = bacteria - living; treated w/ antibiotics; no host needed.
virus - nonliving; boost immune w/ vaccine; need host

12. What are some ways that HIV (virus that causes AIDS) can be transmitted from person to person?

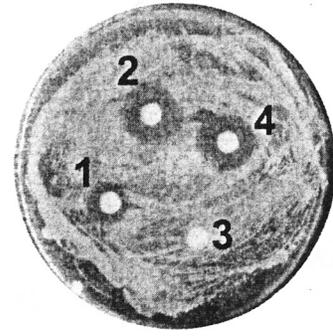
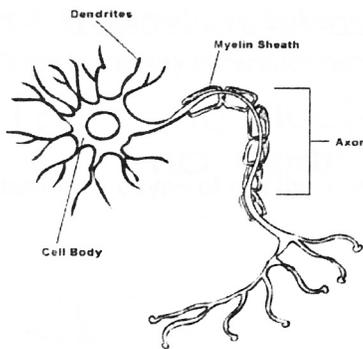
- body fluids - blood, sexual contact

13. Which antibiotic or disinfectant would destroy the most bacteria and inhibit the growth?

2, 4 How do you know?

large clear zone of inhibition.

Part 5: Body Systems



1. Name the type of cell shown to the left. neuron

What system is this a part of? Nervous

Give its function. transmit messages.

2. Identify the main body systems and organs involved in maintaining homeostasis for the following situations:

transport of nutrients and oxygen Red blood cells (RBCs) - *Circulatory

removal of liquid wastes (urine) Excretory (kidneys)

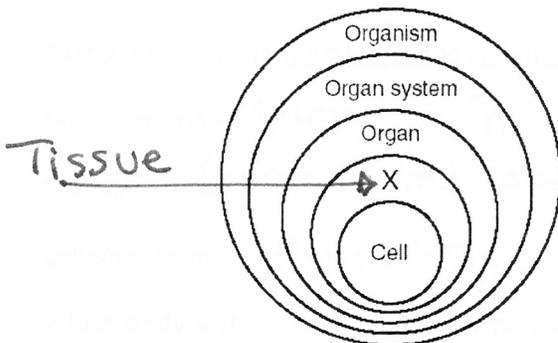
regulating glucose level in the blood Endocrine (pancreas)

receives stimuli from the environment and creates a response Nervous

defense against infection and diseases such as inflammatory response Immune

Part 6: Levels of Organization

Fill in the missing level in the diagram below.



Identify the level of organization for the following examples.

Red blood cells - cell

Brain - organ

Endocrine - organ system

Circulatory - organ system

Heart - organ

Blood - _____

Human - organism