

The Body VR

FACT SHEET TEACHER REFERENCE

SECTION 1 – BLOOD STREAM – RUNTIME 1:29

- Key Points
 - Begins in the blood vessels and explains the different type of cells; red, white, and platelets. Gives a percent index for both cells, also provides technical terms.
 - Explains macrophages and thrombocytes.
- Vocabulary
 - Erythrocyte- red blood cell, transfers oxygen to our lungs, 45% of blood's volume
 - Leukocyte- white blood cell, protects the body from infections, less than 1% of the blood's volume
 - Thrombocyte- platelets, works to repair tears in blood vessels and stop the bleeding, 3% of blood's volume
 - Monocyte- type of Leukocyte, becomes a macrophage that destroys viruses

SECTION 2 – OUTSIDE THE CELL – RUNTIME 1:27

- Key Point
 - Shows transport proteins and the bi-lipid layer outside of a cell. Allows oxygen and water enter freely.
 - Our transport vessel then enters the cell through the membrane.
- Vocabulary
 - Cell Membrane- consists of lipid bilayers and proteins, water and oxygen enter through the membrane
 - Proteins- moves cargo and information into the cell, large cargo require “keys” to enter, viruses use fake keys to enter
 - Glucose- $C_6H_{12}O_6$ - simple sugar



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SECTION 3 – ENTERING THE CELL – RUNTIME 1:56

- Key Points
 - When we enter the cell, different terms are explained and shown. Cytoplasm, Cytoskeleton (Microfilaments, Intermediate filaments, Microtubules).
 - You then see a Kinesin and receive an explanation as to how it works.
 - Each step that the kinesin moves, it produces ADP.
 - Macrophage pulls you into cytoplasm.
 - Cytoplasm is made mostly of water.
- Vocabulary
 - Cytoplasm- liquid substance that contain cell organelles
 - Cytoskeleton- made of a network of three different adjustable strands, determines and keeps the shape of the cell
 - Microfilaments- 7 nm, thinnest strands
 - Intermediate Filaments- 10 nm, made up of protein
 - Microtubules- 24 nm, wide enough to be used for transport
 - Kinesin- moved by ATP molecules, 100 “steps” per second, goes to nucleus

SECTION 4 – OUTSIDE THE NUCLEUS – RUNTIME 1:18

- Key Points
 - You go to the nucleus aboard the kinesin and you receive an explanation of nuclear pores and how they work.
 - Nucleus’s center has its own surface, similar to cell membrane, has pores surrounding it
 - Discusses protein filaments to facilitate transport.
- Vocabulary
 - Protein Filaments- on edge of nucleus to facilitate transport



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SECTION 5 – ENTERING THE NUCLEUS – RUNTIME 1:16

- Goes inside nucleus and exclaims it is the control, center. The gives explanation of DNA.
- Then gives process for transcription and how the DNA is formed into RNA. Exits nucleus through back side and goes back into cytoplasm.
- DNA- carries genetic code, contains instructions for protein synthesis, mostly in the nucleus
- RNA- section of DNA that is copied, contains single ingredient for protein synthesis

SECTION 6 – CYTOPLASM – RUNTIME 1:55

- Gives an explanation for RER and shows ribosomes. Gives process and use for both.
- You learn about more cell parts like Vesicles, ATP generation and the mitochondria.
- Ribosome- contains a vital role in protein synthesis: links to amino acids
- Vesicle- fluid/air filled sac in the body, made from a portion of the arias membrane
- Mitochondria- free floating organelle powerhouse of the cell, gains name from ATP generation, made of ATP and water

SECTION 7 – VIRUS – RUNTIME 2:00

- The journey leaves the cell. Experience shows how a cell responds to a virus and brings out antibodies to stay healthy. The cell is then infected. The cell dies and the experience is over.
- White blood cells are in a cloud of antibodies, destroy a virus, they form the front line of defense

