

Cardio Vascular System vs. Trucking Company

	Cardiovascular System	Trucking Company
Goals:	Deliver nutrients/oxygen to organs Remove Waste <ul style="list-style-type: none"> - Efficiently (most waste removal/ minimum energy) Temperature Control (heat transport) Temperature Control (heat transport) On demand service Fight disease/ immune system	Deliver products Efficiently Profitability On demand
Vehicles:	Blood <ul style="list-style-type: none"> - Hemoglobin (Hg-O₂) - Heat - Nutrient carriers 	Trucks
Routes/Infrastructure:	Vasculature <ul style="list-style-type: none"> - Arteries - Arterioles - Capillaries - Venules - Veins - Lymph (system clean-up) 	Roads <ul style="list-style-type: none"> - Highways - Surface Roads - Driveways
Loading: - In capillaries	Hg/O ₂ binding GI System Endocrine System Liver Renal/Kidney Muscles- waste/metabolic bi-products Lungs	Fork lifts/Equipment People Order/Warehouse Repacking Smuggling
Unloading: - In Capillaries	Muscles (nutrients) <ul style="list-style-type: none"> - transport mechanisms Liver <ul style="list-style-type: none"> - breakdown drugs and metabolites Kidney Lungs	Fork lifts/Equipment People
Obstacles:	Vascular Obstruction Vascular Injury Obstructed Loading (CO/Hg) Oxygen Disassociation problems Poor/damaged Vascularization <ul style="list-style-type: none"> - Must rely on diffusion Toxic Substances	Traffic Jams Road Failure Keys Lost Poor Driveways Weather

Regulation:	Flow Control (close & open roads) Tracking/Sensors Autonomic Nervous System (ANS) Communication	Signs/Lights (semaphores) Dispatch Tracking (Barcodes. Sensors) Map Communication
Fuel:	Energy/Nutrients	Diesel Food Money
Maintenance:	????? - Fill in yourself	

Vocabulary:

Analogy- teaching method to take the unfamiliar and link it to the familiar to make it easier to understand...Never perfect.

Edema- swelling of tissues from excess H₂O (usually lymph system is not removing H₂O)

Semaphores- Lights (a term used in highway engineering)