

The Supply Chain: Logistics of Life

(Year 8 - Ages 13-14)

Lesson 3 of 9

Name: _____ Class: _____

Mission Briefing: An Alchemist knows that even the most powerful elixir will spoil if not handled correctly. In organ donation, the enemy is Time. Your mission is to analyze the "Supply Chain"—the complex journey of getting an organ from Donor to Recipient before the clock runs out.

Part I: The Viability Clock (Data Analysis)

Definition: Ischaemia Time is the time an organ spends outside the body without blood flow.

Task: Use the data below to create a "Countdown Bar Graph" in the box.

- Heart: 4 hours
- Lungs: 6 hours
- Liver: 12 hours
- Kidney: 24 hours
- Cornea (Tissue): 4 Weeks

Analysis:

Which organ requires the fastest logistics (jets/helicopters)? _____

Why are Tissues (like Corneas) stored in a "Bank" instead of rushed to a patient?



Part 3: Future Tech Investigation

Science is trying to break the "Time Limit." Compare the Old Way vs. The New Way.

Technology	How it works	The Advantage
Static Cold Storage (The "Esky")	Organ is flushed with cold fluid and put on ice.	Simple, cheap, easy to transport.
Machine Perfusion (Heart in a Box)	A machine pumps warm, oxygenated blood through the organ so it keeps beating outside the body.	It extends the time limit (organ stays healthy longer) and allows doctors to test if it works before surgery.
3D Bioprinting (The Printer)	It uses "bio-ink" made from the patient's own cells to print a new organ layer by layer.	No rejection, infinite supply.

Opinion: Which technology do you think will have the biggest impact on the waiting list by the time you are 30? Why?



Extension: The "Drone" Idea

Design a concept for a "Medical Transport Drone" that could skip traffic to deliver organs faster.

Sketch it here: (Label features like "Cold Storage Unit" or "Speed Motors").

