# The Black Box: Decoding the System

## (Year 9 - Ages 14-15)

## Lesson 3 of 9

## Teacher Preparation

### Introduction for Teachers

Year 9 students are acutely aware of "fairness." Lesson 3 leverages this by exposing them to the ultimate fairness test: Distributive Justice. We analyze the organ allocation system. Who decides? Is it a doctor? A computer? A committee?

- The Reality: It is a complex algorithm based on medical criteria.
- The Myth: "Rich people get organs faster." (We debunk this).

The Core Concept: The system must balance Efficiency (wasting no organs) with Justice (giving everyone a chance).

## Safety and Sensitivity Considerations

- The "Death Panel" Fear: Students may find the idea of "choosing who lives" scary.
  - Reframe: "We aren't choosing who dies; we are choosing who we can save with a scarce resource. The disease is killing them; the allocation system is trying to save the most people possible."
- Avoiding Discrimination: Ensure discussions about "Social Value" (e.g., "The Scientist is worth more") are challenged. The Australian system explicitly excludes social value. A criminal and a saint have the same right to medical care.

## Teacher Resources

- Video: "The Trolley Problem" (YouTube) or "Justice: What's The Right Thing To Do?" (Michael Sandel excerpts).
- Resource: "The Algorithm Cards" (Patient profiles).

## The Alchemist's Data: The Allocation Stats (Year 9)

The Waiting List Calculation There are approx. 1,800 people waiting.

- A patient creates a "score" based on their medical data.
- When a donor appears, the computer runs the list. It filters out incompatible blood types. It filters out incompatible sizes.
- It ranks the remaining people by Urgency and Match Quality.
- The computer spits out an "Offer List." The doctors accept or decline.

The "Blind" System The matching system is largely "blind" to personal details. The transplant team often doesn't know the name of the donor, and the donor family doesn't know the recipient. This blindness protects the Ethics of the process.

# Key Concepts & Language for Teachers

1. The Allocation Algorithm (The Code)

The computer considers:

- Blood Type/Tissue Match: Must be compatible (Biology is the boss).
- Urgency: Who will die today without it? (Status 1).
- Geography: Can the organ get there in time? (Ischaemia time).
- Size: Can a large heart fit in a small chest?
- Excluded: Race, Religion, Wealth, Gender, Social Status.

2. Utility vs. Equity (The Ethical Framework)

- Utilitarianism: "Do the most good." Give the organ to the person who will live the longest with it (e.g., the youngest).
  - Risk: Older people or those with disabilities might never get a turn.
- Equity (Egalitarianism): "Everyone is equal." First on the list, first served.
  - Risk: You might give a heart to someone who dies a week later, wasting the organ that could have saved someone else for 20 years.
- The Australian Solution: A hybrid. We prioritize Urgency (Equity) but ensure Match (Utility) to prevent waste.

3. AI and the Future

- Promise: AI can match organs better than humans, finding complex genetic links we miss.
- Peril: If the AI is trained on biased data (e.g., historical data showing one group has better outcomes), it might learn to discriminate against minorities. This connects back to Lesson 2 (Bias).