The Legacy Code: The Opportunity Cost

(Year 9 - Ages 14-15)

Lesson 4 of 9

Lesson Overview

Lesson Title:	The Legacy Code: The Opportunity Cost
Year Level:	Year 9 (Ages 14-15)
Lesson Duration:	60 minutes
Key Focus Areas:	Health Economics, Opportunity Cost, QALYs, Data Analysis.
Curriculum Links:	Australian Curriculum - Health and Physical Education (Foundation)

- AC9HE9K01: Generate and solve problems using... cost-benefit analysis and opportunity cost. (Focus on the economics of health)
- AC9M9S02: Compare data displays... and analyze distributions. (Focus on health data)
- AC9HP10P03: Evaluate factors that shape identities and analyze how individuals impact the health of communities. (Focus on chronic illness impact)

Learning Intentions

- Define "Opportunity Cost" and apply it to the context of chronic illness and organ failure.
- Investigate the concept of QALYs (Quality Adjusted Life Years) as a measure of health outcomes.
- Analyze the "Bandwidth Cost" of illness on a teenager's education, independence, and mental health.
- Evaluate donation not just as a medical procedure, but as an economic and social enabler.

Success Criteria

- Explain the difference between Survival (Quantity of life) and Thriving (Quality of life) using the QALY scale (0 to 1).
- Calculate the "Opportunity Cost" of a specific condition (e.g., hours lost to treatment per year).
- Create a visual "Bandwidth Graph" comparing a patient Pre-Transplant vs. Post-Transplant.
- Articulate how restoring health allows a person to contribute to the "Social Code" (society).

Teaching Sequence

Work through this lesson in the following sequence:

Duration	Part	Focus
10 minutes	Part A: The Low Battery	Hook: Metaphor of Bandwidth & Opportunity Cost.
15 minutes	Part B: The QALY Scale	Worksheet: Introduction to Health Economics metrics.
20 minutes	Part C: The Time Tax	Math Activity: Calculating the cost of dialysis.
15 minutes	Part D: The Investment	Reflection: Donation as a societal investment.

Part A: The Low Battery (10 minutes)

Step 1. The Metaphor

- Visual: Show a phone with 10% battery.
- Ask: "When your phone is on 10%, what features do you stop using?" (Video, GPS, brightness).
- Link: "Organ failure puts a human on 'Low Power Mode.' You survive, but you turn off the 'extras'—career, travel, hobbies. Donation is the Charger."

Step 2. Opportunity Cost

- Define: "Every hour spent in a hospital chair is an hour not spent becoming an architect, a father, or an athlete. That loss is the Opportunity Cost."

Part B: The QALY Scale (15 minutes)

Step 1. The Metric

- Explain: "Doctors need to measure health. They use QALYs (Quality Adjusted Life Years)."
- Activity: Students complete Part 1 of the Student Worksheet.
- Discussion: "Why isn't just 'staying alive' enough? Why do we want a high QALY score?"

Part C: The Time Tax (20 minutes)

Step 1. The Calculation

- Scenario: "Sam" on dialysis.
- Task: Students complete Part 2 (The Maths).
- Answer: (5+2) x 3 = 21 hours/week. 21 x 52 = 1,092 hours/year.
- Context: "That is 45 full days. Imagine missing 45 days of your life every year."

Step 2. Bandwidth Graph

- Activity: Students draw the battery bars in Part 3. Visualizing the shift from "Surviving" to "Thriving."

Part D: The Investment (15 minutes)

Step 1. The Payoff

- Discuss: "When a donor gives an organ, they aren't just being nice. They are giving the community a 'Return on Investment.' They are creating a person who can work, love, and lead."

Step 2. Writing

- Task: Students write their "Health Economist" statement in Part 4.

Step 3. Conclusion

- Say: "The Legacy Code isn't just about biology. It's about unlocking human potential. Donation gives people the bandwidth to change the world."

Differentiated Learning

- Extension:
  - Students research the financial cost of Dialysis vs. Transplant (Transplant is much cheaper for the government over 5 years).
- Learning Support:
  - Provide calculators for the math section. Use the "Phone Battery" analogy visually throughout the lesson.

Teacher Reflection

- Did the "Economics" angle engage students who might be less interested in the emotional side?
- Was the QALY concept explained clearly?
- Did the "Bandwidth" metaphor help students understand the fatigue of chronic illness?

Assessment

- Worksheet (Part 2): Assess numeracy skills—correct calculation of hours lost.
- Worksheet (Part 4): Assess economic reasoning—can they articulate the social value of health?

Additional Notes:

This lesson validates the "Logical/Mathematical" thinkers. It frames donation as Efficient and Rational, not just emotional. It aligns with the Year 9 desire to understand how the adult world (economics/work) functions