Scarcity and Survival

Resources, Rationing, and the Moral Weight of Who Lives

Drought-cracked earth -- when resources run out, survival becomes a question of choices

PART 1: THE LIFEBOAT PROBLEM

In 1842, the American ship *William Brown* struck an iceberg and sank in the North Atlantic. Forty-one survivors crowded into a leaking lifeboat built for half that number. As the boat began to take on water, the first mate, Francis Rhodes, gave an order: some passengers would have to be thrown overboard so the rest could live. Fourteen men and two women were cast into the freezing sea. They all drowned. The survivors were rescued the next morning. When the ship's crew stood trial, the court faced a question that has haunted philosophy ever since: *When there is not enough for everyone, who decides who lives and who dies?*

This is the **scarcity** problem at its most extreme. But scarcity does not only appear in lifeboats. Every day, hospitals decide which patients receive **transplant** organs and which remain on the waiting list. Governments decide how to **allocate** limited budgets between education, defense, and healthcare. During the COVID-19 pandemic, when ventilators ran short, doctors in Italy and New York faced the lifeboat problem in real time: too many patients, not enough machines. They developed **triage** protocols -- systems for deciding who gets treated first based on likelihood of survival, age, and other factors. These decisions are never purely medical. They are deeply moral.

PART 2: TRAGEDY OF THE COMMONS

In 1968, ecologist Garrett Hardin published an influential essay called "The Tragedy of the Commons." He described a shared pasture where several farmers graze their cattle. Each farmer benefits from adding one more cow -- more milk, more meat. But the pasture can only support a limited number of animals. If every farmer acts in their own **self-interest**, adding cow after cow, the pasture is destroyed and everyone loses. Hardin called this the **tragedy of the commons**: when individuals acting rationally in their own interest collectively destroy a shared resource.

This pattern repeats across human civilization. Fishermen **deplete** ocean fish stocks because no single fisherman benefits from catching less. Factories pollute rivers because the cost of pollution is shared by everyone while the profit belongs to the factory owner. Countries burn fossil fuels because the economic benefits are immediate and national, while climate change is gradual and global. The atmosphere is the ultimate commons -- shared by all, owned by none, and being damaged by everyone. The tragedy is not that people are evil. The tragedy is that **rational** individual behavior can produce collectively catastrophic results.

Water scarcity affects over 2 billion people worldwide -- the most fundamental resource conflict

PART 3: SCARCITY IN SCIENCE FICTION

Science fiction has explored scarcity with brutal honesty. In Liu Cixin's *The Dark Forest*, Earth faces invasion by the Trisolaran fleet. Resources must be redirected entirely toward defense, and society must decide: does everyone sacrifice equally, or do some people matter more than others? The novel introduces the concept of **escapism** as a crime -- the idea that planning to flee Earth rather than fight is **treason**, because it implies giving up on the collective survival effort.

The concept intensifies in *Death's End*, where humanity must build "lightspeed ships" but can only save a tiny fraction of the population. The **lottery** for seats on these ships becomes the defining moral

crisis of the era. Who deserves to survive -- the young, the brilliant, the lucky? Should leaders get priority? Should children? The novel forces readers to confront an uncomfortable truth: in genuine extinction scenarios, fairness may be a **luxury** that survival cannot afford.

> *"The real problem of humanity is the following: we have Paleolithic emotions, medieval institutions, and god-like technology."*
>
> -- E.O. Wilson, biologist

PART 4: SOLUTIONS AND TRADE-OFFS

Economists and philosophers have proposed various frameworks for managing scarcity. **Utilitarianism** says we should maximize total well-being -- save the greatest number of lives, even if individual choices seem harsh. The philosopher John Rawls argued for the **"veil of ignorance"**: design your rationing system as if you don't know where you'll end up in it. If you might be the richest or the poorest person in society, what rules would you create? Rawls believed this thought experiment would naturally produce fairer systems.

Others advocate for market solutions -- let prices rise until supply and demand reach **equilibrium**. During a water shortage, higher prices encourage conservation and attract investment in new supply. But critics argue that market solutions punish the poor: if water costs ten times more, the wealthy still drink while the poor go thirsty. The tension between efficiency and **equity** -- between what works and what is fair -- runs through every scarcity debate. There are no perfect answers, only trade-offs.

8 billion people share one planet's resources -- how we distribute them defines our civilization

KEY VOCABULARY

scarcity -- the condition of having limited resources relative to demand

allocate -- to distribute resources for a particular purpose

triage -- a system of prioritizing patients or problems based on urgency

transplant -- to move an organ from one body to another

self-interest -- concern for one's own advantage above others

deplete -- to use up or exhaust a resource

rational -- based on logic and reason rather than emotion

treason -- the crime of betraying one's country or group

luxury -- something desirable but not necessary; an indulgence

utilitarianism -- the philosophy of maximizing overall happiness or well-being

equilibrium -- a state of balance between opposing forces

equity -- fairness; giving each person what they need (not just equal shares)

tragedy of the commons -- when shared resources are destroyed because individuals act in self-interest

lottery -- a system of random selection, often used when fair choice seems impossible

A. COMPREHENSION

1. What happened on the *William Brown* in 1842, and what moral question did it raise?

2. What is the "tragedy of the commons"? Give one example from the reading.

3. Why does Hardin say the tragedy occurs even when no one is acting with evil intent?

4. In *The Dark Forest*, why is "escapism" treated as a crime?

5. What is utilitarianism, and how would a utilitarian approach a lifeboat scenario?

6. Explain the "veil of ignorance." How is it supposed to create fairer systems?

7. Why do critics say market solutions to scarcity are unfair?

B. VOCABULARY IN CONTEXT

Complete each sentence with a word from the vocabulary list:

1. During the pandemic, hospitals used _____ systems to decide which patients received ventilators first.

2. Overfishing will _____ ocean stocks within decades if governments don't intervene.

3. Each farmer acted out of _____, but the result was disaster for everyone.

4. The government must _____ its limited budget between education, defense, and healthcare.

5. In a survival situation, fairness becomes a _____ that the group cannot afford.

6. The price of water will rise until supply and demand reach _____.

7. True _____ means giving people what they need, not simply giving everyone the same amount.

C. CRITICAL THINKING

1. In the *William Brown* case, the crew chose who would be thrown overboard. Was this the right approach? What alternatives existed? What would you have done?

_____

_____

2. Climate change is often described as a "tragedy of the commons." Do you think Hardin's framework applies? Why is it so difficult to solve?

_____

_____

3. If only 1,000 humans could survive an extinction event, how would you select them? Would you use a lottery, merit-based selection, or something else? Defend your choice.

_____

_____

4. Is "escapism" -- planning to leave rather than fight -- always wrong? Can you think of situations where escape is the morally correct choice?

_____

_____

D. SCENARIO ANALYSIS: WHO GETS THE RESOURCE?

For each scenario, decide how to distribute the resource. Explain your reasoning using concepts from the reading.

1. Hospital: One Organ

A heart is available for transplant. Patient A is 25, otherwise healthy, has two children. Patient B is 60, a retired surgeon who could train new doctors. Patient C is 40, waited longest on the list. Who gets the heart?

2. Spaceship: Limited Fuel

Your ship has fuel to reach one destination. Planet A has confirmed water but unknown atmosphere. Planet B has breathable air but no confirmed water. Planet C is closest but smallest. Where do you go?

3. City: Water Rationing

A drought has cut water supply by 60%. Do you: (A) ration equally per person, (B) raise prices to reduce demand, (C) prioritize hospitals and schools, or (D) cut industrial use first?

4. Colony: Food Shortage

A Mars colony's greenhouse fails. Food will last 6 months for 30 people, or 12 months for 15 people. The next supply ship arrives in 10 months. What do you do?

5. Nation: Pandemic Vaccines

Only 20% of the population can be vaccinated in the first month. Do you prioritize: healthcare workers, elderly, children, essential workers, or random lottery?

6. Earth: Extinction Ship

An asteroid will hit Earth in 5 years. One ship can carry 10,000 people. 8 billion want a seat. How do you choose? Who designs the selection process?

E. THE GREAT DEBATE: FAIRNESS VS. SURVIVAL

Context: A colony ship carrying 500 people to a new planet suffers engine damage. To reach the destination, the ship must reduce its weight by ejecting 100 people's worth of supplies -- food, water, and oxygen. There are exactly three options:

Position A: Lottery -- pure random selection.

Everyone has an equal chance. No one judges who is "more valuable." Random selection is the only truly fair method because it treats every human life as equal. The moment you start ranking people, you create a system of inequality that will corrupt the colony before it even arrives.

Position B: Merit -- keep the most useful people.

Survival requires skills: doctors, engineers, farmers, leaders. Choosing randomly could eliminate every doctor or every engineer. The colony needs the best chance of success, not the fairest process. Harsh, but rational. The dead cannot benefit from fairness.

Position C: Volunteers first, then lottery.

Ask for volunteers willing to sacrifice themselves. Honor their choice. If not enough volunteer, use a lottery for the remaining spots. This preserves human dignity and agency while still solving the problem.

It is the only option that doesn't require someone else to choose who dies.

F. ESSAY PROMPT

Choose ONE of the following prompts. Write a well-organized essay of 300-500 words on a separate sheet of paper.

Option A: "In a true survival situation, fairness is a luxury." Do you agree or disagree? Use examples from the reading, history, or your own experience.

Option B: Choose one real-world "tragedy of the commons" (climate change, overfishing, deforestation, water pollution). Explain why it happens and propose a realistic solution.

Option C: A philosopher once said, "A society is judged by how it treats its weakest members." How does this idea apply to the scarcity scenarios discussed in this lesson? Do you agree with the philosopher?

Teacher's Notes & Answer Key

Scarcity and Survival -- Instructor Guide

LESSON OVERVIEW

Level: Advanced (B2-C1) | **Duration:** 60-90 minutes | **Focus:** Reading, ethical reasoning, debate
Series: Humans & The Universe, Lesson 5 of 8 | **Prerequisite:** None (standalone compatible)

SUGGESTED LESSON FLOW

Warm-up (5 min): "If a lifeboat can hold 10 people but 15 need to get on, what do you do?" Instant moral dilemma to engage.

Pre-reading (5 min): Key vocabulary: scarcity, allocate, triage, tragedy of the commons, utilitarianism.

Reading (15-20 min): Parts 1-4. The William Brown story is a strong hook -- let students react before continuing.

Comprehension (10 min): Section A -- quick check.

Vocabulary (10 min): Section B fill-in-blanks.

Scenarios (15-20 min): Section D -- pairs choose 2-3 scenarios to analyze. Present to class.

Debate (10-15 min): Section E -- assign positions or let students choose.

Essay (homework): Section F -- assign as take-home writing.

ANSWER KEY -- SECTION A

1. The ship sank, 41 survivors crowded a leaking lifeboat built for ~20. The first mate ordered 16 passengers thrown overboard to save the rest. Moral question: when resources are insufficient for all, who decides who lives and who dies?

2. When individuals acting in self-interest collectively destroy a shared resource. Examples: overfishing, factory pollution, overgrazing, fossil fuel burning / climate change.

3. Because each individual is acting rationally -- adding one more cow, catching one more fish -- but the collective effect of everyone doing this destroys the resource. No malice required, just rational self-interest at scale.

4. Because planning to flee Earth rather than fight the Trisolaran invasion implies giving up on collective survival. It undermines morale and diverts resources away from defense.

5. The philosophy of maximizing overall well-being. A utilitarian would save the greatest number of lives, even if individual decisions seem harsh (e.g., sacrificing some to save many).

6. Design a rationing/resource system as if you don't know your position in it -- you might be rich or poor, healthy or sick. This forces you to create fair rules because you might end up on the losing side of unfair ones.

7. Because raising prices means wealthy people can still afford resources while poor people cannot. Market efficiency comes at the cost of equity -- the poorest suffer most.

ANSWER KEY -- SECTION B

1. triage

2. deplete

3. self-interest

4. allocate

5. luxury

6. equilibrium

7. equity

DISCUSSION EXTENSIONS

Real-world: Research the COVID-19 vaccine distribution debate. How did different countries prioritize? Was it fair? Compare approaches.

Film connection: "Snowpiercer" (2013) -- a train carrying the last humans is divided into classes. How does the film illustrate scarcity and social hierarchy?

Link to Lesson 4: Mars colony (Lesson 4) will face extreme scarcity. How do the frameworks from this lesson (utilitarianism, veil of ignorance, lottery) apply to colony resource management?

Philosophy: Introduce the "trolley problem" as a related ethical dilemma. Is actively choosing who dies different from allowing someone to die through inaction?

KEY DISCUSSION LANGUAGE

Moral reasoning: "The right thing to do is... because..."

Justifying: "This is justified because..." / "The alternative is worse."

Challenging: "But that assumes..." / "What if the situation were reversed?"

Empathy: "Put yourself in their position..." / "How would you feel if..."

Trade-offs: "We gain X, but we lose Y." / "The cost of fairness is..."

Conceding: "I see your point, but..." / "That's valid, however..."