

# Division of Labor

Simulation Game

Jan 20, 2023

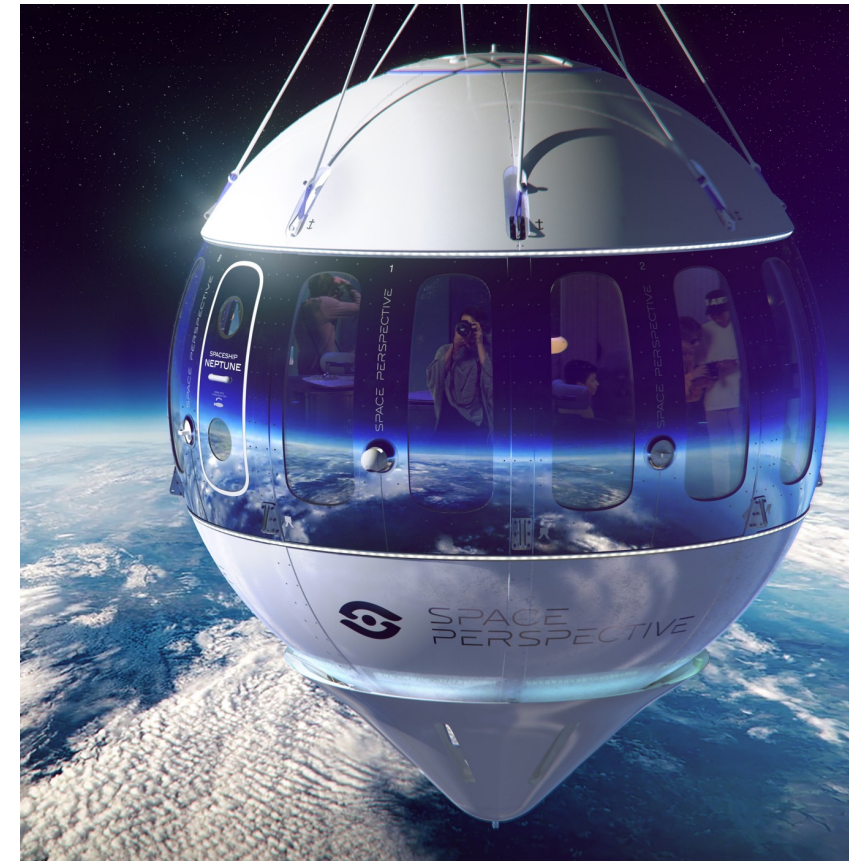
# Imagine...

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In the future a spaceship on a research mission has crash landed on a distant planet. The spaceship's main engines are damaged beyond repair, but all major life support systems are working well and can be maintained indefinitely.

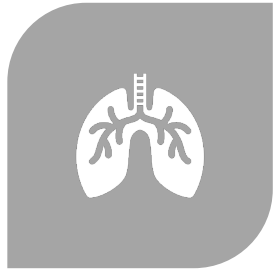
The planet itself is barren and inhospitable to human life. The four people who are the only survivors of the crash must remain inside what is left of their spacecraft.

The survivors' names are A, B, C, and D.



# In order to survive, each person needs to have

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AIR



WATER



FOOD



HEAT

# Luckily,

The spaceship's life support system contains the **technology** to produce all of these things, but their production requires **time and effort plus specialized skills** (to operate the equipment). Some survivors have the necessary skills for certain commodities.

	PLAYER A	PLAYER B	PLAYER C	PLAYER D
Air	X			
Water	X	X		
Heat	X	X	X	
Food	X	X	X	X

Each day, each  
player produces 8  
commodities\*

Can be any combination of the  
commodities you are able to produce

	PLAYER A	PLAYER B	PLAYER C	PLAYER D
Air	8			
Water	0	4		
Heat	0	2	6	
Food	0	2	2	8

\*Except Spaceship 1 Player A, who can produce 12 commodities

# Phases

## Production phase

- Players decide how much of each commodity to produce and obtain it from the banker

## Exchange phase

- Players exchange commodities between each other for whatever exchange rate they agree on

## Consumption phase

- After the exchange phase is over, each player must give 1 of each commodity to the banker for survival

## Tallying phase

- The banker notes how many of each commodity the various players have and records it in the google sheet

# Production phase

	PLAYER A	PLAYER B	PLAYER C	PLAYER D
Air	6			
Water	2	4		
Heat	0	2	6	
Food	0	2	2	8

# Exchange phase

- A gives 1 Air to B for 1 Water
- A gives 1 Air to C for 2 Heat
- A gives 1 Air to D for 3 Food
- B gives 1 Water to C for 2 Heat
- B gives 1 Water to D for 1 Food
- C gives 1 Heat to D for 1 Food



Spaceship Activity



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	A	B	C	D	E	F	G
1	In Round	I gave this Amount	Of this Commodity	To Player	for this amount	of this Commodity in return	
2	1	1	Air	B	1	Water	
3							
4							



# End of Exchange Phase


	A	B	C	D
Air	3	1	1	1
Water	2	2	1	1
Heat	2	4	2	1
Food	3	2	1	3

# Consumption Phase

- Each player gives 1:
  - Air
  - Food
  - Water
  - Heat
- To the banker to survive the night
- If you do not have enough, you 'die' and can no longer play in future rounds

	A	B	C	D
Air	2	0	0	0
Water	1	1	0	0
Heat	1	3	1	0
Food	2	1	0	2

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Spaceship Activity

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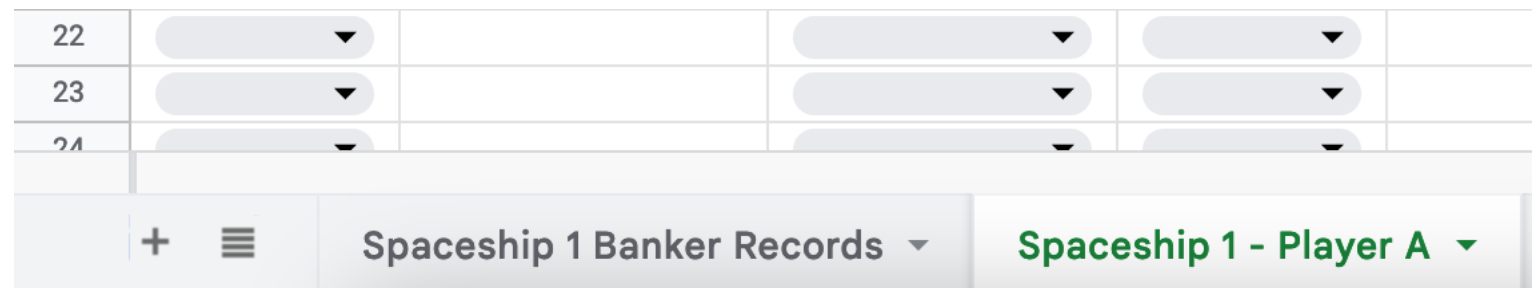
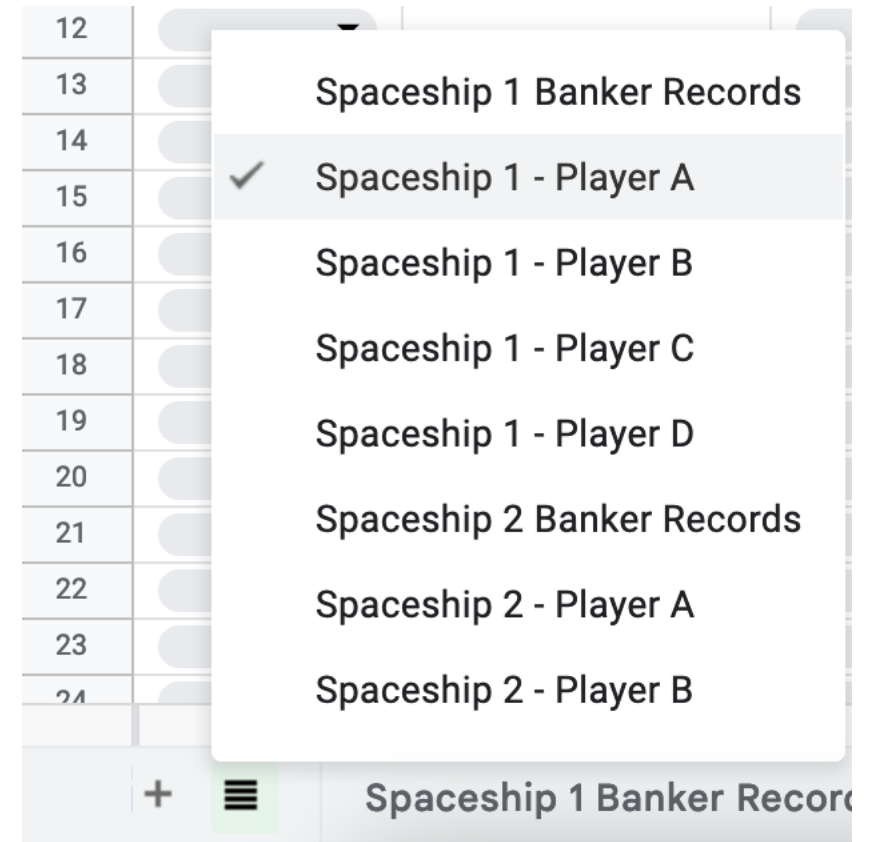
	A	B	C	D	E	F	G	H
1	Round	Player	Water	Food	Heat	Air	Total	
2	1	A	1	2	1	2	6	
3	1	B	1	1	3	0	5	
4	1	C	0	0	1	0	1	
5	1	D	0	0	0	2	2	
6	2	A					0	
7	2	B					0	
8	2	C					0	
9	2	D					0	

# Objectives

1. Don't die
2. Collect as many units of commodities as you can

# Play Rounds 1-4

- Use this google sheet to record exchanges and round results
  - <https://docs.google.com/spreadsheets/d/1U-qAzUuXeTtYVYE63oxkBzz3OSeDujgPdF19aaqDybM/edit?usp=sharing>
- **Find the sheet whose name corresponds to your spaceship assignment**



# Break

- [https://duke.qualtrics.com/jfe/form/SV\\_9uZFukxN5BnQPD8](https://duke.qualtrics.com/jfe/form/SV_9uZFukxN5BnQPD8)

# Discussion

- Which spaceship led to the most inequality?
- How do the production matrices map onto different types of societies?
- What are the benefits of a larger division of labor?
- What rules constrained the ability to change one's station?

# Round 5

- If you can only produce 1 commodity, choose another one to add to your skills.
- Banker should record changes to the production matrix



# Round 6-8

- Players may choose to switch what they produce prior to the production phase of each round
  - **but if they do, they must give up 1 commodity they can produce.**
- For example, if I am player C in the production matrix discussed previously
  - I can produce Heat and Food based on the original production matrix
  - If I want to add Air, I must give up either Heat or Food