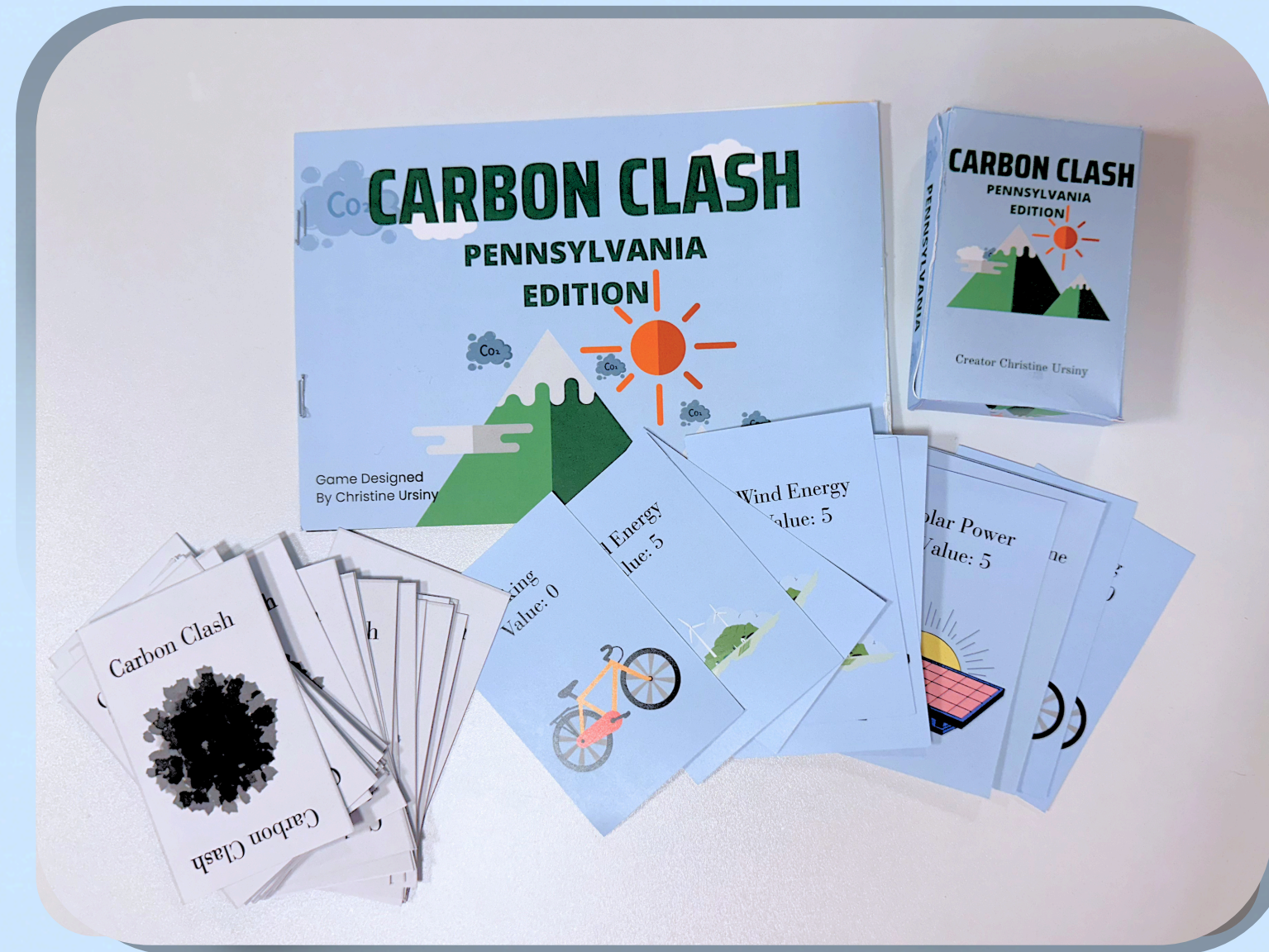


Carbon Clash: Pennsylvania Edition

Debate. Defend. Win.



A 10–15 minute competitive sustainability card game for 2–4 players.

Replacing Passive Learning with Active “Reverse War”



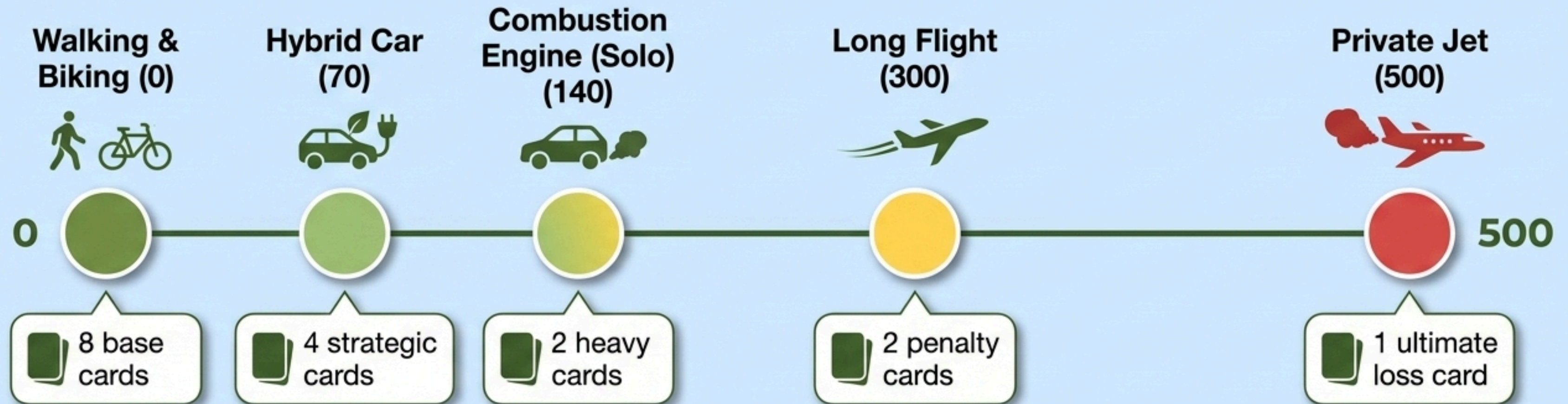
Traditional War:
Highest Card Wins.



Carbon Clash:
Lowest Footprint Wins.

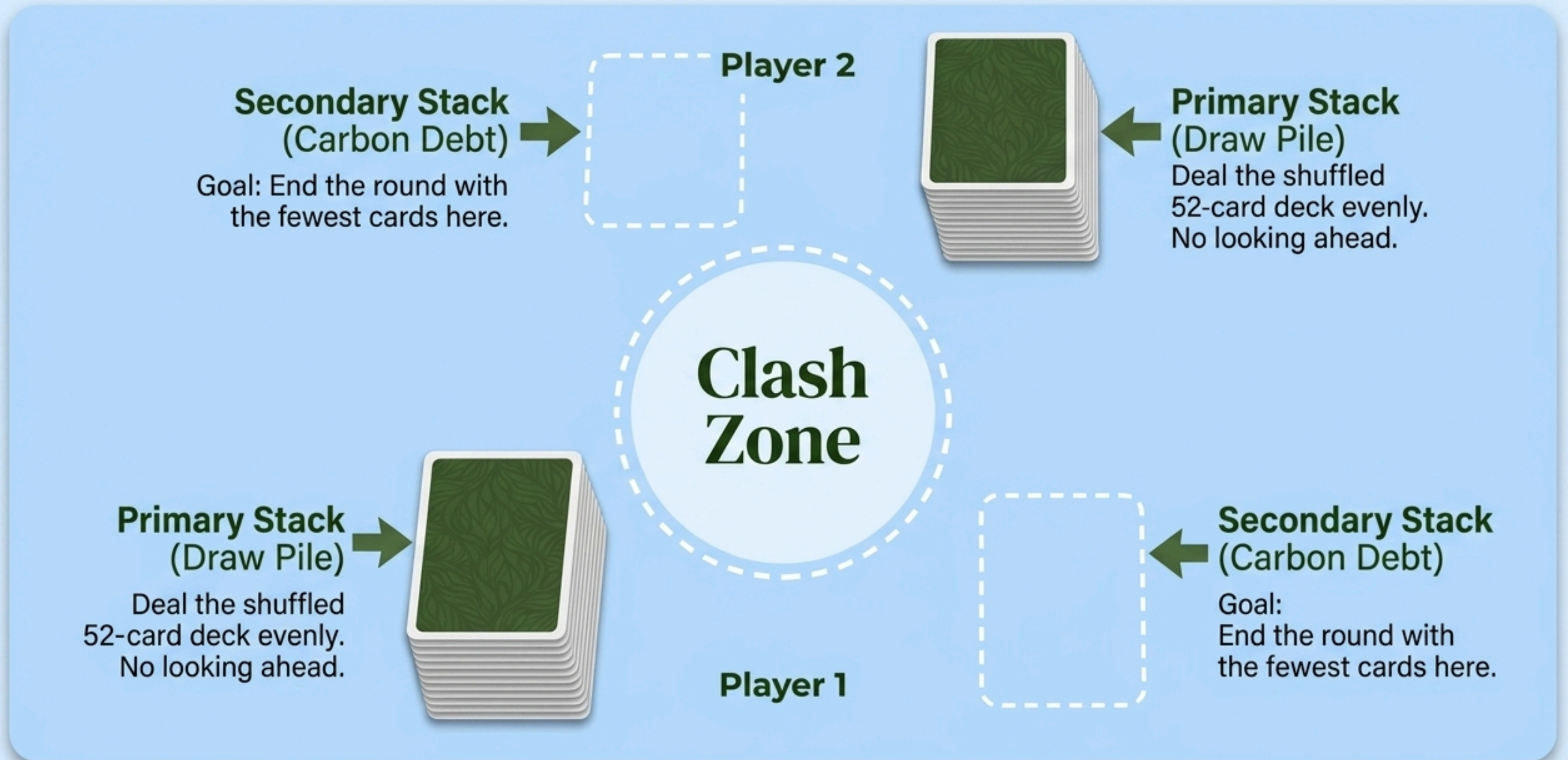
Teaching sustainability isn't about memorizing numbers. It's about **evaluating choices**.
We built an economy where the **lowest carbon footprint wins**, forcing players to **actively debate** real-world environmental impacts.

The 52-Card Carbon Economy



Key Insight Bar: Data-driven deck balance: The deck is stacked with lower-emission cards (Public Bus: 5 cards, Train: 5 cards) ensuring rapid gameplay, while rare massive-emission cards create dramatic turning points.

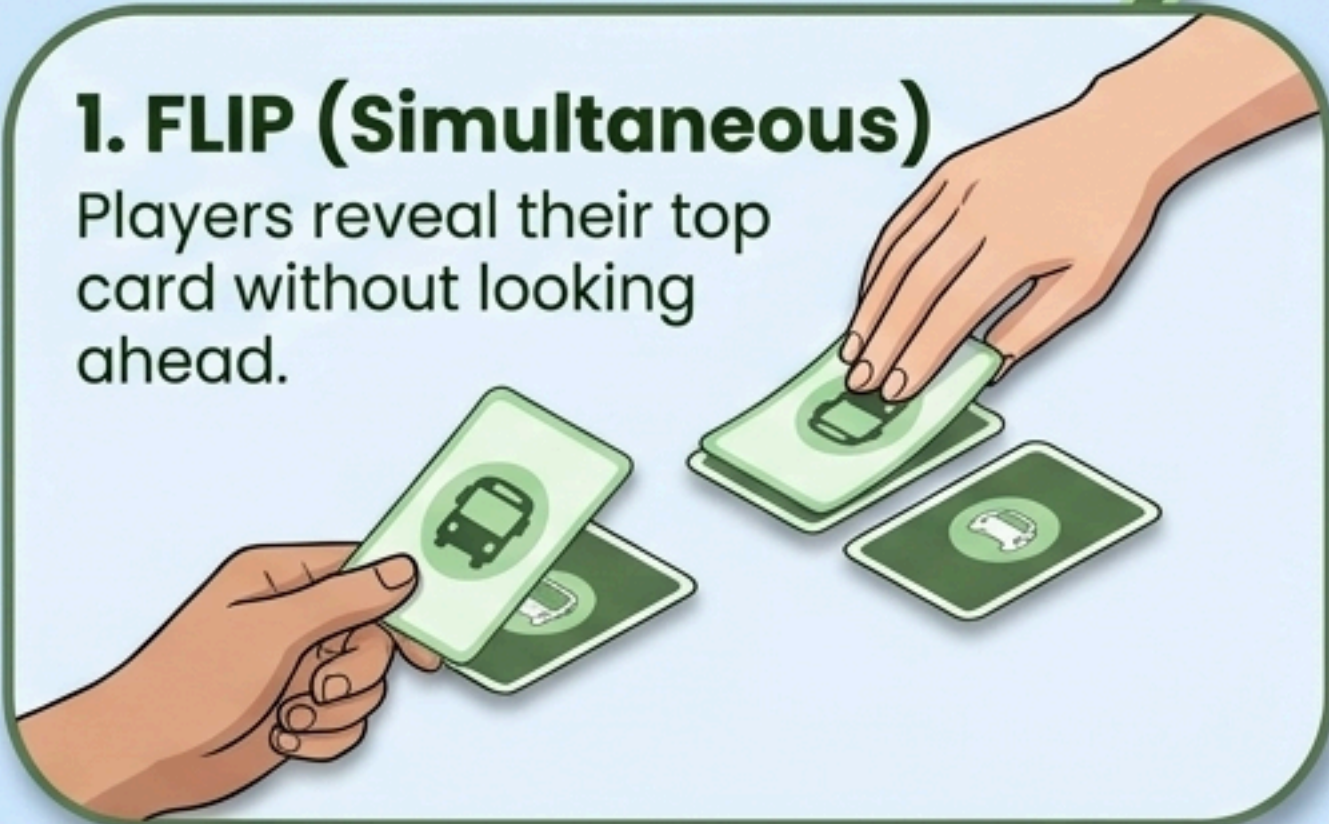
Setting Up the Eco-Tabletop



The Core Loop: Flip, Compare, Collect

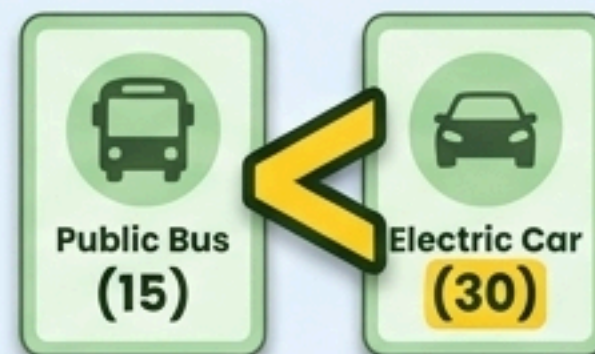
1. FLIP (Simultaneous)

Players reveal their top card without looking ahead.



2. COMPARE (The Clash)

The **HIGHER** carbon score automatically loses the round.

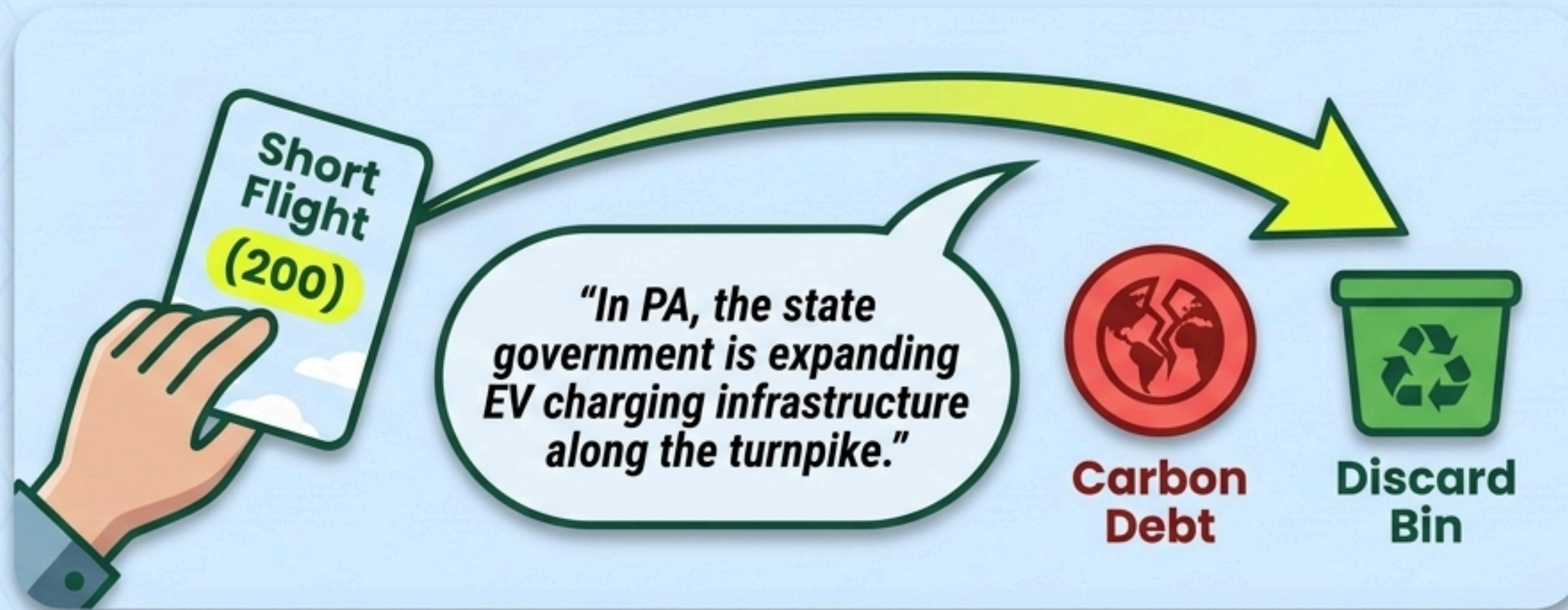


3. COLLECT (The Debt)

The loser collects all played cards.



The Pennsylvania “Learning Twist”



Rule Explanation Text:

Play a **High Impact card (200+)**? You can save yourself. Discard it immediately by naming a valid **Pennsylvania-based environmental fact or initiative**.

End of Round Scoring:

The round ends when Primary Stacks are empty. The player with the **fewest cards** in their **Carbon Debt** pile wins. **Best 2 out of 3**.

In the Playtest Lab: Real Player Data

Players cited "The War Aspect" and debating on principle as the most exciting interactions.

Feedback demanded a more balanced deck. We shifted from random counts to a 52-card mathematically weighted deck.

Players loved the local twist and immediately requested Ohio and Florida editions.

Game Maker's Play Test Notes

• Change & look at emission values in cards and update cards & rule key (Combustion engine instead of non-hybrid)

What confused players?
Playing off of principle for debate & not points

What made players excited?
• Getting to argue their point during war. The images

What did your players enjoy doing?
The war aspect

• Make % off of data & 52 card deck

• Largest Carbon footprint gets cards but person w/ least cards wins

Look at data & make a different edition based on area

Look at data & make a different edition based on area like PA edition
• If activities are similar in emission debate (ex. hybrid car & car pool) not about # of rideshare wins
ex (non-hybrid & rideshare)

Iteration Matrix: From Feedback to Final Polish

	Feedback	Iteration	Result
The Tie Problem	Tied twice... didn't debate as much as we should have.	Implemented a strict 1-minute timer and the "Continuous Clash" mechanic.	Eliminated game-stalling and forced active, concise persuasion.
The Strategy Gap	The game is almost too clean. Feels like luck of the draw.	Cut deck to exactly 52 cards based on emission percentages; updated terminology (Combustion Engine vs. Non-hybrid).	Reduced pure RNG (random number generation) by standardizing card probabilities.
The Regional Appeal	Make a different edition based on area like PA edition.	Hardcoded the "Learning Twist" to require PA-specific environmental facts.	Grounded the educational goals in the player's immediate community.

Next Steps: Scaling the Impact

Action Plan

1

1. Finalize the 52-Card Balance:

Lock in the emission value weightings for print production.

2

2. Add Strategic Agency:

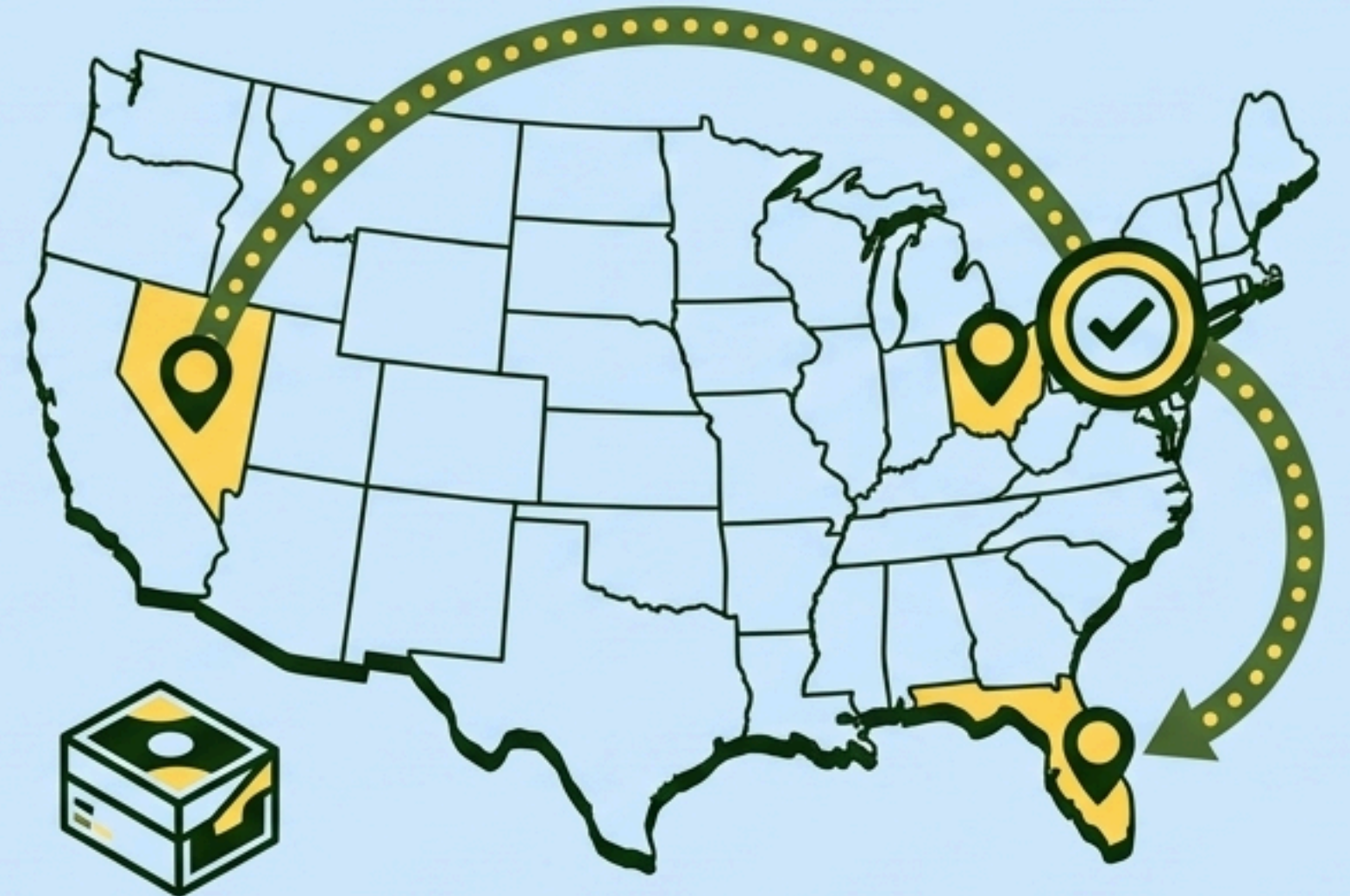
Introduce a light strategic layer (e.g., allowing players to hold one card in their hand) to further reduce luck mechanics.

3

3. Localize & Expand:

Research state-specific emission data to launch the Ohio and Florida editions.

Expansion Map Concept



Carbon Clash: Turning passive education into active persuasion.

Thank you

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NotebookLM is utilized to synthesize diverse source materials—including visual playtest notes, structured gameplay manuals, and carbon emission indices- into a coherent game design narrative. The tool specifically bridges the gap between early conceptual ideas and final design iterations, such as the transition to a "reverse War" mechanic where the lowest carbon footprint determines the winner. By cross-referencing qualitative feedback from playtesters on the "Debate Mechanic" with technical emissions data and specific card counts, NotebookLM enables the creation of a comprehensive presentation that highlights both the educational mission and the strategic depth of Carbon Clash: Pennsylvania Edition.
