

What You Should Already Know

Blockchain – A distributed ledger where transactions are recorded in linked blocks and verified by many computers | **Smart contract** – Self-executing code on a blockchain that automatically enforces agreements | **Transaction** – A transfer of value or data recorded permanently on the blockchain

Key Terms Preview **DeFi** (Financial services on public blockchains, no bank needed) | **TVL** (Total Value Locked – assets deposited in DeFi smart contracts) | **Self-custody** (You hold your own keys, no intermediary) | **Composability** (Protocols plug into each other like building blocks) | **Permissionless** (Anyone with a wallet can participate, no ID check) | **Smart contract** (Code that executes automatically on-chain) | **Liquidity pool** (Tokens locked in a contract for others to trade against)

The Problem

It is Saturday night. You need to send \$50,000 to a friend abroad – urgently. Your bank is closed until Monday. International wire: 3–5 business days, \$25–50 fee. Your money, but you cannot access it on YOUR schedule.

What would a financial system look like if it had no business hours, no geographic limits, and no permission needed?

1.4 billion adults worldwide have no bank account at all. For them, the question is not convenience – it is access.

Warm-Up

Name 3 things your bank does when you send money internationally. For each step, ask: does a computer actually NEED a human to do this?

Your answer: _____

Discovery Questions

Q1. You want to send money to a friend abroad. List 3 steps your bank requires. Now imagine doing it without a bank – what would you need?

Hint: Think about identity, currency, and routing.

Your answer: _____

Q2. What does “self-custody” mean? What are the advantages and dangers?

Hint: Who holds your house keys – you or your landlord? What happens if you lose them?

Your answer: _____

Q3. If DeFi is open 24/7 with no ID required, what could go wrong?

Hint: Who stops illegal transactions? Who helps if you make a mistake?

Your answer: _____

Q4. A vending machine has no cashier. How does it prevent theft? How might a DeFi protocol do the same?

Hint: Think about pre-programmed rules vs human judgment.

Your answer: _____

Cryptoeconomics Challenge

Banks charge fees to act as trusted middlemen. If DeFi removes the middleman, who pays for running the system? Why would they participate honestly?

After-Class Reflection

After the lecture, name one thing DeFi does better than banks and one thing banks still do better than DeFi.

Solutions

Complete answers to all discovery questions.

Warm-Up Answer

Identity verification, currency conversion, correspondent bank routing. A smart contract could automate all three – no human required. Banks add manual checks, compliance steps, and intermediary hops that slow the process to days.

Answers

Q1: Three bank steps: (1) verify your identity (KYC), (2) convert currency via correspondent bank, (3) route through SWIFT network. Without a bank, you need: a blockchain wallet (identity via public key), a DEX or stablecoin (currency), and the recipient's wallet address (routing). DeFi replaces institutional trust with cryptographic verification.

Q2: Self-custody means you hold your own private keys – no bank or exchange controls your funds. Advantages: no one can freeze your account, no business hours, no permission needed. Dangers: if you lose your keys, there is no “Forgot Password” button. No customer support. You bear full responsibility for security.

Q3: Without ID requirements, DeFi can be used for money laundering, sanctions evasion, or fraud. Without customer support, mistakes (sending to the wrong address) are irreversible. Without regulation, there is no consumer protection or deposit insurance. These are real trade-offs, not just theoretical concerns.

Q4: A vending machine uses pre-programmed rules: insert correct payment, receive product. It cannot negotiate or make exceptions. DeFi smart contracts work the same way – they enforce rules automatically via code. The advantage is consistency and trustlessness; the disadvantage is rigidity (no human judgment for edge cases).

Cryptoeconomics Answer

Validators and liquidity providers pay for running the system. Validators earn block rewards and transaction fees for processing transactions. Liquidity providers earn trading fees for supplying tokens to pools. The protocol's incentive design makes honest participation more profitable than cheating – if you validate correctly, you earn rewards; if you cheat, you lose your staked deposit (slashing).