Blockchain Concepts for a Rust Mini Node

1. Core Mental Model

- Blockchain as a State Machine: https://vitalik.ca/general/2017/01/01/abstraction.html
- Ethereum Yellow Paper (Intro): https://ethereum.github.io/yellowpaper/paper.pdf

2. Transactions & Account Model

- Ethereum Transactions Explained: https://ethereum.org/en/developers/docs/transactions/
- Nonce & Replay Protection: https://ethereum.stackexchange.com/questions/2539/what-is-the-nonce

3. Mempool Theory

- Bitcoin Mempool Policy: https://bitcoinops.org/en/topics/mempool/
- Geth Transaction Pool Design: https://github.com/ethereum/go-ethereum/wiki/Transaction-Pool

4. Blocks, Headers & Merkle Trees

- Mastering Bitcoin – Blocks & Merkle Trees: https://github.com/bitcoinbook/bitcoinbook
- Ethereum Block Structure: https://ethereum.org/en/developers/docs/blocks/

5. Deterministic State Transitions

- Ethereum State Transition Function: https://ethereum.github.io/yellowpaper/paper.pdf
- Replicated State Machines (Lamport): https://lamport.azurewebsites.net/pubs/state-machine.pdf

6. Forks & Fork-Choice Rules

- Bitcoin Forks Explained: https://academy.binance.com/en/articles/what-is-a-blockchain-fork
- Ethereum Chain Reorgs: https://ethereum.org/en/developers/docs/consensus-mechanisms/pow/

7. Block Propagation & Syncing

- Ethereum DevP2P Overview: https://github.com/ethereum/devp2p
- libp2p Gossipsub: https://docs.libp2p.io/concepts/publish-subscribe/

8. Finality Concepts

- Bitcoin Confirmations: https://bitcoin.org/en/how-it-works
- Probabilistic Finality: https://ethereum.org/en/developers/docs/consensus-mechanisms/pow/

9. Rust Systems Foundations

- The Rust Book: https://doc.rust-lang.org/book/
- Async Rust Book: https://rust-lang.github.io/async-book/
- Tokio Concurrency Patterns: https://tokio.rs/tokio/tutorial