Blockchain, Crypto Economy & NFTs

FS 2026

Learning Objectives:

- Understand pump.fun's bonding curve pricing mechanism
- Deploy a real Solana meme token on mainnet using Phantom
- Verify your deployment on Solscan
- Apply the cryptoeconomics lens to meme token market dynamics

Central question: If anyone can create a token in 30 seconds, what determines whether it has any value?

Today: Real Mainnet
Real SOL, real transactions, real tokens. Handle with care.

Creation cost: $\approx$0.022 SOL
Your budget: 0.5 SOL
$\approx$4% per creation ($\sim$20 retries)

What Is pump.fun?

A no-code meme token launchpad on Solana:

- Launched January 2024; over 6 million tokens created (Source: Dune Analytics pump.fun dashboard, as of Q1 2025)
- Zero Solidity or Rust required; UI-based token creation
- Embeds a bonding curve: price rises automatically as tokens are bought
- Graduation threshold: 69 SOL raised triggers migration to Raydium DEX

Cryptoeconomics question:
If anyone can create a token in 30 seconds,
what determines whether it has any value?

Key Numbers (as of 2025):

$>$6M tokens launched
$\approx$98% never reach graduation
$\approx$0.022 SOL creation cost
$\sim$30 seconds to deploy

Risk: Real money.
Zero value is the expected outcome.

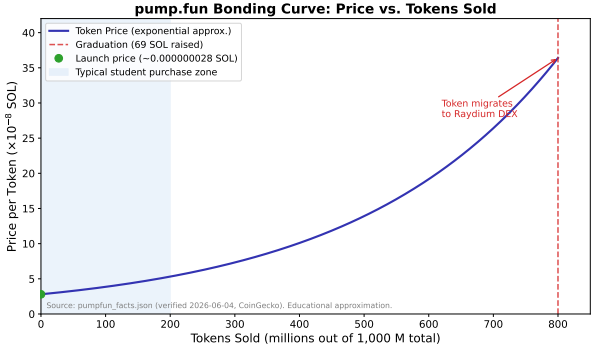
Source: Dune Analytics pump.fun dashboard (as of 2025); pumpfun_facts.json.

Bonding Curve in 60 Seconds

How pump.fun prices your token:

- Fixed supply: 1,000,000,000 tokens (6 decimals)
- Virtual AMM reserves set initial price near zero
- Each purchase raises price for the next buyer
- At 69 SOL raised: token graduates to Raydium, liquidity locked forever

Price formula (educational approximation):
$p(x) \approx p_0 \cdot e^{kx}$
where x = tokens sold, p_0 = launch price



Source: pumpfun_facts.json bonding_curve object (verified 2026-06-04). Educational exponential approximation of the constant-product AMM.

The 69 SOL Wall: Why 98% Never Graduate

Graduation failure rate (as of Q1 2025):

- Over 98% of pump.fun tokens launched in 2024 never reached the 69 SOL graduation threshold
- A token that does not reach 69 SOL stays tradeable on pump.fun indefinitely, but never gets Raydium liquidity
- The bonding curve remains open forever; without reaching 69 SOL the token never becomes a full DEX market

Your token today will join the 98%. That is the expected and correct outcome for a learning exercise.

Your token will not graduate today.

Expected and OK.

The learning objective is creation and verification, not graduation.

69 SOL $\approx$ \$10,000+
required to reach Raydium.

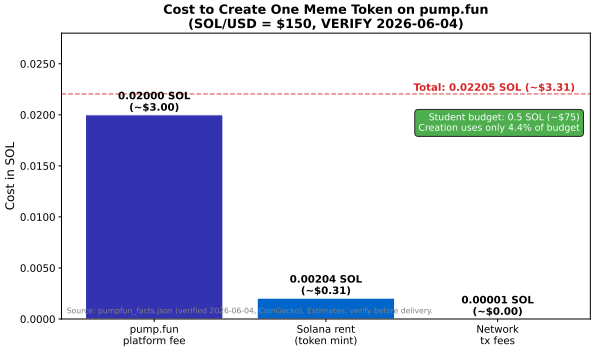
Source: Dune Analytics pump.fun dashboard (as of Q1 2025); pumpfun_facts.json failure_modes[1].

Fees and Costs

What it costs to create your token:

- pump.fun platform fee: ≈0.020 SOL
- Solana rent-exempt (mint account): ≈0.002 SOL
- Network transaction fee: ≈0.000005 SOL
- **Total: ≈0.022 SOL (≈$3 at current rates)**

Your budget: **0.5 SOL** (pre-funded by instructor).
Creation uses only ≈4% of your budget.



Source: pumpfun_facts.json fees object (as of 2026-06-04, CoinGecko SOL/USD snapshot).

Risk Disclosure: Real Money, Real Mainnet

Before we proceed – acknowledge these:

- Real SOL = real financial loss is possible
- Tokens persist permanently on Solana mainnet; no deletion
- Zero recourse if token value drops to zero
- You must be 18+ to use pump.fun (ToS Section 2)

This workshop uses ≈0.022 SOL per token creation (≈$3). Your 0.5 SOL budget was pre-funded by the instructor.

Observer option:

If you prefer not to deploy or your device blocks the extension: observe the instructor demo on screen.

No wallet required to follow the workshop analysis.

No investment advice. Educational demonstration only. Swiss law governs. (Source: pumpfun_facts.json regulatory_claims)

Group Mode: One Token, One Class

This workshop variant:

- A single token launched in advance is shared by the whole class
- The class buys small amounts of that shared token via Phantom
- The bonding curve moves in real time during the buying segment
- Observer path remains available: paste the shared mint address and follow without buying

The economics question for the session: can a coordinated class of 30 push a token across the 69 SOL wall?

Why this is different:

Solo workshop: each student created an isolated token; most stayed near zero.

Group mode: one shared workshop token, one coordinated class. The deck's coordination-problem thesis goes from theory to live experiment.

Meme-token value is a coordination problem, not a technology problem; the workshop tests that thesis live.

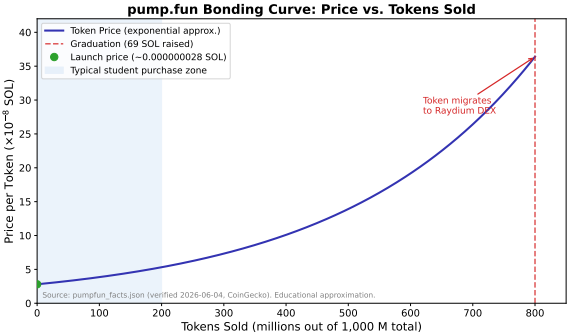
The 60-vs-69 Coordination Gap

Back-of-envelope math:

- Class size: $\sim$30 students
- Recommended buy per student: $\sim$2 SOL
- Class deployable: $30 \times 2 = 60$ SOL
- Raydium graduation wall: 69 SOL

The class deployable falls 9 SOL short of the wall.

Closing that gap requires real coordination: late buyers must keep buying after seeing early buyers, even as the price rises and graduation is still uncertain.



Coordination is the bottleneck: the protocol does not supply it; participants either do, or do not. (Source: pumpfun_facts.json bonding_curve.graduation_threshold_sol = 69.)

What to Expect

Three plausible outcomes:

- **Stall near 30 to 40 SOL.** Early buyers move price up, late buyers hesitate, coordination fails. The most likely outcome.
- **Push to 60, fall short of 69.** The class fully deploys its budget; the math just is not there.
- **Graduate to Raydium.** Only if a non-class actor joins, or a few students commit well above 2 SOL.

The lesson is the same in all three cases:

Even an aligned, briefed, coordinating class struggles to organically push a token across the wall. Replicating that pattern with strangers on social media is even harder.

Coordination is hard. That is the central point of the workshop, surfaced in 5 minutes of live data.

Phantom: Install and Connect

Step-by-step (do this now):

1. Open Chrome and go to `phantom.app`
2. Click "Download" and add the browser extension
3. Click "Create a New Wallet" and save your 12-word seed phrase
4. Check your SOL balance in Phantom (should show 0.5 SOL)

Warning: Your seed phrase is the only key to your wallet.
Never share it. Store it offline. This is real Solana mainnet.

Instructor pre-funded your wallet.

You should see **0.5 SOL** in Phantom.
If balance shows 0: raise your hand now.

Fail-state: If Phantom cannot install (managed device), observe the instructor demo and note the shared mint address.

How to Get SOL

SOL is Solana's own currency. You need a little of it to pay network fees and to buy tokens on pump.fun.

The normal way to get SOL:

1. Open an account at a regulated exchange (Coinbase, Binance, or Kraken)
2. Verify your identity (the exchange must run a KYC check)
3. Buy SOL with a debit card or bank transfer
4. In Phantom, copy your wallet address; on the exchange, withdraw the SOL to that address

The SOL usually reaches your wallet within a few minutes.

For this workshop you do NOT need to do this.

Your Phantom wallet is already pre-funded with 0.5 SOL. This slide is background, so you know where SOL comes from.

If you ever buy crypto yourself:

Only use money you can afford to lose. Always double-check the withdrawal address: a wrong address means the SOL is gone for good.

An exchange is the bridge from ordinary money to SOL. The wallet (Phantom) is where you then hold and spend it.

Check Your Token Name

Confirm your pre-approved token details:

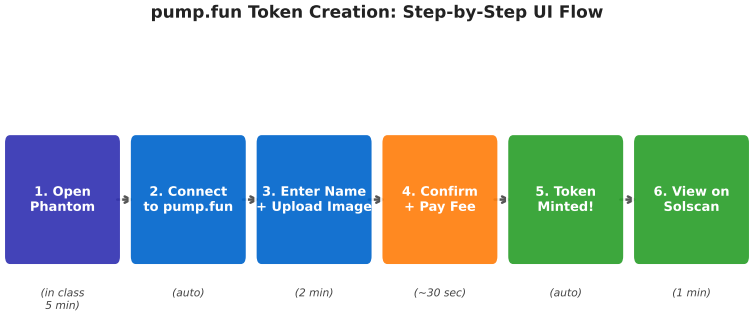
- **Name:** Up to 32 characters (your instructor-approved name)
- **Symbol:** Up to 10 characters (e.g., DOGE, SHIB, PEPE style)
- **Image:** A simple PNG or GIF (32x32 to 1000x1000 pixels)
- **Description:** 1-2 sentences (optional but recommended)

Reminder: This token will exist on Solana mainnet permanently. Use a name you are comfortable with as a public record.

Naming rules (pump.fun):

No impersonation of real projects
No offensive content
No pump.fun trademark in name

The pump.fun UI



Source: pump.fun web UI (as of 2026-06-04, VERIFY before delivery).

Click “Create a Coin” (top right). Fill Name + Symbol, upload image; social links optional. Do **not** open “Show more options.”

Create Your Token

Deploy steps (do this now):

1. Go to `pump.fun` (confirm Phantom is connected, top right)
2. Click **"Create a Coin"**
3. Enter your Name and Symbol; upload image
4. Add a short description (optional)
5. Click **"Create Coin"** and **approve** in Phantom (≈0.022 SOL)
6. Wait for confirmation (usually under 10 seconds)
7. **Copy your mint address** from the success screen

Success looks like:
Green confirmation banner
Mint address shown (long string)
Token visible on Solscan

If transaction fails:
Retry once (network blip)

Mint address format: 32-44 alphanumeric characters (base58). Save it now: you need it for Solscan.

Verify on Solscan

Confirm your token exists on-chain:

1. Go to `solscan.io`
2. Paste your mint address in the search bar
3. Confirm: Name, Symbol, Supply (1,000,000,000), Decimals (6)
4. Screenshot or save your Solscan URL

What you are seeing: A real SPL token on Solana mainnet. SPL (Solana Program Library) is Solana's native token standard: fixed 1,000,000,000 supply, 6 decimal places, managed by an on-chain mint authority program (not 18 decimals like ERC-20).

Solscan fields to verify:

Token Name: [your name]
Symbol: [your symbol]
Supply: 1,000,000,000
Decimals: 6
Mint Authority: pump.fun program

If not found: wait 30 seconds and refresh (indexing lag).

Source: solscan.io (as of 2026-06-04). Solscan indexing lag is typically under 60 seconds for new SPL mints.

Peer Discovery: Find a Classmate's Token

Three steps (observation only):

1. Ask your neighbor for their mint address
2. Paste it on `pump.fun` – see their bonding curve live
3. Note the current price and market cap

Observation only – do not purchase peer tokens with your pre-funded SOL.

Discussion:

Is there any reason to buy your neighbor's token?

What would have to be true for it to have value?

Share Your Address

Share your token address:

- Paste your token mint address in the shared class document
- Note your pump.fun token URL: `pump.fun/[mint-address]`

Cryptoeconomics question:
Your token has 1,000,000,000 units on-chain.
Why does it likely have near-zero market value right now?
What would need to change for it to have value?

Think about:

Who knows your token exists?
Why would anyone buy it?
What backs its value?
What is the coordination problem?

A token without a narrative
and without buyers is just data
on a public ledger.

Reminder: tokens you created today are real Solana mainnet tokens. They persist permanently. GT-16: you retain full wallet ownership after class.

Why Does Your Token Have Near-Zero Value?

Four Socratic questions:

1. Who knows your token exists?
2. Why would anyone buy it?
3. What backs its value?
4. What would need to happen for it to reach 69 SOL?

Rug-pull reality check:
pump.fun >50% of Solana rug pulls in 2024.
Most occurred within 24h of launch.
Classroom risk: very low (no financial incentive).

The coordination problem:

A token without narrative and without buyers is data on a public ledger.

Value requires:
coordination + narrative + buyers

Source: Chainalysis 2025 Crypto Crime Report (rug pull frequency on Solana meme platforms, as of 2025).

Key Takeaways

The cryptoeconomics lens on meme tokens:

- **Mechanism:** Bonding curve automates price discovery; no order book needed
- **Incentives:** Early buyers profit if adoption grows; 98%+ of tokens never graduate
- **Failure mode:** Zero coordination means zero value; rug pulls and whale dumps destroy early buyers
- **Design space:** What if graduation threshold were lower? What if creators were locked out for 24h?

What you did today:

Deployed a real cryptoeconomic instrument in under 45 minutes with no code.

The barrier to token creation is zero.
The barrier to token value is enormous.

That gap *is* the coordination problem.

Source: Chainalysis 2025 Crypto Crime Report (rug pull frequency on Solana meme platforms).

Cryptoeconomics framework: incentives + failure modes + design space applied to pump.fun meme token market dynamics.

Design Space: What Would You Change?

Three mechanism-design questions:

- **Threshold:** What if graduation = 6.9 SOL instead of 69?
  More tokens graduate; liquidity fragmented; rug-pull risk higher.
- **Lock-up:** What if creators were locked from selling for 24h post-launch?
  Reduces rug pulls; reduces creator incentive to launch.
- **Fee timing:** What if pump.fun took 20% at graduation not creation?
  Aligns platform with creator success; fewer junk launches.

Mechanism design:
Parameter choices determine who benefits and who bears risk.

Current pump.fun parameters:
→ maximise launch volume
→ revenue at creation
→ no creator accountability

[SKIP IF OVER TIME]

Mechanism design: parameter choices determine who benefits and who bears risk. (pumpfun_facts.json bonding_curve.graduation_threshold_sol = 69)

Workshop Credit: What to Submit

Within 24 hours – open a GitHub issue:

1. Your token mint address (32-44 char base58 string)
2. pump.fun URL: `pump.fun/[mint-address]`
3. Solscan URL: `solscan.io/token/[mint-address]`

Observer path: Paste the instructor's shared mint address; mark the issue "observed".

Deadline: 24h after session end.

GT-16:

You retain full ownership of your Phantom wallet and SOL balance after class.

The instructor does not have access to your seed phrase or wallet.

Deadline: 24h after session end. No late submissions. Observer credit accepted.

Next Session

Well done: you launched a token on Solana mainnet.

Your token is now a permanent part of the Solana blockchain.

Next session explores liquidity pools, yield farming, and the Raydium AMM.

Sample Quiz Question

Q: At what threshold does a pump.fun token's bonding curve "graduate" to Raydium?

A) When 10 SOL has been raised through token sales

B) When the token reaches a market cap of $1 million USD

C) When 69 SOL has been raised, triggering automatic Raydium liquidity migration

D) When 50% of the total supply has been sold to public buyers

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D) When 50% of the total supply has been sold to public buyers

Correct Answer: C

When 69 SOL is raised on the bonding curve, pump.fun automatically migrates the token to Raydium DEX. The SOL and remaining tokens are added as locked liquidity permanently. About 98% of tokens never reach this threshold.

Source: pumpfun_facts.json bonding_curve.graduation_threshold_sol (verified 2026-06-04).