

ERC-20 Token Creation

Pre-Class Discovery Handout

Lesson 04 · Complete before class · 25–30 minutes

Activity 1: Explore ERC-20 Tokens on Etherscan

10 min

Visit <https://etherscan.io/tokens> and pick any ERC-20 token from the top 20. Answer:

1. What is the token’s name, symbol, and contract address?
2. What is the total supply? How many holders does it have?
3. Click the **Contract** tab — is the source code verified? What Solidity version was used?
4. Find a recent Transfer event in the **Events** tab. Who sent tokens to whom, and how many?

Bonus: Check the token’s **Read Contract** tab. Call `totalSupply()` and `decimals()`. What do they return?

Activity 2: ERC-20 Function Matching

5 min

Match each ERC-20 function to its purpose. Write the letter in the blank.

Function	Purpose
<code>totalSupply()</code> _____	A. Check how many tokens a spender can use
<code>balanceOf(addr)</code> _____	B. Move tokens on someone else’s behalf
<code>transfer(to,amt)</code> _____	C. Return the total tokens in existence
<code>approve(spender,amt)</code> _____	D. Return the token balance of an address
<code>allowance(own,sp)</code> _____	E. Send tokens directly from your wallet
<code>transferFrom(f,t,a)</code> _____	F. Authorize another address to spend tokens

Activity 3: Token Economics Comparison

10 min

Research each token using CoinGecko or CoinMarketCap and complete the table.

Token	Supply Model	Max Supply	Use Case	Standard
USDC	_____	_____	_____	_____
LINK	_____	_____	_____	_____
UNI	_____	_____	_____	_____
BNB	_____	_____	_____	_____

Hint: Supply Model = Fixed / Inflationary / Deflationary / Elastic.

Activity 4: Design Your Token

5 min

Fill in the form below. Bring this design to class — you will implement it!

1. **Name:** _____ **Symbol:** _____ **Decimals:** _____
2. **Supply Model:** Fixed Inflationary (capped) Deflationary
3. **Max Supply:** _____ **Initial Supply:** _____
4. **Distribution:** Team _____% Community _____% Ecosystem _____% Liquidity _____%
5. **Special Feature:** Burn-on-transfer Batch airdrop Vesting schedule
 Other: _____

Key Terms

Term	Definition
ERC-20	Ethereum Request for Comments 20. The standard interface for fungible tokens, defining 6 functions and 2 events.
Fungible	Interchangeable; one token equals any other of the same type, like dollar bills.
totalSupply	ERC-20 function returning the total number of tokens in existence.
approve	ERC-20 function granting a spender permission to transfer tokens on the owner's behalf.
transferFrom	ERC-20 function enabling a pre-approved spender to move tokens between addresses.
OpenZeppelin	A library of audited, secure smart contract implementations widely used in production.
Decimals	The number of decimal places a token uses (typically 18), enabling fractional amounts.
Tokenomics	The economic design of a token: supply model, distribution, incentives, and value capture.
Vesting	A schedule that gradually unlocks tokens over time, preventing large dumps after launch.
Minting	Creating new tokens, increasing total supply. Controlled by access modifiers like <code>onlyOwner</code> .

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