

# DeFi Fundamentals

## Pre-Class Discovery Handout

Lesson 05 · Complete before class · 25–30 minutes

### Activity 1: Explore DeFi Dashboards

10 min

Visit <https://defillama.com> and explore the dashboard. Answer:

1. What is the current Total Value Locked (TVL) across all DeFi protocols?
2. Name the top 3 protocols by TVL. What type is each (DEX, lending, liquid staking)?
3. Click on Uniswap — what chains does it operate on? What is its TVL?
4. Find the “Stablecoins” section. What percentage of DeFi TVL is in stablecoins?

**Bonus:** Compare TVL on Ethereum vs Arbitrum vs Polygon. Which L2 has the most DeFi activity?

### Activity 2: AMM Price Calculation

5 min

A Uniswap pool has 100 ETH and 200,000 USDC. Using the constant product formula  $x \times y = k$ :

1. Calculate  $k$  (the constant product).
2. If a trader buys 5 ETH, how much USDC must they pay? *Hint:  $new\_x = 95$ ; solve for  $new\_y$  from  $95 \times new\_y = k$ .*
3. What is the effective price per ETH for this trade?
4. What is the price impact compared to the initial price of 2,000 USDC/ETH?

Init. ETH	Init. USDC	$k$	New ETH	New USDC	Cost	Impact
100	200,000		95			

### Activity 3: Lending Protocol Comparison

10 min

Research each protocol using their official websites and complete the table.

*Hint: Collateral Factor = maximum you can borrow against your deposit (e.g., 75% means borrow \$75 per \$100 deposited).*

Protocol	Type	Collateral Factor	Borrow APR	Supply APR	Gov. Token
Aave	_____	_____	_____	_____	_____
Compound	_____	_____	_____	_____	_____
MakerDAO	_____	_____	_____	_____	_____
Spark	_____	_____	_____	_____	_____

### Activity 4: Design Your DeFi Strategy

5 min

Fill in the form below. Bring your strategy to class for discussion.

1. **Starting Capital:** \_\_\_\_\_
2. **Strategy Type:**  Liquidity Provision  Lending  Yield Farming  Staking  Combination
3. **Protocol(s):** \_\_\_\_\_
4. **Expected APY:** \_\_\_\_\_%
5. **Risk Assessment:**  Smart Contract  Impermanent Loss  Liquidation  Oracle
6. **Risk Mitigation:** \_\_\_\_\_

## Key Terms

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<b>Term</b>	<b>Definition</b>
<b>DeFi</b>	Decentralized Finance. Financial services (lending, trading, saving) built on blockchains without traditional intermediaries.
<b>TVL</b>	Total Value Locked. The aggregate value of assets deposited in DeFi smart contracts, used as a key metric of protocol adoption.
<b>AMM</b>	Automated Market Maker. A smart contract that enables token swaps using a mathematical pricing formula (e.g., $x \times y = k$ ) instead of an order book.
<b>Liquidity Pool</b>	A smart contract holding reserves of two or more tokens that users can trade against. Liquidity providers deposit assets and earn fees.
<b>Impermanent Loss</b>	The temporary loss liquidity providers experience when the price ratio of pooled assets changes relative to simply holding them.
<b>Collateralization</b>	Locking up assets as security for a loan. Over-collateralization (e.g., 150%) is common in DeFi to account for price volatility.
<b>Liquidation</b>	The forced sale of a borrower's collateral when its value falls below the required threshold, protecting lenders from default.
<b>Flash Loan</b>	An uncollateralized loan that must be borrowed and repaid within a single blockchain transaction; used for arbitrage and liquidations.
<b>Yield Farming</b>	Strategically moving assets across DeFi protocols to maximize returns from interest, fees, and governance token rewards.
<b>Composability</b>	The ability of DeFi protocols to interoperate like building blocks, enabling complex financial products built on top of each other.

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