

Prerequisites {#prerequisites}

To help you better understand this page, we recommend you first read [Introduction to Ethereum](#).

What is a cryptocurrency? {#what-is-a-cryptocurrency}

A cryptocurrency is a medium of exchange secured by a blockchain-based ledger.

A medium of exchange is anything widely accepted as payment for goods and services, and a ledger is a data store that keeps track of transactions. Blockchain technology allows users to make transactions on the ledger without reliance upon a trusted third party to maintain the ledger.

The first cryptocurrency was Bitcoin, created by Satoshi Nakamoto. Since Bitcoin's release in 2009, people have made thousands of cryptocurrencies across many different blockchains.

What is ether? {#what-is-ether}

Ether (ETH) is the cryptocurrency used for many things on the Ethereum network. Fundamentally, it is the only acceptable form of payment for transaction fees, and after [The Merge](#), ether is required to validate and propose blocks on Mainnet. Ether is also used as a primary form of collateral in the [DeFi](#) lending markets, as a unit of account in NFT marketplaces, as payment earned for performing services or selling real-world goods, and more.

Ethereum allows developers to create [decentralized applications \(dapps\)](#), which all share a pool of computing power. This shared pool is finite, so Ethereum needs a mechanism to determine who gets to use it. Otherwise, a dapp could accidentally or maliciously consume all network resources, which would block others from accessing it.

The ether cryptocurrency supports a pricing mechanism for Ethereum's computing power. When users want to make a transaction, they must pay ether to have their transaction recognized on the blockchain. These usage costs are known as [gas fees](#), and the gas fee depends on the amount of computing power required to execute the transaction and the network-wide demand for computing power at the time.

Therefore, even if a malicious dapp submitted an infinite loop, the transaction would eventually run out of ether and terminate, allowing the network to return to normal.

It is [common to conflate](#) Ethereum and ether — when people reference the "price of Ethereum," they are describing the price of ether.

Minting ether {#minting-ether}

Minting is the process in which new ether gets created on the Ethereum ledger. The underlying Ethereum protocol creates the new ether, and it is not possible for a user to create ether.

Ether is minted as a reward for each block proposed and at every epoch checkpoint for other validator activity related to reaching consensus. The total amount issued depends on the number of validators and how much ether they have staked. This total issuance is divided equally among validators in the ideal case that all validators are honest and online, but in reality, it varies based on validator performance. About 1/8 of the total issuance goes to the block proposer; the remainder is distributed across the other validators. Block proposers also receive tips from transaction fees and MEV-related income, but these come from recycled ether, not new issuance.

Burning ether {#burning-ether}

As well as creating ether through block rewards, ether can be destroyed through a process called 'burning'. When ether gets burned, it gets removed from circulation permanently.

Ether burn occurs in every transaction on Ethereum. When users pay for their transactions, a base gas fee, set by the network according to transactional demand, gets destroyed. This, coupled with variable block sizes and a maximum gas fee, simplifies transaction fee estimation on Ethereum. When network demand is high, [blocks](#) can burn more ether than they mint, effectively offsetting ether issuance.

Burning the base fee hinders a block producers ability to manipulate transactions. For example, if block producers received the base fee, they could include their own transactions for free and raise the base fee for everyone else. Alternatively, they could refund the base fee to some users off-chain, leading to a more opaque and complex transaction fee market.

Denominations of ether {#denominations}

Since the value of many transactions on Ethereum are small, ether has several denominations which may be referenced as smaller units of account. Of these denominations, Wei and gwei are particularly important.

Wei is the smallest possible amount of ether, and as a result, many technical implementations, such as the [Ethereum Yellowpaper](#), will base all calculations in Wei.

Gwei, short for giga-wei, is often used to describe gas costs on Ethereum.

Denomination	Value in ether	Common Usage	-----	-----	-----	Wei	10 ⁻¹⁸	Technical implementations
	Gwei	10 ⁻⁹	Human-readable gas fees					

Transferring ether {#transferring-ether}

Each transaction on Ethereum contains a `value` field, which specifies the amount of ether to be transferred, denominated in wei, to send from the sender's address to the recipient address.

When the recipient address is a [smart contract](#), this transferred ether may be used to pay for gas when the smart contract executes its code.

[More on transactions](#)

Querying ether {#querying-ether}

Users can query the ether balance of any [account](#) by inspecting the account's `balance` field, which shows ether holdings denominated in wei.

[Etherscan](#) is a popular tool to inspect address balances via a web-based application. For example, [this Etherscan page](#) shows the balance for the Ethereum Foundation. Account balances can also be queried using wallets or directly by making requests to nodes.

Further reading {#further-reading}

- [Defining Ether and Ethereum](#) – CME Group
- [Ethereum Whitepaper](#): The original proposal for Ethereum. This document includes a description of ether and the motivations behind its creation.
- [Gwei Calculator](#): Use this gwei calculator to easily convert wei, gwei, and ether. Simply plug in any amount of wei, gwei, or ETH and automatically calculate the conversion.

Know of a community resource that helped you? Edit this page and add it!