LESSON 3: WHAT IS WEB3?

A Prison Professors Self-Directed Course

Estimated time: 70–105 minutes

Educational Boundary:

> *This course provides general education about technology and preparation. It does not provide individualized financial, investment, legal, or tax advice. It does not recommend any network, company, platform, product, or digital asset. You do not need internet access, an account, a wallet, or a digital asset to complete this lesson.*

OPENING GUIDANCE

In the previous lesson, I described how I studied changes to the internet while I remained in prison. I could not gain direct experience with the technology, but I could read, build a vocabulary, ask questions, and prepare. That self-directed approach helped me distinguish what I knew from what I still needed to learn.

I encourage participants to use the same discipline with Web3. The term appears in technical writing, business proposals, news reports, and advertisements. Different people may use it to mean different things. Some describe working systems. Others describe goals that developers hope to reach. Still others use Web3 as a promotional label.

We do not have to praise or reject a technology before we understand it. We can begin with clear definitions and careful questions. We can ask what the system does today, who controls each part, what responsibility falls on the participant, and what evidence supports a claim.

This lesson provides a working definition. Later lessons will explain the individual technologies in greater depth. For now, the goal is to understand the main ideas commonly associated with Web3 and to practice separating an established capability from an aspiration or sales message.

PURPOSE AND ESSENTIAL QUESTION

Lesson 3 introduces Web3 as a group of technologies and ideas involving blockchain networks, digital assets, programmable agreements, and new approaches to control or ownership. It also explains why Web3 is a proposed direction for parts of the internet rather than a complete replacement for Web2.

Essential Question:

» What does Web3 mean, and how can a careful learner distinguish what the technology can do from what someone hopes or claims it will do?

LEARNING OBJECTIVES

After completing this lesson, you should be able to:

» Define Web3 without relying on promotional language.
» Identify major technologies and ideas commonly associated with Web3.
» Distinguish an established capability from an aspiration, opinion, forecast, or promotional claim.
» Explain why Web3 does not replace every useful Web2 service.

KEY TERMS

WEB3

Definition: A broad and still-developing term for technologies and ideas that use decentralized networks, blockchains, digital assets, and programmable rules to give participants new ways to interact with data, value, applications, or one another.

Sample sentence: The learner treated Web3 as a collection of developing approaches rather than one finished product.

DIGITAL OWNERSHIP

Definition: Control over a digital asset or record based on the rules of a system, often demonstrated through possession of a private key or another recognized form of authorization.

Sample sentence: Digital ownership may allow a person to transfer a token, but it does not automatically include copyright or control over every related file.

PEER-TO-PEER

Definition: A way for participants in a network to interact directly or as equals under shared rules rather than routing every action through one central operator.

Sample sentence: The peer-to-peer network allowed participants to exchange messages without one computer controlling every connection.

PROTOCOL

Definition: A set of technical rules that allows computers or network participants to communicate and coordinate.

Sample sentence: A shared protocol tells separate computers how to format, send, and interpret information.

PERMISSIONLESS

Definition: Open to participation under the system's rules without requiring advance approval from a central administrator.

Sample sentence: A permissionless network may let a person create an address without asking one company to approve an account.

INTEROPERABILITY

Definition: The ability of different systems, applications, or networks to exchange information or work together through compatible rules and standards.

Sample sentence: Interoperability can allow a digital credential to be recognized by more than one compatible service.

MAIN LESSON

BEGIN WITH A WORKING DEFINITION

Web3 does not name one company, network, application, or official upgrade to the World Wide Web. It is an umbrella term. People use it for a developing set of technologies and design goals that seek to change how some online services store information, enforce rules, represent assets, and distribute control.

The National Institute of Standards and Technology, known as NIST, describes Web3 as a proposed vision that would shift parts of the internet from an organization-centered structure toward a more user-centered structure. In that vision, users would have greater control over data and digital assets, while decentralized or distributed systems would perform some work now handled by central service providers.

The word proposed is important. Some Web3 components already operate. Public blockchains record transactions. Digital tokens represent different forms of value or access. Smart contracts—programs stored and executed on a blockchain—apply programmed rules. Decentralized applications use these components to offer services.

The broader vision is not fully achieved. A service may use a blockchain while depending on a company for its website, customer support, data storage, software

updates, or access to outside information. Participation may also require internet access, suitable equipment, technical skill, transaction fees, and careful protection of credentials. A responsible definition must include both the working technology and the unfinished goals.

For this course, we will use the following working definition: Web3 is a broad set of developing technologies and ideas that use blockchain networks, digital assets, programmable rules, and decentralized designs to give participants new ways to interact with data, value, applications, and one another.

This definition does not claim that every Web3 project is decentralized, useful, safe, or successful. It gives us a starting point for investigation.

WHY PEOPLE PROPOSED WEB3 APPROACHES

Lesson 2 examined how Web2 platforms made it easier for people to publish, communicate, build audiences, and conduct business. Those benefits often depend on an organization that controls accounts, software, policies, and stored information.

Web3 proposals ask whether some activities can follow shared protocols instead. A protocol is a set of rules that separate computers or participants can follow. The ordinary web already depends on protocols and standards. They help different browsers, servers, and devices exchange information.

Web3 extends the protocol idea into areas such as shared recordkeeping, digital assets, programmable transactions, identity, and organizational decision-making. Instead of asking one company to maintain the only official record, participants may rely on a network that follows agreed rules. Instead of receiving permission to open an account from a platform, a participant may create a blockchain address and interact under the protocol's conditions.

Supporters often connect these designs to goals such as greater user control, portability, open participation, and resistance to a single operator's failure or policy change. Those are goals to evaluate, not guaranteed outcomes. The design of the network, the distribution of power, the quality of the software, and the participant's ability to use it safely all matter.

THE COMMON BUILDING BLOCKS

Many Web3 services combine several parts.

A blockchain network maintains a shared record according to its protocol. Computers called nodes may store, verify, or help update that record. Lessons 5 through 8

will explain how blocks, transactions, cryptography, consensus, and network layers support this work.

A digital asset is something represented in digital form that a system recognizes as having a holder, status, or set of rules. In Web3, tokens may represent units of a cryptocurrency, access rights, voting power, a claim associated with another asset, or a unique digital item. The token is a record governed by the network and its software. Its existence does not guarantee that it has financial value, legal rights, usefulness, or a trustworthy issuer.

A smart contract is a program that runs on a blockchain. It can receive a transaction, examine conditions, update records, or transfer tokens according to its code. The word contract can be misleading. A smart contract is computer code; whether it also creates an enforceable legal agreement depends on facts and applicable law. Code can execute consistently and still contain a mistake, insecure design, or unfair rule.

A decentralized application, often shortened to dapp, connects a user interface with one or more smart contracts or decentralized services. The visible website may look much like a Web2 application. Some parts can be decentralized while others remain under the control of a developer, company, hosting provider, or small group. The label dapp should lead to questions about architecture, not an assumption that every part lacks a central operator.

A wallet is software or hardware that helps a person manage cryptographic keys and authorize actions. Depending on the design, the participant or a service provider may control the keys. Greater direct control can reduce dependence on an account provider, but it can also place more security and recovery responsibility on the participant. Never share a private key, seed phrase, password, or authentication code.

WHAT DIGITAL OWNERSHIP CAN AND CANNOT MEAN

In a Web2 service, an operator often maintains the account and the official database. A participant may purchase or earn a digital item, but the service decides how that item can be used. If the account closes or the service ends, access may disappear.

Some Web3 systems allow a person to control a blockchain-recorded asset through a private key. The person may be able to transfer the asset to another compatible address without asking the original application to edit its private database. That is an established technical capability in many blockchain systems.

The phrase digital ownership still requires careful interpretation. Control of a token does not automatically grant copyright in an image, ownership of a physical object, a guaranteed market, or access to every related service. Those rights depend on the

token's code, the issuer's promises, platform rules, contracts, and applicable law. If an outside organization must honor the token, the participant still depends on that organization.

Ownership also brings responsibility. If a person controls an asset through a key and loses that key, there may be no central office able to restore access. If a scammer obtains the key or persuades the person to approve a harmful transaction, the network may carry out the instruction exactly as submitted. Control and protection cannot be separated.

PEER-TO-PEER AND PERMISSIONLESS DO NOT MEAN RULE-FREE

In a peer-to-peer system, participants can communicate or exchange under shared rules without requiring one central operator to approve each action. The network and protocol still perform important coordinating work. Software verifies messages, records actions, and rejects requests that do not follow the rules.

Similarly, permissionless does not mean that every person can do anything. It generally means that the base network does not require advance approval from one administrator before a participant can use the protocol. The participant must still meet technical conditions, pay required fees, follow applicable law, and have the necessary access and knowledge.

Other layers may impose permission. A website can block a location. A company can restrict its interface. A wallet provider can decide which features to offer. A government can regulate conduct. A small group may control software updates or important resources. When someone calls a service permissionless, ask which layer is open and which layers still have gatekeepers.

INTEROPERABILITY IS A GOAL THAT REQUIRES REAL WORK

Interoperability means that different systems can exchange information or work together through compatible rules. A portable credential, for example, is useful only if other systems can read it, verify it, and understand what it represents.

Public standards can support interoperability. The World Wide Web Consortium has developed standards for decentralized identifiers and other web technologies. Its work demonstrates an important principle: interoperability depends on agreed formats, testing, governance, and implementation. A project cannot become interoperable merely by using the word.

Blockchain networks also have different rules, data structures, security designs, and assets. Moving information or value between them may require an exchange

service, bridge, shared standard, or other connecting system. Those connections introduce their own risks. A claim that something "works everywhere" needs evidence about which systems support it and what happens when one part fails.

SEPARATE CAPABILITY FROM ASPIRATION AND PROMOTION

A capability is something a system can demonstrate under stated conditions. "This public blockchain records token transfers" describes a testable capability. A limitation may still apply, but the statement can be checked.

An aspiration describes a desired future. "Users will control all of their online data" expresses a goal. It may guide development, but it is not proof that current services have achieved it.

An opinion expresses a judgment. "This design is fairer than every centralized service" depends on values, evidence, and comparison criteria.

A forecast predicts what may happen. "Most websites will use this protocol within five years" concerns an uncertain future.

A promotional statement is written to attract attention, participation, or money. Words such as revolutionary, guaranteed, effortless, risk-free, and once-in-a-lifetime should increase scrutiny. A promotional statement may contain some facts, but its purpose and missing information matter.

When evaluating a claim, ask: What exactly is being promised? What evidence can be checked? Under what conditions does the feature work? Who controls the parts that are not decentralized? What costs, risks, and responsibilities are left out?

WEB3 WILL NOT REPLACE EVERY USEFUL WEB2 SERVICE

Web3 and Web2 are not sealed boxes. A Web3 application normally uses internet connections, web pages, software interfaces, and other technologies that developed during earlier periods. It may also use centralized services for speed, storage, customer support, identity checks, or recovery.

Centralized services can be appropriate when one accountable organization must correct errors, protect sensitive records, provide assistance, or update a system quickly. A distributed design may be useful when several parties need a shared record and do not want one participant to control it. Neither design wins every comparison.

The responsible question is not, "Is Web3 better than Web2?" Ask, "What problem are we trying to solve, which design fits that problem, and what tradeoffs follow?" Lesson 4 will deepen that comparison by examining centralization and decentralization directly.

APPLIED SCENARIO: A PORTABLE TRAINING CREDENTIAL

A nonprofit training organization wants graduates to show employers that they completed a workforce-development program. Its proposal says:

- Completion records will be represented by digital credentials that learners can present to compatible employers.
- The credential system will use a public standard so more than one compatible application can verify a record.
- No graduate will ever lose access, and every employer in the country will accept the credential.
- The program will revolutionize hiring and eliminate unfair employment decisions.

The first two statements describe planned technical features that can be tested. A reviewer should still ask who issues the credential, what information becomes public, how errors are corrected, which applications are compatible, and what happens if a key is lost.

The third statement makes a forecast and an absolute promise. A technical design cannot force every employer to participate or guarantee that no person will lose access. The fourth is promotional. A credential may improve how a learner presents verified accomplishments, but it cannot by itself eliminate every source of unfairness.

The nonprofit should also consider whether a blockchain is necessary. A standards-based digital credential might work with centralized, federated, or decentralized systems. The organization should compare privacy, portability, cost, security, correction procedures, accessibility, and employer acceptance before selecting the technology.

Reasoned conclusion: The proposal contains a potentially useful idea, but the strongest promises go beyond the evidence. A careful learner separates the verifiable feature from the hoped-for social result.

BENEFITS, LIMITATIONS, RISKS, AND MISCONCEPTIONS

POSSIBLE BENEFITS OF WEB3 APPROACHES

- Shared protocols may reduce dependence on one service provider for certain records or transactions.
- Participants may control and transfer some digital assets directly through cryptographic authorization.
- Public networks can allow new applications to use an existing shared record or program.

» Open standards may support portability and interoperability among compatible systems.
» Programmable rules can coordinate actions among parties that do not rely on the same central database.

IMPORTANT LIMITATIONS AND RISKS

» A system may describe itself as decentralized while control remains concentrated among developers, token holders, infrastructure providers, or interface operators.
» Direct control can increase responsibility for security, key storage, transaction review, and recovery.
» Public blockchain records may create privacy problems because information can be visible and difficult to remove.
» Smart contracts and connecting systems may contain bugs or security weaknesses.
» Fees, network congestion, device requirements, internet access, and technical complexity can limit participation.
» Tokens can be volatile, illiquid, unnecessary, misleadingly promoted, or connected to fraud.
» Rules and legal treatment vary by activity and jurisdiction and may change over time.

COMMON MISCONCEPTIONS

» "Web3 has one official definition." The term covers several technologies and goals, and credible sources describe it in different ways.
» "Web3 is a completed third version of the web." Many components work today, but the wider user-controlled vision remains developing.
» "Blockchain means the entire service is decentralized." Websites, governance, data sources, and development can remain centralized.
» "Permissionless means there are no rules." Participants must follow the protocol, and other layers or laws may restrict conduct.
» "Owning a token means owning every related right." Copyright, physical ownership, access, and legal claims require separate analysis.
» "Interoperability happens automatically." Systems need compatible standards, testing, governance, and safe connections.
» "Web3 makes Web2 obsolete." The approaches overlap, and many useful services will continue to use centralized or mixed designs.

ETHICAL PARTICIPATION

Responsible participation begins with honesty. Do not describe an aspiration as a completed result or a risky activity as guaranteed. Do not use technical language to pressure someone who lacks information. Respect privacy, intellectual property, lawful rules, and the limits of your own knowledge.

Never share or request a private key, seed phrase, password, or authentication code. Question unsolicited offers, promises of guaranteed returns, urgent demands, impersonation, and anyone claiming that payment will recover lost digital assets. Learning about Web3 does not require buying, transferring, or holding an asset.

OFFLINE EXERCISE: CLASSIFY THE CLAIMS

Estimated time: 20–25 minutes

Materials: Separate paper and a pen or pencil.

Create four headings: Fact or testable capability, Opinion, Forecast or aspiration, and Promotional statement. Place each claim under the heading that best describes it. Then choose four claims and write one question that would help you evaluate each one.

1. This blockchain recorded the transaction at a specific time and address.
2. A smart contract can update a blockchain record when its programmed conditions are met.
3. A user-controlled internet is fairer than every company-operated service.
4. Within five years, most employers will accept blockchain-based credentials.
5. This token is the opportunity of a lifetime.
6. A permissionless network does not require one central administrator to approve every participant at the protocol layer.
7. Every Web3 application protects privacy better than every Web2 application.
8. The service plans to let participants present a credential through more than one compatible application.
9. This revolutionary project will eliminate fraud.
10. Control of a token does not automatically establish copyright in a related image.
11. People will eventually own and manage all of their personal data online.
12. The application uses a blockchain, so no person or organization controls any part of it.

Some claims may combine more than one category. If you see a mixed claim, identify the part that can be tested and the part that expresses judgment, prediction, or promotion. Explain your reasoning. The quality of your explanation matters more than guessing a label.

KNOWLEDGE CHECK

MULTIPLE CHOICE

1. Which statement best defines Web3 for this course?
   a. One finished product that replaced Web2 on a specific date
   b. A broad set of developing technologies and ideas involving blockchains, digital assets, programmable rules, and decentralized designs
   c. Any website that accepts an online payment
   d. A guarantee that users control every part of an internet service
2. Which statement describes an established technical capability rather than an aspiration or promotion?
   a. This public blockchain records token transfers according to its protocol.
   b. Web3 will make every online service fair.
   c. This token is guaranteed to change your life.
   d. All personal data will soon be controlled only by users.
3. Which statement about interoperability is most accurate?
   a. It means one system owns every other system.
   b. It occurs automatically whenever a project uses a blockchain.
   c. It depends on compatible rules, standards, and implementations that allow systems to work together.
   d. It removes every security risk from connected systems.

TRUE OR FALSE

» A service that uses a blockchain must be decentralized in every part of its design and operation.

SHORT EXPLANATION

» In two or three sentences, explain why the statement “Web3 gives every user complete control” should be investigated rather than accepted as a fact.

SUMMARY AND PRACTICAL TAKEAWAYS

- Web3 is an umbrella term for developing technologies and goals, not one official product or completed upgrade.
- Common components include blockchain networks, digital assets, smart contracts, decentralized applications, and wallets.
- Some capabilities already exist, while the broader vision of user control remains an aspiration under development.
- Digital ownership depends on the system's rules and does not automatically include copyright, physical ownership, universal access, or guaranteed value.
- Peer-to-peer and permissionless systems still have protocols, conditions, costs, responsibilities, and legal boundaries.
- Interoperability requires compatible standards and working implementations; a label alone does not create it.
- A Web3 service may still rely on centralized websites, developers, infrastructure, data providers, or governance.
- Web3 does not replace every useful Web2 service. The appropriate design depends on the problem and the tradeoffs.
- Careful learners separate facts and testable capabilities from opinions, forecasts, aspirations, and promotional claims.

The practical goal is to evaluate before accepting. Ask what works now, what remains a goal, who controls each layer, what evidence supports the claim, and what responsibility the participant would carry.

PROFILE JOURNAL ASSIGNMENT

Write one coherent journal entry of approximately 300–400 words. Do not submit a disconnected list of answers. Use the prompts below to organize a beginning, middle, and conclusion:

- Define Web3 in your own words without using promotional language.
- Identify two Web3 ideas that appear potentially useful and explain why.
- Choose one common Web3 claim and classify it as a fact, opinion, forecast, aspiration, or promotional statement.
- Describe the evidence or questions you would use to evaluate that claim.
- Explain one reason a Web2 or centralized service may still be appropriate for a particular purpose.

» End by identifying one question about convenience, control, or responsibility that you want Lesson 4 to help you answer.

Your response should show curiosity and judgment rather than enthusiasm or rejection based only on a label. You do not need to disclose private account, financial, legal, medical, family, or facility information. You are not being asked to create an account, use a wallet, purchase anything, or support one model of the internet over another.

SUBMISSION REMINDER

Write your response on separate paper or in an approved institutional messaging system. Include your name or approved Profile identifier, Lesson 3: What Is Web3?, and the date you completed the entry.

Use one of the established Prison Professors Profile methods, subject to your facility's rules:

1. Send it by institutional email to Playbook@PrisonProfessors.org. Suggested subject: Web3 Lesson 3 — [date completed].
2. Send it by postal mail to: Prison Professors, 1205 BMC Drive, Suite 706, Cedar Park, TX 78613.
3. Send it to an approved family member or supporter who can enter it in your Profile at PrisonProfessors.org.

Keep a copy when circumstances permit. Never include passwords, private keys, seed phrases, authentication codes, account numbers, or other sensitive credentials.