

## Bloxxgame

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### Keywords

Bitcoin Mining, Blockchain, Cryptography, Digital Signatures, Economics, Group Learning, Hashing, Self-study, Wallets

The promotional image for Bloxxgame features the logo and tagline 'Build. play. learn. Bloxxgame.' on the left. Below the tagline is a short description: 'Help your students learn by doing! We make blockchain and cryptocurrency understandable by combining theory with hands-on practice.' Two buttons are visible: 'Take a tour' and 'Free trial'. On the right, three panels illustrate user interactions: a man with a wallet interface showing 'Balance 51.0000 BLXC' and 'Pending 10.8000 BLXC'; a woman with a transaction input field labeled 'Data' containing '4b35c4da8f...' and a prompt 'Drop signed transaction here'; and a man with a laptop showing a 'Personal Key' interface with a 'Run all active bots' button and a toggle switch for 'Active'.

**Figure 1.** Promotional image for Bloxxgame (Visilize GmbH). Used for educational review. Rights remain with the creators.

### Introduction

*Bloxxgame* (see Figure 1) is a digital education platform for higher education students and teachers. It teaches blockchain fundamentals in an interactive, risk-free environment—no technical background needed. The platform is tailored for teachers who want to introduce students to key blockchain concepts, including hashing, digital signatures, crypto wallets, coin creation, blockchain transaction processing, Bitcoin mining, and block verification. In Bloxxgame, users actively participate in the blockchain simulation by performing activities such as sending and receiving virtual coins, mining new blocks, and adding and validating transactions. Students are progressively exposed to blockchain mechanisms across seven

levels of interface complexity, allowing them to build their knowledge gradually. Additionally, teachers can deploy bots to create transactions and blocks. This feature can be used to demonstrate how a blockchain grows by user activity or to provide students with a realistic, dynamic experience as they interact with a live blockchain simulation.

### **Facts**

Release date:	Version 1.0 (2019), current version 3.6 (2025)
Developer:	Visilize GmbH, Walter Dettling, Thomas Breitler
Game type:	Digital
Number of players:	Singleplayer & Multiplayer (No Limits)
Format:	Hybrid
Time frame:	60-minute demo up to a 2–4 week exploration project
Languages:	English
Environment:	Laptop or PC with internet access
Material:	Online help, additional resources online
Price:	Teacher master account: \$69.30/year or \$7.70/month. Student account: \$18.90/year or \$2.10/month. Free trial version, subscription for teaching institutions with a 30% discount. Class bundle with a discount.

### **Resonance & Criticism**

Bloxxgame is a novel approach to teaching complex blockchain mechanisms in an accessible, practical way, primarily used in higher education, workshops, and professional training. The game requires a game leader who understands the basics of blockchain to achieve a positive learning outcome for students. Despite positive student feedback, only a few teachers incorporate Bloxxgame into their lessons. Feedback from interested educators indicates that the game's rules, which strictly mirror the protocol rules of a blockchain, can make it challenging to use effectively as a teaching tool.

### **Game Principle & Process**

Bloxxgame does not have a pre-defined course of play. Teachers can use Bloxxgame as a demonstration tool before allowing students to explore it independently. Only minimal preparation is required: the teacher should be confident in basic blockchain concepts and review the admin settings in advance.

In class, students can work alone or in groups, each managing a node. The teacher can assign tasks such as signing a message, creating a coin transaction, or building a block, and use demonstration mode to show how it works. Once students grasp the basics, they can switch to play mode—competing to create the next block, earn the most points, or generate coins. Bloxxgame remains accessible between lessons for self-study. Each player acts as a node—creating transactions, building blocks, and mining—learning core concepts like consensus

through hands-on experience. The game breaks down key mechanisms such as hashing, signing, and block building, and provides tools for classroom or online use. Seven levels of difficulty let teachers match the game to students' prior knowledge.

Through the game, students can experience both basic blockchain principles as well as the application of in-depth cryptographic theory. More examples of teaching scenarios can be found in Dettling (2020) and on the Bloxxgame resource page ([bloxxgame.io](https://bloxxgame.io)).

### **Learning Objectives & Educational Fields of Application**

Bloxxgame is a web-based simulation tool that replicates the core functions of a public Layer 1 blockchain, incorporating features similar to those of Bitcoin, Ethereum, and Cardano.

Bloxxgame aims to make the complex mechanisms of public blockchains accessible to students without programming skills. It offers a hands-on experience with key concepts, such as decentralized consensus. It empowers teachers without a computer science background to effectively introduce blockchain fundamentals before exploring real-world applications across sectors such as finance, healthcare, and supply chains (e.g., Tolentino-Zondervan et al., 2023). Through interactive learning, it goes beyond theory by letting students actively participate and explore how a blockchain works.

This approach ensures that students not only learn blockchain concepts but also actively engage with them in a practical, accessible way.

### **Effectiveness**

Baez' s (2021) master's thesis shows that Bloxxgame improves students' understanding of blockchain concepts such as blocks, consensus, and transactions, and that students rate their Bloxxgame experience highly (4.18 out of 5.0). Systematic debriefings have also clearly confirmed that using Bloxxgame made students more aware of the opportunities and risks associated with a lack of knowledge in the field of cryptocurrencies.

### **Potentially Problematic Aspects**

By 2025, over a thousand students will have gained hands-on blockchain experience with Bloxxgame, with consistently positive feedback. However, teacher involvement remains low. Although the game has been publicly accessible since 2024, website traffic and research downloads have not yet translated into widespread educator adoption.

Experimental teaching methods continue to be underestimated compared to traditional theory-driven approaches, and blockchain education faces additional challenges. Public perception often focuses heavily on cryptocurrencies and their negative associations, leading to the broader relevance of blockchain being overlooked in most university curricula. As a result, even in technical disciplines, teachers have significant gaps in the fundamentals of

blockchain. Using Bloxxgame as a teaching tool does not require teachers to have specific technical knowledge; instead, it requires a basic understanding of blockchain mechanisms.

Reviewer(s): Xenia Zeiler, Lucien Alikhani

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