



Power-Up: Unlocking the Hidden Mathematics in Video Games

By Matthew Lane

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Power-Up: Unlocking the Hidden Mathematics in Video Games By Matthew Lane

A fun and lively look at the mathematical ideas concealed in video games

Did you know that every time you pick up the controller to your PlayStation or Xbox, you are entering a game world steeped in mathematics? *Power-Up* reveals the hidden mathematics in many of today's most popular video games and explains why mathematical learning doesn't just happen in the classroom or from books?you're doing it without even realizing it when you play games on your cell phone.

In this lively and entertaining book, Matthew Lane discusses how gamers are engaging with the traveling salesman problem when they play *Assassin's Creed*, why it is mathematically impossible for Mario to jump through the Mushroom Kingdom in *Super Mario Bros.*, and how *The Sims* teaches us the mathematical costs of maintaining relationships. He looks at mathematical pursuit problems in classic games like *Missile Command* and *Ms. Pac-Man*, and how each time you play *Tetris*, you're grappling with one of the most famous unsolved problems in all of mathematics and computer science. Along the way, Lane discusses why *Family Feud* and *Pictionary* make for ho-hum video games, how realism in video games (or the lack of it) influences learning, what video games can teach us about the mathematics of voting, the mathematics of designing video games, and much more.

Power-Up shows how the world of video games is an unexpectedly rich medium for learning about the beautiful mathematical ideas that touch all aspects of our lives?including our virtual ones.

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Power-Up: Unlocking the Hidden Mathematics in Video Games By Matthew Lane Bibliography

- Rank: #425454 in Books
- Brand: Lane Matthew
- Published on: 2017-05-23
- Original language: English
- Dimensions: 9.40" h x 1.00" w x 6.40" l,
- Binding: Hardcover
- 264 pages

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Editorial Review

From the Back Cover

"Are you a video game enthusiast who is getting tired of being asked 'How can you waste time on such stuff?' This book is your answer! Matthew Lane skillfully weaves a tale of how video games can be important tools for teaching mathematics and physics. As a long-time video gamer, I highly recommend *Power-Up*."--**Paul J. Nahin, author of *In Praise of Simple Physics***

"What a delightful journey through the math of hidden worlds! This is much more than a book about video games. It's an exploration of interconnectedness and an invitation for the perpetually curious."--**Karim Ani, founder of Mathalicious**

"After reading *Power-Up*, parents, teachers, and nongamers who have eschewed letting young people play video games may see that games are not the 'evil distraction' they have been made out to be."--**Robin Angotti, University of Washington**

About the Author

Matthew Lane is a mathematician and cofounder of Rithm, a school for aspiring web developers. He is also the creator of *Math Goes Pop!*, a blog that explores the interconnections between mathematics and popular culture. He lives in San Francisco.

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