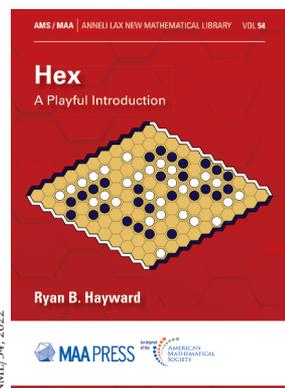


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## *Hex: A Playful Introduction*

By Ryan B. Hayward

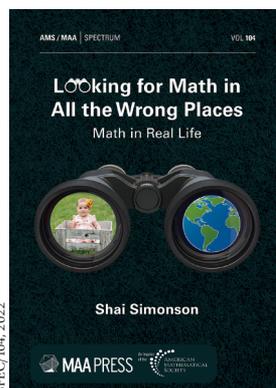
Hex is a two-player game invented in the 1940s, independently and nearly simultaneously, by Danish polymath Piet Hein and mathematician John Nash. The game is played on an  $n \times n$  hexagonal grid. Black and white stones are alternately placed in the cells of the grid.

Black wins if it constructs a connected path from the top to the bottom of the board. White wins if it connects a path from the left to the right.

Hayward is a co-author (with Bjarne Toft) of the comprehensive *Hex: The Full Story*, which thoroughly covers the history, strategy, and analysis of the game. *Hex: A Playful Introduction* is a popular introduction to the play of the game and to an elementary mathematical analysis of it. It is known that the game can't end in a tie and that there exists a first-player-win strategy. Both of those facts are proven in this volume. But, beyond the first few small boards, not much is known about what that winning strategy should be.

This appealing book is full of puzzles, strategy, and variants (like Y, played on a triangular board, the winning player connects all three sides in a Y-shaped path). The book successfully introduces mathematical (and algorithmic) thinking in a playful and joyous way for the general reader. This book would make a great holiday gift for a math-curious friend or relative. It could also provide the background for an undergraduate research project in the game, there are any number of accessible, intriguing problems raised.

The AMS Bookshelf is prepared bimonthly by AMS Acquisitions Specialist for MAA Press titles Stephen Kennedy. His email address is [skennedy@amsbooks.org](mailto:skennedy@amsbooks.org).



## *Looking for Math in All the Wrong Places: Math in Real Life*

By Shai Simonson

Shai Simonson is, evidently, always looking for math. He finds it in likely, and unlikely, places: lock picking, kite flying, hiking, carnival games. And he has a great talent for explaining these encounters in charming ways. In one of my favorite sections he relates a family tale of a birthday

party at which an innocent, trivial, mathematical coincidence sparks a whole-family communal investigation. Someone at the party noted that the author's age (62) and his birthday-celebrating son's (26) were reversals of one another and wondered whether that had ever happened before, or would again. The family very quickly disposed of that problem and asked the obvious follow-up: had it ever happened with any of his other children? I'll leave it to you (and your family) to retrace their path of discovery. The point here is that the author has a magical ability to take a birthday party crowd of people and turn them into a community of joyful mathematical puzzle-solvers. Over and over again we meet his family and friends communally struggling with puzzles they stumbled over in their daily activities.

Observing these family problem fests is a great pleasure. Shai's family goes on a two-car family road trip and ends up summing geometric series to compute the head start that should be given to the slower driver. A romantic date with his wife spins off into a discussion of arithmetic versus geometric means as they try to compute the correct pricing for a carafe of wine. A family trip to a Penn and Teller magic show at which the author ends up onstage leads to a discussion of mathematical magic tricks. Experimenting, exploring, estimating, computing, and deducing all become beguiling family activities as Simonson and his kin try to understand the world. There is wonder and joy in the quotidian with Simonson as your guide. Like the previous book, this would make a terrific holiday gift. It might also provide you with ideas for sparking a lively activity in one of your classes.