Whether or not students play chess, chess-related logic problems and puzzles challenge all learners. These problems address complex spatial tasks and relationships, provide collaborative or competitive challenges, and allow students to discern and explain reasoning. But, most important, they are fun and the challenging.

Students get great satisfaction from unraveling a mystery; the thrill of “winning” provides intrinsic motivation. Even students who profess not to like chess, enjoy the challenge of solving a problem. And, for those students who like the idea of chess as a game, using chess as part of their math studies is doubly appealing.

**Math Logic on the Chessboard**

*Visualization, Problem-Solving, Spatial Reasoning*

With one, two, three steps or more — these puzzles and problems apply, test and improve strategic and higher level thinking skills. And, you don’t have to be a chess player to tackle them. Some of these puzzles will improve chess play, but all of them improve our students’ abilities to focus, visualize, think ahead, weigh options, analyze concretely and think abstractly. This reproducible classroom book provides more than 30 thought-provoking logic puzzles for all ages. It is divided into 5 sections, each representing a focused problem-solving challenge.

- **Chessboard Calculations**  
  *Students focus on “thinking outside the box” or, in this case, outside the confines of the 8 x 8 chessboard, using calculations, transformations and visualization.*

- **Mathematical Chess Moves**  
  *The addition of movement within the space of the chessboard adds an interactive 3-D component as students model solutions to problems mentally and concretely.*

- **Pawn Game Strategies**  
  *Here students visualize the what-ifs and begin to define strategies within simple games. Then, they can test their theory through play.*

- **Field of Play: Visualize the Solution**  
  *Visualization supports the development of creativity in problem solving, and spatial visualization improves a student’s ability to perform transformations of mental images.*

- **How Did We Get Here?: Retrograde Analysis**  
  *In chess strategy, we’re always looking to the future to get a win. But, in retrograde analysis, the position has already been achieved and it’s our job to discover how it happened. We deconstruct a problem within the basic rules of the game, applying deductive and inductive reasoning.*

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