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Using the Tower of Hanoi puzzle to infuse your mathematics classroom with computer science concepts.

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Summary: This article suggests that logic puzzles, such as the well-known Tower of Hanoi puzzle, can be used to introduce computer science concepts to mathematics students of all ages. Mathematics teachers introduce their students to computer science concepts that are enacted spontaneously and subconsciously throughout the solution to the Tower of Hanoi puzzle. These concepts include, but are not limited to, conditionals, iteration, and recursion. Lessons, such as the one proposed in this article, are easily implementable in mathematics classrooms and extracurricular programmes as they are good candidates for 'drop in' lessons that do not need to fit into any particular place in the typical curriculum sequence. As an example for readers, the author describes how she used the puzzle in her own Number Sense and Logic course during the federally funded Upward Bound Math/Science summer programme for college-intending low-income high school students. The article explains each computer science term with real-life and mathematical examples, applies each term to the Tower of Hanoi puzzle solution, and describes how students connected the terms to their own solutions of the puzzle. It is timely and important to expose mathematics students to computer science concepts. Given the rate at which technology is currently advancing, and our increased dependence on technology in our daily lives, it has become more important than ever for children to be exposed to computer science. Yet, despite the importance of exposing today's children to computer science, many children are not given adequate opportunity to learn computer science in schools. In the United States, for example, most students finish high school without ever taking a computing course. Mathematics lessons, such as the one described in this article, can help to make computer science more accessible to students who may have otherwise had little opportunity to be introduced to these increasingly important concepts.

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