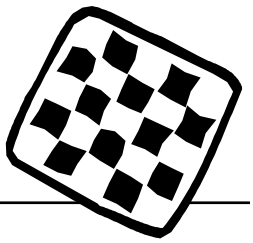
Circle Logic – Advanced



Use your knowledge of patterns to develop a plan to take the last playing piece from the board.

What you need

Game pieces (buttons or coins)
Game Board (a circle with 12 x's equally spaced on a circle)

What to do

1. Play this game with two players or two teams of players.
2. Place a game piece on each X.
3. Decide who goes first and take turns.
4. During a turn, the player must take away 1 or 2 pieces.
5. If you take away 2, they must be next to each other.
6. The winner takes away the last game piece.

What to ask

- What patterns did you find? Do you see a strategy?
- How can you be sure to always win?

Did you know?

Playing games involves many different kinds of skills including math skills. Patterns are every where in life. Recognizing those patterns and using them is a pre-algebra fundamental skill. The ability to predict possible events and consequences helps in making choices.

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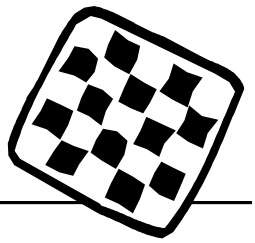

What's next?

- Change the number of X's. Find a winning strategy.
- Play Nim or find other games to play.
- Make up a game of your own.

To learn more

The Grapes of Math

by Greg Tang

This innovative and delightful book challenges children -and parents -to open their minds and solve problems in new and unexpected ways. By looking for patterns, symmetries, and familiar number combinations displayed within eye-catching pictures, math will become easier and quicker - and much more fun - than anyone could have ever imagined!

http://www.gotofreegames.com/nim/free_nim_puzzle.htm

Play a free game puzzle game called Nim online and find out the history of the Nim game. Nim originated in China, but the name we know if by is thought to be German from nimn the German word for take. The first European reference to the game is in the 15th century.

How it helps with school

Texas Essential Knowledge and Skills (TEKS) Standards

Number, Operations, and Quantitative Reasoning: 3.3A, 4.3A, 5.3A
Patterns, Relationship, and Algebraic Thinking: 5.5A-B
Probability and Statistics: 3.14C; 4.13A
Underlying Processes and Mathematical Tools: 3.15B-D, 3.17; 4.14B-D, 4.16; 5.14B-D, 5.16

National Council of Teachers of Mathematics (NCTM) Standards

Algebra, Data and Probability, Problem Solving, Communication

Activity inspired by Counter Logic by Nancy Segal Janes

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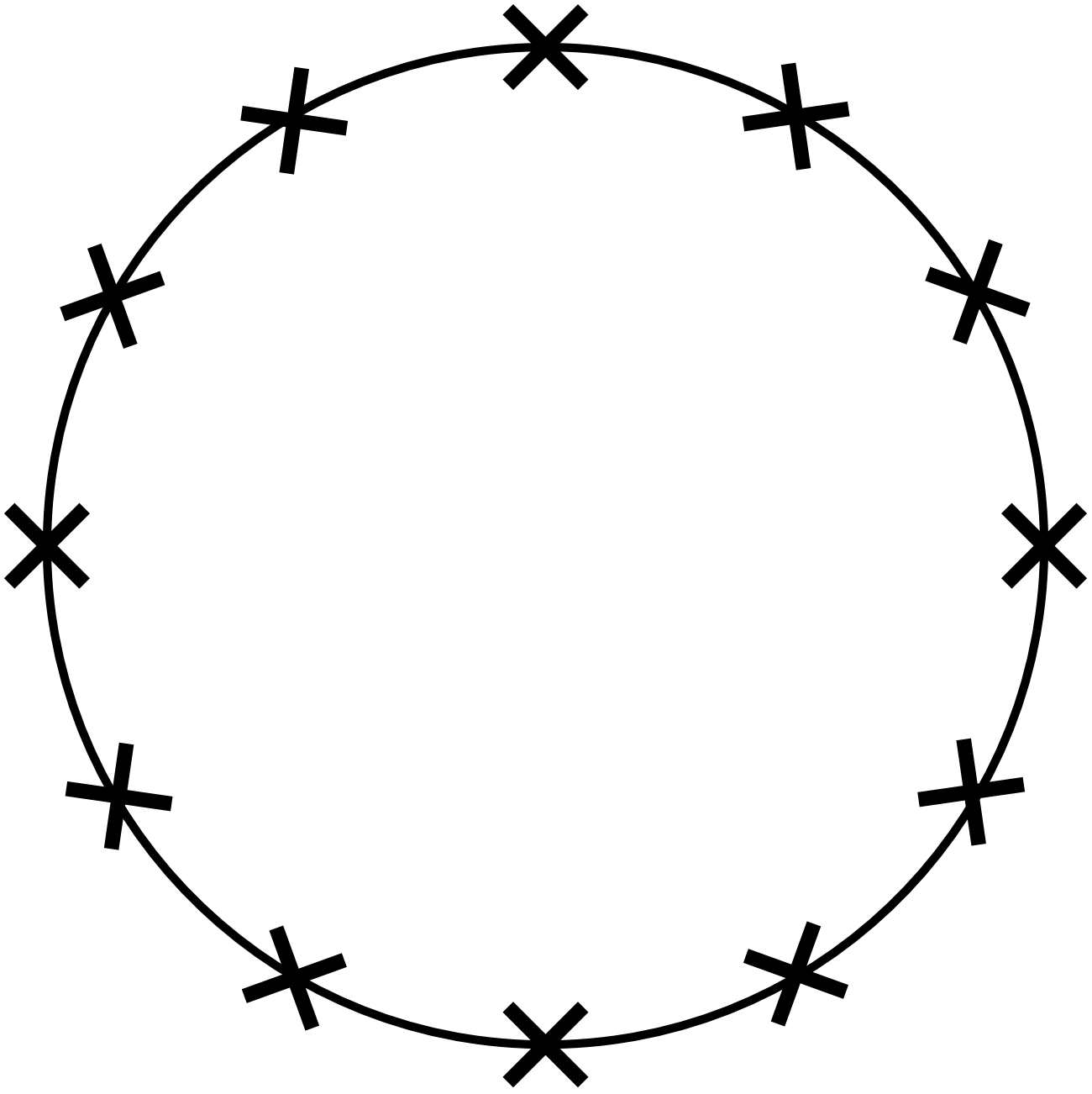

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ExxonMobil Math Path EM M³ Magnificent Math Moments