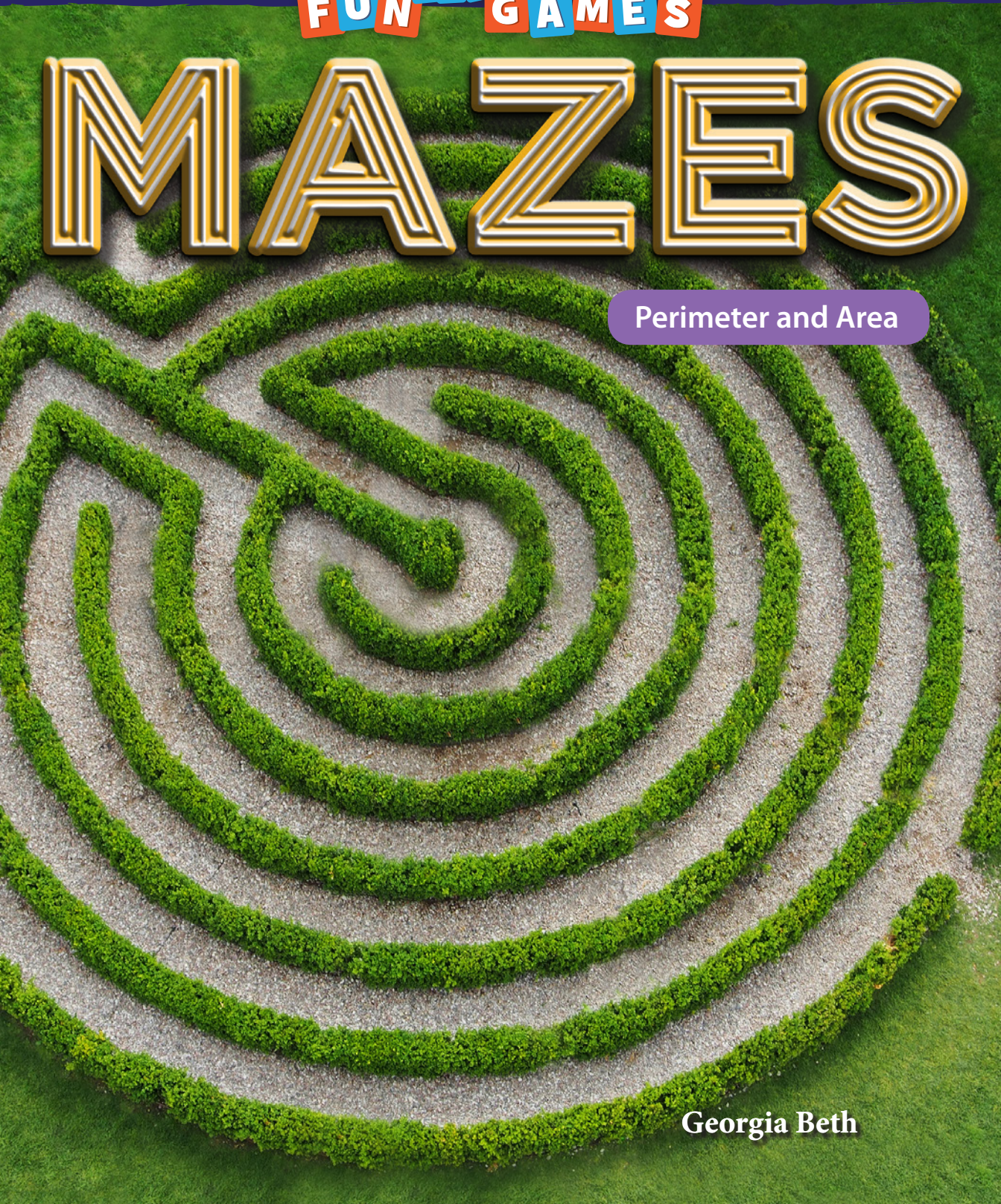
FUN AND GAMES

MAZES

Perimeter and Area



Georgia Beth

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Filling in the Blanks

Remember that bird's-eye view? People can see the outline or perimeter of a maze by looking down at it. It is important for maze makers to know the distance around the maze. But that is not where the action is. The adventure takes place in the space between the outer walls of the maze.

Maze makers are mathematicians who see the world in square units. Seeing the world this way makes it possible for maze makers to imagine mazes everywhere they look. They might see small, simple mazes on sheets of paper. They might see large mazes in fields of corn.

corn maze in France

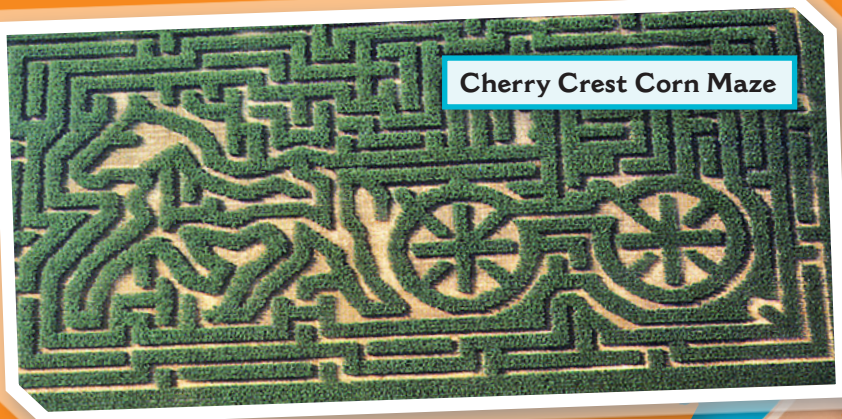
Ian Anderson and his six-story maze

Maze maker Ian Anderson sees mazes in places other people don't. He even saw a maze on the walls of a stairwell. He drew a maze in the stairwell of the Cartoon Network building. Although Anderson came across some dead ends and went in circles at times, it only took him a few hours to solve his six-story maze!

A space's area determines the possible area of a maze. Area is the amount of space covered by square units inside shapes. It is the space surrounded by perimeter. But area isn't just something that is found in squares on a sheet of graph paper. It is what designers use to bring mazes to life.

In Queens, New York, maze makers created a see-through maze made of twine. The maze was harder to solve than it looked! So, musicians and dancers were invited to perform in the center of the maze. The performances encouraged maze runners to keep going.

If a twine maze seems too easy, the Cherry Crest Corn Maze in Ronks, Pennsylvania, is sure to test even the best maze runners. First, runners are given a game board and instructions. Then, they begin winding their way to the middle. Along the way, runners have to find clues, play games, and solve puzzles to move forward. It takes most people about an hour to complete the $2\frac{1}{2}$ mi. (4 km) pathway. Two staff members wander through the maze all day to keep people from getting lost. Think you can memorize the route for next year? Think again. The designers change the maze's shape and clues every year to keep people guessing.



Cherry Crest Corn Maze

This twine maze in Queens, New York was created by artists Sam Hillmer and Laura Paris.

LET'S EXPLORE MATH

Some mazes aren't outside. The twine maze was built inside of a 50,000 square foot room. The BIG Maze was another indoor maze. This square maze measured 60 feet on each side. If there was nothing else inside of it, would the BIG Maze have fit in the room that the twine maze was in? Why or why not?

the BIG Maze in Washington, DC

Problem Solving

Now, it is your turn to design a maze! Use 1-centimeter graph paper to draw a rectangular maze. Be sure to follow the guidelines on page 25.

1. What will you call your maze? Where will your maze be located? What material will you use to build it?
2. What is the area of your maze design? What is the perimeter?
3. Draw a rectangle that has half of the area of your maze design. What is the perimeter of the rectangle? Show your thinking.
4. Draw a rectangle that has double the area of your maze design. What is the perimeter of the rectangle? Show your thinking.