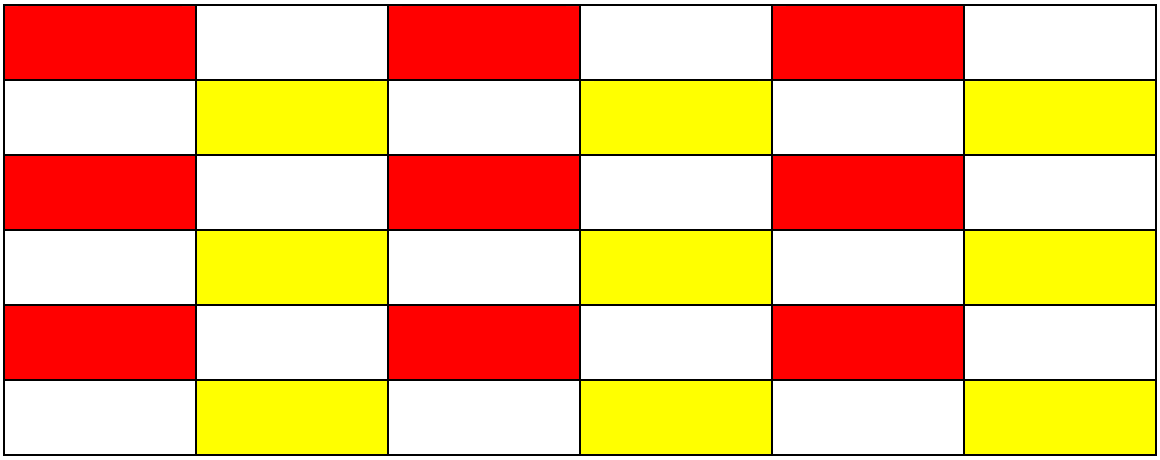
SYMMETRY AND TILINGS — Tiling Examples & Application

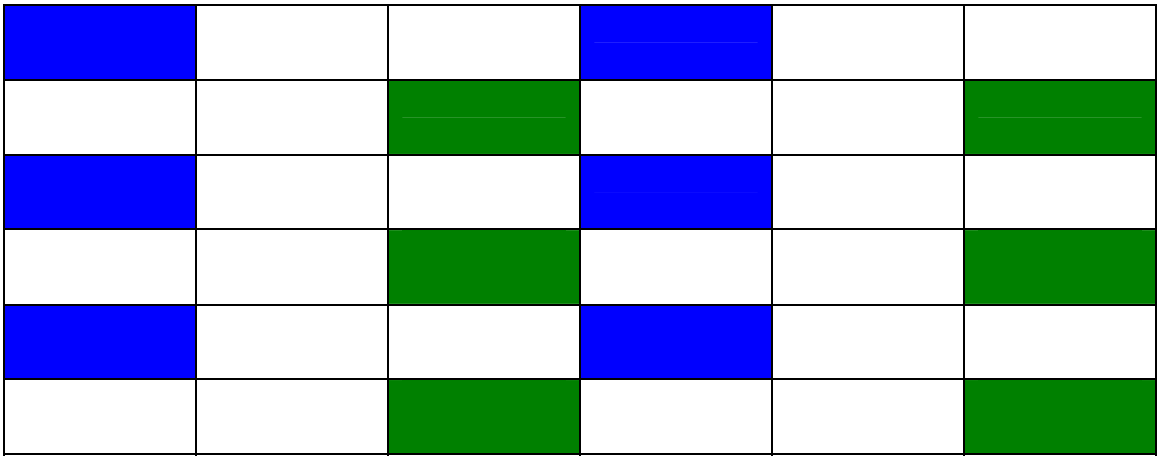
In each of the following tiling examples, please identify:

- **the prototiles**—please label a representative for each with the label P-n where n indicates the number of the prototile, e.g., P-1, P-2, …
- **the generating group of the tiling**—please list the tiles involved
- **a fundamental domain of the tiling**—please circle the appropriate tiles

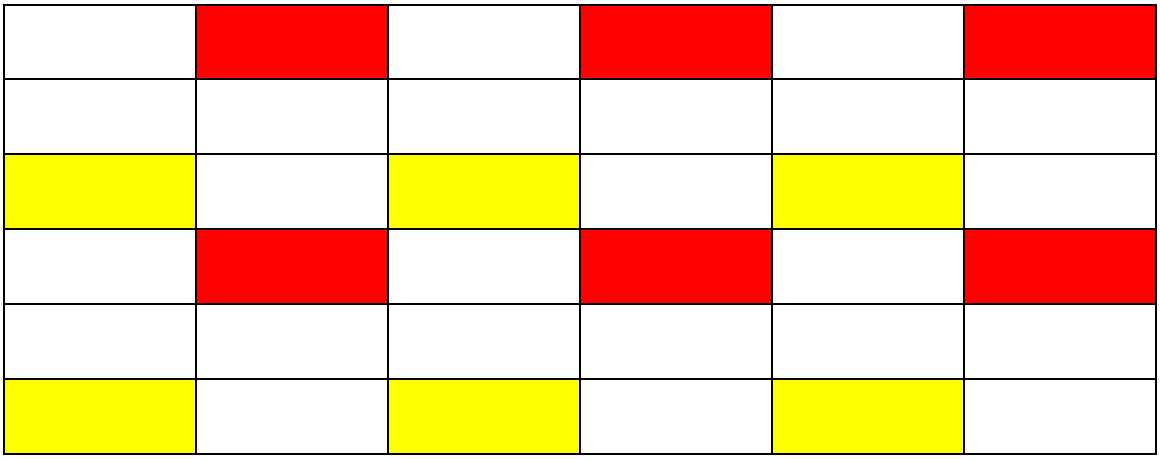
Example 1:



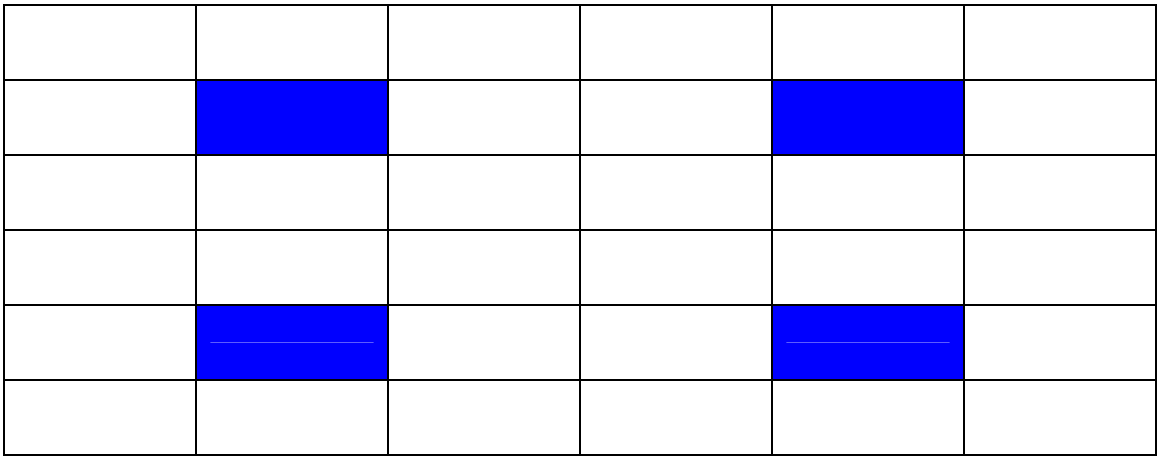
Example 2:



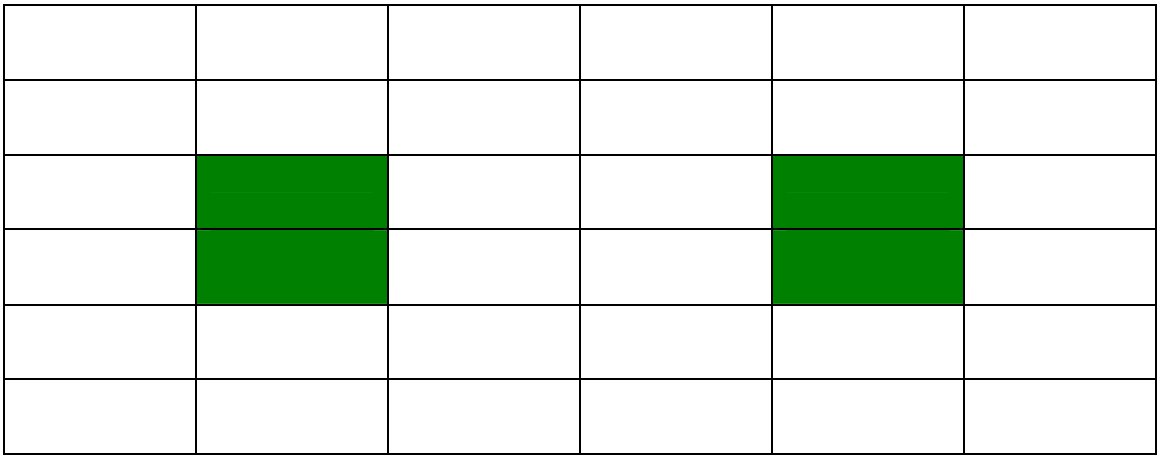
Example 3:



Example 4:



Example 5:



Example 6: Application

In the author's textbook cover below (both front and back are shown), imagine that the title and author's name were removed from the front cover and that appropriate tiles were inserted instead to complete the tiling pattern.

1. **Which four tiles would replace the book's title on the front cover?** Please identify each by its row and column using this guide: the row of tiles above the title is Row #1, the row containing the title is Row #2, the row immediately below the title is Row #3, and so on. With regard to the four non-truncated columns, Column #1 lies directly above and below the word "EXPLORE" and Column #4 lies directly above and below the word "IT!"

2. **Which two tiles would replace the author's name?** Please identify them as above.

3. **Identify and label the prototiles, the generating set, and a fundamental domain of the tiling.** Please identify them as above.

> **Note: Both size and color are differentiating factors between tiles.** Each tile on the cover consists of two rectangles: a smaller one situated within a larger one where both rectangles have different colors. Tiles having the same colors in their rectangles are considered to be different if their shapes and/or sizes are different