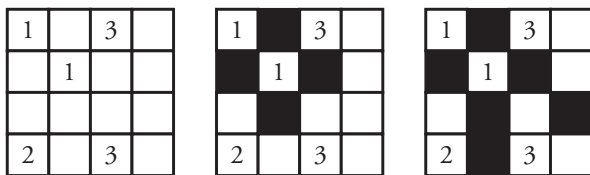


Square Off

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This month's *Puzzle Corner* is a modification of a kind of puzzle that can be found on the Puzzle Japan website (www.puzzle.jp/index.html.en). These puzzles consist of square or rectangular grids that have numbers in some of the spaces. The puzzles are called “Nurikabe,” which means, “painting walls.” The object is to fill the grid by “painting walls” between the numbers so that each number is left in a white area containing that many squares. Look at the example below of a simple game in progress.



As you can see, each digit is left in a space containing that number of squares. The puzzles on the Puzzle Japan website are designed so that there is only one possible solution for each. They also have additional rules about the filled-in spaces that do not apply to our version. In the puzzles presented here, multiple solutions are possible for all of the grids, and manipulatives are provided to facilitate the solution-discovery process. Our grids are also fairly small—five by five and six by six—which greatly reduces the difficulty.

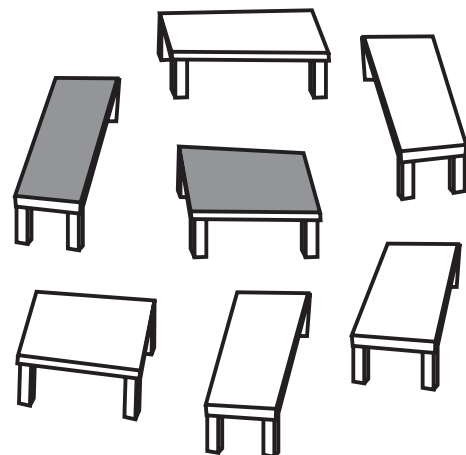
Distribute the student pages and some kind of small manipulative to students. The manipulatives can be Area Tiles, Math Chips, or any other small objects that will fit in the squares on the page. The use of manipulatives allows students to try finding solutions without leaving a record of their mistakes. It also facilitates the discovery of multiple solutions, as they can easily rearrange the “walls” in different configurations.

Students should work on these puzzles individually until they have found at least one solution for each. You may wish to have them work on the puzzles for small amounts of time each day for several days. At the end of this time, a class discussion should be held during which students share their solutions. At this time, you may wish to compile a master list of solutions for each puzzle and try to determine if all possibilities have been discovered.

If your students are interested in a more difficult challenge, have them try designing their own puzzles. They can try to design puzzles that have multiple solutions and those that have only one possible solution. Students can also be encouraged to visit the Puzzle Japan website and try its version of the puzzle. Remember, they use bigger grids, and there are some different rules that make finding the solution more difficult.

Last Issue's Puzzle

Tabletop Trickery was an optical illusion in which the challenge was to determine which of two tabletops pictured were congruent—exactly the same size and shape. In the picture below, the two shaded tabletops are identical.



Square Off

Each number in the square grid wants to be in its own separate space. Your challenge is to make each number happy by filling in the squares between them. The numbers must all be enclosed in white areas containing their number of squares. Ones must have one square, twos must have two squares, threes must have three squares, etc. Look at this example of a grid being completed:



1			3
	1		
2		3	

1	■		3
■	1	■	
2	■	3	

1	■		3
■	1	■	
2	■	3	■
	■		



Use your manipulatives to cover the squares. Each puzzle will have more than one solution. When you find a solution, record it in one of the small grids. Try to find as many different solutions as you can.

Here is a simple puzzle to get you started.

1		2	
3			
			2

My Solutions:

1		2	
3			
			2

1		2	
3			
			2

1		2	
3			
			2

1		2	
3			
			2

Square Off

Find and record as many solutions as you can.

1				1
		4		
				2
3		2		

My Solutions:

1				1
		4		
				2
3		2		

1				1
		4		
				2
3		2		

1				1
		4		
				2
3		2		

1				1
		4		
				2
3		2		

4				2
		1		
			5	
	3			

My Solutions:

4				2
		1		
			5	
	3			

4				2
		1		
			5	
	3			

4				2
		1		
			5	
	3			

4				2
		1		
			5	
	3			

Square Off

Find and record as many solutions as you can.

2				5
		1		
	3			
1			2	

My Solutions:

2				5
		1		
	3			
1			2	

2				5
		1		
	3			
1			2	

2				5
		1		
	3			
1			2	

2				5
		1		
	3			
1			2	

			3	
	4			
2		5		
				1

My Solutions:

			3	
	4			
2		5		
				1

			3	
	4			
2		5		
				1

			3	
	4			
2		5		
				1

			3	
	4			
2		5		
				1

Square Off

Find and record as many solutions as you can.

1		1			3
	1				
		5			
2				4	

4					
		5			4
	1			4	
					3

1	1	3		
	1			
		5		
2			4	
				3

My Solutions: 2

1	1	3		
	1			
		5		
2			4	
				3

My Solutions: 1

4				
		5		
			4	
				3

4				
		5		
			4	
				3