Name _____ Date _____

More Magic Squares

1. Use what you have learned about magic squares and the digits 4, 6, 8, and 9 to complete this magic square.

7	12	5
		10
11		

2. Here is another incomplete magic square.
   A. Fill in the empty boxes to make a magic square that has three 1s, three 5s, and three 9s.

9	1	
	5	
		1

   B. Find another solution for the blank magic square below that also uses the digits 1, 1, 1, 5, 5, 5, 9, 9, 9.

   C. Show or tell the strategy you used to find the sum of each row, column, and diagonal.

Magic Squares   SAB · Grade 3 · Unit 2 · Lesson 4   **43**
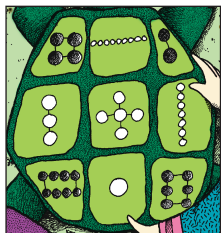
Student Activity Book - Page 43

Name _____ Date _____

3. **A.** Fill in the empty boxes. This magic square uses the digits 3, 3, 3, 7, 7, 7, 11, 11, 11.
   B. Show or tell the patterns you used to help you complete the square.

3	11	7
		11

4. Arrange 1, 2, 3, 4, 5, 6, 7, 8, 9 into a magic square that is different from the one on the back of the turtle.

5. Challenge:
   A. Find as many different magic squares as you can with the numbers from the square in Question 2.
   B. Find as many different magic squares as you can with the numbers from the square in Question 3.
   C. How are the solutions to the magic squares in Parts A and B alike?

44   SAB · Grade 3 · Unit 2 · Lesson 4   **Magic Squares**

Student Activity Book - Page 44

Student Activity Book

More Magic Squares (SAB pp. 43–44)
Questions 1–5

1.

7	12	5
6	**8**	10
11	**4**	**9**

2. **A.**

9	1	5
1	5	**9**
5	**9**	1

   B. For a list of all possible solutions, see 5A.

   C. Answers will vary. The diagonals have the same middle number, 5. Each row and column has one of each number. The sums are the same. All the numbers are odd.

3. **A.**

3	11	7
11	**7**	**3**
7	**3**	11

   B. Possible response: I knew that each row, column, and diagonal had to have a 3, 7, and 11. I also knew that 7 would be in the middle square since it is the middle number in this group of numbers. The first row was done and the last column already had 7 and 11 in place, so I added the 3 in the last column. Since I had put 7 in the middle square, I knew I had to put an 11 in the second row, first column. Then I could finish the last row with the 7 and the 3.

4. Possible solutions:

2	9	4		8	1	6		4	3	8
7	5	3		3	5	7		9	5	1
6	1	8		4	9	2		2	7	6

6	1	8		8	3	4		6	7	2
7	5	3		1	5	9		1	5	9
2	9	4		6	7	2		8	3	4

2	7	6
9	5	1
4	3	8

5. A. The four solutions are listed below.

9	1	5
1	5	9
5	9	1

5	9	1
1	5	9
9	1	5

1	9	5
9	5	1
5	1	9

5	1	9
9	5	1
1	9	5

B. The four solutions are listed below:

3	11	7
11	7	3
7	3	11

7	11	3
3	7	11
11	3	7

11	3	7
3	7	11
7	11	3

7	3	11
11	7	3
3	11	7

C. Possible response: All of the solutions use only odd numbers. The middle number in each list is always in the middle square of the magic square. There are four solutions for each set of numbers. There is always one diagonal in each solution that has three numbers that are the same.

Student Activity Book - Page 45

Student Activity Book - Page 46

Student Activity Book

More Magic Squares (SAB pp. 45–46)
Homework
Questions 1–4

1. **A.** 18

   B. The following is one of four solutions.

3	9	6
9	6	3
6	3	9

2. A is a magic square. B is not because the rows, columns, and diagonals have different sums. For example, the sum of row 1 is 30. The sum of row 2 is 33.

3. **A.** 27

   B.

6	13	8
11	9	7
10	5	12

4. There are seven more possible solutions.

10	5	12
11	9	7
6	13	8

12	5	10
7	9	11
8	13	6

8	13	6
7	9	11
12	5	10

12	7	8
5	9	13
10	11	6

6	11	10
13	9	5
8	7	12

8	7	12
13	9	5
6	11	10

10	11	6
5	9	13
12	7	8