MAGIC SQUARES ACTIVITY

MATHEMATICS: Addition and subtraction
LANGUAGE ARTS: Descriptive writing
SOCIAL STUDIES: World cultures

AIM: Students use addition, subtraction, logic, and process skills to complete math puzzles.

BACKGROUND: A magic square is a box of numbers arranged so that any line of numbers, including the diagonal, adds up to the same number. In the 3 by 3 magic square, the sum of each row, column, and diagonal is 15.
The origin of the magic square is much debated. However, it is believed that the Chinese knowingly constructed the first 3 by 3 magic square around 400 B.C. The Chinese magic square is called Lo-shu.

BEFORE PLAYING
Activity: Play the game, "I'm thinking of a number," with a twist! Begin the round by saying, "I'm thinking of a number. The sum of this number and five equals 13." The first student with the correct answer (8) is the next to think of a number. Play several rounds.
Begin the next set by saying, "I'm thinking of a number that—when added to four and nine—equals 27." Again, the first student with the correct answer (14) thinks of the next number. Play several rounds. Allow students to use paper and pencils.

AFTER PLAYING
Writing Prompt: Ask students if they solved the magic squares game the first time around. How many tries did it take for them to get the correct answer? Have students explain, in writing, how they solved the puzzle.
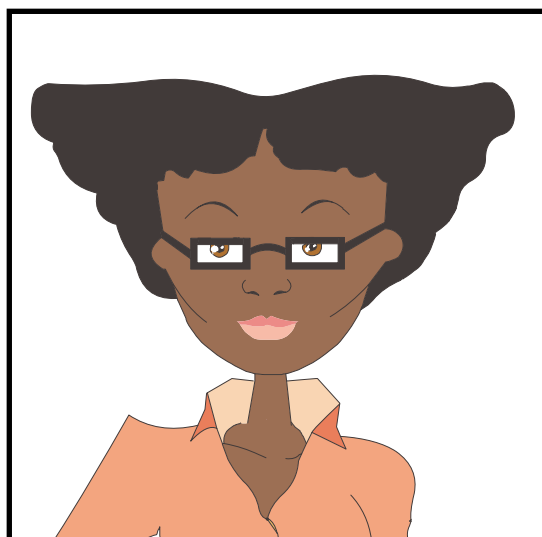
ASSESSMENT: Assess students' answers on the Before and After Playing Worksheets.

RESOURCES
Ben Franklin and the Magic Squares (Step into Reading, Step 3), by Frank Murphy (Random House, 2001, $3.99, ISBN 0-375-80621-0). Although this book is intended for younger readers, it is a great way to introduce the magic square. It tells of Ben Franklin's many inventions including the story of how he created the magic square. To order, call 1-800-733-3000.
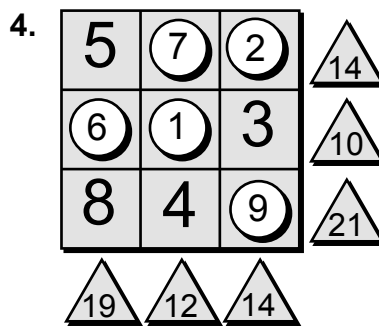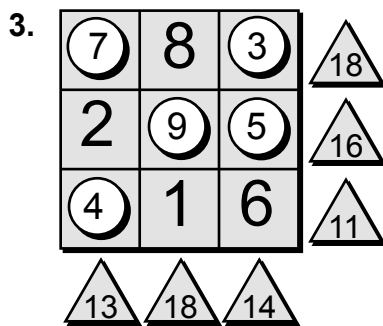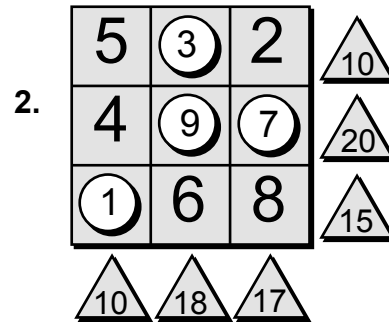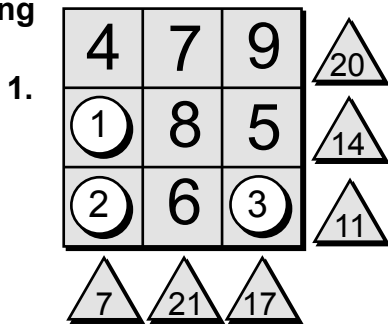
http://www.edu4kids.com/msq
Visit this site to play magic squares games. With three different levels, the games are sure to challenge all of your students

TA-10.1

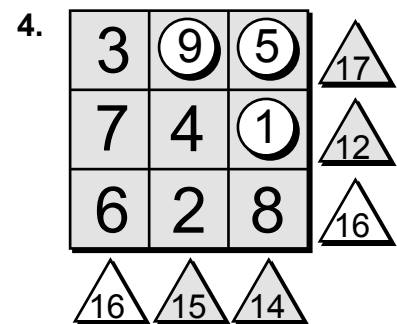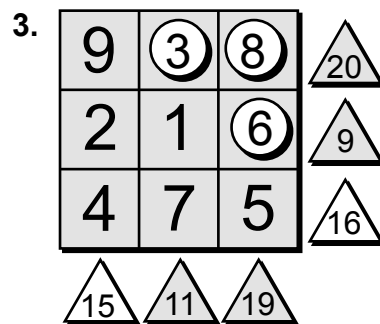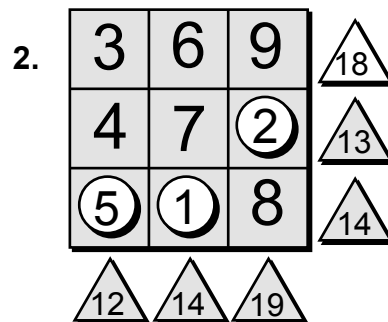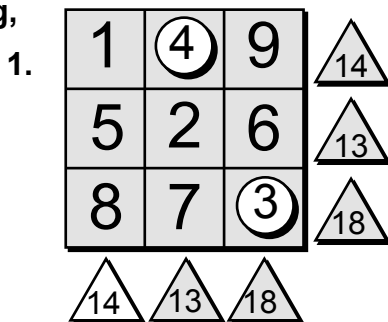# MAGIC SQUARES ACTIVITY

**ANSWERS
Before Playing
Worksheet:**

1.

4	7	9	△20
①	8	5	△14
②	6	③	△11

△7 △21 △17

2.

5	③	2	△10
4	⑨	⑦	△20
①	6	8	△15

△10 △18 △17

3.

⑦	8	③	△18
2	⑨	⑤	△16
④	1	6	△11

△13 △18 △14

4.

5	⑦	②	△14
⑥	①	3	△10
8	4	⑨	△21

△19 △12 △14

**After Playing,
Worksheet:**

1.

1	④	9	△14
5	2	6	△13
8	7	③	△18

△14 △13 △18

2.

3	6	9	△18
4	7	②	△13
⑤	①	8	△14

△12 △14 △19

3.

9	③	⑧	△20
2	1	⑥	△9
4	7	5	△16

△15 △11 △19

4.

3	⑨	⑤	△17
7	4	①	△12
6	2	8	△16

△16 △15 △14

TA-10.2

MAGIC SQUARES ACTIVITY

CONNECT TO YOUR CURRICULUM

This activity can help you meet these National Standards:

Mathematics:

- Develop fluency in adding, subtracting, multiplying, and dividing whole numbers
- Develop and use strategies to estimate the results of whole-number computations and to judge the reasonableness of such results
- Represent the idea of a variable as an unknown quantity using a letter or symbol
- Express mathematical relationships using equations
- Propose and justify conclusions and predictions that are based on data and design studies to further investigate the conclusions or predictions

Science:

- Systems, order, and organization
- Change, constancy, and measurement
- Abilities necessary to do scientific inquiry

CURRICULUM AREAS

Math: addition: subtraction; logic.
Social Studies: world cultures.
Language Arts: descriptive writing.
Technology: computer science.
Science: scientific inquiry.

TA-10.3
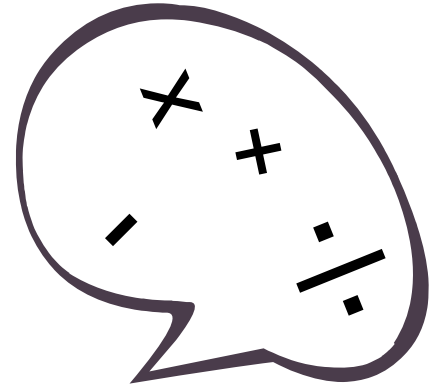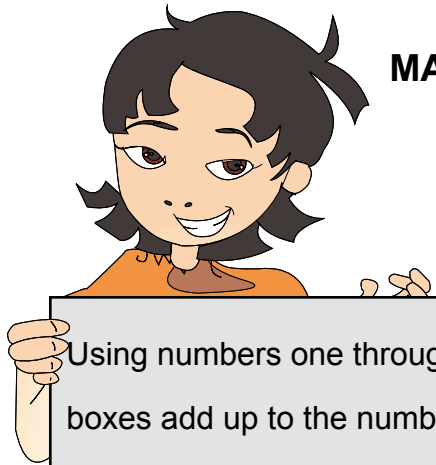
MAGIC SQUARES ACTIVITY
(Before Playing)

Name:_____

Date:_____

Using numbers one through nine, fill in the blank ⬤ 's so the numbers in the boxes add up to the numbers in the △ 's.

1.)

4	7	9	△ 20
○	8	5	△ 14
○	6	○	△ 11

△ 7   △ 21   △ 17

2.)

5	○	2	△ 10
4	○	○	△ 20
○	6	8	△ 15

△ 10   △ 18   △ 17

3.)

○	8	○	△ 18
2	○	○	△ 16
○	1	6	△ 11

△ 13   △ 18   △ 14

4.)

5	○	○	△ 14
○	○	3	△ 10
8	4	○	△ 21

△ 19   △ 12   △ 14

SA-10.1

MAGIC SQUARES ACTIVITY
(After Playing Worksheet)

Name:_____

Date:_____

Fill in the blank ◯ 's and △ 's so the numbers in the boxes add up to the numbers in the △ 's.

1.)

1	◯	9
5	2	6
8	7	◯

△14 △13 △18

△ △13 △18

2.)

3	6	9
4	7	◯
◯	◯	8

△ △13 △14

△12 △14 △19

3.)

9	◯	◯
2	1	◯
4	7	5

△20 △9 △

△ △11 △19

4.)

3	◯	◯
7	4	◯
6	2	8

△17 △12 △

△ △15 △14

SA-10.2

The Adventures of Josie True

http://www.josietrue.com