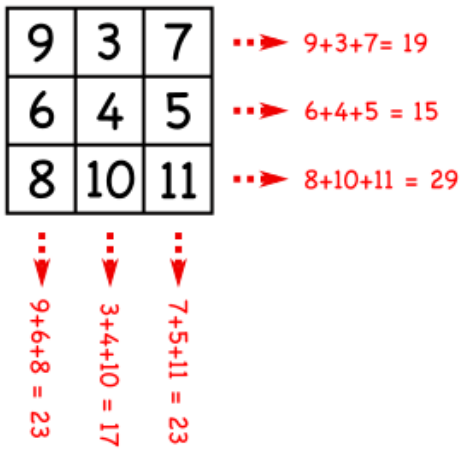
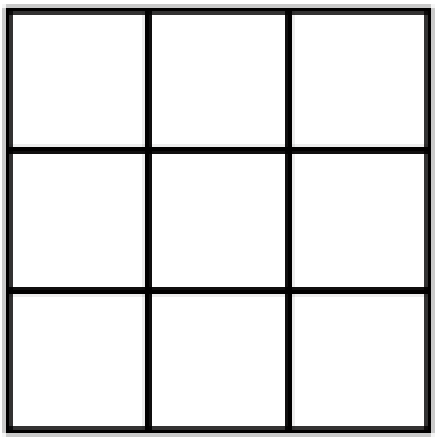
Puzzle of the Week
Odd Squares

An *Odd Square* is a square grid of numbers in which the numbers in each row and column add up to an odd number. This is a 3 by 3 Odd Square using the numbers from 3 to 11.



THE CHALLENGE: Use the numbers from 1 to 9 to form a 3 by 3 Odd Square.



1 2 3 4 5 6 7 8 9

EXPLORATION: Define what an Even Square would be and consider the Even Squares that can be formed by the numbers from 1 to 9.

Puzzle of the Week
Odd Squares – Notes

THE CHALLENGE: Note that a natural follow on puzzle after this is to do Prime Squares.

For a row and column to add up to an odd number, it must have 1 or 3 odd numbers in it. Because there are a total of 5 odd numbers, that means one row will have 3 odd numbers and two rows will have one odd number. Similarly, one column will have 3 odd numbers and two columns will have one odd number.

We can slide the rows and columns around and not really change the answer in an interesting way, so we might as well assume that the answer looks like this:

ODD	ODD	ODD
EVEN	EVEN	ODD
EVEN	EVEN	ODD

We can put in any odd numbers for the ODD places, and any even numbers for the EVEN places. Here is one possible answer for this puzzle, but any other distribution of odd and even numbers into the ODD and EVEN slots will work.

1	3	5
2	4	7
6	8	9

EXPLORATION: An Even Square would be a 3 by 3 square all of whose rows and columns added up to even numbers.

For a given row or column to add up to an even number, it would have to have 0 or 2 odd numbers in it.

Looking at the rows, that means each row would have 0 or 2 odd numbers, and that would mean that the three rows combined would have 0, 2, 4, or 6 odd numbers. However, there are 5 odd numbers from 1 to 9, so making an Even Square with the numbers from 1 to 9 is impossible!