Prime Numbers 7
(use calculator as directed by your teacher)

Your teacher will explain what a magic square is.
Here is a 4x4 magic square.

1. Check that all the rows, columns and diagonals in this square add up to the same magic number.

2. Are all the numbers in the square prime?

53	37	89	97
73	101	61	41
103	71	43	59
47	67	83	79

Here is a 9x9 magic square made up of only prime numbers ..... or is it?

18199	20533	15901	18229	19417	17293	17827	29983	6571
15913	18211	20509	17377	18313	19249	6871	18127	29383
20521	15889	18223	19333	17209	18397	29683	6271	18427
18097	20479	15823	17851	33073	3727	18289	36583	31
15859	18133	20407	4093	18217	32341	43	18301	36559
20443	15787	18169	32707	3361	18583	36571	19	18313
17977	32917	4027	18061	21649	14653	18013	31543	5113
4357	18307	32257	14713	18121	21529	5323	18223	31123
32587	3697	18637	21589	14593	18181	31333	4903	18433

3. Choose any row, column or diagonal and find its total. This is the magic number of the square.

4. Choose any other row, column or diagonal and find its total. Does it come to the same magic number?

5. Compare your results with others in the class.

6. Test using our method for finding prime numbers, any of the 4 digit numbers in the square.

7. Your teacher will now give you a list of all primes up to 7919. Use it to check all the numbers less than 7919 in the square.

8. You may wish to check some of the larger primes as well. This would take some considerable time by hand so you might try using the internet where you can find on-line programs which will do the check for you.
    Try the address www.utm.edu/research/primes/ or simply search for "prime numbers".