Prime Numbers

1. Colour in the square with the number 1 on this grid. 1 is not a prime number.
2. Colour in all multiples of 2 greater than 2.
3. Colour in all multiples of 3 greater than 3.
4. Colour in all multiples of 5 greater than 5.
5. Colour in all multiples of 7 greater than 7.
6. All numbers not coloured in are prime numbers.
7. Use *all* the two digit prime numbers to complete the grid below. The numbers are to be bounded by the heavy lines.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

The crossword-style grid contains: 4, 5, 6, 7, 1, 7, 1, 3, 9, 9, 3

8. List the next 20 prime numbers after 97 (use the internet or other resources).

9. In 1742, the German mathematician Christian Goldbach made the conjecture that every even number except 2 is the sum of two prime numbers.

> ***Examples:*** $4 = 2 + 2$ $6 = 3 + 3$ $14 = 11 + 3$ $64 = 59 + 5$

Show that this conjecture is correct for the following even numbers.

Even Number	Two Prime Number Sum	Even Number	Two Prime Number Sum	Even Number	Two Prime Number Sum
14	11 + 3	74		148	
20		98		158	
38		100		190	
50		108		200	
68		128		366	