Happy and unhappy numbers

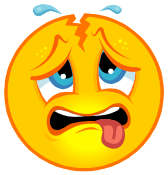
Use the method shown to decide if the numbers are happy or unhappy. On the grid below, colour happy numbers red and unhappy numbers blue. (Or choose your own colours!)

0	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

Do you notice any patterns? Were there any 'shortcuts' you found when working out which numbers were happy and which weren't?

Numbers which are happy AND prime are called happy primes
Indicate in your own way the happy primes on your grid!

Happy and unhappy numbers ANSWERS



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Do you notice any patterns? Were there any 'shortcuts' you found when working out which numbers were happy and which weren't?

Line of symmetry!

Can you draw a diagram that shows the path the happy numbers take to get to 1 (like a flow chart!) You may only write each happy number once!

See video for more information