

Prime Numbers



A prime number is a number with 2 factors: 1 and itself.

1. Find the prime numbers between 1 & 100.

- a) Colour in 1 as it is not a prime number (it only has one factor)
- b) Colour in multiples of 2 (but not 2)
- c) Colour in multiples of 3 (but not 3) - to check if larger numbers are factors of 3, add the digits together. If the total is a multiple of 3, then the number will be too.

eg 87 $8+7=15$ (15 is a multiple of 3 so 87 is too)

- d) Colour in multiples of 5 (but not 5)
- e) Colour in multiples of 7 (but not 7)

The next prime number is 11 but as $11 \times 11=121 >100$, there is not need to check for factors of 11, if you have carefully divided by 2, 3, 5 & 7.

The numbers remaining should all be prime numbers. There should be 25 of them.

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	81
91	92	93	94	95	96	97	98	99	100

2. Find the prime numbers between 101 & 200.

Besides finding factors of 2, 3, 5 & 7, what other prime numbers will you need to find factors of?

The next prime numbers are 11, 13 & 17. Find the squares of these numbers. You will need to find factors of any prime number with a square less than 200.

101	102	103	104	105	106	107	108	109	110
111	112	113	114	115	116	117	118	119	120
121	122	123	124	125	126	127	128	129	130
131	132	133	134	135	136	137	138	139	140
141	142	143	144	145	146	147	148	149	150
151	152	153	154	155	156	157	158	159	160
161	162	163	164	165	166	167	168	169	170
171	172	173	174	175	176	177	178	179	180
181	182	183	184	185	186	187	188	189	181
191	192	193	194	195	196	197	198	199	200

3. Make a tally chart of the number of prime numbers in each block of 25.

Range	Tally	Frequency
1-25		
26-50		
51-75		
76-100		
101-125		
126-150		
151-175		
176-200		

4. Draw a bar chart of your results.

5. Make an intelligent estimate of how many prime numbers there will be in the next four 25 blocks:

201-225

226-250

251-275

276-300

6. Draw a frequency chart of the last number (units) of each prime number between 1-200.

Last number	Tally	Frequency
0		
1		
2		
3		
4		
5		
6		
7		
8		
9		

- a) Which 4 digits are never at the end of a prime number?
- b) Which 2 digits are only each found at the end of one prime number?
- c) Which four digits do most prime numbers end with?
- d) Which is the most common digit in the units column of prime numbers?

7. Draw a graph of your results.