

## The Sieve of Eratosthenes

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
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

We are going to use the **Sieve of Eratosthenes** to find all the prime numbers up to 150.

Start by colouring in the number 2. All the other multiples of 2 are not prime, so draw a diagonal line through them with the same colour to show this.

Choose another colour to find the next uncrossed number (it should be 3). Colour it in. Draw a line through all of its multiples.

Continue this process until all numbers are coloured, or crossed out.

### Questions

A prime number has no factors other than 1 and itself. List all the prime numbers up to 150.

A composite number can be written as the product of two whole numbers other than 1 and itself. Show that the following numbers are composite:

28

35

42

56

91

120

"2 is not really a prime number because all the others are odd." Do you agree or disagree? Justify your answer.

Find the largest prime numbers you can before the end of the lesson. Be prepared to defend your answer.