Long as you like

Children create chains of numbers by finding factors and multiples. Their aim is to create the longest chain possible.

Skills practised:

- Finding factors of 2-digit numbers
- Finding multiples of two-digit numbers
- Using trial and improvement to improve their results

Conjecture: We can find a chain of more than 50 numbers by finding factors and multiples.

What to do:

Children work individually or in pairs.

You will need lots of copies of a 1-100 grid (see resource attached to child sheet) and also coloured pencils: red, blue, purple and yellow.

1. Use a 1-100 grid.

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

- 2. Choose a start number. Colour it red.
- 3. Now choose either a multiple or a factor. Colour it blue.
- 4. Now choose either a multiple or a factor of that number. Colour it yellow.
- 5. Now choose either a factor or a multiple of that number. Colour it purple.
- 6. Now choose either a factor or a multiple of that number. Colour it red.
- 7. Keep going like this until you get blocked and can't go on.

Your aim is to colour more than 50 squares!

What makes a good starting number? Is it good to colour odd numbers? Or even ones?

What makes a good strategy for your first move? For a second move?

CHALLENGE: The record is 67 (held by Oliver at Bradworthy Primary Academy, Devon).

Can you beat it?

Aims:

- To use trial and improvement effectively

- To explore patterns in multiples and factors

Minimum number of calculations expected 50+

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