FACTORS AND MULTIPLES GAME

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

This is a game for one or two players.

The first player chooses a positive even number that is less than 50 and crosses it out on the 100 square grid.

The second player chooses a number to cross out. The number must be a factor or multiple of the previous number.

Players continue to take it in turns to cross out numbers, at each stage choosing a number that is a factor or multiple of the number just crossed out by the other player.

The first person who is unable to cross out a number loses.

For one player, or as a class competition, follow the same rules and see who can make the longest chain of numbers.

HELP

Use a smaller number board, for example and 8 by 8 board showing 1– 64. This makes the mental calculations much easier, without watering down the mathematics. Using 2 different colours will help you to show the difference between factors and multiples.

NEXT

Switch the challenge from winning the game to covering as many numbers as possible. You can again work in pairs trying to find the longest sequence of numbers that can be crossed out.

Can more than half the numbers be crossed out?

This challenge could run for an extended period. The longest sequence can be displayed on a noticeboard and the class can be challenged to improve on it; any improved sequences can be added to the noticeboard.

Explain why your choice of numbers is good.

It is possible to get a chain of 74 numbers?

Can your class find one 74 numbers long or longer?