

2 The investigations

Dodgy Dice

Pawel and Becky have invented a game.

The game is played on a square board, with squares numbered from one to one hundred.

<u>GO</u>	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

- The dice Pawel and Becky use only has the numbers 4 and 7 on it.
- They start on GO and take it in turns to throw the dice. They move forward the number of squares shown on the dice. The first to get to square 100 is the winner.

Pawel soon notices that neither of them can ever land on square 1, square 2 or square 3.

Becky notices that there are some other squares that are never landed on.

- 1 What is the next square after square 3 that cannot be landed on?
- 2 Which square has the biggest number on it that cannot be landed on?

Becky decides to change the numbers on the dice to 3s and 5s.

- 3 Which squares cannot be landed on now?
- 4 Investigate further.