

Going to Extraordinary Lengths

You need: a hundreds board (or a photocopy of one)

ACTIVITY

At the shoelace factory, there are 100 machines.

The lace arrives at the factory in 10 centimetre pieces. The machines stretch each piece of lace to make it the right size for each order.

For example, the 2 machine stretches the lace so that it is twice as long, the 3 machine makes it three times as long, and so on.

One day, just as they were about to start an urgent order for size six shoelaces, the 6 machine broke down!

The machine operator had a good idea:

I know!

We could put it through the 2 machine first and then through the 3 machine. That would give size six shoelaces.



The boss then realised that they didn't actually need a 6 machine.

LIST OF MACHINES

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

I wonder how many of the other machines aren't needed either?



1. Which machines does the boss need to keep?
2. Explain your answer.