THE PRIME NUMBER SIEVE

"Hola! I'm La Calculadora, the leader of the math-based hero team, Solution Squad! My team is trapped inside a force field, trying to solve a puzzle made of prime numbers! There's not a whole lot I can do from out here, and the Poser's too tough for me to handle on my own, so let's try to figure out the puzzle together.

"A *prime number* is defined as a whole number greater than one that is divisible only by one and itself. A whole number that is not prime is called a **composite number**. The prime number sieve eliminates composite numbers until only prime numbers are left behind.

"If we can figure out which letter each prime number stands for, we can decode the Poser's secret message.

"Follow these steps to get a list of all the prime numbers through 100:

1. Check 2 to see if it is prime. Since 2 is only divisible by one and itself It is the first prime number, so circle it over there on the chart. ⟶

 I can see that they're doing the same thing inside the force field, so they're doing well. Since any number that divides by 2 must be composite, cross out all the multiples of 2. That's every even number higher than 2!

2. Check 3. It is the next prime number. Circle 3 and cross out all the other multiples of 3. You will notice that some of them are already crossed out. Why is that? That's right, because they're also multiples of two! So, if they're multiples of both two and three, that means they're multiples of what?

3. Since 4 was eliminated as a multiple of 2, Check 5. It is the next prime number, so circle it. Then cross out all the multiples of 5. You will notice that you crossed out fewer numbers this time than you did in the previous two steps.

4. Repeat this process until no more numbers are eliminated. When you have accomplished that, the remaining numbers will be prime numbers!

5. Circle all the remaining prime numbers and you will have a list of all the primes from 2-100!

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	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

"Now make a key to the code! The first number you circled is A, the second one is B, and the third one is C and so forth. I'll just go ahead and tell you that Z is 101. You can check it if you want. It doesn't divide by 2, 3, 5, or 7, either.

A	B	C	D	E	F	G	H	I	J	K	L	M

N	O	P	Q	R	S	T	U	V	W	X	Y	Z
												101

"And now you can solve the puzzle. Not only that, but now you can write encoded messages to your friends if they also know the code! Oops! Looks like my team is about to solve the puzzle. See you later!"

___-___-___-___-___-___-___-___-___-___-___-___ / ___-___

___-___-___-___-___-___