Multiplication Tables

Overview: If you haven't memorized your multiplication table yet, I am going to show you how to you need to memorize only *three* of the 400 numbers on a 20 times table in order to know your table.

Multiplication Table - 20x20

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
2	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40
3	3	6	9	12	15	18	21	24	27	30	33	36	39	42	45	48	51	54	57	60
4	4	8	12	16	20	24	28	32	36	40	44	48	52	56	60	64	68	72	76	80
5	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
6	6	12	18	24	30	36	42	48	54	60	66	72	78	84	90	96	102	108	114	120
7	7	14	21	28	35	42	49	56	63	70	77	84	91	98	105	112	119	126	133	140
8	8	16	24	32	40	48	56	64	72	80	88	96	104	112	120	128	136	144	152	160
9	9	18	27	36	45	54	63	72	81	90	99	108	117	126	135	144	153	162	171	180
10	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200
11	11	22	33	44	55	66	77	88	99	110	121	132	143	154	165	176	187	198	209	220
12	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228	240
13	13	26	39	52	65	78	91	104	117	130	143	156	169	182	195	208	221	234	247	260
14	14	28	42	56	70	84	98	112	126	140	154	168	182	196	210	224	238	252	266	280
15	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300
16	16	32	48	64	80	96	112	128	144	160	176	192	208	224	240	256	272	288	304	320
17	17	34	51	68	85	102	119	136	153	170	187	204	221	238	255	272	289	306	323	340
18	18	36	54	72	90	108	126	144	162	180	198	216	234	252	270	288	306	324	342	360
19	19	38	57	76	95	114	133	152	171	190	209	228	247	266	285	304	323	342	361	380
20	20	40	60	80	100	120	140	160	180	200	220	240	260	280	300	320	340	360	380	400

What to Learn: Math isn't about solving problems on any one particular way, but rather it's about puzzling the solution out multiple ways! The times table is essential to doing math in your head, but you don't need to know every cell on the table by heart. With a couple of quick tips and tricks, you'll be able to know your table up to 20 without a lot of memorization simply by being clever about the way you go about it.

Lab Time:

Fill in the upper 1-10 multiplication table by the following:

1. 1's: Fill in the ones row and column. Those are fun and easy!
2. 2's: Double the number to fill in the two's column and row.
3. 3's: Count by threes accenting every third number (1-2-3-4-5-6-7-8-9…)
4. 4's: Count by fours to fill in the four's row and column. Notice this pattern (4-8-12-16-20) repeats:

01 02 03 04 05 06 07 08 09 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

5. 5's: The FIVES column and row either ends in five or zero, so fill those in.
6. 10's: Fill in the TENS row and column by adding a zero to the original number.

7. 9's: Use the fun facts about NINE to fill in the nines row and column.
   a. The tens place is *one less* than that number, plus the remainder to make the two digits add up to 9.
   b. For example, 9 x 5 = 45: the *tens* digit *4* (which is *one less* than *5)*. And then you need to add a 5 to the 4 to make the sum equal 9, so the *ones* digit is *5.*

8. Fill in the squares of the numbers 6, 7, and 8, shown in yellow here →
   Most people know these already: $6^2 = 36$, $7^2 = 49$, $8^2 = 64$

36	42	48
42	**49**	56
48	56	**64**

9. Did you notice that 6x7 gives the same result as 7x6?
   So, there are only three multiplication facts left that you have to memorize so write these three here:

_____

_____

_____

Multiplication Tables

	1	2	3	4	5	6	7	8	9	10	11	12
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												

Now, let's finish the last two rows: 11's and 12's! You already know how to multiply by 11. 3x11 = 33, 4x11=44…

The 12's is easy if you remember this quick tip: for the TENS, count by 1's (skipping 5 and 11):
1__, 2__, 3__, 4__, 6__, 7__, 8__, 9__, 10__, 12__, 13__, 14__. Then go back and add the ONES by counting by *twos:*
12, 24, 36, 48, 60, 72, 84, 96, 108, 120, 132, 144 . That's it! You did the whole 12 x 12 times table!

Adding on the 20x20 Multiplication Table:

1. How do you think you can fill out the 20 row and column?
   Can you double the number and add a zero to the end? Do that now.

2. The rest of the table is simply multiplying two numbers together that are both between 12 and 19. To do this quickly, follow these steps:
   a. Take the first number, and add the ones digit from the second number to it. Add a zero to the end of this number (or multiply by ten). Save this in your head. Now multiply the ones digits of the two original numbers together. Add this result to the saved number to get the final answer.
   b. This trick takes practice to master… which is good because you've got a table to fill out!

	11	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
11										
12										
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