Sample Pages

Gamma

Lesson 5 Multiply by 10, Metric Measure

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Once students have mastered the concepts of addition and subtraction (covered in Alpha and Beta), they are ready for multiplication. Gamma Level teaches mastery of single-digit facts and multiple-digit multiplication skills.

These Gamma Sample Pages will give you an idea of Math-U-See's unique method of instruction. However, the cornerstone of Math-U-See's success in teaching Multiplication and other topics is our multi-sensory approach to maths instruction. Integrated Manipulative Blocks and Lesson-by-Lesson videos are used in every lesson throughout the Gamma Level to incorporate kinaesthetic, visual and auditory learning.

If you believe that Gamma is the level for your student to begin, please confirm this by completing our free online placement tests.

To Your Success!!





Instruction Manual: Lesson 5 - Multiply by 10, Metric Measure

Multiply by 10, Metric Measure

When multiplying by 10, encourage the student to look for patterns. Notice that whenever you multiply 10 times any number, the answer is that number plus a zero.

That is because 10 is made up of a "1" digit and a "0" digit. So $4 \ge 10$ is $4 \ge 1 = 4$ and $4 \ge 0$, or 40. To make sure the student has this concept, I like to ask, "What is banana times 10?" The answer is "banana zero" pronounced "banana-ty." The "ty" stands for 10. These are easy facts to learn and remember, but don't take them for granted. Make sure they are mastered using any of the techniques shown below.

On the worksheets, there have been rectangles where the student wrote in the fact at the end of the line in the space with an underline. These can be put to another use by adding the multiplication problem to the multiple of 10. Here are a few examples.





Another way to show this is on a number chart. Circling all of the 10 facts, or multiples of 10, reveals the pattern that corresponds to the blocks above.

\bigcirc	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									

Of course each fact can be built in the shape of a rectangle. Whenever illustrating with the blocks, also write it and say it as you build it.

10 counted 5 times is the same as 50, or 10 times 5 equals 50, or 10 over and 5 up is 50.

Counting by 10 is the first step. After this is accomplished, say the factors slowly, and then ask the student to say the product. For example, you say "ten counted one time," or "10 times one," and the student says "10." Continue by saying "10 times 2," and the student says "20." (I often have the student say "two-ty" as well as 20 to show there is a specific pattern and order in our words.) Proceed through all the facts sequentially just as when the student learned to count by 10.

Here are the 10 facts with the corresponding numbering.

0	10	20	30	40	50	60	70	80	90	100	_
(10)(0)	(10)(1)	(10)(2)	(10)(3)	(10)(4)	(10)(5)	(10)(6)	(10)(7)	(10)(8)	(10)(9) (10)(10))
	\uparrow			\uparrow					\uparrow		
10 cou	nted 1	time	10 cou	inted 4 t	imes			10 cou	nted 9 t	imes	
	1	1									
(0 x 0	0 x 1	0 x 2	0 x 3	0 x 4	0 x 5	0 x 6	0 x 7	0 x 8	0 x 9	0 x 10	
1 x 0	1 x 1	1 x 2	1 x 3	1 x 4	1 x 5	1 x 6	1 x 7	1 x 8	1 x 9	1 x 10	
2 x 0	2 x 1	2 x 2	2 x 3	2 x 4	2 x 5	2 x 6	2 x 7	2 x 8	2 x 9	2 x 10	
3 x 0	3 x 1	3 x 2	3 x 3	3 x 4	3 x 5	3 x 6	3 x 7	3 x 8	3 x 9	3 x 10	
4 x 0	4 x 1	4 x 2	4 x 3	4 x 4	4 x 5	4 x 6	4 x 7	4 x 8	4 x 9	4 x 10	
5 x 0	5 x 1	5 x 2	5 x 3	5 x 4	5 x 5	5 x 6	5 x 7	5 x 8	5 x 9	5 x 10	
6 x 0	6 x 1	6 x 2	6 x 3	6 x 4	6 x 5	6 x 6	6 x 7	6 x 8	6 x 9	6 x 10	
7 x 0	7 x 1	7 x 2	7 x 3	7 x 4	7 x 5	7 x 6	7 x 7	7 x 8	7 x 9	7 x 10	
8 x 0	8 x 1	8 x 2	8 x 3	8 x 4	8 x 5	8 x 6	8 x 7	8 x 8	8 x 9	8 x 10	
9 x 0	9 x 1	9 x 2	9 x 3	9 x 4	9 x 5	9 x 6	9 x 7	9 x 8	9 x 9	9 x 10	
10 x 0	10 x 1	10 x 2	10 x 3	10 x 4	10 x 5	10 x 6	10 x 7	10 x 8	10 x 9	10 x 10	\leftarrow
		н								\uparrow	

10¢ Coins

A good place to apply maths is with money. We can ask how many cents in six 10 cent coins to apply $6 \ge 10$. The answer is 60¢.

Example 1 How many cents in six 10-cent coins?



We will be reviewing and using multiplication facts throughout the student textbook. If you find you need more review of the multiplication facts, go to the Maths Australia website and you will find worksheets and resources to help your student remember their maths facts.

Metric Measure Summary

The entire metric system of measurement is based on multiplying by ten.

Study the charts below. The basic unit is in bold in each list.

Liquid	
10 millilitres = 1 centilitre	10 metres = 1 dekametre
10 centilitres = 1 decilitre	10 dekametres = 1 hectometre
10 decilitres = 1 <i>litre</i>	10 hectometres = 1 kilometre
10 litres = 1 dekalitre	
10 dekalitres = 1 hectolitre	Weight or Mass
10 hectolitres = 1 kilolitre	10 milligrams = 1 centgram
	10 centigrams = 1 decigram
Length	10 decigrams = 1 <i>gram</i>
10 millimetres = 1 centimetre	10 grams = 1 dekagram
10 centimetres = 1 decimetre	10 dekagrams = 1 hectogram
10 decimetres = 1 <i>metre</i>	10 hectograms = 1 kilogram

Not all of these units are commonly used in everyday life. T he student should become familiar with millimetre, centimetre, metre, kilometre, millilitre, litre, kilolitre, gram, and kilogram. Give lots of practice in weighing or measuring everyday items. Observe the weight, volume, or size of purchased items. In the appropriate lessons, the student will practise changing one measure to another by multiplying by 10, 100 (10×10), and $1000 (10 \times 10 \times 10)$.

10 Millimetres = 1 Centimetre

Use a ruler to show the relationship between *millimetres* and *centimetres*. Practise measuring different objects. The abbreviation for centimetre is cm and for millimetre is mm.

Example 2

Greg measured his pencil and found it was five centimetres long. How many millimetres long is his pencil?

10 x 5 cm = 50 mm

Student Text: Lesson Practice 5A

Find the answer by multiplying.

1.	10 x 0 =	2.	5 x 10 =
3.	10 x 2 =	4.	6 x 10 =
5.	(10)(10) =	6.	(10)(3) =
7.	10 • 9 =	8.	10 • 7 =
9.	10 <u>×2</u>	10.	10 ×5
11.	10 <u>×1</u>	12.	10 ×3
13.	10 x 7 = 7 x 10 =	14.	4 x 10 = 10 x 4 =
15.	10 x 6 = 6 x 10 =	16.	10 x 3 = 3 x 10 =

Student Text: Lesson Practice 5A

Colour all the boxes that have a number you would say when skip counting by 10. Notice the pattern.

- 17. 2 3 5 6 7 8 9 1 4 0 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
- 18. How many cents are in four 10¢ coins?



- 19. Ten counted nine times equals _____.
- 20. Esther drew a line that was six centimetres long. How many millimetres long was the line?

Student Text: Lesson Practice 5B

Find	the answer by multiplying.		
1.	10 x 8 =	2.	1 x 10 =
3.	10 x 9 =	4.	0 x 10 =
5.	(10)(5) =	6.	(10)(4) =
7.	10 • 6 =	8.	10 • 10 =
9.	10 <u>×8</u>	10.	10 <u>×7</u>
11.	10 <u>×2</u>	12.	10 <u>×1</u>
13.	10 x 5 = 5 x 10 =	14.	8 x 10 = 10 x 8 =
15.	10 x 0 = 0 x 10 =	16.	10 x 9 = 9 x 10 =

Student Text: Lesson Practice 5B

Skip count and write the missing numbers. Then fill in the missing factors.

$$17. \quad \frac{0}{(10)(0)} \quad \frac{10}{(10)(-)} \quad \frac{30}{(10)(2)} \quad \frac{30}{(10)(-)} \quad \frac{10}{(10)(4)} \quad \frac{10}{(10)(-)} \quad \frac{10}{(10)(-)} \quad \frac{90}{(10)(-)} \quad \frac{90}{(10)(-)} \quad \frac{90}{(10)(-)} \quad \frac{10}{(10)(10)} \quad \frac{10}{(10)(10)}$$

18. How many cents are in seven 10¢ coins? _____



19. Ten counted six times equals _____.

20. Greg found a beetle that was five centimetres long. How many millimetres long was the beetle? _____

Student Text: Lesson Practice 5C

Find	the answer by multiplying.		
1.	3 x 10 =	2.	8 x 10 =
3.	10 x 1 =	4.	2 x 10 =
5.	(10)(9) =	6.	(7)(10) =
7.	10 • 5 =	8.	6 • 10 =
9.	1 0 × 0	10.	1 0 <u>× 4</u>
11.	10 ×10	12.	10 <u>×3</u>
13.	10 x 1 = 1 x 10 =	14.	10 x 4 = 4 x 10 =
15.	10 x 2 = 2 x 10 =	16.	7 x 10 = 10 x 7 =

Student Text: Lesson Practice 5C

Colour all the boxes that have a number you would say when skip counting by 10. What kind of pattern do you see?

17.	0	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

18. How many cents are in five 10¢ coins? _____



- 19. Ten counted three times equals _____.
- 20. The professor bought two books that cost 10 dollars each. How much did he spend? _____.

Student Text: Systematic Review 5D

Find the answer by multiplying.

1.	10 • 5 =	2.	7 x 10 =
3.	10 • 2 =	4.	(10)(10) =
5.	2 <u>× 5</u>	6.	10 <u>×5</u>
7.	6 <u>× 2</u>	8.	7 <u>× 2</u>
9.	1 <u>× 3</u>	10.	9 <u>× 2</u>
11.	1 0 <u>× 8</u>	12.	10 ×4
13.	9 x 2 = 2 x 9 =	14.	4 x 2 = 2 x 4 =
15.	10 x 3 = 3 x 10 =	16.	5 x 2 = 2 x 5 =

QUICK REVIEW

These two-digit addition and subtraction problems can be done without regrouping. Just add or subtract the units and the tens. The first one is done for you.

Add or subtract.

3
3
s 9
5 1
3

- 21. Jessica slept 7 hours a day for the last 10 days.How much sleep did she get in 10 days? _____
- 22. Jessica's little sister Julie still takes naps, so she got 20 more hours of sleep than Jessica during the last 10 days. How much sleep did Julie get during that time? You will need to use your answer from number 21. _____

Student Text: Systematic Review 5E

Find the answer by multiplying.

1.	10 • 8 =	2.	6 x 10 =
3.	10 • 9 =	4.	(10)(0) =
5.	5 <u>× 1</u>	6.	6 <u>× 2</u>
7.	8 <u>× 1</u>	8.	10 ×5
9.	2 <u>× 2</u>	10.	2 <u>× 5</u>
11.	9 x 1 =	12.	3 x 10 =
	1 x 9 =		10 x 3 =

Rewrite using place-value notation.

13. 389 = ____ + ____ + ____

14. 72 = _____ + ____

Student Text: Systematic Review 5E

Add or subtract.

15.	46		16.	51
	+ 2 2			+12
17.	37		18.	94
	- 2 3			- 4 3

- 19. How many millimetres are there in eight centimetres?
- 20. There are four people in our family. How many fingers do we have in all? _____
- 21. Grandma made six cherry pies and four apple pies. Aunt Mona cut each pie into 10 pieces. How many pieces of pie were there when she was done? _____
- 22. Noah bought nine cartons of milk. Each carton held two litres. How many litres of milk did he buy? _____

Student Text: Systematic Review 5F

Find the answer by multiplying.

1.	4 • 1 =	2.	2 x 10 =
3.	10 • 3 =	4.	(10)(9) =
5.	6 <u>× 2</u>	6.	2 <u>× 8</u>
7.	10 <u>×7</u>	8.	10 <u>×1</u>
9.	3 <u>× 2</u>	10.	4 <u>× 2</u>
11.	1 × 6	12.	9 × 0

Rewrite using place-value notation.

13. 164 = ____ + ____ + ____

14. 58 = _____+

Student Text: Systematic Review 5F

Add or subtract.

15.	52 -20		16.	64 +13
17.	35 +34		18.	14 <u>-12</u>

19. What is five counted 10 times? _____

- 20. How many cents does Shane have if he has nine 10¢ coins? _____
- 21. Max has five dollars. Wayne has 10 times as much money as Max. How many dollars does Wayne have? How much money do Max and Wayne have altogether? _____
- 22. Karyn filled eight jars with tomatoes from her garden. Each jar holds two litres. How many litres of tomatoes does Karyn have? _____

Test Booklet: Lesson 5 Test

Find the answer by multiplying.

1. 2 x 10 =	2. 10 x 9 =
3. 3 x 10 =	4. 10 x 7 =
5. (6)(10) =	6. (10)(1) =
7. 4 • 10 =	8. 10 • 5 =
9. 10 <u>× 8</u>	10. 5 <u>× 2</u>
11. 1 <u>× 3</u>	12. 8 × 2

Test Booklet: Lesson 5 Test

Add or subtract.

- 13. 34 14. 55

 -21 +42

 15. 18 16. 60

 -1 +17
- 17. Rewrite using place-value notation:
 - 194 = _____+ _____+ _____
- 18. Jeremy has seven 10¢ coins. How many cents does he have?
- 19. Christa bought 10 cartons of milk. Each carton held two litres. How many litres of milk did she buy? _____

Her son and his friends drank 10 litres of milk. How many litres were left over?

20. Jason drew a line three centimetres long. How many millimetres long was the line? _____

Solutions: Lesson 5

Lesson Practice 5A

- 1. $10 \times 0 = 0$
- 2. $5 \times 10 = 50$
- 3. $10 \times 2 = 20$
- 4. $6 \times 10 = 60$
- 5. $10 \times 10 = 100$
- 6. $10 \times 3 = 30$
- 7. $10 \times 9 = 90$
- 8. $10 \times 7 = 70$
- 9. $10 \times 2 = 20$
- 10. $10 \times 5 = 50$
- 11. $10 \times 1 = 10$ 12. $10 \times 3 = 30$
- 12. 10×3=30
- 13. $10 \times 7 = 70$ $7 \times 10 = 70$ 14. $4 \times 10 = 40$
- $10 \times 4 = 40$
- 15. $10 \times 6 = 60$ $6 \times 10 = 60$
- 16. $10 \times 3 = 30$ $3 \times 10 \equiv 30$

17.

Solutions: Lesson 5

18.	10 + 10 + 10 + 10 = 40¢	8.
19.	10+10+10+10+10+	9.
	10 + 10 + 10 + 10 = 90	10.
20.	$10 \times 6 = 60 \text{ mm}$	11.
		12.
		13.
Less	on Practice 5B	14.
1.	$10 \times 8 = 80$	
2.	$1 \times 10 = 10$	15.
3.	$10 \times 9 = 90$	
4.	$0 \times 10 = 0$	16.
5.	$10 \times 5 = 50$	
6.	$10 \times 4 = 40$	17.
7.	$10 \times 6 = 60$	18.
8.	$10 \times 10 = 100$	19.
9.	$10 \times 8 = 80$	20.
10.	$10 \times 7 = 70$	
11.	$10 \times 2 = 20$	
12.	$10 \times 1 = 10$	Swet
13.	$10 \times 5 = 50$	5 yst
	$5 \times 10 = 50$	2
14.	$8 \times 10 = 80$	2.
	$10 \times 8 = 80$	4
15.	$10 \times 0 = 0$	5
	$0 \times 10 = 0$	5. 6
16.	$10 \times 9 = 90$	7
	$9 \times 10 = 90$	8
17.	0 10 20 30	9.
	(10)(0) $(10)(1)$ $(10)(2)$ $(10)(3)$	10.
	$\frac{40}{(10)(4)} \frac{50}{(10)(5)} \frac{60}{(10)(6)} \frac{70}{(10)(7)}$	11.
	(10)(4) $(10)(5)$ $(10)(6)$ $(10)(7)$	12.
	$\frac{80}{(10)(8)} \frac{90}{(10)(9)} \frac{100}{(10)(10)}$	13.
18.	10+10+10+10+10+10+10=70¢	-
19.	$10 \times 6 = 60$	14.
20.	$10 \times 5 = 50 \text{ mm}$	
		15.
		16.

Lesson Practice 5C

- 1. $3 \times 10 = 30$ 2. $8 \times 10 = 80$
- 3. $10 \times 1 = 10$
- 4. $2 \times 10 = 20$
- 5. $10 \times 9 = 90$
- 6. $7 \times 10 = 70$
- 7. $10 \times 5 = 50$

 $6 \times 10 = 60$ $10 \times 0 = 0$ $10 \times 4 = 40$ $10 \times 10 = 100$ $10 \times 3 = 30$ $10 \times 1 = 10$ $1 \times 10 = 10$ $10 \times 4 = 40$ $4 \times 10 = 40$ $10 \times 2 = 20$ $2 \times 10 = 20$ $7 \times 10 = 70$ $10 \times 7 = 70$ see 5A no. 17 10+10+10+10+10=50¢ $10 \times 3 = 30$ $10 \times 2 = 20$ ematic Review 5D $10 \times 5 = 50$ $7 \times 10 = 70$ $10 \times 2 = 20$ $10 \times 10 = 100$ $2 \times 5 = 10$ $10 \times 5 = 50$ $6 \times 2 = 12$ $7 \times 2 = 14$ $1 \times 3 = 3$ $9 \times 2 = 18$ $10 \times 8 = 80$ $10 \times 4 = 40$ $9 \times 2 = 18$ $2 \times 9 = 18$ $4 \times 2 = 8$ $2 \times 4 = 8$ $10 \times 3 = 30$ $3 \times 10 = 30$ $5 \times 2 = 10$ $2 \times 5 = 10$ 17. done 18. 43 +43 86 19. 28

<u>-16</u>

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Solutions: Lesson 5

20.	89	
	$\frac{-51}{38}$	
21.	7×10 = 70 hours	
22.	70+20 = 90 hours	
		1
		1
C	D. CE	1
Syste	ematic Keview 5E	1
۱. م	$10 \times 8 = 80$	1
2.	$6 \times 10 = 60$	1
3.	$10 \times 9 = 90$	I
4.	$10 \times 0 = 0$	
5.	$5 \times 1 = 5$	1
6.	$6 \times 2 = 12$	
7.	8×1=8	
8.	$10 \times 5 = 50$	1
9.	$2 \times 2 = 4$	
10.	$2 \times 5 = 10$	
11.	$9 \times 1 = 9$	I
	$1 \times 9 = 9$	
12.	$3 \times 10 = 30$	1
	$10 \times 3 = 30$	2
13.	300+ 8 0+9	2
14.	70+2	
15.	46	2
	$\frac{+22}{68}$	
1.6	08	
16.	5 + 12	
	63	
17.	37	
	<u>-23</u>	
	14	
18.	94	
	$\frac{-43}{51}$	
10	5 I 10 - 10 - 10 - 10 -	
19.	10+10+10+10+	
20	10+10+10+10=80 mm	
20.	$4 \times 10 = 40$ fingers	
21.	b + 4 = 10	
22	$10 \times 10 = 100$ pieces	
22.	$9 \times 2 = 18$ litres	

Systematic Review 5F

- 1. $4 \times 1 = 4$
- 2. $2 \times 10 = 20$
- 3. $10 \times 3 = 30$
- 4. $10 \times 9 = 90$

- 5. $6 \times 2 = 12$
- 6. $2 \times 8 = 16$
- 7. $10 \times 7 = 70$
- 8. $10 \times 1 = 10$
- 9. $3 \times 2 = 6$
- 10. $4 \times 2 = 8$
- 11. $1 \times 6 = 6$ 12. $9 \times 0 = 0$
- 12. $9 \times 0 = 0$ 13. 100 + 60 + 4
- 14. 50+8
- 15. 52
- -20
- 32
- 6. 64
- <u>+13</u> 77
- 17. 35 <u>+34</u>
 - <u>+34</u> 69
- 8. 14 <u>-12</u>
 - 2
- 19. 5+5+5+5+5+5+5+5+5=50
- 20. $9 \times 10 = 90$ ¢
- 21. Wayne: $5 \times 10 = 50$ dollars Together: 50+5=55 dollars
- 22. $2 \times 8 = 16$ litres

Solutions: Lesson 5 Test

Test 5

1.	$2 \times 10 = 20$
2.	$10 \times 9 = 90$
3.	$3 \times 10 = 30$
4.	$10 \times 7 = 70$
5.	$6 \times 10 = 60$
6.	$10 \times 1 = 10$
7.	$4 \times 10 = 40$
8.	$10 \times 5 = 50$
9.	$10 \times 8 = 80$
10.	$5 \times 2 = 10$
11.	$1 \times 3 = 3$
12.	$8 \times 2 = 16$
13.	34
	$\frac{-21}{13}$
14.	55
	+42
	97
15.	18 - 1 = 17
16.	60
	$\frac{+17}{77}$
17.	100+90+4
18.	7×10 = 70 cents
19.	$10 \times 2 = 20$ litres
	20 - 10 = 10 litres
20.	$3 \times 10 = 30 \text{ mm}$

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