

Lesson Printables

Be a rockstar and only print what you need!



Planners: 2-3

Game

Level One: 4

Level Two: 5

Level Three: 6

Extras

Recording Logs: 7

100s Charts: 8

Toolkit: 9

**Printing in the US? Scale to 'fit to printable area' in order to get the best print.*

LESSON 1: Multiplication/Division - Revising multiplication strategies

Starter	Main Activity and Input: Multiply numbers using a variety of strategies.	Plenary
<p>Sticky Situation Fido had a giant stick that wouldn't fit through a 2 metre gap in the fence. He cut the stick into quarters. He then cut 1 quarter in half. The smaller stick fit perfectly through the 2 metre gap in the fence. How long was the giant stick?</p> <p>To support:</p> <ol style="list-style-type: none">1. Ask students to draw several tape diagrams to break the problem into smaller pieces. Whole stick, quarters, half of a quarter. How much is that half of a quarter worth? How can students use this information? <p>To challenge:</p> <ol style="list-style-type: none">1. What is the name of the fraction that fits exactly through the fence?	<p><i>Note, this lesson is an opportunity for students to review and apply their understanding of times tables. You could use this lesson as a pre-assessment to see where students are at in their multiplication journey.</i></p> <p>Input:</p> <ol style="list-style-type: none">1. Slide 6 asks students what happens when a number is multiplied by another number. Share ideas as a class. Students might say that numbers get bigger. They involve equal groups, etc. Do students connect multiplication to repeated addition? What words do students connect to the multiplication sign?2. Slide 7 asks students what number sentences they see in the picture of flowers and bees. Can students use more than 1 operation? Slide 8 explicitly shows possible multiplication and repeated addition number sentences. Note, some students might be able to identify inverse number sentences that could also connect. For example, 8 bees \div 2 flowers, etc. We have not included these number sentences, but they might be applicable to your class.3. Slide 9 asks students how many different ways they can solve 5×4. What strategies do they already know or can apply? Slide 10 explicitly models several strategies. Can the students explain any of them?<ul style="list-style-type: none">- Skip counting and using a number line: 4, 8, 12, 16, 20 and $5 + 5 + 5 + 5$- Area model: Rectangle with a width of 4 and a length of 5.- Applying 2 times table connections: 4 is double 2, so by doubling 5 and then doubling again, you have calculated 4 groups of 5.- Applying 10 times table connections: 5 is half of 10, so by multiplying 4 by 10 and then halving the answer, you have calculated 5 groups of 4.4. Slide 11 explicitly models the connection between multiplication and the area of a rectangle. Note, we have not discussed square metres, centimetres, etc. It might be something worth noting depending on your class discussion.5. Slides 12 to 18 model the main activity: playing Space Race.<ul style="list-style-type: none">- Roll two dice and multiply their numbers.- Colour in an array/area model on the space board to claim the corresponding amount of space blocks.- Level 2: You can add two of the numbers together and then multiply your total by the remaining dice.- Level 3: You can add or subtract two of the numbers and then multiply your total by the remaining dice. <i>*Note, this level is not shown in the slideshow so as not to confuse students. (More details can be found in the printables.)</i> <p>Activity: Play Space Race.</p> <ol style="list-style-type: none">1. Print the rules and space boards for each learning zone. Students should share 1 board between 2 players. Students will also need dice to play this game. <p>To support:</p> <ol style="list-style-type: none">1. Provide students with a 100s square to help them skip count. A times table toolkit can also be found in printables. Students could refer to this to help them remember different strategies for each times table. <p>To challenge:</p> <ol style="list-style-type: none">1. Encourage students to prove that their answers are correct by using a different strategy.2. Encourage students to play more than 1 level of the game.	<p>Top Tips:</p> <p>What strategies do students like to use for particular times tables?</p> <p>Discuss:</p> <ol style="list-style-type: none">1. Can students identify different ways they like to solve particular times tables? How can they use times table connections to solve different problems? For example, multiplying a number by 10 and then taking off a group in order to really multiply by 9.

Things that might be useful for this lesson:

- Individual whiteboards:
 - Help students to record their thinking and share ideas with others.
- Extra grid paper:
 - Help students create a visual array to multiply.
- Dice:
 - Will be used during the game.
- Times Table Toolkit:
 - For students to refer to for specific multiplication strategies.



Peek at the Printables:

Sunlight Zone

Space Race Level 1

1. Player 1 rolls two dice.
2. Multiply the numbers by each other.
3. Colour in an area model on the space board that matches your number sentence.
4. Write your number sentence on the space blocks you've claimed.
5. Now it is Player 2's turn. Keep taking turns until you can't colour in any free space blocks. If you can't go, you lose your turn.
6. If one player can't go 3 turns in a row, the game is over.
7. Whoever has the most space blocks is the winner!

$\square \times \square = ?$

Twilight Zone

Space Race Level 2

1. Player 1 rolls three dice.
2. They now have two options:
 - Multiply any of the two numbers together.
 - Add two of the numbers together and then multiply the total by the remaining die.
3. Colour in an area model on the space board that matches your number sentence.
4. Write your number sentence on the space blocks you've claimed.
5. Now it is Player 2's turn. Keep taking turns until you can't colour in any free space blocks. If you can't go, you lose your turn.
6. If one player can't go 3 turns in a row, the game is over.
7. Whoever has the most space blocks is the winner!

$\square \times \square = ?$ $(\square + \square) \times \square = ?$

Midnight Zone

Space Race Level 3

1. Player 1 rolls three dice.
2. They now have three options:
 - Multiplying any of the two numbers together.
 - Add two of the numbers together and then multiply the total by the remaining die.
 - Subtract one die from another and multiply your answer by the remaining die.
3. Colour in an area model on the space board that matches your number sentence.
4. Write your number sentence on the space blocks you've claimed.
5. Now it is Player 2's turn. Keep taking turns until you can't colour in any free space blocks. If you can't go, you lose your turn.
6. If one player can't go 3 turns in a row, the game is over.
7. Whoever has the most space blocks is the winner!

$\square \times \square = ?$ $(\square + \square) \times \square = ?$ $(\square - \square) \times \square = ?$

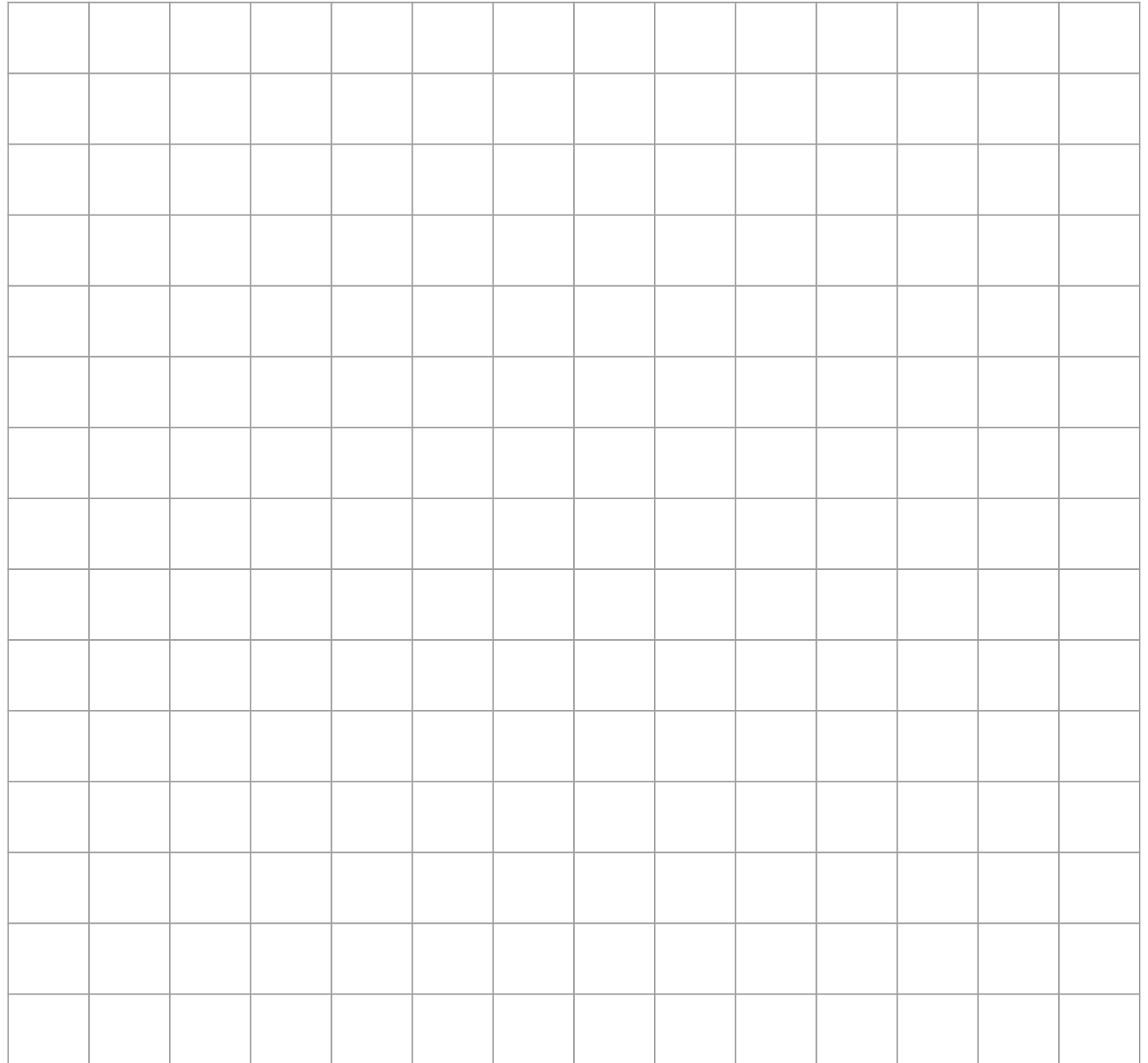
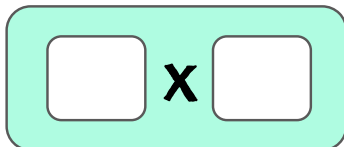


Greener Alternatives:

- Print a copy of the rules and display it in the classroom for students to refer to if needed.
- Instead of playing the game, students could flip over 2 cards or roll 2 dice and multiply the two numbers together.

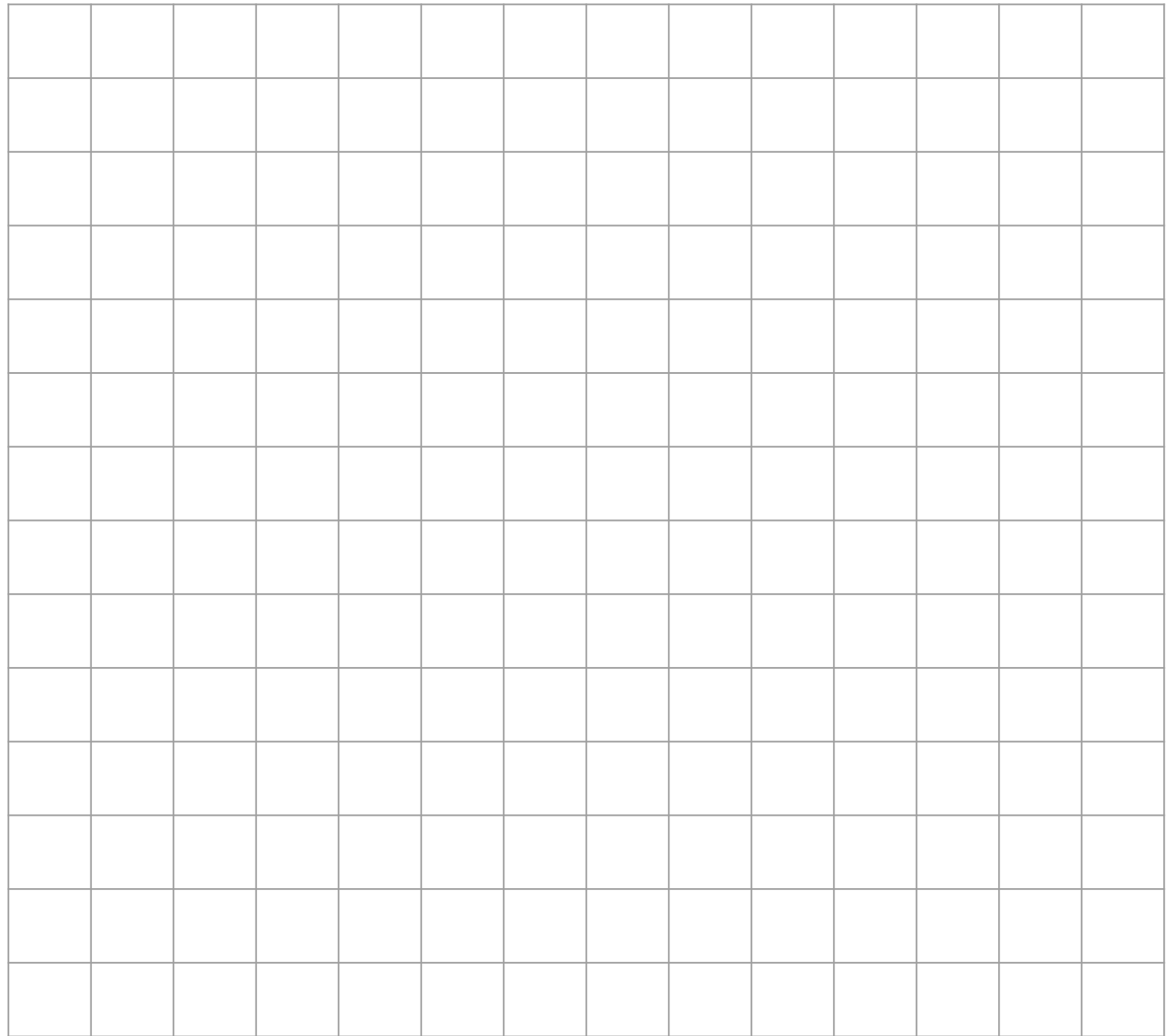
Space Race Level 1

1. Player 1 rolls two dice.
2. Multiply the numbers together.
3. Colour in an area model on the space board that matches your number sentence.
4. Write your number sentence on the space blocks you've claimed.
5. Now it is Player 2's turn.
6. Keep taking turns until you can't colour in any free space blocks.
→ If you can't go, you lose your turn.
7. If one player can't go 3 turns in a row, the game is over.
8. Whoever has the most space blocks is the winner!



Space Race Level 2

1. Player 1 rolls three dice.
2. They now have two options:
 - Multiply any of the two numbers together.
 - Add two of the numbers together and then multiply the total by the remaining dice.
3. Colour in an area model on the space board that matches your number sentence.
4. Write your number sentence on the space blocks you've claimed.
5. Now it is Player 2's turn.
6. Keep taking turns until you can't colour in any free space blocks.
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 - Whoever has the most space blocks is the winner!

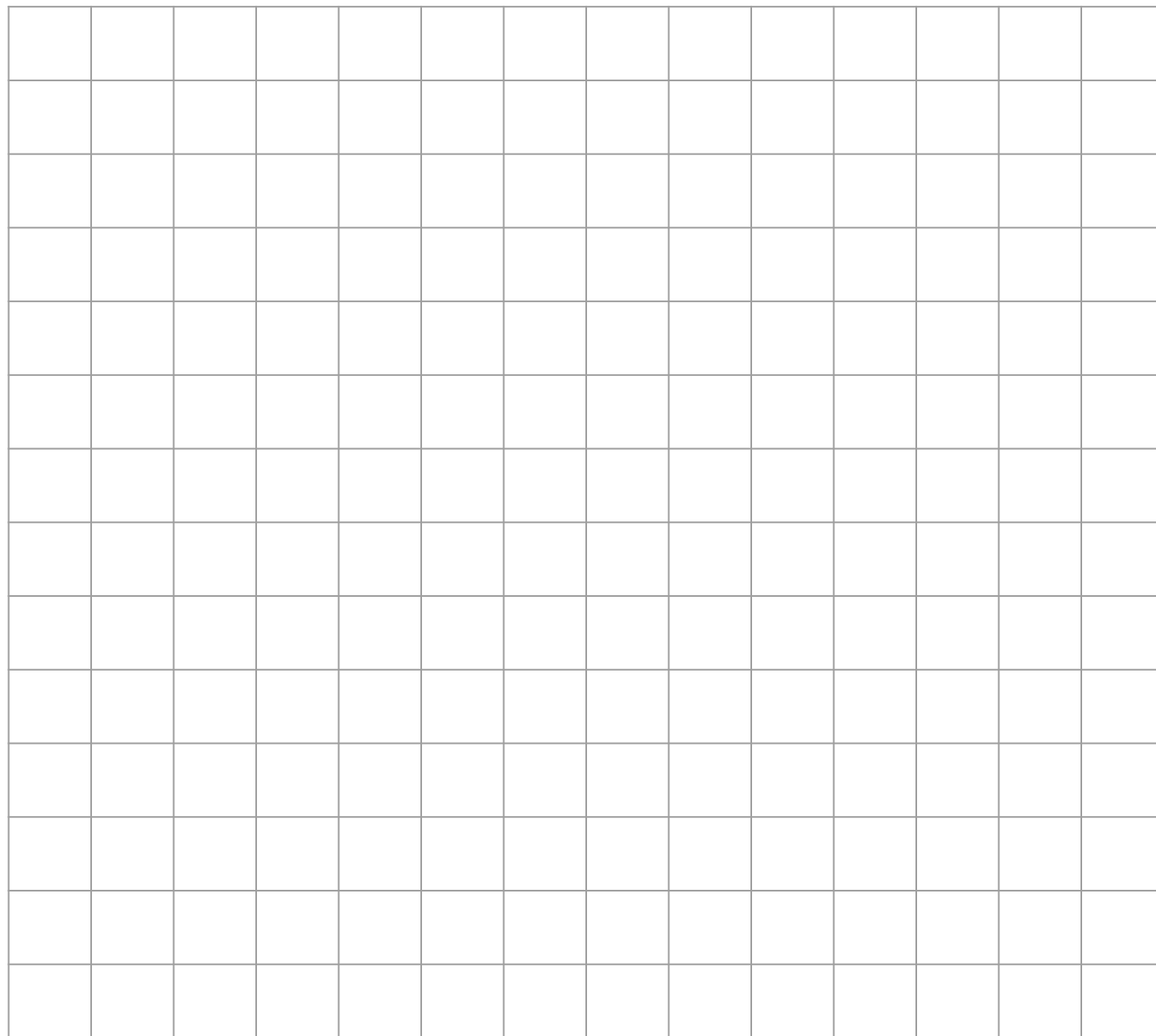


$$\square \times \square$$

$$(\square + \square) \times \square$$

Space Race Level 3

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$$\square \times \square$$

$$(\square + \square) \times \square$$

$$(\square - \square) \times \square$$

Recording Logs

Number Sentence	Space Boxes



Number Sentence	Space Boxes

100s Charts

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

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



Times Table Toolkit



x2	Double the other number.
x3	Multiply the other number by 2 and add 1 more group.
x4	Double the other number and double your answer.
x5	Multiply the other number by 10 and halve your answer.
x6	Multiply the other number by 3 and double your answer, or multiply the other number by 5 and then add 1 more group.
x7	Look at the other number and use its times table strategy.
x8	Multiply the other number by 4 and double your answer.
x9	Multiply the other number by 10 and subtract 1 group from your answer.
x10	Count in 10s.



Times Table Toolkit



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