



Parkside Primary Academy

Maths Policy

TEACHING OF TIMES TABLES

Times table knowledge underpins a wide range of concepts in the maths curriculum – from equivalent fractions to percentages, from area to units of measure. With a strong and deepened understanding of multiplication and division facts, pupils will be in a much better position to tackle other mathematical concepts and use their knowledge for real-world applications. Indeed, in 2022's SATs arithmetic paper, 75% of the marks available required some understanding of times table facts, multiplication or division. Cognitive load research suggests that if multiplication facts are successfully stored in our long-term memory, then problem solving and application with these facts will become easier (Willingham, 2018). Additionally, other studies have shown a link between memorisation of these multiplication facts and success with mathematics in secondary school (Field, 2021).

Due to the importance of times tables for other mathematical concepts, the government have introduced a multiplication tables check (MTC) for Year 4 pupils. However, in order to build maximum fluency, conceptual understanding of times tables is needed as well as simple rote learning. This document has been written in order to ensure consistency in the teaching of times tables across school, and outlines the key steps that all teachers should follow.

ORDER OF TIMES TABLE TEACHING

When teaching times tables, we need to be aware of research into cognitive science – particularly findings about cognitive load and brain plasticity. Focusing on multiple times tables at once, especially when they are not explicitly linked, is likely to lead to overload and reduced learning. Similarly, neuroscience tells us it takes approximately eight weeks of repetition to form neural pathways (meaning the fact is secure and automatic). As such, Parkside students will focus on one times table set each half term – with additional opportunities to review and practice.

Academic Year 2023/24

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 1	Settling in	Number sense	Number sense	Number sense	Number sense	Number sense
Year 2	Number sense	Number sense	Number sense	2x	10x	5x
Year 3	5x 10x 2x	4x	8x	3x	6x	Revision
Year 4	9x	7x	11x	12x	Revision	Revision
Year 5	2x 4x 8x	3x 6x 9x	7x	11x 12x	All tables	Squares
Year 6	Audit class to identify gaps to be focused on/revision of all tables Applying times table knowledge to SATs skills					

Please note the adaptations to KS1 this year. Based on pupil voice and outcomes in previous years, we recognise that children need to first focus on consolidating their understanding of number (subitising, composition, comparison) and embedding key addition and subtraction facts (number bonds, efficient strategies for calculating within twenty) before beginning the whole school times table approach. As such, children in KS1 will have discrete teaching using White Rose Math's fluency bee programme until the Spring term of Y2.

INTRODUCTION OF TERMLY TIMES TABLES FOCUS

Learning is based on prior knowledge and existing schemas. When each term's focus table is introduced, explicit links need to be made to previous learning and children should be aware of how this will support them with their new table. By the end of the first week in each half term, children must know and should be able to explain:

- What their focus times table is for the current half term
- Which previous learning will support them with this
- Why they are learning this times table at this point in their learning journey.

In order to support this, all teacher's will use a consistent PowerPoint slide to introduce their focus, which is available on the school's shared drive (2023-24 → CURRICULUM → MATHS → TIMES TABLE ACTIVITIES). An example of this for the 8x table is shown below:

Our new times table...
This half term you will be learning the **8x table**
What tables have you already learned?

Our new times table...
This half term you will be learning the **8x table**
What tables have you already learned?
0x, 1x, 2x, 4x, 5x and 10x tables.
In these tables you have already met some of the 8x table.
What facts do you already know?

Our new times table...
This half term you will be learning the **8x table**
What tables have you already learned?
0x, 1x, 2x, 4x, 5x and 10x tables.
In these tables you have already met some of the 8x table.
What facts are new?
We'll spend this half term getting to know the 8x table really well!

SUPPORTED BY LEARNING ENVIRONMENTS

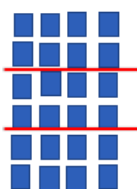
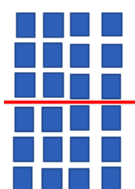
Learning of times tables can be made purposeful and engaging to children by making clear, conceptual links to the real world. Each classroom should have a display which states the focus times table and 'what comes in...?' that number. These displays should be introduced and refreshed at the beginning of each half term, and should stay up and be updated throughout. Children should be encouraged to contribute to these displays as well – allowing them to take ownership and increase engagement both in and out of school. They may bring things/photos in from home, suggest ideas that could be added or go on a walk around school to see what they can spot. The displays should also be built on throughout the half term to show links and patterns spotted within the times table (for example multiples of 5 end in 5 or 0, multiples of 3 have a digit sum of 3, 6 or 9, multiplying by even numbers gives an even product). These displays act as a constant reminder to both adults and pupils about their focus, and provide a great source for worded problems. Here are some examples:



Additionally, starting points and initial ideas for each times table's display can be found on the school's shared drive (2023-24 → CURRICULUM → MATHS → TIMES TABLE ACTIVITIES)

CONCRETE, PICTORAL, ABSTRACT APPROACH

The CPA approach underpins much of Parkside’s mathematical teaching, and this should also be reflected in our times table sessions. Research has shown that children having access to manipulatives is a key component for developing mathematical understanding. Sharing/grouping counters, using number lines, Cuisenaire train tracks and more are all examples of resources that can be used to help children build a conceptual understanding of times tables. However, the EEF states that teachers must “ensure there is a clear rationale for using particular manipulatives”, meaning that we need to think carefully about the property of multiplication we are trying to show and which manipulatives demonstrate this best. CPD training attended by the maths lead (by Professor J. Field) asserts that the array is the most versatile model for modelling the properties of multiplication – such as commutativity, distribution, multiplication as repeated addition, and the associative law. As such, while other representations can also be used, the array must be the main and most commonly used model for teaching multiplication throughout school (ensuring consistency and progression).



Arrays can be used to show associative and distributive laws.

Above: $(3 \times 4) \times 2 = 24$ and $(2 \times 4) \times 3 = 24$

Arrays can be made from/seen in real life objects too. Discussions could be had about repeated addition and division/sharing the bottles out using the above array

Arrays can show commutativity.

The above arrays show 3 rows of 6 equalling the same number of counters as 6 rows of 3

When new times tables are introduced each half term, arrays will be investigated during the timetabled practice sessions. The arrays can then be used to draw out and explain times table patterns, answering questions such as: Why is the four times table double the two times table? Why are all the multiples of nine also multiples of three? How can I use the 10x and 2x tables to help with the 12x table? Once children have a secure understanding of arrays, they can be used to calculate and derive unknown/less secure facts too.

TIMETABLED OPPORTUNITIES TO PRACTICE TIMES TABLES

Rote learning and memorisation, as times tables have previously been taught, does not allow for flexibility within understanding. Through this method, children may learn $3 \times 4 = 12$, but be unable to derive anything from this and may not make the link that $0.3 \times 4 = 1.2$, $30 \times 4 = 120$ and so on. At Parkside, we endeavour for our children to recognise links, patterns and relationships between times tables, nurturing a deeper understanding of number and multiplication. We believe, supported by evidence, that rapid recall and fluency will lead on from this conceptual understanding. Fluency with automaticity – quick recall of facts without sacrificing understanding of relationships – is the goal. In order to achieve this, children need regular opportunity to practice new facts, investigate relationships and build conceptual understanding. Teachers in Years 3-6 (and Year 2 from Spring term) will timetable at least three ten-minute session per week for focused times table teaching.



These sessions will:

- Balance rapid recall practice with opportunities for deeper thinking and conceptual understanding
- Include some low-stakes testing, but this should not be the main focus/activity
- Focus on one times table, in order at the beginning of a half term
- Then move on to that same times table, mixed up and in any order
- And finally, towards the end of the half term, revise all previously learned times tables.

Activities in these sessions may include flash cards, chanting, working with manipulatives, whole class/partner games and more. A bank of activities will be provided on the school's shared drive (2023-24 → CURRICULUM → MATHS → TIMES TABLE ACTIVITIES), and additional support/modelling will be given during the school's directed time sessions. Teachers can also find additional guidance for building up these sessions across a half term, and for patterns they should unpick with their classes, in the appendix of this policy.

BUILDING AUTOMATICITY THROUGH DAILY RECALL

Whilst the above discrete lessons aim to build a deeper understanding of times tables and identify links and connections, Parkside also recognises the need for automaticity in times table recall. This will support children in the Year 4 MTC, but also reduces cognitive load when tackling more complex mathematical calculations such as long division and multiplication. Daily recall takes place through chanting when walking into school, and through the use of practice booklets designed by Claire Christi. These practice books build confidence and celebrate small successes as children are encouraged to compete with themselves and get 'one more correct' than they did the previous day. Furthermore, when children self-mark these booklets, they repeat multiplication facts stated by the teacher to embed a sound pattern which will aid recall – similar to how song lyrics get stuck in your head. All teachers use the pattern 'one ___ is ___, two ___s are ___...' to ensure there is a consistent sound pattern throughout school.

ADDITIONAL EFFORTS IN LKS2

Whilst the focus of this policy and Parkside's teaching of times tables is on conceptual understanding, there is still a place for rote learning/memorisation of facts. The government's introduction of the Y4 Multiplication Tables Check (MTC) sets a requirement that all children be able to recall facts up to 12x12 quickly and fluently by the end of Year 4. To support this, children in LKS2 will have a weekly iPad slot to access the online version of Times Tables Rockstars. There are a range of activities within this including individual, group and whole class games which can promote engagement. Each week, children in Y4 will complete at least one 'Soundcheck' game, as this closely replicates the government MTC – helping reduce anxiety around the check and meaning children are aware of the required standards. Both the maths lead and class teachers can monitor the outcomes of this using the 'stats page' on Times Tables Rockstars, allowing priority children to be identified for intervention and additional support.



CONTINUED PROFESSIONAL DEVELOPMENT AND MONITORING

Staff will receive training and professional development so that learning is consistent across school and to improve their practice in teaching times tables conceptually. This policy was originally shared with staff in September 2022, when the maths lead explained the reasons for this approach and modelled the introduction of new times tables. The policy will then be reviewed annually and redistributed to staff, with training provided where needed.

Additionally, the maths lead will share ideas and resources for the timetabled 10-minute practice sessions, which teachers can then go on to use with their own classes with minimal resourcing (taking into consideration staff workload). These ideas will be shared through use of IRIS – a video bank of these lessons will be built up which teachers can refer back to in future academic terms.

The table below states the steps that need to be taken to follow this approach at Parkside, and outlines the monitoring processes which will be followed:

What?/When?	Who is responsible?	How will it be monitored?
Class teachers to be given clear training on this whole school approach	Maths Lead (AT)	N/A
Class teachers to introduce focus times tables at beginning of each half term	Class Teachers (KE, AH, CS, AT, RMc from Spring term)	Informal pupil voice by maths lead
Displays of focus times table and 'What comes in...' to be present in all classrooms	Class Teachers (KE, AH, CS, AT, RMc from Spring term)	Learning environment walks by maths leads (as part of usual benchmarking cycle)
IRIS to be used to provide short-burst training and give ideas of activities to be used	Maths Lead (AT)	N/A
Classes to have 3 x 10-minute slots each week for focused times table practice	Class Teachers (KE, AH, CS, AT, RMc from Spring term)	Class time tables to be shared with AT IRIS videos Teacher voice/Pupil voice
LKS2 classes to have weekly iPad slot using Times Table Rockstars	Class Teachers (AT, CS) Maths Lead (AT)	Class time tables to be shared with AT Maths lead to regularly check TTRS stats page
LKS2 and Y5 classes to complete half termly soundcheck using Times Table Rockstars in order to track progress	Class Teachers (AT, CS, AH) Maths Lead (AT)	Data to be reported to AT by end of each half term and recorded on shared drive.
Maths Band programme and other enrichment activities (whole school TTRS tournaments, Rockstar days) to promote engagement across school	Maths Lead (AT)	Educator report for maths bands



APPENDIX A - TEACHING OF TIMES TABLES OVER A HALF TERM

	Focus outcomes	Suggested activities
Week 1	<p><i>All children</i> will know what times table they are focusing on for the upcoming half term.</p> <p><i>Most children</i> will be able to explain why this, why now.</p>	<p>Introduce times table using the template slides on shared (<i>see IRIS demonstrating this</i>)</p> <p>Begin developing displays by giving children time in class to think of 'what comes in' as well as asking them to bring things from home (younger years could do a walk around school/outside)</p>
Week 2	<p><i>All children</i> will be able to use a variety of concrete/pictorial resources to represent their times table (e.g. arrays, Cuisenaire, counters in groups etc).</p> <p>Building on this, <i>most children</i> will be able to explain some patterns in their times table (e.g. all multiples of 4 are even) and make some connections with other times tables (e.g. 8 times table is double 4 times table)</p>	<p>Children use concrete resources such as counters to make arrays, grouping objects, or Cuisenaire to make blocks/trains and unpick patterns from them (<i>see IRIS demonstrating this</i>)</p> <p>Whole class cover up activity, or stand-up sit-down activity from shared PowerPoint of activities can be used to unpick patterns in multiples (<i>see IRIS demonstrating this</i>)</p> <p>For older year groups, times table circle patterns (found in 'All Tables') sheet</p>
Week 3		
Week 4	<p>Through repeated practice of focus times tables with a variety of activities, children should begin to become fluent.</p> <p><i>All children</i> should be able to chant the times table in order, and quickly recall simple facts (e.g. 1x 2x 5x 9x 10x 11x)</p>	<p>Variety of activities in shared folder and activities PowerPoint, including:</p> <ul style="list-style-type: none"> • TTRS/Hit the button • Times Table Ninja worksheets • Flashcards (which include an array for support) • Derivation boards • Times table tic tac toe (adapted for focus table) (<i>see IRIS demonstrating this</i>) • Times table bingo • Chanting in lines
Week 5	<p><i>Most children</i> should be able to recall the table out of order fluently, and also be able to chant the times tables backwards</p>	
Week 6	<p>Embed fluency by revising all times tables learned so far using a range of engaging activities.</p> <p><i>All children</i> will be able to say which times tables they have already learned, and at least be able to recall simpler facts from each (e.g. 1x 2x 5x 9x 10x 11x)</p> <p><i>Most children</i> should be increasingly fluent in all the previously learned times tables out of order, and be able to apply this knowledge to different facts such as divisions or scaled multiplications, as well as some simpler problems.</p>	<p>Variety of activities in shared folder and activities PowerPoint, including:</p> <ul style="list-style-type: none"> • TTRS/Hit the button • Times table tic tac toe (<i>see IRIS demonstrating this</i>) • Times table bingo • Multiple lines, array territory or times square games – adapt dice/grids for different yr. groups <p>This is also a good time to introduce problem solving activities around times tables, especially in older year groups (e.g. see 'satisfaction', 'NRICH factors and multiples', 'secret tables' or 'coded tables' activities in 'All tables' folder)</p>
Week 7		



APPENDIX B – GUIDANCE FOR PATTERNS IN TIMES TABLES

2 times table

Patterns

- All even numbers (ending in 0, 2, 4, 6 or 8) are multiples of two
- The last digit in each multiple of two repeats: (0, 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28)

Connections to other times tables

- Double the two times table to find the four times table
- Multiples of 4, 6, 8, 10 and 12 are all in the two times table, as when you multiply by an even number the answer will always be even

Multiples on a 100 square

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

3 times table

Patterns

- If the digits of a number add together to total a multiple of 3, the number must be in the 3 times table (e.g. $171 = 1+7+1 = 9$, so it is a multiple of three)
- The last digit in each multiple of three repeats once you pass 30
- Even, odd, even, odd repeating

Connections to other times tables

- Double the three times table to find the six times table
- Every even multiple of three is in the six times table
- All multiples of nine are in the three times table
- One more lot than the two times table

Multiples on a 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

4 times table

Patterns

- All multiples of four are even
- The last digit in each multiple of four repeats: (4, 8, 12, 16, 20, 24, 28, 32, 36, 40)
- If the last two digits are a multiple of four, so is the whole number (e.g. 144, 44 is a multiple of 4 so 144 is too)

Connections to other times tables

- Double the two times table to find the four times table
- Double the four times table to find the eight times table
- One less lot than the five times table

Multiples on a 100 square

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



5 times table

Patterns

- If the last digit of a number is 5 or 0, the number is a multiple of five.
- The last digit in each multiple of five repeats: (0, 5, 10, 15, 20, 25, 30)
- Even, odd, even, odd repeating

Connections to other times tables

- Double the five times table to find the ten times table (or half the ten times table to find the five times table)

Multiples on a 100 square

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

6 times table

Patterns

- All multiples of six are even
- If a number is even **and** its digits add to give a multiple of three, it is in the six times table
- The last digit in each multiple of six repeats: (0, 6, 12, 18, 24, 30, 36, 42, 48, 54)

Connections to other times tables

- Double the three times table to find the six times table
- All multiples of six are also multiples of three
- All multiples of six are also multiples of two
- Double the six times table to find the twelve times table
- One more lot than the five times table

Multiples on a 100 square

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

7 times table

Patterns

- Even, odd, even, odd, even, odd repeating
- There is another pattern – but it is very complicated! See note at end of document

Connections to other times tables

- Adding 2x and 5x together will give multiple of seven

Multiples on a 100 square

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



8 times table

Patterns

- All multiples of eight are even
- The last digit in each multiple of eight repeats: (0, 8, 16, 24, 32, 40, 48, 56, 64, 72)
- In larger numbers, if the last three digits divide by 8, so does the whole number

Connections to other times tables

- All multiples of eight are in the two times table
- All multiples of eight are in the four times table
- Double the four times table to find the eights
- $10x - 2x = 8x$

Multiples on a 100 square

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

9 times table

Patterns

- Even, odd, even, odd repeating
- Add 10, subtract 1 each time
- Up to 10×9 , the add one to the tens column and subtract one from the ones column
- If the digits of a number add together to total a multiple of 9, the number must be in the 9 times table (e.g. $171 = 1+7+1 = 9$, so it is a multiple of nine)

Connections to other times tables

- All multiples of nine are in the three times table
- One less lot than 10 times table

Multiples on a 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

10 times table

Patterns

- All numbers in the ten times table are even
- All numbers ending in 0 are multiples of 10

Connections to other times tables

- All multiples of 10 are multiples of 2
- All multiples of 10 are multiples of 5
- Double the five times table to find the 10 times table

Multiples on a 100 square

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



11 times table

Patterns

- Even, odd, even, odd repeating
- In all two-digit multiples of 11, the tens and ones are the same (e.g. 11, 22, 33, 44, 55)
- In three-digit numbers, if the hundreds and ones digits add to make the tens digit, it is a multiple of 11. (e.g. 121, $1+1=2$ so YES, 132, $1+2=3$ so YES, 198, $1+8=9$ so YES)

Connections to other times tables

- One more lot than the ten times table ($10x + 1x = 11x$)

Multiples on a 100 square

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

12 times table

Patterns

- All numbers in the $12x$ table are even
- If a number is a multiple of both 3 and 4, then it must be a multiple of 12 (so use both the $3x$ and $4x$ strategies for larger numbers)
- The last digit of each multiple of twelve repeats:
(0, 12, 24, 36, 48,
60, 72, 84, 96, 108)

Connections to other times tables

- All multiples of 12 are also multiples of 2, 3, 6 and 4
- $10x + 2x = 12x$
- Double the six times table to get the twelve times table

Multiples on a 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

***Seven times table pattern:**

You may notice that there is no trick for 7. In fact, there is one, but it is so complicated that I think a bit of short division for short numbers, or a calculator for long numbers, would be easier! But if you're interested, here you are. This rule is called L-2M. What you do is to double the last digit of the number X and subtract it from X without its last digit. For instance, if the number X you are testing is 345678, you would subtract 16 from 34567. Repeat this procedure until you get a number that you know for sure is or is not divisible by seven. Then the X's divisibility will be the same.