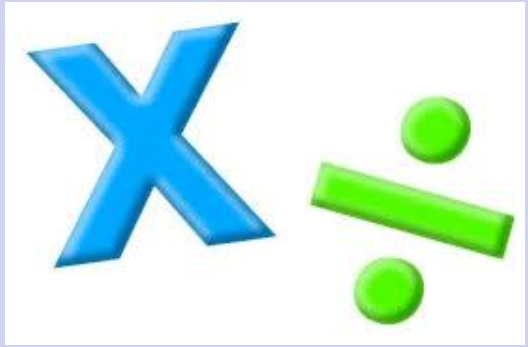
Willowbrook Primary School

Maths Work With Me
Number Fluency & Multiplication and Division Workshop
January 2024



Aims:

- To give you an overview of the aims of the national curriculum.
- To give you an insight as to the national age-related expectations.
- To talk about how we support number fluency.
- To give you an opportunity to see the different activities and ways we teach multiplication and division facts.
- To raise your confidence and knowledge to support your children with multiplication and division at home.

Aims of the Maths National Curriculum:

Aims

The national curriculum for mathematics aims to ensure that all pupils:

- become fluent in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately
- reason mathematically by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language
- can solve problems by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions

If maths was a house…

All the even more super fun stuff

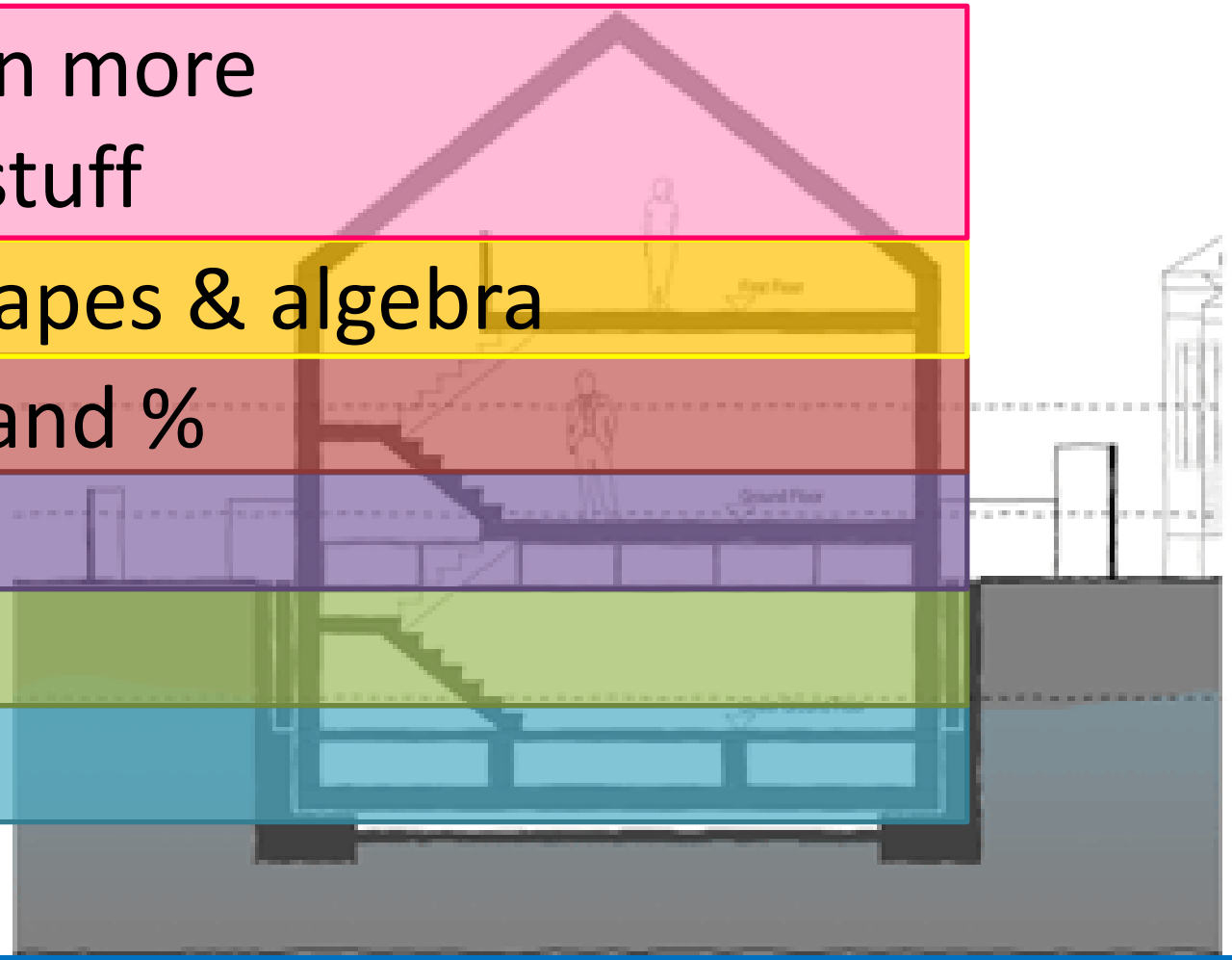
Graphs, shapes & algebra

Fractions and %

× and ÷

+ and –

Counting



KS1 National Curriculum Expectations:

Key stage 1 – years 1 and 2

The principal focus of mathematics teaching in key stage 1 is to ensure that pupils develop confidence and mental fluency with whole numbers, counting and place value. This should involve working with numerals, words and the four operations, including with practical resources [for example, concrete objects and measuring tools].

- Daily whole-class lessons.
- Maths Packs
- Daily Ten Minutes of Maths

	Year 1	Year 2
Number	count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number count, read and write numbers to 100 in numerals; count in multiples of twos, fives and tens given a number, identify one more and one less identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least read and write numbers from 1 to 20 in numerals and words.	count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward recognise the place value of each digit in a two-digit number (tens, ones) identify, represent and estimate numbers using different representations, including the number line compare and order numbers from 0 up to 100; use <, > and = signs read and write numbers to at least 100 in numerals and in words use place value and number facts to solve problems.
-/+	read, write and interpret mathematical statements involving addition (+), subtraction (–) and equals (=) signs represent and use number bonds and related subtraction facts within 20 add and subtract one-digit and two-digit numbers to 20, including zero solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = – 9.	solve problems with addition and subtraction: using concrete objects and pictorial representations, including those involving numbers, quantities and measures applying their increasing knowledge of mental and written methods recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100 add and subtract numbers using concrete objects, pictorial representations, and mentally, including: a two-digit number and ones a two-digit number and tens two two-digit numbers adding three one-digit numbers show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.

Maths Packs

- Split into 3 cards. The aim is to achieve the objectives on all three cards by the end of year 2.
- The resources inside this pack will grow as your child's numeracy skills develop. Your child will get resources added to their pack, when they are ready to explore them.
- The children will be assessed on their maths packs by an adult on a rotational basis.
- Progress through the cards relies on the children having opportunities to work on these objectives at home.

Maths Packs

- Within the maths pack is a letter, which explains the structure of the maths packs and how the different resources can be used.

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Dear Parents/Carers,

To support the EYFS and Key Stage 1 curriculum, your child has a maths pack. This pack will be split into different areas. The resources inside this pack will grow as your child's numeracy skills develop. Your child will get resources added to their pack, when they are ready to explore them. There are 3 cards in total and the aim is to achieve the objectives on all three cards by the end of year 2. The children will be assessed on their maths packs by an adult on a rotational basis and their progress through the cards relies on the children having opportunities to work on these objectives at home

Card 1
This card focuses on recognising and orderi

Resources:

Number cards
Your child will take home number cards (small white squares with black numbers printed on it) to support number recognition. He/she can use them in a variety of fun ways e.g.

- Hide and seek – Please can you find me ..... I have hidden a number can you guess what it is?
- One more one less - I have got number 3. Can you find the number that is one more/less?
- Number recognition – What number is it?
- Writing numbers – Can you form this number correctly in the air? On paper?
- Ordering numbers – I have got five numbers can you put them in the right order?

(Please note that we will decide when your child will get a new set of numbers after assessing your child in school.)

Hundred Square
A square with numbers 1-100 on it. Your child will use these in school to support them in a variety of numeracy sessions. You can use the number square to play games and notice number patterns. When your child is working on counting in 2's and 5's, the 100 square may be highlighted to support them in noticing patterns

Maths Packs- examples of activities

- Recognising a number from a number card.
- Ordering digit cards.
- Have a set number of ordered cards with a missing number- can the child spot it?

- ‘My turn- Your turn’ with counting in jumps of 2 etc.
- Sorting number cards into jumps.
- Writing on wb
- Matching the number bonds together.

- Practising the different methods for mental addition/ subtraction.

Maths Packs- examples of activities

- Practising the different methods for mental addition/ subtraction.

Strategies

The cards focus on mental arithmetic. Children are expected to be able to rapidly recall their number bonds to 10 and 20 without needing to use their fingers and be able to then use these facts to help with larger calculations. A variety of strategies are taught within school and your child needs to be able to choose the method that works for them. For example,

74 + 32 =

They could count up in tens from 74 and then add on the two.

They could partition the number in their head into tens and ones and add them separately eg 70 + 30 -100, 4 + 2 = 6 so 100 + 6 = 106.

50 – 27 =

They could count back in tens from 50 and then use their number bond to 10 knowledge to subtract the 7.

Practicing at home:

- Little and Often is key.
- Please practise your maths packs at home as much as possible, daily would be perfect!
- Please make use of the resources inside the pack.
- Whenever you do any maths packs activities at home, please record it in your child's reading diary.
- Please do not tick anything off on the actual card, the assessing adult will do that at school.
- Have fun ☺

Ten Minutes of Maths

- We introduced this to support the first aim of the national curriculum:

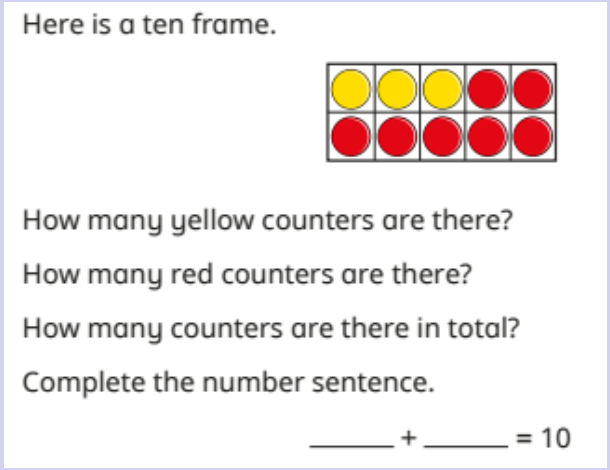
> - become fluent in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately

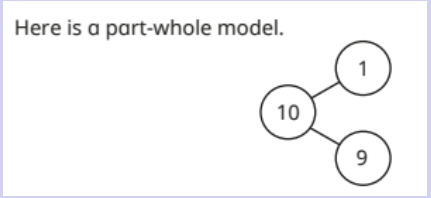
- Happens at a different time to the daily maths lesson.
- Focuses on number fluency:

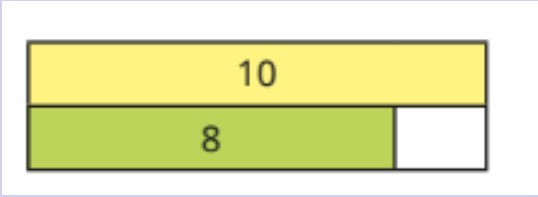
  - Year 1: TMM will be dedicated to number bonds.
  - Year 2: TMM will be dedicated to number bonds and times tables (x2, x5, x10).
  - Year 3 & 4: TMM will be dedicated to times tables.
  - Year 5 & 6: TMM is dependent on current needs of the class.

What are number bonds?

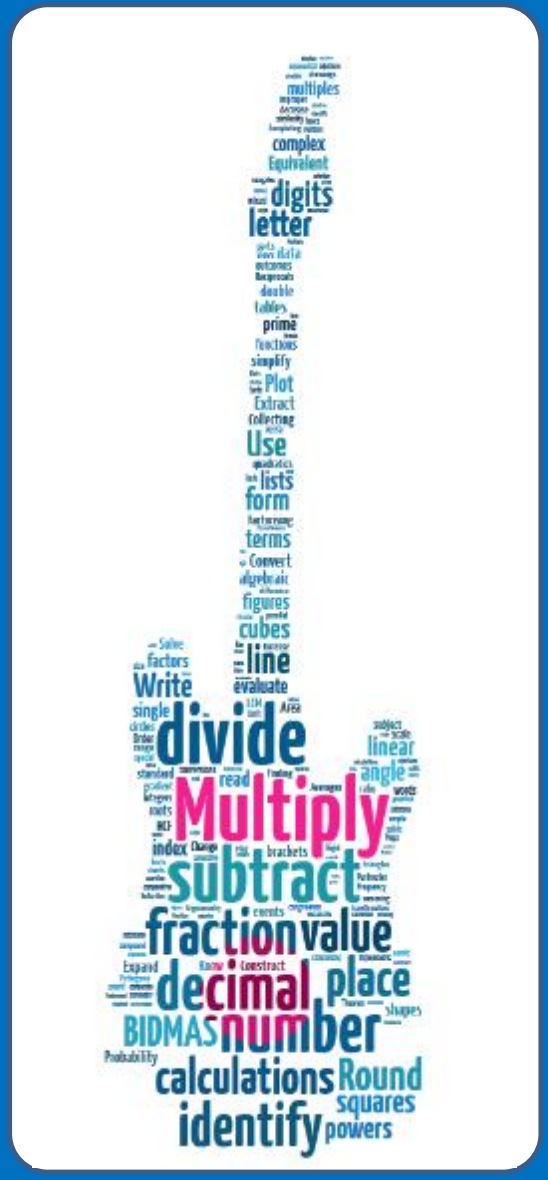
- Number bonds, are pairs of numbers that add to give a certain answer.
- In KS1, children will learn to rapidly recall their number bonds to 10 and 20. They then use these facts to work out their bonds to 100.
- E.g
  - 6 + 4 = 10
  - 16 + 4 = 20
  - 60 + 40 = 100
  - 65 + 35 = 100







The times tables are the basics of maths. If you know the basics, the rest becomes much much easier.

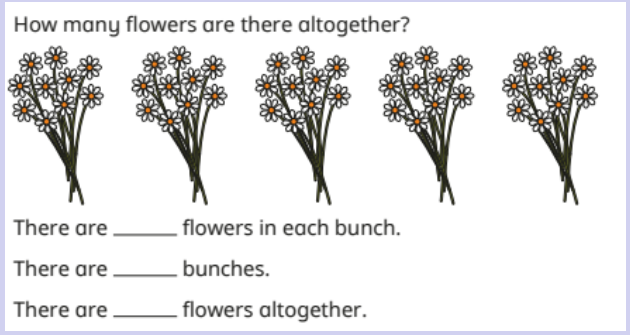


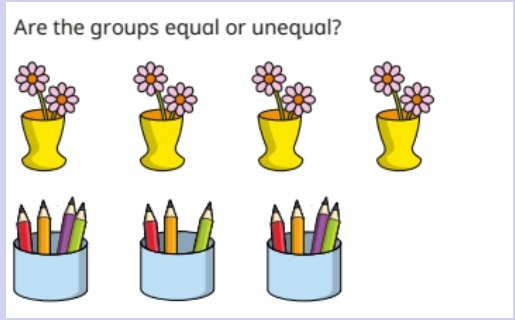
End of year expectations:

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
x / ÷	-Solve 1 step problems involving x using objects, representations and arrays with support of the teacher. (Same for ÷)	-Recall and use multiplication and division facts for the **2, 5 and 10** multiplication tables...	-Recall and use multiplication and division facts for the **3, 4 and 8** multiplication tables. -Write and calculate for and ÷...progressing to formal written methods.	-Recall multiplication and division facts for multiplication **tables up to 12 x 12** -Multiply two-digit and three-digit numbers by a one-digit number using formal written layout.	-Multiply numbers up to 4 digits by a 1 or 2 digit number using a formal written method, including long multiplication for 2-digit numbers. -Divide numbers up to 4 digits by a 1 digit using short division.	-Multiply multi-digit numbers up to 4 digits by a 2 digit whole number using long multiplication . -Divide numbers up to 4 digits by a 2-digit number using long division. -Divide numbers up to 4 digits by a 2-digit number using short division.

End of year 1: Solve 1 step problems involving x using objects, representations and arrays with support of the teacher. (Same for ÷)

In year 1, for multiplication and division, the focus is on counting in steps of 2, 5 and 10; recognising equal groups; repeated addition; doubling; grouping and sharing. It is not until they move into year 2 where the multiplication and division symbol is used.





Year 4 Multiplication check

From June 2020, all pupils at the end of year 4 in England will take an online multiplication tables check (MTC).

The national curriculum specifies that pupils at this stage should be able to recall the multiplication tables up to and including 12x12.

The check aims to support pupils to master multiplication skills, which are essential for future success in mathematics. It will help to identify pupils who have not yet mastered this mathematical concept, so additional support can be provided.

Schools will have a window for administration, similar to the phonics screening check at the end of year 1. Teachers will have the flexibility to administer the check to individual pupils, small groups or the whole class at the same time.

Once the check is introduced, pupils' check results will be available to schools via the MTC system and the Analyse School Performance (ASP) service. Assessment data will be published at national and local authority level only, not at school level.

Year 4 Multiplication check

Held the first week of June.

The MTC is an on-screen check consisting of 25 times tables questions.

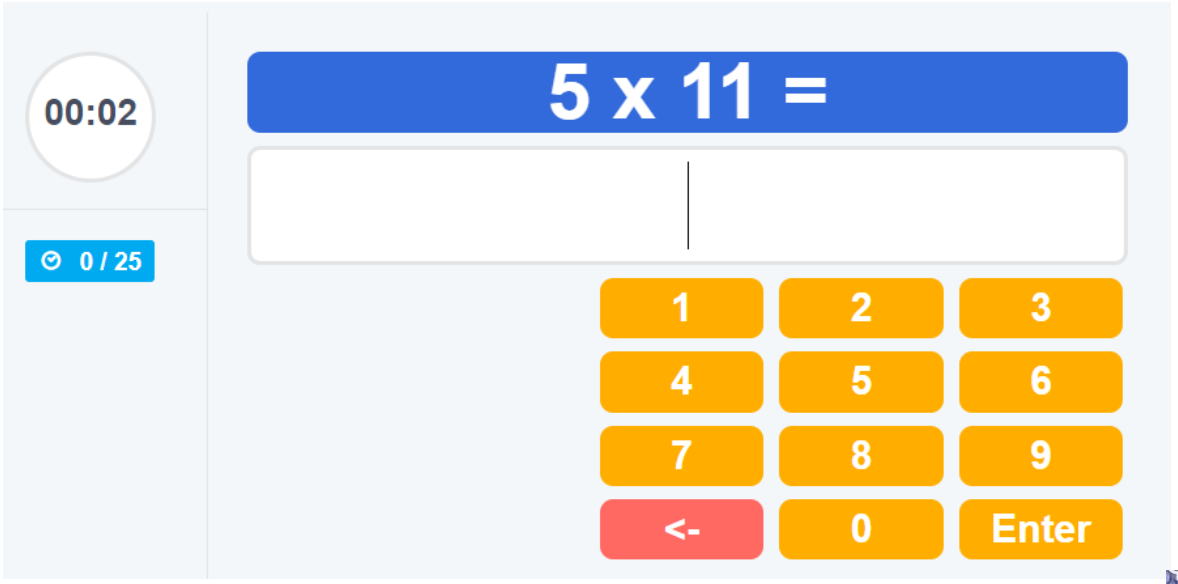
Your child will answer 3 practice questions before moving on to the official check and is then given 6 seconds to answer each question.

On average, the check takes no longer than 5 minutes to complete. Pupils are asked to answer 25 questions on times tables from two to 12. Q

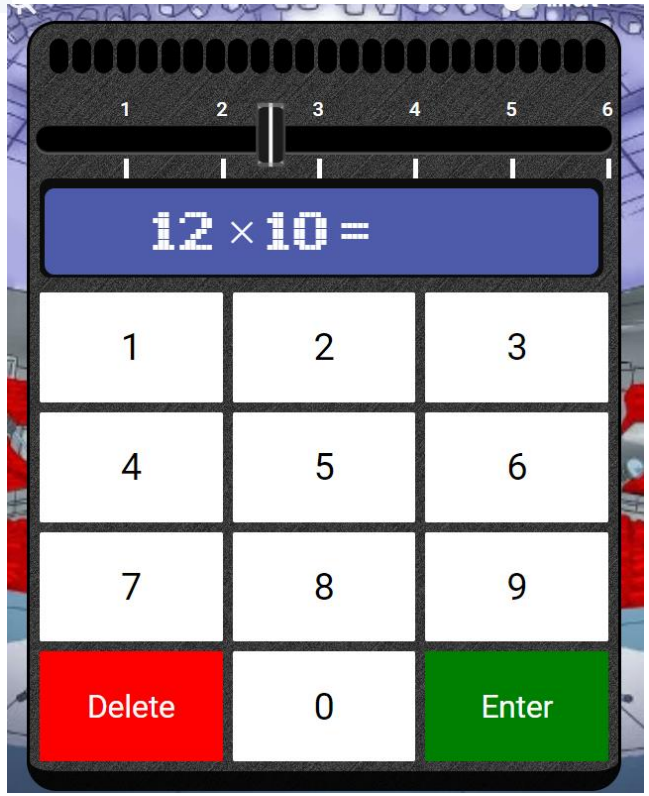
Questions about the six, seven, eight, nine, and 12 times tables come up most often, as these are the hardest for most children to learn.

There is no pass mark for this.

Results are included in the end of year report.



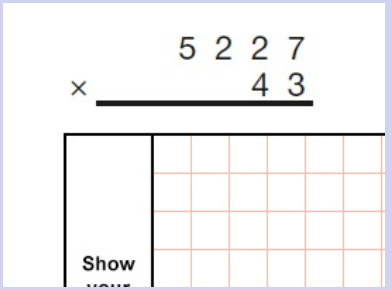
https://www.timestables.co.uk/multiplication-tables-check/

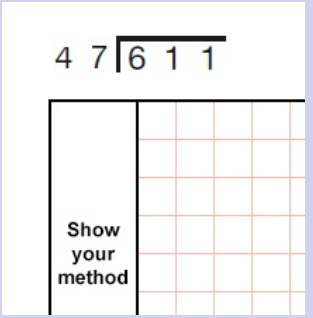


Times Table RockStars
Sound check

Year 6 SATS

- There are three papers:
  - X1 arithmetic paper 30 mins



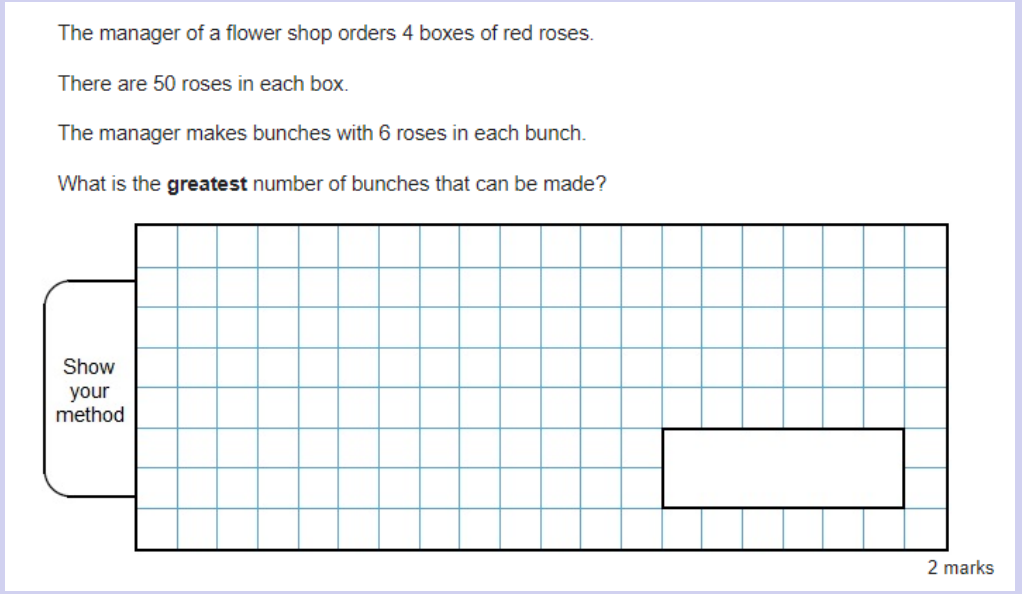


$3.2 \times 12 =$ ☐

$\frac{2}{7} \times \frac{5}{9} =$ ☐

52% of 700 = ☐

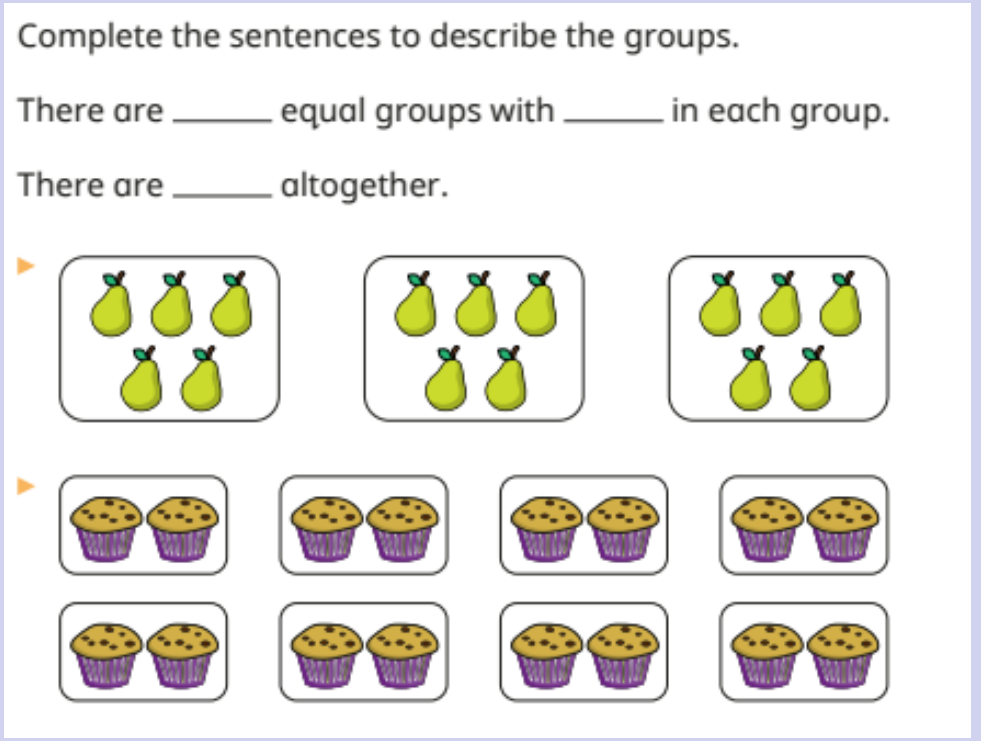
  - X2 problem solving and reasoning papers. 40 mins.



How do we teach multiplication and division?

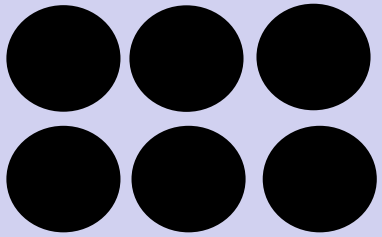
How do we teach multiplication and division?:

Using pictures of objects that are in groups.
Looking at the link between multiplication and repeated addition and the link between division and repeated subtraction.



How do we teach multiplication and division?:

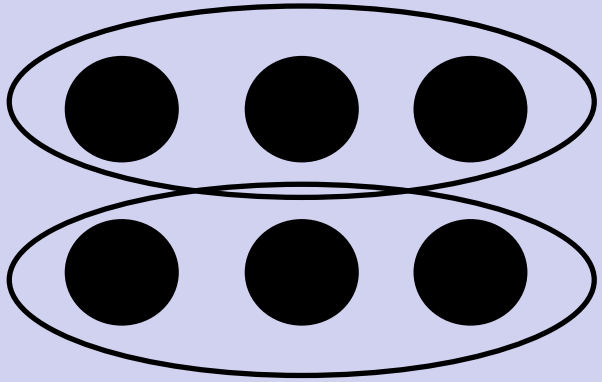
Using arrays- This is where the counters are arranged in rows/ columns.

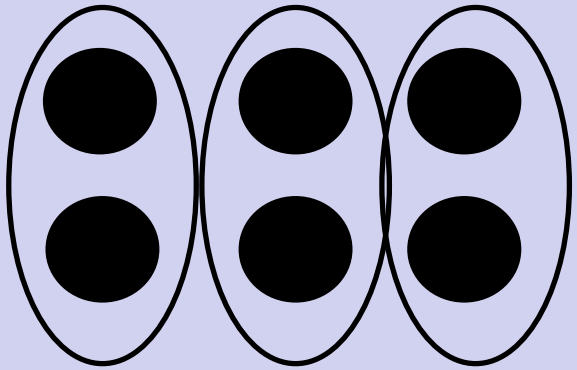


2 x 3

OR

6 ÷ 2

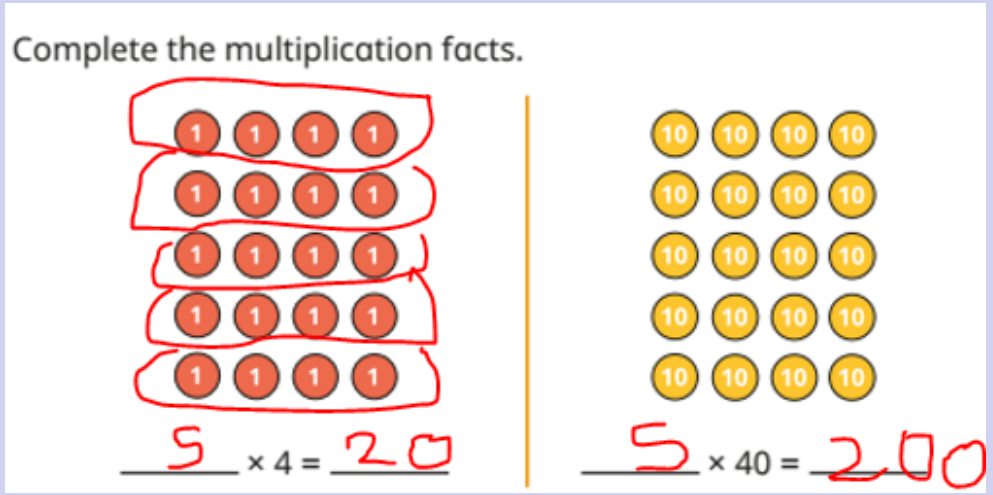




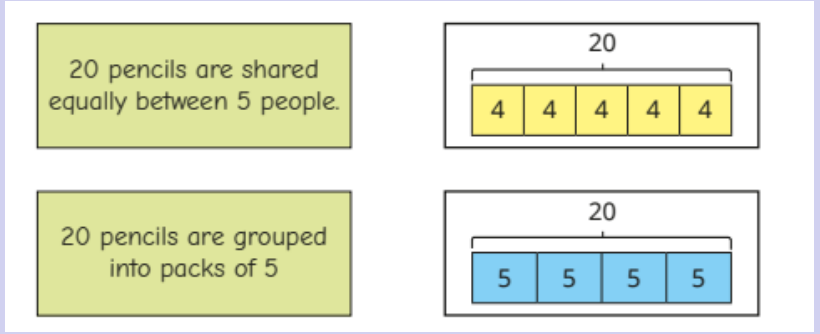
3 x 2 OR 6 ÷ 3 = 2

How do we teach multiplication and division?:

When looking at related calculations we can continue to look at arrays but with place value counters



We also use bar modelling:



How do we teach multiplication and division?:

We explore patterns:

Here is a hundred 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

Circle the multiples of 5

Colour the multiples of 10

What do you notice?

- Colour the multiples of 2 in the grid.

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

What do you notice?

How do we teach multiplication and division?:

We use daily Ten Minute Maths sessions to focus on number fluency and times table and division facts.

- Write the 3 x
- Challenge speed
- Table facts
- 6 x 3 = 18

60 x 3 = 180

60 x 30 = 1800

0.6 x 3 = 1.8

Example of variation

Name Date

5 MULTIPLICATION – 5 TIMES TABLE SHEET 2

All these questions involve using the 5 times tables to work out these missing multiplication facts.

1) 5 x ___ = 10
2) ___ x 5 = 25
3) 5 x 10 = ___
4) 3 x 5 = ___
5) ___ x 5 = 5
6) 5 x ___ = 30
7) 9 x 5 = ___
8) ___ x 5 = 0
9) 5 x ___ = 40
10) ___ x 5 = 20
11) 5 x 7 = ___
12) ___ x 5 = 15
13) 5 x ___ = 45
14) 5 x 5 = ___
15) ___ x 5 = 35
16) 5 x 8 = ___
17) ___ x 5 = 50
18) 5 x = 15

Can you change any of these multiplication fa

Name:

Date:

MISSING NUMBERS 3

Practise 8s

1. ___ × 8 = 88	21. ___ × 8 = 32	41. ___ × 8 = 8
2. ___ × 8 = 96	22. ___ × 12 = 96	42. ___ × 11 = 88
3. ___ × 7 = 56	23. ___ × 8 = 64	43. ___ × 8 = 64
4. ___ × 8 = 40	24. ___ × 7 = 56	44. ___ × 9 = 72
5. ___ × 9 = 72	25. ___ × 5 = 40	45. ___ × 8 = 72
6. ___ × 6 = 48	26. ___ × 6 = 48	46. ___ × 8 = 80
7. ___ × 8 = 48	27. ___ × 8 = 16	47. ___ × 8 = 32
8. ___ × 4 = 32	28. ___ × 1 = 8	48. ___ × 2 = 16
9. ___ × 9 = 72	29. ___ × 8 = 80	49. ___ × 1 = 8
10. ___ × 3 = 24	30. ___ × 8 = 88	50. ___ × 8 = 64
11. ___ × 8 = 16	31. ___ × 9 = 72	51. ___ × 6 = 48
12. ___ × 1 = 8	32. ___ × 4 = 32	52. ___ × 4 = 32
13. ___ × 8 = 8	33. ___ × 8 = 24	53. ___ × 8 = 40
14. ___ × 8 = 80	34. ___ × 8 = 80	54. ___ × 8 = 56
15. ___ × 8 = 88	35. ___ × 8 = 24	55. ___ × 9 = 72
16. ___ × 7 = 56	36. ___ × 5 = 40	56. ___ × 8 = 88
17. ___ × 5 = 40	37. ___ × 8 = 72	57. ___ × 12 = 96
18. ___ × 8 = 64	38. ___ × 4 = 32	58. ___ × 8 = 96
19. ___ × 8 = 32	39. ___ × 8 = 8	59. ___ × 8 = 56
20. ___ × 8 = 56	40. ___ × 6 = 48	60. ___ × 9 = 72

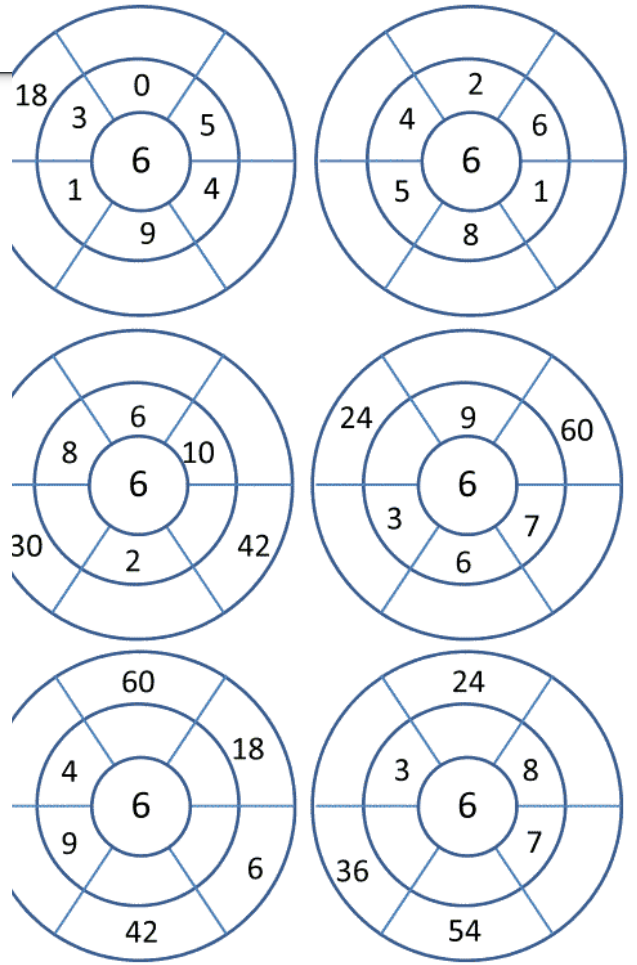
SCORE:

Grown-ups:
Can learners spot links between neighbouring questions?

Name Date

6 TIMES TABLE - TARGET CIRCLES

Multiply the middle number by the inner numbers together to get the outer numbers.



How do we teach multiplication and division?:

Games:

- Bingo
- Hit the Button https://www.topmarks.co.uk/maths-games/hit-the-button
- Fizz-Buzz
- Board games
- Code breaker

TIMES TABLES ROCK STARS



https://ttrockstars.com/

Single Player	
Jamming 4 or 8 coins/correct answer	The only game mode without a timer, players chose the table and operation (× or ÷ or both) they want to practise. Answer 10, 20 or 30 questions.
Gig 10 coins per correct answer	Gig games last 5 minutes and contain up to 100 questions, which come in 'waves', starting with the 10s, then the 2s, 5s, 3s, 4s, 8s, 6s, 7s, 9s, 11s and 12s. Novices are not expected to get past the 5s. Gigs provide the child (and their teacher) with a simple measure of their current skills, which is why learners should concentrate fully for the whole Gig as they won't get another try until next month.
Garage 10 coins per correct answer	Players are given a personalised set of 6 multiplication questions (and their matching division questions) in each round. The questions they get keep adjusting to provide the best fit for every learner's needs. This is probably the best game made for improving their recall while they're still learning.
Studio 1 coin per correct answer	Here your child earns their Rock Status, which is based on their Studio Speed. The faster they are the better their status. Studio Speed is the average of their most recent 10 Studio games. Suitable for confident players.
Soundcheck 5 coins per correct answer	Soundcheck games ask 25 multiplication questions (up to 12×12), allowing 6 seconds for each question. Suitable for confident players.

Multi Player	
Festival 1 coin per correct answer	Children compete against others from around the world, with their identities protected behind their rock names. Suitable for confident players.
Arena 1 coin per correct answer	Children race against other members of their class who are logged in and choose the same arena name at the same time. Arena games use the same smart question algorithm as Garage games.
Rock Slam 1 coin per correct answer	Players challenge their classmates or teachers to answer as many questions as they can in 60 seconds, setting a score for the challengee to beat. Pupils don't need to be online at the same time.
Tournaments	**Battle of the Bands** – groups of children within the same school (usually classes, year groups or teams) compete to have the highest *average* score per player. **Top of the Rocks** – like a Battle of the Bands *between* schools. The winning class or school is the one with the most correct answers per person. **Important**: Each correct answer (in any game mode) earns 1 point towards the team's total in addition to the coins earned. For example, in Garage games each correct answer is worth 1 point for the team and 10 coins for the player.

Classroom visit

- You will now have an opportunity to visit the classrooms to see and take part in activities with your child. Feel free to also visit year 6 to see Times Table Rock Stars in action.
- What to expect:
  - There may be different activities for groups of children OR a whole class activity.
  - Some children may be working with adults.
  - All activities will involve either multiplication, division or both.

Please remember:

- This is your child's learning time.
- You can approach your child, take part in the activities with them and ask him/her questions on their learning.
- Please speak quietly to each other/ your child.
- If you have any questions about what you've seen, write it on a post-it note and we can discuss it in our feedback.
- If you see any activities or websites that you would actually like to use at home, jot it on your post-it note for your reference.
- Please do not visit foundation stage.

Any questions/ Feedback

On your way out, please feel free to ask me any questions and leave feedback on a post-it note. If there are other areas of the curriculum you would like a workshop on, please pop it on a post-it notes and stick it on the poster.

Feedback