

Riddle

- ▶ If $66 = 2$, $99 = 2$, $888 = 6$, $00 = 2$, $7777 = 0$,
 $667 = 2$, $276 = 1$, $833 = 2$, then what does
 2876 equal?

Answer

- ▶ Three. Each circle within a number is equivalent to one. For example, the numbers 9 and 6 are equivalent to one because they have one circle in them, whereas the number 8 is equal to 2 because of its two loops.



NumBots/TTRockstars Meeting

MONDAY 8TH NOVEMBER 2021

Aims

- ▶ Mathematical fluency
- ▶ How KS1 curriculum links to NumBots
- ▶ Logging on to NumBots
- ▶ Times tables curriculum links
- ▶ TTRockstars app/website

Mathematical Fluency

- ▶ Fluency is at the centre of the National Curriculum for maths.
- ▶ Refers to knowing key mathematical facts and methods and recalling them efficiently e.g. number bonds to 10 or 20, multiplication and division facts.
- ▶ It also means being able to work flexibly and choose the most appropriate method to solve a problem e.g. 15×7

Mathematical Fluency

- ▶ Fluency in key number facts avoids cognitive overload.
- ▶ E.g:

	tens	ones
	4	5
+	4	4
<hr/>		
<hr/>		

	7	8	9
+	6	4	2
<hr/>			
1	4	3	1
<hr/>			
	1	1	

KS1 National Curriculum - Y1

Addition and Subtraction

- read, write and interpret mathematical statements involving addition (+), subtraction (−) and equals (=) signs
- represent and use number bonds and related subtraction facts within 10
- understand the relationship between addition and subtraction, including zero
- solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as $7 = \square - 9$.

KS1 National Curriculum – Y2 Addition and Subtraction

Pupils should be taught to:

- 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
- understand addition and subtraction relationships and the inverse relationship between addition and subtraction
- add and subtract numbers using concrete objects, pictorial representations, and mentally, including:
 - a two digit number and ones
 - a two digit number and tens
 - tens and ones
 - tens and tens
- show that addition and subtraction are inverse operations (e.g. $5 + 3 = 8$ and $8 - 3 = 5$) and that the order of operations does not matter
- recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve problems.

NumBots



- ▶ NumBots is an online game/app (free)
<https://play.numbots.com/?#/intro>
- ▶ Playing NumBots will significantly improve your child's recall and understanding of number bonds/addition and subtraction facts
- ▶ Little and often – short bursts of 5 minutes (4-5 times a week)

NumBots



- ▶ Launch it in Y1 – children continue to access it in Y2 and beyond
- ▶ Y1 children will be bringing their username and password home (same one for TTRockstars)
- ▶ Learning through play!

NumBots



- ▶ Game Types
- ▶ Story Mode – the emphasis is on learning the ideas and concepts behind addition and subtraction so it features more diagrams and different question styles.
- ▶ Challenge Mode – the emphasis is more on speed of recall of key facts, like number bonds to 10, doubling small numbers or adding & subtracting in your head.

Story Mode

These are called Stages.
There are 18 Stages.



Challenge Mode

20 levels

Different skills

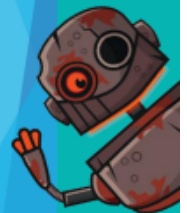
60 seconds



Correctly answer as many as you can

Correctly answering 12 questions unlocks next level

[Menu]



NumBots + National Curriculum

ADDING & SUBTRACTING

The first panel shows a number 10 in a circle with arrows indicating '3 more' to the right and '3 less' to the left. The second panel shows a number line from 10 to 16 with a green dashed arrow from 10 to 13 and a red solid arrow from 13 to 16, representing $10 + 3 = 13$ and $13 + 3 = 16$. The third panel shows 10 orange blocks plus 4 blue blocks, representing $10 + 4 = 14$. The fourth panel shows the equation $10 + 4 - 1 = ?$.

NUMBER BONDS

The first panel shows a number bond for 10 with a question mark in one of the parts, representing $10 - 5 = ?$. The second panel shows a number bond for 10 with 3 in one part and 7 in another, representing $10 = 3 + 7 = 10$. The third panel shows a bar model with 10 blue blocks and 2 orange blocks, representing $10 + 2 = ?$. The fourth panel shows a number line with 7 yellow blocks and 2 orange blocks, representing $7 + 2 = ?$.

COUNTING

The first panel shows 3 blue blocks and 2 yellow blocks, representing $3 + 2 = ?$. The second panel shows a number line from 0 to 8 with red arrows indicating jumps of 2, representing $2 + 2 = 4$ and $4 + 2 = 6$. The third panel shows 10 blue blocks plus 5 blue blocks, representing $10 + 5 = ?$. The fourth panel shows a 10x10 grid with the number 10 highlighted in the first row, representing counting to 100.

Numbots

Let's take a tour.

Times Tables Rockstars

Year 1

Statutory requirements

upils should be taught to:

solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher.

Year 2

Statutory requirements

Pupils should be taught to:

- recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers
- calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (\times), division (\div) and equals ($=$) signs
- show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot
- solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts.

Year 3

Number – multiplication and division

Statutory requirements

Pupils should be taught to:

- recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables
- write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods
- solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects.

Year 4

Statutory requirements

Pupils should be taught to:

- recall multiplication and division facts for multiplication tables up to 12×12
- use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers
- recognise and use factor pairs and commutativity in mental calculations
- multiply two-digit and three-digit numbers by a one-digit number using formal written layout
- solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects.

Year 5

Number – multiplication and division

Statutory requirements

Pupils should be taught to:

- identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers
- know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers
- establish whether a number up to 100 is prime and recall prime numbers up to 19
- multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers
- multiply and divide numbers mentally drawing upon known facts
- divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context
- multiply and divide whole numbers and those involving decimals by 10, 100 and 1000

Year 6

Statutory requirements

Pupils should be taught to:

- multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication
- divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context
- divide numbers up to 4 digits by a two-digit number using the formal written method of short division where appropriate, interpreting remainders according to the context
- perform mental calculations, including with mixed operations and large numbers
- identify common factors, common multiples and prime numbers
- use their knowledge of the order of operations to carry out calculations involving the four operations
- solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why

TimesTables Rockstars

- ▶ The website allows the children to practise their times tables through a competitive element.
- ▶ When you log on, you can select different areas known as arenas to complete a range of times table tests.
- ▶ As the teacher, we can set the times tables which we want the children to be able to access.
- ▶ Coins can be exchanged for a range of items for your TT Rock star character.

What is Times Table Rock Stars?

- ▶ Times Tables Rock Stars is a carefully sequenced programme of daily times tables practise. Each week concentrates on a different times table, with a recommended consolidation week for rehearsing the tables that have recently been practised every third week or so.

Aims

the programme has one aim - to boost times table recall speeds.

Benefits

- ▶ Incorrect answers are always immediately corrected in front of the pupil so that they start to associate the correct answer to every question.
- ▶ The clever code behind the scenes works out which times tables facts each pupil is consistently taking longer to answer and then it gradually starts to present these facts more frequently until pupils have mastered them.
- ▶ It will also ask related division questions 20% of the time in order to reinforce division facts

Website

- ▶ [Times Tables Rock Stars \(ttrockstars.com\)](http://ttrockstars.com)
- ▶ Or download the app
- ▶ Lets have a tour!