



PARENT'S EVENING MATHS PACK

YEAR 5

In this pack you will find:

- An explanation of the Power Maths approach, which we use to teach our daily maths lessons in school.
- A list of the topics your child will cover in Power Maths.
- A copy of the basic skills objectives your child will cover.
 - A copy of the calculation policy, demonstrating the calculation methods your child will be using in class.
- An explanation of why we use Times Tables Rockstars and how to login at home and use it.



Dear parents,

We use a maths scheme called *Power Maths* to support our daily teaching of maths.

What is *Power Maths*?

Power Maths is a resource that has been designed for UK schools based on research and extensive experience of teaching and learning around the world and here in the UK. It has been designed to support and challenge all pupils, and is built on the belief that EVERYONE can learn maths successfully.

How does this support our approach to teaching?

The philosophy behind *Power Maths* is that being successful in maths is not just about rote-learning procedures and methods, but is instead about problem solving, thinking and discussing. It is about learning a range of methods to solve one problem, and about picking the most efficient method. Many people feel they were taught maths in a way that was about memorising formulas and calculation methods, then having to apply them without any real understanding of what or how these methods actually work. *Power Maths* includes practice questions to help children develop fluent recall and develop their conceptual understanding. *Power Maths* uses growth mindset characters to prompt, encourage and question children. They spark curiosity, engage reasoning, secure understanding and deepen learning for all.

How will the lessons work?

Each lesson has a progression, with a central flow that draws the main learning into focus. There are different elements, informed by research into best practice in maths teaching, that bring the lessons to life:

- **Basic skills**- the children revisit a topic they have been studying previously. The concept will be modelled to them and they will answer some questions relating to it.
- **Discover** – each lesson begins with a problem to solve, often a real-life example, sometimes a puzzle or a game. These are engaging and fun, and designed to get all children thinking.
- **Share** – the class shares their ideas and compares different ways to solve the problem, explaining their reasoning with hands-on resources and drawings to make their ideas clear. Children are able to develop their understanding of the concept with input from the teacher.
- **Think together** – the next part of the lesson is a journey through the concept, digging deeper and deeper so that each child builds on secure foundations

while being challenged to apply their understanding in different ways and with increasing independence.

- **Practice** – now children practice individually or in small groups, rehearsing and developing their skills to build fluency, understanding of the concept and confidence.
- **Reflect** – finally, children are prompted to reflect on and record their learning from each session and show how they have grasped the concept explored in the lesson.

What if my child needs a confidence boost, or wants to be challenged further?

Power Maths is based on a 'small-steps' approach, sometimes called a mastery approach. This means that the concepts are broken down so that your child can master one idea without moving on too quickly or feeling over-whelmed. There are a range of fluency, reasoning and problem solving questions in each lesson that are designed to support the different needs and confidence levels within a class, while at the same time fostering a spirit of working and learning together. Each lesson includes a challenge question for those children who can delve deeper into a concept.

How are we approaching the catch up curriculum after the extended 2020 and 2021 lockdowns?

This year, we have introduced basic skills sessions three days a week to address any mathematical gaps the pupils may be facing. A basic skills session is a fifteen minute mini lesson that comes before the main maths lesson. It comprises of counting, modelling and practice of a key mathematical skill. These sessions will allow repeated modelling and practice of the mathematical facts and the pictorial, mental and written calculation methods that the pupils need to feel confident with to be able to fully access the rest of the maths curriculum.

To further boost pupils' arithmetic skills, we have purchased a scheme of arithmetic questions for each year group and the pupils will also be working on these questions one day a week before their maths lesson to boost their confidence with calculations. As a school, we are also having a focus on times tables recall. We have completed a baseline assessment of the children's times tables recall and will be using some of our maths lesson time, possibly alongside small-group interventions, to teach the times tables that pupils are less confident with. Teachers will alter TT Rockstars throughout the year to support your child with practising their target times tables at home.

Please do not hesitate to contact me through the school office if you have any questions about maths at Booker.

Best wishes,
Mrs Moody, Maths Lead.

Power maths topics Year 5:

Textbook	Strand	Unit		Number of Lessons
Textbook A / Practice Book A (Term 1)	Number – number and place value	1	Place value within 100,000	8
	Number – number and place value	2	Place value within 1,000,000	8
	Number – addition and subtraction	3	Addition and subtraction	10
	Statistics	4	Graphs and tables	5
	Number – multiplication and division	5	Multiplication and division (1)	10
	Measurement	6	Measure – area and perimeter	7
Textbook B / Practice Book B (Term 2)	Number – multiplication and division	7	Multiplication and division (2)	11
	Number – fractions (including decimals and percentages)	8	Fractions (1)	8
	Number – fractions (including decimals and percentages)	9	Fractions (2)	12
	Number – fractions (including decimals and percentages)	10	Fractions (3)	7
	Number – fractions (including decimals and percentages)	11	Decimals and percentages	12
Textbook C / Practice Book C (Term 3)	Number – fractions (including decimals and percentages)	12	Decimals	15
	Geometry – properties of shapes	13	Geometry – properties of shapes (1)	7
	Geometry – properties of shapes	14	Geometry – properties of shapes (2)	5
	Geometry – position and direction	15	Geometry – position and direction	4
	Measurement	16	Measure – converting units	10
	Measurement	17	Measure – volume and capacity	4

Basic skills objectives Year 5:

Year 5 basic skills

Count forward and backwards in steps of powers of 10 for any given number up to 1,000,000

Read and write numbers up to 1,000,000 and determine the place value of each digit

Recognise the place value in large whole numbers to at least 1,000, 000

Compare and order numbers to at least 1,000, 000

Partition numbers into place value columns

Partition numbers in different ways

Round any number up to 1, 000, 000 to the nearest 10, 100, 1000, 10, 000 and 100, 000

Use rounding to support estimation and calculation

Use knowledge of place value to derive new addition and subtraction facts

Identify multiples and common factors of two more numbers

Find factor pairs of a two-digit number

Understand the terms of multiple, factor, and prime, square and cube numbers and use them to construct equivalent statements

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

Can find the prime factors of a given number

Read and recognise Roman numerals up to 1000

Recognise and use square and cube numbers

Double any number between 1 and 1000 and find all corresponding halves

Add and subtract mentally with increasingly large numbers to aid fluency e.g. TthTHTU \pm THTU, TthTHTU \pm HTU, HTU.t \pm HTU.t

Multiply and divide whole number including those involving decimals by 10, 100 and 1000

Use knowledge of inverse to derive associated multiplication and division facts

Use known facts and knowledge of multiples to drive new facts

Count up and down in tenths, hundredths and thousandths in decimals and fractions including bridging zero

For fractions and decimals derive pairs with complements to 1 and to the other whole numbers

Identify equivalent fractions

Recognise decimal equivalents

Recognise decimal equivalents of fractions with a denominator of ten, one hundred and one thousand

Read and write decimal numbers with up to 3 decimal places as fractions

Read, write, order and compare numbers with up to three decimal places

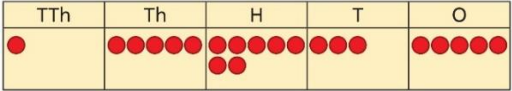
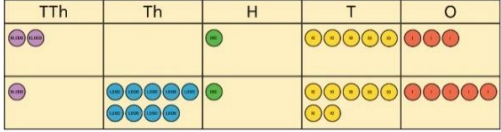
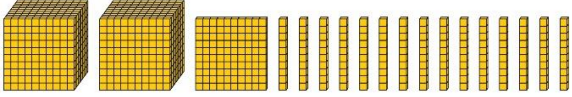
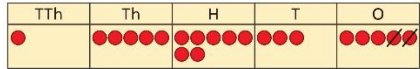
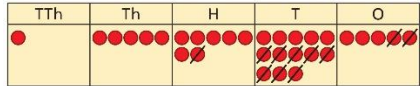
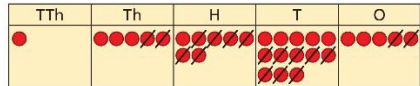
Round decimals with up to two decimal places to the nearest whole number and to one decimal place

Know percentage and a decimal equivalents of $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{5}$, $\frac{2}{5}$, $\frac{4}{5}$, and those fractions with a denominator and a multiple of 10 or 25

Use knowledge of complements to 60 and that there are 60 minutes in an hour to convert time durations



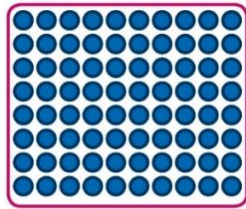
Power Maths calculation policy, UPPER KS2

<p>Column addition with whole numbers and decimals</p>	<p>Use place value equipment to represent additions.</p> <p><i>Add a row of counters onto the place value grid to show 15,735 + 4,012.</i></p> 	<p>Represent additions, using place value equipment on a place value grid alongside written methods.</p>  <p><i>I need to exchange 10 tens for a 100.</i></p> $\begin{array}{r} \text{TTh} \text{ Th} \text{ H} \text{ T} \text{ O} \\ 2 \ 0 \ 1 \ 5 \ 3 \\ + 1 \ 9 \ 1 \ 7 \ 5 \\ \hline 3 \ 9 \ 3 \ 2 \ 8 \end{array}$	<p>Use column addition, including exchanges. Use place value columns to line up questions correctly.</p> $\begin{array}{r} \text{TTh} \text{ Th} \text{ H} \text{ T} \text{ O} \\ 1 \ 9 \ 1 \ 7 \ 5 \\ + 1 \ 8 \ 4 \ 1 \ 7 \\ \hline 3 \ 7 \ 5 \ 9 \ 2 \\ \hline \end{array}$ $\begin{array}{r} \text{O} \cdot \text{Tth} \text{ Hth} \\ 0 \cdot 2 \ 3 \\ + 0 \cdot 4 \ 5 \\ \hline 0 \cdot 6 \ 8 \end{array}$
<p>Column subtraction with whole numbers and decimals</p>	<p>Use place value equipment to understand where exchanges are required.</p> <p>$2,250 - 1,070$</p> 	<p>Represent the stages of the calculation using place value equipment on a grid alongside the calculation, including exchanges where required.</p> <p>$15,735 - 2,582 = 13,153$</p>  $\begin{array}{r} \text{TTh} \text{ Th} \text{ H} \text{ T} \text{ O} \\ 1 \ 5 \ 7 \ 3 \ 5 \\ - 2 \ 5 \ 8 \ 2 \\ \hline 3 \end{array}$ <p>Now subtract the 10s. Exchange 1 hundred for 10 tens.</p>  $\begin{array}{r} \text{TTh} \text{ Th} \text{ H} \text{ T} \text{ O} \\ 1 \ 5 \ 7 \ 3 \ 5 \\ - 2 \ 5 \ 8 \ 2 \\ \hline 5 \ 3 \end{array}$ <p>Subtract the 100s, 1,000s and 10,000s.</p>  $\begin{array}{r} \text{TTh} \text{ Th} \text{ H} \text{ T} \text{ O} \\ 1 \ 5 \ 7 \ 3 \ 5 \\ - 2 \ 5 \ 8 \ 2 \\ \hline 1 \ 3 \ 1 \ 5 \ 3 \end{array}$	<p>Use column subtraction methods with exchange where required. Use place value columns to line up questions correctly.</p> $\begin{array}{r} \text{TTh} \text{ Th} \text{ H} \text{ T} \text{ O} \\ 5 \cancel{8} \ 1 \cancel{2} \ 1 \ 0 \ 9 \ 7 \\ - 1 \ 8 \ 5 \ 3 \ 4 \\ \hline 4 \ 3 \ 5 \ 6 \ 3 \end{array}$ <p>$62,097 - 18,534 = 43,563$</p> $\begin{array}{r} \text{O} \cdot \text{Tth} \text{ Hth} \text{ Thth} \\ 3 \cdot 9 \ 2 \ 1 \\ - 3 \cdot 7 \ 5 \ 0 \\ \hline \end{array}$

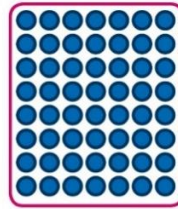
Multiplying up to 4-digit numbers by a single digit

Explore how to use partitioning to multiply efficiently.

$8 \times 17 = ?$



$8 \times 10 = 80$



$8 \times 7 = 56$

$80 + 56 = 136$

So, $8 \times 17 = 136$

Represent multiplications using place value equipment and add the 1s, then 10s, then 100s, then 1,000s.

	H	T	O
1000			
100	1		
10		10	10
1			1

Use an area model and then add the parts.

	100	60	3
5	$100 \times 5 = 500$	$60 \times 5 = 300$	$3 \times 5 = 15$

Use a column multiplication, including any required exchanges.

$$\begin{array}{r} 136 \\ \times 6 \\ \hline 816 \\ \underline{23} \end{array}$$

Multiplying 2-digit numbers by 2-digit numbers

Partition one number into 10s and 1s, then add the parts.

$23 \times 15 = ?$



$10 \times 15 = 150$



$10 \times 15 = 150$



$3 \times 15 = 45$

There are 345 bottles of milk in total.

$$\begin{array}{r} \text{H T O} \\ 150 \\ 150 \\ + 45 \\ \hline 345 \end{array}$$

$23 \times 15 = 345$

Use an area model and add the parts.

$28 \times 15 = ?$

	20 m	8 m	
10 m	$20 \times 10 = 200 \text{ m}^2$	$8 \times 10 = 80 \text{ m}^2$	
5 m	$20 \times 5 = 100 \text{ m}^2$	$8 \times 5 = 40 \text{ m}^2$	

$28 \times 15 = 420$

Use column multiplication, ensuring understanding of place value at each stage.

$$\begin{array}{r} 34 \\ \times 27 \\ \hline 238 \end{array} \quad 34 \times 7$$

$$\begin{array}{r} 34 \\ \times 27 \\ \hline 238 \\ \underline{680} \end{array} \quad 34 \times 20$$

$$\begin{array}{r} 34 \\ \times 27 \\ \hline 238 \\ \underline{680} \\ \underline{918} \end{array} \quad \begin{array}{l} 34 \times 7 \\ 34 \times 20 \\ 34 \times 27 \end{array}$$

Dividing up to four digits by a single digit using short division

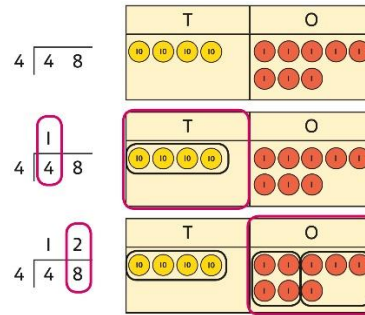
Explore grouping using place value equipment.

$$268 \div 2 = ?$$

*There is 1 group of 2 hundreds.
There are 3 groups of 2 tens.
There are 4 groups of 2 ones.*

$$264 \div 2 = 134$$

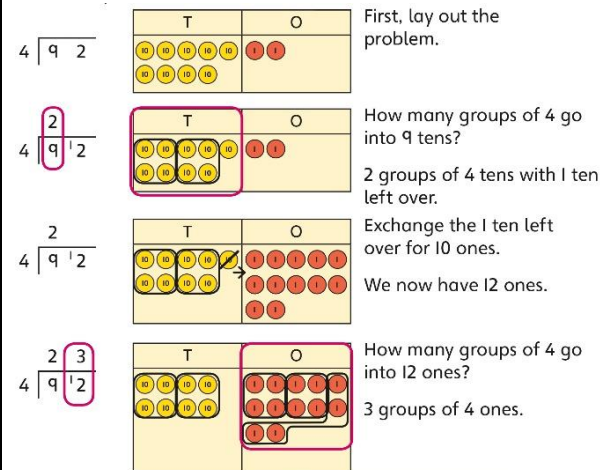
Use place value equipment on a place value grid alongside short division. The model uses grouping. A sharing model can also be used, although the model would need adapting.



Lay out the problem as a short division.

*There is 1 group of 4 in 4 tens.
There are 2 groups of 4 in 8 ones.*

Work with divisions that require exchange.



Use short division for up to 4-digit numbers divided by a single digit.

$$\begin{array}{r} 0556 \\ 7 \overline{) 3892} \end{array}$$

$$3,892 \div 7 = 556$$

Use multiplication to check.

$$556 \times 7 = ?$$

$$6 \times 7 = 42$$

$$50 \times 7 = 350$$

$$500 \times 7 = 3500$$

$$3,500 + 350 + 42 = 3,892$$

TIMES TABLES ROCKSTARS

Your child should have a code to login to Times Tables Rockstars at home. This tool will help them with their times tables.

Goal

When it comes to times tables, speed AND accuracy are important – the more facts your child remembers, the easier it is for them to do harder calculations.

Times Table Rock Stars is a fun and challenging programme designed to help students master the times tables!

To be a Times Table Rock Star you need to answer any multiplication fact up to 12×12 in less than 3 seconds!

Logging in to Times Tables Rock Stars

1

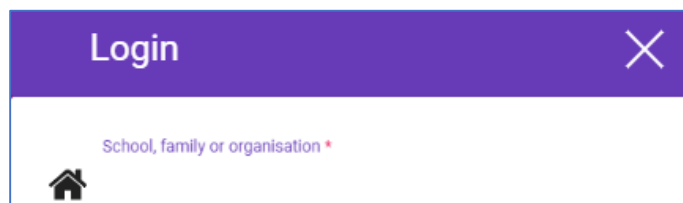
Type **play.ttrockstars.com** into your browser's address bar.

2

Click Login! > School > Student

3

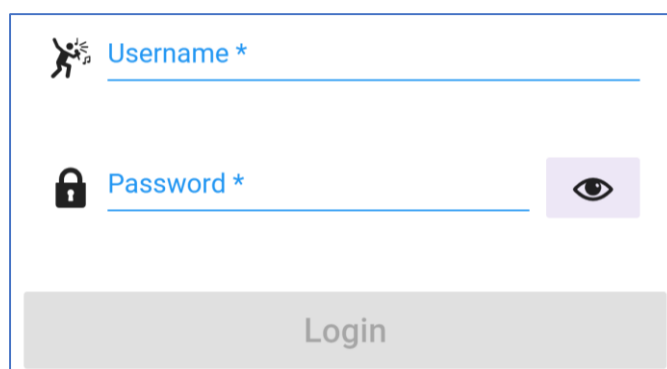
Enter the School Name.



The screenshot shows a purple header with the word 'Login' and a close button. Below it is a white input field with a home icon on the left and the text 'School, family or organisation *' in blue. The input field is currently empty.

4

Enter your child's username and password.



The screenshot shows two input fields. The first is labeled 'Username *' with a rockstar icon to its left. The second is labeled 'Password *' with a padlock icon to its left and an eye icon to its right. Below the fields is a grey 'Login' button.

Game Modes

Single Player

Garage - the questions will only come from the times tables the teacher has set for the week. It will include multiplication *and* division questions.

As pupils start to answer questions, TT Rock Stars works out which facts they take longer on and will give them more of these questions to answer. The Garage is best for getting quicker at a few facts. Players get 10 coins per question.

Studio - the questions in the Studio can be anything from 1×1 up to 12×12 .

TT Rock Stars calculates the mean response time from their last 10 games in the Studio and translates that time into a Rock Status.

≤ 1 sec/qu = **Rock Hero**

≤ 2 secs/qu = **Rock Legend**

≤ 3 secs/qu = **Rock Star**

≤ 4 secs = **Headliner**

≤ 5 secs/qu = **Support Act**

≤ 6 secs/qu = **Breakthrough Artist**

≤ 7 secs/qu = **Unsigned Act**

≤ 8 secs/qu = **Gigger**

≤ 9 secs/qu = **Busker**

≤ 10 secs/qu = **Garage Rocker**

> 10 secs/qu = **Wannabe**

If you don't play in the Studio you don't get a Rock Status.

Players earn 1 coin per question and the Studio is the place for them to set their best time across all the tables.

Soundcheck – When you play Soundcheck, you get 20 questions each with a 5-second time limit. The questions are multiplication only and evenly weighted in terms of difficulty each time you play. Players earn 5 coins per correct answer.

Multiplayer

Rock Arena - The Arena allows players to compete against all other members of their Band (their Bandmates would need to join the same game in order to compete together).

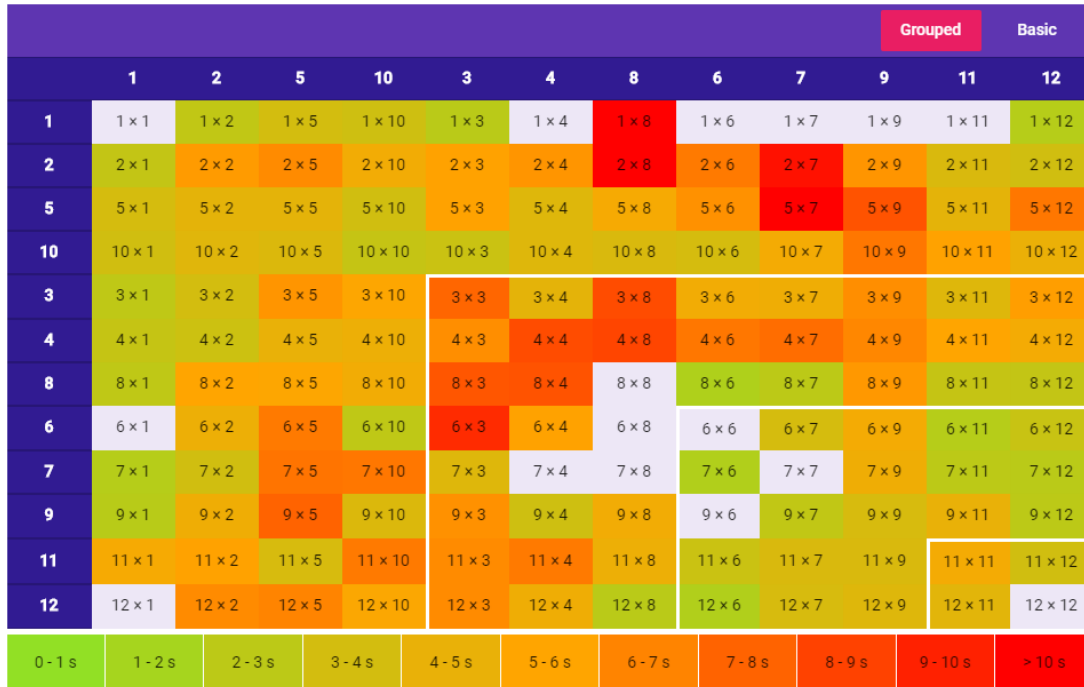
A new Arena game starts every 15 seconds and once the clock starts they race to answer more questions than the others. In the Arena, questions will only come from the times tables the teacher has set for the week, similar to the Garage. They earn 1 coin per correct answer.

Rock Festival - The Rock Festival games are open to players from around the world. Like the Arena, there is no limit to the number of players who can join a game; however, unlike the Arena, questions are selected at random from 1×1 to 12×12 .

Pupils might choose the Rock Festival if they were playing at home (and therefore couldn't easily synchronise playing against a classmate) or wanted to compete against others not in their Band. They earn 1 coin per correct answer.

Stats

If you click on your avatar icon in the top right of the screen and then click My Stats, a heatmap like the one below will load. It shows how successful your child is at each of the facts.



Contact Mrs Moody or your child's teacher if...

- You have username or password issues
- Something isn't working or you're not sure how it works
- You have a complaint or a suggestion
- You have something nice to say about ttrackstars.com!