New Town Primary School

Nurturing Brilliance, Inspiring Ambition

Welcome to the maths workshop.

*How we teach maths in New Town

*Expectations

*How you can help at home

Department for Education

Mathematics programmes of study: key stages 1 and 2

National curriculum in England

September 2013

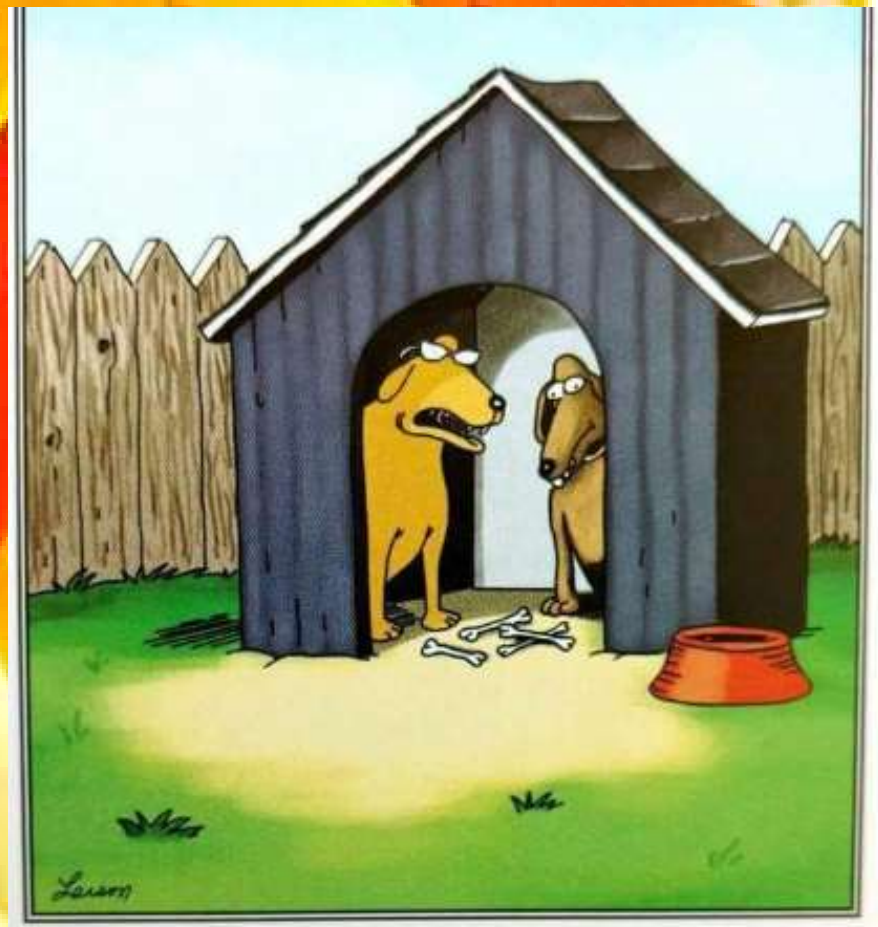
Purpose of study

Mathematics is a creative and highly inter-connected discipline that has been developed over centuries, providing the solution to some of history's most intriguing problems. It is essential to everyday life, critical to science, technology and engineering, and necessary for financial literacy and most forms of employment. A high-quality mathematics education therefore provides a foundation for understanding the world, the ability to reason mathematically, an appreciation of the beauty and power of mathematics, and a sense of enjoyment and curiosity about the subject.

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.



"Look. You *had* five bones, right? Your friend Zooky comes over, stays awhile, then leaves. *Now* you have *four* bones, right? ... You don't have to be a 'Lassie' to figure this one out."

"I don't do maths. I was never very good at it at school and it is all different now."

If this is you, do not feel concerned as maths is one of the subjects that remains a constant. There are many different ways in which we can solve a maths problem. Our aim is to teach children, with your help, to find the best ways through investigation and practice.

What children say About maths.KS1

"Maths is my favourite lesson because I am good at it."

"I like when we use the bricks in maths."

Children love maths. So we need to celebrate this and ensure we maintain this enthusiasm throughout their lives.

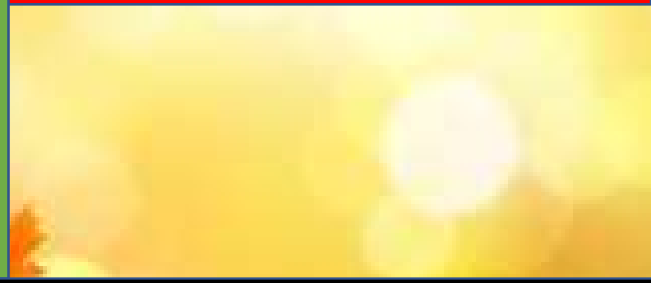
"I like it when we get to write big numbers and add more."

What children say KS2

"I like maths because I like to solve calculations with different ways of working out."

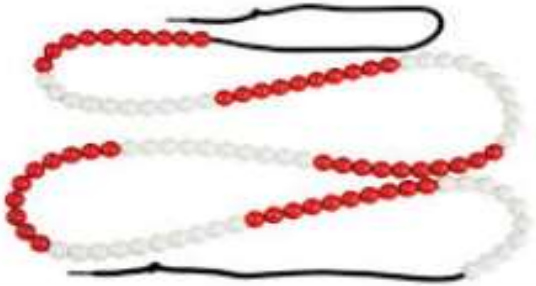
"I like it when we have multi-step problems to solve."

"I just love numbers and working with them."



Our school follows a scheme called 'White Rose' to deliver our maths . Typically each child will have maths lessons every day for approximately one hour. The lesson often has a mental maths starter or problem (anchor task) to engage them in their learning. The lesson should then consist of a variety of teacher led instruction, shared work and independent work. Extra maths sessions –maths meetings- take place to revise and consolidate their learning.

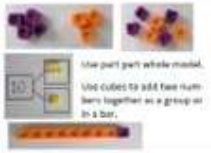
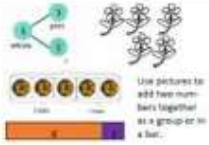
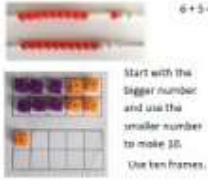
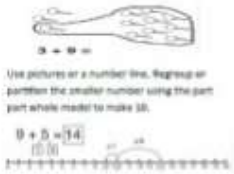
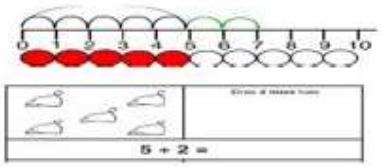
The use of ‘manipulatives’ in maths is very important all through primary .



New Town Primary School
Calculation Policy

You can find a copy of our calculation policy on the school website or ask your child's teacher for one.

Y 1 Addition +

Objective & Strategy	Concrete	Pictorial	Abstract
Combing two parts to make a whole: part-whole model			4 + 3 = 7 10= 6 + 4
Starting at the bigger number and counting on	 Start with the larger number on the bead string and then count on to the smaller number 1 by 1 to find the answer.	12 + 5 = 17  Start at the larger number on the number line and count on in ones or in one jump to find the answer.	5 + 12 = 17 Place the larger number in your head and count on the smaller number to find your answer.
Regrouping to make 10 *This is an essential skill for column addition later.*			7 + 4= 11 If I am at seven, how many more do I need to make 10. How many more do I add on now?
Represent and use number bonds and related subtraction facts within 20	 2 more than 5.	 5 + 2 =	Emphasis should be on the language *'1 more than 5 is equal to 6.'* *'2 more than 5 is 7.'* *'8 is 3 more than 5.'*

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Our Maths Cornerstones

SCHOOL CONTEXT

SCHOOL VALUES	Love and kindness	Tolerance and inclusivity	Honesty and trust	Determination and resilience

CURRICULUM RATIONALE					
High quality books promote a love of reading and expose every learner to higher-level texts.	The curriculum takes into account our physical location, history and to exploit our varied ethnic links.	An unrelenting focus on embedding key skills and frequent opportunities for rehearsal to allow unhindered access to the full curriculum using transferable skills.	Language-rich environments provide challenge and equality of opportunity for all learners.	New and enriching experiences allow learners to: put their knowledge and skills into context; make meaningful links; broaden horizons and build knowledge.

INTENT

CURRICULUM VISION						
to prepare for the future	to develop enquiring minds	to nurture a love of learning	to facilitate challenge and mastery	to grow independent learners	to provide context for learning

IMPLEMENTATION

TEACHING FOUNDATIONS							
careful sequencing	precision materials	Hard-work and an emphasis on having a go	challenging questioning	presentation, clarity and showing your working	high-quality live feedback	low stakes testing	knowing more, remembering more

ORGANISATION OF CURRICULUM					
White Rose SOL	CPA Model	Daily, morning maths lessons	Daily, afternoon maths meetings	Termly assessments	Access to quality electronic resources

Every class follows the White Rose scheme of learning - mastery maths with a CPA model at its heart and opportunities to explore these distinct models relative to their development stage. Children enjoy daily lessons to develop their skills, with the addition of afternoon maths meetings to revise key knowledge and keep this fresh - regular assessment informs the content of both. Children also have access to quality electronic resources, such as Times Tables Rock Stars to practice their skills.

ENRICHING MATHS				
Learning that maths is fun – challenge, pattern and puzzles	Learning the language of maths – an emphasis on vocabulary	Learning the relevance of maths - home, money and employment	Learning the history of maths – who, what, where, when	Understanding its relevanc making other subjects

ASSESSMENT				
regular low-stakes testing	termly summative assessments	ongoing formative assessment	pupil conferencing	daily live feedback

IMPACT

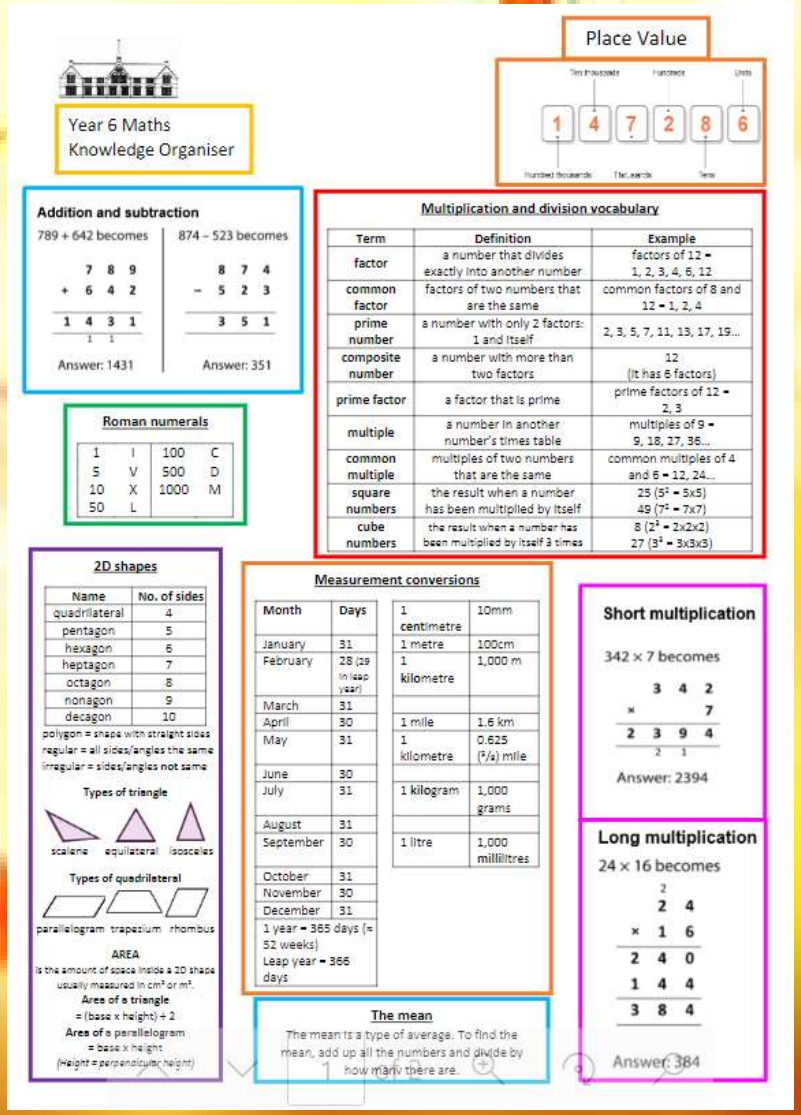
CHILDREN ARE ABLE TO			
Children have strong arithmetic and number skills as a foundation.	Concepts or skills are mastered when a child can show it in multiple ways, using the mathematical language to explain their ideas.	Children show resilience when tackling problems. They demonstrate flexibility and the fluidity to move between different contexts and representations in solving problems.	Children talk enthusiastically about their maths and relate it to real life purposes.

EVALUATION

REGULAR REVIEW				
High quality outcomes Learning has led to a purposeful outcome or product evident in children's maths books and low stakes testing	**Innovation** Learning is reviewed in light of current thinking and recent research.	**Regular communication** Learning is reviewed with all stakeholders in professional discussions and meetings.	**Opening up Practice** Learning is open and teachers learn and adjust practice in light of what they see	**Improving and changing** Learning is reviewed, improved or changed in light of [illegible] expectations

MONITORING				
work scrutiny	data outcomes	pupil voice	T&L observations	curriculum evaluations

Many of your children would have brought home knowledge organisers within the first few days of the new term. Whilst , this may seem a little daunting at first, they can be a valuable aid for your childs learning and to help start conversations about homework and maths in class.



Year 6 Maths
Knowledge Organiser

Place Value

1	4	7	2	8	6

Addition and subtraction

789 + 642 becomes

	7	8	9
+	6	4	2
1	4	3	1
	1	1	

Answer: 1431

874 – 523 becomes

	8	7	4
–	5	2	3
	3	5	1

Answer: 351

Multiplication and division vocabulary

Term	Definition	Example
factor	a number that divides exactly into another number	factors of 12 = 1, 2, 3, 4, 6, 12
common factor	factors of two numbers that are the same	common factors of 8 and 12 = 1, 2, 4
prime number	a number with only 2 factors: 1 and itself	2, 3, 5, 7, 11, 13, 17, 19...
composite number	a number with more than two factors	12 (it has 6 factors)
prime factor	a factor that is prime	prime factors of 12 = 2, 3
multiple	a number in another number's times table	multiples of 9 = 9, 18, 27, 36...
common multiple	multiples of two numbers that are the same	common multiples of 4 and 6 = 12, 24...
square numbers	the result when a number has been multiplied by itself	25 (5^2 = 5x5) 49 (7^2 = 7x7)
cube numbers	the result when a number has been multiplied by itself 3 times	8 (2^3 = 2x2x2) 27 (3^3 = 3x3x3)

Roman numerals

1	I	100	C
5	V	500	D
10	X	1000	M
50	L		

2D shapes

Name	No. of sides
quadrilateral	4
pentagon	5
hexagon	6
heptagon	7
octagon	8
nonagon	9
decagon	10

polygon = shape with straight sides
regular = all sides/angles the same
irregular = sides/angles not same

Types of triangle

scalene equilateral isosceles

Types of quadrilateral

parallelogram trapezium rhombus

AREA
is the amount of space inside a 2D shape usually measured in cm^2 or m^2.
Area of a triangle
= (base x height) ÷ 2
Area of a parallelogram
= base x height
(Height = perpendicular height)

Measurement conversions

Month	Days
January	31
February	28 (29 in leap year)
March	31
April	30
May	31
June	30
July	31
August	31
September	30
October	31
November	30
December	31
1 year = 365 days (= 52 weeks) Leap year = 366 days	

1 centimetre	10mm
1 metre	100cm
1 kilometre	1,000 m
1 mile	1.6 km
1 kilometre	0.625 (5/8) mile
1 kilogram	1,000 grams
1 litre	1,000 millilitres

The mean

The mean is a type of average. To find the mean, add up all the numbers and divide by how many there are.

Short multiplication

342 × 7 becomes

	3	4	2
×			7
2	3	9	4
	2	1	

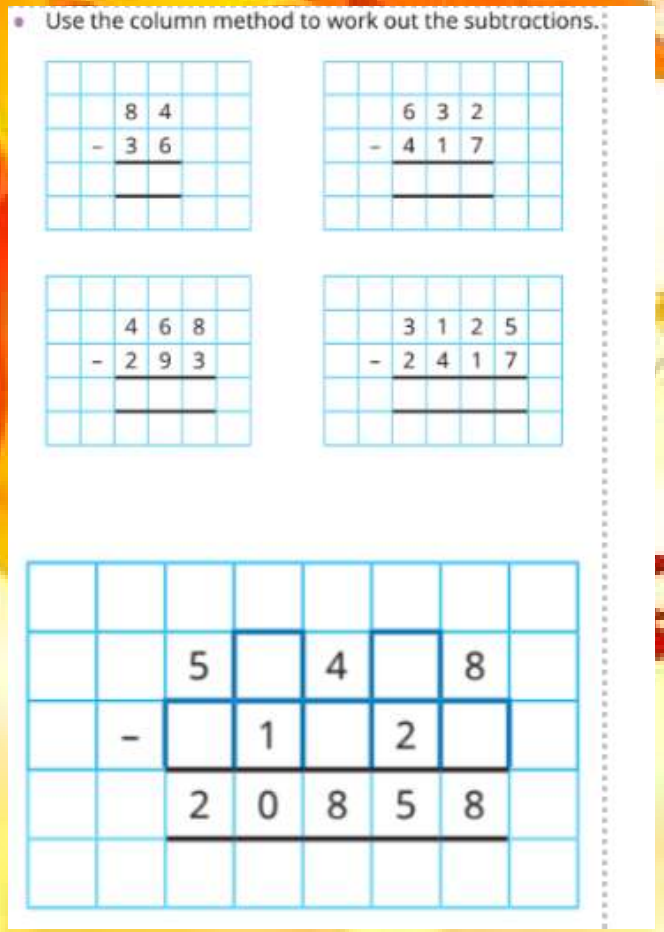
Answer: 2394

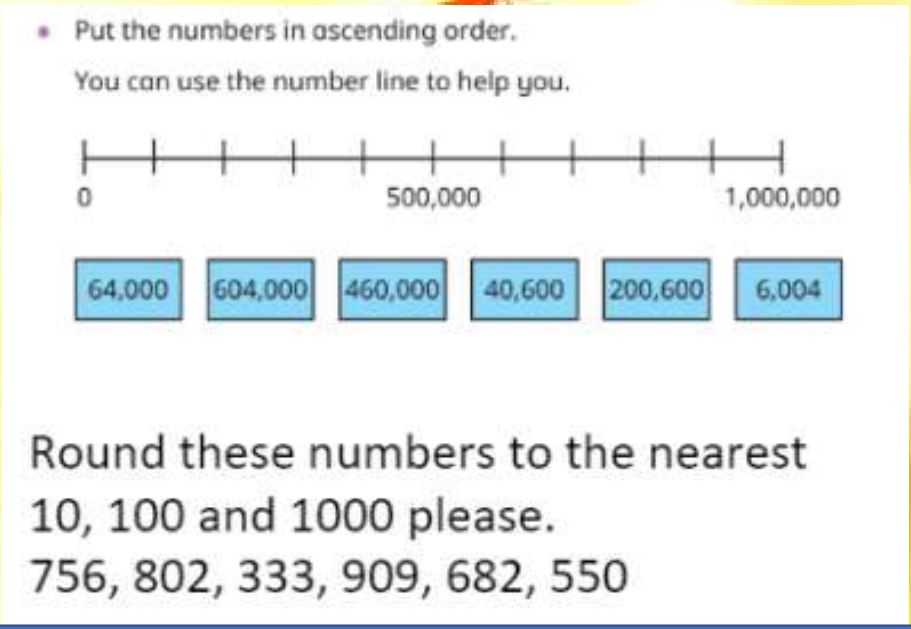
Long multiplication

24 × 16 becomes

		2	4
×	1	6	
2	4	0	
1	4	4	
3	8	4	

Answer: 384





Examples of homework

It is important that homework does not take too long, 20-30 minutes should be a reasonable amount of time solving 4/5 questions. If your child manages 2 in that time it is usefull for us to know to ensure they get the support needed.

potatoes
£1.50 per kg

carrots
£1.80 per kg

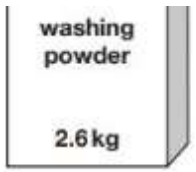
Jack buys $1\frac{1}{2}$ kg of potatoes and $\frac{1}{2}$ kg of carrots.

How much **change** does he get from **£5**?

Show your method

£

2 marks



Jack uses 65 grams of powder for each wash.

He uses all the powder.

How many washes did Jack do?

Show your method

washes

2 marks

Maths ‘reasoning’ has become very important as opposed to pages and pages of problems.

You can help your child at home in many ways.
Learning their Times Tables is probably one of the best ways you can build their confidence.

There are so many games you can do with a pack of playing cards:

Multiply two cards

Add numbers together

Use red as ‘minus’ cards and black as ‘positive’ to teach negative numbers

Higher and lower predictions

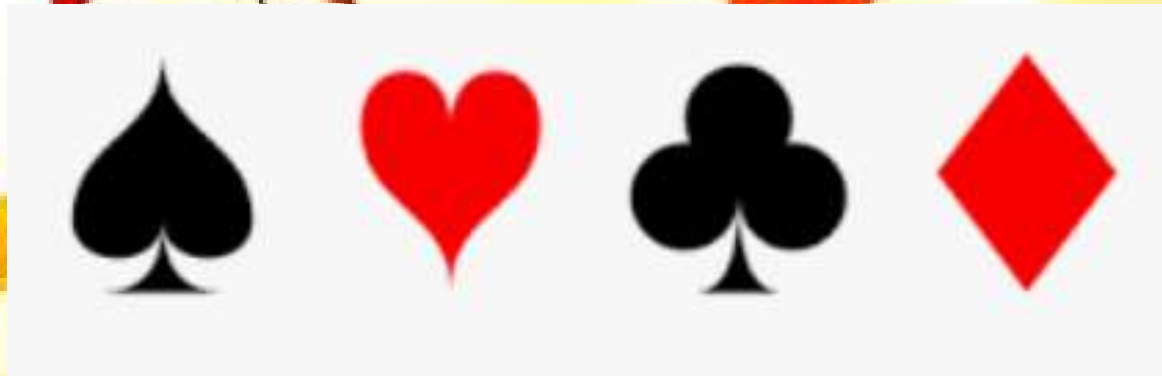
Square numbers

Fractions; by placing one card above another

Plus many, many more

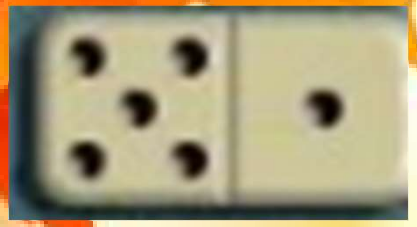
An added plus is this may help your children interact more and get them off the computer games.

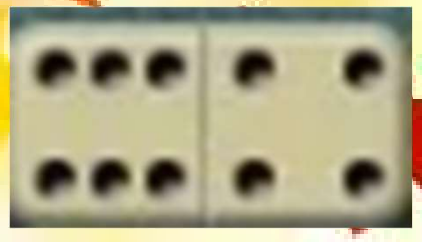
Remember to have fun! Done well they won’t even notice they are learning!

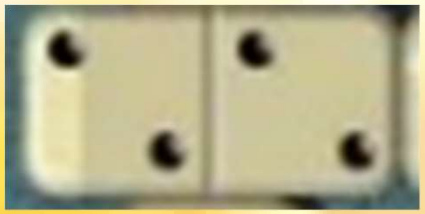


Minus multiply divide add

Whilst we are not trying to encourage you to teach your children to gamble, playing cards are an amazing way to build confidence and skill in numbers and interact as a family.

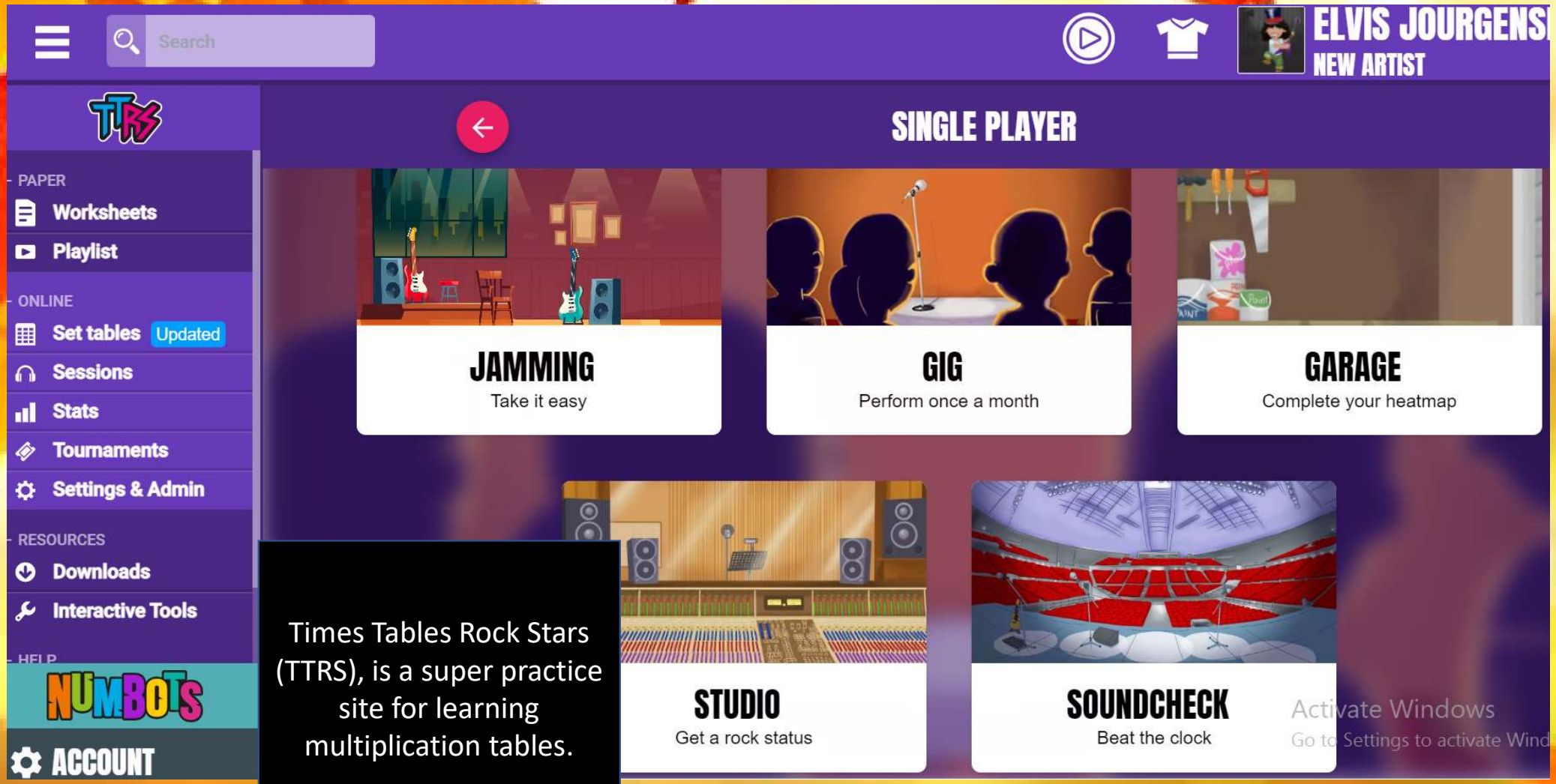




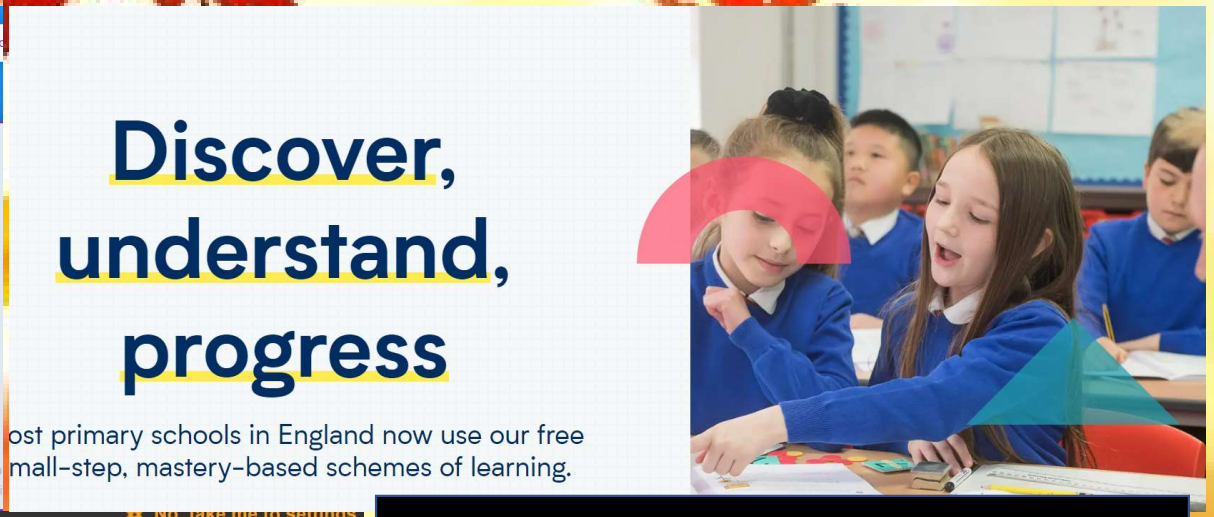


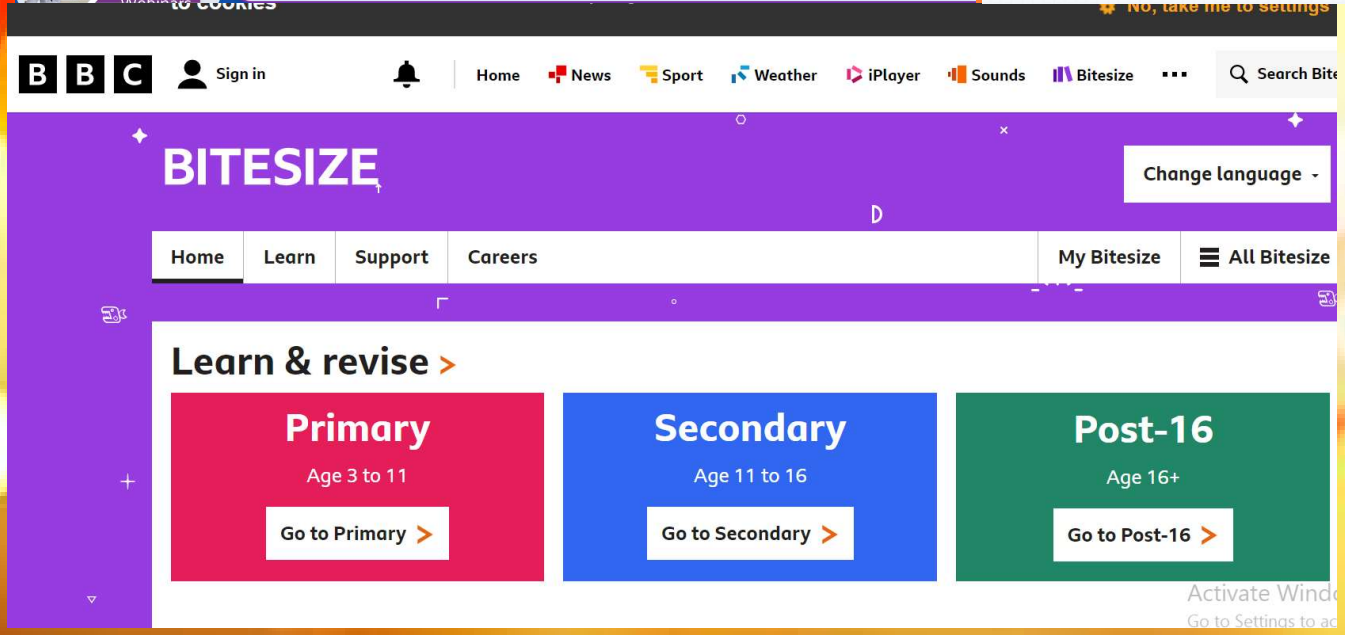
Dominoes are another super resource

They can cost as little as £1.00 in shops like ‘The works’



Times Tables Rock Stars (TTRS), is a super practice site for learning multiplication tables.





There are many free websites to support maths. Your child should have a ‘Purple mash’ login as well as a ‘Times Tables Rockstars’ login. There are many games and activities to build up knowledge. BBC Bitesize is also a super and safe resource.


In every day life there are so many opportunities
When shopping ask the children to add up the totals for you.
Round the shopping bill up/down
Estimate how much it will cost
When driving a long distance look at the mileage
Cooking at home measuring ingredients
Telling the time
Halving and quartering toys


THANK YOU FOR YOUR
TIME AND SUPPORT