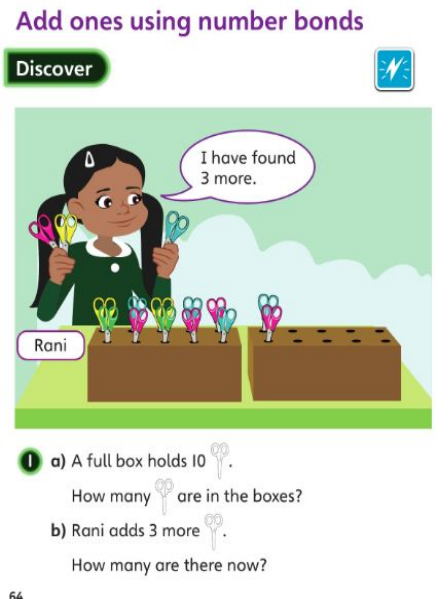
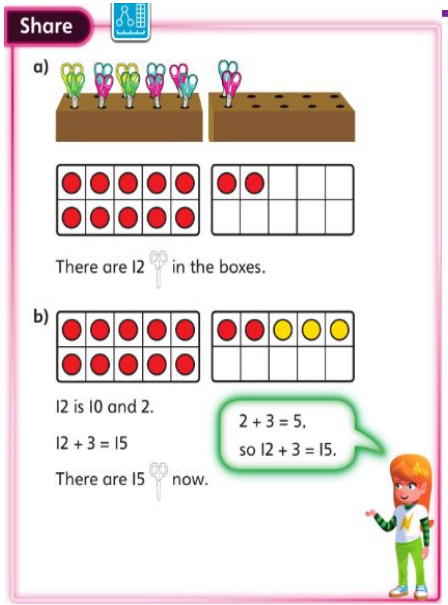
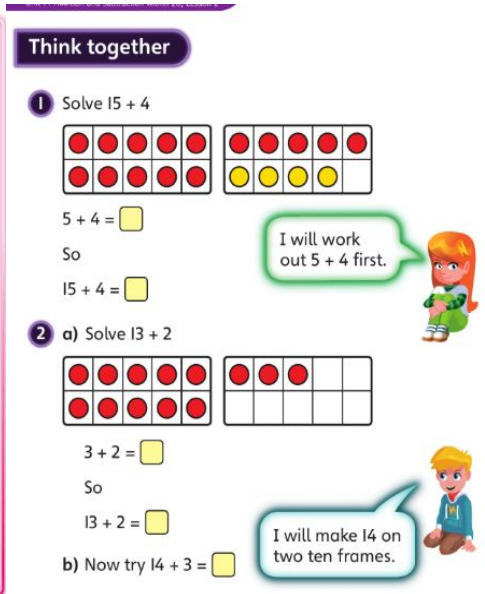
SACRED HEART RC PRIMARY SCHOOL

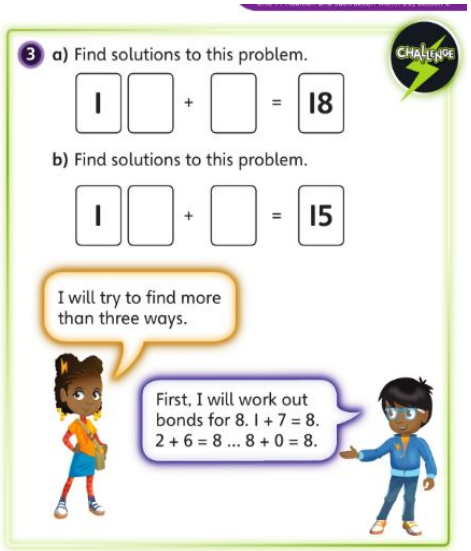
KS2 Maths workshops

How do we teach maths in KS2 at Sacred Heart?









Learning times tables is essential.

Multiplication check year 4.

Monday 5 June and Friday 16 June 2023.

Standards & Testing Agency

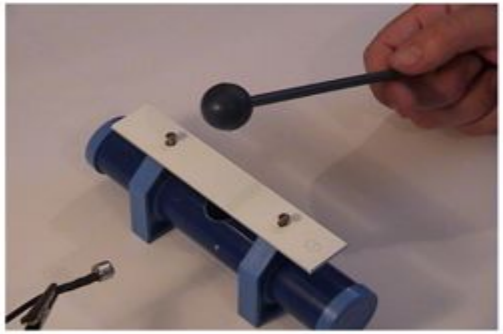
The purpose of the check is to determine whether your child can fluently recall their times tables up to 12, which is essential for future success in mathematics. It will also help your child's school to identify if your child may need additional support.

It is an on-screen check consisting of 25 times table questions. Your child will be able to answer 3 practice questions before taking the actual check. They will then have 6 seconds to answer each question. On average, the check should take no longer than 5 minutes to complete.

Why learn times tables?

- that 'being able to recall the facts quickly' is an important skill because it **facilitates mathematical actions**, such as factorising quadratic expressions;
- that pupils should be expected to be able to recall times-tables facts fluently **before starting secondary school;**
- that achieving 'times-tables fluency' **gives pupils confidence**, and enables them to start **reasoning multiplicatively more widely**;
- that achieving 'times-tables fluency' requires **'practice, practice, practice'**;

What can you do to help?



'The Gong'

Count silently in multiples of TT.

When I raise stick, call out number I have stopped at.

STAND UP SIT DOWN Multiplication

- Sit in pairs.
- Stand when pointed to and say next multiple in times table (e.g. 8X table)
- Repeat but this time have to remember the order they stood up in in the last round.
- Stand up if your number was 8 more than 24
- Stand up if your number was even. Why is that?
- Stand up if yours was a square number.
- Stand up if yours was 16 less than 32

Fluent recall of facts

These enable children to build maths fluency and are essential to aid children's maths.

Doubles and half

Fact families for numbers 6, 7, 8 and 9

Number bonds to 10, 20 and 100

Counting multiples of 25 and 50

Fraction/decimal/percentage equivalence

Fraction / Decimal / Percentage Equivalence

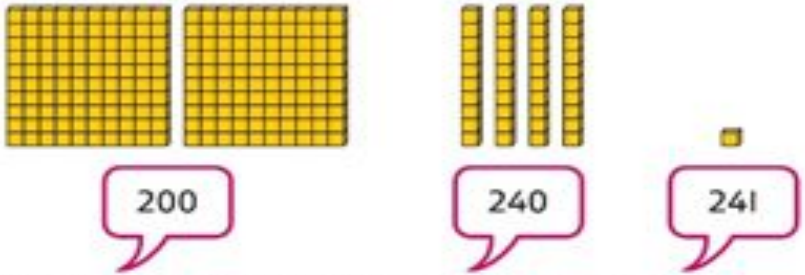
Fraction	Decimal	Percentage
1 (whole)	1.0	100%
½	0.5	50%
¼	0.25	25%
¾	0.75	75%
1/10	0.1	10%
2/10	0.2	20%

Some key terms:

Cardinality: The cardinal value of a number refers to the quantity of things it represents, e.g. the numerosity, ‘howmanyness’, or ‘threeness’ of three.

Unitise: How can you quickly work out the number of eggs contained in a stack of egg boxes? How would you calculate the total amount of money in a pile of 50p pieces? You'd probably count the boxes, or the coins, and then do a multiplication.

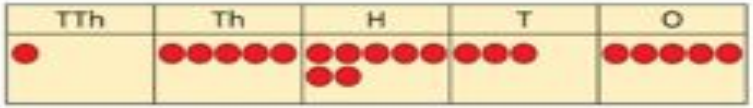
Addition in KS2. It all begins with place value!



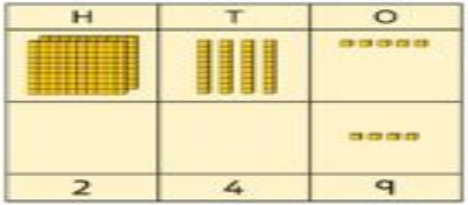
Use a place value grid to support the structure of numbers to 1,000.

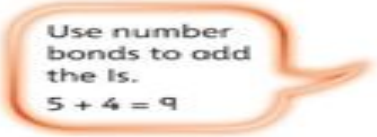
Use place value equipment to represent additions.

Add a row of counters onto the place value grid to show 15,735 + 4,012.

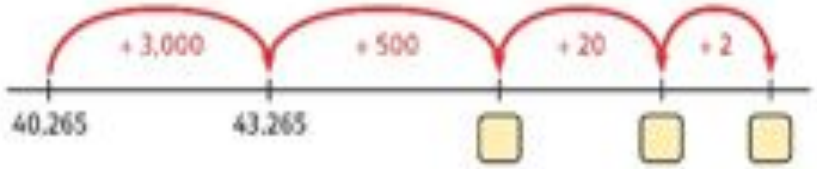


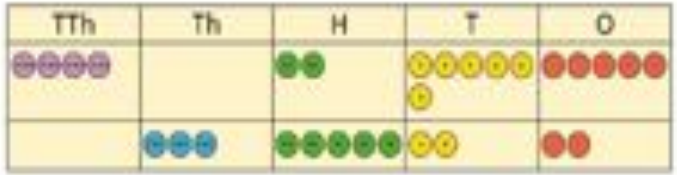
Use number bonds to add the 1s.





245 + 4
5 + 4 = 9

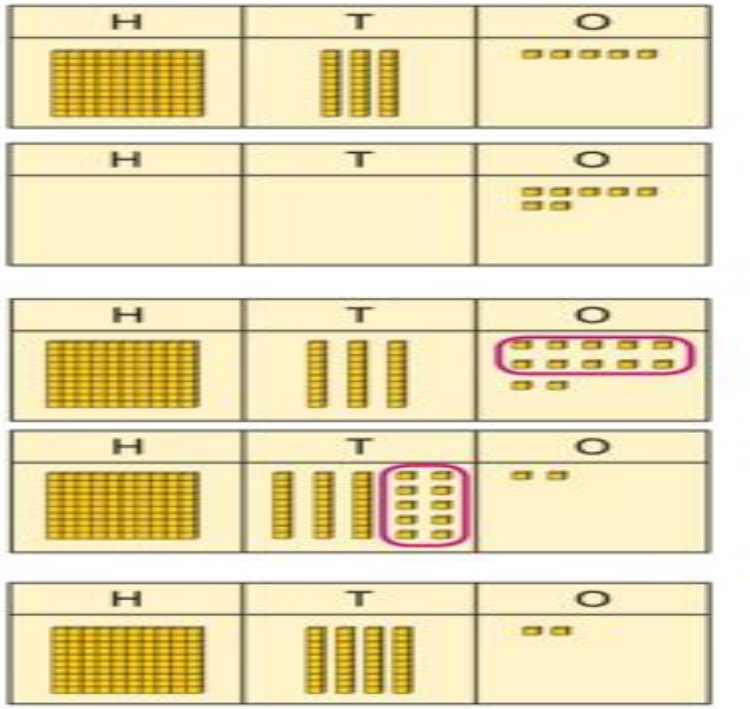




TTh	Th	H	T	O
4	0	2	6	5
+	3	5	2	2

So how do we teach it?

Exchange 10 ones for 1 ten where needed.
Use a place value grid to support the understanding.

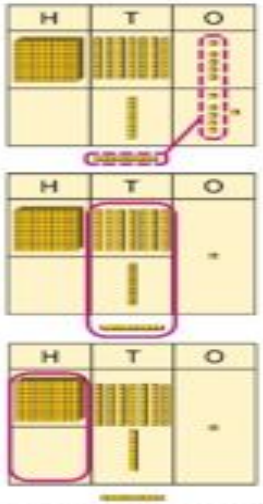


135 + 7 = 142

Key terminology:
Exchange not borrow.

Represent the required exchange on a place value grid using equipment.

275 + 16 = ?



275 + 16 = 291

Note: In this example, a mental method may be more efficient. The numbers for the example calculation have been chosen to allow children to visualise the concept and see how the method relates to place value. Children should be encouraged at every stage to select methods that are accurate and efficient.

Use a column method with exchange. Children must understand how the method relates to place value at each stage of the calculation.

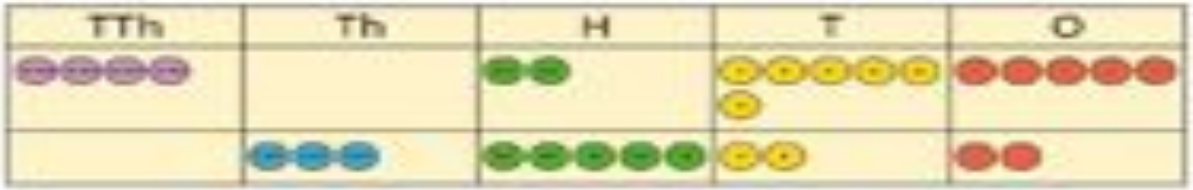
	H	T	O
	2	7	5
+		1	6
			1
		1	

	H	T	O
	2	7	5
+		1	6
		9	1
	1		

	H	T	O
	2	7	5
+		1	6
	2	9	1
	1		

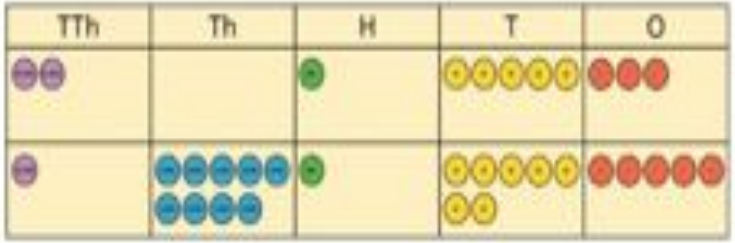
275 + 16 = 291

Discuss similarities and differences between methods, and choose efficient methods based on the specific calculation. Compare written and mental methods alongside place value representations.



	TTh	Th	H	T	O
	4	0	2	6	5
+		3	5	2	2

Represent additions, using place value equipment on a place value grid alongside written methods.



I need to exchange 10 tens for a 100.

TTh	Th	H	T	O
2	0	1	5	3
+ 1	9	1	7	5
3	9	3	2	8

Use column addition, including exchanges.

TTh	Th	H	T	O
1	9	1	7	5
+ 1	8	4	1	7
3	7	5	9	2

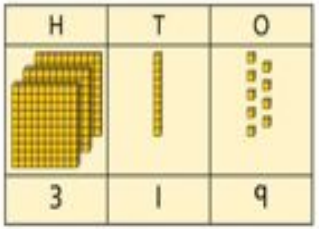
Subtraction

Use number bonds to subtract the 1s.

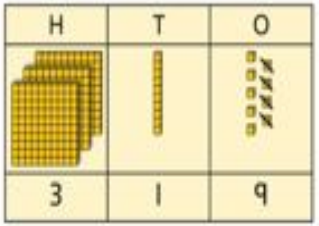
$214 - 3 = ?$

$4 - 3 = 1$
$214 - 3 = 211$

Use number bonds to subtract the 1s.



$319 - 4 = ?$

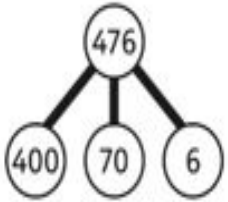


$9 - 4 = 5$
$319 - 4 = 315$

Understand the link with counting back using a number line.

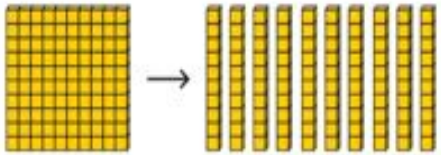
Use known number bonds to calculate mentally.

$476 - 4 = ?$



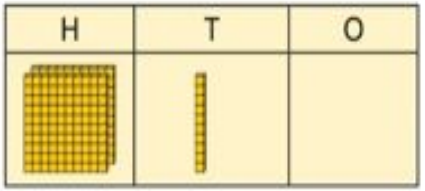
$6 - 4 = 2$
$476 - 4 = 472$

Use equipment to understand the exchange of 1 hundred for 10 tens.

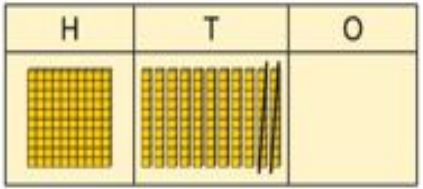


Represent the exchange on a place value grid using equipment.

210 − 20 = ?



I need to exchange 1 hundred for 10 tens, to help subtract 2 tens.

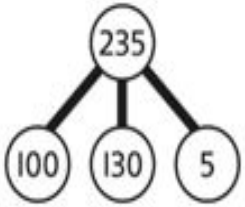


210 − 20 = 190

Understand the link with counting back on a number line.

Use flexible partitioning to support the calculation.

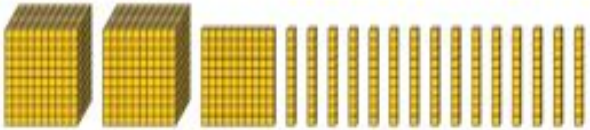
235 − 60 = ?



235 = 100 + 130 + 5
235 − 60 = 100 + 70 + 5
= 175

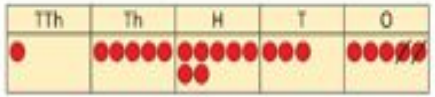
Use place value equipment to understand where exchanges are required.

2,250 – 1,070



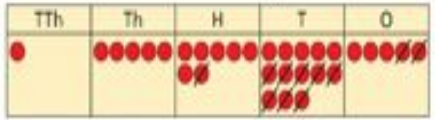
Represent the stages of the calculation using place value equipment on a grid alongside the calculation, including exchanges where required.

15,735 – 2,582 = 13,153



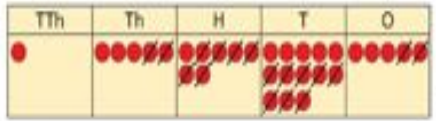
TTh	Th	H	T	O
1	5	7	3	5
–	2	5	8	2
				3

Now subtract the 10s. Exchange 1 hundred for 10 tens.



TTh	Th	H	T	O
1	5	7	13	5
–	2	5	8	2
			5	3

Subtract the 100s, 1,000s and 10,000s.



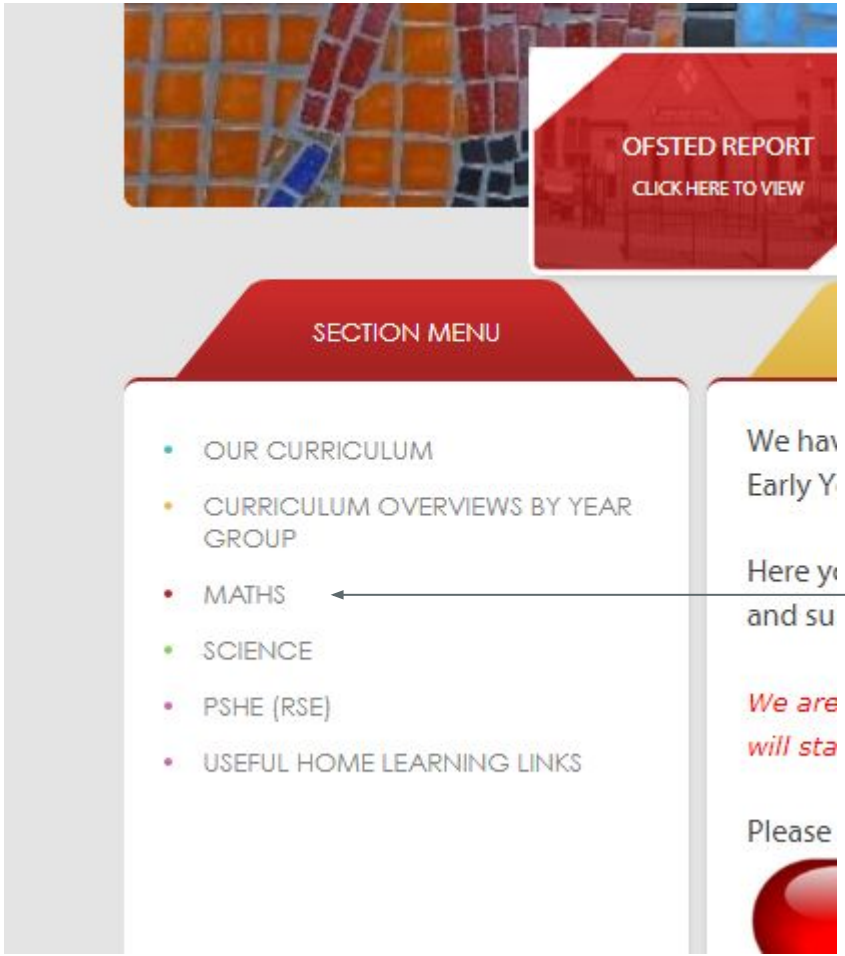
TTh	Th	H	T	O
1	5	7	13	5
–	2	5	8	2
1	3	1	5	3

Use column subtraction methods with exchange where required.

TTh	Th	H	T	O
	5	11	1	
	~~6~~	~~2~~	0	9	7
–	1	8	5	3	4
	4	3	5	6	3

62,097 – 18,534 = 43,563

Check out our website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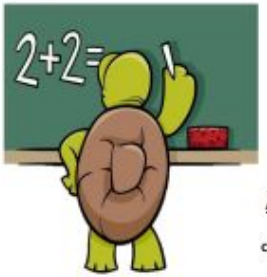
ADDITION and SUBTRACTION KNOWLEDGE ORGANISER

Year 3 Love of Learning

Overview



In addition and subtraction, we learn to:

-Add and subtract multiples of 100.

-Add and subtract 3-digit and 1-digit numbers.

-Subtract a 1-digit number from a 3-digit number.

-Add and subtract 3-digit and 2-digit numbers.

-Add and subtract 100s -Spotting patterns.

Addition and Subtraction is useful learning because it is used in many areas of everyday life – e.g. shopping, cooking, or playing games. It also forms the basis for lots of other maths ideas.

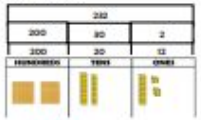
Addition Methods

3-digit and 1-digit numbers

Not crossing 10

352 + 6 = 358

Crossing 10



224 + 8 = 232

3-digit and 2-digit numbers

Adding Tens

356 + 30 = 386 (5 tens plus 3 tens)

When crossing 10, we can use column addition or count in 10s mentally.

Crossing 10/ 100

$$\begin{array}{r} 677 \\ +\ 74 \\ \hline 751 \\ {\scriptstyle 1\ 1} \end{array}$$

Use exchanging for answers larger than 10. Remember to include this in the next calculation.

3-digit numbers

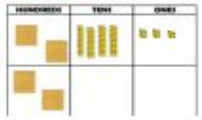
Not Exchanging

356 + 211 = 565

When exchanging/ crossing 10/100, we can use column addition, as shown below left, but with 3-digit plus 3-digit number).

Adding 100

243 + 200 = 443



Subtraction Methods

3-digit and 1-digit numbers

Not crossing 10

427 – 4 = 423

Crossing 10

221 – 8 = 213

3-digit and 2-digit numbers

Subtracting Tens

356 – 20 = 336 (5 tens minus 2 tens)

When crossing 10, we can use column addition or count in 10s mentally.

Crossing 10/ 100

$$\begin{array}{r} {}^{4}\cancel{5}{}^{1}48 \\ -\ 97 \\ \hline 451 \end{array}$$

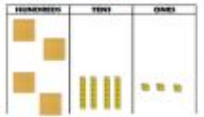
Use exchanging for answers below zero. Remember to subtract the exchanged value from the next column.

3-digit numbers Not Exchanging

356 – 112 = 244

When exchanging/ crossing 10/100, we can use column subtraction, as shown below left, but with 3-digit minus 3-digit numbers).

Adding 100



443 – 200 = 2

Estimate

Being able to estimate using known facts helps us to check that answers are reasonable.

Estimating using near numbers

Estimate 221 - 78

Near number to 221 = 220

Near number to 78 = 80

220 – 80 = 140

Estimate = 140

Estimating marked numbers on a number line

Estimate the value of the green line

The student has added the blue lines to break down the hundred further, to give an estimate of 330.

Key Vocabulary

Estimate | Sum | Add | Subtract | Altogether | Difference | Exchange | Column Method | Number Line | Number Bond | Inverse