We aim for all children at Holy Trinity to be able to:

- **Develop mathematical fluency**
- **Reason mathematically**
- **Problem solve**
- **Make connections across mathematical ideas**
- **Apply knowledge in other subject areas**

MATHS INFORMATION BOOKLET

YEAR 5

YEAR FIVE STRATEGIES

Here are the strategies that you can use to help develop your child's addition, subtraction, multiplication and division skills.

MENTAL ADDITION AND SUBTRACTION STRATEGIES

Before column addition and subtraction children need to be competent in:

Partition into Hundreds, Tens and ones

- For example work out mentally that

  324 + 58 =382 because it is

  320 + 50 = 370 and 4 + 8 =12 or 370 + 12 is 382

Identify near doubles

- For example work out mentally that 1.5 + 1.6 = 3.1 because you can double 1.5 and then add 0.1

Add or subtract the nearest multiple of 10, 100 0r 1000 and adjust

- Add 9, 19, 29 or 11, 21, 31…. By adding 10, 20, 30… then adjusting by 1.

- 458 + 71 = 529

Is the same as 458 + 70 and then add 1

- 583 – 71 = 512

Is the same as 583 -70 then take away 1.

Add several numbers

Work mentally to complete questions such as

27 + 36 + 13 =

Using strategies such as

- Looking for pairs that make 10

- Starting with the largest number

Find a difference by counting up through the next multiple of 10, 100 or 1000.

- Work out by counting up from the smaller to the larger number.

92-89 403-386 and 4000-3993

Use known number facts to add or subtract a pair of numbers.

Using multiple of 10

- 573 + 252 = 500+200+70+50+3+2=825
- 625 – 382 = 600-300-20-80-5-2=193

Using multiples of 1000

- 525+ 705= 500 +700+25+5= 1230
- 1200-450= 1200-400-50=750

Find what to add to a decimal to make the next higher whole

3.4 + ____ = 4 4.8+ ____= 5

Find a difference between a pair of numbers by counting up.

7003 – 6899 = 104 by counting up 1 from 6899 to 6900 then 100 to 7000 then 3 to 7003.
In the lower school children use a number line to count on.

WRITTEN METHODS FOR ADDITION AND SUBTRACTION

Children should be able to use pencil and paper methods to support, record or explain calculations, achieving consistent accuracy. Encourage them to discuss, explain and compare different methods.

When using written methods that are set out in columns, remind the children that ones should line up under ones, tens under tens etc.

Column Addition and Subtraction

789 + 642 becomes

$$\begin{array}{r} 7\ 8\ 9 \\ +\ 6\ 4\ 2 \\ \hline 1\ 4\ 3\ 1 \\ \hline \quad 1\ \ 1 \end{array}$$

Answer: 1431

874 – 523 becomes

$$\begin{array}{r} 8\ 7\ 4 \\ -\ 5\ 2\ 3 \\ \hline 3\ 5\ 1 \\ \hline \end{array}$$

Answer: 351

932 – 457 becomes

$$\begin{array}{r} \overset{8}{\cancel{9}}\ \overset{12}{\cancel{3}}\ \overset{1}{2} \\ -\ 4\ 5\ 7 \\ \hline 4\ 7\ 5 \\ \hline \end{array}$$

Answer: 475

932 – 457 becomes

$$\begin{array}{r} \quad\ 1\ \ 1 \\ 9\ 3\ 2 \\ -\ \cancel{4}\ \cancel{5}\ 7 \\ \hline \quad 5\ \ 6 \\ 4\ 7\ 5 \\ \hline \end{array}$$

Answer: 475

Decimals

When adding decimals choose one of the methods above. Remind children that the decimal points should line up under each other, particularly when adding or subtracting mixed amounts such as 3.2 m + 350 cm or 72.5km + 54.6 km.

Adding and Subtracting fractions

There are 3 Simple Steps to add fractions with same denominator:

$$\frac{1}{4} + \frac{1}{4}$$

Step 1. The bottom numbers (the denominators) are already the same.
Step 2. Add the top numbers and put the answer over the same denominator:

$$\frac{1}{4} + \frac{1}{4} = \frac{1+1}{4} = \frac{2}{4}$$

Step 3. Simplify the fraction:

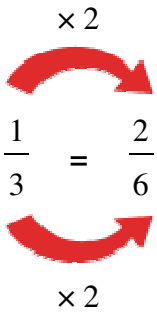
$$\frac{2}{4} = \frac{1}{2}$$

Adding fractions where the denominator of one fraction is a multiple of the other

$$\frac{1}{6} + \frac{1}{3}$$

Step 1: The bottom numbers are different. We need to make them the same before we can continue, because we **can't** add them like that.

The number "6" is twice as big as "3", so to make the bottom numbers the same we can multiply the top and bottom of the first fraction by **2**, like this:



Important: you multiply **both top and bottom** by the same amount,
to keep the value of the fraction the same

Now the fractions have the same bottom number ("6"), and our question looks like this:

$$^{1}/_{6} + {}^{2}/_{6}$$

The bottom numbers are now the same, so we can go to step 2.

Step 2: Add the top numbers and put them over the same denominator:

$$\frac{1}{6} + \frac{2}{6} = \frac{1+2}{6} = \frac{3}{6}$$

Step 3: Simplify the fraction:

$$\frac{3}{6} = \frac{1}{2}$$

Subtracting fractions:

With same denominator- **¾ - ¼= 2/4**

Subtracting fractions where the denominator of one fraction is a multiple of the other

$$\frac{3}{6} - \frac{1}{3} = \frac{3-2}{6} = \frac{1}{6}$$

MENTAL METHODS FOR MULTIPLICATION AND DIVISION

Doubling and Halving

Use related facts and doubling or halving

For example: Double 78 is double 70 add double 8 or 140 + 16= 156

Half of 256 is half of 200, half of 50 plus half of 6 is 128

Double a number ending in 5 and then halve the other number

For example

16 x 5 is equivalent 8 x 10 = 80 or 35 x 14 is the equivalent of 70 x 7 = 490.

Halve an even number in the calculation, find the produce, then double it

For example

13 x 14	16 x 51
13 x 7 = 91	8 x 51= 408
91 x 2 = 182	408 x 2 = 816.

To multiply by 50, Times by 100 and then halve

For example

36 x 50 is 36 x 100 = 3600 3600 ÷ 2 = 1800

Find sixths by having thirds and finding twentieths by halving tenths

For example

1/6 of 300 is 50 because 1/3 of 300 is 100, 1/2 of 100 is 50.

Use factors

For example

15 x 6 15 x 3 = 45 and 45 x 2 = 90 so 15 x 6 = 90.

Or

90 ÷ 6 90 ÷ 3 = 30 and 30 ÷ 2 = 15 so 90 ÷ 6 = 15

WRITTEN METHODS FOR MULTIPLICATION

Partition and then multiply

Begin to multiply a two digit number by a single digit number, multiplying the tens first for example

47 x 5 = (40x5) + (7x5)
= 200+35
= 235

Grid Method

For example 72x 38 is approximately 70x40=2800, this gives you an idea that your answer should be nearly this number.

X	70	2	
30	2100	60	2100+60= 2160
8	560	16	560+16= 576

Then add the amounts together

2160
+ 576
2736

Short Multiplication

24 × 6 becomes

2 4
× 6
1 4 4
2

Answer: 144

342 × 7 becomes

3 4 2
× 7
2 3 9 4
2 1

Answer: 2394

2741 × 6 becomes

2 7 4 1
× 6
1 6 4 4 6
4 2

Answer: 16 446

Long Multiplication

24 × 16 becomes

2
2 4
× 1 6
2 4 0
1 4 4
3 8 4

Answer: 384

124 × 26 becomes

1 2
1 2 4
× 2 6
2 4 8 0
7 4 4
3 2 2 4
1 1

Answer: 3224

124 × 26 becomes

1 2
1 2 4
× 2 6
7 4 4
2 4 8 0
3 2 2 4
1 1

Answer: 3224

DECIMALS

When multiplying decimals choose one of the methods above. Remind children that the decimal points should line up under each other.

WRITTEN METHODS FOR DIVISION

Long Division

432 ÷ 15 becomes	432 ÷ 15 becomes	432 ÷ 15 becomes
2 8 r 12 15 | 4 3 2 3 0 0 1 3 2 1 2 0 1 2	2 8 15 | 4 3 2 3 0 0 (15×20) 1 3 2 1 2 0 (15×8) 1 2 $\frac{\cancel{12}}{\cancel{15}} = \frac{4}{5}$	2 8 · 8 15 | 4 3 2 · 0 3 0 ↓ 1 3 2 1 2 0 1 2 0 ↓ 1 2 0 0
Answer: 28 remainder 12	Answer: $28\frac{4}{5}$	Answer: 28·8

Short Division

98 ÷ 7 becomes	432 ÷ 5 becomes	496 ÷ 11 becomes
1 4 7 | 2 9 8	8 6 r 2 5 | 3 4 3 2	4 5 r 1 11 | 5 4 9 6
Answer: 14	Answer: 86 remainder 2	Answer: $45\frac{1}{11}$

Encourage your child to jot down their workings out to show each step. The method used should be quick, accurate and show their jottings.

Give your child a number problem to solve. Talk through the question and ask your child to figure out which part or parts of the calculation is addition, subtraction, multiplication or division.

In addition to all the strategies in Yr 5children will be taught to read Roman numerals to 1000(M).

NOTES