A Guide to Supporting Your Son at Home

Maths

Year 6

MERCHANT TAYLORS' SCHOOLS

For Boys and Girls aged 4 to 18 years

Introduction

The purpose of this booklet is to help you support your child's progress in Mathematics.

Setting Out Work

- Every piece of work should have a date, title and the textbook and page that is being used.
- Each title should be underlined with a pencil and a ruler.
- Exercise books should contain appropriate sized squares.
- Exercise book pages to be folded in half, where possible. Boys to work down left-hand side of page first, followed by right-hand side.
- Boys should leave at least one line between questions (to avoid errors).
- Boys should write answers to problems questions in the form of a sentence, underneath their working out.

Times Tables

The importance of your son learning his times tables cannot be stressed highly enough. Times tables are at the core of Mathematics and if your son is not confident with them, this may hold back his progress in understanding and using new/revised concepts.

Pupils in Year 6 need know all of their times tables.

Place Value

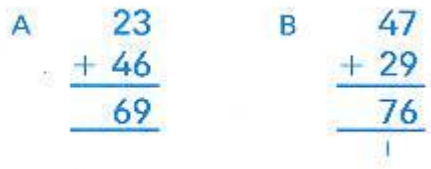
Place value dictates the value of each number. For example, when given the number 723 your son should know that this indicates

7 hundreds 2 tens 3 units

The Four Operations

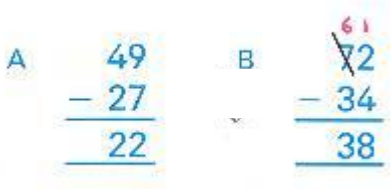
Addition

The written method your son will be taught is the 'under the doorstep' method of carrying with addition, short multiplication and the final stage of long multiplication, eg.



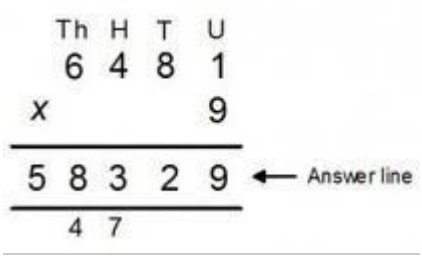
Subtraction

Your son will be taught the decomposition method of subtraction.



Multiplication

The boys will be taught the short multiplication method.



a) Multiply the 9 by the 1 in the unit's column. This equals 9 and is placed in the answer line, underneath the units

b) Multiply the 9 by the 8 in the ten's column. This equals 72. Place the 2 in the answer line, underneath the tens. The seven goes below the answer line, under the hundreds.

c) Multiply the 9 by the 4 in the hundred's column. This equals 36. We add on the carrying figure (7), to get 43. Place the 3 in the answer line, underneath the hundreds. The four goes below the answer line, under the thousands.

d) Multiply the 9 by the 6 in the thousands column. This equals 54. We add the carrying figure (4), to get 58. This is written in the answer line.

Long Multiplication

To calculate 158 × 67:

First, multiply by 7 (units):

```
  158
x 67
 1106
```

Then add a zero on the right-hand side of the next row. This is because we want to multiply by 60 (6 tens), which is the same as multiplying by 10 and by 6.

Now multiply by 6:

```
  158
X 67
 1106
9480
```

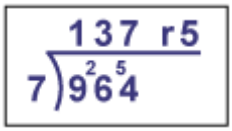
Now add your two rows together, and write your answer.

```
  158
x 67
 1106
 9480
10586
```

So the answer is **10586.**

Division

- Division by a single digit divisor to be carried out as follows:



a) 7 goes into 9 once, remainder 2, so we put a '1' above the 9 and carry the 2.

b) 7 goes into 26 three times, remainder 5, so we put a '3' over the 6 and carry 5.

c) 7 goes into 54 seven times, remainder 5 so we put a '7' over the 4 and have a remainder of 5.

Therefore, 964 ÷ 7 = 137 r 5

Dividing by a two digit number

EXAMPLE – **24) 786**

Step 1 Not enough hundreds. (Only 7)

24) 786

Step 2 Think of 7 hundreds and 8 tens as 78 tens.
Divide (78 ÷ 24 = 3)
Subtract 3 lots of 24 (3 x 24 = 72)

```
  3
24 ) 786
 -- 720      Remember: these are 72 tens
    6        tens left over
```

Step 3 Add the units to the left-over tens

```
  3
24 ) 786
 -- 720
    66
```

Step 4 Think of the 6 tens and 6 units as 66 units
Divide (66 ÷ 24 = 2)
Subtract 2 lots of 24 (2 x 24 = 48)

```
  32
```

```
24 ) 786
 --  720
      66
 --   48
      18
```

Step 5 Put the remaining units with the answer

```
     32   R18
24 ) 786
 --  720
      66
 --   48
      18
```

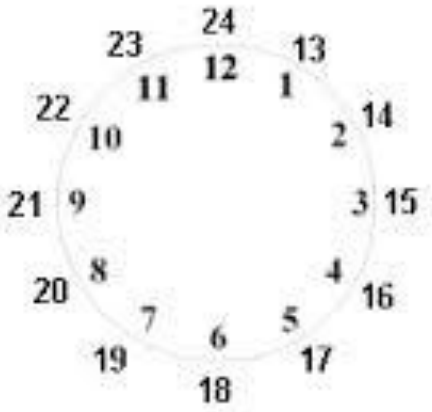
Problem Solving

Your son will often bring home work which requires him to solve problems. These steps are a guideline to help him to complete problems questions

A Read the problem twice and find the question.
B What are the facts?
C Decide what to do (e.g. four operations).
D Answer the question, including working out.
(Write a story answer underneath your working.)
E Does your answer seem right?
(Check it by putting it back into the problem.)

Time
12/24 Hour Clock

Your son should be able to convert 12 hour clock time to 24 hour clock time and vice versa.



The Year 6 objectives are listed below. The Galore Park Text book which contains all the exercises that deliver the objectives below, can be accessed on Firefly.

Number – number and place value

Pupils should be taught to:

- read, write, order and compare numbers up to 10 000 000 and determine the value of each digit
- round any whole number to a required degree of accuracy
- use negative numbers in context, and calculate intervals across zero
- solve number and practical problems that involve all of the above.

Number – addition, subtraction, multiplication and division

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 solve problems involving addition, subtraction, multiplication and division
- use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.

Number – fractions (including decimals and percentages)

Pupils should be taught to:

- use common factors to simplify fractions; use common multiples to
- express fractions in the same denomination
- compare and order fractions, including fractions > 1
- add and subtract fractions with different denominators and mixed
- numbers, using the concept of equivalent fractions
- multiply simple pairs of proper fractions, writing the answer in its simplest
- form [for example, 1/4×1/2=1/8]
- divide proper fractions by whole numbers [for example, 1/3÷2=1/6]
- associate a fraction with division and calculate decimal fraction
- equivalents [for example, 0.375] for a simple fraction [for example, 3/8]
- identify the value of each digit in numbers given to three decimal places
- and multiply and divide numbers by 10, 100 and 1000 giving answers up

- to three decimal places
- multiply one-digit numbers with up to two decimal places by whole numbers
- use written division methods in cases where the answer has up to two
- decimal places
- solve problems which require answers to be rounded to specified degrees of accuracy recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.

Ratio and proportion

Pupils should be taught to:

- solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts
- solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison
- solve problems involving similar shapes where the scale factor is known or can be found
- solve problems involving unequal sharing and grouping using knowledge of fractions and multiples.

Algebra

Pupils should be taught to:

- use simple formulae
- generate and describe linear number sequences
- express missing number problems algebraically
- find pairs of numbers that satisfy an equation with two unknowns
- enumerate possibilities of combinations of two variables.

Measurement

Pupils should be taught to:

- solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate
- use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to three decimal places
- convert between miles and kilometres
- recognise that shapes with the same areas can have different perimeters and vice versa
- recognise when it is possible to use formulae for area and volume of shapes
- calculate the area of parallelograms and triangles
- calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm^3) and cubic metres (m^3), and extending to other units [for example, mm^3 and km^3].

Geometry – properties of shapes

Pupils should be taught to:

- draw 2-D shapes using given dimensions and angles
- recognise, describe and build simple 3-D shapes, including making nets
- compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons
- illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius
- recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles.

Geometry – position and direction

Pupils should be taught to:

- describe positions on the full coordinate grid (all four quadrants)
- draw and translate simple shapes on the coordinate plane, and reflect them in the axes.

Statistics

Pupils should be taught to:

- interpret and construct pie charts and line graphs and use these to solve problems
- calculate and interpret the mean as an average.