

## **A Guide to Supporting Your Son at Home**

### **Maths**

### **Year 4**

### **Merchant Taylors' Junior Boys' School**



### **Introduction**

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

### **Setting Out of 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 4 need to know all of their times tables and should practise them regularly.

### Place Value

Place value indicates 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.

$$\begin{array}{r}
 \text{A} \quad 23 \\
 + 46 \\
 \hline
 69 \\
 \hline
 \end{array}
 \qquad
 \begin{array}{r}
 \text{B} \quad 47 \\
 + 29 \\
 \hline
 76 \\
 \hline
 \end{array}$$

#### Subtraction

Your son will be taught the decomposition method of subtraction.

$$\begin{array}{r}
 \text{A} \quad 49 \\
 - 27 \\
 \hline
 22 \\
 \hline
 \end{array}
 \qquad
 \begin{array}{r}
 \text{B} \quad \overset{61}{\cancel{7}2} \\
 - 34 \\
 \hline
 38 \\
 \hline
 \end{array}$$

#### Multiplication

$$\begin{array}{r}
 \text{Th H T U} \\
 6481 \\
 \times \quad \quad 9 \\
 \hline
 58329 \leftarrow \text{Answer line} \\
 \hline
 47 \\
 \hline
 \end{array}$$

- 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  $158 \times 67$ :

First, multiply by 7 (units):

$$\begin{array}{r} 158 \\ \times 67 \\ \hline 1106 \end{array}$$

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:

$$\begin{array}{r} 158 \\ \times 67 \\ \hline 1106 \\ \mathbf{9480} \end{array}$$

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

$$\begin{array}{r} 158 \\ \times 67 \\ \hline 1106 \\ 9480 \\ \hline 10586 \end{array}$$

So the answer is **10586**.

### Division

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

$$\begin{array}{r} 137 \text{ r}5 \\ 7 \overline{)964} \\ \underline{7} \phantom{0} \\ 26 \\ \underline{21} \\ 54 \\ \underline{49} \\ 5 \end{array}$$

- 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,  $964 \div 7 = 137 \text{ r} 5$

### Dividing by a two digit number

EXAMPLE –  $24 \overline{)786}$

**Step 1** Not enough hundreds. (Only 7)

$$24 \overline{)786}$$

**Step 2** Think of 7 hundreds and 8 tens as 78 tens.  
Divide ( $78 \div 24 = 3$ )  
Subtract 3 lots of 24 ( $3 \times 24 = 72$ )

$$\begin{array}{r} 3 \\ 24 \overline{)786} \\ -- \underline{720} \\ 6 \end{array} \quad \text{Remember: these are 72 tens} \\ \text{tens left over}$$

**Step 3** Add the units to the left-over tens

$$\begin{array}{r} 3 \\ 24 \overline{)786} \\ -- \underline{720} \\ 66 \end{array}$$

**Step 4** Think of the 6 tens and 6 units as 66 units  
Divide ( $66 \div 24 = 2$ )  
Subtract 2 lots of 24 ( $2 \times 24 = 48$ )

$$\begin{array}{r}
 \underline{32} \\
 24 \overline{) 786} \\
 \underline{- 720} \\
 66 \\
 \underline{- 48} \\
 18
 \end{array}$$

**Step 5** Put the remaining units with the answer

$$\begin{array}{r}
 \underline{32} \text{ R}18 \\
 24 \overline{) 786} \\
 \underline{- 720} \\
 66 \\
 \underline{- 48} \\
 18
 \end{array}$$

### Problem Solving

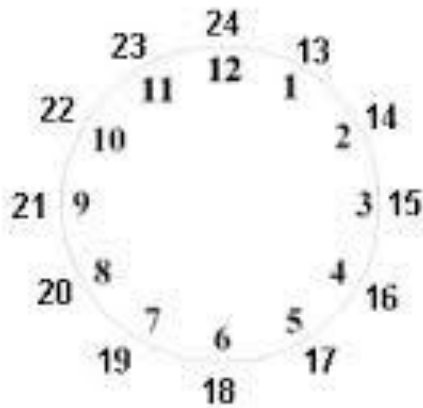
Your son will often bring home work which requires him to solve problems. These steps are a guideline to help him to complete problems questions

- 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 out.)
- E Does your answer seem right?  
(Check it by putting it back into the problem.)

### Time

#### 12/24 Hour Clock

The clock will help your son to convert 12 hour to 24 hour clock times and vice versa.



**The Year 3 objectives are listed below. The Galore Park Text book which contains all exercises that deliver the objectives below, can be accessed on Firefly.**

### **Number – number and place value**

Pupils should be taught to

- count in multiples of 6, 7, 9, 25 and 1000
- find 1000 more or less than a given number
- count backwards through zero to include negative numbers
- recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones)
- order and compare numbers beyond 1000
- identify, represent and estimate numbers using different representations
- round any number to the nearest 10, 100 or 1000
- solve number and practical problems that involve all of the above and with increasingly large positive numbers
- read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of zero and place value.

### **Number – addition and subtraction**

Pupils should be taught to:

- add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate
- estimate and use inverse operations to check answers to a calculation
- solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why.

### **Number – multiplication and division**

Pupils should be taught to:

- recall multiplication and division facts for multiplication tables up to  $12 \times 12$
- use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers

- recognise and use factor pairs and commutativity in mental calculations
- multiply two-digit and three-digit numbers by a one-digit number using formal written layout
- solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects.

### **Number – fractions (including decimals)**

Pupils should be taught to:

- recognise and show, using diagrams, families of common equivalent fractions
- count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten.
- solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number
- add and subtract fractions with the same denominator
- recognise and write decimal equivalents of any number of tenths or hundredths
- recognise and write decimal equivalents to  $\frac{1}{4}, \frac{1}{2}, \frac{3}{4}$
- find the effect of dividing a one- or two-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths
- round decimals with one decimal place to the nearest whole number
- compare numbers with the same number of decimal places up to two decimal places
- solve simple measure and money problems involving fractions and decimals to two decimal places

### **Measurement**

Pupils should be taught to:

- convert between different units of measure [for example, kilometre to metre; hour to minute]
- measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres
- find the area of rectilinear shapes by counting squares
- estimate, compare and calculate different measures, including money in pounds and pence
- read, write and convert time between analogue and digital 12- and 24-hour clocks
- solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days.

### **Geometry – properties of shapes**

Pupils should be taught to:

- compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes
- identify acute and obtuse angles and compare and order angles up to two right angles by size

- identify lines of symmetry in 2-D shapes presented in different orientations
- complete a simple symmetric figure with respect to a specific line of symmetry.

### **Geometry – position and direction**

Pupils should be taught to:

- describe positions on a 2-D grid as coordinates in the first quadrant
- describe movements between positions as translations of a given unit to the left/right and up/down
- plot specified points and draw sides to complete a given polygon.

### **Statistics**

Pupils should be taught to:

- interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs.
- solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs.