## Helping Out with Maths in the Evening

## Key Stage 2



# Targets \& Strategies 

DUring KS2 your child may be working towards achieving and being competent in the following areas:

Read/write simple fraction notation
Count forwards/backwards in halves, quarters
Know near doubles within 20 (8+7)
Know components of the number 20 ( $16+4$ )
Know all remaining addition facts within 20
Add 3 single digit numbers
Subtract any number from 20
Know all remaining subtraction facts within 20
Find halves of even numbers within 20
Find doubles of multiples of 100 up to $500+500$
Add/subtract 100 to/from multiples of 100 within $1000(300 * 100,700-100)$
Add/subtract two 2 digit numbers within 100, without bridging 10 ( $35+22,67-34$ )
Find what must be added to any 2 digit number to make 100 (34+? $=100$ )
Add/subtract multiples of 100 to/from multiples of 100 within $1000(300+400,900-300)$
Find what must be added to multiples of 100 to make $1000(400+?=1000)$
Find what must be added to/subtracted from any 3 digit number to make the next
higher/low er multiple of 10 , 10 ( $234+?=240,456-?=450,647+?=700,278-?=200$ )
Add 100 to any 2 or 3 digit number within $1000(345+100)$
Subtract 100 from any 3 digit number (478-100)
Add a multiple of 100 to a 2-digit multiple of $10(30+400)$
Add a multiple of 100 to any 2 or 3 digit number within $1000(34+400,327+500)$
Subtract a multiple of 100 from any 3 digit number (578-300)
Calculate doubles of multiples of 50 , answers within 1000 (double 450)
Derive corresponding halves
Calculate double of multiples of 10 up to 200 (double I30)
Derive corresponding halves
Know multiplication facts for 3's, 4's x. Tables

## P6

Count, read and write any number, including a decimal number. E.g. 3.05

- Puł a set of numbers, including decimals, in order of size. E.g. 3.03, 3.3, 3.31, 3000I
- Know the pairs of numbers which make one hundred - e.g. 46+54
- Add two numbers in their heads. E.g. 34+15+9+2

Add or subtract multiples of 10 or IOO. E.g. 3046-800

- Subtract one number from another when the numbers are close. E.g. 609-587

Subtract one number from another when the numbers are not close. E.g. 514-29

- Know their tables up to IOxIO and be able to use these facts to do simple divisions.
E.g. $4 \times 8=$ ? And 32 :4=?
- Multiply or divide by 10 or IOO. E.g. I3xI0, $245 \times 100,5.2 \times 10,350 \div 10$

Multiply a 2-digit number. E.g. 5x14

- Double and halve numbers to 1000


## P7

Count, read, write, order numbers to 100,000
Estimate the total of 2 or 3 items in a shopping list ( $£ 2.99+£ 4.49+£ 1.99)$

- Count read write order decimal numbers to 2dp

Find simple non-unitary fractions of quantities by dividing by denominator, multiplying by nu merator (2/3 of I5)

Find $20 \%, 30 \%$, $40 \%$... $90 \%$ of quantities by finding $10 \%$ and multiplying appropriately ( $40 \%$ of 80)

- Add 4 or more single digit numbers
- Add any number to a multiple of $1000(4000+423)$
- Subtract a multiple of I000 from any 4 digit number (4567-3000)
- Add any 2 digit numbers including bridging the 10 and $100(67+77)$

Subtract a 2 digit multiple of 10 from any 3 digit multiple of 10 without bridging through the hundred (670-430)

Add/subtract decimals to I dp decimal number greater than I to make the next whole number (23.2+?=24)
Multiply a 2 digit multiple of 10 by a single digit ( $40 \times 7$ )

- Multiply a 3 digit multiple of 100 by a single digit ( $400 \times 7$ )

Multiply a 3 digit number by 100 ( $456 \times 100$ )
Multiply two 2 digit multiples of $10(30 \times 60)$
Divide whole numbers by 100, whole number answers (4600:100)

## Times Table Square

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 2 | 4 | 6 | 8 | 10 | 12 | 14 | 16 | 18 | 20 |
| 3 | 6 | 9 | 12 | 15 | 18 | 21 | 24 | 27 | 30 |
| 4 | 8 | 12 | 16 | 20 | 24 | 28 | 32 | 36 | 40 |
| 5 | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50 |
| 6 | 12 | 18 | 24 | 30 | 36 | 42 | 48 | 54 | 60 |
| 7 | 14 | 21 | 28 | 35 | 42 | 49 | 56 | 63 | 70 |
| 8 | 16 | 24 | 32 | 40 | 48 | 56 | 64 | 72 | 80 |
| 9 | 18 | 27 | 36 | 45 | 54 | 63 | 72 | 81 | 90 |
| 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 |

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## Blank Grids

## to help with multiplication



## Table Patterns (2, 4, 8)

Get your child to use the Blank Grid on page 7 in the spaces on the top strip (using a pencil) write out the counting in 2 s E.g. or copy page/laminate and cut out strips of 10

| 2 | 4 | 6 | 8 | 10 | 12 | 14 | 16 | 18 | 20 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |

b) In the space on the strip directly below (using a pencil) write out the counting in $4 s$

| 4 | 8 | 12 | 16 | 20 | 24 | 28 | 32 | 36 | 40 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |

## Problem Solve: What do you notice?

C) Cover a number(s) and ask what number is missing? How did you know?
d) In the spaces on the strip directly below (using a pencil) write out counting in 8 s

| 8 | 16 | 24 | 32 | 40 | 48 | 56 | 64 | 72 | 80 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |

e) Repeat 'c'
f) Rub out pencil marks and repeat 4 a-c with counting in 5 s and IOs
g) Rub out pencil marks and repeat $4 a-\mathrm{c}$ with counting in 3 s and 6 s

## 9 Times

d) You can help with tables beyond 5 too e.g. 9 times tables.

Tip: Always remember that $\mathrm{q}=10-1$
b) Encourage them to count on IO-I as they are doing the count. E.g.

C) Get your child to draw these on an ENL.

d) You can help your child with little "tips' on 9 times tables too when they have a good understanding. E.g. Number your fingers (adnd thumbs) I - IO from left to right. Choose any number I- 10 , for example; 7. Put down your 7th finger. Ask your child how many fingers they have raised to the left? (Answer = 6 Number of tens).
How many fingers they have raised to the right? (Answer = 3 Number of units).


## No Friends " 7 Times’

a) The 7 Times seem to have no 'friends' at all. Yet if we know all the rest of them, things should be easier
b) Get your child to make or take out a IO strip. Ask them to put on the multiples of 7 (7 Times Tables) that they definitely know. E.g.

| 7 | 14 |  |  | 35 |  |  |  |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| 70 |  |  |  |  |  |  |  |  |  |

C) Now help them to fill in the missing ones by asking questions like;
a. What is $14+7(14+6+1)=20 \div 1=21$

b. What is $21+7(1+7=8)$ so $21+7=\mathbf{2 8}$
c. What is $35+7(35+5+2)=40 \div 2=42$

d. What is $42+7(2+2=9)$ so $42 * 7=49$
e. What is $49+7(49+1+6)=50+6=56$

f. What is $56 * 7(56+4+3)=60 * 3=63$

g. What is $63 \div 7(3+7=10)$ so $60 * 10=70$
d) Sometimes with tables more than 5 times it is easier if we split up the multiply sum.


| $50 \quad 56$ |
| :--- |

There eventually comes a point (when the tables are known!) that we need to multiply bigger numbers e.g. a garden measures $37 \mathrm{~m} \times 48 \mathrm{~m}$. What area does it cover?

Tip No. I: Work out rough answer

37 (nearly 40) x 48 (nearly 50)



## Numbers

## Prime numbers

Prime numbers are special numbers that can only be divided by themselves and I
19 is a prime number. It can only be divided by I and I9.
The number lis not thought of as a prime number.
9 is not a prime number. It can be divided by 3 as well as I and 9 .
The prime numbers below 20 are: 2, 3, 5, 7, II, I3, I7, I9

## Triangular Numbers

A number than can make a triangular dot pattern.
Example: I, 3, 6 and 10 are triangular numbers


## Percentages \%

Percent means 'out of IOO’

- The sign \% stands for 'per cent’ which means ‘out of IOO".


## Example:

- $40 \%$ means 40 out of 100

II\%. means II out of 100

## Converting between percentages and decimals

To change a percentage to a decimal, divide by 100

## Example:

Change $48 \%$ to a decimal: $48 \div 100=0.48$
To change a decimal to a percentage, multiply by 100

## Example:

- Change 0.67 to a percentage: $0.67 \times 100=67 \%$


## Converting between percentages and fractions

Write the percentage as a fraction over 100 and then simplify

## Example:

- $60 \%$ means 60
- $60=6=3$
- 100105
- Learn these equivalent fractions and percentages
- $1 / 2=50 \%$
- $1 / 4=25 \%$.
$1 / 10=10 \%$ Most important ones!
- $3 / 4=75 \%$
- $1 / 5=20 \%$
- $1 / 3=331 / 3 \%$

Percentage of a number

## Example:

To find $20 \%$ of 30 is to first find $10 \%$ of 30 and then multiply by 2.

- $10 \%$ of 30 is $30 \div 10=3$
- $2 \times 3=6$

Or recognise that $20 \%$ is equivalent to one fifth, and so just divide 30 ory 30:5=6

## Rounding Tens, Hundreds, Thousands

Rounding a number is another way of writing a number approximately. We often don't need to write all the figures in a number, as an approximate one will do.

## Rounding to the nearest ten

To round a number to the nearest 10 , you have to decide if the number is nearest to $10,20,30$ etc. To do this you follow a rule.


Question: Is 37 nearer to 30 or to 40 ?
As the unit figure is 7 , you round up to 40.
Rounding to the nearest 10 can help you estimate the cost of your shopping.

## Rounding to the nearest hundred

To round a number to the nearest 100 , you have to decide if the number is nearest to $100,200,300$ etc.
The rule is the same as for rounding to the nearest 10 , but this time look at the tens figure.

## Empty Number Line Ideas (No Strips)



## Data Handling

I. Go to www.topmarksmaths.co.uk - whiteboard resources - KS2. Data Handling

Get your child to play/practise some of the following good challenging activities (and you as well!)
a) Bar Charts
b) Carroll Diagrams
C) Data Handling
2. Sit down with your child and design a simple bar chart e.g. favourite teams, xbox games etc.

## Shape and Space

I. Go to www.topmarksmaths.co.uk - whiteboard resources - KS2. Shape/Space/Measures
a. Get your child to play some of the following games (you sit down and play too!)
i. Symmetry
ii. Reflections
iii. Symmetry Game
iv. Belly Bug (Co-Ordination)
v. Co-Ordinate Cards
2. Google-oswegomaths - Go to resources oswego.org/games
a. Go to Banana Hunt
3. Look for things in your house with lines of symmetry e.g. windows, doors, tables etc.


Parallel lines are always the same distance apart. Perpendicular lines cross at right angles
A 2D shape is symmetrical if a line can be drawn through it so that either side of the line looks exactly the same. The line is called a line of symmetry.

## Lines of Symmetry





Square
4 lines of symmetry
I line of symmetry
Equilateral Triangle Rectangle 3 lines of symmetry

## Shapes

## 2D Shapes

- Squares have 4 straight sides and 4 corners. All the sides are the same tength
- Rectangles have 4 sides and 4 corners. - They have 2 long sides and 2 short sides.

- Triangles have 3 sides and 3 corners.

- Circles only have one side andrio corners.



## Triangles

## Triangles have three sides. There are many different types of triangles:



## Polygons

Polygons are shapes with many straight sides:

- Regular polygons have equal angles and sides of equal length
- Irregular polygons have sides of different lengths

Here are some common polygons:


## Quadrilaterals

Quadrilaterals have four sides. Here are some special quadrilaterals:


- 4 equal sides
- 2 pairs of equal sides
- 4 right angles

Trapezium
Kite


2 pairs of equal sides next to each other No parallel sides

- 2 pairs of equal sides
- Opposite sides are parallel
- Opposite angles are equal

Rhombus (squashed square)


- 4 equal sides
- Opposite sides are parallel Opposite angles are equal


## Multiplication Definitions

Here are some of the words which we use when doing multiplication sums. Have a look below to see how they can be used in the simple sum $2 \times 2=4$.


## Measures

Remember;

| $10 \mathrm{~mm}=\mathrm{Icm}$ | $500 \mathrm{~g}-\mathrm{I} / 2 \mathrm{Kg}$ |
| :---: | :---: |
| $100 \mathrm{~cm}-\mathrm{Im}$ | $250 \mathrm{~g}-\mathrm{I} / 4 \mathrm{Kg}$ |
| $1000 \mathrm{~m}-\mathrm{Ikm}$ | $1000 \mathrm{ml}-\mathrm{IL}$ |
| $500 \mathrm{~m}-\mathrm{I} / 2 \mathrm{~km}$ | $500 \mathrm{ml}-\mathrm{I} / 2 \mathrm{~L}$ |
| $250 \mathrm{~m}-\mathrm{I} / 4 \mathrm{~km}$ | $250 \mathrm{ml}-1 / 4 \mathrm{~L}$ |
| $1000 \mathrm{~g}-\mathrm{IKg}$ |  |

a) Give your child practice in counting on when using $\mathrm{m}, \mathrm{g}, \mathrm{ml}$ to nearest $\mathrm{km}, \mathrm{kg}$, I (Follow these examples).

## Example I:

If I walk 260 m , how much more do I need to walk to reach lkm ( 1000 m )?
Tip: Use the Empty Number Line

Answer $=740 \mathrm{~m}$

a) Mark 260 m and 1000 m
b) Mark in next hundred to 260 i.e. 300 and show 'hop' forward ( 40 m )
c) Show the hop from 300-1000 i.e. 700 .

## Example 2:

My water bottle holds 200 ml and I have drunk 95 ml . How much have I left?




## Volume

Each of these two cuboids has the same volume, 10 cm 3 , and the same dimensions: length 5 cm , width 2 cm , height Icm .

The volume of the first can be found by counting the unit cubes.
The volume of the second is found using the rule:

## Volume of a cube or cuboid = length x breadth x height



This cube has sides of length 3cm

Its volume is $\mathbf{3 \times 3 \times 3 = 2 7} \mathbf{c m} 3$

## Measuring Capacity

Capacity or volume is a measure of how much space something takes up. Measuring spoons or measuring jugs can be used to measure capacity.
To find the Volume or Capacity of a cube or cuboid container:

## Volume $=$ Length $\times$ Breadth $\times$ Height

Metric Units of Capacity
Capacity is measured in millilitres (ml) and litres (I).

11 - 1000 ml
$3 / 41-750 \mathrm{ml}$
1/21-500 ml
$1 / 41-250 \mathrm{ml}$
Imperial units of capacity:

Units of measurement: cm3

Pints and gallons are old units of capacity (imperial units) There are 8 pints in a gallon A gallon is roughly equal to 4.5 litres

www.topmarksmaths.co.uk - Whiteboard Resources KS2 - Measures
a) Class Clock or clock

Give your child plenty of practice setting the 'Class Clock' to different times and get them to do the same with another.

Teaching Tip: Start with o'clocks, then half past, quarter past, quarter to etc.
Make sure your child follows what they see on the ‘Class Clock’ activities.
b) Get your child to add/take away some times now e.g. Ihr, I/2hr (30 mins), I/4 hr (15mins) etc.

Get them to do these with their own clock.
Show some of these on an Empty Number Line (ENL)
a. E.g. $-\mathbf{q . 4 5 a m}$ + lhr


a) Other good activities from 'Measures related to Time' (topmarksmaths website) include;
a. Clock
b. On Time - Advanced Level
C. Telling the Time
b) Give your child more practice in adding/taking away times of everyday events using Empty Number Lines (ENLs)
a. Example I: The film starts at 7.30pm and goes on for Ihr 40 mins . What time is it over at?


Answer: 9:IOpm
f. Example 2: If I get home from school at 3.45 pm and get my tea at 6.15 pm , how long do I have to wait?
Answer: 2 hrs 30 mins ( $3: 45 \mathrm{pm} \mid$

Tip: count on minutes to next 'O'Clock' (15mins) and then how many hours to next "O'Clock' (2hr) and then count on minutes from 'O'Clock' (I5mins).

There are 60 minutes in an hour.

There are 5 minutes between each number and the next.

## Time

Analogue Clock


There are 15 minutes in a quarter of an hour.

There are $\mathbf{3 0}$ minutes in half an hour.

The large hand on a clock is always the minute hand.
The small hand on a clock is always the hour hand.
Before noon is known as AM and afternoon is known as PM.

## 24 Hour Clock

| 12 Hour C | 24 Hour |  | 12 Hour Clock | 24 Hour Clock |
| :---: | :---: | :---: | :---: | :---: |
| 12 pm | 1200 |  | 12 am | 0000 |
| 1 pm | 1300 |  | 1 am | 0100 |
| 2 pm | 1400 |  | 2 cm | 0200 |
| 3 pm | 1500 |  | 3 am | 0300 |
| 4 pm | 1600 |  | 4 cm | 0400 |
| 5 pm | 1700 |  | 5 cm | 0500 |
| 6 pm | 1800 |  | 6 cm | 0600 |
| 7 pm | 1900 |  | 7 am | 0700 |
| 8 pm | 2000 |  | 8 cm | 0800 |
| 9 pm | 2100 |  | 9 am | 0900 |
| 10 pm | 2200 |  | 10 cm | 1000 |
| II pm | 2300 |  | II am | IIOO |

## Units of Time

| I minute | 60 seconds |
| :---: | :--- |
| Ihour | $\mathbf{6 0}$ minutes |
| I day | 24 hours |
| I week | $\mathbf{7}$ days |
| Iforthight | $\mathbf{1 4}$ days |
| I year | 12 months $/ 52$ weeks $/ 365$ days |
| Ileap year | 366 days |

## How Many Days?

## Remember:

30 days has September, April, June and November.
All the rest have 31.
Except for February all alone, which has 28 days clear but 29 in each leap year.

## Useful Websites/Links



## Games

- Jigsaws (number)
- Interactive jigsaws in Top marks
- Go to - Parents
- Go to - Maths Games
- Playing Cards
- Money Games
- Ludo
- Snakes/Ladders
- Connect 4
- Dominoes
- Draughts
- Simple Sudoku


## Helping out at Home

## Ouł and Abouł

- Plan your trip around the shops
- Recognising new coins 20p, 50p, $£ 1$, £2
- Change from IOp, 20p, 50p, \&l - adding/ subtracting
- Exchanging coins for least amount
- Sequence shopping from lightest to heaviest


## In the Kitchen <br> In the Kif chen

- Read analogue/digital clock
- Sharing out dinner (e.g. pizzas etc)/fractions
- Reading scales on kettle, weighing scales -working out how much to fill, get to lkg etc
- Non uniform measuring - Baking: how many spoonfuls of flour weigh 100 g etc.


## Around the House

- Talk about different shapes, squares, rectangles,
triangles, circles etc.
- Estimate lengths, widths, heights etc.
- Fractions - half an apple, kit kat, sandwich etc.
- Sequence shopping from iighiest to heaviest


