The Redeemer C. of E. Primary School

Year 5   Mathematics Core Knowledge Organiser

Place Value

Decimals

Vocabulary

Multiple—the answer to a multiplication

Factor—a number which can divide into a multiple without leaving a remainder

Common Factor—a number which is a factor of two or more other numbers

Prime Numbers—a number with only 1 pair of factors (1 and itself) 2 = only even prime

Composite Numbers—non-prime numbers

1 is not a prime or composite number

Prime Factor—a factor of a number that is also a prime number

$2^2 = 2 \times 2 = 4$

Square number—

$3^3 = 3 \times 3 \times 3 = 27$

Cube number -

Measure Conversions

1 **cent**imetre	10mm
1 metre	100cm
1 **kilo**metre	1,000 m
1 mile	1.6 km
1 kilometre	0.625 ($^5/_8$) mile
1 **kilogram**	1,000 grams
1 litre	1,000 **millilitres**

Using known tables facts
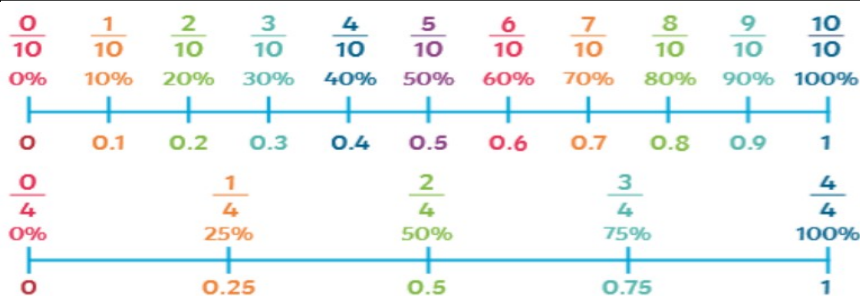
$3 \times 5 = 15$
$30 \times 5 = 150$
$300 \times 5 = 1,500$
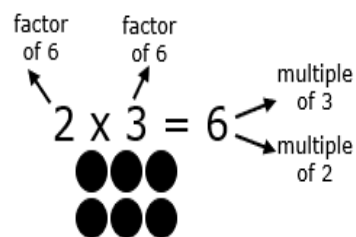$3,000 \times 5 = 15,000$
$0.3 \times 5 = 1.5$
$0.03 \times 5 = 0.15$

Equivalent fractions, decimals and percentages

Roman Numerals

1	I	100	C
5	V	500	D
10	X	1000	M
50	L		

Multiplication

factor of 6   factor of 6

$2 \times 3 = 6$ → multiple of 3 / multiple of 2

Addition

Subtraction

Long Multiplication

		4	3	5	7
	x			3	6
	2	6	1	4	2	(4357 x 6)
1	3	0	7	1	0	(4357 x 30)
1	5	6	8	5	2

Bus Stop Division

short division

decimal 52.25

fraction $52\frac{3}{12}$ / $52\frac{1}{4}$

Fractions/decimals
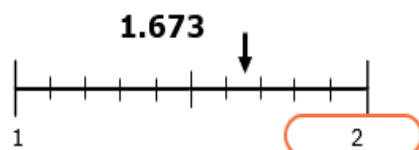
fraction and decimal equivalence

$\frac{1}{4} = \frac{25}{100} = 0.25$

$\frac{1}{2} = \frac{50}{100} = 0.50$

$\frac{3}{4} = \frac{75}{100} = 0.75$

Rounding

Round to the nearest whole number

1.673

1   2

Round to the nearest tenth

3.429

3.4   3.5

Multiply and Divide

multiplying by 10, 100 and 1000

M	HTh	TTh	Th	H	T	O	t	h	th
					1	2	4	5	
				1	2	4	5		
			1	2	4	5			
		1	2	4	5	0			

dividing by 10, 100 and 1000

M	HTh	TTh	Th	H	T	O	t	h	th
				4	2	1			
					4	2	1		
						4	2	1	
						0	4	2	1

Fractions

comparing and ordering fractions

$\frac{3}{8}$ $\frac{3}{4}$ $\frac{1}{2}$

$\frac{3}{8}$ $\frac{6}{8}$ $\frac{4}{8}$

$\frac{3}{8} < \frac{1}{2} < \frac{3}{4}$

mixed numbers and improper fractions

mixed number
$4\frac{2}{5}$

improper fraction
$\frac{22}{5}$
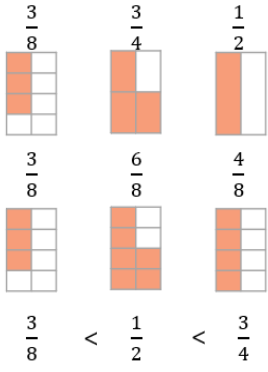
adding fractions with different denominators

First express the fractions as the same denominator
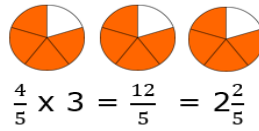
$\frac{8}{12} + \frac{3}{12} = \frac{11}{12}$

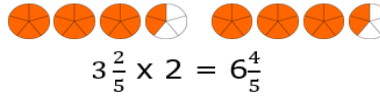## subtracting fractions with different denominators

$\frac{8}{12} - \frac{3}{12} = \frac{5}{12}$

simplifying fractions

$\frac{3}{12} \xrightarrow[\div 3]{\div 3} \frac{1}{4}$

multiply fractions by whole numbers

$\frac{4}{5} \times 3 = \frac{12}{5} = 2\frac{2}{5}$

multiply mixed numbers by whole numbers

$3\frac{2}{5} \times 2 = 6\frac{4}{5}$

method one:
$3 \times 2 = 6$

$\frac{2}{5} \times \frac{2}{1} = \frac{4}{5}$

$6 + \frac{4}{5} = 6\frac{4}{5}$

1) Multiply the whole numbers
2) Multiply the fraction by the whole number
3) Add the two answers together

method two:
$\frac{17}{5} \times \frac{2}{1} = \frac{34}{5}$

$\frac{34}{5} = 6\frac{4}{5}$

1) Convert the mixed number to an improper fraction
2) Multiply the improper fraction by the whole number
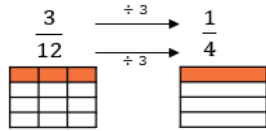3) Convert the answer to a mixed number

Percentages

$\frac{1}{2}$	0.5	50%
$\frac{1}{4}$	0.25	25%
$\frac{1}{5}$	0.2	20%
$\frac{2}{5}$	0.4	40%
$\frac{3}{5}$	0.6	60%
$\frac{4}{5}$	0.8	80%
$\frac{3}{10}$	0.3	30%
$\frac{7}{10}$	0.7	70%

Geometry

angles

acute angle
less than 90°

right angle
exactly 90°
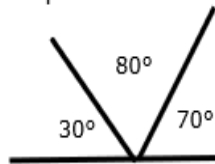
obtuse angle
more than 90°
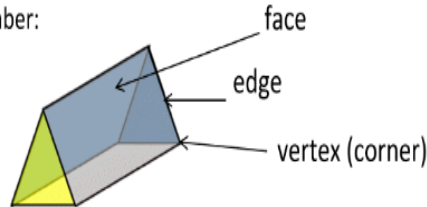less than 180°

Reflex angle
more than 180°
less than 360°

Angles

Angles in a straight line add up to 180°

80° 30° 70°

Angles around a point add up to 360°

80° 120° 50° 110°

Remember:
face
edge
vertex (corner)

3 Dimensional (3D) shapes
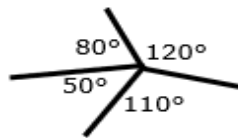
Name: cube	Name: triangular prism
F: 6	F: 5
E: 12	E: 9
V: 8	V: 6
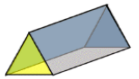
Name: triangular pyramid	Name: cuboid
F: 4	F: 6
E: 6	E: 12
V: 4	V: 8
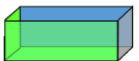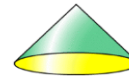
Name: cone	Name: cylinder
F: 1 or 2	F: 2 or 3
E: 0 or 1	E: 0 or 2
V: 0 or 1	V: 0

Name: sphere	Name: square pyramid
F: 0 or 1	F: 5
E: 0	E: 8
V: 0	V: 5

Measurement: conversion

metric units of measure

length

$\div 10$
$10\text{ mm} = 1\text{ cm}$
$\times 10$

$\div 100$
$100\text{ cm} = 1\text{ m}$
$\times 100$

$\div 1{,}000$
$1{,}000\text{ m} = 1\text{ km}$
$\times 1{,}000$

mass
$\div 1{,}000$
$1{,}000\text{ g} = 1\text{ kg}$
$\times 1{,}000$

capacity
$\div 1{,}000$
$1{,}000\text{ ml} = 1\text{ l}$
$\times 1{,}000$
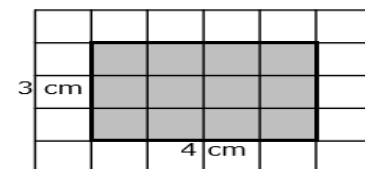
Perimeter and Area
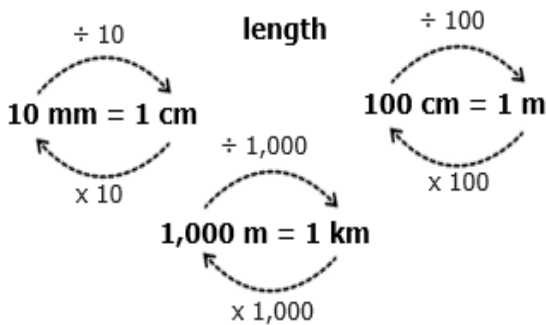
PeRIMeter is the length all the way around the edge of a shape.

Rectangle's perimeter =2length+2width

area of rectangles

3 cm 4 cm

4 cm x 3 cm = 12 cm²

2 cm 6 cm

6 cm x 2 cm = 12 cm²

Area = surface covered.

Rectangle = length **x** width

Timetables

convert units of time

60 seconds = 1 minute
60 minutes = 1 hour
24 hours = 1 day
7 days = 1 week
12 months = 1 year
365 days = 1 year **366 leap yr.**

	Pi Street	Subtraction Way	Times Square	Calculation Street	Total Avenue
Bus 1	11:56	12:01	12:12	12:19	12:25
Bus 2	12:05	12:10	12:21	12:28	12:34
Bus 3	12:20	12:25	12:36	12:43	12:49