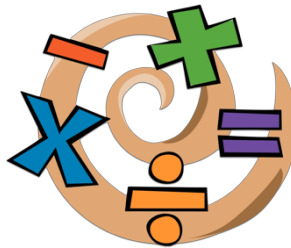# St Andrew's Academy
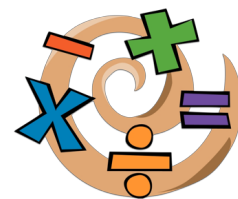
Mathematics Department

COURSE 1 BLOCK 3
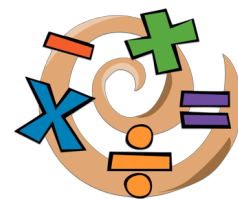
PRE-ASSESSMENT LEARNING EVALUATION

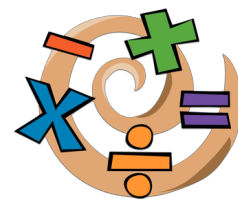|	Red	Amber	Green	Revision Exercise
Fractions 1				
o I can identify fractions from a diagram: $= \dfrac{3}{8}$	◯	◯	◯	• Fractions Exercise 1
o I can simplify fractions and leave them in their simplest form, e.g. $\overset{\div 2}{\underset{\div 2}{\dfrac{18}{20}}} = \dfrac{9}{10}$	◯	◯	◯	• Fractions Exercise 2 Q1
o I can state an equivalent fraction to the one your given, e.g. $\overset{x2}{\underset{x2}{\dfrac{2}{3}}} = \dfrac{4}{6}$	◯	◯	◯	• Fractions Exercise 2 Q2
o I can order fractions from smallest to largest or vice versa, e.g. Order from smallest to largest: $\dfrac{5}{6}, \dfrac{1}{2}, \dfrac{3}{4}, \dfrac{2}{3}$, (you must change them to equivalent fractions in order to evaluate) $\dfrac{10}{12}, \dfrac{6}{12}, \dfrac{9}{12}, \dfrac{8}{12}$, so in order from smallest to largest: $\dfrac{6}{12}, \dfrac{8}{12}, \dfrac{9}{12}, \dfrac{10}{12}$	◯	◯	◯	• Fractions Exercise 3
o I can work out fractions of an amount, e.g. a) $\dfrac{1}{4}$ of 64 = 64 ÷ 4 16	◯	◯	◯	• Fractions Exercise 4
b) $\dfrac{2}{3}$ of 36 = 36 ÷ 3 x 2 = 12 x 2 = 24	◯	◯	◯	
o Be able to add and subtract fractions with the same denominators, e.g. a) $\dfrac{2}{5} + \dfrac{1}{5} = \dfrac{3}{5}$ b) $\dfrac{7}{8} - \dfrac{5}{8} = \dfrac{2}{8} = \dfrac{1}{4}$	◯	◯	◯	• Fractions Exercise 5

	Red	Amber	Green	Revision Exercise
ALGEBRA				
o I can simplify expressions where there are negative coefficients e.g. a) $7d + 3e - 4d + e = 3d + 4e$ b) $2f + 5g + 3f - 7g = 5g - 2g$	◯	◯	◯	• Algebra Exercise 1

o I can remove a single set of brackets
e.g. a) $6(x + 3)$ b) $2(y - 5)$
   $= 6x + 18$ $= 2y - 10$
 	
   c) $4(2d + 6)$ d) $-3(m - 4)$
   $= 8d + 24$ $= -3m + 12$
	◯	◯	◯	• Algebra Exercise 2

o I can remove brackets and simplify
e.g. a) $5(x + 4) - 7$
   $= 5x + 20 - 7$
   $= 5x + 13$
	◯	◯	◯	• Algebra Exercise 3 Q1

b) $8(x + 2) - 3(2x - 5)$
   $= 8x + 16 - 6x + 15$
   $= 2x + 31$
	◯	◯	◯	• Algebra Exercise 3 Q2

o I can solve equations with letters and numbers on both sides:
e.g. a) $8x + 4 = 2x + 40$
       -4   -4
    $8x$ $= 2x + 36$
   -2x   -2x
    $6x$ $= 36$
    ÷6   ÷6
     x $= 6$
 	
   b) $5y - 7 = 2y + 14$
        +7   + 7
     $5y$ $= 2y + 21$
    -2y   -2y
     $3y$ $= 21$
     ÷3   ÷ 3
      y $= 7$
 	
   c) $3a + 5 = 6a - 19$
         -5   -5
      $3a$ $= 6a - 24$
     -6a   -6a
      $-3a$ $= -24$
     ÷ -3   ÷ -3
       a $= 8$
	◯	◯	◯	• Algebra Exercise 4

COURSE 1 BLOCK 3 **LEARNING EVALUATION**

|	Red	Amber	Green	Revision Exercise
NUMBER				
I understand the meaning of the term multiple and can list the multiples of a number: e.g. a) Multiples of 3: 3, 6, 9, 12, 15, 18,……. b) Multiples of 6 between 20 and 40: 24, 30, 36	○	○	○	• Number Exercise 1
I can state the lowest common multiple (L.C.M) between two numbers: e.g. State the L.C.M between 4 and 6 Multiples of 4: 4, 8, 12, 16, 20, 24, 28……. Multiples of 6: 6, 12, 18, 24, 30, 36……….. L.C.M = 12	○	○	○	• Number Exercise 2
I understand the meaning of the term factor and can state the factors of a number: e.g. Factors of 18: 1, 2, 3, 6, 9, 18	○	○	○	• Number Exercise 3
I can state the highest common factor (H.C.F) between two numbers: e.g. State the highest common factor between 12 and 18. Factors of 12: 1, 2, 3, 4, 6, 12 Factors of 18: 1, 2, 3, 6, 9, 18 H.C.F. = 6	○	○	○	• Number Exercise 4
I understand what a prime number is. (a number that only has two factors)	○	○	○	
I can state if a number is prime or not. e.g. a) Is 3 a prime number? Yes as the only factors are 1 and 3 b) Is 9 a prime number? No as 9 has 3 factors, 1, 3 and 9	○	○	○	• Number Exercise 5

o I can use prime decomposition to write a number as a product of primes: e.g.

Write 24 as a product of primes.

```
          24
         /  \
        4    6
       / \  / \
      2  2 2   3
```
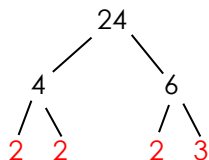
Product of Primes -> 24 = 2 x 2 x 2 x 3

○ ○ ○   • Number Exercise 5

o I understand and complete calculations in the necessary order.

B	O	D	M	A	S
r	f	i	u	d	u
a		v	l	d	b
c		i	t		t
k		d	i		r
e		e	p		a
t			l		c
s			y		t

○ ○ ○

o I can apply the rules regarding order of operations to carry out calculations:

e.g. a) 3 + 5 x 2   b) 17 − 12 ÷ 4
     = 3 + 10   = 17 - 3
     = 13   = 14

○ ○ ○   • Number Exercise 6
                Question 1

   c) 6 x (9 − 5)   d) (21 + 7) ÷ (6 − 2)
      = 6 x 4   = 28 ÷ 4
      = 24   = 7

○ ○ ○   • Number Exercise 6
                 Question 1

   e) 20 - $\frac{1}{2}$ of 8   f) 3 x 9 + 2² - 14
      = 20 − 4   = 27 + 4 - 14
      = 16   = 31 − 14
                             = 17

○ ○ ○   • Number Exercise 6
                Question 1

o I can insert a mathematical symbol or brackets to make a calculation correct e.g.
a) Insert +, -, x or ÷, to make the calculation true: 5   3   4 = 17

Answer: 5 + 3 x 4 = 17

○ ○ ○   • Number Exercise 6
                Question 2

b) Insert brackets to make the calculation correct: 6 + 5 x 3 = 33

Answer: (6 + 5) x 3 = 33

○ ○ ○   • Number Exercise 6
                Question 3

S1 BLOCK 3 **REVISION**
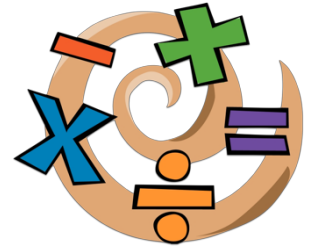
NUMBER REVISION

Exercise 1

1. Write down the first 8 multiples of the following numbers:

a) 3   b) 5   c) 8   d) 10   e) 12   f) 15   g) 20   h) 35   i) 100

2. Write down the multiples of 4 between 20 and 40.

3. Write down the multiples of 6 between 50 and 70.

4. Write down the multiples of 7 between 60 and 90.

Exercise 2

1. a) Write down the first 10 multiples of 4.
   b) Write down the first 10 multiples of 6.
   c) State the lowest common multiple between 4 and 6.

2. a) Write down the first 10 multiples of 8.
   a) Write down the first 10 multiples of 12.
   b) State the lowest common multiple between 8 and 12.

3. a) Write down the first 10 multiples of 15.
   a) Write down the first 10 multiples of 20.
   b) State the lowest common multiple between 15 and 20.

4. Write down the lowest common multiple between:
   a) 2 and 3   b) 4 and 10   c) 12 and 18   d) 8 and 14   c) 2, 3 and 4

Exercise 3

1. List the factors of the following numbers:
   a) 8   b) 10   c) 15   d) 24   e) 36   f) 50   g) 64   h) 72   i) 100

2. Is 3 a factor of?   a) 21   b) 32   c) 54
3. Is 9 a factor of?   a) 72   b) 38   c) 108

Exercise 4

1. a) Write down the factors of 12
   b) Write down the factors of 16.
   c) State the highest common factor between 12 and 16.

2. a) Write down the factors of 8
   b) Write down the factors of 20
   c) State the highest common factor between 8 and 20

3. a) Write down the factors of 15.
   a) Write down the factors of 45.
   b) State the highest common factor between 15 and 45.

4. Write down the highest common factor between:
   a) 10 and 12   b) 20 and 24   c) 12 and 48   d) 12, 18 and 36

Exercise 5

1. State which of the following numbers are prime numbers?
   a) 5   b) 14   c) 17   d) 51   e) 33   f) 43   g) 27   h) 73

2. Use prime decomposition to write the following numbers as a product of primes:
   a) 12   b) 18   c) 28   d) 32   e) 42   f) 50

ALGEBRA REVISION

Exercise 1

1. Simplify the following expressions by collecting like terms:
   c) $8y + 2x + 5y + 4x$ b) $3d + 6e + d - 2e$ c) $9f + 3 - 7f - 1$

   d) $7g + 3h - 4g - 6h$ e) $4a + b - 2a - 4b$ f) $12x + 9y - 3z - 7x + 2y + 4z$

   g) $10p + 6 - 8p - 11$ h) $13q + 9p - 6 - 7q - 15p + 5$

Exercise 2

1. Remove the brackets:
   c) $2(x + 4)$ b) $5(y + 2)$ c) $8(b + 3)$ d) $9(c + 5)$ e) $3(p + 8)$

   f) $4(a - 2)$ g) $7(m - 3)$ h) $2(k - 6)$ i) $5(2y + 8)$ j) $3(4c + 2)$

   k) $4(2p + 3)$ l) $9(2g - 1)$ m) $6(5 - 3d)$ n) $3(1 - 4r)$ o) $-5(e - 8)$

   p) $-7(h + 3)$ q) $-3(2r + 5)$ r) $-8(3f - 2)$ s) $-2(6 - 4d)$ t) $-9(1 + 2a)$

Exercise 3

1. Remove the brackets and simplify:
   (a) $2(q + 4) + 3$ (b) $3(e + 1) + 6$ (c) $5(t + 4) + 2$ (d) $6(u + 2) - 7$
   (e) $4(p + 2) - 7$ (f) $80v + 10(7v + n)$ g) $12 - 2(x - 5)$

2. Remove the brackets and simplify:

   (a) $3(m + 2) + 4(m + 1)$ (b) $5(b + 2) + 2(b + 4)$ (c) $8(c + 1) + 3(c + 6)$

   (d) $2(8t - 2) + 5(2t + 4)$ (e) $6(4 - 5e) + 7(2 + 4e)$ (f) $4(2x + 1) - 3(x + 2)$

   (g) $9(x + 1) - 6(x - 2)$ (h) $x(8x - 2) - 2(3x - 8)$

Exercise 4

1. Solve the following equations:

   c) x + 3 = 9   b) 2x = 6   c) 4 – x = 5   d) 2x + 3 = 13

   e) 2x = 1   f) 3x = 2   g) 4x = 20   h) 4x – 1 = 19

   i) 3x = -27   j) 2x = -6   k) 4x = -8   l) 4x = -1

   m) 2x + 3 = -5   n) 2x – 3 = 5   o) 2x – 3 = x + 2   p) 7x – 3 = 2x + 12

   q) 7y – 8 = 5y + 2   r) 4x + 5 = 2x – 11   s) 5x – 6 = 2x – 15   t) x + 2x = -15

   u) 3x – 5 = 4x – 7   v) 2x + 7 = 5x – 3   w) 2m + 7 = 12 – 3m   x) 6g – 2 = 8g – 5

   y) 8 – 4x = 10 – 2x   z) 9d – 16 = 2d - 51

Exercise 6

1. Evaluate:

   a) 7 + 6 x 5   b) 7 – (6 – 2)   c) 24 ÷ 6 + 5   d) 7 x 6 + 8 x 2
   e) 10 ÷ 5 + 8 ÷ 2   f) (5 – 2) x 7 + 9   g) 60 ÷ (5 + 7)   h) 60 ÷ 5 + 7
   i) 4 x 3 + 2   j) 4 x (3 + 2)   k) 12 x (20 – 2) ÷ 9   l) 36 ÷ (5 + 4)
   m) 4 x 12 ÷ 8 – 6   n) $\dfrac{15}{18-3}+4$ o) $\dfrac{22-4}{9}+12\div3$ p) 30 – (16 – 12)^2
   q) 7 x 6 – 3^2 + 15 ÷ 5   r) (9 + 2) x (17 – 5)   s) 56 ÷ 2^3 – 4   t) 10 + $\frac{2}{3}$ of 39 – 12
   u) (7 + 4) x (5 – 8)   v) (23 – 6) ÷ 9   w) 3 + (-7) x 2   y) 13 – (-12) ÷ (-6)
   z) 4 x (-3)^2 + 8

2. Choose from the four signs +, -, x, and ÷ to make these sums correct.

   a) 5   6   7 = 37   b) 5   6   7 = 47
   c) 15   8   9 = 87   d) 15   8   9 = 129
   e) 15   8   9 = 111   f) 15   5   3 = 6
   g) 5   24   6 = 1   h) 19   19   7 = 8
   i) 4   4   7   2 = 30

3. Some of these need brackets to make them correct, copy them out and place in the brackets if and where needed:
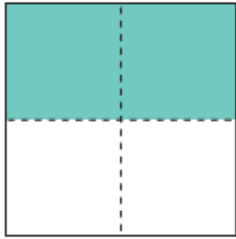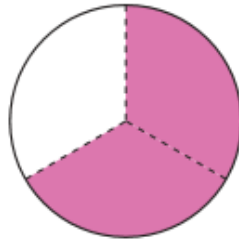
   a) 2 x 3 + 7 = 20   b) 13 – 2 x 5 = 55   c) 7 – 4 – 1 = 4   d) 36 ÷ 2 x 3 + 4 = 10
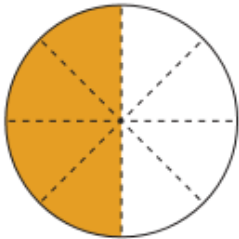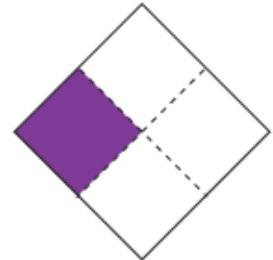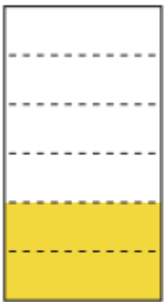
FRACTIONS 1 REVISION

Exercise 1

1. What fraction in the following diagrams are shaded:
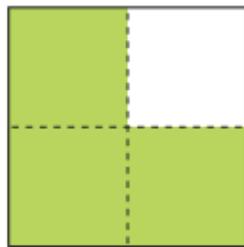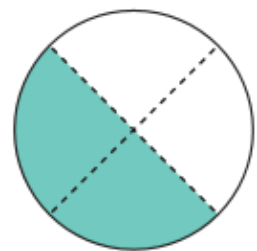
2. Shade the parts of the shape that's represents each fraction:

$\frac{1}{4}$ $\frac{3}{4}$ $\frac{5}{6}$

$\frac{2}{6}$ $\frac{1}{2}$ $\frac{5}{8}$

$\frac{1}{4}$ $\frac{2}{5}$ $\frac{2}{4}$
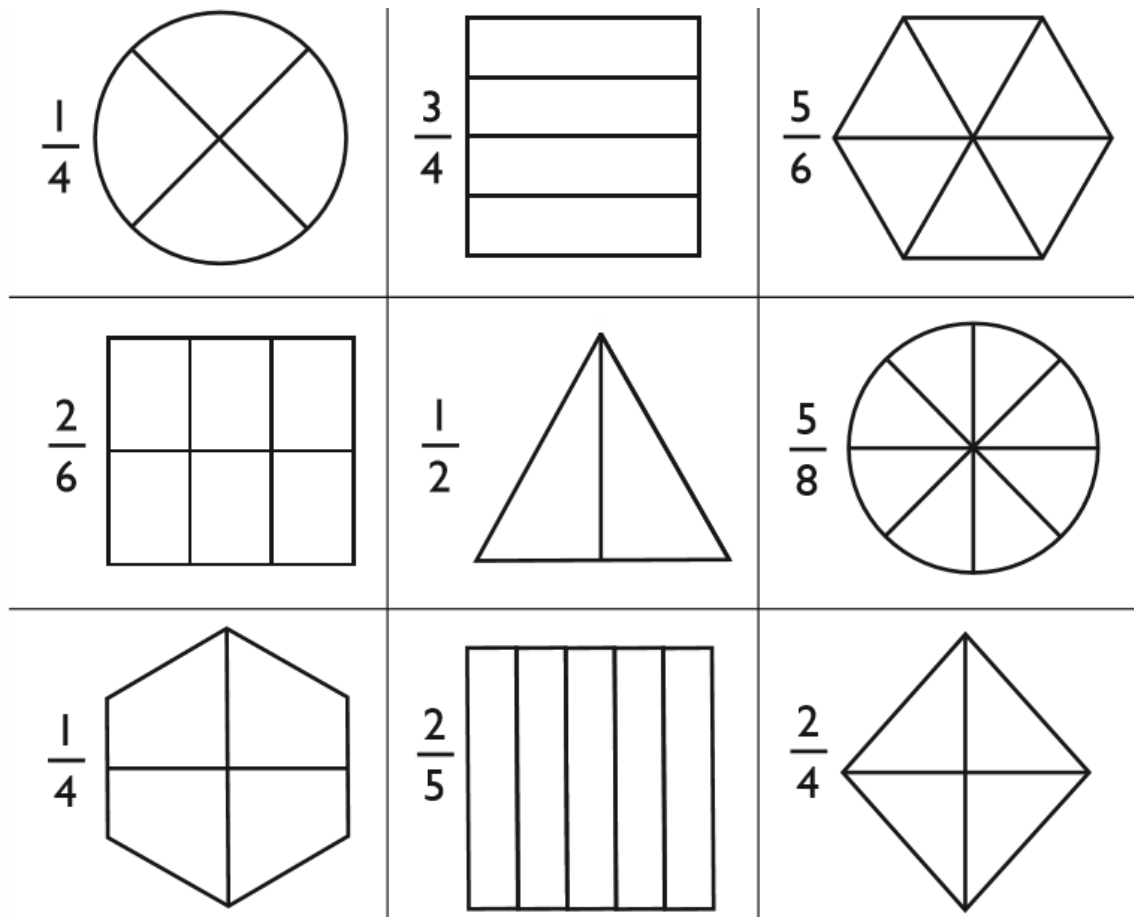
Exercise 2

1. Simplify the following fractions:

    a) $\frac{9}{18}$ b) $\frac{4}{12}$ c) $\frac{3}{15}$ d) $\frac{12}{18}$ e) $\frac{6}{8}$ f) $\frac{14}{35}$ g) $\frac{36}{42}$

2. Fill in the missing numbers:

    a) $\frac{1}{4} = \frac{}{12}$ b) $\frac{5}{7} = \frac{25}{}$ c) $\frac{2}{3} = \frac{}{18}$ d) $\frac{7}{} = \frac{21}{24}$ e) $\frac{}{4} = \frac{24}{32}$

Exercise 3

Order these fractions from smallest to largest:

a) $\frac{3}{4}$, $\frac{1}{2}$, $\frac{1}{4}$, $\frac{3}{8}$, $\frac{4}{8}$ *b)* $\frac{2}{5}$, $\frac{6}{10}$, $\frac{1}{2}$, $\frac{2}{2}$, $\frac{3}{5}$

c) $\frac{3}{4}$, $\frac{1}{3}$, $\frac{1}{2}$, $\frac{4}{6}$, $\frac{5}{12}$ *d)* $\frac{2}{3}$, $\frac{1}{4}$, $\frac{5}{6}$, $\frac{7}{8}$, $\frac{1}{2}$

e) $\frac{3}{4}$, $\frac{6}{10}$, $\frac{2}{5}$, $\frac{1}{2}$, $\frac{1}{4}$ *f)* $\frac{4}{9}$, $\frac{2}{3}$, $\frac{1}{2}$, $\frac{5}{6}$, $\frac{1}{3}$

g) $\frac{2}{6}$, $\frac{2}{3}$, $\frac{5}{12}$, $\frac{1}{4}$, $\frac{7}{9}$ *h)* $\frac{2}{7}$, $\frac{2}{4}$, $\frac{11}{14}$, $\frac{3}{2}$, $\frac{5}{8}$

Exercise 4

1. Find:

(a) $\frac{1}{3}$ of 18 =   (b) $\frac{1}{4}$ of 16 =   (c) $\frac{1}{5}$ of 35 =

(d) $\frac{1}{2}$ of 20 =   (e) $\frac{1}{7}$ of 49 =   (f) $\frac{1}{4}$ of 8 =

(g) $\frac{1}{10}$ of 180 =   (h) $\frac{1}{11}$ of 88 =   (i) $\frac{1}{9}$ of 63 =

2. Find:

(a) $\frac{1}{3}$ of 21m =   (b) $\frac{1}{4}$ of £24 =   (c) $\frac{1}{5}$ of \$25 =

(d) $\frac{1}{6}$ of 36cm =   (e) $\frac{1}{3}$ of 30km =   (f) $\frac{1}{8}$ of £32 =

3. Find:

(a) $\frac{2}{3}$ of 21m =   (b) $\frac{3}{4}$ of £24 =   (c) $\frac{4}{5}$ of \$25 =

(d) $\frac{5}{6}$ of 36cm =   (e) $\frac{2}{3}$ of 30km =   (f) $\frac{3}{8}$ of £32 =

(g) $\frac{2}{5}$ of 35m =   (h) $\frac{7}{8}$ of £40 =   (i) $\frac{2}{9}$ of £72 =

Exercise 5

1. Complete the following calculations:

a) $\frac{3}{7} + \frac{3}{7} =$ b) $\frac{4}{5} - \frac{1}{5} =$ c) $\frac{2}{9} + \frac{3}{9} =$ d) $\frac{2}{8} - \frac{1}{8} =$ e) $\frac{1}{7} + \frac{3}{7} =$

f) $\frac{6}{7} - \frac{3}{7} =$ g) $\frac{3}{8} + \frac{3}{8} =$ h) $\frac{3}{4} - \frac{1}{4} =$ i) $\frac{3}{10} + \frac{5}{10} =$ j) $\frac{7}{12} - \frac{4}{12} =$