LESSON ONE WEEK FOUR

TOPIC: PATTERNS AND SEQUECE
SUB TOPIC: APPLICATION OF LCM
Example: -

1. Find the smallest number which when divided by 9 and 12 leaves
   - (a)   No remainder?
   - (b)   Remainder of 1?
   - (c)   Remainder of 5?

a) Get LCM of 9 and 12 i.e

2	9	12
2	9	6
3	3	1
	1	1

   LCM = 2 x 2 x 3 x 3 = 36
   ∴ **Number = 36**

b)   Number is LCM + RCM
   36 + 1 = 37
   ∴ **Number = 37**

c)   Number is LCM + RCM
   36 + 5 = 41
   ∴ **Number = 41**

2. Kelvin has a stride of 40cm and his father has a stride of 60cm. What is the width of the narrowest path that they can both cross in a whole number of strides?
   LCM of 40cm and 60 cm

   M_{40} = {40, 80, 120, 160, ----}

   M_{60} = {60, 120, 180, ---------}

   LCM = 120

   ∴ **The width is 120 cm**

Activity
1. Alex has a stride of 30cm and his father has a stride of 50cm. What is the width of the narrowest path that they can both cross in a whole number of strides?
2. Aisha has a stride of 45cm and her mother has a stride of 90cm. What is the width of the narrowest path that they can both cross in a whole number of strides?
3. Two bell for lower and upper primary ring at intervals 40 and 15 minutes respectively.
   a) After how many minutes will they ring together at the same time?
   b) If the first time they rang together was 8:30am, at what time will they ring together again?

4. Two bell for lower and upper primary ring at intervals 30 and 40 minutes respectively.
   c) After how many minutes will they ring together at the same time?
   d) If the first time they rang together was 8:00am, at what time will they ring together again?

5. Two bell for lower and upper primary ring at intervals 60 and 90 minutes respectively.
   e) After how many minutes will they ring together at the same time?
   f) If the first time they rang together was 9:00am, at what time will they ring together again?

LESSON TWO

TOPIC: PATTERNS AND SEQUECE
SUB TOPIC: WORKING WITH POWERS OF WHOLE NUMBERS.
Content: - Find a number from powers
        - Express number as product of powers of a given numbers
        - Operation on powers.
Example:
1.   What is 7^3?
            $73 = 7 \times 7 \times 7$
               $= 343$

2.   Express 64 using powers of fours

4	64
4	16
4	4
	1

∴ $64 = 4 \times 4 \times 4$
    $64 = 4^3$

3. Work out: $2^3 + 3^2 + 5^1$

                 $(2 \times 2 \times 2) + (3 \times 3) + 5$

                 $= 8 \quad + \quad 9 \quad + 5$

                 $= 22$

Activity

1. What is 6^3?
2. Work out 2^4
3. Express 32 using powers of two
4. Express 125 using powers of five
5. Work out: $3^3 + 2^2 + 4^1$
6. Work out: $4^3 + 3^2 + 2^1$

LESSON THREE

TOPIC: PATTERNS AND SEQUECE
SUB TOPIC: SQUARES OF NUMBERS.
Content: -   Squares of
                 (a)   whole numbers
                 (b)   fractions
                 (c)   decimal

Example:

1. What is the square of 12?

$$12^2 = 12 \times 12$$
$$= \mathbf{144}$$

2. Work out the square of ¾

$$\left(\frac{3}{4}\right)^2 = \frac{3}{4} \times \frac{3}{4}$$
$$= \frac{9}{16}$$

3. Find $(0.15)^2$

$$(0.15)^2 = \left(\frac{15}{100}\right)^2$$

$$= \frac{15}{100} \times \frac{15}{100}$$

$$= \frac{225}{1000}$$

$$= \mathbf{0.0225}$$

Activity
1. What is the square of 14?
2. Find the square of 21?
3. What is the square of $^5/_6$?
4. Find the square of $^8/_{11}$?
5. What is the square of 0.16?
6. Find the square of 0.19?

LESSON FOUR

TOPIC: PATTERNS AND SEQUECE
SUB TOPIC: SQUARES ROOTS.
Content: Square roots of whole numbers.
Example:
1. Find the square roots of $\sqrt{36}$

2	36
2	18
3	9
3	3
	1

$\therefore \sqrt{36} = \sqrt{2 \times 2 \times 3 \times 3}$

$= \sqrt{2^2 \times 3^2}$

$= 2 \times 3$

$$\therefore \sqrt{36} = 6$$

2. Work out $\sqrt{324}$

2	324
2	162
3	81
3	27
3	9
3	3
	1

$\sqrt{324} = \sqrt{(2 \times 2) \times (3 \times 3) \times (3 \times 3)}$

$\sqrt{324} = 2 \times 3 \times 3$

$$\therefore \sqrt{324} = 18$$

Activity
Find the square root of the following
1. 16
2. 64
3. 100
4. 196
5. 400
6. 625

LESSON FIVE

TOPIC: PATTERNS AND SEQUECE
SUB TOPIC: SQUARES ROOTS OF FRACTIONS.
Content: -   Find square roots of fractions
            (a)   Proper fractions
            (b)   Decimals

Examples:
   1. Work out the $\sqrt{\dfrac{4}{9}}$

2	4
2	2
	1

3	9
3	3
	1

$$\sqrt{\frac{4}{9}} \;=\; \frac{\sqrt{2 \times 2}}{\sqrt{3 \times 3}} \;=\; \mathbf{\frac{2}{3}}$$

   2. Find the square root of 1.44

2	144
2	72
2	36
2	18
3	9
3	3
	1

2	100
2	50
5	25
5	5
	1

$$1.44 = \frac{\sqrt{144}}{\sqrt{100}}$$

$$= \sqrt{\frac{(2 \times 2) \times (2 \times 2) \times (3 \times 3)}{(2 \times 2) \times (5 \times 5)}}$$

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

$$\mathbf{= \,^{12}/_{10}}$$
$$\mathbf{= 1.2}$$

Activity

Find the square root of the following numbers.

a) $\frac{9}{16}$

b) $\frac{25}{49}$

c) $2\frac{7}{9}$

d) 0.36

e) 0.64