



SNBP International & Sr. Secondary School, Chikhali, Pune.

Affiliation No. 1130703

Academic session 2024-25

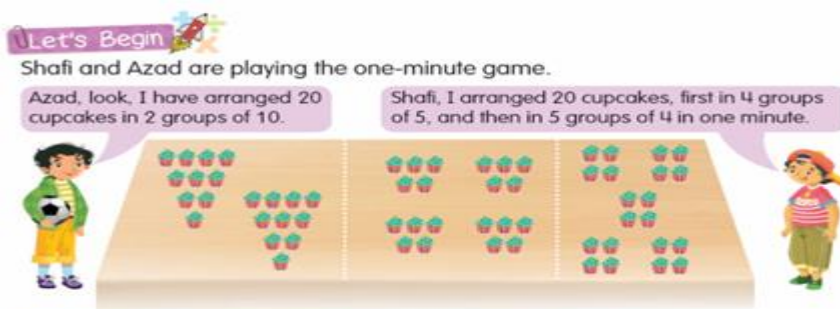
Notes-(Term-1)

Sub-math

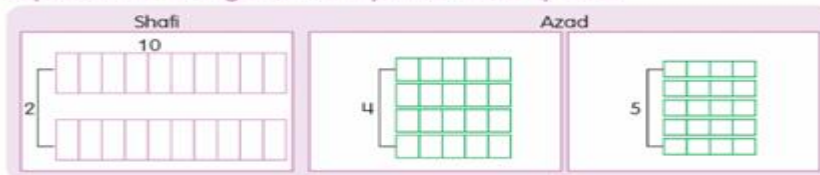
Prepared by -Pranjali Patil

L-6 Factors, Multiples and Divisor.

Pre- activity-Solve let's begin in the textbook.



Represent the arrangement of cupcakes made by Azad.



### Concrete Stage

Use 'Wipe & Clean Fun Mat-Geoboard' to draw and work out all the factor pairs of the following numbers. Also, find their HCF. How many unique combinations did you make for each number. Write in the spaces given.

a) 35, 49

$$35 = 1 \times 35, 5 \times 7$$

$$49 = 1 \times 49, 7 \times 7$$

Common factors = 1 and 7

Highest common factor (HCF) = 7

b) 40, 60

$$40 = 1 \times 40, 2 \times 20, 4 \times 10, 5 \times 8$$

$$60 = 1 \times 60, 2 \times 30, 3 \times 20, 4 \times 15, 5 \times 12, 6 \times 10$$

Common factors = 1, 2, 4, 5, 10, 20

Highest common factor (HCF) = 20

c) 32, 24

$$32 = 1 \times 32, 2 \times 16, 4 \times 8$$

$$24 = 1 \times 24, 2 \times 12, 3 \times 8, 4 \times 6$$

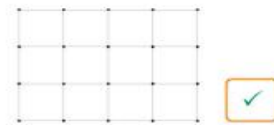
Common factors = 1, 2, 4, 8

Highest common factor (HCF) = 8

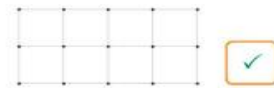
### Pictorial Stage

Tick the 2 geoboard options that can have the HCF as the numbers given below.

a 6



b 4



### Abstract Stage

1 Find the HCF of the following numbers using the common factors strategy.

a 48, 60

HCF = 12

b 24, 16

HCF = 8

c 36, 27

HCF = 9

2 Find the HCF of the following numbers using the common division strategy.

a 128, 156

Answer: HCF of 128 and 156 is 4.

b 72, 108

Answer: HCF of 72 and 108 is 36.

c 160, 200

Answer: HCF of 160 and 200 is 40.

3 Work out the highest number that divides 220 and 264 leaving no remainder.

Answer: The HCF of 220 and 264 is 44. Hence, 44 is the highest number that divides 220 and 264 leaving no remainder.

## 6.2 Lowest common multiples(LCM) using strategies.

### Concrete Stage

Use 'Counters' to work out 10 multiples of the following numbers. Also, work out their least common multiples.

a 2, 9

LCM = 18

b 4, 3

LCM = 12

c 6, 12

LCM = 12

### Pictorial Stage

Look at the picture and fill in the blanks.

12:  $2 \times 2 \times 3$

18:  $2 \times 3 \times 3$

HCF = 6

LCM = 36

HCF  $\times$  LCM = 216

## Abstract Stage

1 Find the LCM of the following numbers using the common multiples strategy.

a 21, 35 LCM of 21 and 35 is 105.

b 18, 24 LCM of 18 and 24 is 72.

c 15, 25, 30 LCM of 15, 25 and 30 is 150.

2 Find the LCM of the following numbers using the common division strategy.

a 64, 112 LCM of 64 and 112 is 448.

b 30, 45 LCM of 30 and 45 is 90.

c 14, 21, 35 LCM of 14, 21 and 35 is 210.

3 Work out the smallest number that is a multiple of both 60 and 90.

Answer: The LCM of 60 and 90 is 180. Hence, 180 is the smallest number that is a multiple of both 60 and 90.

1 Put a tick (✓) in the boxes if the following numbers are divisible by 2, 3, 4, 5, 8, 10, and 11.

	2	3	4	5	8	10	11
a 256	✓		✓		✓		
b 1980	✓	✓	✓	✓		✓	✓
c 3172	✓		✓				
d 550	✓			✓		✓	✓
e 13,372	✓		✓				
f 5712	✓	✓	✓		✓		
g 3,19,605		✓		✓			✓

2 There are 48 girls and 64 boys in a choir. The choir teacher plans to arrange the students in equal rows. Only girls or only boys will be in each row.

a What is the greatest number of students that can be there in each row? 16

b What is being divided into smaller groups? Students

c What clue words tell you to find common numbers? Equal rows

d What is the greatest common factor solution to this problem? 16

### 6.3 Word problem involving HCF and LCM

#### Concrete Stage

Use 'Counters' or 'Dienes Blocks' to verify the relationship between LCM and HCF for the following products.

a Product 1320, HCF 6  
LCM = 220

b Product 270, HCF 3  
LCM = 90

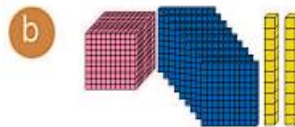
#### Pictorial Stage

The Dienes blocks representations are the products of two numbers. Use the relationship between LCM and HCF, and fill in the empty boxes.



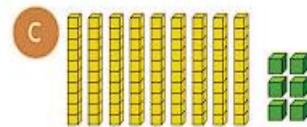
i.

HCF	LCM
6	<u>435</u>



ii.

HCF	LCM
<u>4</u>	480



iii.

HCF	LCM
4	<u>24</u>

#### Abstract Stage

Answer the following questions.

a The LCM of 15 and 25 is 75. Work out the HCF.

Answer: **HCF = 5**

b Two lighthouses start flashing lights at 6 pm. One flashes every 18 minutes and the other flashes every 15 minutes. Find the time after 6 pm at which they will flash together again.

Answer: **7:30 p.m.**

c Two clothes of lengths 16 m and 24 m are to be cut into small pieces of equal lengths. What will be the maximum length of each piece.

Answer: **8 m will be the maximum length of each piece of cloth.**

## Blooming Questions

1 Work out the HCF of the following numbers.

a 36, 84  
HCF = 12

b 34, 102  
HCF = 34

c 12, 45, 75  
HCF = 3

2 Work out the LCM of the following numbers.

a 24, 90  
LCM = 360

b 15, 4  
LCM = 60

c 40, 48, 45  
LCM = 720

3 Work out the following questions.

a The product of two numbers is 875. If their HCF = 5, find their LCM.  
Answer: 175

b The HCF of two numbers is 12 and their LCM is 72. If one of the numbers is 24, find the other number.  
Answer: 36

4 Work out the following questions.

a Ram takes a full round of a circular running track in 30 minutes and Shyam runs along the same path in 40 minutes. If they both start together at 9:00 am, at what time will they meet again on the track?  
Answer: They will meet again on the track at 10:00 a.m.

b Three tankers contain 403 litres, 434 litres, and 465 litres of petrol, respectively. Find the maximum capacity of a container that can measure the petrol of the three containers the exact number of times.  
Answer: The maximum capacity is 31 liters.

c Amar is throwing a party for his birthday but is not sure whether 13 or 14 of his friends will come. How many pastries should he order so that he can share all the pastries equally among his friends (excluding himself)?  
Answer: He should order 182 pastries.

Post activity- Solve sieve of Eratosthenes in the NB.

S.Teacher

H.O.D.

CO-ORDINATOR

PRINCIPAL

