STEPPING STONE SCHOOL (HIGH)

2nd Term Begins
WORKSHEET - 1
CLASS 4
MATHEMATICS
CHAPTER : Factors and Multiples
Chp No. 6

Fold a page and write 2nd Term begins

COPY THE GIVEN NOTES IN YOUR MATHS COPY

Activity Corner

TEST FOR THE DIVISIBILITY

We often use division to check whether a given number is a factor or multiple of another number.

Now, let us study some tests for the divisibility (also called the rules of divisibility), which help us to know whether a number is divisible by 2, 3, 4, 5, 9 and 10 without performing actual division.

Divisibility by	Rule of divisibility	Example
2	If the right-most (ones) digit of the given number is 0, 2, 4, 6, 8, the number is divisible by 2.	36 is divisible by 2. 1064 is divisible by 2.
3	If sum of the digits of the given number is divisible by 3, the number is divisible by 3.	54 → 5 + 4 = 9 Since 9 is divisible by 3, hence 54 is divisible by 3.
4	If the number formed by the right-most two digits of the given number is divisible by 4, the given number is divisible by 4.	In 324, 24 is divisible by 4. Hence, 324 is divisible by 4.
5	If the right-most (ones) digit of the given number is either 0 or 5, it is divisible by 5.	6505 is divisible by 5. 29,36,500 is divisible by 5.
6	If a number is divisible by both 2 and 3, the number is divisible by 6.	24 is divisible by 6, as it is divisible by both 2 and 3.
9	If the sum of digits in the number is divisible by 9, then the number is divisible by 9.	108 → 1 + 0 + 8 = 9 Hence, 108 is divisible by 9.
10	If the right-most (ones) digit in the number is 0, the number is divisible by 10.	300 is divisible by 10. 4,56,38,360 is divisible by 10.

TESTS OF DIVISIBILITY

A number is said to be divisible by another number if upon dividing, no remainder is left. There are ways to determine if a number is divisible by a certain number without carrying out the actual division.

Divisibility by 2, 5, 10

A number is divisible by	If the last digit is
2	0, 2, 4, 6, 8
5	0, 5
10	0

Number	Divisible by		
	2	5	10
10	✓	✓	✓
22	✓	✗	✗
35	✗	✓	✗

Even numbers are divisible by 2 and odd numbers are not divisible by 2.

Divisibility by 3 and 9

A number is divisible by	If the sum of the digits is divisible by
3	3
9	9

Number	Sum of the digits	Divisible by	
		3	9
27	2 + 7 = 9	✓	✓
33	3 + 3 = 6	✓	✗

Divisibility by 4 and 6

A number is divisible by	If the
4	number formed by the last two digits of the number is divisible by 4.
6	number is divisible by both 2 and 3.

Number	Divisible by	
	4	6
108	✓	✓
18	✗	✓
16	✓	✗

EXAMPLE 10 Which of the following numbers are divisible by 2?

603; 500; 226; 314; 437; 2,498

The numbers 603 and 437 have odd digits, 3 and 7, respectively, in the ones place. Thus, these numbers are not divisible by 2.

The numbers 500; 226; 314 and 2,498 have even digits or 0 in the ones place. Thus, these numbers are divisible by 2.

We can check this by the long division method

$$
\begin{array}{r}
113 \\
2\overline{)226} \\
-2 \\
\hline
\times 2 \\
-2 \\
\hline
\times 6 \\
-6 \\
\hline
\times
\end{array}
\qquad \text{No Remainder}
$$

$$
\begin{array}{r}
218 \\
2\overline{)437} \\
-4 \\
\hline
\times 3 \\
-2 \\
\hline
17 \\
-16 \\
\hline
1
\end{array}
\qquad \text{Remainder} = 1
$$

Thus, 226 is divisible by 2 and 437 is not divisible by 20.

EXAMPLE 11 Which of the following numbers are divisible by 3?

337; 219; 4,614; 3,729

Number	Sum of the digits	Divisible by 3
337	3 + 3 + 7 = 13	✗
219	2 + 1 + 9 = 12	✓
4,614	4 + 6 + 1 + 4 = 15	✓
3,729	3 + 7 + 2 + 9 = 21	✓

EXAMPLE 12 Which of the following numbers are divisible by 4?

439; 6,317; 7,824; 9,936; 21,208

Number	Number formed by the last two digits	Divisible by 4
439	39	✗
6,317	17	✗
7,824	24	✓
9,936	36	✓
21,208	08	✓

EXAMPLE 13 Which of the following numbers are divisible by 5?

105; 652; 550; 5,057; 1,795

Observe the last digit of each of the given numbers.

Number	Last digit is	Divisible by 5
105	5	✓
652	2	✗
550	0	✓
5,057	7	✗
1,795	5	✓

EXAMPLE 14 Which of the following numbers are divisible by 10?

6,310; 9,000; 4,003; 7,867

If the digit in the ones place in a number is always zero, the number is divisible by 10.

Thus, 6,310 and 9,000 are divisible by 10.

EXAMPLE 15 Which of the following numbers are divisible by 100?

70,000; 6,730; 2,800; 9,103; 6,001; 8,330; 8,400

If the digits in the ones place and tens place in a number are zero, the number is divisible by 100.

Thus, 70,000; 2,800 and 8,400 are divisible by 100.

- All even numbers are divisible by 2.
- A number is divisible by 3 if the sum of its digits is divisible by
- A number is divisible by 4 if the number formed by its last two digits is divisible by 4.
- All numbers ending with 0 or 5 are divisible by 5.
- Numbers that are divisible by both 2 and 3 are divisible by 6.
- A number is divisible by 9 if the sum of its digits is divisible by
- A number is divisible by 10 if the digit at the ones place of that number is 0.

PRIME AND COMPOSITE NUMBERS

Look at the factors of the first 20 counting numbers:

Numbers	Factors	Number of factors
1	1	1
2	1, 2	2
3	1, 3	2
4	1, 2, 4	3
5	1, 5	2
6	1, 2, 3, 6	4
7	1, 7	2
8	1, 2, 4, 8	4
9	1, 3, 9	3
10	1, 2, 5, 10	4
11	1, 11	2
12	1, 2, 3, 4, 6, 12	6
13	1, 13	2
14	1, 2, 7, 14	4
15	1, 3, 5, 15	4
16	1, 2, 4, 8, 16	5
17	1, 17	2
18	1, 2, 3, 6, 9, 18	6
19	1, 19	2
20	1, 2, 4, 5, 10, 20	6

From the table, we see that there are some numbers which have only two factors, i.e., 1 and itself. Such numbers are called prime numbers.