SESSION : 3
CLASS : 3
SUBJECT : MATHEMATICS
CHAPTER NUMBER: 5
CHAPTER NAME : MULTIPLICATION
SUBTOPIC : ESTIMATION

LEARNING OBJECTIVE :

Children will learn :

*To find a value that is close enough to the right answer

*To find an answer which is broadly correct, say to the nearest 10, if you are working with bigger numbers.

* To calculate on quantities of various works & their expenditure, done by the experts of the relevant field before it is executed.

MULTIPLICATION

ESTIMATION

ESTIMATION MEANS.........

To find something close to the correct answer. Estimation of numbers is the process of approximating or rounding off the numbers in which the value is used for some other purpose in order to avoid the complicated calculations.

MULTIPLICATION

ESTIMATION

MATHS

When it comes to estimating in math, there is a general rule for you to follow. This general rule tells you to look at the digit to the right of the digit you want to estimate, and if it is less than 5 then you round down, and if it is greater than or equals to 5, you round up.

If it is less than 5, you round down and if it is more than or equals to 5, you round up.

< 5

> 5

= 5

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MULTIPLICATION
ESTIMATION

RULE TO ROUND OFF TO NEAREST 10 :   **See the ones place.**

6 4 (2)(7)   6 4 3 0

It is 7. So 7 is more than 5, we know if the number is more or equal to 5, we have to add 1 to the tens place which is to be rounded off and put 0 in the ones place. That means Round up.
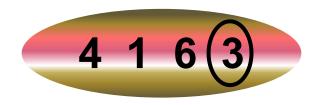
There will be no change to the digits on the left.

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MULTIPLICATION

ESTIMATION

RULE TO ROUND OFF TO NEAREST 10 :　　**See the ones place.**

4 1 6 ③　　　　4 1 6 0

It is 3. So 3 is less than 5, we know if the number is less than 5, there will be no change upto the tens place which is to be rounded off, only we have to put 0 in the ones place. That means Round down.

MULTIPLICATION

ESTIMATION

MATHS

Now let us understand to ROUND UP a number -

Example:

Nearest 10

8 7 6 (5)

8770

Now let us understand to ROUND DOWN a number -

Nearest 10

3 4 1 (3)

3410

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MULTIPLICATION
ESTIMATION

Exercise-5 F-1(i and ii), 2 and 3 bk. pg.84 in notebook.

MULTIPLICATION

ESTIMATION

1. (i) | **Estimate the following products to the nearest 10.**

3256 x 15

Rounding off to nearest 10, we get ━ 3260 x 20 = 65200

```
      1
    3 2 6 0
  x     2 0
  _____
    0 0 0 0
+ 6 5 2 0 0
  _____
  6 5 2 0 0
```

Actual product
= (3256 x 15) = 48840

```
    1 2 3
    3 2 5 6
  x     1 5
  _____
            1
  1 6 2 8 0
+ 3 2 5 6 0
  _____
  4 8 8 4 0
```

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ESTIMATION

1. (ii)

4323 x 14

Rounding off to nearest 10, we get ▬ 4320 x 10 = 43200

```
    4 3 2 0
  x     1 0
  ─────────
    0 0 0 0
+ 4 3 2 0 0
  ─────────
  4 3 2 0 0
```

Actual product = (4323 x 14) = 60522

```
      1   1
    4 3 2 3
  x     1 4
  ─────────
  ¹1 7 ¹2 9 2
+ 4 3 2 3 0
  ─────────
  6 0 5 2 2
```

Q 2) In a school of 2783 students, each student has 18 notebooks. Estimate the total number of notebooks the students have to the nearest ten. Also calculate the actual number of notebooks and find the difference with the estimated number.
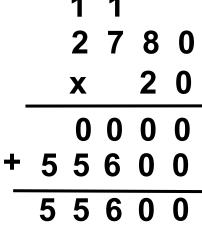
ESTIMATION

Number of students in a school   = 2783

Number of notebooks each student has = 18

2783 x 18

Rounding off to nearest 10, we get ━

2780 x 20   =   55600

```
        1  1
        2  7  8  0
     x        2  0
   ─────────────────
        0  0  0  0
   +  5  5  6  0  0
   ─────────────────
      5  5  6  0  0
```

MULTIPLICATION
ESTIMATION

Actual product

= (2783 x 18) = 50094

$$
\begin{array}{r}
6\ 6\ 2 \\
2\ 7\ 8\ 3 \\
\times\ \ \ \ \ 1\ 8 \\
\hline
{}^{1}2^{1}2\ 2\ 6\ 4 \\
+\ 2\ 7\ 8\ 3\ 0 \\
\hline
5\ 0\ 0\ 9\ 4
\end{array}
$$

The difference with the estimated number

$$
\begin{array}{r}
5\ 9\ 10 \\
5\ 5\ \cancel{6}\ \cancel{0}\ \cancel{0} \\
-\ 5\ 0\ 0\ 9\ 4 \\
\hline
5\ 5\ 0\ 6
\end{array}
$$

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Q 3) The population of a village is 8324. If the government provides each person a subsidy of ₹45 for educational purposes for every month, estimate the expenses of the government in the project correct to the nearest ten. What is the difference between the estimate and actual expense?

MULTIPLICATION

ESTIMATION

Population of a village   = 8324

Amount provided as subsidy to each person = ₹45

8324 x 45

Rounding off to nearest 10, we get ━

8320 x 50   =   416000

```
        1 1
      8 3 2 0
    x     5 0
    ─────────
      0 0 0 0
  + 4 1 6 0 0 0
    ───────────
    4 1 6 0 0 0
```

MULTIPLICATION
ESTIMATION

MATHS

Actual product

$$= (8324 \times 45) = 374580$$

```
    1     1
    1 1 2
    8 3 2 4
  ×     4 5
  _____
    4¹1 6 2 0
+ 3 3 2 9 6 0
  _____
  3 7 4 5 8 0
```

The difference with the estimated number

```
    3 11 5 9 10
    4  1 6 0 0  0
  − 3  7 4 5 8  0
    _____
    4  1 4 2 0
```

MULTIPLICATION
ESTIMATION

Class Work :
Exercise-5 F - 1 - i and ii, 2 and 3 in notebook.

Home Work :
Complete Exercise-5 F - 1 - iii to v in notebook.

LEARNING OUTCOME:

Students will be able to find a value that is close enough to the right answer, to find an answer which is broadly correct, say to the nearest 10,100 and 1000, if you are working with bigger numbers and to calculate on quantities of various works & their expenditure, done by the experts of the relevant field before it is executed.

THANKING YOU
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