Graph and Percentage

Objective
To find the percentage of the students in a group of students who write faster with their left / right hand.

Pre–requisite knowledge
1. Knowledge of plotting the points on graph paper.
2. Knowledge of calculating percentage.

Procedure
1. Ask the students to take a paper and a pen.
2. Ask each student to write a letter (say 'a') or a digit (say '2') for 25 seconds with his/her right hand. Ask them to count the total number of digits/letters written by them.
3. Repeat the same experiment with left hand for same duration.
4. Each student will record this data in a table shown below.

No.	Name of the student	No. of digits written by student with right hand	No. of digits written by student with left hand
1			
2			
3			

5. Take the number of digits written by their right hand as 'x' and the number of digits written by their left hand as 'y'.
6. Plot the co–ordinate (x, y) for every student on the graph paper.
7. Draw the line x = y on the graph paper.
8. From the graph count the number of points which are below the line x = y and the number of points which are above the line x = y.

Observations
The students will observe that
1. When the value of x is greater than y it means that student writes faster with his/her right hand.
2. When the value of y is greater than x it means that student writes faster with his/her left hand.
3. They will also determine percentages for each group.

Learning outcomes

1. Through this activity students are gaining the experience of collecting data, calculating percentage and plotting graph within a realistic content.

2. They will also apply simple mathematical ideas to a practical situation.

Remark
Teachers can give any other realistic situation which can be graphically analysed.

Group Activity 2

Measure-up

Objective
To help the students establish interesting mathematical relationships by measuring some parts of the body.

Background
In a class, teacher wants to know the personal mathematics (measurement of some parts of the body) of her students. She makes a group of two students. The class consists of 40 students. So, randomly 20 groups are made. Every member of the group has to perform the activity.

Using the situation given above, some queries can be asked as follows -

1. What is the average height of the students in class IX ?

2. What is the average weight of these students ?

3. What percent of squared students is there in the class ?

4. What is the average shoe size of these students ?

5. What is the average neck size of these students ?

6. What is the average wrist size of the students ?

Procedure
Measurement is taken by both the members of the students in the group using measuring tapes in the following format

    Height =
    Out stretched arm length =
    Ratio = height / our stretched arm length.

    Foot =
    Palm =
    Ratio =

Wrist =
Neck =
Ratio =

Elbow to finger =
Head span =
Ratio =

Weight is taken
Weight =
Height =
Ratio =

Weight of the students is only taken on school weighing machine.

Observations

A

Number of squared students in the class _____

Number of rectangled students in the class _____

B

Average height   = _____

Average weight   = _____

Average foot size   = _____

Average neck size   = _____

Average wrist size   = _____

C

Students will make a chart for their class as follows

Height		Foot Size		Weight		Neck Size		Wrist Size	
Below average	Above average	Below average	Above average	Below average	Above average	Below average	Above average	Below average	Above average
%	%	%	%	%	%	%	%	%	%

D

Students will plot the graph of the following

    1) height vs weight

    2) foot vs palm

    3) neck vs wrist

E
Students will find the average ratios of the following

  1) Height : Weight

  2) Height : Out stretched arm length

  3) Foot : Palm

Every student will write his/her observation of the data they have collected and analysed.
They should also conclude some results from the graphs they have obtained.

Learning Outcomes

1. The students will gain the experience of obtaining the data of their personal physical structure.

2. This would encourage them to see what are standard measurements and how much deviated they are from it.

3. They will also apply all the mathematical concepts that they are learning in their school statistics.

4. This helps them to learn mathematics in a realistic way. (how much they are closer to the standard measurement)

Remark

Squared person → Squared person is a person whose measurement of stretched arm length and height is same.
Rectangled person → Rectangled person is a person whose measurement of stretched arm length and height is not same.