TEACHING LEARNING MATERIAL

1. **CLASS:** IX AND X

2. **TOPIC:** Graphical Representation of Data

3. **SUBTOPIC:** Scaling, Bar Graph, Histogram& Frequency polygon, Ogive, Pie Chart

4. **MODE OF ACTIVITY:** For understanding Scaling small groups are preferred and the rest can work on large groups.

5. **OBJECTIVE:**

   - The main purpose is a rapid visualization of a data set and henceforth analyse the data in a better way and make logical decisions from it.
   - Students will be able understand the scaling better which is required for the graph formations.
   - Students will be able to get a 3D image of how the graphical represention look like and can plot the same using TLM for different data sets using hands on experience.
   - The TLM will motivate the learners and will give better retention of the basic concepts of Graphical Representation.
   - Students can correlate various concepts and will give a quick eye on all the graphical representations.

6. **MATERIAL REQUIRED:**

   - **Cardboard**
   - **Colorful charts and papers**
   - **Basic stationary items like pencil,scale, eraser, marker, fevicol.**
   - **1 graph paper**
   - **Thread/ wool for line graph.**
   - **Ice cream sticks.**
   - **Re-writable sheet.**
   - **Thumb nails**

7. **STEPS AND PROCEDURE:**
   - Firstly the **concept of scaling** will be taught using TLM so that the students can understand how scaling can be done on the graph paper and on considering various examples what does one subdivision of the graph mean.

- Taking into consideration that the student understands the scaling, we will move towards **Bar Graph**. Given a data set the student will move the bars to plot the data set.
  Remark: white board sheet has been used to change the data set and scaling.
- The next is the **histogram**. Given a particular data the students will move the bars to depict the corresponding frequencies of the classes. Loops/Rings are provided at every mid point of the vertical bar. The students can move the thread into it and can see the line graph from it. This line graph formed by joining the mid points is the **frequency polygon**.
- The next TLM is on **ogive**. The graph sheet with thumb nails is provided. With each data set the student can insert the thumb nails on the graph sheet and join them using a thread. The thread here will depict less than ogive and more than ogive. The intersection of the less than and more than ogive is the median.
- The last concept for creating wholesomeness in graphical representation is **Pie Chart**. The pie chart is made by circular sheets. On moving the ice cream sticks the central angles can be created. This also gives a visual appearance that on joining all the sectors, a circle is made.

8. INSTRUCTIONS:

- **Bar Graph** is a graph that shows the complete data in the form of rectangular bars and the height of those rectangular bars are proportionate to the frequencies given in the data set.
- A **histogram** is a graphical representation of a grouped frequency distribution with continuous classes.Here the areas of the rectangular bars are proportionate to the frequencies of the corresponding class.
- A **frequency polygon** is a line graph where the class frequency is plotted against the class mid point also called the “CLASS MARK” and the points are joined by a curve.
- **Ogive** is a cumulative frequency distribution graph where the independent data is on the x axis and the cumulative frequencies is on the y axis. The line graph that runs from bottom left to top right is the less than ogive and the line graph tht runs from top right to bottom left is more than ogive. The intersection point of less than and more than ogive is the median.
- **Pie chart** or circular chart is made by dividing the circle into sectors and area of each sector with the central angles is proportionate to the frequencies.