2. Recycling Activity (Proportions and Percentages):

Objective:
Students will use **GeoGebra** to understand proportions and percentages in the context of recycling and CO_2 emission reduction.

Step 1: Creating a Recycling Chart

1. Open **GeoGebra** and select the **Graph Tool** to create a **bar chart** or **pie chart**.
2. Enter the recycling data. For example:
    - Recycled bottles = 150
    - Non-recycled bottles = 50
    - Total bottles = 200
3. Use the **Bar Chart Tool** to add this data. Students will see the proportions of recycled versus total.

Step 2: Calculating the Recycling Percentage

1. Use the **Calculator Tool** in GeoGebra to calculate the recycling percentage. The formula would be:

$$\text{Recycling Percentage} = \left(\frac{\text{Recycled Bottles}}{\text{Total Bottles}} \right) \times 100$$

2. You can input the numbers directly to get the percentage, and GeoGebra will display the result.

Step 3: Estimating CO_2 Reduction

1. You can use the **Calculator Tool** to estimate the CO_2 reduction.
    - For example, if each recyclable bottle saves 0.25 kg of CO_2, and students have recycled 150 bottles:

$$CO_2 \text{ saved} = 150 \times 0.25\,\text{kg} = 37.5\,\text{kg } CO_2$$

Step 4: Creating a Visual Model for CO_2 Savings

1. Use the **Graph Tool** to create a **bar chart** showing the amount of CO_2 saved for each level of recycling.
2. Share the file with students so they can see how CO_2 savings increase as recycling amounts rise.

Tips for Using GeoGebra with Students:

- Encourage students to use **GeoGebra to experiment** with different datasets and explore results for various configurations.
- You can save the GeoGebra file and share it through links or use it during the activity.