#  Example:

#  Misleading Graphs and

# Misinterpreting of Statistical Data

**Objectives:** (1) To identify sources of deception in misleading graphs

 (2) To recognise the dangers of misinterpreting statistical data

**Learning Unit:** Presentation of data

**Key Stage:** 3

**Materials Required:** Calculators

**Prerequisite Knowledge:** Basic knowledge on different statistical graphs

**Description of the Activity:**

1. The teacher distributes the worksheet to students.

2. Students are grouped in pairs to do the problems in the worksheet so that they can discuss with each other as most of the questions are open-ended.

3. Sufficient time should be given to students to discuss the problems.

4. After students completed the worksheet, some representatives from the groups are invited to give the answers and explanations to the class.

5. The teacher makes comments when appropriate.

6. The teacher can help students consolidate their concepts by asking them to bring daily life examples of misleading graphs and misinterpreting statistical data to the class in the next lesson for discussion.

***Worksheet***

A survey is carried out by the student union of a secondary school on the popularity of five clubs: Social Service Society, Junior Police Call, Community Youth Club, Road Safety Patrol and Girl Guide. The results of the survey are posted on the notice broad of the student union by means of a bar chart. See Figure 1.



Social Service Society

Junior Police Call

Community Youth Club

Girl Guide

Road Safety Patrol

Popularity of Five Service Clubs

25

20

15

Percentage

The number of students being interviewed is 1200.

Figure 1

1. Take a glance at the bar chart. What is your impression on the popularity of the clubs?

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2. Give reasons to explain why you have such an impression in Question 1.

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3. What is the difference between the percentage of popularity of the most popular club and that of the least popular club? Does the result change your view in Question 1?

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4. Is a bar chart a suitable statistical graph for illustrating the percentage of popularity of the five service clubs? If not, which statistical graph is more appropriate?

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 **Notes for Teachers:**

1. The problems in this example are modified real-life examples found in newspapers and magazines.

2. As most questions are open-ended, the teachers should guide students to start the discussion if necessary.

3. The teacher should avoid giving students a “model answer”. Their answers should be accepted as long as these answers are reasonable and justified.

4. If possible, the teacher can use real-life examples found in the Internet, newspaper or magazines as a follow-up exercise for students to feel the impact of influence of the misleading graphs and misinterpreting statistical data.

5. Sufficient time for discussion is important. Students should give not only answers of “yes” or “no” but also the explanations.