

Exemplar 2 :

World Cup Soccer

- Objectives :**
- (1) To collect and organize data obtained from the Internet
 - (2) To construct appropriate graphs from the data collected

Learning Unit : Construction and Interpretation of Simple Diagrams and Graphs

Key Stage : 3

Materials Required : *Internet and Excel*

Prerequisite Knowledge : Construction of line graphs and bar graphs

Description of the Activity :

1. The teacher briefs students that this activity is aimed at searching for data from the Internet and using the data to construct statistical graphs.
2. The teacher asks students to visit the web site <http://www.2002worldcupkorea.org/> containing records of scores of the previous World Cup matches.
3. The teacher distributes the worksheet to students. Students are asked to work in pairs so that they can discuss the problems in the worksheet.
4. The teacher asks students to complete Table 1 in the worksheet.
5. The teacher asks students to use *Excel* to construct Table 1 so that graphs could be drawn by using the data in the table.
6. The teacher should not restrict students' choice on choosing the types of graphs for Question 4.
7. After completing Question 7, students could be asked to discuss on the appropriateness of the graph chosen.

Worksheet : World Cup Soccer

1. Visit the web site <http://www.2002worldcupkorea.org/> containing records of the scores of the previous World Cup soccer matches.
2. Click “English” to enter the English version of the web site.
3. Click “History of FIFA World Cup” to enter the page containing the information of past Word Cup matches.
4. Click “Results” to view the results of past World Cup matches.
5. Click on the “Year” to view the results of World Cup in that year.
6. Use the data provided to complete the following table.

Year	Host Country	Total Goals	Number of Matches	Mean Goal per match
1930				
1934				
1938				
1950				
1954				
1958				
1962				
1966				
1970				
1974				
1978				
1982				
1986				
1990				
1994				
1998				

Table 1

2. In which year is the Mean Goal per match highest?
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3. In which year is the Mean Goal per match lowest?
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4. If you want to investigate the trend of Mean Goal per match since 1930, which graph will you use? Use *Excel* to construct table 1 and draw the graph with the “Year” as the x-axis and the “Mean Goal per match” as the y-axis.
5. By studying the graph drawn, do you expect the Mean Goal per match to rise or fall sharply in the next World Cup? Explain briefly.
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6. How would you describe the trend of the Mean Goal per match in the period
- (a) 1930’s to 1950’s, and
- (b) 1960’s to 1990’s.
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7. What other statistical graphs could be used to represent these data apart from the one you have drawn in Question 4? Give reasons to support your choices.
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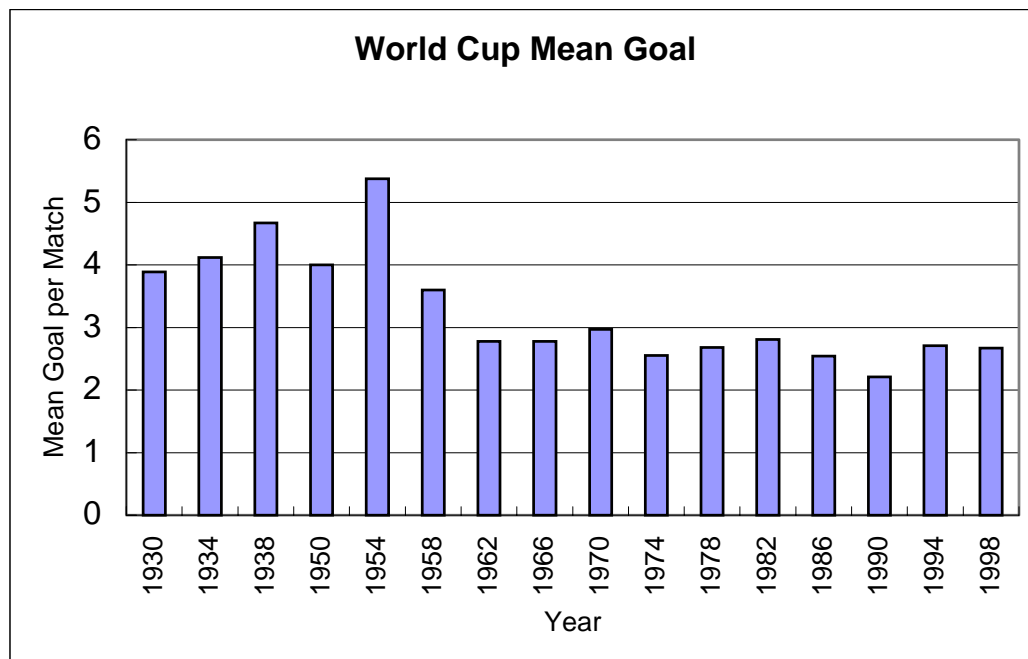
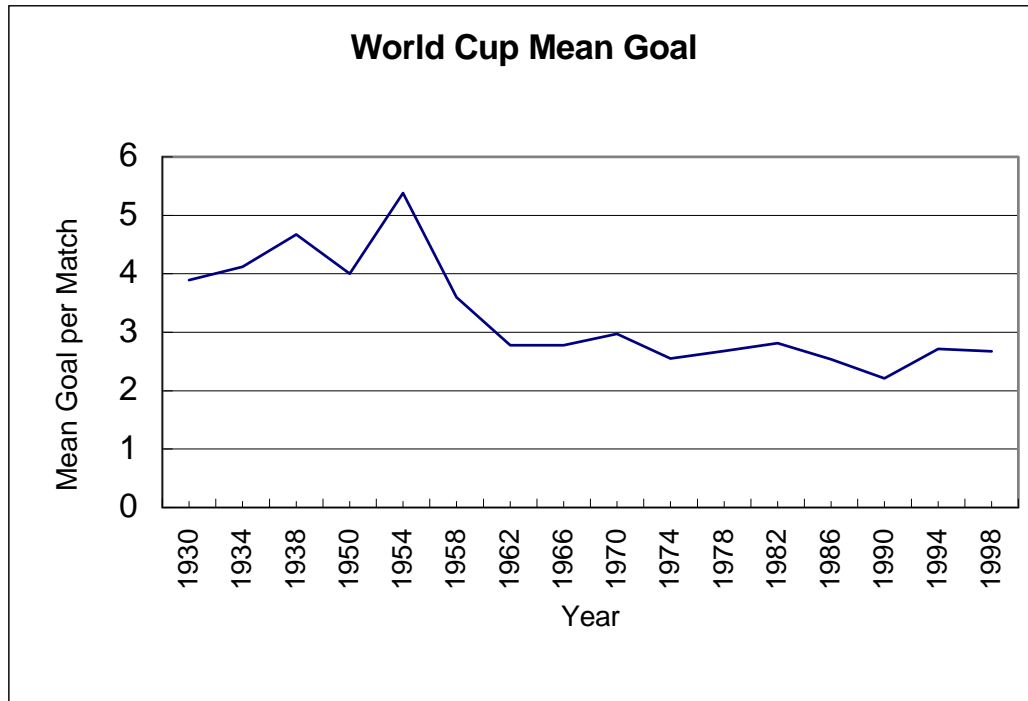
Notes for Teachers:

1. The teacher should allow time for students to browse the web site <http://www.2002worldcupkorea.org/> for familiarizing how to read the data before doing the worksheet.
2. Answers for Question 1:

Year	Host Country	Total Goals	Number of Matches	Mean Goal per match
1930	Uruguay	70	18	3.89
1934	Italy	70	17	4.12
1938	France	84	18	4.67
1950	Brazil	88	22	4.00
1954	Switzerland	140	26	5.38
1958	Sweden	126	35	3.60
1962	Chile	89	32	2.78
1966	England	89	32	2.78
1970	Mexico	95	32	2.97
1974	West Germany	97	38	2.55
1978	Argentina	102	38	2.68
1982	Spain	146	52	2.81
1986	Mexico	132	52	2.54
1990	Italy	115	52	2.21
1994	USA	141	52	2.71
1998	France	171	64	2.67

3. Answers for Question 2:
The Mean Goal per match is the highest in 1954.
4. Answers for Question 3:
The Mean Goal is the lowest in 1990.

5. The teacher should not interfere in students' decision in choosing the graph in answering Question 4 so as to allow them to explore whether the graph they choose is an appropriate one. If students choose an inappropriate graph, they would find it difficult to answer the questions that follow.
6. Students may choose a line graph or a histogram for Question 4.



7. The teacher should check before the activity that the web site suggested in the exemplar still exists. The teacher could also use data from other web sites containing the results of past World Cup matches, e.g.
<http://www.metro.taejon.kr/english/etc/e01/index01.html>
<http://www.fifa2.com/infoplus/IP-204-WorldCupStats.pdf>
8. The teacher should ask students to check if the values of the Mean Goal per match provided in the web sites are accurate by calculating them once more before plotting the graphs. Students should always bear in mind that the accuracy of information is important.
9. As a follow-up activity, the teacher could suggest some topics for the students to investigate by visiting the relevant web page and construct graphs for the data. Some local data could be obtained from STAT.NET at *<http://www.hked-stat.net>*.