

4 Worksheet on Analysing Statistics

Text: "Fans flock to New Zealand's Tolkien trail", from: Martin Arndt/Karl Sassenberg, *Australia and New Zealand*, Viewfinder Topics (München: Langenscheidt, 2010), pp. 63f.

Tourism is an important part of New Zealand's economy. At present one in ten jobs is related to this industry which contributes \$ 15 billion to the Gross Domestic Product (almost ten percent). Every year the Ministry of Tourism collects a large amount of data on international visitors which are analysed, interpreted and evaluated (data mining). The tourist industry wants to know in detail how foreign visitors contribute to New Zealand's economy in order to improve its marketing strategies and increase its profit.

The tables below contain some of these data collected in 2009 by the New Zealand Ministry of Tourism. Imagine yourself as a secretary who has to present and explain them to the Minister of Tourism.

In a presentation in class or in an oral examination you will frequently have to explain and interpret statistical data. This worksheet may help you to improve your skills.

A HOW TO DEAL WITH STATISTICS

Once data have been collected they must be compiled and arranged for interpretation. The most basic form of arranging data is a table. The following example shows how visitors spend their money in New Zealand.

Table A: Items of Visitor Expenditure

Items	Australia	UK	US	China	Japan	Germany
Food/ Meals*	372	673	540	790	354	638
Sightseeing/Attractions*	291	573	345	377	326	379
Gifts/ Souvenirs*	195	315	261	969	478	264
Other Shopping*	283	522	317	678	453	297

*in NZ\$

The table shows how much each tourist spends on these items during his trip.

Task 1: Examine the figures in the table and find out:

a) Which tourists spend most in New Zealand?

b) Which country spends least in each category?

Food/ Meals*	
Sightseeing/Attractions*	
Gifts/ Souvenirs*	
Other Shopping*	

c) How do the Germans rank in each category?

Food/ Meals*	
Sightseeing/Attractions*	
Gifts/Souvenirs*	
Other Shopping*	

d) How do the Japanese differ from all the other visitors?

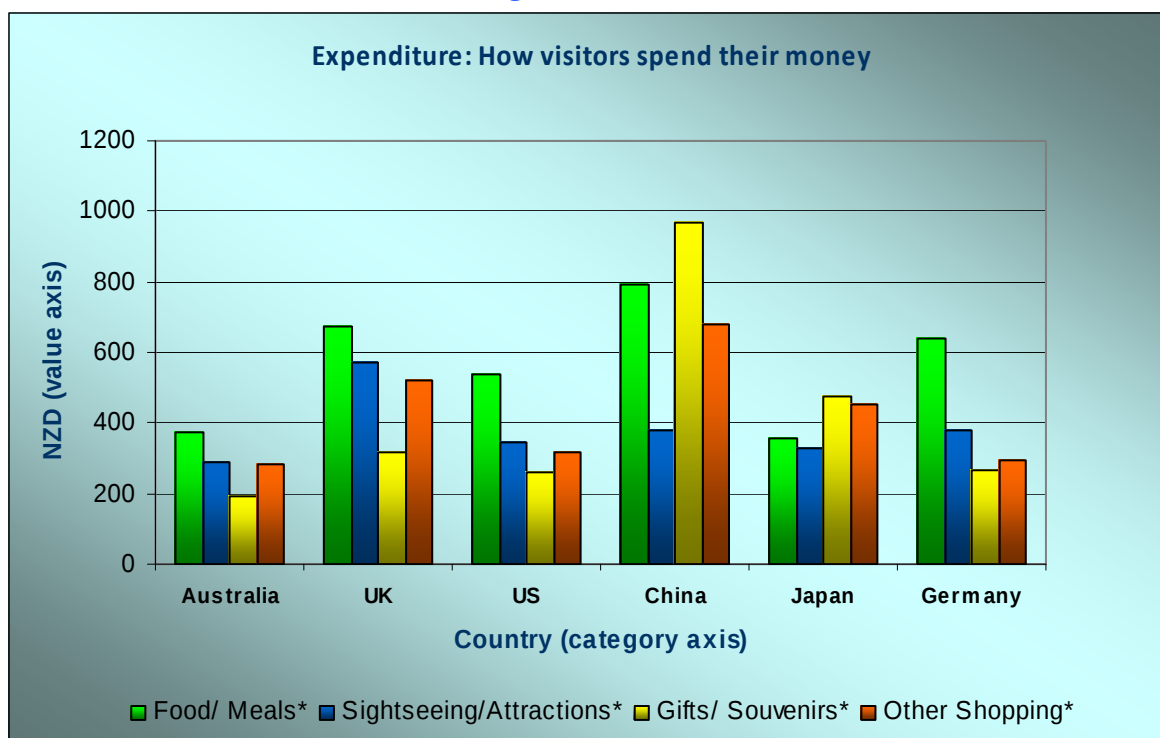
e) Calculate how much money each country spends and show how they rank.

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.

Tables are just rows and columns of information and it takes time to find out what is most important. **Graphs** and **charts** are ways of presenting information visually. They are pictures which illustrate numbers or figures.

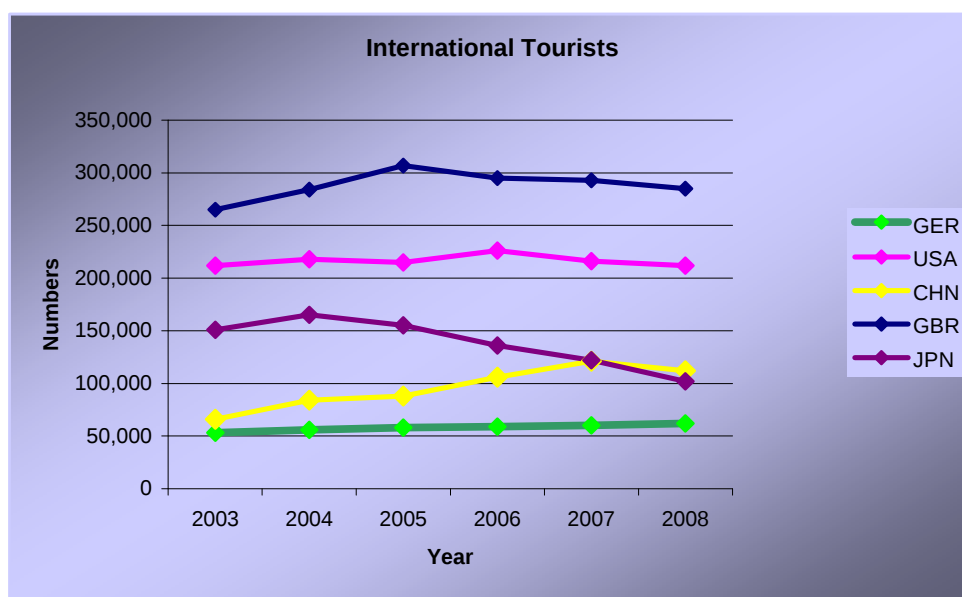
The most common form is that of a **bar chart**. The following chart illustrates the figures of **Table A**.

Diagram A: Bar Chart



You can also present figures like these in the form of **line graphs**. These graphs are mostly used to illustrate a development over a certain period of time, in this case the numbers of tourists visiting New Zealand from 2003 – 2008.

Diagram B: Line Graph



They help to visualise trends in data by visibly showing how one variable is affected by the other as it increases or decreases.

Task 2: You can see at first glance that there are two line graphs which show an especially interesting development. Which are they and what do they show?

Pie charts (or circle graphs) are used to show how the whole of something is divided into parts. They display percentages and are mostly used to compare different parts of the same whole. The circle of a pie graph represents 100%. Each section within the circle stands for a part of these 100%.

Table A: If you want to show how much money the tourists of each country spend on food and meals, you may use this form of presentation.

Diagram 3: Pie Chart

Money spent on food/ meals
(absolute figures)

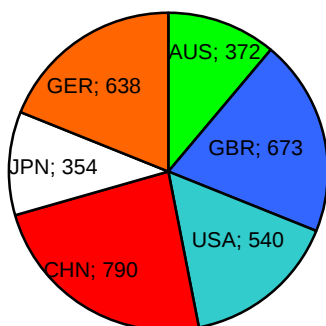
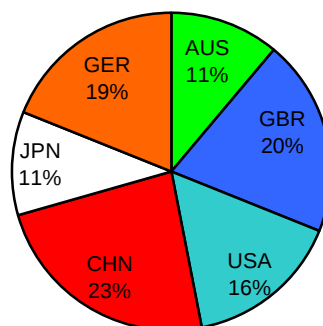


Diagram 4: Pie Chart

Money spent on food/ meals
(in %)



B ANALYSING AND INTERPRETING STATISTICS

If you want to describe and explain statistics you need a special vocabulary. Here are some words which will help you to describe a diagram.

numbers
prices
temperatures

fell
declined
dropped
decrease
sank
went down

went up
increased
grew
rose

slightly
a little
a lot
sharply
suddenly
steeply
gradually
gently
steadily

numbers
prices
temperatures

remained steady
did not change
remained constant
remained stable
stabilized

reached a peak
peaked
reached their highest
level
fell to a low
reached a bottom

Task 3: Complete the following sentences.

Look at diagram 2.

- a) From _____ the number of German tourists _____.
- b) From 2003 to 2004 the number of Japanese visitors _____ but _____ until it reached _____ in 2008.
- c) The number of British tourists _____ in 2005.
- d) Between 2003 and 2007 the number of Chinese tourist almost _____.

Diagram E: Horizontal Bar Chart

Total visitor arrivals in 2009

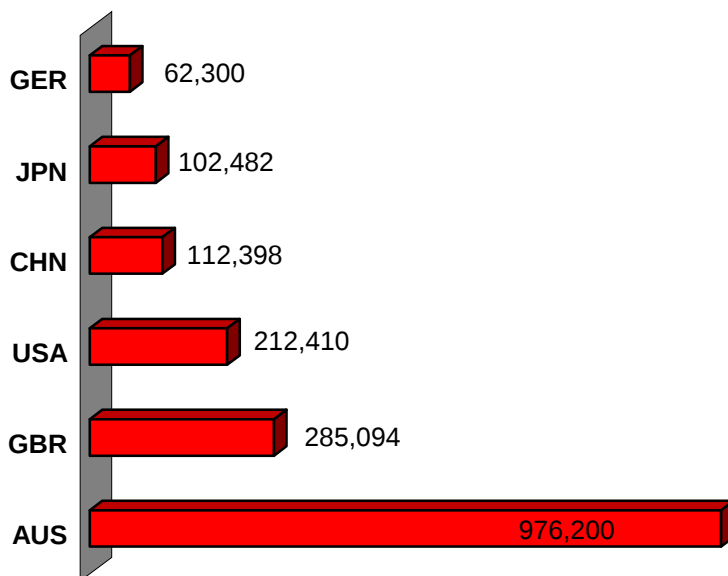


Diagram F: Vertical Bar Chart

Average length of stay (days)

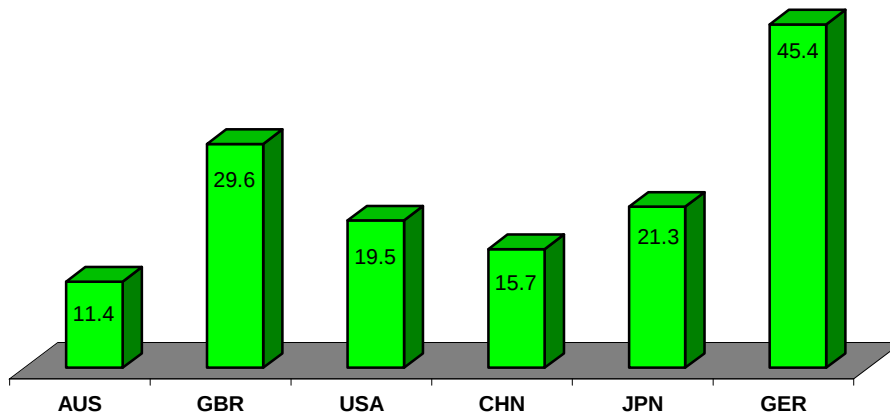
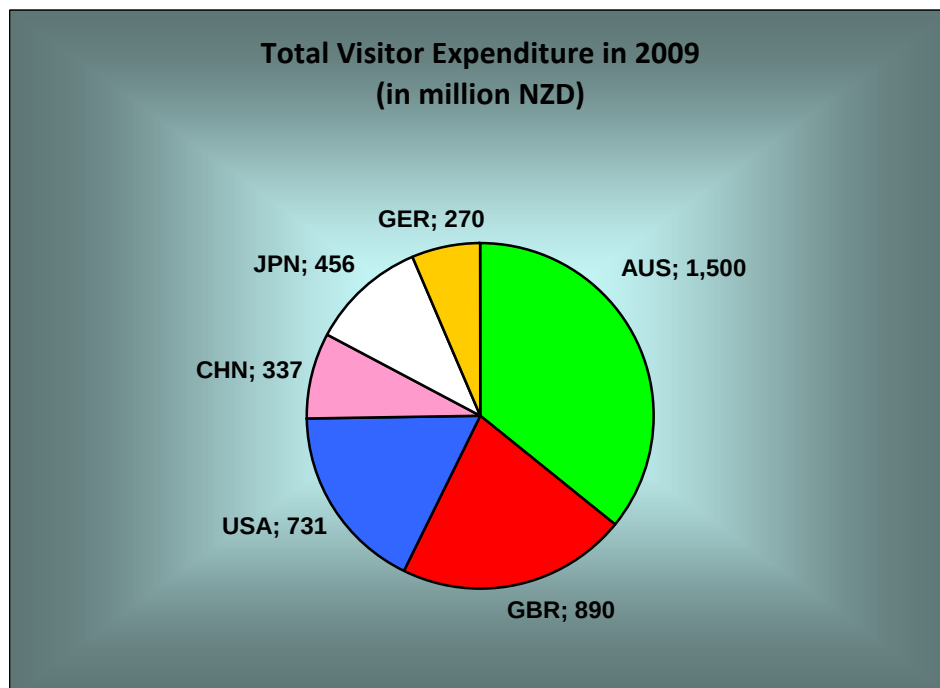


Diagram G: Pie Chart



How to deal with diagrams:

- o Find out what the diagram is about. This may not always be obvious from its title.
- o Find out the main idea (what does the diagram show?) and summarise it in one sentence.
- o Look for evidence which supports this idea.
- o Find the most significant piece of information.
- o Do not analyse and explain every detail in the diagram. Concentrate on the most significant data.

Task 4: Look at diagrams E, F and G. For each diagram answer the following questions.

- **What is the diagram about?**
- **What is the most obvious statement?**
- **What does the diagram show in detail?**
- **Are there any conclusions or messages ?**

Task 5: The Minister of Tourism wants to know more about the individual visitor.

a) How much money does each visitor spend on his trip in New Zealand on average?

You can find this out if you relate the data from diagram 7 to those of diagram 5.

	AUS	GBR	USA	CHN	JPN	GER
Average sum spent per visitor (NZ\$)						

b) How much money do all the visitors from one country spend per day?

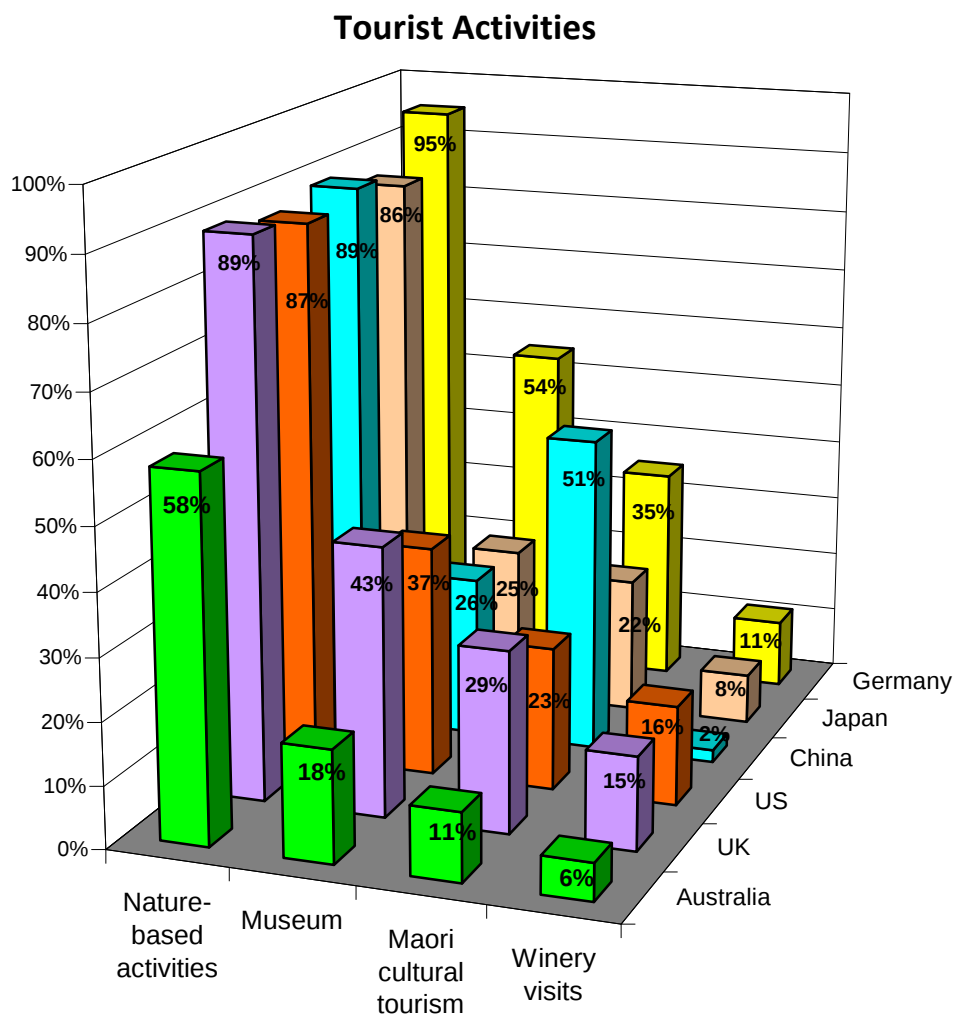
You can find this out if you relate your new data to those of diagram 6.

	AUS	GBR	USA	CHN	JPN	GER
Average sum spent per day (NZ\$)						

c) Write down your data in the form of a table. With the help of a spreadsheet application such as Microsoft Excel you can develop a bar chart which illustrates how much a visitor spends per day.

	AUS	GBR	USA	CHN	JPN	GER

Diagram H: 3D Vertical Bar Chart



The figures add up to more than 100% as most visitors engage in more than one activity.

Task 6: Diagram H shows tourist activities in percent. Interpret this diagram using the advice given above.

(Karl Sassenberg)