Maths at Jamberoo

Anyone can enjoy the rides at Jamberoo, but in order to really control the action you need to understand how it all works!

Data Collection

Gathering and organisation of numerical information relating to the park is an important part day-to-day running and helps to better plan for the future. Data is collected throughout the park in a number of ways.

Surveys are a common means of collecting data at Jamberoo and every group that comes to the park is surveyed. A survey of a whole population is called a census and is referred to as population data.
When groups book with Jamberoo, we ask them how they heard about the park. As every group that comes to the park is surveyed this could be referred to as population data.

Often we use a smaller portion of the population to gauge satisfaction levels of our customers. When data is collected from a selection of the total population it is called sample data. In order for the sample to reflect the opinions of all of our customers we select the sample at random and make sure that we survey enough people to accurately reflect the overall guest population.

Question 1

If Jamberoo had 5000 guests on a single day and surveyed 20 of these people, would this information be useful to gauge the opinions of all the customers? Explain your answer.

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Pre-Visit Exercise

Exercise 1:

Part a) Design a survey to discover how many students in your class have been to Jamberoo Action Park before.

Part b) Arrange this information into a chart showing how many boys and girls have visited Jamberoo before and how many have not.

(Hint: your table should look something like this)

Visited	Boys	Girls
Yes		
No		

Part c) Find out how many students attend your school _____

Part d) If your class is a typical sample of students from your school, how many students from your school could we assume have visited Jamberoo before?

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Comment on the accuracy of this data and suggest how you could improve the accuracy

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Exercise 2

Much of the success of Jamberoo Action Park is reliant on marketing. Often in advertising we use statistics to help sell our product.

Which of the following statements could NOT be used in our ads because of incorrect use of data?

a) Jamberoo Action Park is 40% better USE / NOT USE

b) 17 out of 20 groups that came in January rated the rides good or very good USE / NOT USE

c) 80% of our total annual visitors came during Oct, Nov or Dec last year USE / NOT USE

d) 4 out of 5 guests prefer chicken burgers USE / NOT USE

Interpreting Information

Information is collected throughout the park so that we can better meet our customer's needs. Often this involves surveying our customers to find out personal statistics. One way that we present this data is using tables. The following table shows the categories of tickets sold to Jamberoo customers during its 2008/2009 season.

Type of ticket	Approx. Tickets Sold
Adult 13+	165,000
Child 4 – 12 years	84,000
Child 3 years and under	19,000
Groups - Booking	67,000
Groups - School	29,000

Exercise 3

a) What percentage of guests came as part of a school group? _____

b) What percentage of guests were aged 3 and under? _____

c) If the total guest attendance in the season was 363,000 people, what percentage of Jamberoo's customers come from groups?

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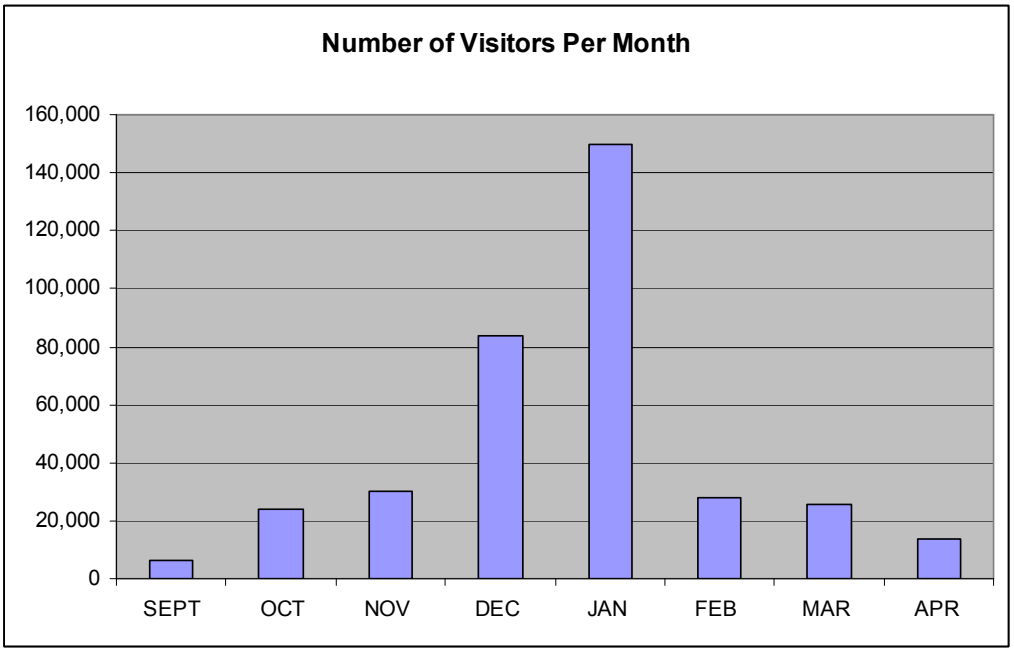
Graphs

Often we present this kind of statistical information using graphs. Each graph has a different use. At Jamberoo Action Park we use three main types of graph to represent our data. These are column graphs, pie graphs and line graphs.

We use **column graphs** because they are easy to read and allow comparisons to be made at a glance. They can also show more detail than many other graphs.



Exercise 4

a) What other types of Jamberoo data could be shown using column graphs?

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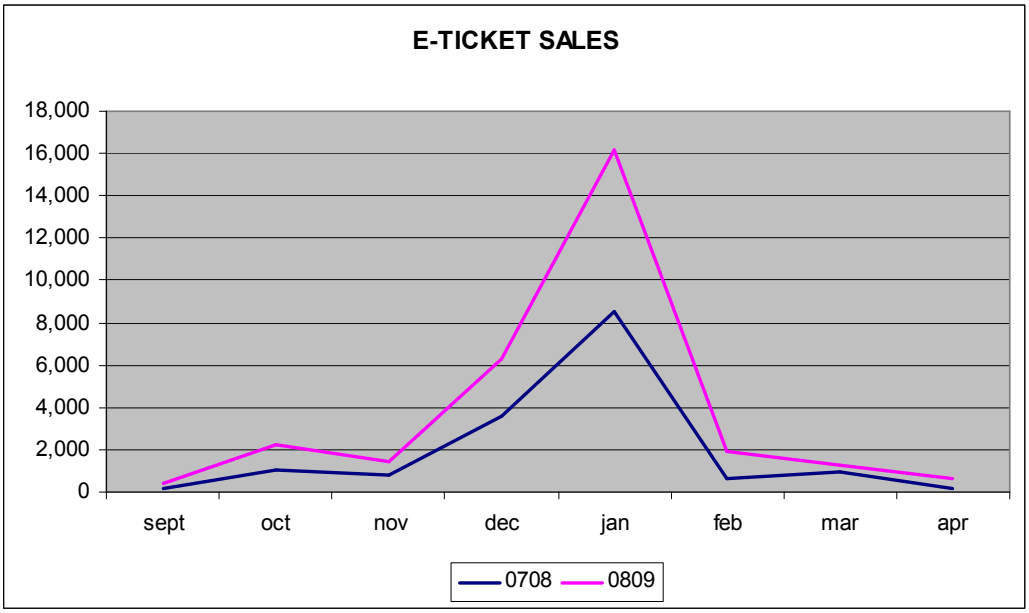
Line graphs are useful when we are trying to show trends or relationships between two points. We often use these when we are looking at changes over a period of time. Line graphs should only be used where the information between the plotted points can also be meaningfully interpreted.



b) What other types of Jamberoo data could be shown using line graphs?

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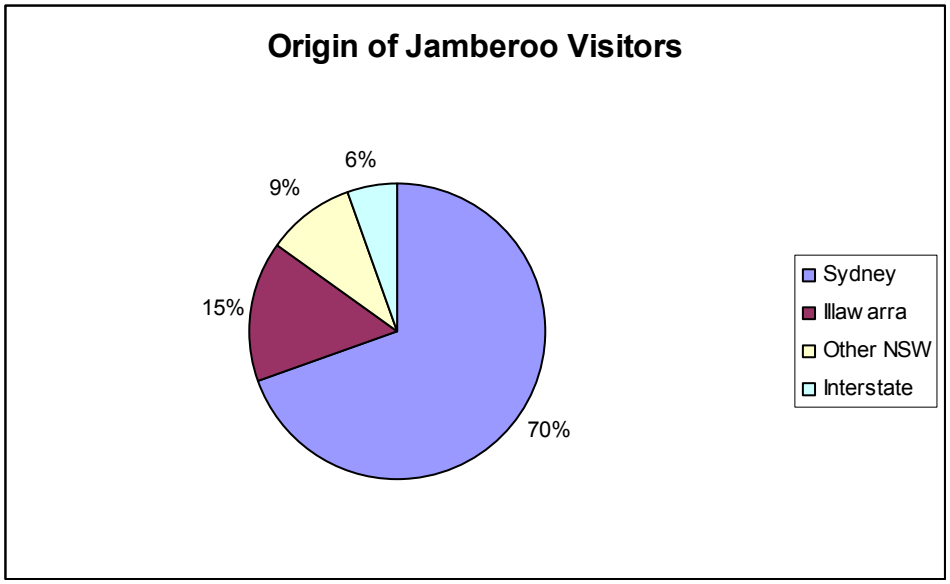
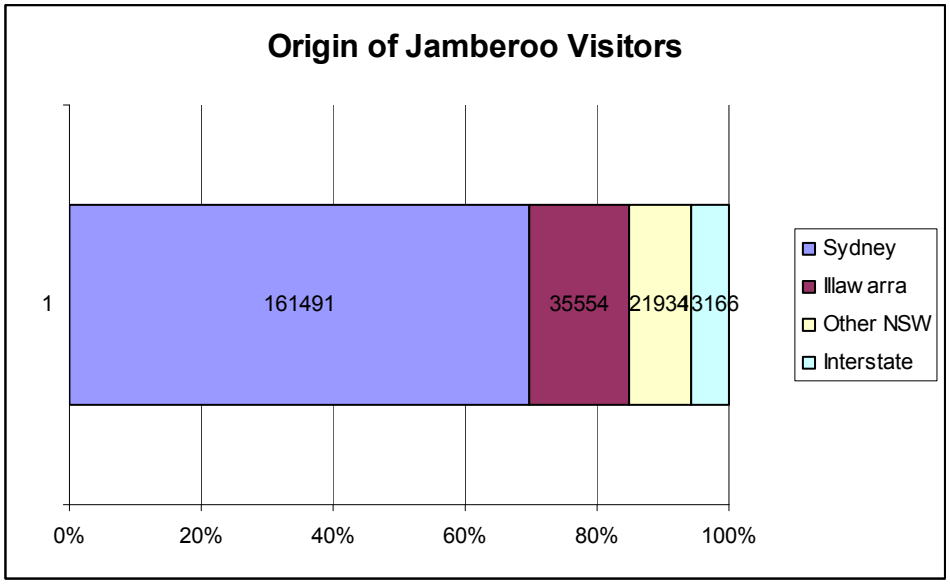
Pie graphs or **sector graphs** are useful because they show how the total can be divided up into smaller parts.



The same information can be presented using a divided bar graph although these are rarely used at Jamberoo.



c) What other types of Jamberoo information could be shown using pie and sector graphs? _____

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d) Use the information below to fill in the pie graph.

Favourite Ride	Popularity
Taipan	43%
Surf Hill	22%
Outback Bay	18%
Other	17%

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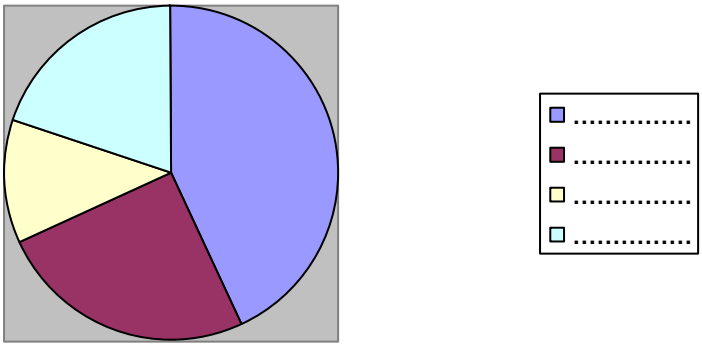

Remember:
- Does your graph have a title?
- Are the categories divided into percentages?
- Are the categories labeled?

e) Remember the data you collected on your classmates earlier? What would be the best type of graph/s to display this information?

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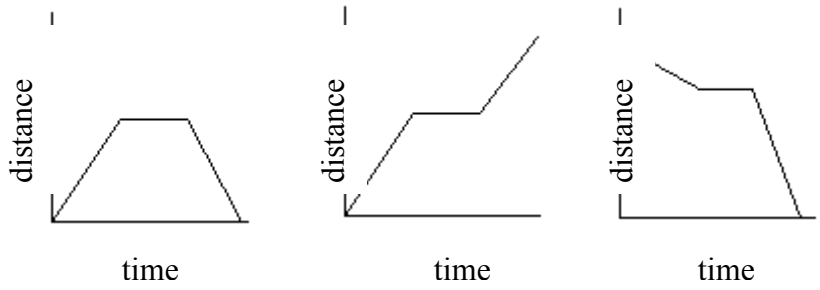
Draw the graph below:

Travel Graphs show the graph of a journey or the distance travelled over a period of time. As most visitors need to travel from Sydney it is possible to graph these journeys.

Which of the following graphs shows the bus trip to Jamberoo if the bus leaves Sydney in the morning, arrives at Jamberoo and stays here all day and then returns home later that afternoon?



Draw a graph below to represent your own travel to and from Jamberoo

In Park and Post Park Activity

Design your own data survey while you are in the park. This could be something like how your classmates rate different features of the park on a scale of 1 to 5, how long people take to complete a ride etc. When you have collected your data arrange it into a table and then into a graph. You will need to decide on the most appropriate graph for your information.