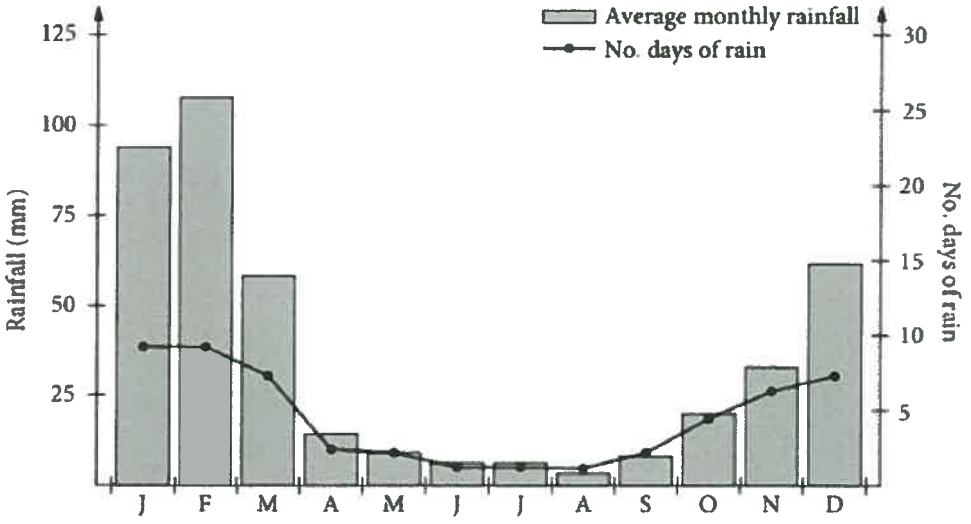
STATISTICAL INVESTIGATIONS

2 Look at the following graph that relates to Tennant Creek in the Northern Territory.



(a) Why does this graph have a vertical axis on both sides with a different scale on each?
(b) Which month has the highest average monthly rainfall?
(c) Which month has the most days of rain?

Answer the following as true or false. If false, rewrite the statement to make it true.

(d) The average daily rainfall in January must be more than in February because the same number of rainy days produces more rainfall in January than in February.
(e) The days of rain in August are rare and when it rains the rainfall is virtually non-existent.
(f) The production of this graph most likely falls into the identification phase of the statistical investigation process.

a) RHS represents days of rain, LHS is Rainfall. b) February c) Jan / Feb

d) False

e) ~~False~~ ; if there were the same number of rainy days, the rainfall would be as high TRUE

f) False : it's a summary.

3 Your class is conducting a statistical investigation. You are in the group that is interviewing students about their study plans when they finish school. In which part of the investigation process are you involved?

A identification of a problem and the setting of a statistical question
B collection of the statistical data
C analysis of the data
D interpretation and communication of the results

4 Your class is conducting a statistical investigation. You are in the group that is presenting the findings to the school council. In which part of the investigation process are you involved?

A identification of a problem and setting of a statistical ques
B collection of the statistical data
C analysis of the data
D interpretation and communication of the results

STATISTICAL INVESTIGATIONS

5 Look at the following graphic showing information about child adoption into the USA from other countries.

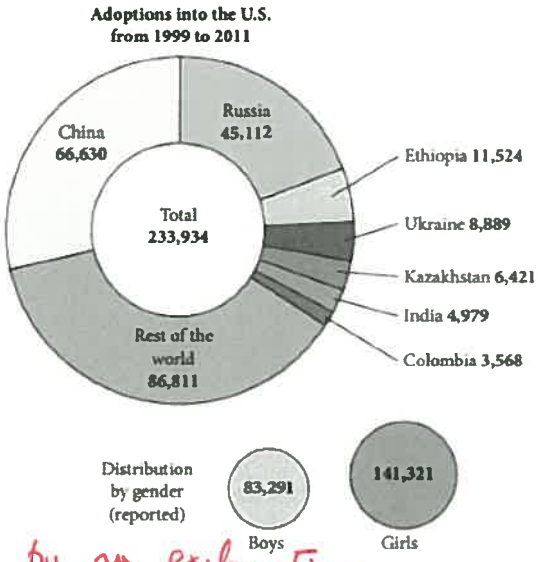
(a) If asked to interpret the numbers in the graph you would need to read the article that was published with the graph. True or false? If false, rewrite the statement to make it true.

(b) What percentage of the adoptions, correct to 1 decimal place, is from Russia?

(c) Looking at the reported distribution by gender, how many boys and girls were adopted?

(d) Why is the total number of boys and girls different from the number in the centre of the main graphic?

(e) What percentage, correct to 1 decimal place, of the distribution by gender (reported) adoptions were female?



a) The graph should be supported by an explanation

b) 45,112/233,934 = 19.3%

c) 224612 (others not reported)

d) the gender was not specified

e) 60.4%

7 The following table shows the numbers of people presenting to hospital emergency departments with injuries caused by exercise equipment, and the exercise equipment that caused their injuries.

Total injuries	**795**
Treadmill	296
Weights	166
Punching bag	119
Exercise bike	116
Swiss/gym ball	48
Other exercise equipment	27
Elliptical/cross-trainer	9
Medicine/fitness ball; rowing machine; balance/wobble board; step machine/Stairmaster; yoga/exercise mat; resistance board	Less than 5 each

(a) What is your first reaction to seeing these figures? Treadmill is the worst for injuries.

(b) What information is missing from the table that would enable you to make a judgement on the severity of the injuries? How much people use each of these equipments.

(c) The article accompanying the table indicates that these figures are for Victoria over the period 2008–2012, and that in 2011–2012 alone the tally was 178. Does this additional information change the reaction you had in parts (a) and (b)? NO

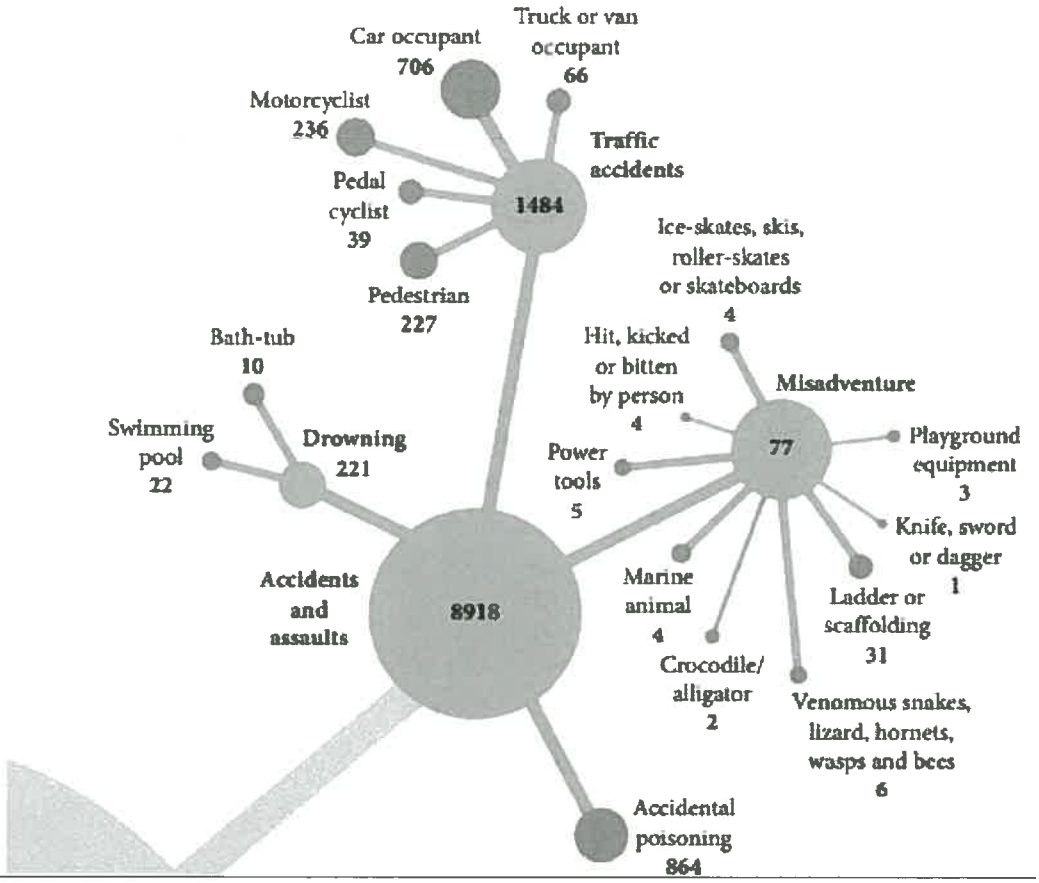
(d) The article indicates that these figures include 227 children under the age of four. Write a paragraph that could have been included in this article that highlights this particular figure related to children.

227/795 is about a 1/3, which is a lot.

Maybe these children got injured while using exercise equipment they should not have been able to access.

STATISTICAL INVESTIGATIONS

6 Look at this extract from the cause of death graphic.



(a) Of the deaths in the 'Accidents and assaults' category, what percentage, correct to 1 decimal place, is linked to drowning? 221 / 8918 = 2.5%

(b) There are two sub-branches from the drowning branch. What do they add to? 32

(c) Based on the data in this graphic, where is it reasonable to say that most cases of drowning occur?

A In swimming pools **B** In oceans, rivers, lakes ponds and other water sources

C Among young people **D** In bath-tubs **E** At home

(d) How many deaths related to traffic accidents are not detailed in one of the sub-categories?

1484 - 66 - 706 - 236 - 39 - 227 = 210

TYPES OF DATA

1 Decide whether these data examples are categorical or numerical.

(a) the amount of money carried by each student in your mathematics class on a particular day Numerical
(b) favourite chocolate truffle flavours, selected from a sample provided, for 100 people chosen at random in a shopping centre categorical
(c) the hair colour of the teachers at your school categorical
(d) the ages, in years, of the parents of the students in your class numerical
(e) the individual diameter of each orange in a fruit bowl numerical
(f) the size of running shoes worn by each of the competitors in the 100 m final at the last Olympic Games numerical.

2 Decide whether these categorical data examples are nominal or ordinal.

(a) the favourite radio station of each member of your extended family Nominal
(b) the degree of support for the new jumper design of your local sporting team, as recorded by the members of the team ordinal
(c) the starting letter or digit of the numberplate for each vehicle in the staff car park at your school ordinal
(d) the listing of the top 10 grossing movies for the week nominal
(e) the makes of cars in a used-car lot nominal
(f) the brand of oil used by a sample of masseurs nominal

3 Decide whether these numerical data examples are continuous or discrete.

(a) the volume of milk taken from each cow in a herd of dairy cattle continuous.
(b) the number of brands of clothing available in a shopping centre discrete
(c) the number of spectators at each of the Sydney Swifts home games discrete
(d) the distance thrown by each of the competitors in the Olympic shot put for women continuous
(e) the weight of fruit taken from each individual tree in an orchard continuous.
(f) the distance between consecutive stations on the exercise circuit in the local park continuous.

4 Decide whether these examples are nominal, ordinal, discrete or continuous.

(a) the strength of agreement with a number of statements, recorded using a scale of 1 to 5, where 1 represents strongly disagree and 5 represents strongly agree. ~~Nominal~~ ORDINAL, ~~ordinal~~ ~~nominal~~, discrete
(b) the height of the high tide at Sydney Heads for 30 consecutive days.
(c) the number of brothers and sisters of each member of the teaching staff at your school.

b) ordinal, continuous

c) ordinal, discrete.