Maths

Graphs

For Upper Primary

mini
e-book

Contents

Interpreting Graphs – 1

Look at the three sets of data below from the community of Vanillaville. Tick the type of graph that you think is best for recording each set of data. Hint: There should be a different answer for each. Give reasons for your choices.

Most popular sports played by 500 adults surveyed.

210	85	155	50
soccer	basketball	tennis	hockey

❑ column
❑ dot
❑ pie

Reason: _____

_____

_____

Daily temperatures for one week in January

40	35	37	30	31	29

❑ column
❑ dot
❑ pie

Reason: _____

_____

_____

Percentage of pets owned by 500 adults surveyed.

30%	50%	15%	5%
cat	dog	rabbit	guinea pig

❑ column
❑ dot
❑ pie

Reason: _____

_____

_____

Interpreting Graphs – 2

Select one set of graph data from page 47 and construct it here. Remember to label the graph clearly. You will need to turn the page to landscape.

Title of graph:

Preview

Ready-Ed
Publications
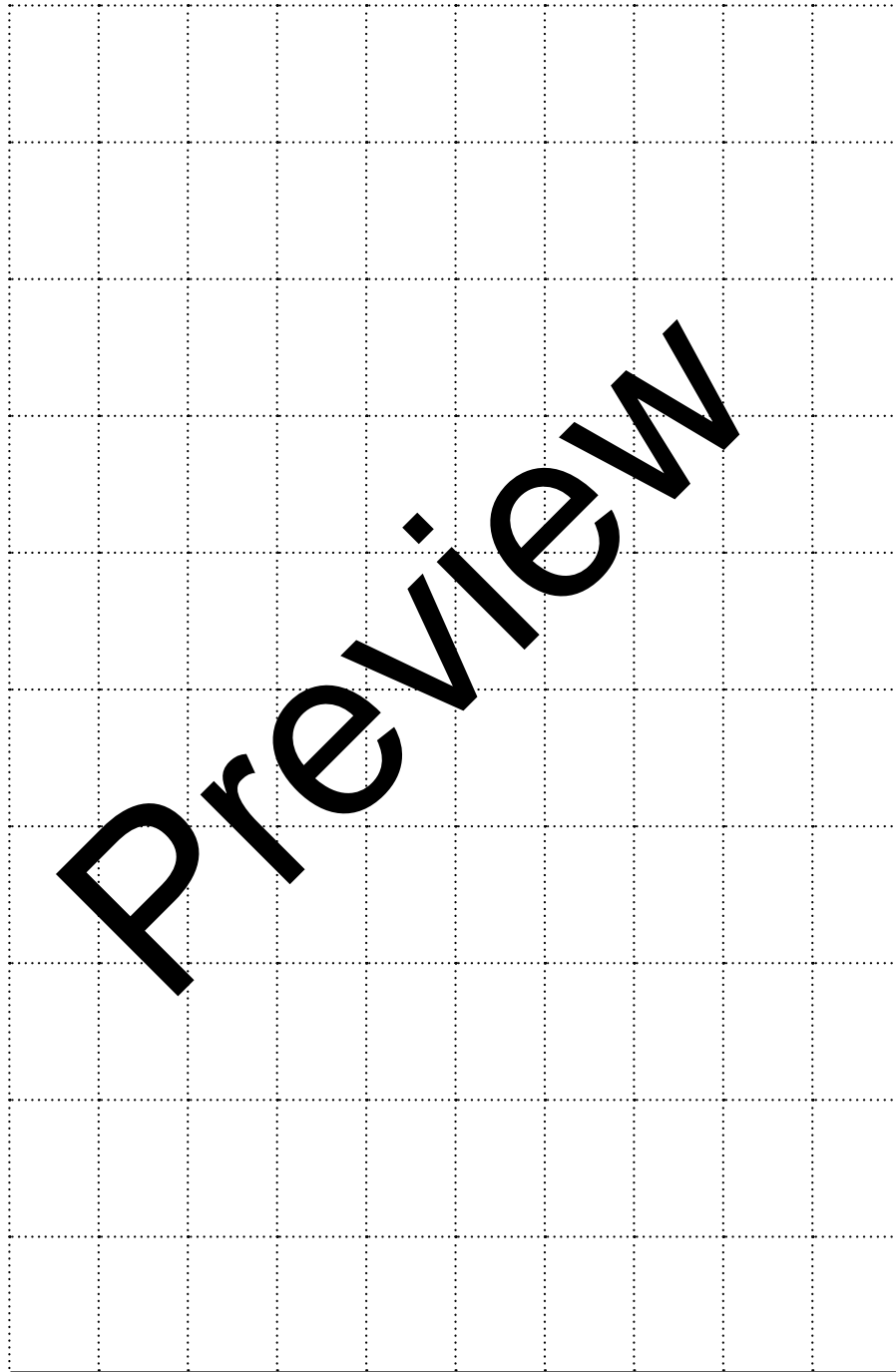
Reading Data

Look at the three graphs and the table below and answer the questions.

Musical Instruments Played At Palmer Primary School
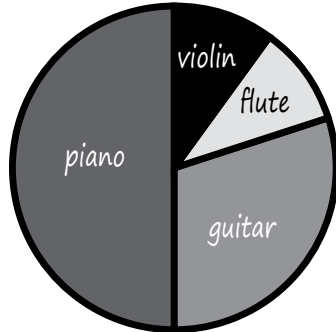
Gymnastics Scores By A Male Gymnast
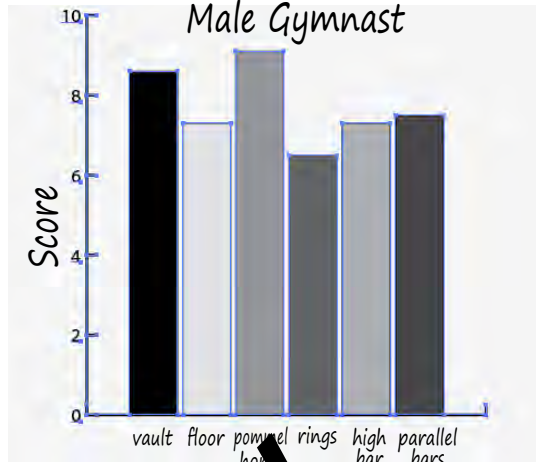
Menu Items Chosen At Jam Café
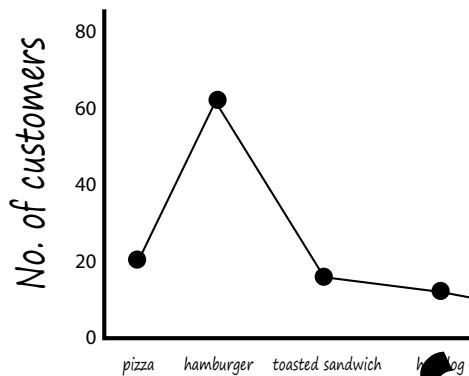
Timetable For Bingley Ferry

Time (24 Hour Clock)	No. Of Passengers
1000	35
1100	83
1200	92
1300	106
1400	110
1500	57
1600	23

1. Which instrument is the most popular at Palmer Primary School? _____

2. Which instruments have the same number of students learning how to play them?

_____

3. Which menu item was the least popular at the café? _____

4. Circle the approximate fraction of café customers who chose the hamburger.

   a) ¼   **b)** ½   **c)** 1/8   **d)** 1/20

5. List the top three highest scoring events for the gymnast.

_____

6. How many passengers rode the Bingley Ferry between three and four o'clock? _____

7. What are the two most popular times of day to ride the Bingley Ferry? _____

8. Which graph or table do you think was the easiest to read? Why?

_____

_____

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Curriculum Link: Describe and interpret different data sets in context (ACMSP120).
Elaboration: Using and comparing data representations for different data sets to help decision making.

5

Interpreting Graphs (Student A)

- **Your partner (Student B) is going to ask you questions about the graph below and will record your answers. You can peer mark your answers later.**

Year 6 conducted a class survey to find out the least popular jobs children were asked to do to earn pocket money. Look at the results.

entertaining guests | 17

tidying bedroom | 21

looking after little kids |

other | 6
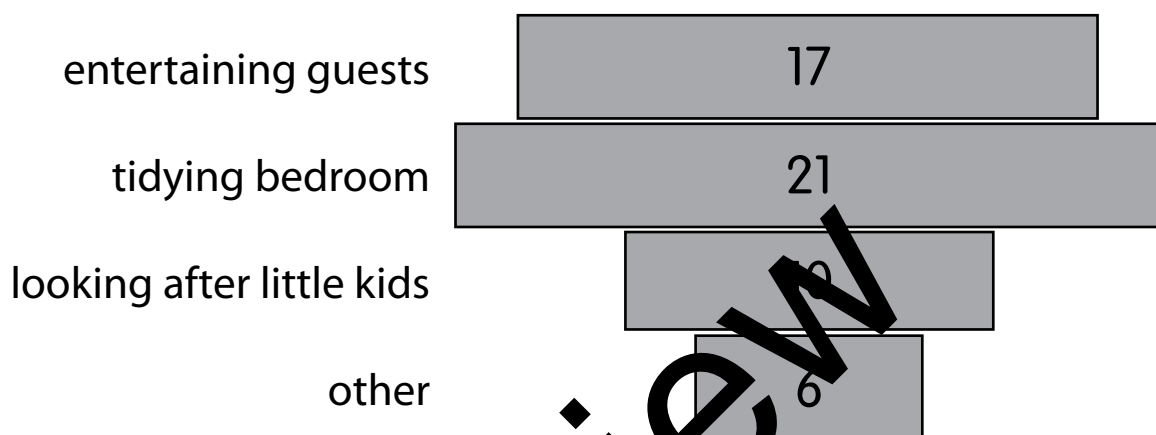
Questions to ask Student B about his/her graph.

1. How many students took part in this survey?

2. How many students prefer action films?

3. How many more students prefer comedy films to scary films?

4. How many students prefer comedy and action films altogether?

5. What fraction of students prefer sci-fi and scary films?

WELL DONE!

Curriculum Link: Interpret and compare a range of data displays, including side-by-side column graphs for two categorical variables (ACMSP147)

Interpreting Graphs (Student B)

● **Your partner (Student A) is going to ask you questions about the graph below and will record your answers. You can peer mark your answers later.**

Year 6 were polled to find out the types of films they liked to see. Look at the results in this pictogram.

Favourite Types of Films

ACTION   SCI-FI   COMEDY   SCARY

☺ = 2 people
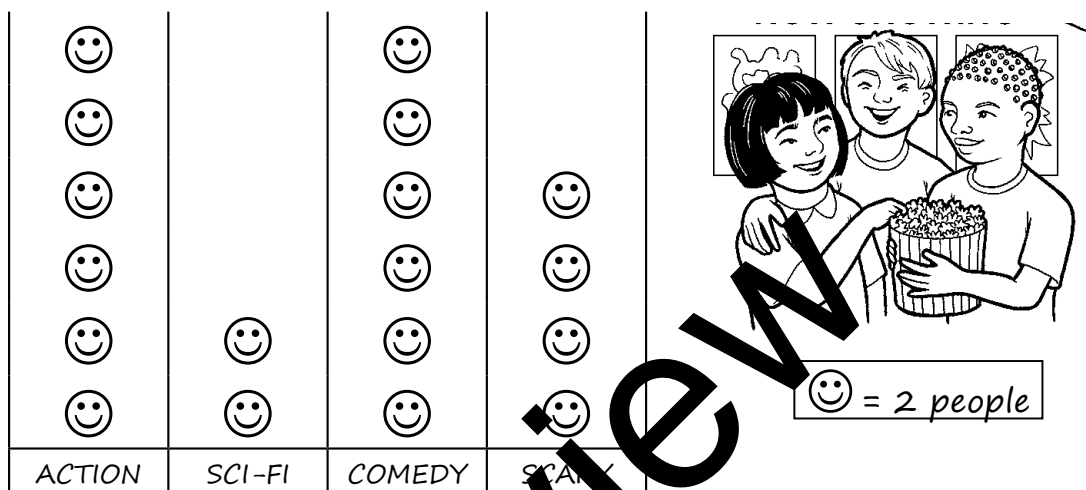
Questions to ask Student A about his/her graph.

1. What would be an appropriate title for your graph?

_____

2. How many students took part in the survey?

3. How many students don't like entertaining guests?

4. How many students don't like tidying or babysitting?

5. What fraction of students chose other jobs they didn't like?

WELL DONE!

Interpreting Line Graphs

● **Two cyclists were training for an extreme ten hour road race. Study the graph below that shows the distance covered in 10 hours by Cyclist 1.**

Distance travelled in training session

Legend

Cyclist 1: ———

1. Complete this table for Cyclist 1's training statistics using the graph above.

Time (hours)	1	2	3	4	5	6	7	8	9	10
Distance (km)	16									

2. How far did Cyclist 1 ride in 10 hours? _____

3. What distance did Cyclist 1 cover during the 4ᵗʰ hour? _____

4. Cyclist 2 took a route that was more mountainous. This table shows Cyclist 2's statistics. Plot Cyclist 2's data using a different coloured pencil on the graph above. Add to the legend.
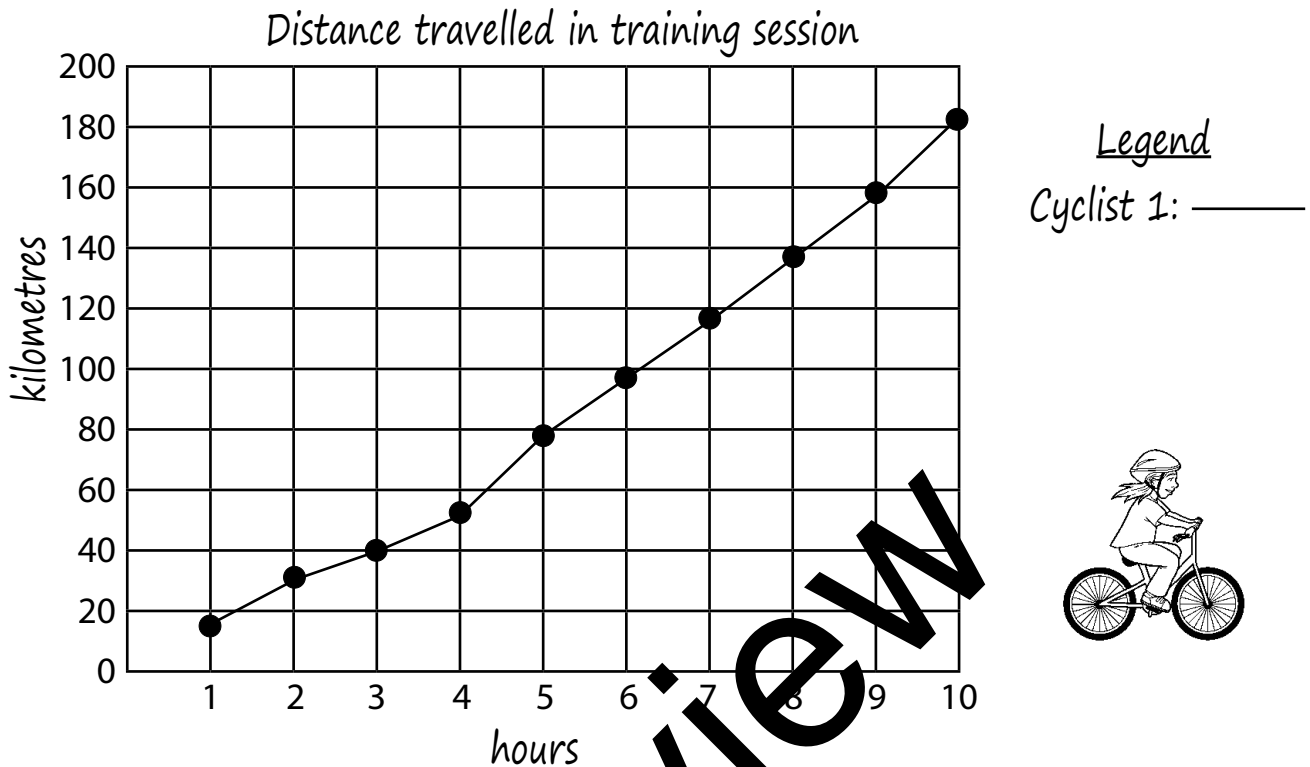
Time (hours)	1	2	3	4	5	6	7	8	9	10
Distance (km)	10	25	34	50	62	75	88	105	124	140

5. How much further did Cyclist 1 ride than Cyclist 2? _____

Curriculum Link: Interpret and compare a range of data displays, including side-by-side column graphs for two categorical variables (ACMSP147)

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Tall Story Column Graphs 1

A study has shown that the average height of men and women has steadily increased globally over the last hundred years.

● Look at the two double-column graphs below that compare changes in height for men and women in selected countries and complete the questions and task on page 50.

Graph 1 : Mean height change since 1914 - Women

Legend
1914 ■
2014 ▨

Australia   Kenya   South Korea
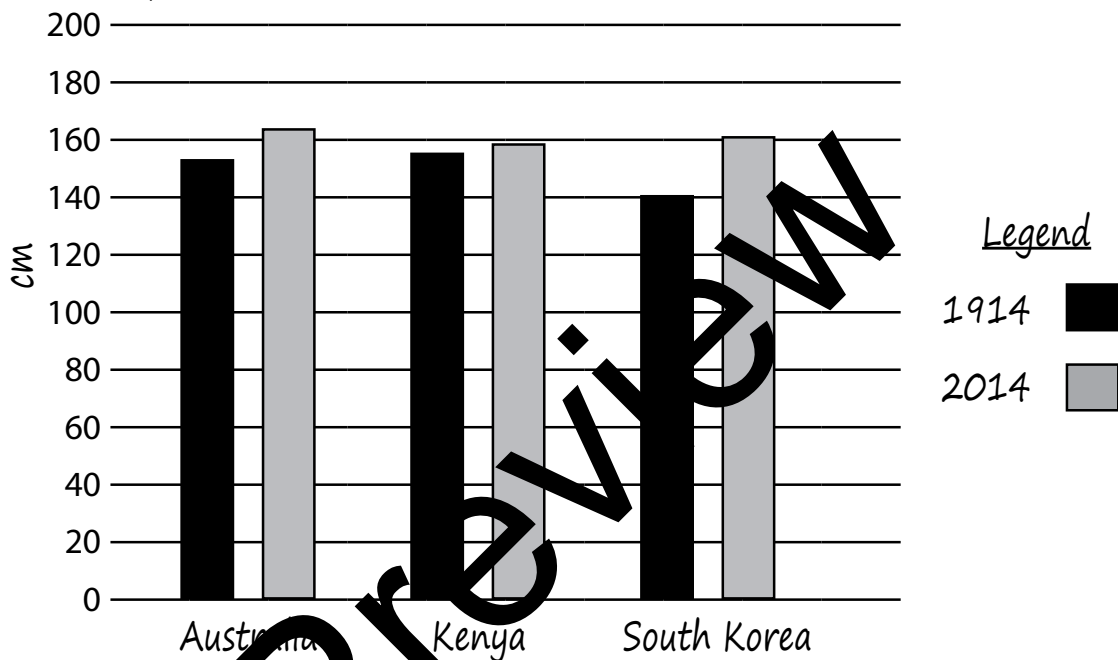
Graph 2 : Mean height change since 1914 - Men

Legend
1914 ■
2014 ▨

Australia   Kenya   South Korea

Tall Story Column Graphs 2

● **Use the graphs on page 49 to answer these questions.**

1. According to the graph, what was the mean tallest height in 1914:

    a. for women? _____   **b.** for men?   _____

2. According to the graph, what was the mean shortest height in 2014:

    a. for women? _____   **b.** for men?   _____

3. How tall on average are Kenyan men today? _____

4. How much taller on average are Australian men than Korean men? _____
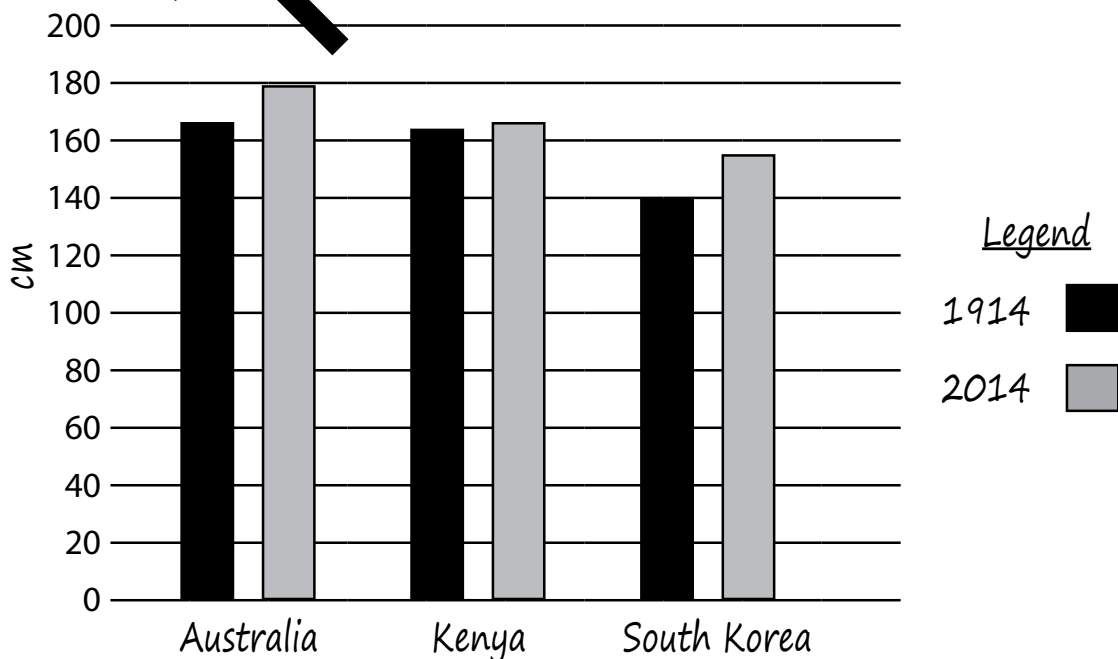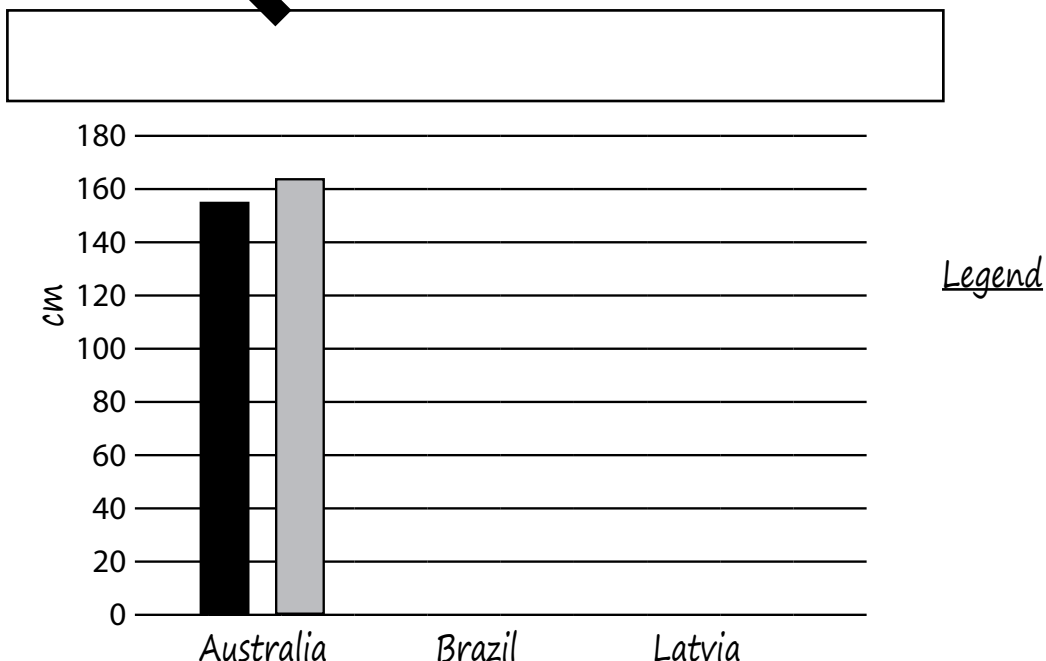
5. What is the mean increase in height for Australian women since 1914? _____

6. What is the increase in height for Kenyan men since 1914? _____

7. Who has had the highest mean increase in height since 1914? _____

8. Who has had the lowest mean increase since 1914? _____

---

9. Study these statistics from the same height study.

	Mean height of women	
Country	**Year - 1914**	**Year - 2014**
Latvia	156 cm	170 cm
Brazil	150 cm	161 cm

In the space below, construct your own double column graph to represent the information in the table above. Don't forget to add a title and legend.

Curriculum Link: Interpret and compare a range of data displays, including side-by-side column graphs for two categorical variables (ACMSP147)
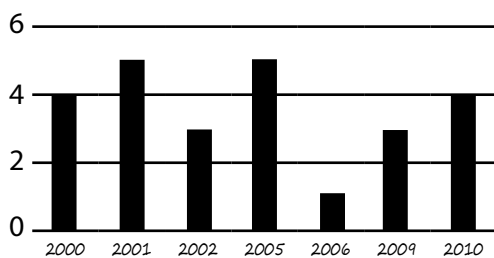
Ready-Ed Publications

What's Up With These Graphs?

Presenting data in graphs can make a point more convincing without taking up too much space. However, some graphs you might find online can be very misleading. This can be accidental or intentional.

● **Study the graphs below. Identify in the space provided on the right how these graphs could be misleading.**
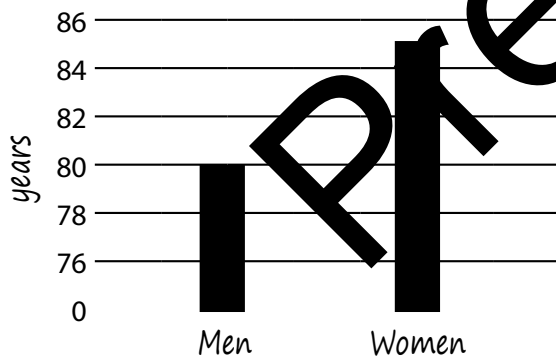
Graph 1

Earthquakes Recorded In Wattle Flat
2000 - 2010

_____
_____
_____
_____
_____
_____
_____

Graph 2

Life Expectancy Of Australian
Men And Women In 2013

years

Men   Women

_____
_____
_____
_____
_____
_____
_____

Graph 3

Market Leader

Go Glo   BRILL

46%   55%

65%
prefer

$WIPE   SOURCE:
                HS CONSUMER

_____
_____
_____
_____
_____
_____
_____

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Curriculum Link: Interpret secondary data presented in digital media and elsewhere (ACMSP148)
Elaboration: Identifying potentially misleading data representations in the media, such as graphs with broken axes or non-linear scales, graphics not drawn to scale, data not related
to the population about which the claims are made, and pie charts in which the whole pie does not represent the entire population about which the claims are made.   11

Answers

Page 3

Students should indicate that the sports graph should be a column or dot graph, the temperature should be a column or dot graph and the pets graph should be a pie graph.

Page 4

Teacher to check

Page 5

1. Piano
2. Violin and flute
3. Sushi
4. b)
5. Pommel horse, vault and parallel bars
6. 80
7. 1300 and 1400
8. Answers will vary

Page 6

Student A: 1. 36 **2.** 12 **3.** 4 **4.** 24 **5.** 1/3

Page 7

Student B: 1. E.g. "Jobs children don't like doing/ Least liked jobs at home" **2.** 54 **3.** 17
4. 31 **5.** 1/9

Page 8

1. Accept small variations in reading the graph's data. Distance(km): 16, 3 , 40, 55 80, 98, 18, 138, 160, 180
2. 180 km
3. About 25km
4. Teacher to check graphs
5. 40km

Page 10

Allow for small variations in answers
1.a. 155cm **b.** 165cm
2.a. 140cm **b.** 158cm
3. 168cm
4. 22cm
5. 9cm
6. 2cm
7. South Korean women
8. Kenyan men and women (about 2cm)
9. Teacher to check.

Page 11

Graph 1: not in sequential years - does not show that earthquakes were not recorded during 5 years in the decade **Graph 2:** intervals on y-axis make the difference between men and women's ages disproportionate
Graph 3: pie chart does not add up to 100%