PART 3

UNIT
12

SPRING
first half

HANDLING DATA

HANDLING DATA

SUGGESTED TIME **3 hours**

- Represent and interpret data in a line graph (for example, the weight of a baby at monthly intervals from birth to one year).
- Recognise when points can be joined to show trends.
- Solve a problem by extracting and interpreting information presented in tables, graphs and charts.

SECTION 1   Line graphs

SECTION 2   Pie charts and bar charts

SECTION 3   Information from tables and lists

HOMEWORK

- All of the Star Challenges can be used as follow-up activities.

Unit **12**

Checklist for pupils

UNIT **12**

Line graphs

You will:
- read and interpret information from line graphs ☐
- understand the meaning of intermediate points on a graph ☐

Pie graphs and bar charts

You will:
- read and use information from pie charts ☐
- read and use information from bar charts ☐

Information from tables and lists

You will:
- read and interpret information from tables and lists ☐

SECTION 1: LINE GRAPHS

DIRECT TEACHING POINTS

- Discuss the appropriateness of joining up the points on each of the graphs. Establish when intermediate points have meaning and when they do not. Discuss whether joining the points helps to show a trend.
- In exercise 1, the intermediate points have meaning. Emphasise that they are estimates, not actual temperature readings, and that the estimate for 11.30 am is likely to be fairly good, while that for 5 pm is likely to be less accurate.
- In exercise 2, intermediate points have no meaning, but joining the points may help to see the pattern of sales.
- In exercise 3, intermediate points have meaning and the graph can be extended to read off further values.

KEY VOCABULARY *TO LEARN AND USE*

line graph   intermediate points

Line graphs

1 The temperature graph

Pupils in a Year 7 class kept a record of the classroom temperature.
The points on this graph have been joined with lines.
The values between the plotted points are all estimates, not actual values.
Estimates between two plotted points are usually more accurate than
values obtained by extending a graph.
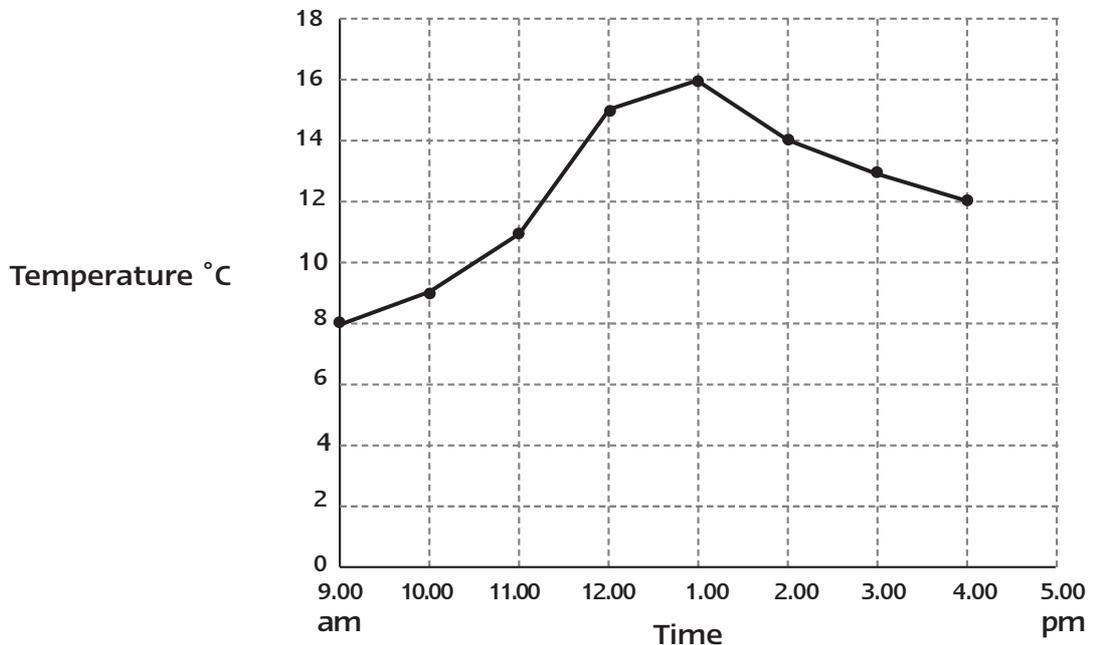
1 At what time was the **first** temperature taken? ....

2 At what time was the **last** temperature taken? ....

3 What was the highest temperature recorded? ....°C

4 At what time was the highest temperature recorded? ....

5 What was the lowest temperature recorded? ....°C

6 What was the temperature at 11.00 am? ....°C

7 (a) Read the temperature at 11.30 am. ....°C
   (b) Would this temperature be the actual temperature at 11.30 am, or an
   estimate? ....

8 Estimate the temperature at 5 pm. ....°C

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Line graphs

2 **The sales graph**

This is the sales graph for a company which makes toys called 'Whizzbangs'.

Sales Graph

Sales in thousands

Months in Year 2000
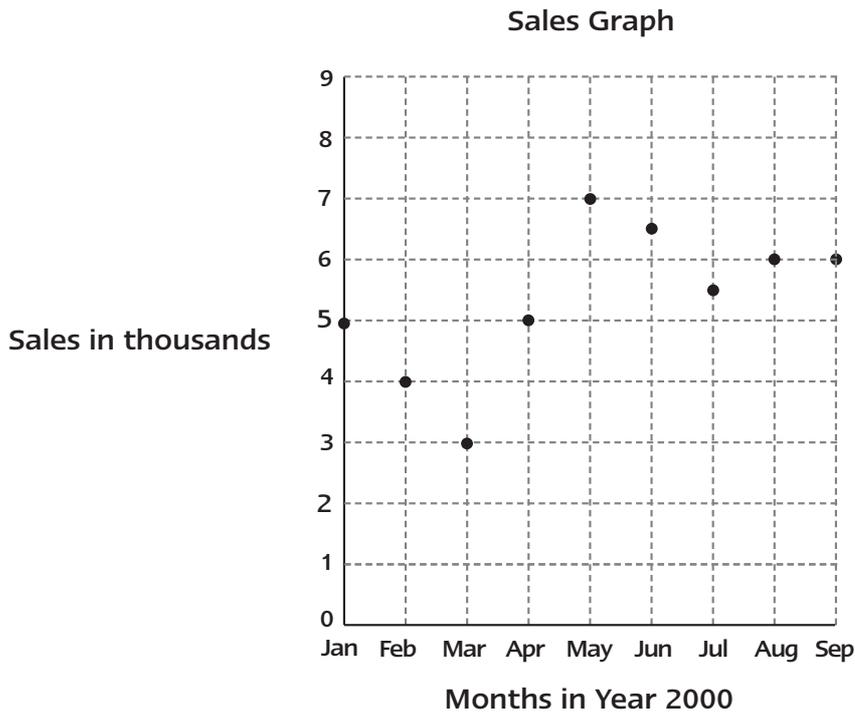
1 **How many months does the graph cover?** ....

2 **How many Whizzbangs were sold in April?** ....

3 **How many Whizzbangs were sold in July?** ....

4 **Which month had the lowest sales?** ....

5 **Which month had the highest sales?** ....

6 **Do points between the plotted points have a meaning?** ....

Explain your answer. ....

....

....

7 **Why might the sales be higher in summer?**

....

....

Line graphs

3 **The currency conversion graph**

You can use the values between the plotted points, and extend the graph to give you more values.

Conversion graph
French Francs <——> Pounds (£)

French Francs

British Pounds (£)
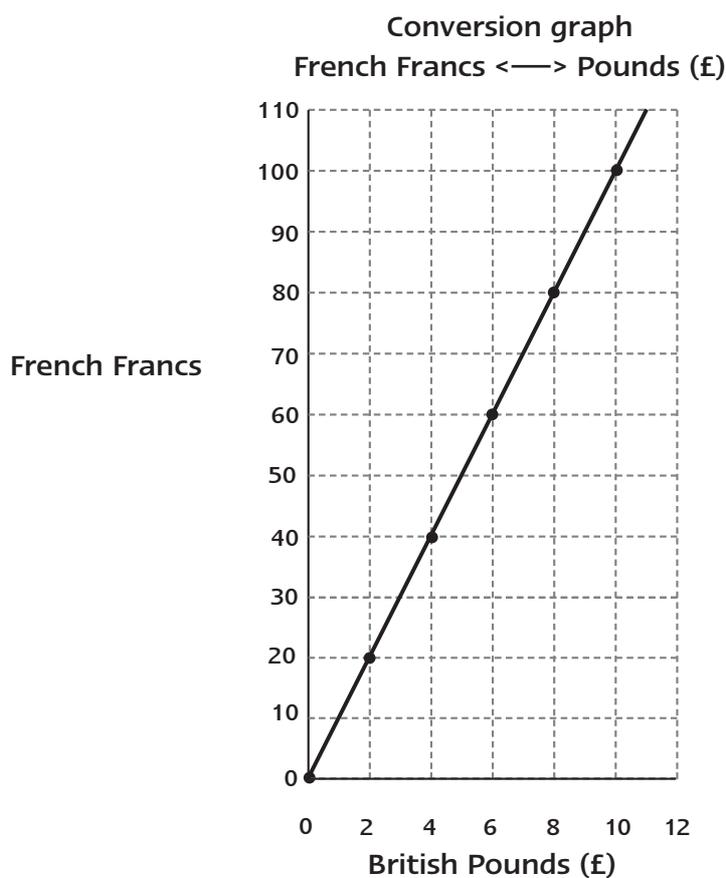
Molly wants to change her British money into French Francs.

1 How many francs would she get for £10? ....francs

2 How many francs would she get for £6? ....francs

3 What are 40 francs worth in £? £.........................

4 What are 25 francs worth in £? £.........................

5 What is £1 worth in francs? ....francs

6 Can you use the graph to work out what £100 is worth in francs?

....

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Line graphs

★ STAR CHALLENGE

1 Car sales

★ ⬤ All correct 1 star

Car sales

Number of cars sold

1998   1998
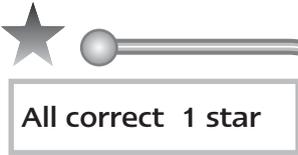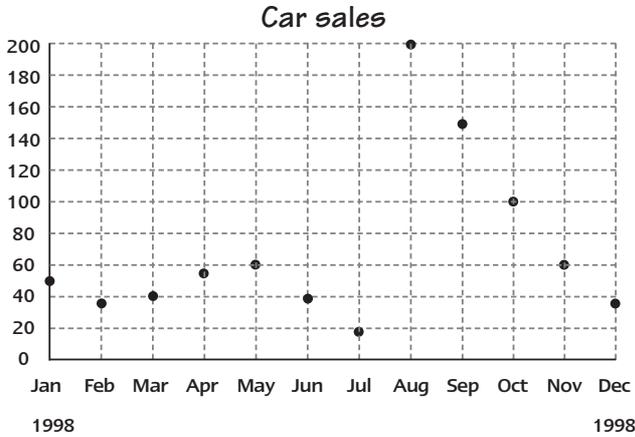
1 Which month had the lowest sales? ....

2 Most cars were sold in the month when the car registration letter changed.

   Which month was that? ....

3 In which months were fewer than 40 cars sold? ....

4 How many cars were sold in September? ....

Car sales

Number of cars sold

1999   1999
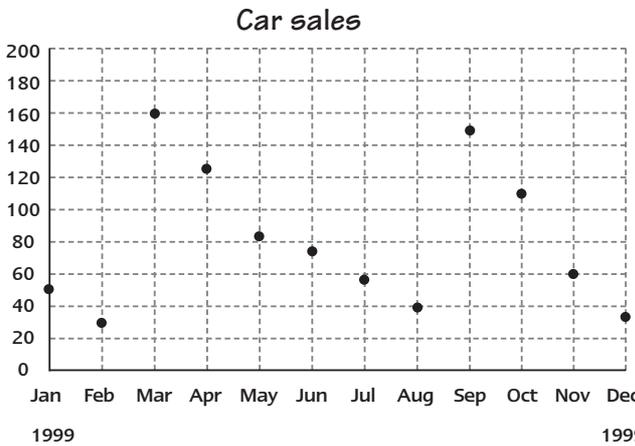
5 Which month had the lowest sales? ....

6 In which months were more than 120 cars sold? ....

7 The registration letter changed twice this year.
   In which two months did it change? ....

8 Is it sensible to join the points on this graph? ....

   Explain your answer. ....

   ....

SECTION 2: PIE CHARTS AND BAR GRAPHS
SECTION 3: INFORMATION FROM TABLES AND LISTS

DIRECT TEACHING POINTS

- Section 2 exercises 1 and 2 are basic examples and are suitable for class or group discussion.

- Work on bar charts is consolidated in Star Challenge 2.

- Star Challenge 3 extends the work on pie charts to use simple fractions of a complete circle.

- You can also use topical examples drawn from newspapers and magazines.

KEY VOCABULARY
TO LEARN AND USE

pie chart   sector   multiple bar chart

table   list   information

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Pie charts and bar charts

1 **The darts competition**
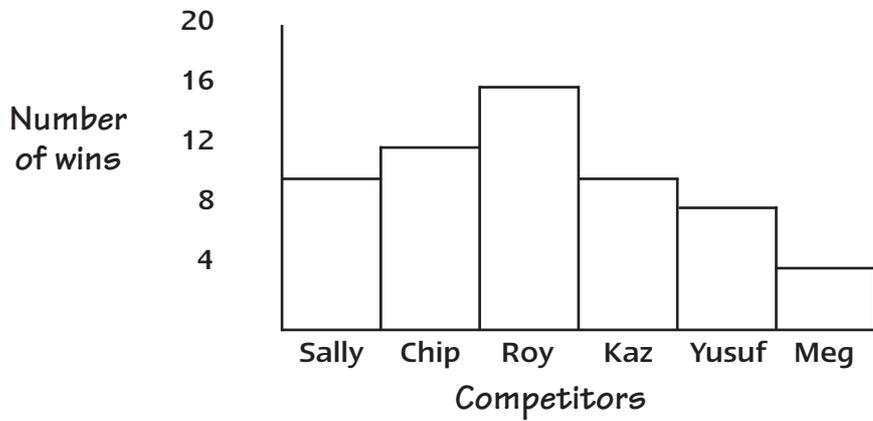
1 How many matches did Sally win? ....

2 How many matches did Meg win? ....

3 Who was the best player? ....

4 Who was the worst player? ....

5 How many matches were there? ....
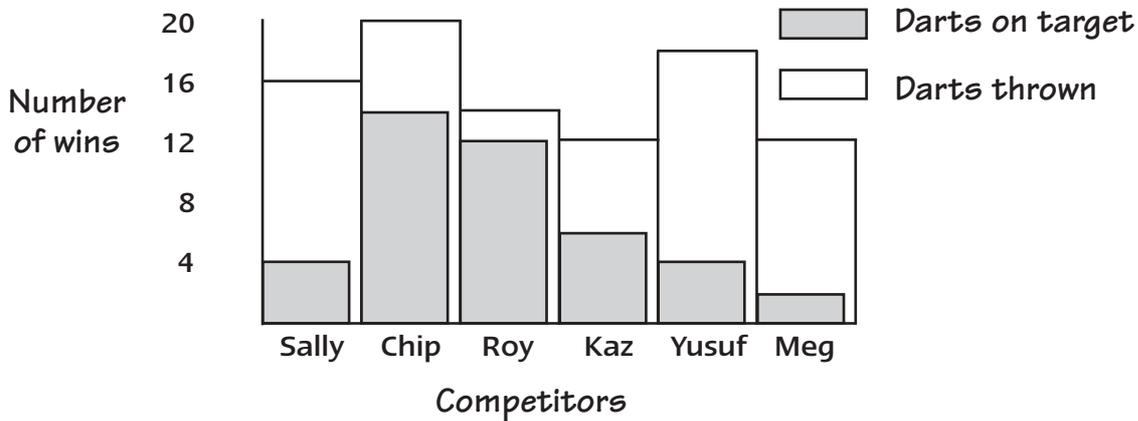
6 Roy had 14 throws. How many were on target? ....

7 Who had the most misses? ....

8 Who hit the target most often? ....

9 Who had the least number of misses? ....

10 On this form, who do you think should win the final match? Give a reason why.

....

Pie charts and bar charts

2 Reading simple pie charts

1
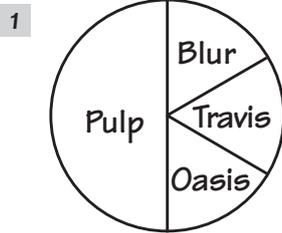
12 boys chose their favourite pop group.

How many chose Pulp? ....

How many chose Blur? ....

How many chose Oasis? ....

2
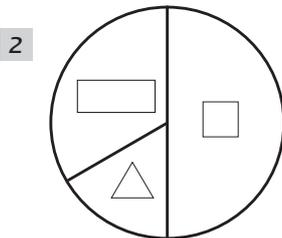
I have 300 stamps in my collection.

How many ☐ stamps do I have? ....

How many △ stamps do I have? ....

How many ☐ stamps do I have? ....

My stamp collection

STAR CHALLENGE

2 Tree planting

Six friends want to plant some trees at their school.
They need to raise some money to buy the trees.

All correct 1 star

Amounts of money raised so far

Amount in pounds (£)
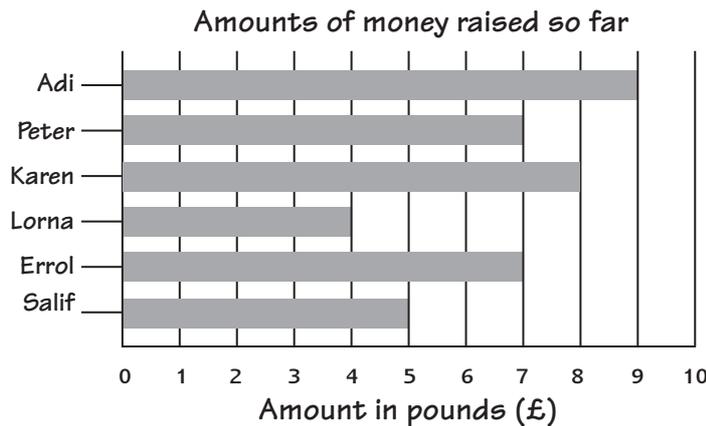
1 Who has raised the most money so far? ....

2 How much has Lorna raised? ....

3 How much has Salif raised? ....

4 They need to raise £50 to buy the trees.
How much more do they still need to raise? ....

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Pie charts and bar charts

STAR CHALLENGE

3 **Pie charts**

★★

| 10 correct | 2 stars |
| 8-9 correct | 1 star |

Colour of cars in the car park

red

blue
90°

45°
others

45°
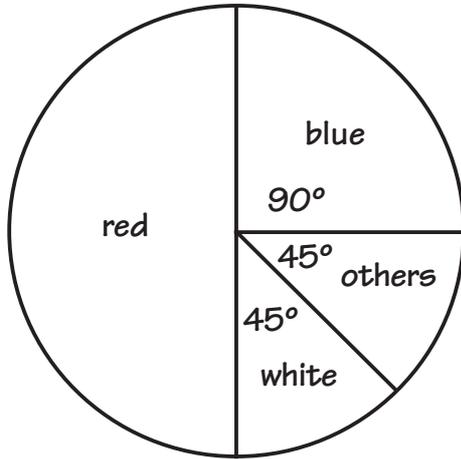
white

1   There are 10 blue cars in the car park.

(a) How many cars are white? ....

(b) How many cars are red? ....

(c) How many cars are there altogether? ....

(d) How many 'others' are there? ....

2   The pie chart below shows where space explorers spent their holidays in the solar system in 2392.
30 explorers went to Earth.
Complete the table, using the information in the pie chart.

Venus
120°

Saturn
90°

90°

60°

Earth

Mars

Holiday destinations
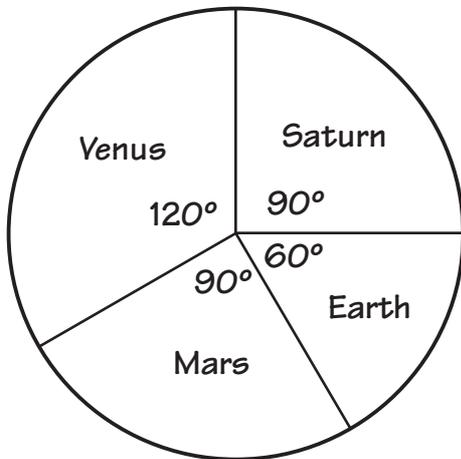
Holiday destinations	Angle on pie chart	Number of space explorers
Earth	60°	30
Mars		
Venus		
Saturn		

Information from tables and lists

1 Household goods

	Own a TV	Rent a TV	Video Recorder	Microwave Cooker	Dishwasher	Computer	Mobile Phone
Smith	2		1			1	3
Brown		1		1		1	
Kuri	1		1	1	1		
Green	2	1	2	1		2	2
Ono	1	1			1	1	1

1   How many of these families own a dishwasher? ....

2   How many of these families own a video recorder? ....

3   How many of these household goods has the Kuri family? ....

4   Which family has the least number of these goods? ....

5   How many families own a TV? ....

6   How many of these families rent or own a TV? ....

7   How many TVs do these families have altogether? ....

8   How many families have a computer? ....

9   Which two families do not have a mobile phone? ....

10   Which family has a dishwasher but no microwave? ....

2 Fly to the USA

Travel Cheap		**Wanderer**		**Out of this World**		**Cheapest and Best**	
New York	£202	Chicago	£227	Miami	£249	Chicago	£218
Miami	£262	Los Angeles	£275	New York	£215	New York	£207
Washington	£219	Washington	£235	Washington	£215	Los Angeles	£230
Los Angeles	£270	New York	£207	Chicago	£223	Washington	£222

1   What does it cost to fly to New York with 'Wanderer'?   ....

2   What does it cost to fly to Los Angeles with 'Travel Cheap'?   ....

3   Which company does not give a price to fly to Los Angeles?   ....

How much is the cheapest flight to:

4   New York?   5   Chicago?   6   Miami? ....

Which company offers the cheapest flight to:

7   Los Angeles?   8   Washington? ....

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Information from tables and lists

STAR CHALLENGE **4**

Yesterday's weather around the world

9–10 correct 1 star
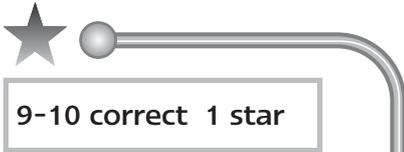
	Weather	Max Temp (°C)		Weather	Max Temp (°C)
Ajaccio (Corsica)	S	17	Helsinki (Finland)	Cl	15
Athens (Greece)	R	17	Hong Kong (China)	F	28
Beijing (China)	Sh	14	Istanbul (Turkey)	Cl	17
Berlin (Germany)	Th	15	Lima (Peru)	F	19
Boston (USA)	Cl	6	Lisbon (Portugal)	F	17
Cairo (Egypt)	Cl	20	Madrid (Spain)	Cl	16
Dallas (USA)	S	27	New York (USA)	R	8
Dublin (Ireland)	R	8	Paris (France)	Th	13

Th = thundery   S = sunny   F = fair   Sh = showery   R = rain   Cl = cloudy

1   What was the maximum temperature in Athens? ....

2   What was the maximum temperature in Dallas? ....

3   Which place was warmer, Helsinki or Madrid? ....

4   What was the weather in New York? ....

5   Which was hotter, Cairo or Madrid? ....

6   Which place had the highest temperature? ....

7   Name two places that had a maximum temperature of 8°C. ....

8   Which two places had thundery weather? ....

9   Which place was the coldest? ....

10   Three places had rainy weather. Which of these three was the warmest? ....

Information from tables and lists

STAR CHALLENGE

5 The castle visit

★ ●━━━━━━━━

All correct 1 star

Peckforton Castle

Cost per person

Adults	£3.50
Children (11 and over)	£1.20
Children (under 11)	75p

Visit the haunted room and meet the ghost.

20p per adult
10p per child

---

1 Sara is twelve years old. How much will it cost Sara to visit the castle?

....

2 Asif and Vikram are nine and ten years old. They are going to the castle with their mother. How much will it cost for all three of them to get into the castle?

....

3 Ten children (all under 11) and two teachers are going to visit the castle. How much will it cost?

....

4 Mr and Mrs Young, Luke (12), Joanne (9) and Connor (4) visited the castle, and also went into the haunted room. What was the total cost of their visit?

....

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Unit *12* Answers

Section 1 — Line graphs

1 The temperature graph

1	9.00 am	*3*	16°C	*5*	8°C	*7*	(a) 13°C (b) estimate
2	4.00 pm	*4*	1.00 pm	*6*	11°C	*8*	11°C

2 The sales graph

1 9 months   *4* March   *6* No. There are no dates between each of the months on the graph, so you cannot have sales figures for them.

2 5000   *5* May

3 5500   *7* Summer toy (or other valid reason).

3 The currency conversion graph

1 100 francs	*3* £4	*5* 10 francs
2 60 francs	*4* £2.50	*6* Yes, 1000 francs

Section 2 — Pie charts and bar charts

1 The darts competition

1 10   *3* Roy   *5* 60   *7* Yusuf   *9* Roy

2 4   *4* Meg   *6* 12   *8* Chip   *10* Roy. He gets the greatest proportion of shots on target.

2 Reading simple pie charts

1 6, 2, 2   *2* 150, 50, 100

Section 3 — Information from tables and lists

1 Household goods

1 2	*3* 4	*5* 4	*7* 9	*9* Brown, Kuri
2 3	*4* Brown	*6* 5	*8* 4	*10* Ono

2 Fly to the USA

1 £207	*3* Out of this World	*5* £218	*7* Cheapest and Best
2 £270	*4* £202	*6* £249	*8* Out of this World

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Unit 12 Answers

Star Challenge answers

STAR CHALLENGE 1 — Car sales

All correct 1 star

1	July	5	February
2	August	6	March, April, September
3	Feb, June, July, Dec	7	March, September
4	150	8	No. The points between have no meaning.

STAR CHALLENGE 2 — Tree planting

All correct 1 star

| 1 | Adi | 3 | £5 |
| 2 | £4 | 4 | £10 |

STAR CHALLENGE 3 — Pie charts

10 correct 2 stars
8-9 correct 1 star

1 (a) 5   (b) 20   (c) 40   (d) 5

2	90°	45
	120°	60
	90°	45

STAR CHALLENGE 4 — Yesterday's weather around the world

9-10 correct 1 star

1	17°	6	Hong Kong
2	27°	7	Dublin and New York
3	Madrid	8	Berlin and Paris
4	Rain	9	Boston
5	Cairo	10	Athens

STAR CHALLENGE 5 — The castle visit

All correct 1 star

| 1 | £1.20 | 3 | £14.50 |
| 2 | £5.00 | 4 | £10.40 |