Reasoning and Problem Solving
Step 5: Read and Interpret Pie Charts

National Curriculum Objectives:

Mathematics Year 6: (6S1) Interpret and construct pie charts and line graphs and use these to solve problems

Differentiation:

Questions 1, 4 and 7 (Reasoning)
Developing Using halves, thirds, quarters and fifths, with numbers up to 100. Including up to 5 segments and up to 2 different denominators per chart.
Expected Using halves, quarters, eighths, fifths, thirds and sixths, with numbers up to 1000. Including up to 6 segments and up to 3 different denominators per chart, where all denominators are direct multiples.
Greater Depth Using any fraction, with numbers up to 1000. Including up to 6 segments and up to 4 different denominators per chart, where all denominators are not always direct multiples.

Questions 2, 5 and 8 (Problem Solving)
Developing Find the missing fraction of a pie chart from the given data. Using the same fractions, segments and denominators referenced for Question 1.
Expected Find the missing fraction of a pie chart from the given data. Using the same fractions, segments and denominators referenced for Question 4.
Greater Depth Find the missing fraction of a pie chart from the given data. Using the same fractions, segments and denominators referenced for Question 7.

Questions 3, 6 and 9 (Reasoning)
Developing Explain if a statement about the proportions of a pie chart is correct. Using the same fractions, segments and denominators referenced for Question 1.
Expected Explain if a statement about the proportions of a pie chart is correct. Using the same fractions, segments and denominators referenced for Question 4.
Greater Depth Explain if a statement about the proportions of a pie chart is correct. Using the same fractions, segments and denominators referenced for Question 7.

More Year 6 Statistics resources.

Did you like this resource? Don't forget to review it on our website.

1a. Ricky says,

> I have enough information to work out the total number of votes.

Favourite Drink

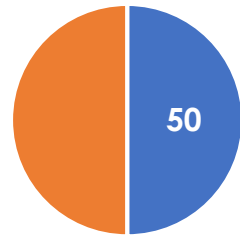Is he correct? Prove it.

D

R

1b. Noni says,

> I have enough information to work out the total number of votes.

Boys and Girls in Playgroup

- Boys
- 50
- Girls

Is she correct? Prove it.

D

R

2a. Lottie has forgotten what fraction of the pie chart should be given to 'Girls'. Can you work out the fraction from the information below?

Number of Boys and Girls in the Class	
Boys	12
Girls	?
Total	24 people

D

PS

2b. Seth has forgotten what fraction of the pie chart should be given to 'King of the Ring'. Can you work out the fraction from the information below?

Favourite Book	
King of the Ring	?
Larry Trotter	20
Thunder Games	10
Total	40 people

D

PS

3a. Imagine a pie chart with the same proportions as the one below was drawn for a survey of 50 people.

Would the 'More than 6' category have 20 people in it? Convince me.

Number of Catches in a Row (35 people)

- 7
- 7
- 7
- 14
- None
- 1 to 3
- 4 to 6
- More than 6

D

R

3b. Imagine a pie chart with the same proportions as the one below was drawn for a survey of 33 people.

Would the 'Savoury' category have 11 people in it? Convince me.

Sweet, Savoury or Spicy Food (24 people)

- 8
- 8
- 8
- Sweet
- Savoury
- Spicy

D

R

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Reasoning and Problem Solving – Read and Interpret Pie Charts – Year 6 Developing

4a. Phil says,

I do not have enough information to work out the total number of votes.

Favourite Time of Day

■ Morning
■ Lunchtime
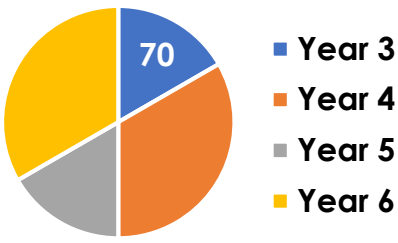■ Afternoon
■ Evening
■ Night

60
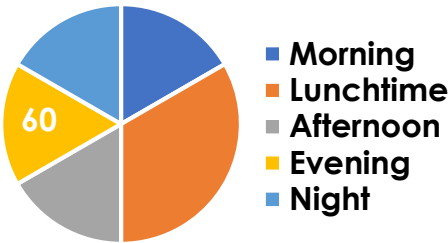
Is he correct? Prove it.

☆ E   R

4b. Rosie says,

I do not have enough information to work out the total number of votes.

Favourite School Year

■ Year 3
■ Year 4
■ Year 5
■ Year 6

70

Is she correct? Prove it.

☆ E   R

5a. Fiona has forgotten what fraction of the pie chart should be given to 'Italian'. Can you work out the fraction from the information below?

Nationality of Hotel Guests	
French	100
Spanish	100
Italian	?
German	50
Total	**300 people**

☆ E   PS

5b. Ray has forgotten what fraction of the pie chart should be given to 'Elves'. Can you work out the fraction from the information below?

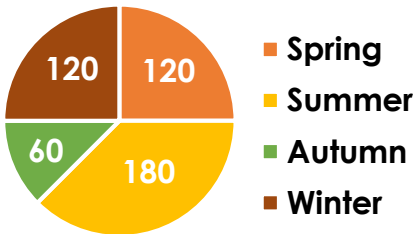| Favourite Group of Characters	
Witches	100
Elves	?
Dragons	50
Knights	50
Total	**250 people**

☆ E   PS

6a. Imagine a pie chart with the same proportions as the one below was drawn for a survey of 640 people.

Would the 'Spring' category have 80 people in it? Convince me.

Best Season of the Year (480 people)

120 120
60   180

■ Spring
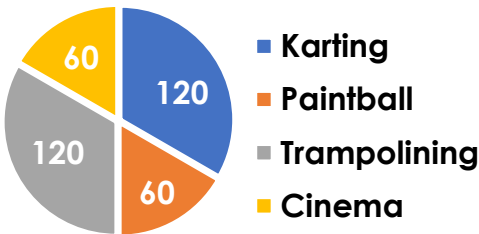■ Summer
■ Autumn
■ Winter

☆ E   R

6b. Imagine a pie chart with the same proportions as the one below was drawn for a survey of 540 people.

Would the 'Paintball' category have 90 people in it? Convince me.

Best Birthday Party (360 people)

60
120   120
120   60

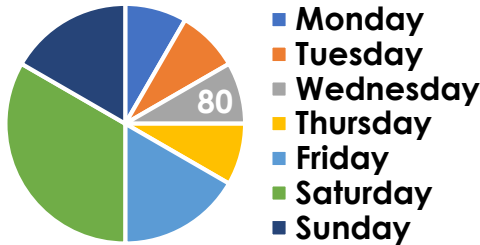■ Karting
■ Paintball
■ Trampolining
■ Cinema

☆ E   R

7a. Felicity says,

> I do not have enough information to work out the number of votes.

Best Day of the Week

- ■ Monday
- ■ Tuesday
- ■ Wednesday
- ■ Thursday
- ■ Friday
- ■ Saturday
- ■ Sunday

(80)

Is she correct? Prove it.

GD

R

7b. Tom says,

> I do not have enough information to work out the total number of votes.

Favourite Ice Cream

- ■ Vanilla
- ■ Strawberry
- ■ Banana
- ■ Chocolate

(210)

Is he correct? Prove it.

GD
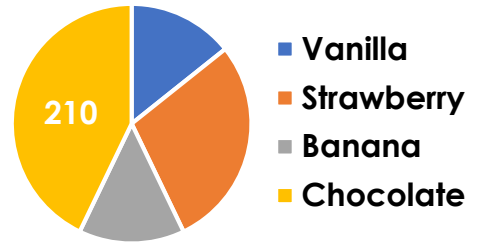
R

8a. Bret has forgotten what fraction of the pie chart should be given to 'Europe'. Can you work out the fraction from the information below?

Continent Living On	
Europe	?
North America	240
South America	80
Asia	160
Oceania	80
Total	**720 people**

GD

PS

8b. Asha has forgotten what fraction of the pie chart should be given to the '2000s'. Can you work out the fraction from the information below?

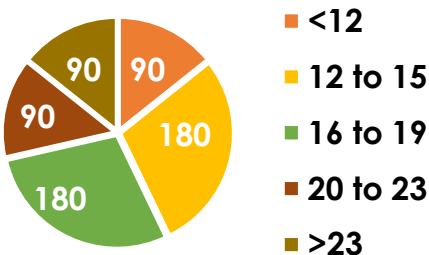| Favourite Music Era	
1970s	70
1980s	140
1990s	140
2000s	?
2010s	140
Total	**840 people**

GD

PS

9a. Imagine a pie chart with the same proportions as the one below was drawn for a survey of 560 people.

Would the '<12' category have 70 people in it? Convince me.

Time Taken to Run 100m in Seconds (630 people)

90, 90, 90, 180, 180

- ■ <12
- ■ 12 to 15
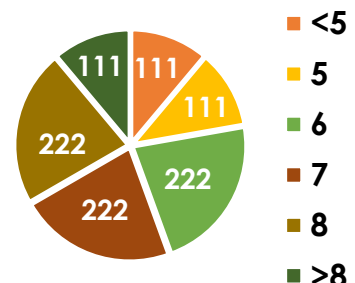- ■ 16 to 19
- ■ 20 to 23
- ■ >23

GD

R

9b. Imagine a pie chart with the same proportions as the one below was drawn for a survey of 810 people.

Would the '5' category have 80 people in it? Convince me.

Number of Hours Sleep (999 people)

111, 111, 111, 222, 222, 222

- ■ <5
- ■ 5
- ■ 6
- ■ 7
- ■ 8
- ■ >8

GD

R

Reasoning and Problem Solving – Read and Interpret Pie Charts – Year 6 Greater Depth

Reasoning and Problem Solving
Read and Interpret Pie Charts

Developing

1a. Ricky is not correct because there is no information about the number of voters or the number who voted for any of the unknown categories.

2a. $\frac{1}{2}$

3a. No because the 'More than 6' category in the chart of 35 people was selected 7 times. 7 out of 35 people is one fifth. One fifth of 50 is 10, not 20.

Developing

1b. Noni is correct because the pie chart is split in half. If 50 of the children are boys, then 50 of the children are girls so there were 100 votes altogether.

2b. $\frac{1}{4}$

3b. Yes because the 'Savoury' category in the chart of 24 people was selected 8 times. 8 out of 24 people is one third. One third of 33 is 11.

Expected

4a. Phil is not correct because 60 people represent one sixth of the voters so 360 people must have voted altogether.

5a. $\frac{1}{6}$

6a. No because the 'Spring' category in the chart of 480 people was selected 120 times. 120 out of 480 is one quarter. One quarter of 640 is 160, not 80.

Expected

4b. Rosie is not correct because 70 people represent one sixth of the voters so 420 people must have voted altogether.

5b. $\frac{1}{5}$

6b. Yes because the 'Paintball' category in the chart of 360 people was selected 60 times. 60 out of 360 is one sixth. One sixth of 540 is 90.

Greater Depth

7a. Felicity is not correct because 80 people represent one twelfth of the voters so 960 people must have voted altogether.

8a. $\frac{2}{9}$

9a. No because the '<12' category in the chart of 630 people was selected 90 times. 90 out of 630 is one seventh. One seventh of 560 is 80, not 70.

Greater Depth

7b. Tom is not correct because 210 people represent three sevenths of the voters so 490 people must have voted altogether.

8b. $\frac{5}{12}$

9b. No because the '5' category in the chart of 999 people was selected 111 times. 111 out of 999 is one ninth. One ninth of 810 is 90, not 80.

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Reasoning and Problem Solving – Read and Interpret Pie Charts ANSWERS