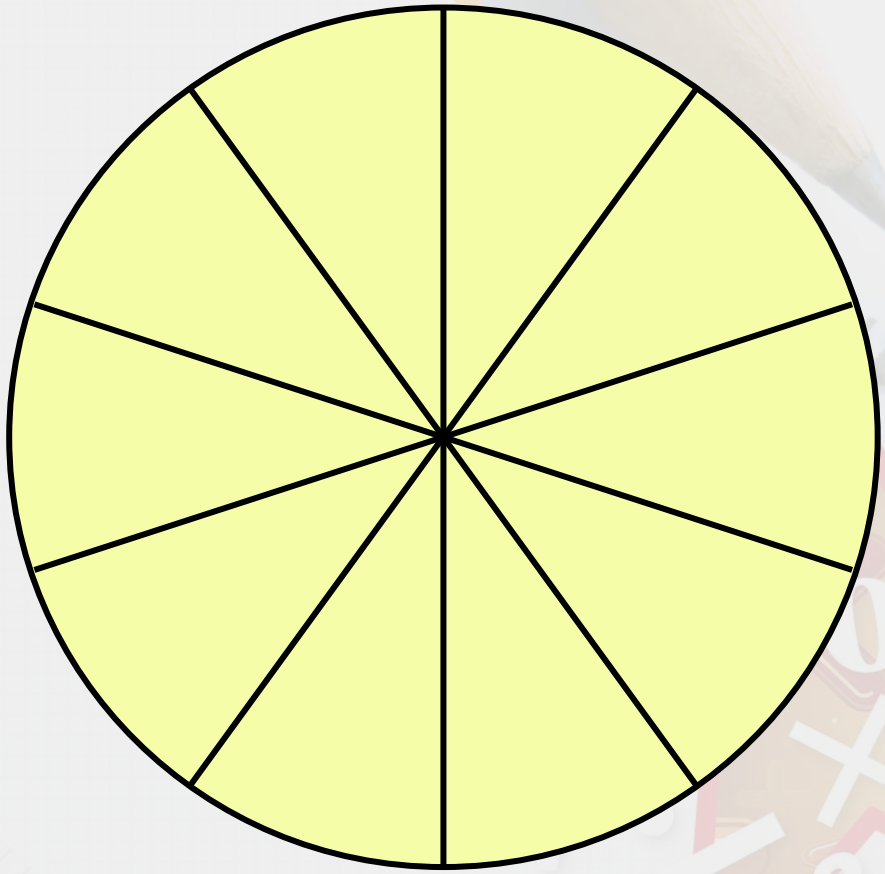
Step 7: Draw Pie Charts

Introduction

- What do all angles around a point total?
- What is the size of each angle in this pie chart?
- If the total of all angles around a point represents 100%, what percentage is each section of this pie chart worth?



Introduction

- What do all angles around a point total?

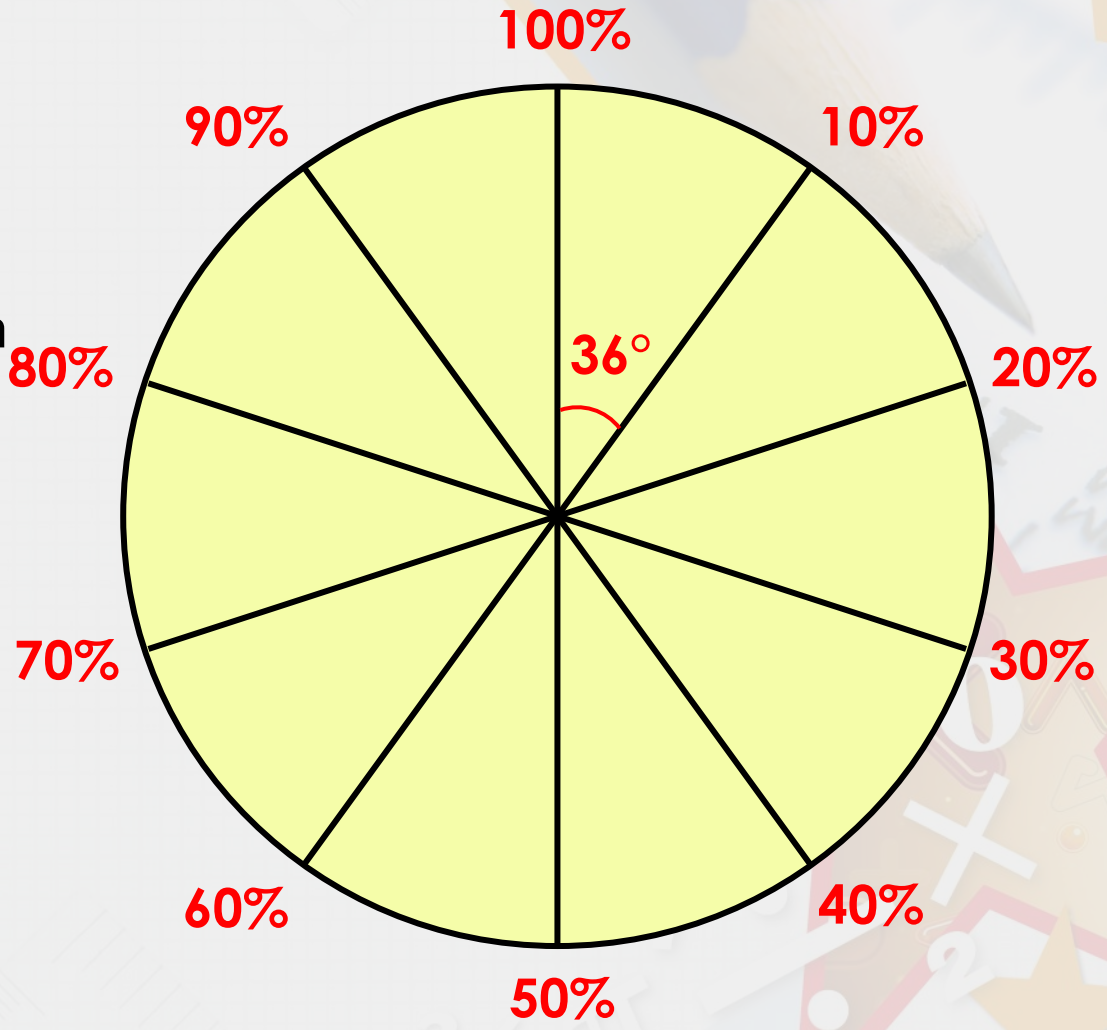
  360°

- What is the size of each angle in this pie chart?

  36°

- If the total of all angles around a point represents 100%, what percentage is each section of this pie chart worth?

  10%



Fill in the missing information.

Favourite movie genre of Year 6		
Genre	**Number**	**Degrees**
Action		90°
Adventure	13	
Comedy		
Drama		42°
Fantasy	11	
Total	60	

Fill in the missing information.

Favourite movie genre of Year 6		
Genre	**Number**	**Degrees**
Action	15	90°
Adventure	13	78°
Comedy	14	84°
Drama	7	42°
Fantasy	11	66°
Total	60	360°

Varied Fluency 2

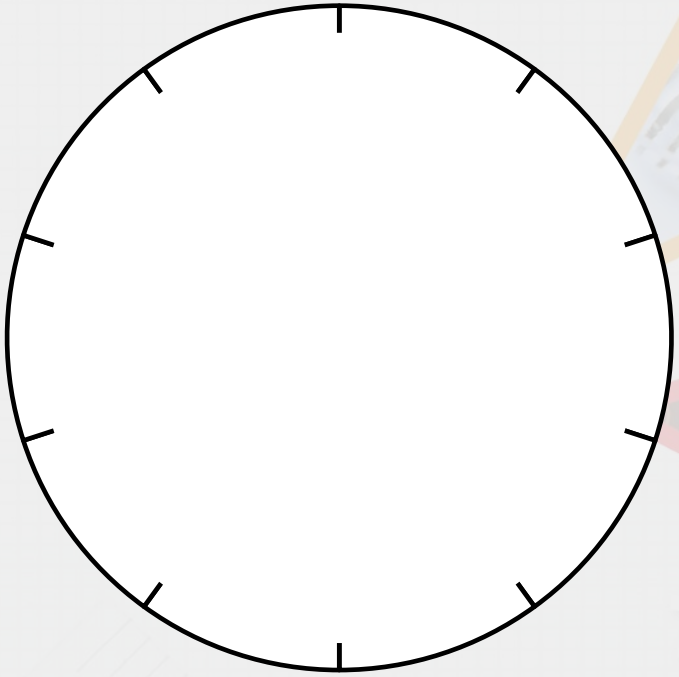
The circle below is split in to 10 equal parts. Construct a pie chart using the following degrees

72°

36°

108°

144°



Varied Fluency 2

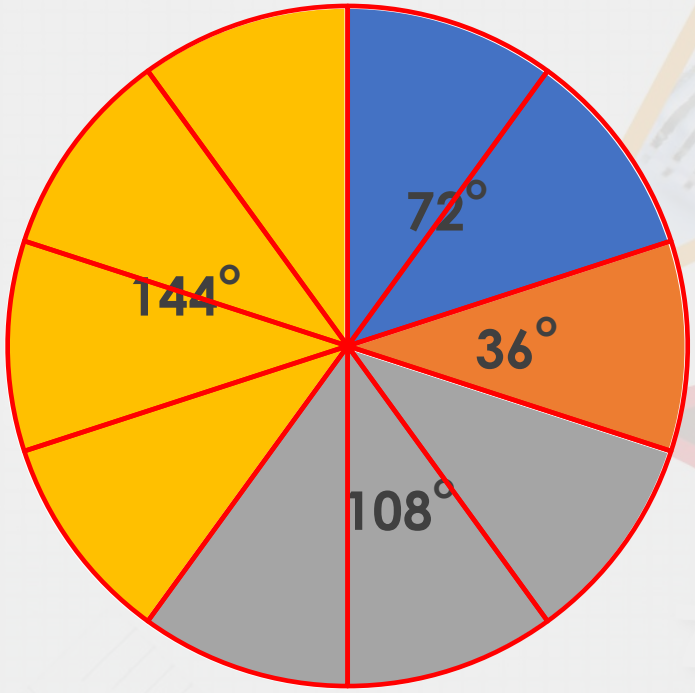
The circle below is split in to 10 equal parts. Construct a pie chart using the following degrees

72°

36°

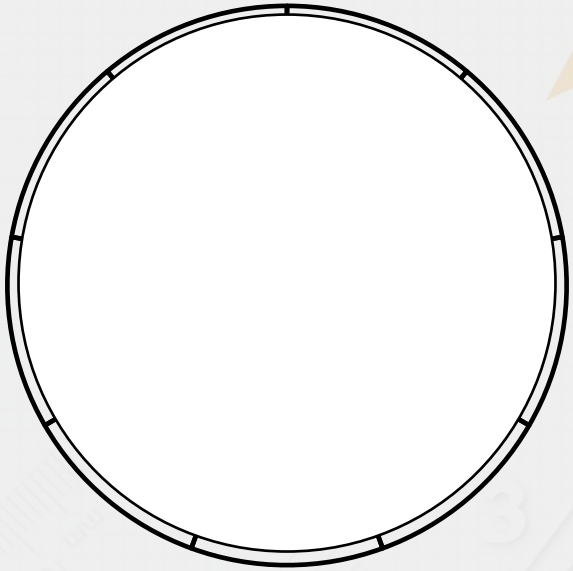
108°

144°



Complete the table. Use the data in the table to construct a pie chart.

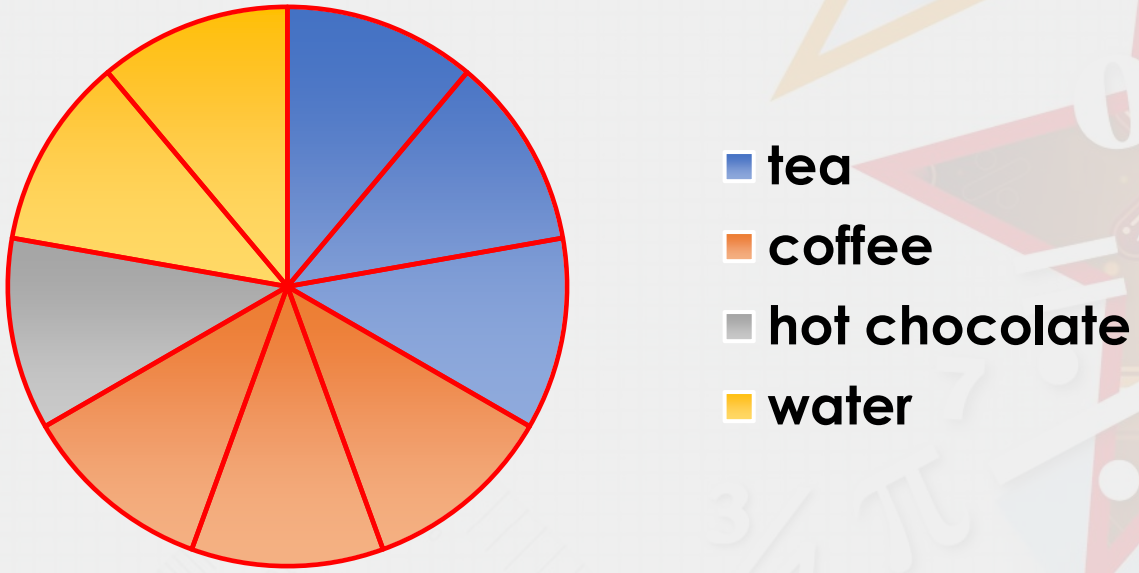
90 Adults' Favourite Drinks			
Tea	Coffee	Hot Chocolate	Water
		10	
120°	120°		°



Varied Fluency 3

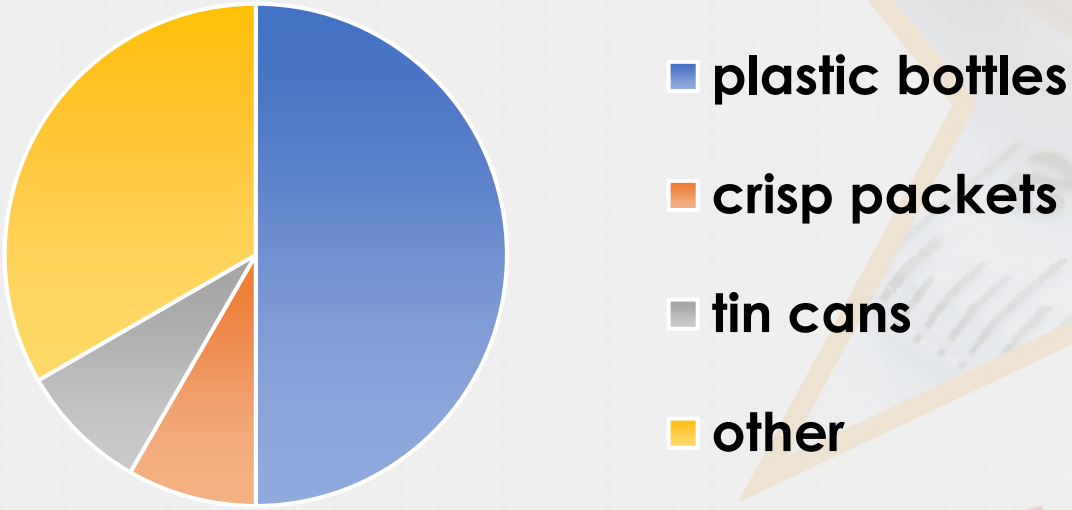
Complete the table. Use the data in the table to construct a pie chart.

90 Adults' Favourite Drinks			
Tea	Coffee	Hot Chocolate	Water
30	30	10	20
120°	120°	40°	80°



Reasoning 1

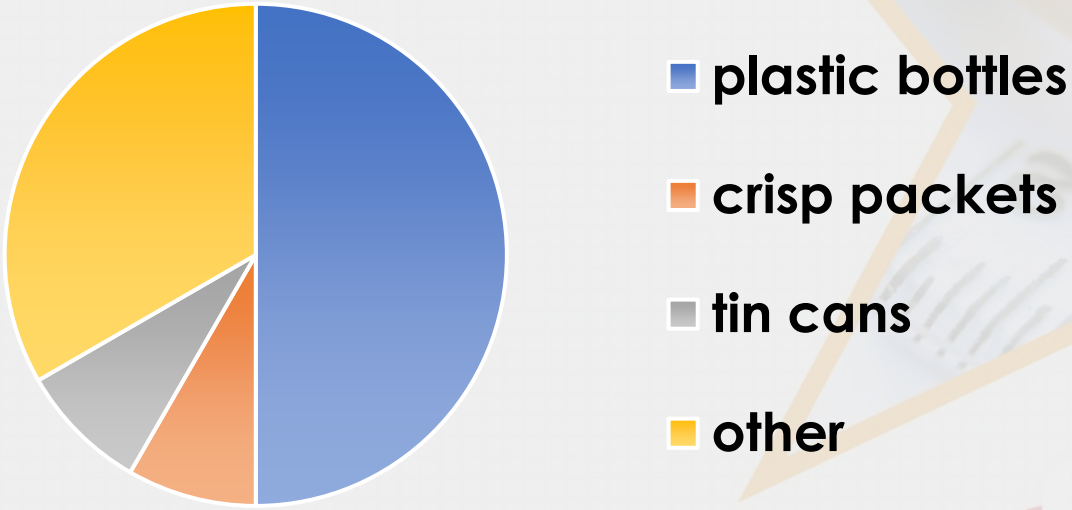
This pie chart represents 60 items of litter found on a beach.



If one third of the litter is other and tins cans and crisp packets are equal, how many crisp packets were found? Explain how you know.

Reasoning 1

This pie chart represents 60 items of litter found on a beach.

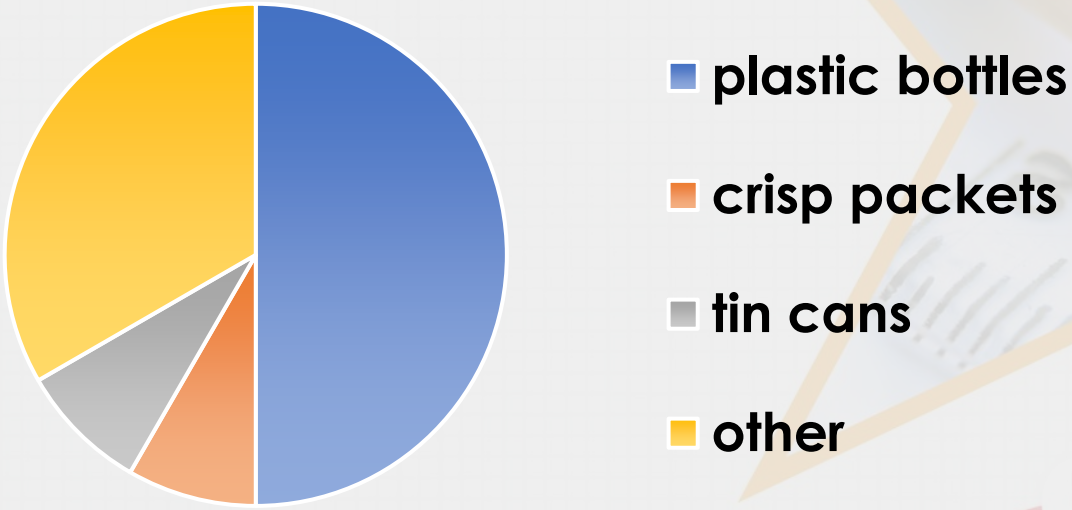


If one third of the litter is other and tins cans and crisp packets are equal, how many crisp packets were found? Explain how you know.

There were ☐ crisp packets found because...

Reasoning 1

This pie chart represents 60 items of litter found on a beach.



If one third of the litter is other and tins cans and crisp packets are equal, how many crisp packets were found? Explain how you know.

There were 5 crisp packets found because plastic bottles (half) = 30; other (one third) = 20; crisps and tin cans together = 10 and half of 10 = 5.

Problem Solving 1

Annie is creating a pie chart about the favourite animals of Year 6.

In a class of 90, 25 children chose tigers, one third of the class chose monkeys, 12 children chose elephants and the rest chose other animals.

How many children chose 'other' animals and how many degrees would they represent on a pie chart?

Problem Solving 1

Annie is creating a pie chart about the favourite animals of Year 6.

In a class of 90, 25 children chose tigers, one third of the class chose monkeys, 12 children chose elephants and the rest chose other animals.

How many children chose 'other' animals and how many degrees would they represent on a pie chart?

23 children chose other. They would represent 92°

Reasoning 2

Raj has created a table of information which he wants to convert into a pie chart.

The sum of the numbers in my survey is 100. I need to divide 100 by 360 in order to find out how much each participant is worth in degrees.

Do you agree with Raj's method? Explain why?

Reasoning 2

Raj has created a table of information which he wants to convert into a pie chart.

The sum of the numbers in my survey is 100. I need to divide 100 by 360 in order to find out how much each participant is worth in degrees.

Do you agree with Raj's method? Explain why?
Raj is incorrect because…

Reasoning 2

Raj has created a table of information which he wants to convert into a pie chart.

The sum of the numbers in my survey is 100. I need to divide 100 by 360 in order to find out how much each participant is worth in degrees.

Do you agree with Raj's method? Explain why?

Raj is incorrect because he has swapped which way round he should divide. He should divide 360 by 100, not 100 by 360.

Task 2

- Choose the challenge for you.
- Look at the bottom of the page, red star with D (easier)
- Blue Star with E (medium)
- Gold Star with GD (harder)

Answers found at the bottom of this powerpoint.

Draw Pie Charts

1a. Fill in the missing information.

Hair colour of Year 6 children		
Colour	Number	Degrees
Brown	15	
Blonde	10	
Red	4	
Other		70°
Total	36	

VF

Draw Pie Charts

1b. Fill in the missing information.

Favourite colours of Whole School		
Colour	Number	Degrees
Blue		135°
Pink		45°
Red		105°
Orange		75°
Total	360	

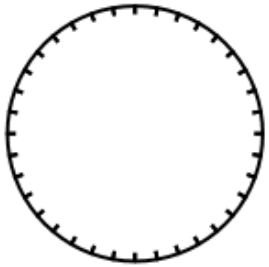
VF

2a. The circle below is split in to 36 equal parts each worth 10°. Construct a pie chart using the following degrees.

200°

100°

60°



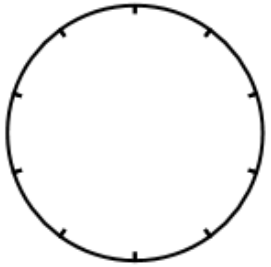
VF

2b. The circle below is split in to 10 equal parts each worth 36°. Construct a pie chart using the following degrees.

180°

108°

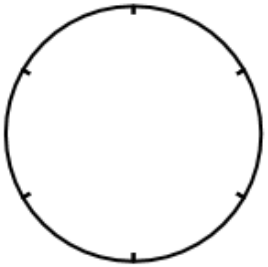
72°



VF

3a. Complete the table. Use the data in the table to construct a pie chart.

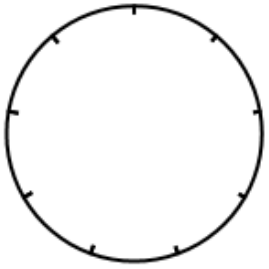
36 Children's Favourite Ice-cream		
Vanilla	Chocolate	Strawberry
6	18	12
°	°	°



VF

3b. Complete the table. Use the data in the table to construct a pie chart.

36 Children's Favourite Sport		
Tennis	Netball	Football
8	12	16
°	°	°



VF

Draw Pie Charts

4a. Fill in the missing information.

Favourite crisps of Year 6 children		
Flavour	Number	Degrees
Salt and Vinegar	26	
Cheese and Onion	18	
Prawn Cocktail	15	
Ready Salted	7	
Beef and Onion		30°
Total	72	

VF

Draw Pie Charts

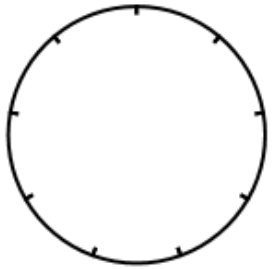
4b. Fill in the missing information.

Favourite animal of Year 5 children		
Animal	Percentage	Degrees
Polar Bear	20%	
Giraffe		
Monkey	10%	36°
Elephant	20%	
Tiger		108°
Total		

VF

5a. The circle below is split in to 9 equal parts. Construct a pie chart using the following degrees.

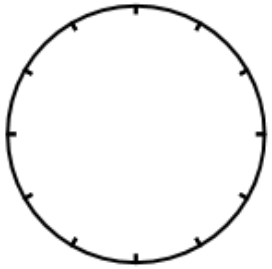
80°
40°
160°
80°



VF

5b. The circle below is split in to 12 equal parts. Construct a pie chart using the following degrees.

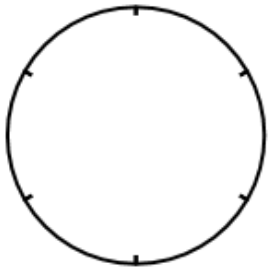
120°
90°
60°
30°
60°



VF

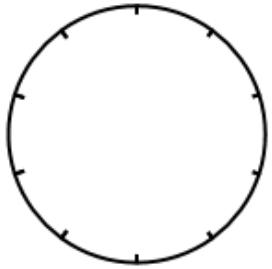
6a. Complete the table. Use the data in the table to construct a pie chart.

60 Children's Favourite Drinks			
Milk	Orange	Water	Coke
	20	10	
60°	°	°	120°



6b. Complete the table. Use the data in the table to construct a pie chart.

72 Children's Favourite Pets				
Dog	Cat	Rabbit	Snake	Hamster
	18			
160°	°	°	20°	40°



Draw Pie Charts

7a. Fill in the missing information.

Favourite dog breeds of Year 6		
Breed	Number	Degrees
Golden Retriever	18	72°
Border Collie	25	
Rottweiler		16°
Huskie		44°
Jack Russel	9	
Spaniel		
Total		

VF

Draw Pie Charts

7b. Fill in the missing information.

Places visited by Year 6		
Place	%	Degrees
Spain	35%	
France		
Greece	10%	36°
Portugal	5%	
America		36°
Australia		54°
Total		

VF

8a. Use a protractor to construct a pie chart using the following degrees.

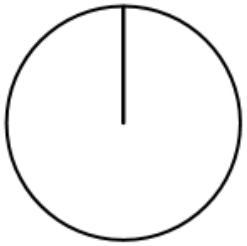
41°

56°

81°

19°

°



VF

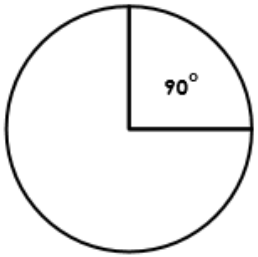
8b. Use a protractor to construct a pie chart using the following degrees.

27°

114°

32°

°

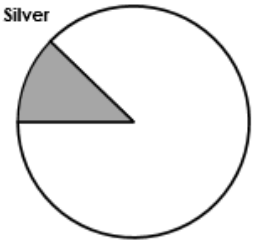


VF

9a. Complete the table. Use the data in the table to construct a pie chart.

Colour of Cars in a School Car Park					
Red	Blue	Black	Silver	Green	White
28	21		11	6	
°	°	°	44°	°	20°

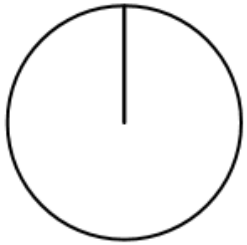
Silver



VF

9b. Complete the table. Use the data in the table to construct a pie chart.

Number of People Arriving at the Zoo at Different Times of the Day					
10am	11am	12pm	1pm	2pm	3pm
67		34	22	11	7
°	°	°	°	°	14°



VF

Answers

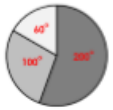
Varied Fluency
Drawing Pie Charts

Developing

1a.

Hair colour of Year 6 children		
Colour	Number	Degrees
Brown	15	150°
Blonde	10	100°
Red	4	40°
Other	7	70°
Total	36	360°

2a.



3a.

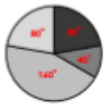
36 children's Favourite Ice-cream					
Vanilla	Chocolate			Strawberry	
6	6	6	6	6	6
60°	180°			120°	

Expected

4a.

Favourite crisps of Year 6 children		
Flavour	Number	Degrees
Salt and Vinegar	26	130°
Cheese and Onion	18	90°
Prawn Cocktail	15	75°
Ready Salted	7	35°
Beef and Onion	6	30°
Total	72	360°

5a.



6a.

60 Children's Favourite Drinks			
Milk	Orange	Water	Coke
10	20	10	20
60°	120°	60°	120°

Varied Fluency
Drawing Pie Charts

Developing

1b.

Favourite colours of Whole School		
Colour	Number	Degrees
Blue	135	135°
Pink	45	45°
Red	105	105°
Orange	75	75°
Total	360	360°

2b.

3b.

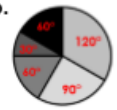
36 children's Favourite Sport									
Tennis		Netball			Football				
4	4	4	4	4	4	4	4	4	4
80°		120°			160°				

Expected

4b.

Favourite animal of Year 5 children		
Animal	Percentage	Degrees
Polar Bear	20%	72°
Giraffe	20%	72°
Monkey	10%	36°
Elephant	20%	72°
Tiger	30%	108°
Total	100%	360°

5b.



6b.

72 Children's Favourite Pets				
Dog	Cat	Rabbit	Snake	Hamster
32	18	10	4	8
160°	90°	50°	20°	40°

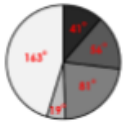
Varied Fluency
Drawing Pie Charts

Greater Depth

7a.

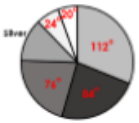
Favourite dog breeds of Year 6		
Breed	Number	Degrees
Golden Retriever	18	72°
Border Collie	25	100°
Rottweiler	4	16°
Huskie	11	44°
Jack Russel	9	36°
Spaniel	23	92°
Total	90	360°

8a.



9a.

Colour of cars in a school car park					
Red	Blue	Black	Silver	Green	White
28	21	19	11	6	5
112°	84°	76°	44°	24°	20°



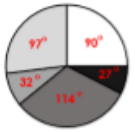
Varied Fluency
Drawing Pie Charts

Greater Depth

7b.

Places visited by Year 6		
Place	%	Degrees
Spain	35%	126
France	25%	90°
Greece	10%	36°
Portugal	5%	18°
America	10%	36°
Australia	15%	54°
Total	100%	360°

8b.



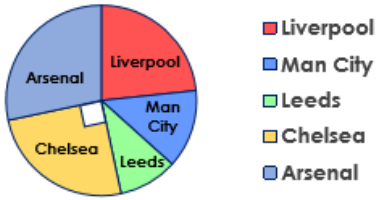
9b.

Number of people arriving at the zoo at different times of the day					
10am	11am	12pm	1pm	2pm	3pm
67	39	34	22	11	7
134°	78°	68°	44°	22°	14°

If you finish, try this…

Draw Pie Charts

4a. This pie chart represents 60 football fans in a crowd.



What are the number of Liverpool, Man City, Leeds and Arsenal fans altogether? Explain how you know.

R

Draw Pie Charts

4b. This pie chart represents 84 smarties in a packet.

If one third of the smarties are red, how many smarties are blue? Explain how you know.

R

5a. A teacher is creating a pie chart about Year 6's favourite colours.

In a class of 60, 28 children chose blue, one quarter of the class chose red, 3 children chose orange and the rest chose other colours. How many children chose 'other' colours and how many degrees would they represent on the pie chart?

PS

5b. Saffa is creating a pie chart about the favourite crisps of her classmates.

In a group of 72, one third chose ready salted, 23 chose salt and vinegar, 15 chose prawn cocktail and the rest chose cheese and onion. How many chose cheese and onion and how many degrees would they represent on a pie chart?

PS

6a. Heidi has created a table of information which she wants to convert into a pie chart.

There are 24 people in my survey. I need to multiply my numbers by 15 to calculate the correct degrees for my pie chart.

Do you agree with Heidi's method? Explain your answer.

6b. Dillon has created a table of information which he wants to convert into a pie chart.

30 people took part in my survey. 360 divided by 30 is 12, I need to multiply my numbers by 12 to calculate the correct degrees for my pie chart.

Do you agree with Dillon's method? Explain your answer.

Answers for extension

Expected

4a. 45 because Chelsea is one quarter which is 15 so the rest must total 45.

5a. 14 because 28 + 15 (one quarter) + 3 = 46. 60 – 46 = 14. They would represent 84°

6a. No because she needs to divide 360 by the total number in her survey and then multiply by that number to calculate the correct degrees.

Expected

4b. 14 because one third of 84 is 28 and red and blue need to total half which is 42. 42 – 28 = 14

5b. 10 because 24 (one third) + 23 + 15 = 62. 72 – 62 = 10. They would represent 50°

6b. Yes because 360 ÷ 30 = 12.