



# Planning a Christmas Party

Using Maths in Real-Life Situations

# The Challenge

You have been asked to plan and organise an end of term Christmas party for some children in your school.

It will be an evening party with food, drinks, décor and entertainment.

Use this table to input your totals as you work them out as you go through the booklet.

Item	Cost
Food	
Drinks	
DJ	
Décor Balloons	
Décor Paper Chains	
<b>TOTAL COST OF PARTY</b>	

# The Survey

A survey has been done of **100 children** who are interested in going to the party. They have been asked about music and food as well as if they would be able to come. The results of the food and availability are below, but you will need to fill in the last two columns:

## Food:

Food type	Number of votes	Fraction	Percentage
Pizza	50		
Buffet	50		

## Availability and Guests:

Answer	Number of votes	Fraction	Percentage
Yes	60		
No	30		
Not sure	10		

How many people could come at the most? \_\_\_\_\_  
(This is how many we will need to plan for)

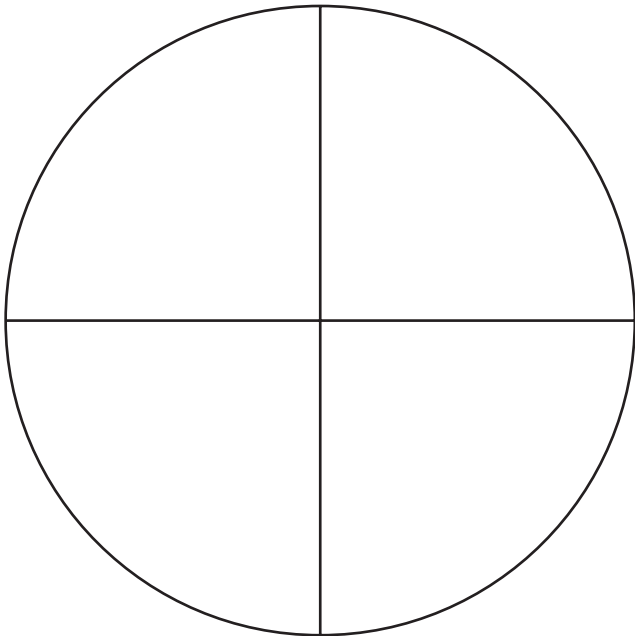
# The Music Survey

A survey has been done of **100 children** who are interested in going to the party. They have been asked about music. The results are below, but you will need to fill in the last two columns:

## Music:

Music Type	Number of votes	Fraction	Percentage
80s music	25		
Pop music	50		
Christmas music	25		

Fill in this blank pie chart with the music types above:



The DJ will do 2 x 50 minute slots. Use this box to say how many minutes of which type of music they should play using the percentages and fractions from the survey.

80s music = \_\_\_\_\_ minutes

Pop music = \_\_\_\_\_ minutes

Christmas music = \_\_\_\_\_ minutes



# The Entertainment


You have decided that the entertainment will be a disco with a DJ.

There are two DJs in the area:

Dancing Queen	Grand Master Groove
<p>Has own disco lights and PA.</p> <p>£150 for 2 x 50 minutes slots</p>	<p>Own PA.</p> <p>£120 for 2 x 50 minute slots.</p> <p>Lights not included.</p>

You have looked into hiring disco lights and they cost £40.

Which DJ works out the cheapest if you want disco lights?



DJ Name	Total Cost

Now input this total price into the summary table.

# The Food


The survey showed that there were a roughly equal number of people wanting pizzas or buffet food so you have decided to go with the cheapest option.

**There are two caterers who are available:**

Pizza Party	Beautiful Buffets
<p>A range of pizzas to suit all tastes</p> <p>Feeds up to 75 people</p> <p>£200</p>	<p>A range of hot and cold food at a cost of £3 per person</p>

You are working on 70 people being able to come.

Which option works out cheapest?



Caterer's Name	Cost

Now input this total price into the summary table.

# The Drinks

You are working on the estimate that everyone at the party will need two drinks and you want to go for the cheapest option.

There are two options available:


2l Bottle of Lemonade	Cans of Pop
A 2l bottle holds 5 drinks £2 per bottle	Cans are 50p each

Which option is cheaper per drink? \_\_\_\_\_

How many drinks do you need for 70 people?

I need \_\_\_\_\_ drinks for 70 people.

Now work out the total cost for drinks using the cheapest option.



Option chosen	Total Cost for all drinks

Now input this total price into the summary table.

# The Décor

You have decided that you would like some paper chains and 50 balloons for the hall.

Balloons come in two options:

Balloons 10p each	Balloon Pack of 5 = 40p
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Work out which option is cheaper for **50 balloons** and work out the total cost.

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Final Balloon Cost

Now input this total price into the summary table.

## Paper Chains:

You want paper chains to go around the perimeter of the hall.

The hall is a rectangle measuring 10m long and 5m wide.

Paper chain packets are 2 for £1 and each packet does 5m of chain. Now work out how many packets you will need and how much it will cost.

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Number of paper chain packets needed	Cost

Now input this total price into the summary table.

# Ticket Prices

Now you know what all your costs will be, you can work out the cost of each ticket.

You need to cover your costs so you need to base your figures on people who are definitely coming, otherwise you might lose money if people do not turn up.

## What you know already:

- There are 70 people who are definitely coming
- The total cost of the event including food, drink, DJ and décor.

Cost per person

Now you have a cost per person, round it up to the nearest £1 (this makes things easier for everyone).

Final Ticket Price

# Timings

You will need to work out what times the event needs to start and finish and think about the extra time you need for setting-up.

## What you know already:

- The DJ will do 2 x 50 minute slots
- The food will be in a 30 minute break
- It takes 2 hours to set-up the hall with the decorations, food and DJ.

If the start time is 6:00pm, you need to work out the start of the set-up time and also the finish time.

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Set-up start time	Event start time	Food time	Second Half start time	End time
	6:00pm			

# Final Questions

Organising events is a tricky job and sometimes you have other decisions to make too. Here are a few to ponder:

1. What will you call your event?

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2. What will you do with any profit made?

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3. What other ideas do you have for this event?

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## ICT Challenge:

Use an Excel spreadsheet to record your budgeting.

You will need to list all the items that need costing and also the total cost for each.

Then you will need to sum the costs to get a total cost for the party.

## Extra Challenges:

- Have columns for 'paid' and 'still to pay' so that you can keep track of what has been paid. You could even get them to change colour!
- Add in a 20% VAT column for those items that need it.

# Planning a Christmas Party **Answers**

Food Survey:

Food type	Number of votes	Fraction	Percentage
Pizza	50	$\frac{1}{2}$ or $\frac{50}{100}$	50%
Buffet	50	$\frac{1}{2}$ or $\frac{50}{100}$	50%

Availability and Guests Survey:

Answer	Number of votes	Fraction	Percentage
Yes	60	$\frac{3}{5}$ or $\frac{60}{100}$	60%
No	30	$\frac{3}{10}$ or $\frac{30}{100}$	30%
Not sure	10	$\frac{1}{10}$ or $\frac{10}{100}$	10%

Music Choices Survey

Music Type	Number of votes	Fraction	Percentage
80s music	25	$\frac{1}{4}$	25%
Pop music	50	$\frac{1}{2}$	50%
Christmas music	25	$\frac{1}{4}$	25%

Pie Chart:

1 section for 80s music  
2 sections for Pop music  
1 section for Christmas

Music Timings:

80s music = 25 minutes  
Pop music = 50 minutes  
Christmas music = 25 minutes



Item	Correct Option	Cost
Food	Pizza Party	£200
Drinks	2l bottles (28 bottles)	£56
DJ	Dancing Queen	£150
Décor Balloons	Packets of 5 (10 packets)	£4
Décor Paper Chains	6 packets (2 for £1)	£3
<b>TOTAL COST OF PARTY</b>	-	<b>£413</b>

Final Ticket Price
$413 \div 70 = \text{£}5.90 = \text{£}6.00$

Set-up start time	Event start time	Food time	Second Half start time	End time
4:00pm	6:00pm	6:50pm	7:20pm	8:10pm



# Planning a Christmas Party

Using Maths in Real-Life Situations

# The Challenge

You have been asked to plan and organise an end of term Christmas party for some children in your school.

It will be an evening party with food, drinks, décor and entertainment.

Use this table to input your totals as you work them out as you go through the booklet.

Item	Cost
Food	
Drinks	
DJ	
Décor Balloons	
Décor Paper Chains	
<b>TOTAL COST OF PARTY</b>	

# The Survey

A survey has been done of **100 children** who are interested in going to the party. They have been asked about music and food as well as if they would be able to come. The results of the food and availability are below, but you will need to fill in the last two columns:

## Food:

Food type	Number of votes	Fraction	Percentage
Pizza	48		
Buffet	52		

## Availability and Guests:

Answer	Number of votes	Fraction	Percentage
Yes	65		
No	30		
Not sure	5		

How many people could come at the most? \_\_\_\_\_  
(This is how many we will need to plan for)

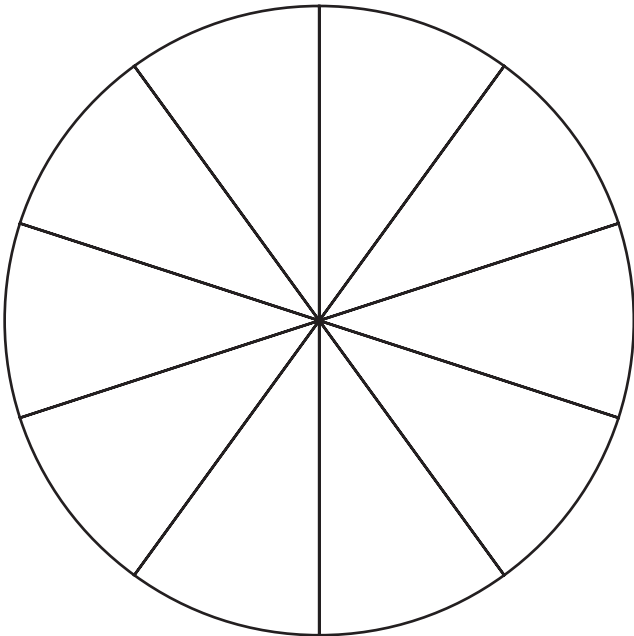
# The Music Survey

A survey has been done of **100 children** who are interested in going to the party. They have been asked about music. The results are below, but you will need to fill in the last two columns:

## Music:

Music Type	Number of votes	Fraction	Percentage
80s music	20		
Pop music	50		
Christmas music	30		

Fill in this blank pie chart with the music types above:



The DJ will do 2 x 50 minute slots. Use this box to say how many minutes of which type of music they should play using the percentages and fractions from the survey.

80s music = \_\_\_\_\_ minutes

Pop music = \_\_\_\_\_ minutes

Christmas music = \_\_\_\_\_ minutes

# The Entertainment


You have decided that the entertainment will be a disco with a DJ.

There are two DJs in the area:

Dancing Queen	Grand Master Groove
<p>Has own disco lights and PA.</p> <p>£175 for 2 x 50 minutes slots</p>	<p>Own PA.</p> <p>£125 for 2 x 50 minute slots.</p> <p>Lights not included.</p>

You have looked into hiring disco lights and they cost £45

Which DJ works out the cheapest if you want disco lights?



DJ Name	Total Cost

Now input this total price into the summary table.

# The Food


The survey showed that there were a roughly equal number of people wanting pizzas or buffet food so you have decided to go with the cheapest option.

**There are two caterers who are available:**

Pizza Party	Beautiful Buffets
<p>A range of pizzas to suit all tastes.</p> <p>Feeds up to 75 people</p> <p>£205</p>	<p>A range of hot and cold food at a cost of</p> <p>£3.50 per person</p>

You are working on 70 people being able to come.

Which option works out cheapest?



Caterer's Name	Cost

Now input this total price into the summary table.

# The Drinks

You are working on the estimate that everyone at the party will need two drinks and you want to go for the cheapest option.

There are two options available:


1l Bottle of Lemonade	Cans of Pop
<p>A 1l bottle holds 3 drinks</p> <p>£1.10 per bottle</p>	<p>Cans are 40p each</p>

Which option is cheaper per drink? \_\_\_\_\_

How many drinks do you need for 70 people?

I need \_\_\_\_\_ drinks for 70 people.

Now work out the total cost for drinks using the cheapest option.



Option chosen	Total Cost for all drinks

Now input this total price into the summary table.



# The Décor

You have decided that you would like some paper chains and 50 balloons for the hall.

Balloons come in two options:

Balloons 12p each	Balloon Pack of 6 = 60p
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Work out which option is cheaper for **50 balloons** and work out the total cost.

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Final Balloon Cost

Now input this total price into the summary table.

## Paper Chains:

You want paper chains to go around the perimeter of the hall.

The hall is a rectangle measuring 11m long and 6m wide.

Paper chain packets are 2 for £1 and each packet does 5m of chain. Now work out how many packets you will need and how much it will cost.

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Number of paper chain packets needed	Cost

Now input this total price into the summary table.

# Ticket Prices

Now you know what all your costs will be, you can work out the cost of each ticket.

You need to cover your costs so you need to base your figures on people who are definitely coming, otherwise you might lose money if people do not turn up.

## What you know already:

- There are 65 people who are definitely coming
- The total cost of the event including food, drink, DJ and décor

Cost per person

Now you have a cost per person, round it up to the nearest 50p or £1 (this makes things easier for everyone).

Final Ticket Price

# Timings

You will need to work out what times the event needs to start and finish and think about the extra time you need for setting-up.

## What you know already:

- The DJ will do 2 x 50 minute slots
- The food will be in a 30 minute break
- It takes  $2\frac{1}{2}$  hours to set-up the hall with the decorations, food and DJ.

If the start time is 6:30pm, you need to work out the start of the set-up time and also the finish time.

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Set-up start time	Event start time	Food time	Second Half start time	End time

# Final Questions

Organising events is a tricky job and sometimes you have other decisions to make too. Here are a few to ponder:

1. What will you call your event?

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2. What will you do with any profit made?

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3. What other ideas do you have for this event?

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## ICT Challenge:

Use an Excel spreadsheet to record your budgeting.

You will need to list all the items that need costing and also the total cost for each.

Then you will need to sum the costs to get a total cost for the party.

## Extra Challenges:

- Have columns for 'paid' and 'still to pay' so that you can keep track of what has been paid. You could even get them to change colour!
- Add in a 20% VAT column for those items that need it.

# Planning a Christmas Party **Answers**

Food Survey:

Food type	Number of votes	Fraction	Percentage
Pizza	24	$\frac{12}{25}$ or $\frac{48}{100}$	48%
Buffet	26	$\frac{13}{25}$ or $\frac{52}{100}$	52%

Availability and Guests Survey:

Answer	Number of votes	Fraction	Percentage
Yes	65	$\frac{13}{25}$ or $\frac{65}{100}$	65%
No	30	$\frac{3}{10}$ or $\frac{30}{100}$	30%
Not sure	5	$\frac{1}{20}$ or $\frac{5}{100}$	5%

Music Choices Survey

Music Type	Number of votes	Fraction	Percentage
80s music	20	$\frac{1}{5}$	20%
Pop music	50	$\frac{1}{2}$	50%
Christmas music	30	$\frac{3}{10}$	30%

Pie Chart:

2 sections for 80s music  
5 sections for Pop music  
3 sections for Christmas

Music Timings:

80s music = 20 minutes  
Pop music = 50 minutes  
Christmas music = 30 minutes

Item	Correct Option	Cost
Food	Pizza Party	£205
Drinks	1l bottles (47 bottles)	£51.70
DJ	Grand Master Groove	£170
Décor Balloons	Packets of 6 (9 packets)	£5.40
Décor Paper Chains	7 packets (but buy 8 as 2 for £1)	£4
<b>TOTAL COST OF PARTY</b>	-	<b>£436.10</b>

Final Ticket Price
$436.1 \div 65 = £6.71 = £7$

Set-up start time	Event start time	Food time	Second Half start time	End time
4:00pm	6:30pm	7:20pm	7:50pm	8:40pm



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# The Challenge

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Item	Cost
Food	
Drinks	
DJ	
Décor Balloons	
Décor Paper Chains	
<b>TOTAL COST OF PARTY</b>	



# The Survey

A survey has been done of **50 children** who are interested in going to the party. They have been asked about music and food as well as if they would be able to come. The results of the food and availability are below, but you will need to fill in the last two columns:

## Food:

Food type	Number of votes	Fraction	Percentage
Pizza	24		
Buffet	26		

## Availability and Guests:

Answer	Number of votes	Fraction	Percentage
Yes	45		
Bringing a guest?	28		
No	3		
Not sure	2		

How many people could come at the most? \_\_\_\_\_  
(This is how many we will need to plan for)

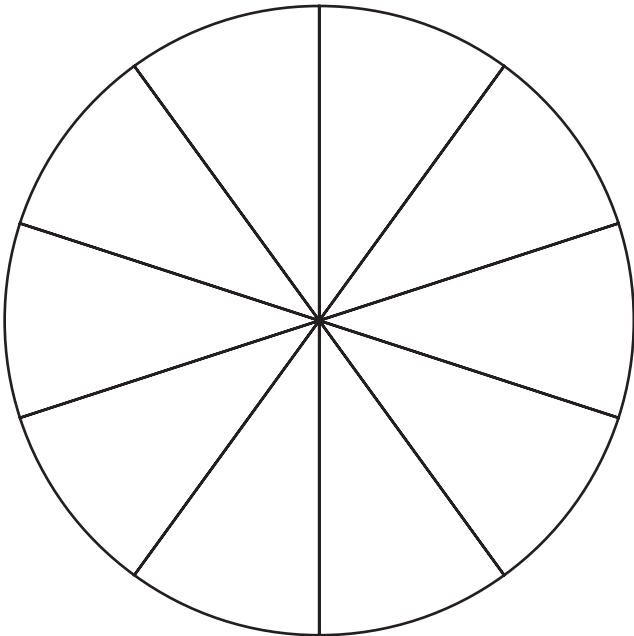
# The Music Survey

A survey has been done of **50 children** who are interested in going to the party. They have been asked about music. The results are below, but you will need to fill in the last two columns:

## Music:

Music Type	Number of votes	Fraction	Percentage
80s music	10		
Pop music	25		
Christmas music	15		

Fill in this blank pie chart with the music types above:



The DJ will do 2 x 45 minute slots. Use this box to say how many minutes of which type of music they should play using the percentages and fractions from the survey.

80s music = \_\_\_\_\_ minutes

Pop music = \_\_\_\_\_ minutes

Christmas music = \_\_\_\_\_ minutes

# The Entertainment

You have decided that the entertainment will be a disco with a DJ.

There are two DJs in the area:

Dancing Queen	Grand Master Groove
<p>Has own disco lights and PA.</p> <p>£185 plus VAT at 20%</p> <p>for 2 x 45 minute slots</p>	<p>Own PA.</p> <p>£135 plus VAT at 20%</p> <p>for 2 x 45 minute slots.</p> <p>Lights not included.</p>

You have looked into hiring disco lights separately and they cost £45 + VAT at 20%

Which DJ works out the cheapest if you want disco lights?



DJ Name	Total Cost

Now input this total price into the summary table.

# The Food

The survey showed that there were a roughly equal number of people wanting pizzas or buffet food so you have decided to go with the cheapest option.

There are two caterers who are available:

Pizza Party	Beautiful Buffets
A range of pizzas to suit all tastes. Feeds up to 80 people £205 + VAT at 20%	A range of hot and cold food at a cost of £3.75 per person (VAT included)

You are working on 75 people being able to come.

Which option works out cheapest?

Caterer's Name	Cost

Now input this total price into the summary table.

# The Drinks

You are working on the estimate that everyone at the party will need two drinks and you want to go for the cheapest option.

There are two options available:


1l Bottle of Lemonade	Cans of Pop
A 1l bottle holds 3 drinks 99p per bottle	Cans are 35p each

Which option is cheaper per drink? \_\_\_\_\_

How many drinks do you need for 75 people?

I need \_\_\_\_\_ drinks for 75 people.

Now work out the total cost for drinks using the cheapest option.



Option chosen	Total Cost for all drinks

Now input this total price into the summary table.

# The Décor

You have decided that you would like some paper chains and 70 balloons for the hall.

Balloons come in two options:

Balloons 11p each	Balloon Pack of 8 = 75p
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Work out which option is cheaper for **70 balloons** and work out the total cost.

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Final Balloon Cost

Now input this total price into the summary table.

## Paper Chains:

You want paper chains to go around the perimeter of the hall.

The hall is a rectangle measuring 12.5m long and 7.5m wide.

Paper chain packets are 2 for 99p and each packet does 6m of chain. Now work out how many packets you will need and how much it will cost.

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Number of paper chain packets needed	Cost

Now input this total price into the summary table.



# Ticket Prices

Now you know what all your costs will be, you can work out the cost of each ticket.

You need to cover your costs, so you need to base your figures on people who are definitely coming, otherwise you might lose money if people do not turn up.

## What you know already:

- The number of people who are definitely coming
- The number of guests
- The total cost of the event including food, drink, DJ and décor.

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Cost per person

Now you have a cost per person, round it up to the nearest 50p or £1 (this makes things easier for everyone).

Final Ticket Price

# Timings

You will need to work out what times the event needs to start and finish and think about the extra time you need for setting-up.

## What you know already:

- The DJ will do 2 x 45 minute slots
- The food will be in a 35 minute break
- It takes  $2\frac{1}{4}$  hours to set-up the hall with the decorations, food and DJ.

If the start time is 6:30pm, you need to work out the start of the set-up time and also the finish time.

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Set-up start time	Event start time	Food time	Second Half start time	End time



# Final Questions

Organising events is a tricky job and sometimes you have other decisions to make too. Here are a few to ponder:

1. What will you call your event?

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2. What will you do with any profit made?

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3. What other ideas do you have for this event?

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## ICT Challenge:

Use an Excel spreadsheet to record your budgeting.

You will need to list all the items that need costing and also the total cost for each.

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## Extra Challenges:

- Have columns for 'paid' and 'still to pay' so that you can keep track of what has been paid. You could even get them to change colour!
- Add in a 20% VAT column for those items that need it.

# Planning a Christmas Party **Answers**

Food Survey:

Food type	Number of votes	Fraction	Percentage
Pizza	24	$\frac{12}{25}$ or $\frac{24}{50}$	48%
Buffet	26	$\frac{13}{25}$ or $\frac{26}{50}$	52%

Availability and Guests Survey:

Answer	Number of votes	Fraction	Percentage
Yes	45	$\frac{9}{10}$ or $\frac{45}{50}$	90%
Bringing a guest?	28	$\frac{14}{25}$ or $\frac{28}{50}$	56%
No	3	$\frac{3}{50}$	6%
Not sure	2	$\frac{1}{25}$ or $\frac{2}{50}$	4%

Music Choices Survey

Music Type	Number of votes	Fraction	Percentage
80s music	10	$\frac{1}{5}$ or $\frac{10}{50}$	20%
Pop music	25	$\frac{1}{2}$ or $\frac{25}{50}$	50%
Christmas music	15	$\frac{3}{10}$ or $\frac{15}{50}$	30%

Pie Chart:

2 sections for 80s music  
5 sections for Pop music  
3 sections for Christmas

Music Timings:

80s music = 18 minutes

Pop music = 45 minutes

Christmas music = 27 minutes

Item	Correct Option	Cost
Food	Pizza Party	£246
Drinks	(150 drinks) 50 x 1l bottles	£49.50
DJ	Grand Master Groove + lights + VAT	£216
Décor Balloons	9 packs of 8 balloons (to cover 70)	£6.75
Décor Paper Chains	7 packets (but buy 8 as they come in pairs for 99p)	£3.96
<b>TOTAL COST OF PARTY</b>	-	<b>£522.21</b>

Final Ticket Price
$£522.21 \div 73 = £7.15 = £7.50$

Set-up start time	Event start time	Food time	Second Half start time	End time
4:15pm	6:30pm	7:15pm	7:50pm	8:35pm