

# Modelling a School Disco

Year 7 ICT Unit 7.4

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# Money in – Money out

## Input

What you type in

Income

*Pupils going*

*Ticket price*

Costs (Expenses)

*Hire of disco equipment*

*Pay DJ*

*Caretakers*

These are known as labels. The numeric data you decide on are variables, things you can change

# Setting up the spreadsheet


- Any income comes from the number of pupils going multiplied by the cost of a ticket
- The costs are all added together:

Disco equipment

Paying the DJ

Caretaker

Open Excel  
and create the  
following  
spreadsheet.

Use 

	A	B	C	D	E
1	Modelling a School Disco			Your name and class here	
2					
3	<u>Income</u>		<u>Costs</u>		
4	<i>No of tickets sold</i>		<i>Disco equipment</i>		
5	<i>Ticket price</i>		<i>Pay DJ</i>		
6			<i>Caretaker</i>		
7					
8	Total Income		Total Costs		
9					
10	Profit / Loss				

# Calculating Income and Costs

You need to think of some sensible figures for the variables. Talk with a partner and come up with some possibilities.

2. How many tickets will you sell?

3. How much do tickets cost?

4. How much does the disco equipment cost?

5. How much do you pay the DJ?

6. What will it cost to employ the caretaker for the night?

Type your decisions into your model now.

# Getting the computer to help

If we want to get the computer to work for us we have to enter formulas. These will recalculate every time we change the variables.

	A	B	C	D	E
1	Modelling a School Disco			Your name and class here	
2					
3	<u>Income</u>			<u>Costs</u>	
4	<i>No of tickets sold</i>	200		<i>Disco equipment</i>	£ 150.00
5	<i>Ticket price</i>	£ 1.00		<i>Pay DJ</i>	£ 100.00
6				<i>Caretaker</i>	£ 50.00
7					
8	Total Income	£200.00		Total Costs	£ 300.00
9					
10	Profit / Loss	-£ 100.00			

=B4\*B5

This is No of tickets sold  
X  
Ticket price

=SUM(E4:E6)

The costs added  
together

# Working out the Profit / Loss

As long as you have typed in the correct formula the computer will do the rest.



	A	B	C	D	E
1	Modelling a School Disco			Valerie Singleton 7H	
2					
3	<u>Income</u>			<u>Costs</u>	
4	<i>No of tickets sold</i>	200		<i>Disco equipment</i>	£ 150.00
5	<i>Ticket price</i>	£ 1.00		<i>Pay DJ</i>	£ 100.00
6				<i>Caretaker</i>	£ 50.00
7					
8	Total Income	£ 200.00		Total Costs	£ 300.00
9					
10	Profit / Loss	-£ 100.00			

This is the Total Income  
take away  
The Total Costs

The blue  
numbers are  
examples. Yours  
can be different.

# Testing the Model

## This is Disco worksheet no.1

1. Change the variables until you make a £100 profit. (E.g. Alter the ticket price).
2. Change the variables until you break even. (This means  $B10 = £0.00$ ). Use the trial and improvement method.
3. Use your model to complete the table to answer the question, *“What night is best to hold the disco?”*

*NB Don't change formulas into data!*

# The story so far

- OK. You should now have managed to set up a pretty basic model.
- You should be able to change variables, (data), to change the answers the computer gives for different scenarios or circumstances.
- You should have provided evidence by completing the Disco Worksheet No1.
- If you have then move to the next section.

# Developing the Model

- As more variables are added to the model it becomes more realistic.
- You are going to add teachers to your model. Yes, I'm afraid so!
- 1 teacher for every 50 pupils. So 51 pupils and you need 2 teachers.
- Each teacher costs £20.00 for helping to supervise the disco.

# Adding the Teachers

You now have to add 3 pieces of information

2. The number of teachers required.

(This will change according to the number of pupils attending).

4. The cost per teacher.

5. The total cost of the teachers.

Go to the next slide to find out how to do this

# Task 1

## Step 1 - Adding labels

- Add these labels in column A.

14	<u>Additional Information</u>
15	<i>Number of teachers</i>
16	<i>Cost per teacher</i>
17	

- The numbers go alongside in column B.

## Step 2 – How many teachers

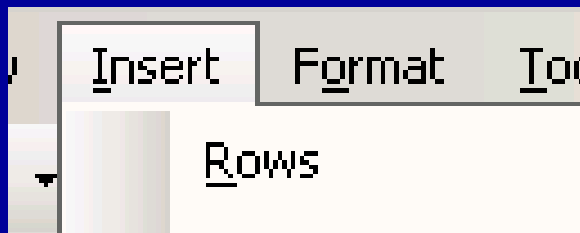
- 1 teacher every 50 pupils.
- You have to divide the number of pupils by 50.
- The number of pupils is equal to the tickets sold.
- You can put a formula into cell B15.
- =Tickets sold/50  
*/ is the dividing symbol*
- Now type £20.00 into cell B16

# Task 2

- Insert a row to make room for another label in the costs column. Do this by clicking onto row no.7



- Select Insert / Rows



- You now need to add a label under Costs for the cost of the teachers.

<u>Costs</u>	
<i>Disco equipment</i>	£ 150.00
<i>Pay DJ</i>	£ 100.00
<i>Caretaker</i>	£ 50.00
<i>Cost of teachers</i>	?

- This will be in cell D7

# Calculating total cost for teachers

- The formula needs to multiply Number of teachers by Cost per teacher
- This formula is typed into cell E7.

# Recalculating the formula for total cost

- You need to redo the formula for total costs. Make sure it includes the cost for teachers.

<u>Costs</u>	
<i>Disco equipment</i>	£ 150.00
<i>Pay DJ</i>	£ 100.00
<i>Caretaker</i>	£ 50.00
<i>Cost of teachers</i>	?
<i>Total Costs</i>	

# What it should look like now

<u>Costs</u>		
<i>Disco equipment</i>	£ 150.00	
<i>Pay DJ</i>	£ 100.00	
<i>Caretaker</i>	£ 50.00	
<i>Cost of teachers</i>	?	
<b>Total Costs</b>	<b>£ 300.00</b>	

The formula will need to be changed to include the sum in cell E7.

This will be a formula. It is the number of teachers X the cost of a teacher.

14	<u>Additional Information</u>	
15	<i>Number of teachers</i>	
16	<i>Cost per teacher</i>	£ 20.00
17		
18		
19		

This can be a formula.  
Clue: The divide symbol is the /.

# Adding Free Drinks

- We need to make the model more realistic.
- To promote the disco all pupils and teachers will get a free drink. Hoorah!
- An allowance of 25p per person needs to be added to costs.
- There are 3 pieces of information to add to the model

# Drinks Information

Add the total number of people (for free drinks) and the cost of a drink in column A

14	<u>Additional Information</u>
15	<i>Number of teachers</i>
16	<i>Cost per teacher</i>
17	<i>Total number of people</i>
18	<i>Cost of each drink</i>

Add the label Cost of drinks in column D

<u>Costs</u>
<i>Disco equipment</i>
<i>Pay DJ</i>
<i>Caretaker</i>
<i>Cost of teachers</i>
<i>Cost of drinks</i>
<b>Total Costs</b>

# How to work out the total number of people

14	<u>Additional Information</u>		
15	<i>Number of teachers</i>		4
16	<i>Cost per teacher</i>	£ 20.00	
17	<i>Total number of people</i>		204
18	<i>Cost of each drink</i>	£ 0.25	
19			

This includes the number of pupils and the teachers added together.

Remember it's 25p, not £25. How should you type in 25p to make the model work properly?

The cost of drinks is 25p each

# Adding the cost of Drinks

<u>Costs</u>		
<i>Disco equipment</i>	£ 150.00	
<i>Pay DJ</i>	£ 100.00	
<i>Caretaker</i>	£ 50.00	
<i>Cost of teachers</i>	£ 80.00	
<i>Cost of drinks</i>	???????	
<b>Total Costs</b>	<b>£ 380.00</b>	

This is column E

This is the Total no. of people  
X The cost of a drink. This is a  
formula.

# Advertising With Posters

- If we want lots of people to come to the disco we need to advertise it.
- Past experience shows that good advertising using high quality, colour posters increases ticket sales by 50.
- Posters cost £6.
- Decide on how many you think you need.

# Poster Information

Add the cost of a poster and the number of posters needed in column A

18	<i>Cost of each drink</i>
19	<i>Cost of each poster</i>
20	<i>Number of posters</i>

Insert a row and add the label Cost of posters in column D

8
9
10

Insert	Format	Tools
Rows		

<i>Cost of drinks</i>
<i>Cost of posters</i>
Total Costs

1

2

3

# Formula for posters

- Type £6.00 (the poster cost) in cell B20
- Add your number of posters needed in cell B21.
- To calculate the overall cost of posters, use a formula in cell E9. This is the cost of one poster X the number of posters needed.

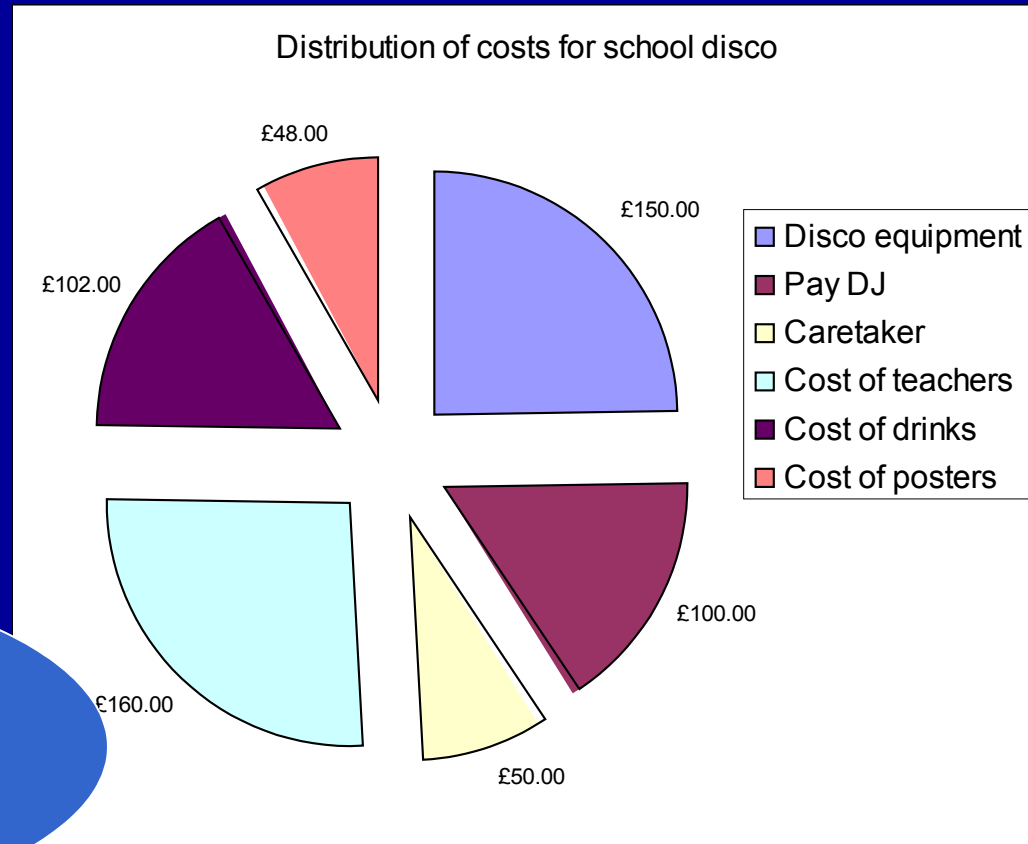
# Re-testing the Model

## This is Disco worksheet no.2

- Now that you can sell 50 extra tickets you can recalculate potential profit / loss.
- Use your model to complete the table to answer the question, “*Now what night is best to hold the disco?*”

# Creating a pie chart of costs

Disco equipment	£ 150.00
Pay DJ	£ 100.00
Caretaker	£ 50.00
Cost of teachers	£ 160.00
Cost of drinks	£ 102.00
Cost of posters	£ 48.00

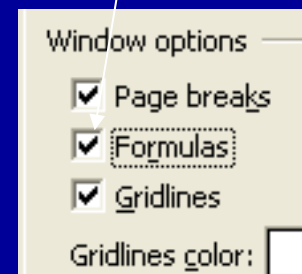
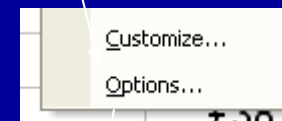
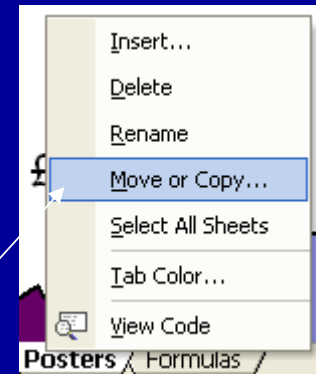


Highlight these cells and use the chart wizard to make a chart to show the distribution of costs for your disco

*N.B. If you add data after you create the chart it will automatically be updated!*

# Printing

1. Print out your final disco model
  - Make sure it fits on one page (use print preview)
2. Make a copy of your final disco model
3. Select *Tools/Options/Formulas*
4. Adjust column width and print



# An example of the Final disco Model

## School Disco Model

### Modelling a School Disco

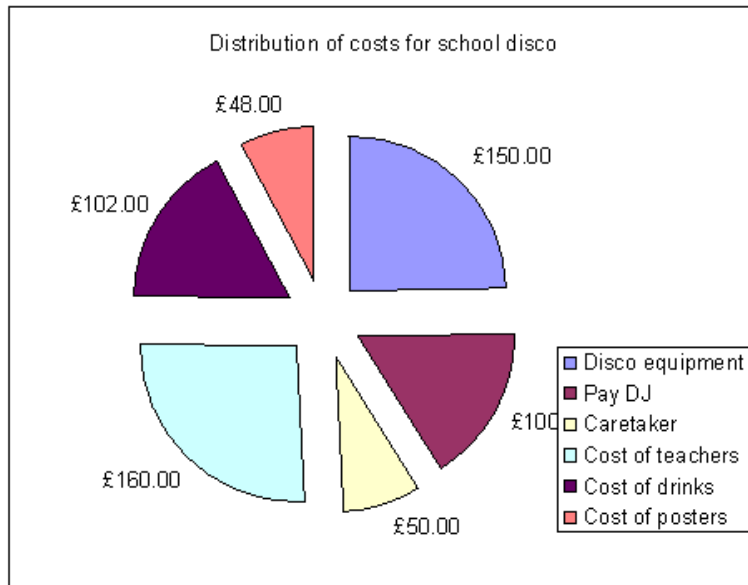
<u>Income</u>	
No of tickets sold	400
Ticket price	£ 1.50
Total Income	<u>£ 600.00</u>
Profit / Loss	£38.00

### Additional Information

Number of teachers	8
Cost per teacher	£ 20.00
Total number of people	408
Cost of each drink	£ 0.25
Cost of each poster	£6.00
Number of posters	8

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<u>Costs</u>	
Disco equipment	£ 150.00
Pay DJ	£ 100.00
Caretaker	£ 50.00
Cost of teachers	£ 160.00
Cost of drinks	£ 102.00
Cost of posters	£ 48.00
Total Costs	<u>£ 562.00</u>



# An example of the Formula Version

### Modelling a School Disco

<u>Income</u>	
No of tickets sold	400
Ticket price	1.5
Total Income	<u>=B4*B5</u>
Profit / Loss	=B10-E10

### Additional Information

Number of teachers	=B4/50
Cost per teacher	20
Total number of people	=B4+B16
Cost of each drink	0.25
Cost of each poster	6
Number of posters	8

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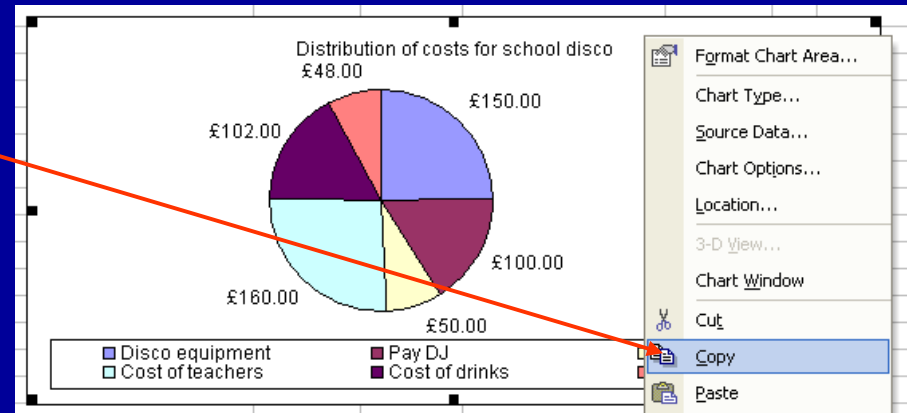
<u>Costs</u>	
Disco equipment	150
Pay DJ	100
Caretaker	50
Cost of teachers	=B16*B17
Cost of drinks	=B18*B19
Cost of posters	=B20*B21
Total Costs	<u>=SUM(E4:E8)</u>

# Creating a Report for the Head Teacher

- Now that you have all the information for modelling a school disco you need to be able to use this in a different format.
- [Click here for a template to begin your report](#) so that the head teacher can make a decision about which night to hold the disco. (*Modelling 7.4/Report template.doc*)
- The next group of slides will help you to complete it.

# Copying the Chart

- Highlight the chart and copy it.
- Paste it onto the template & resize it.
- Change the data (number) in cell B7. The chart should update.
- Repeat the process for Thursday & Friday.
- No more than two pages for the report.



## School disco report

This report contains information relating to the proposed school disco. The disco will be held on a Wednesday, Thursday or Friday. For each day we have produced a chart to show a breakdown of the different costs. We have also included a small table to show the predicted income, costs and profit for each of the three days.

To: The head teacher

From:

Tutor group: 7 Date:

Wednesday		Number of pupils expected:														
Costs breakdown	<table border="1"> <caption>Distribution of costs for school disco</caption> <thead> <tr> <th>Category</th> <th>Cost (£)</th> </tr> </thead> <tbody> <tr> <td>Disco equipment</td> <td>150.00</td> </tr> <tr> <td>Pay DJ</td> <td>100.00</td> </tr> <tr> <td>Cost of drinks</td> <td>50.00</td> </tr> <tr> <td>Cost of teachers</td> <td>160.00</td> </tr> <tr> <td>Other</td> <td>102.00</td> </tr> <tr> <td><b>Total</b></td> <td><b>48.00</b></td> </tr> </tbody> </table>		Category	Cost (£)	Disco equipment	150.00	Pay DJ	100.00	Cost of drinks	50.00	Cost of teachers	160.00	Other	102.00	<b>Total</b>	<b>48.00</b>
Category	Cost (£)															
Disco equipment	150.00															
Pay DJ	100.00															
Cost of drinks	50.00															
Cost of teachers	160.00															
Other	102.00															
<b>Total</b>	<b>48.00</b>															
Income/costs/profit information	Income	Costs														

# Evaluation – If you have time!

- If you've got this far, well done!
- You have completed the disco model and the report.
- How could it be improved. What changes or additions would you make?
- Type your thoughts onto the template.  
[Click here to open it.](#)  
*(Modelling 7.4/Evaluation 7.4.doc)*
- Make sure you complete the pupil record sheet.