

2d Modelling with data

select and analyse data; model different scenarios, try alternatives and explore ideas, ask 'what if' questions to identify patterns or test hypotheses and interpret results
(maximum 6 marks)

5-6	appropriately selects and analyses data, effectively models different scenarios and explores alternative ideas. Asks suitable 'what if' questions to identify patterns or test hypotheses and interpret results
3-4	selects and analyses most data needed, models different scenarios and explores an alternative idea, asking 'what if' questions to attempt to identify patterns or test a hypothesis and understand results
1-2	selects some data, models at least one different scenario or tries an alternative idea, asking simple 'what if' questions in an attempt to produce results
0	There is no selection and analysis of data; no modelling of different scenarios or trying alternatives and exploring ideas, no asking 'what if' questions to identify patterns or test hypotheses and no interpreting results

Unit 3: Modelling with data

This is my first model.

I thought about the data I would need for my model and how to show it.

- For the visit I need to know the number of days it is for,
- how many students might be going
- and how many museums or exhibitions they will go to.

The organiser said that between 20 and 30 students normally go on the visit so I started with 20 as that will keep the costs down.

I didn't know how much we would be charged for the coach as it would be needed for the whole visit. I looked on the internet and thought that £400 each day would be enough.

For this many people I thought a hostel to stay in would cost about £1000 each day
The organiser gave me the meal and museum costs

Unit 3 Modelling with data

Costs for students

How many days	How many students	How many museum visits	
7	20	2	In my first model I chose 20 students and these costs. It was too high
	Cost each	Cost for visit	
Coach each day	£400.00	£2,800.00	
Hostel each day	£1,000.00	£7,000.00	
Meal costs each day	£10.00	£1,400.00	
Museum visits each	£10.00	£400.00	
Study room each day	£100.00	£700.00	
TOTAL		£11,600.00	
Student cost		£580.00	

These are the formulas I used to show it is a proper model

	A	B	C	D
1	AQA			
2				
3				
4	Unit 3 Modelling with data			
5				
6	Costs for students			
7				
8		How many	How many museum	
9	How many days	students	visits	
10	7	20	2	
11		Cost each	Cost for visit	
12	Coach each day	400	=B12*A9	
13	Hostel each day	1000	=B13*A9	
14	Meal costs each day	10	=B14*A9*B9	
15	Museum visits each	10	=B15*B9*C9	
16	Study room each day	100	=B16*A9	
17				
18	TOTAL		=SUM(C12:C15)	
19	Student cost		=C18/B9	
20				

I have changed the model. I wanted to see what would happen if I reduced the main costs. I checked with the organiser and made the costs less as we couldn't afford the student costs this model shows the organiser would have to charge.

AQA			
Unit 3 Modelling with data			
Costs for students			
How many days	How many students	How many museum visits	
7	20	2	
	Cost each	Cost for visit	
Coach each day	£300.00	£2,100.00	I kept the meals and visits costs the same as I didn't think they could be much less
Hostel each day	£750.00	£5,250.00	
Meal costs each day	£10.00	£1,400.00	
Museum visits each	£10.00	£400.00	
Study room each day	£75.00	£525.00	
TOTAL		£9,150.00	
Student cost		£457.50	

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It was still too much. The organiser says that the visit could have up to 30 students. I wanted to see what would happen if I increased this next. I thought it might put the price up as their were more going

Unit 3 Modelling with data

Costs for students

How many days	How many students	How many museum visits	
7	30	2	
	Cost each	Cost for visit	
Coach each day	£300.00	£2,100.00	
Hostel each day	£750.00	£5,250.00	
Meal costs each day	£10.00	£2,100.00	
Museum visits each	£10.00	£600.00	
Study room each day	£75.00	£525.00	
TOTAL		£10,050.00	
Student cost		£335.00	← This is better as the total is nearer what the organiser wanted

A judgement made about the quality of this work indicates that it is in the 3-4 mark range. Approximately 4 marks