

Theme Park Maths



Welcome to Theme Park Maths, a unique investigation which sees you plan, build and operate a theme park. Your decisions throughout the investigation will be crucial as to whether you make a profit or a loss.

Good luck!

Theme Park Maths

The scenario

A plot of land has become available and you have decided to build a brand new theme park.

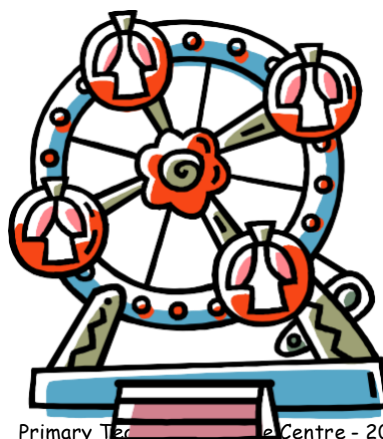
You have managed to secure a £500 000 loan from the bank

During this activity you will have a range of tasks to complete, from building your theme park, to working out how much it costs to run and most importantly working out how much profit you can make

Task 1

Your first task is to plan your park. The piece of A3 square paper you will receive will be your park. (It the same as 2 pages from your maths book or jotter.) You must carefully decide what kind of rides you are going to have. You also need to think about the other facilities visitors will need when they come to your theme park. For example, toilets, cafes, shops and paths will all be available for purchase.

Many theme parks have different areas that are 'themed'. Therefore you might like to have an African area, a wild west American area or a Space area. Think carefully about what you would like to include in yours and make your park the best in the UK.



Task 1 - Setting up your theme park.

Your spending limit is £500 000. Design and draw your theme park on the squared paper. You must not go over your spending limit and you must have car parks, toilets, paths to connect all the items, cafes and shops for your visitors. It is not about just having rides. You will need to please all of your visitors

Each attraction comes under a different category. Each category varies in price. Choose carefully from the prices and information page, making sure you have something which appeals to everyone.

Follow the key below when colouring in the plan of your park.

Theme Park Key

Category 1 Rides: Red
Category 2 Rides: Yellow
Category 3 Facilities: Purple
Bins: Orange
Toilets: Pink
Trees: Green
Lakes: Blue
Picnic Benches: Brown
Paths and Car Park: Grey

Prices

Category 1 Attractions - £50 000 each. These attractions take up 12cm²



A rollercoaster



A water ride



A ferris wheel

Category 2 Attractions - £25 000 each. These attractions take up 6cm²



A bouncy castle



Dodgems



A Fun House



A haunted house



Merry-go-round



A Pirate Ship



Spinning Ride



Circus Tent



Train

Category 3 Attractions - £8 000 each. These attractions take up 4cm²



A Cafe



A Shop

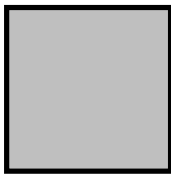


Ice Cream



First Aid Centre

Other facilities and attractions - These items are individually price



Path - £200 per 5cm length



Tree - £200 per square
(1 square per tree)



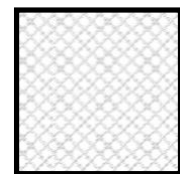
Lake - £1 000 per square



Toilets - £1 000.
4cm² per block of toilets



Rubbish Bin - £50
1cm² per bin



Car Park - £500 per square.
Each square will take 100



Picnic Benches - £100 per bench

Task 2: Running your theme park

To run your theme park the following costs will apply to each item that you have every day.
How much will it cost to run your theme park for one day?

Costs				
Item	Staff Costs	Electricity, Maintenance and Repairs	Number in park	Total Costs per day
Category 1 Ride (per ride)	£40 a day	£50 a day		
Category 2 Ride (per ride)	£30 a day	£30 a day		
Category 3 Facility (per facility)	£20 a day	£20 a day		
Toilets (for all toilets)	£5 a day	£5 a day	NA	
Bins (for all bins)	£31.50 a week	£5.25 a week	NA	
Trees (for all trees)	£91.25 a year	None	NA	
		Totals		

Complete the table above.

How much does it cost to open your park for one day? _____

Further Activity

What about one week? _____

One year? _____

Task 3 - Entry Fee

How much does it cost to open your park each day? _____ (figure from task 2)

How many visitors do you think you will have each day? (remember it's a brand new park and not many people know about it yet!)

Make an estimate: _____

If you can, give your plan to someone else to look at, you must not tell them anything about your park. They must use the criteria below to decide your entry fee.

Price Category 1 - £20 per person.

- Four or more category 1 rides
- 10 or more rides in total
- 6+ category 3 facilities
- A first aid centre
- A well set out park with carefully placed bins, benches, toilets and paths.

Price Category 2 - £15 per person.

- Two or more category 1 rides
- 7 or more rides in total
- 4 or more category 3 facilities
- A first aid centre
- Some consideration to where bins, toilets, benches and paths are placed.

Price Category 3 - £10 per person

- One or more category 1 rides.
- 5 or more rides in total.
- 2 or more category 3 facilities.
- Some errors in where bins, toilets, benches and paths are placed which may lead to unhappy customers.

Price Category 4 - £5 per person

- At least 3 rides
- At least 1 category 3 facility.
- Some errors in where bins, toilets and paths are placed which may lead to unhappy customers.

Decide on the entry price and enter it here £ _____

Task 4 - How much do you make on the entry fee?

Calculate how much you make each day based on the entry fee you set on the previous page.

Day	Number of visitors	Income	Day	Number of visitors	Income
1	50		16	89	
2	75		17	104	
3	66		18	130	
4	49		19	209	
5	61		20	143	
6	67		21	99	
7	102		22	111	
8	110		23	206	
9	87		24	350	
10	21		25	300	
11	24		26	278	
12	67		27	453	
13	66		28	294	
14	98		29	367	
15	109		30	359	

Task 5 - Profit and Loss

Each visitor to your theme park will spend;

- £4 at *each* café you have
- £3 at *each* shop you have
- £1 at *every* ice cream stand you have

Work out your total profit from the admission price (gate), cafes and shops. Now take away your total costs that you have already worked out and find your profit or loss for each day.

Day	Number of visitors	Income					Total Costs (b) (Task 2)	Profit (a-b)
		Admission (Task 4)	Café	Shop	Ice Cream	Total (a)		
1	50							
2	75							
3	66							
4	49							
5	61							
6	67							
7	102							
8	110							
9	87							
10	21							
11	24							
12	67							
13	66							

14	98							
15	109							
16	89							
17	104							
18	130							
19	209							
20	143							
21	99							
22	111							
23	206							
24	350							
25	300							
26	278							
27	453							
28	294							
29	367							
30	359							
							Total	

What profit or loss have you made in the first month of opening your theme park?
