

PROJECT PROFILE

ON

CHILDREN'S SCIENCE & AMUSEMENT CENTRE

Month & Year
July 2010

**PREPARED BY
TANSTIA-FNF SERVICE CENTRE
B-22, INDUSTRIAL ESTATE
CHENNAI-600032**

Supported by

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STIFTUNG **FÜR DIE FREIHEIT**

CHILDREN'S SCIENCE & AMUSEMENT CENTRE

INTRODUCTION

Children's Science & Amusement Centre provides ample scope for school going children to experience the various science experiments and improve their knowledge through amusement and recreation. This is a knowledge resource experience for many. The centre would provide adequate chances for children to touch and experience various exhibits and understand the scientific principles in physics, chemistry, biology, zoology and other sciences. In every tourist centre, cities and towns such science centre can attract students from various villages and near by town studying in classes from first standard to the 12th standard.

PRODUCT SPECIFICATION & USES

The centre would provide adequate experimental materials and exhibits which improve knowledge and provide amusement to students and adults.

The main items which can be installed at the centre are as follows.

Maths Section:-

1. Life history of some mathematicians and boards about special items like indices, pie etc.
2. Mathematical puzzles
3. Puzzles like fitting 54 cylinders inside a square, taking one object out from a strangled position.
4. Jig saw puzzles with shapes.

Science/Technical section:-

1. Life history of scientists
2. Ferrite powder spread in magnetic field, showing the field shape.
3. Working model of AC/DC dynamo
4. Hung magnets, that show attraction / repulsion of poles.

5. Models of dam, with hydroelectric power station and showing the power distribution grid
6. Working model of a lift.
7. Weight measuring equipment
8. Working burglar alarm using LDR
9. Automatic water tap
10. Models of scientific equipment like solar cooker etc.
11. Automatic cradle with clap switch
12. Automatic traffic lights.
13. Spark produced between two electrodes at high PD
14. Working models showing principles of telegraph
15. Working models showing principles of telephone
16. Model illustrating principles of TV.
17. Pendulum sand rangoli
18. Dancing girl
19. Models of telescope, microscope, binocular etc.
20. Elliptical carrom board
21. Newton's pendulum
22. Multi mirror room
23. Ball being suspended in air, by jet of air
24. Periscope
25. Musical instruments
26. Models of city planning
27. Models of sky-scrapers and buildings
28. Models of bridges – different types-hanging, pillar etc.

Medical Science Section:

1. Models showing different systems in human body
2. ECG working model
3. Heart beat sound amplifier
4. Fingertip BP and Blood oxygen level measurer – working

5. Model of scanning machine
6. Model of x-ray machine
7. Models of vital organs like heart, lungs, brain etc.
8. Model with LED display, of blood circulation in body
9. Models of several medical equipment like BP measurer, stethoscope etc.

Automobile section:

1. Different types of engines – IC & EC – working principle
2. Cut section of 2 stroke engine.
3. Cut section of 4 stroke engine
4. Cut section with moving valves & bulbs to show the firing sequence in 2s eng.
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6. Spark plug
7. Different types of shock absorbers
8. Models showing different types of brakes
 - air brake
 - ordinary brake
 - disc brake
9. Model showing transmission of power through gear box & axle
10. Working model of sun gear mechanism
11. Small frame of an automobile showing important parts like steering, axle, brakes etc. fitted to it
12. Electrical system inside an auto
13. 3 different types of gear box mechanisms.

Children's Park:

1. Models of Wind mills
2. Models of met. Instruments like barometer, wind velocity Measurer
3. Slides, merry-go-rounds, monkey cubes etc.

These are specimen exhibits only and the list is not exhaustive.

MARKET POTENTIAL

The students enrolled in schools have been on the increase for last several years as can be seen from the following figures.

	1990-91	1997-98	1998-99	2001-02	2002-03	2003-04
Primary (million)	97.4	108.8	111.0	109.9	122.4	128.3
Middle (million)	34.0	39.5	40.4	42.6	46.8	48.7
Higher secondary	19.1	27.2	27.8	28.4	33.2	35.0

Source: Statistical outline of India-2006-07

The number of schools and other educational institutions are also on the increase. In every district new schools are being built up in important centres and new centres. There is a large scope for science centres to be built up in important towns.

TECHNICAL ASPECTS

INSTALLED CAPACITY

The installed capacity in this case is not applicable. During season time the students can visit the centre from morning 8AM to 5 PM. The visitors will be more during excursion time. On an average the number of students visiting per day is assumed as 300 during first year. Besides providing science materials for experience, the food sales through canteen will be another income. The entrance fee can be fixed at Rs.35 per student.

PLANT AND MACHINERY

The items of equipments required as per list mentioned in para 'B' have to be fabricated according to designs and space available. The total cost of these items is estimated at Rs.45.00 lakhs.

LAND & BUILDING

Building area required 10000 sq.ft rent Rs. 10000 per month advance Rs. 10.00 lakhs.

Area Layout:-

- Entrance
- Ticket counter
- Parking
- Display blocks – Maths Block, Physics, Biology Block
- Canteen
- Lawn
- Children park.

UTILITIES

Power: A three phase load is required to operate various machines and to provide lighting

Water: The water is required for human consumption for staff & visitors.

Man power:

Category	Nos.	Monthly Salary	Total monthly Salary
Manager	1	10000	10000
Assistants	5	5000	25000
Security	3	4000	12000
			47000
Add : Benefits	20%		9400
Total wages per month			56400.00
Total wages per annum [Rs. lakhs]			Rs.6.77

IMPLEMENTATION SCHEDULE

The construction will take about 6 months period. The equipments can be installed within 3 months period. The project can be implemented in 9 months period.

ASSUMPTIONS

- It is expected that the centre would function for 300 days and about 300 students will visit per day.
- The entry fee is assumed at Rs.35.00 per student. Besides this, income from snacks and food sales is estimated at Rs.18.00 per student. (300 No. x Rs.35 x 300 days)
- Cost of Raw Materials for snacks is 50% of sales value.
- Electricity charge is estimated at Rs. 0.84 lakh per annum (Rs. 7000 per month)
- Wages & Salaries are estimated at Rs.6.77 lakhs per annum as per the breakup given above with annual increase of 5%.
- Repairs & Maintenance is estimated at Rs.1.44 lakhs per annum (Rs. 12000 per month) with annual increase of 5%.
- Depreciation is calculated on WDV method at 15% on plant and machinery.
- Selling, General & Admin. expenses is Rs.3.84 lakhs per annum (Rs. 32000 per month) with annual increase of 5%.
- Interest on Term Loan is estimated at 12% p.a.
- Income tax is provided at 33.22% on taxable income.

ADDRESS OF EQUIPMENT SUPPLIERS

The various machinery and equipments required by the centre have to be fabricated with the help of a mechanical fabricator with the assistance of professors in Engineering College

FINANCIAL ASPECTS

1. COST OF PROJECT

	[Rs.lakhs]
Building	8.00
Equipments	45.00
Other Misc. assets	1.00
Pre-Operative expenses	2.00
Working Expenses	0.50
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	56.50

2. MEANS OF FINANCE

Capital	16.75
Term Loan	39.75
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	56.50

3. COST OF SERVICE & PROFITABILITY STATEMENTS

Years	1	2	3
Annual Income			
- Income from entry fee (300 No. x Rs.35 x 300 days)	31.50	33.08	34.73
- Income from food sales (300 No. x Rs.15 x 300 days)	16.20	17.82	19.60
Total Income per annum	47.70	50.90	54.33
Expenditures			
Food Materials	8.10	8.91	9.80
Electricity (Rs.7,000 p.m)	0.84	0.88	0.92
Salaries	6.77	7.11	7.47
Repairs & Maintenance	1.44	1.51	1.59
Depreciation	7.05	5.99	5.09
Admin, & General expenses	3.84	4.03	4.23
Interest on Term Loan	4.77	4.17	2.98
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Total expenses	32.81	32.60	32.08
Profit Before Tax	14.89	18.30	22.25
Provision for tax	4.95	6.08	7.39
Profit After Tax	9.94	12.22	14.86
Depreciation	7.05	5.99	5.09
Cash accruals	16.99	18.21	19.95

4. PROFITABILITY RATIOS BASED ON 80% UTILISATION

<u>Profit after Tax</u>	14.86	
Income	54.33	27%

<u>Profit before Interest and Tax</u>	25.23	
Total Investment	56.50	45%

<u>Profit after Tax</u>	14.86	
Promoters Capital	16.75	89%

5. BREAK EVEN LEVEL

Fixed Cost (FC):

	[Rs.lakhs]
Wages & Salaries	7.47
Electricity	0.92
Depreciation	5.09
Admin. & General expenses	4.23
Interest on TL	2.98
	<u>20.69</u>

Profit Before Tax (P) 22.25

$$\frac{FC \times 100}{FC + P} = \frac{20.69}{20.69 + 22.25}$$

BEL =

48% of installed capacity