FUND RAISER MODELLING !!!

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The best

SORT THE QUESTIONS INTO TWO CATEGORIES

Questions for which answers can be found (using measurement, data collection etc)	Questions which do not have direct answers can be translated into assumptions
What will be the budget for buying the instruments	what will be the margin of students in the school
Will we gain profit if we grow it from a sapling	How can we safeguard the plants without getting harmed by insects
How much time will it take to grow the plant	how can we keep the soil's fertility good
How can we let many people know more about this	What will be the budget for buying the instruments
How should we plan the space at the fundraiser to keep more plants	What will the area of one plant be?
How many plants should they grow, to sell them	How many seeds should we put if we are putting any?
What will be the size, variety and cost of each bag sapling bag ?	How much can a 5-inch sapling bag hold?

STAGE1: UNDERSTAND & DON'T MISS THIS!

Problem statement

A school has presented a fundraiser, in which the school asks its students to prepare a plan to grow and sale the plants to provide a neighboring school with robotic instruments

Ask good questions to start working on the problem/ situation

What will be the margin of students in the school
What will be the cost for buying the instruments
How many plants should they grow, to sell them
Will we gain profit if we grow it from a sapling
How much time will it take to grow the plant
How can we safeguard the plants without getting harmed by insects
How can we keep the soil's fertility good
How can we let many people know more about this
How should we plan the space at the fundraiser to keep more plants
What will be the size,variety and cost of each bag sapling bag ?
How many plants can we accommodate at the school
What will the area of one plant be?
Which type of plant can be sold at a reasonable amount, to gain a decent revenue?
What saplings will grow fast?
How many seeds should we put if we are putting any?
How much can a 5-inch sapling bag hold?

Stage 2 - Analyze the situation
Make Assumption

▶ what will be the margin of students in the school

let's assume that there are 30 students in each class/standard of the school which this school is going to supply, and 100 students in which the school is going to supply.

▶ how can we keep the soil's fertility good

we can use soil fertilizers and manure, to keep the fertility good

▶ How can we safeguard the plants without getting harmed by insects and animals?

We can use a gardener to keep the plants in good condition, and use pesticides to kill any insects. we can also keep a scarecrow to scare the birds.

▶

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1.WHAT WILL BE THE COST FOR BUYING THE INSTRUMENTS
WE MAY ASSUME THAT, IF WE BUY ONLY ONE KIT IT MAY GET BROKEN THUS, WE CAN BUY 10 KITS AND 10 WATERING CANS, WHICH WILL COST 7000.

WHAT WILL THE AREA OF ONE PLANT BE?
THESE ARE THE GIVEN SIZES OF A SAPLING BAG:

Jute sapling bag 5 inch	10	Rs. 10
Plastic sapling bag 5 inch	10	Rs. 5
Jute sapling bag 10 inch	10	Rs. 20
Plastic sapling bag 10 inch	10	Rs. 10

THUS, FOR 5 INCH BAGS WE CAN USE 10 CM , AND FOR 10 INCH WE CAN USE 15 CM S
IN THIS CASE LET US ASSUME THAT MANY PEOPLE ARE INTERESTED IN BEING ECO FRIENDLY AND MAY PREFER JUTE OVER PLASTIC. THUS , WE CAN USE THE JUTE BAGS.

HOW MANY SEEDS SHOULD WE PUT IF WE ARE PUTTING ANY?
LET'S ASSUME THAT ¾ OF THE SEED GROWS TO A PLANT. WE MAY PUT 2 OR 3 SEEDS IN A POT.

WHICH WILL GROW FIRST? A PLANT OR A SAPLING?
LET US ASSUME THAT EVEN IF WE PUT 2 SEEDS , ONE WILL GROW OUT OF IT, BUT IT NEEDS TO TAKE TIME TO GERMINATE AND GROW OUT. IT WILL TAKE 2-3 MONTHS. WHEREAS A SAPLING CAN GROW IN WEEKS WITH 100% ASSURANCE IF TAKEN GOOD CARE.

1.How much can a 5-inch sapling bag hold?

Let us assume that a 5 -inch sapling bag can hold 500 grams of soil thus a 10 -inch sapling bag can hold 1000 grams of soil

What are the aspects that change and what remains the same?

Things that change	Things that remain same
the shape of the plant its cost its growth	water amount it consumes. the space it occupies the sand it needs

WHAT MATH CONCEPTS CAN BE USED TO QUESTIONS FOR WHICH ANSWERS CAN BE FOUND OUT?

Questions for which answers can be found (using measurement, data collection etc).	Math concepts that can be used to find answers for these questions.
d) Will we gain profit if we grow it from a sapling	we can average the cost to know about it
e) How much time will it take to grow the plant	we can decide it upon the time each plant needs
h) How can we let many people know more about this	we can advertise it with some advertiser
i) How should we plan the space at the fundraiser to keep more plants	we can use area concept
b) How many plants should they grow, to sell them	we can decide upon the cost of the kit.
j)What will be the size,variety and cost of each bag sapling bag ?	we can grow the plants based on the cost of the kit and the area at avail
k) How many plants can we accommodate at the school	we may have to find it out
m) Which type of plant can be sold at a reasonable amount, to gain a decent revenue?	we can use area concept to find it out
n) What saplings will grow fast?	we may need a data to find it out
	we may need a data to find it out

Stage 3 – Mathematizing

- **What are the measurements or calculations to be made to work on this problem?**
    1. area of the fundraiser stall
    2. the time a plant needs to grow
    3. no. of plants needed to be grown
    4. advertising
    5. water amount it needs

- **What unknown data or information to be collected?**

    1. cost of the kits
    2. area of the school
    3. plant growing height
    4. plant growing time

Create a plan or solution for the real life problem (or) situation. Apply Math concepts using data collected and calculations to be made.
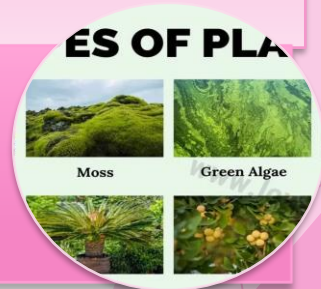
PLAN

We have an empty land which is 3000 cms broad and 10000 cms long ,with that we can plant 600 plants in a column and150 rows, which is 600 X 150, which is 90000 plant

area required

Since only some people would choose medicinal plants, we can use all of the types for the fundraiser .
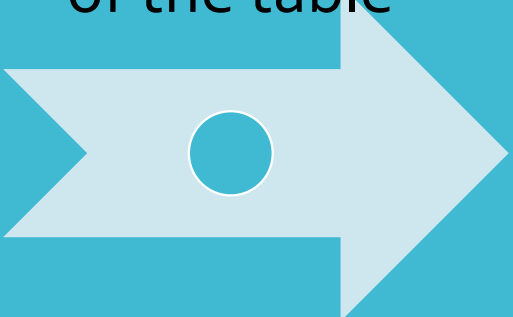
type of plant

This is a table to find out the total expenses

Plant	Germination time	Price (Pack of 50 seeds)	sapling bag cost	Cost i buy it excluding soil	cost i sell it	profit
Mint	2-3 days	Transplant – Rs.10 per 5 saplings	Jute sapling bag 5 inch 10pcs Rs. 20	Rs.- 15 for 5 & 30000 rs. per 10000 plants	Rs.- 60 for 5 & 120000 Rs. for 10000 bags	Rs.- 20 for 5 thus I get 90,000rs per 10000 sales
Coriander	3-4 days	Rs. 30	Jute sapling bag 5 inch 10pcs Rs. 20	Rs.- 35 for 5 & 70000 per 10000 plants	Rs.- 55 for 5 & 110000 Rs. for 10000 bags	Rs.- 20 for 5 thus I get 40,000 rs per 10000 sales
Omavalli	2-3 days	Transplant – Rs.20 per 5 saplings	Jute sapling bag 5 inch 10pcs Rs. 20	Rs.- 25 for 5 50000 per 10000 plants	Rs.- 60 for 5 & 120000 Rs. for 10000 bags	Rs.- 25 for 5 thus I get 70000 rs per 10000
Thulasi	3-4 days	Transplant – Rs.20 per sapling	Jute sapling bag 5 inch 10pcs Rs. 20	Rs.- 25 for 5 and 50000 rs per 10000 plants	Rs.- 100 for 5 & 200000 per 10000 plants	Rs.- 20 for 5 thus I get 150000 rs per 10000
Cosmos	1 week	Rs. 70	Jute sapling bag 10 inch 10pcs Rs. 20	310 Rs. , for 50 bags, 62000 Rs. for 10000 bags	Rs. 3000 for 50 & 600000 Rs. for 10000 bags	Rs.- 2960 for 50 thus I get 538000 rs per 10000
Marigold	3-4 days	Rs. 60	Jute sapling bag 10 inch 10pcs Rs. 20	180 Rs. for 50 bags, 36000 Rs. for 10000 bagS	Rs. 2500 for 50 & 500000 Rs. for 10000 bags	Rs.- 2320 for 50 thus I get 4,66,000 rs per 10000

Continuation of the table

Plant	Germination time	Price (Pack of 50 seeds)	sapling bag cost	Cost i buy it excluding soil	cost i sell it	profit
Morning Glory	1 week	Rs. 70	Jute sapling bag 10 inch 10pcs Rs. 20	310 Rs. for 50 bags, 62000 Rs. for 10000 bags	4000 Rs. for 50, 800000 Rs. for 10000 bags	Rs.- 90 for 50 thus I get 738000 rs per 10000
Spinach	3-4 days	Rs. 40	Jute sapling bag 10 inch 10pcs Rs. 20	220 Rs. for 50 bags, 44000 Rs. for 10000 bags	1000 Rs. for 50 2,00,000 Rs. for 10000 bags	Rs.- 80 for 50 thus I get 1,56,000 rs per 10000
Chilli	1 week	Rs. 40	Jute sapling bag 10 inch 10pcs Rs. 20	220 Rs. for 50 bags, and 44000 Rs. for 10000 bags	1500 Rs. for 50 & Rs. 300000 for 10000 bags	Rs.- 80 for 50 thus I get 256000 rs per 10000
Total				Rs.6,75,000		Rs.25,04,000

When should we plant it and how much will we gain?

Total Profit

- If we successfully sell all the 90,000 plants, we will get a profit of 25.04 lacs

Time needed

- Most of the plants need 1 week to grow, and to find a gardener, to buy the soil and the seeds to be sown, I can roughly estimate 1 month before the fundraiser.

SOIL NEEDED

Plant	sapling bag cost	soil needed	cost
Mint	Jute sapling bag 5 inch 10pcs Rs. 20	250 grams X 10000 = 2500000 grams = 2500 kgs	15rs. X 10000 = Rs. 150000
Coriander	Jute sapling bag 5 inch 10pcs Rs. 20	250 grams X 10000 = 2500000 grams = 2500 kgs	15rs. X 10000 = Rs. 150000
Omavalli	Jute sapling bag 5 inch 10pcs Rs. 20	250 grams X 10000 = 2500000 grams = 2500 kgs	15rs. X 10000 = Rs. 150000
Thulasi	Jute sapling bag 5 inch 10pcs Rs. 10	250 grams X 10000 = 2500000 grams = 2500 kgs	15rs. X 10000 = Rs. 150000
Cosmos	Jute sapling bag 10 inch 10pcs Rs. 20	500 grams X 10000 = 5000000 grams = 5000 kgs	30rs. X 10000 = Rs. 300000
Marigold	Jute sapling bag 10 inch 10pcs Rs. 20	500 grams X 10000 = 5000000 grams = 5000 kgs	30rs. X 10000 = Rs. 300000
Morning Glory	Jute sapling bag 10 inch 10pcs Rs. 20	500 grams X 10000 = 5000000 grams = 5000 kgs	30rs. X 10000 = Rs. 300000
Spinach	Jute sapling bag 10 inch 10pcs Rs. 20	500 grams X 10000 = 5000000 grams = 5000 kgs	30rs. X 10000 = Rs. 300000
Chilli	Jute sapling bag 10 inch 10pcs Rs. 20	500 grams X 10000 = 5000000 grams = 5000 kgs	30rs. X 10000 = Rs. 300000

COST OF THE KITS:

Cost of the kit	Age group	needed no. of kits	cost needed	will we have enough money ?
1300 rs.	•Age - 5 to 10 yrs.	30 students if 3 share one, we may need 10 kits	13,000 rs.	yes
1500 rs.	•Age - 10 to 11 yrs.	30 students if 3 share one, we may need 10 kits	15000 rs.	yes
1600 rs.	•Age - 11 to 12 yrs.	30 students if 3 share one, we may need 10 kits	16000 rs.	yes
1800 rs.	•Age - 12 to 13 yrs.	30 students if 3 share one, we may need 10 kits	18000 rs.	yes
1900 rs.	•Age - 13 to 14 yrs.	30 students if 3 share one, we may need 10 kits	19000 rs.	yes
s2000 rs.	•Age - 14 to 15 yrs.	30 students if 3 share one, we may need 10 kits	20000 rs.	yes
Total	—		1.01 lacs	

CONCLUSION

Assumptions made

- We can have Rs. 6,75,000, to buy the plants.
- We need to spend Rs. 21,00,000 on soil. Since we will not sell the soil separately, we may need Rs. 21,00,000 for the soil exclusively. therefore, we will save Rs. 4.04 lacs, for buying the kit.

Conclusion

If we plant 10000 plants of each Mint, Coriander, Omavalli, Thulasi, Cosmos, Marigold, Morning Glory, Spinach & Chilli, at the selling price I have kept, and used the same amt. of soil as I have used , we would be able to buy, 10 kits for each class and each section.