

**Design Challenge 4**

Money, Money, Money, Money!!!

**INTRODUCTION**

The principal must be paid back the money

borrowed purchase all supplies and

pay for music. How much money should be

charged for tickets to the dance in order to pay the

money owed and break-even? How much

should be charged for tickets in order to

earn enough money to pay the principal and

have enough money to pay for field day?

**1. DEFINE THE PROBLEM: MONEY MONEY MONEY MONEY!**

It’s time to determine what to charge for ticket prices. Student Council must pay pack the $400 loaned by the principal. How much should be charged just to break-even after paying the principal? How much should be charged in order to profit enough to be able to pay for field day?

**2. RESEARCH THE PROBLEM: MONEY MONEY MONEY MONEY!**

You must be familiar with writing and solving equations.

Solve the following equations:

A. 15n = 135 B. 25 + w = 64 C. 42 ÷ d = 6

Write an equation for the following situations:

A. Suzy makes $5 per hour babysitting. How many hours does she need to babysit in order to make $65?

B. John has $75.27. He wants to buy a skateboard that costs $127.83 after tax is added in. How much more money does John need in order to buy the skateboard.

**3. BRAINSTORM POSSIBLE SOLUTIONS: MONEY MONEY MONEY MONEY!**

The principal has given the Student Council a budget for field day. $300 must be raised to cover all expenses for field day. Remember that you must reimburse the principal $400 first. Based on the projected number of students who may attend the dance, how much should be charged for each ticket in order to break-even (pay back the principal)? How much money should be charged for each ticket in order to make a profit of $300?

|  |
| --- |
| Engineering Constraints |
| Must pay principal $400 first |

|  |
| --- |
| Must make at least $300 to pay for field day |

**4. CHOOSE THE BEST SOLUTION: MONEY MONEY MONEY MONEY!**

**PLAN**

Consider all possible options. Use the space below to show how you come up with ticket costs. Can you pull a number out of thin air or is there an easier way?

|  |
| --- |
|  |
|  |
|  |
|  |
|  |
|  |
|  |
|  |
|  |
|  |
|  |
|  |
|  |
|  |
|  |
|  |
|  |
|  |
|  |
|  |
|  |
|  |
|  |

**5. BUILD A PROTOTYPE/MODEL: MONEY MONEY MONEY MONEY!**

Write an equation showing how much to charge for each ticket in order to make the $400 necessary to pay the principal. Write an equation showing how much to charge for each ticket in order to pay the principal and make an additional $300. Draw a graph that compares the number of tickets sold from each equation.

|  |
| --- |
|  |
|  |
|  |
|  |
|  |
|  |
|  |
|  |
|  |
|  |
|  |
|  |
|  |
|  |
|  |
|  |
|  |
|  |
|  |
|  |
|  |
|  |
|  |
|  |
|  |
|  |
|  |
|  |
|  |
|  |
|  |
|  |

**6. TEST YOUR SOLUTION: MONEY MONEY MONEY MONEY!**

How many tickets must be sold in order to break-even (pay back the principal)?

How many tickets must be sold in order to earn a profit of $300?

How will the number of students who actually attend the dance affect the amount of money earned in both situations?

What happens if the number of students who attend is less than the projected number? More than the projected number?