Mathematics Sec 5 CST

Mathematics Secondary 5 CST

**Cultural, Social and Technical Option**

Competency One

Solves a Situational Problem

*Man in Motion*



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| --- |
| Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Group: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

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| --- | --- | --- | --- | --- | --- | --- | --- |
| ***Solves a situational problem*** | | | | | | | |
|  | | **Observable indicators corresponding to level …** | | | | | |
| Evaluation Criteria | **LEVEL** | **A** | **B** | **C** | **D** | **E** |  |
| **Cr. 1** | 40 | 32 | 24 | 16 | 8 | 0 |
| **Cr. 2** | 40 | 32 | 24 | 16 | 8 | 0 |
| **Cr. 3** | 20 | 16 | 12 | 8 | 4 | 0 |
| **Result** | |  | | | | | |

**Man in Motion**

Rick Hansen is the infamous Canadian who was in an unfortunate accident at the age of 15 that severely damaged his spinal cord. On March 21, 1985, at the age of 28, Rick embarked on a two year- two month-two day venture of travelling 40 000 km around the world in his wheelchair. Rick’s vision for this journey was inspired by his dream to improve the quality of life for victims of spinal cord injuries and accelerate the discovery of a cure, through fundraising and facilitating research.

The Western Quebec School Board (WQSB) is running an event in the Outaouais region to help create awareness and raise funds to support the Rick Hansen Foundation.

The WQSB has hired you as the event planning consultant.

**Your task is to determine which event should be held in order to donate the maximum amount of money to the Rick Hansen Foundation.**

**The Main Event**

In order to celebrate the 30th anniversary of the Man in Motion Tour, the council of the Outaouais region have decided to host a fundraising event.

The three event choices are: a musical festival, a carnival or a basketball tournament.

**Ticket Sales**

You must determine the amount of time available for ticket sales based on the *Organization of Planning Charts* provided on the following page.

WQSB wants to plan this event in the shortest amount of time possible, and have given you a target of 180 days in which you must accomplish all of planning tasks for the event.

In the charts on the next page you will find the information required to complete each event.

**Organization of Planning Charts**

|  |  |  |  |
| --- | --- | --- | --- |
| **Music Festival** | | | |
| Step | Description | Execution Time (days) | Prior Steps |
| A | Preparing a plan | 30 | None |
| B | Conducting market research | 10 | A |
| C | Looking for sponsors and donors | 25 | B |
| D | Looking for a location | 30 | A |
| E | Arranging performances and bands | 20 | C, D |
| F | Arranging vendors | 15 | E |
| G | Advertising | 70 | F |
| H | Creating Tickets | 5 | F |
| I | Getting volunteers | 5 | H |
| J | Selling Tickets | **?** | I |
| K | Arranging equipment supplier | 5 | F |
| L | Setting Up Venue | 5 | G, J, K |
| M | Hosting Event | None | L |

|  |  |  |  |
| --- | --- | --- | --- |
| **Carnival** | | | |
| Step | Description | Execution Time (days) | Prior Steps |
| A | Preparing a plan | 30 | None |
| B | Conducting market research | 10 | A |
| C | Looking for sponsors and donors | 25 | B |
| D | Looking for a location | 30 | A |
| E | Arranging carnival rides | 30 | C, D |
| F | Arranging vendors | 15 | E |
| G | Advertising | 60 | F |
| H | Creating Tickets | 5 | F |
| I | Getting volunteers | 10 | H |
| J | Selling Tickets | **?** | I |
| K | Setting Up Venue | 5 | G, J |
| L | Hosting Event | None | K |

|  |  |  |  |
| --- | --- | --- | --- |
| **Basketball** | | | |
| Step | Description | Execution Time (days) | Prior Steps |
| A | Preparing a plan | 20 | None |
| B | Looking for sponsors and donors | 25 | A |
| C | Looking for a location | 10 | A |
| D | Arranging vendors | 15 | B, C |
| E | Arranging half time performance | 30 | D |
| F | Advertising | 60 | E |
| G | Creating Tickets | 5 | E |
| H | Getting volunteers | 10 | G |
| I | Selling Tickets | **?** | H |
| J | Arranging equipment | 5 | E |
| K | Arranging referees | 10 | F, I |
| L | Setting Up Venue | 5 | J, K |
| M | Hosting Event | None | L |

**Merchandise Sales**

To raise additional funds, WQSB designed hats and t-shirts to sell at the event. They have also created branded water bottles to distribute to every participant as a memento of their day.

The cost of the water bottles will be deducted from the total profits generated from the merchandise sales of hats and t-shirts.

The following constraints must be taken into consideration regarding the number of hats and   
t-shirts that will be sold at the chosen event.

* The total number of merchandise sold is more than 8000.
* The sum of the number of hats sold and four times the number of t-shirts sold gives a maximum of 52 000.
* Less than twice as many hats as t-shirts were sold.
* The number of hats exceeds 2000.
* The number of t-shirts sold is at least 14 000 less than double the amount of hats.

Selling one hat generates a profit of $15 and selling one t-shirt generates a profit of $20.

Based on statistics of prior events, the school board can expect to maximize their profits from merchandise sales.

**Other Considerations**

The following information must be taken into account:

* Depending on the selected event, costs to host local events of this sort are:
  + Music Festival: $450 000.
  + Carnival: $250 000.
  + Basketball Tournament: $ 300 000.
* It costs the WQSB $60 000 to supply each participant with a branded souvenir water bottle.
* For each day of ticket sales, 496 tickets are sold.
* Tickets will be sold for $35 each.
* Profits from the sale of hats and t-shirts will be added to the total amount raised.

**Your task is to determine which event should be held in order to donate the maximum amount of money to the Rick Hansen Foundation.**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 15000 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 14000 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 13000 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 12000 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 11000 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 10000 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 9000 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 8000 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 7000 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 6000 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 5000 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 4000 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 3000 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 2000 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1000 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 0 |  | 1000 | 2000 | 3000 | 4000 | 5000 | 6000 | 7000 | 8000 | 9000 | 10000 | 11000 | 12000 | 13000 | 14000 | 15000 |

**Answer**

**They should choose the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ event to recognize Rick’s achievements and inspire the local community and would be able to donate $\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to the Rick Hansen Foundation.**