Athletics Field

**Name:** Click or tap here to enter text.

Introduction

Sporting grounds are constructed to support communities to be physically active. In this task you will be part of a construction team commissioned to build an athletics field. Your job will be to calculate the amount and cost of materials required to build the planned athletics field.

Task

The attached document shows the plans for the athletics field with measurements. You are to determine the amount of running track, concrete, gravel and sand that will be needed to complete the program. You will need to calculate both the surface area and volume of the various shapes that make up the field in order to do this.

Materials

Use the information in the following tables to help calculate the amount and cost of materials needed for the project.

*Table one: Materials Needed*

|  |  |  |
| --- | --- | --- |
| **Material** | **Colour code on plan** | **Cost** |
| Running track | **Blue** | $75 per m2 |
| Concrete | **Grey** | $250 per m3 |
| Gravel | **Red** | $72 per m3 |
| Fine sand | **Yellow** | $94 per m3 |

*Table two: Safety Standards*

|  |  |
| --- | --- |
| **Feature** | **Safety standard** |
| Discus ring | Concrete must be 0.10 m thick |
| Discus field | Gravel must be 0.15 m thick |
| Long jump pit | Sand must be 0.35 m deep |

Calculations

Perform your calculations for each material on a separate piece of paper. Each material calculation must show the following:

1. Drawing of the shape to be calculated with dimensions.
2. Formula used to calculate either surface area or volume of the shape.
3. Formula with values substituted in.
4. Answer of area (m2) or volume (m3).
5. Calculation of cost of material.

Final report

Complete the following table and submit worksheet along with a photo of your working out to your teacher.

*Table three: Volume and Cost of Materials*

|  |  |  |
| --- | --- | --- |
| **Material** | **Volume required** | **Cost** |
| Running track | Click or tap here to enter text. | Click or tap here to enter text. |
| Concrete | Click or tap here to enter text. | Click or tap here to enter text. |
| Gravel | Click or tap here to enter text. | Click or tap here to enter text. |
| Sand | Click or tap here to enter text. | Click or tap here to enter text. |

Skills analysis

Other than working in construction, name and describe an occupation that would use the maths skills demonstrated today.

**Occupation:** Click or tap here to enter text.

**Description:**

|  |
| --- |
| Click or tap here to enter text. |

Further task

The designers have decided to fill in the area where there no activities with grass (cost $11 per m2). The area that the field is being built has a length of 135 m and a width of 115 m. Calculate the amount and cost of the grass.

*Table four: Amount and Cost of Grass*

|  |  |
| --- | --- |
| **Amount** | **Cost** |
| Click or tap here to enter text. | Click or tap here to enter text. |