

IHEME: SIARRY NIGHI



Friday, November 29th, 2024 Start at 5:00 pm

Flemington and Kensington Lawn Bowls Club

School Event Project

Theme: School Dance Team Members: 3-4 students per team Duration: 3-4 weeks

Project Overview

You and your team will be planning a school event—a School Dance. In this project, you will use data collection, probability, measurement & geometry, financial numeracy and number & algebra skills to create an event plan, find logistical needs and conduct the event. This is an opportunity to apply your maths skills in a creative, real-world scenario while working collaboratively with your peers.

Instructions

- Forming Your Team
- You will work in a team of three to four students.

Leadership Rotation

Each member will take turns being the leader for different parts of the project on different days. The leader's role is to coordinate the tasks, make sure everyone understands the goals, and use their strengths to help others.

Leadership roles will change for each project part:

- Part 1: Survey Design and Data Collection
- Part 2: Layout Design and Attendance Estimate
- Part 3: Event field measure and Materials planning
- Part 4: Materials purchasing and setting up event room
- Part 5: Project Reflection and Presentation Preparation

Participation Requirements

- Everyone must participate actively throughout the project.
- Leaders will ensure equal contributions from each member and encourage others to use their strengths.
- Reflect on strengths: Identify what you are good at—whether it's research, drawing, calculations, creative thinking, or presenting. Share your strengths with your group and support others as you work through each part.

Worksheet Part 1: Planning the event

Theme: School Dance

Goals: Design a survey to collect data on preferences for the school dance (e.g. types of activities, student participation, and food and drink preferences). Analyse data to make informed decisions.

Leader Role: The leader is responsible for overseeing the survey design, collecting data, and ensuring all data analysis is completed accurately.

Step 1: Design Your Survey

- 1. Questions to Include in Your Survey:
- 2. Dance Activities (Categorical Data):
 - a. What type of dance activities do you want at the school dance? (Select all that apply)
 - i. Options: DJ with freestyle dancing, Dance Competition, Partner Dance, Music Chairs, Live Band Performance
- 3. **Participation Estimate** (Numerical Data):
 - a. Are you planning to attend the school dance? (Yes/No/Maybe)
 - b. If Yes: How many friends would you like to come with you?
 - i. Students will estimate how many friends they are likely to bring. This data will provide insight into potential **group sizes** and help estimate the **total number of attendees**.
- 4. Food and Drink Preferences (Categorical and Numerical Data):
 - a. What types of **food** would you like to have available at the dance? (Select your top 3)
 - i. Options: Pizza, Hot Dogs, Sandwiches, Snacks (e.g., chips), Desserts (e.g., brownies, cookies)
 - b. What types of **drinks** would you like available? (Select your top 2)
 - i. Options: Water, Soft Drinks, Juice, Iced Tea
 - c. **Quantity**: How many **servings** of food and drink do you expect to have at the dance? (Ask students to estimate)
 - i. This question will provide **numerical data** on how much food and drink will be consumed.

Step 2: Collect Data

• Instructions: Gather responses from at least 50 people. Record responses below or use a separate sheet.

Example Data Collection Table:

1. Dance Activities Preferences Tally Table

Dance Activity	Tally	Total Votes
DJ with Freestyle		
Dancing		
Dance Competition		
Partner Dance		
Music Chairs		
Live Band Performance		

2. Participation Estimate Tally Table

Response	Tally	Total Responses
Yes		
Νο		
Maybe		

3. Food Preferences Tally Table

Food Item	Tally	Total
		Votes
Pizza		
Hot Dogs		
Sandwiches		
Snacks (e.g., chips)		
Desserts (e.g.,		
brownies)		

4. Estimated Group Size Tally Table

Number of Friends Joining	Tally	Total Students
0		
1-2		
3-4		
5 or more		

Step 3: Analyze the Data

- Calculate:
 - Mean for ratings (e.g., the average rating for seating).
 - Mode for categorical questions (e.g., most popular activity).

• Visual Representation:

- Create **bar graphs** or **histograms** to show your data.
- Use the space below or graph paper to create your graphs.

Example Questions:

- 1. **Determine Preferences for Dance Activities** (Categorical Data):
 - a. Calculate the total number of votes for each dance activity.
 - b. Which dance activity received the most votes? Which received the least?
 - c. Use the results to determine the **top 2 or 3 activities** to include in the school dance program.

2. Estimate Attendance (Numerical Data):

- a. Calculate the number of students who indicated they would **attend** the school dance.
- b. Attendance Estimate: attendance=attendance rate × school enrolment
- 3. Food and Drink Preferences (Numerical Data):
 - a. Mode Calculation:
 - i. Identify the **mode**, or the most frequently requested number of servings for each item.

4. Visual Representation:

- a. Create **bar graphs** or **pie charts** to visually represent the results for:
 - i. Dance Activities (which are most popular)
 - ii. Food and Drinks (preferred options)

5. Decision Making:

- a. Based on your analysis, decide on the following for the school dance:
 - i. Top 2 Dance Activities: Which activities should be included?
 - ii. Food and Drinks: What food and drinks should be provided, and in what quantity?
 - iii. Event Timing: What day and time are most suitable based on survey results?

Worksheet Part 2: Designing the Layout and Estimating Attendance with Probability

Theme: School Dance

Goals: Estimate attendance using probability and attendance rates and design the event layout using grid paper to ensure an effective and well-organized carnival. Estimate attendance at different sections of the event and create an optimal layout.

Step 1: Estimating Attendance Using Probability

• **Task**: Estimate the expected number of attendees at the school carnival using historical attendance rates and the total student population.

Example Questions:

- 1. Attendance Rate Data:
 - a. Obtain data on **year level attendance rates** for the past month. Your teacher will provide you with the average attendance rate. This data will be used to predict attendance for the carnival.
 - b. **Example Data**: The average attendance rate in Year 9 over the past month is **85%**.

2. Calculate Expected Attendance:

Use the average attendance rate to estimate how many students will attend the carnival. **Total Number of Students in the School**: 97 **students**.

Calculate the Expected Attendance: Total enrollment × Attendance rate.

i. **Question**: What is the estimated number of students expected to attend the carnival?

3. Estimating Different Scenarios:

- a. Consider different attendance scenarios:
 - i. High Attendance Scenario: Assume 95% attendance.
 - ii. Low Attendance Scenario: Assume 70% attendance.
- b. Calculate the Expected Attendance for each scenario:
 - i. High Attendance: Expected Attendance=97×0.95
 - ii. Low Attendance: Expected Attendance=97×0.70
 - iii. Question: How many students are expected to attend in each scenario?

Step 2: Using Probability to Plan Event Sections

• **Task**: Use the expected attendance estimates to plan out the different sections of the carnival. Estimate the number of people that will be in different areas, such as the **game booths**, **food stalls**, and **performance stage**.

Example Questions:

- 1. Assigning Probabilities to Sections:
 - a. Based on your survey data from **Part 1**, estimate the probability that students will visit different areas of the carnival.
 - b. Example:
 - i. Probability of Visiting Music Chairs: 0.4
 - ii. Probability of Visiting Dance competition: 0.3
 - iii. Probability of Visiting Freestyle Dancing: 0.2
 - iv. Probability of Visiting Relaxation Area: 0.1
- 2. Calculate Expected Attendance for Each Section:
 - a. Use the **expected attendance** value to determine how many students will visit each section.
 - b. Music Chairs: expected number=Expected Attendance×0.4
 - c. Dance competition: expected number=Expected Attendance×0.3
 - d. Freestyle Dancing: expected number=Expected Attendance×0.2
 - e. Relaxation Area: expected number=Expected Attendance×0.1

Step 3: Designing the Event Layout Using Grid Paper

• **Task**: Design the layout for the carnival using **grid paper**. Use your estimated attendance calculations to determine the appropriate size for each section.

Instructions:

- 1. Layout Requirements:
 - a. The event layout should include:
 - i. Food Stalls
 - ii. Game Booths
 - iii. Performance Stage
 - iv. Relaxation Area

2. Drawing the Layout:

- a. Draw each section on the grid paper, label it, and include dimensions.
- b. Make sure that the layout is logical, with easy access to each section.
- c. Entrance and Exit Points: Clearly mark where students will enter and exit the event.

Example Questions:

1. Grid Layout Calculation:

- a. If the expected attendance for the **Food Stalls** is **26 students** (based on the estimated attendance calculation), and each student needs approximately **0.5 square meter** of space, calculate the total area required for the food stalls.
- b. **Calculation**: *Total Area for Food Stalls=26×0.5*.

2. Space Allocation:

- a. After calculating the areas for each section, **allocate space** on the grid paper.
- b. Question: How did you decide the size for each section? Explain your reasoning.

3. Reflecting on the Layout:

- a. Are there enough space and pathways for students to move between sections?
- b. Which sections require more space, and why?

Worksheet Part 3: Measuring the event space

Theme: School Dance

Goals: Measure the different sections of the event location to determine the exact dimensions of areas like the event field, stage, booths, and decorations.

Leader Role: The leader is responsible for organizing the measurements, recording the data, and ensuring that the measurements are accurate.

Step 1: Visit the Event Location and Measure Different Sections

- **Task**: Visit the event location, such as the school theatre, Town Hall, or bowling club, and **measure** the dimensions of different sections. These sections may include:
 - **Event Field**: The main area where activities will take place.
 - **Stage**: Where performances will occur.
 - **Booths**: Stalls for games, activities, or food.
 - **Decorations**: Measure specific areas for setting up decorations.

Example Questions:

- 1. Measuring the Event Space:
 - a. Measure the length and width of the event field.
 - b. Measure the **dimensions of the stage**, including **height** if it's elevated.
 - c. Measure the length, width, and height of any booths that will be set up.
 - d. Measure any other decorations you need to.
 - e. Record each measurement in the following table:

Measurement Data Table:

Section	Measurement	Length (m)	Area (m²)	Volume (m³) if applicable
Event Field	Length			
Event Field	Width			
Stage	Length			
Stage	Width			
Stage	Height			
Booth #1	Length			
Booth #2	Width			
Decoration Area	Length			
Decoration Area	Width			

Step 2: Calculate the Area and Perimeter

• **Task**: Calculate the **area** and **perimeter** of each measured section to determine how much space is available and how to use it efficiently.

Example Questions:

- 1. Area and Perimeter Calculations:
 - a. Event Field:
 - i. Calculate the **area**: Area = Length × Width
 - ii. Calculate the **perimeter**: Perimeter = 2 × (Length + Width)
 - b. Stage:
 - i. Calculate the **area of the stage** for performances: Area = Length × Width
 - ii. If the stage is elevated, calculate the volume

2. Booth Area and Volume:

- a. Calculate the area of each booth: Area = Length × Width
- b. Calculate the **volume** of the booth to determine how much space is available
- 3. Decoration Areas:
 - a. Calculate the **area of each decoration space**: ration Area = Length × Width

Step 3: Planning Materials for the Next Part

• **Task**: Use the measurements to plan the amount of materials you need to buy in the next part of the project.

Example Questions:

- 1. Decoration Planning:
 - a. If you plan to cover the **stage** with fabric, calculate how much fabric is required based on the **area**.
 - b. Suppose each booth requires **10 meters of fabric** to cover its sides and decorations. Calculate the **total amount** needed for all booths.

2. Floor Covering:

- a. If you want to cover the **event field** with carpet and the carpet costs **\$5 per square meter**, calculate the **total cost**:
- 3. Fencing for the Event Field:
 - a. If you need to place a **fence** around the perimeter of the event field, calculate the **total length** of fencing needed
 - b. If the fencing costs **\$8 per meter**, calculate the **total cost** of the fencing.

Worksheet Part 4 (prepare the carnival): Buying materials and setting up event room

Theme: School Dance

Goals: Prepare for the event by creating a simple budget, making a shopping list, comparing unit prices to find the best buy, and determining how much material is needed based on measurements from **Part 3**.

Leader Role: The leader is responsible for overseeing the budget creation, organizing the shopping list, comparing unit prices to find the best deals, and making sure the materials bought are enough for the event setup.

Step 1: Create a Simple Budget

• **Task**: Create a **simple budget** for the carnival. Use the measurements from **Part 3** to determine the quantity of materials needed and allocate funds accordingly.

Example Questions:

1. Budget Categories:

- a. Divide your budget into different categories, such as **Activity Materials**, **Food and Drinks**, **Decorations**, and **Equipment Rental**.
- b. **Budget Allocation**: You have a total of **\$600** for the carnival. Divide the money into different categories based on your estimation of what each category requires.

Budget Table:

Category	Estimated Amount (\$)	Explanation
Activity		
Materials		
Food and Drinks		
Decorations		
Equipment		
Rental		
Total Budget	\$600	

2. Allocation Decisions:

Why did you choose to allocate certain amounts to each category? Write a short explanation for each choice (e.g., "We allocated more to decorations because the stage needs to be eye-catching").

Step 2: Create a Shopping List

• **Task**: Use the measurements from **Part 3** to determine the **quantity** of each material needed and create a shopping list that includes everything you need to set up the carnival.

Example Questions:

1. Shopping List Based on Measurements:

- a. From **Part 3**, determine how much fabric, fencing, or other materials you need to cover the stage, booths, or event area.
- b. Create a shopping list that includes the **item name**, **quantity needed**, and **estimated unit price**.

Shopping List Table:

ltem	Quantity Needed	Unit Price (\$)	Total Estimated Cost (\$)
Fabric for Stage			
Fencing			
Booth			
Decorations			
Tables			
Chairs			

2. Cost Calculation:

a. Use the formula to find the total estimated cost for each item:

Step 3: Compare Unit Prices to Find the Best Buy

• **Task**: Compare the unit prices of items from different suppliers or stores to find the most cost-effective option.

Example Questions:

- 1. Unit Price Comparison:
 - a. You need **30 meters of fabric** for decorating the booths. Compare two different store offers:
 - i. Store A: \$3.50 per meter
 - ii. Store B: \$90 for 30 meters
 - b. Which option is cheaper? Show your calculations.
 - c. Cost Calculation: B Total Cost=90

2. Best Buy Decision:

- a. Based on your calculations, which store would you buy from, and why?
- b. Answer: Store _____ is cheaper because _____.

3. Comparing Costs for Other Items:

- a. You also need **50 chairs**. Compare two options:
 - i. Supplier X: \$4.00 per chair
 - ii. Supplier Y: Offers a bulk price of \$180 for 50 chairs
- b. Calculate the total cost for each supplier and determine the best buy.

Step 4: Determine Material Needs Based on Part 3 Measurements

• **Task**: Use the measurements taken in **Part 3** to determine how much material/accessories are needed.

Example Questions:

- 1. Material Quantity Calculations:
 - a. Stage Covering: Based on the area of the stage calculated in Part 3, determine how much fabric is needed to cover it.
 - i. If the stage area is **20 square meters** and each fabric roll covers **5 square meters**, how many rolls of fabric are needed?
 - ii. Calculation: Rolls Needed=Area Covered per RollStage Area

2. Fencing for the Event Field:

- a. Using the **perimeter** of the event field from **Part 3**, determine how many meters of fencing you need to buy.
- b. If fencing is sold in 10-meter rolls, how many rolls are required?
- c. Calculation: mber of Rolls Needed=10Perimeter of Event Field
- 3. Decoration Area for Booths:
 - a. Based on the measurements of the booths, calculate how much **decorative material** is required for each booth.
 - b. If each booth requires **8 meters** of bunting and you have **4 booths**, calculate the **total bunting needed**.

Step 5: Final Budget Check and Adjustments

• **Task**: Calculate the total cost of all materials and compare it with your original budget.

Example Questions:

- 1. Total Budget Calculation:
 - a. Add the costs from your shopping list to get the total estimated cost.
 - b. **Compare** the total with the original budget of **\$600**.
 - c. Are you within the budget? If not, where could you cut costs or adjust spending?

2. Budget Adjustments:

- a. If your total cost is **\$50 over budget**, identify areas where you could save money (e.g., choosing a cheaper option for decorations or reducing quantities).
- b. Write an **equation** showing how you would adjust the spendin w Allocation=Original Budget-Cost Reduction

Reflection on Financial Decisions

- **Reflect** on the decisions made during this part of the project:
 - How did comparing unit prices help you make cost-effective decisions?
 - Were there any challenges in staying within the budget?
 - What did you learn about budgeting and finding the best buy for materials?

Worksheet Part 5 (after the carnival): Reporting Findings and Presenting the Event Design

Step 1: Reflection on the Event

• **Task**: Reflect on the entire event, considering what worked well, what could be improved, and how the mathematical concepts applied helped in executing the carnival successfully.

Example Questions:

- 1. Attendance and Participation:
 - a. How close was the actual attendance to your estimated attendance from Part 2?
 - b. **Question**: What was the percentage difference between the estimated and actual attendance?

2. Activity Engagement:

- a. Which dance activities or carnival booths were the **most popular**?
- b. Count the Number of Participants for each activity or booth.

3. Food and Drink Usage:

- a. **Question**: Was there enough food and drink for everyone? Were there items left over, or were some items insufficient?
- b. Mean, Median, and Mode Analysis:
 - i. Calculate the **mean number of servings consumed** per item and compare this with your previous predictions.

4. Financial Reflection:

- a. Review your budget from Part 4. Did you stay within budget?
- b. Cost Analysis:
 - i. Write down the actual costs for each item versus the estimated costs.
 - ii. Calculate the **total actual cost** and compare it with your budget.

5. Challenges Faced and Problem Solving:

- a. What challenges did your group face during the event? (e.g., setup issues, insufficient materials, unexpected crowd sizes)
- b. How did you use problem-solving skills to overcome these challenges?
- c. **Question**: How did your planning in the earlier parts of the project help you solve these challenges?

Overall Curriculum Links for the School Dance Project

Victorian Curriculum (Year 9-10) Links

Strand: Number and Algebra

- 1. Financial Numeracy and Money Management
 - a. **VCMNA345**: Solve problems involving financial contexts, such as calculating costs, discounts, and budgets.

2. Rates, Ratios, and Proportional Reasoning

- a. VCMNA336: Solve problems involving rates, ratios, and percentages.
- 3. Linear Equations and Algebra
 - a. **VCMNA337**: Solve problems involving linear equations, including budgeting and cost analysis.

Strand: Measurement and Geometry

- 1. Units of Measurement
 - a. **VCMMG343**: Solve problems involving the area, perimeter, and volume of different spaces.

2. Geometric Reasoning

a. **VCMMG344**: Apply the properties of points, lines, angles, and shapes to practical problems.

Strand: Statistics and Probability

1. Data Representation and Interpretation

a. **VCMSP351**: Collect, analyze, and interpret data, and make decisions based on it.

2. Probability

a. **VCMSP354**: Use probability to estimate outcomes and make informed decisions.

Strand: Critical and Creative Thinking

- 1. Problem Solving and Reasoning
 - a. **VCCCTM051**: Apply logic and reasoning to develop and implement strategies for problem-solving.

VCE Vocational Major (VM) Numeracy Study Design Links

Numeracy Skills – Unit 1 & Unit 2

1. Financial Numeracy

- a. Learning Outcome 3: Apply budgeting and cost estimation skills in real-world contexts.
 - i. Students create and manage a budget, calculate costs, compare options, and make cost-effective decisions.

2. Measurement and Geometry

- a. Learning Outcome 2: Use measurement to solve problems involving area, perimeter, and volume.
 - i. Students measure the event space and use this data for layout planning and purchasing materials.

3. Data and Probability

- a. Learning Outcome 5 & 6: Collect, analyze, and interpret data; use probability to make informed decisions.
 - i. Students design surveys, collect and analyze data, and use probability to estimate attendance and make resource allocation decisions.

Vocational and Real-World Application

1. Problem Solving in Vocational Contexts

- a. Learning Outcome 7: Use numeracy skills to solve problems in workplace contexts.
 - i. Students plan and execute a carnival, applying their numeracy skills to vocational tasks, similar to event planning.

Assessment Rubric for the School Dance Project

Criteria	Excellent (4)	Good (3)	Satisfactory (2)	Needs
				Improvement (1)
Teamwork and Leadership	Team worked cohesively, roles rotated effectively, each member contributed fully.	Team worked well, most members contributed, and leadership roles were generally rotated.	Team worked together with some participation issues, and leadership roles were not fully effective.	Minimal collaboration; some members contributed significantly less, and leadership was not effective.
Mathematical Accuracy	All calculations (budgeting, measurements, probabilities) were accurate, showing thorough understanding.	Most calculations were accurate with minor errors, demonstrating good understanding.	Some errors in calculations; understanding of concepts was basic but sufficient.	Significant errors in calculations indicating a lack of understanding of key concepts.
Data Collection and Analysis	Survey design was thorough, data collection and analysis (mean, median, mode) were insightful and applied effectively.	Survey design and data analysis were good; most calculations were correct, with some insights into decisions.	Survey and data analysis were basic, with some errors or incomplete insights.	Data collection and analysis were incomplete, with significant errors and no meaningful application.
Measurement and Geometry	Event spaces were measured accurately, calculations for area and volume were correct, and layout design was logical and effective.	Most measurements were accurate, with a mostly logical layout design.	Basic measurements with some errors, and layout lacked clear logical structure.	Measurements were inaccurate, and the layout design was ineffective.
Financial Planning	Budget was detailed, all costs were estimated accurately, and cost comparisons were insightful. Stayed within budget.	Budget was good, with most costs estimated correctly, and some useful cost comparisons.	Budget included basic estimates with some errors; cost comparisons were minimal.	Budget was incomplete or inaccurate, with no effective cost comparisons.
Event Execution	Event was executed smoothly with well- coordinated roles, all sections set up as planned, and	Event execution was good, with minor issues that were handled effectively.	Event had some organizational challenges; roles were fulfilled with some gaps.	Event had significant organizational issues; roles were unclear, and

	strong problem- solving during challenges.			challenges were not handled well.
Reflection	Reflection was insightful, detailed, and included analysis of both successes and areas for improvement. Connected well to mathematical concepts.	Reflection was detailed and included analysis of successes and some areas for improvement.	Reflection was basic, with limited analysis and minimal discussion of mathematical concepts.	Reflection was incomplete, with no significant insights into successes, challenges, or mathematical learning.

Progress Checklist for the School Dance Project

Project Part	Key Milestones	Completio	Teacher
		n Date	Comments
Part 1: Data Collection &	Survey questions designed and approved		
Analysis	Data collected from at least 40 participants		
	Numerical data (mean, median, mode)		
	calculated		
	Decisions made about dance activities,		
	food, and timing		
Part 2: Probability &	Attendance estimated using probability		
Layout Design	High, medium, and low attendance		
	scenarios calculated		
	Event layout drawn on grid paper with		
	labeled sections		
Part 3: Measurement &	Event location measured (field, stage,		
Geometry	booths, etc.)		
	Area, perimeter, and volume calculations		
	completed		
	Planning for material needs based on		
	measurements		
Part 4: Buying Materials &	Shopping list created based on		
Setup	measurements		
	Costs estimated, unit prices compared,		
	and best buy selected		
	Room setup plan completed with all		
	necessary areas marked		
Part 5: Event Execution &	Event executed with all roles fulfilled		
Reflection	Attendance tracked and compared with		
	estimates		
	Individual and group reflections written		



ENTERPRISE SKILLS Prince's Trus Australia explore. build. create THE "CHEAT CODES" FOR LIFE! MANAGEMENT TEAMWORK SELF TRANSFERABLE 3 20 571 CRITICAL INNOVATION ACROSS IDENTITIES THINKING () GLOBAL DIGITAL CITIZENSHIP LITERACY JUST BECAUSE YOU ARE GOOD AT SOMETHING ... COMMUNICATION ROBLEM DOESN'T MEAN IT BRINGS YOU EMOTIONAL PROFESSIONAL JUDGEMENT **T** ETHICS CTHESE SKILLS ARE VALMABLE NO MATTER WHAT JOB! THINK in COLOUR - 2022

STOP		SLOW		GO
I am not ready	I can try to be	I want to be	I am getting	l am ready
to learn.	ready to learn.	ready to learn.	ready to learn.	to learn.





learn

learn

learn

learn

1	2	3	4	5
I am not yet	I can try to	I want to be	I am getting	I am ready to
ready to	be ready to	ready to	ready to	learn
learn	learn	learn	learn	