
Grade 12
Consumer Mathematics
Standards Test

Project Scoring Guide

Designing a Student Lounge

April 2010

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Project Scoring Guide (April 2010)

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Excerpts from the Project Resource Package

Welcome to the *Designing a Student Lounge* Project

General Information

The purpose of the first session is to provide an opportunity for you to

- develop an understanding of the project requirements
- become familiar with the information contained in this *Project Resource Package*
- share ideas related to the project in a brainstorming session
- begin developing your individual project

After the first project session the following conditions apply:

- Two additional classwork periods will be provided.
- Your teacher cannot assist you in developing or revising your project.
- You must submit an individual project that reflects your own work.

Guidelines for the *Designing a Student Lounge Project*

You have volunteered on behalf of Student Council to coordinate the design of an unused classroom into a student lounge.

In doing this project the following scenarios and requirements apply:

1. The student population of your school is 778 students. The population by grade is as follows:

Grade	Population
Grade 12	175
Grade 11	203
Grade 10	214
Grade 9	186
Total	778

2. You will decide which grade levels have access to the lounge and set the guidelines for its use.
3. The inside of the room (door included) will require painting. The walls are 10 feet tall and have no windows, shelves, bulletin boards, or whiteboards.
4. According to divisional policy, any painting done in the school must be done by the divisional painters at a cost of \$23.50 per hour. It takes 4 hours to paint 350 square feet of wall space (one coat).
5. You are responsible for purchasing the new furniture and equipment for the student lounge. Wiring for electronics already exists.
6. A security camera will be installed at a cost of \$450.
7. According to divisional policy, Student Council must pay \$50 per month of the school year (September to June) for the additional cleaning that must be done by the custodial staff.
8. You must choose the fundraising events to cover the costs of the student lounge for the school year. This must also cover a contingency fund of 18% of the total expenditures for future maintenance and repairs.
9. You must decide which grade levels will fundraise and determine how many fundraising items each student must sell to cover the costs. The rate of student participation varies depending on the grade level.
10. All taxes have been included.

Directions for the *Designing a Student Lounge* Project

Your completed project must include the following information:

- a proposal outlining the design and purpose of the student lounge
- a description of fundraising options and student participation
- detailed calculations for the painting of the lounge
- a detailed statement of your revenues, expenses, and balance

Your completed project must:

- be separate from this *Project Resource Package* booklet
- be well organized with an introduction and a conclusion
- be clearly presented with appropriate headings/subheadings
- include justifications of any assumptions or decisions you make in completing your project
- be printed from a computer, or written in blue or black ink

A scoring guide similar to the one below will be used to grade your project.

Organization/Communication	Data Selection/Analysis	Concepts/Reasoning
5 Marks	5 Marks	5 Marks
<ul style="list-style-type: none">• Is your project organized and does it follow a logical presentation?• Is your project easy to read?• Is your information clearly presented?	<ul style="list-style-type: none">• Did you select and use the required data?• Did you explore patterns or relationships in the data where appropriate?• Are mathematical procedures used correctly?	<ul style="list-style-type: none">• Is there evidence that mathematical concepts are understood?• Did you include clear and logical reasons, explanations, and conclusions that are appropriate to the project?



Note to Teacher:

The purpose of this document is to assist teachers in detecting reasonable calculations and sufficient data when scoring student projects. The document includes a scoring rubric and sample calculations pertaining to the Project.

A variety of organizational structures and types of responses to the *Designing a Student Lounge* project is anticipated. Student explanations for their decision making will vary. When organizing the project students may consider many issues, including:

- the choices made to set up the student lounge
- the amount of money required to cover the expenses
- the fundraising information

Scoring the Project:

Student projects are scored using a pre-established rubric that covers three broad categories. The scores awarded are placed on a *Project Scoring Sheet*. The “Organization/Structure and Communication” category primarily focuses on how the student has organized and communicated work. Judging whether the student selected required data and used appropriate mathematical procedures is the primary focus of the “Data Selection/Analysis” category. The third category, “Concepts/Reasoning”, is primarily focused on judging if the student understood necessary concepts and demonstrated logical reasoning in drawing conclusions and making justifications.

The order of proceeding through the rubric and completing the *Project Scoring Sheet* is a decision teachers make based on personal preference. For example, some teachers may decide to start by reviewing the “Organization/Structure and Communication” category first. This would involve reviewing the project to judge how the student met the criteria outlined in the rubric. These teachers might then move to the “Data Selection/Analysis” category and finally to the “Concepts/Reasoning” category. Other teachers may decide to start at the “Data Selection/Analysis” category then move to the “Organization/Structure and Communication” category followed by the “Concepts/Reasoning” category.

The “Consider the Following” section of the rubric is specific to each project. The items listed under the heading are not intended to be exhaustive but rather they are included to assist teachers in their marking.

If the Project is not submitted, then shade in the “no submission” bubble on the scoring sheet and do not shade in the “insufficient information” bubbles.

Consumer Mathematics: Project Scoring Rubric

Designing a Student Lounge

Consumer Mathematics Project Scoring Rubric	Consider the Following:
<p>Organization/Structure and Communication</p> <p>Has the student communicated mathematical and other relevant information in a clear and organized way?</p> <ul style="list-style-type: none"> — Organization/Structure (effective use of introduction[s], sections and/or headings, conclusion[s] or summary statement[s]...) — Communication (effective use of charts, tables, graphs, etc. to display data and relevant information; clear presentation; effective use of terminology) 	<ul style="list-style-type: none"> — introduction, heading(s)/subheading(s), conclusion(s) — presentation of proposal — presentation of the fundraising information — presentation of the financial statement
<p>Data Selection/Analysis</p> <p>Has the student selected and analyzed data appropriately?</p> <ul style="list-style-type: none"> — Selection (required data selected) — Analysis (exploration of any relevant patterns or relationships, used mathematical procedures appropriately) 	<ul style="list-style-type: none"> — proposal details including: <ul style="list-style-type: none"> • grade level(s) allowed to use the lounge • lounge guidelines • paint choice • furniture and equipment choices — fundraising information including: <ul style="list-style-type: none"> • fundraising choice(s) • grade level(s) participating • number of students participating • amount each student must raise • number of items each student must sell — statement details including: <ul style="list-style-type: none"> • paint expenses • furniture and equipment expenses • security camera expense • custodial fund (\$50/month) • contingency fund (18%) • fundraising revenues
<p>Concepts/Reasoning</p> <p>Has the student demonstrated an understanding of mathematical concepts as well as the ability to reason logically and draw appropriate conclusions?</p> <ul style="list-style-type: none"> — Concepts (demonstrated understanding of essential mathematical concepts...) — Reasoning (evidence reasoning/logical thinking was involved in producing the project and in drawing appropriate conclusions...) 	<ul style="list-style-type: none"> — appropriate assumptions/justifications/explanations/conclusions — realistic proposal — realistic fundraising information — realistic statement including contingency fund — realistic purchases (size, cost, etc.)
<p>Performance Level</p>	

	Level 1 (NOT YET AT STANDARD)	Level 2 (AT STANDARD)	Level 3 (ABOVE STANDARD)		
Insufficient Information/Evidence	<p>Example:</p> <ul style="list-style-type: none"> — little organization of ideas; limited (no) use of introductions, sections/headings, conclusions/summary statements — partially legible; information/details/calculations missing; vague presentation; difficult to follow 	<p>Example:</p> <ul style="list-style-type: none"> — most ideas organized; generally appropriate use of introductions, sections/headings, conclusions/summary statements — legible; most information/details/calculations evident; generally effective presentation; can follow with little difficulty 	<p>Example:</p> <ul style="list-style-type: none"> — exceptional organization of ideas; exemplary use of introductions, sections/headings, conclusions/summary statements — easy to read; insightful information/details/calculations evident; very effective presentation; easy to follow 		
	<p>Example:</p> <ul style="list-style-type: none"> — limited selection of required data — limited exploration of patterns/relationships; limited use of appropriate mathematical procedures (major computational errors) 	<p>Example:</p> <ul style="list-style-type: none"> — most required data selected (minor omissions) — most patterns/relationships explored; most mathematical procedures used were appropriate (some computational errors) 	<p>Example:</p> <ul style="list-style-type: none"> — all required data selected — insightful exploration of patterns/relationships; all mathematical procedures used were appropriate (only minor computational errors) 		
	<p>Example:</p> <ul style="list-style-type: none"> — limited evidence that the student understood the essential mathematical concepts — limited evidence of logical reasoning that led to appropriate conclusions; missing or incorrect justifications/explanations 	<p>Example:</p> <ul style="list-style-type: none"> — evidence that the student understood most of the essential mathematical concepts — evidence of logical reasoning (some minor inconsistencies) that led to appropriate conclusions; some plausible justifications/explanations 	<p>Example:</p> <ul style="list-style-type: none"> — evidence that the student understood all mathematical concepts — evidence of insightful and consistent reasoning that led to appropriate conclusions; clear and logical justifications/explanations 		
	Level 1	Approaching Level 2	Level 2	Approaching Level 3	Level 3
0/5	1/5	2/5	3/5	4/5	5/5

Sample Statement Calculations

Paint Calculations

Paint Choice	Perimeter of Room in Feet	Wall Height	Surface Area of Walls	Number of Coats Required	Number of Cans Required	Cost of Paint	Labour	Total Cost
Good	90	10	900	2	9	\$166.50	\$483.43	\$649.93
Better	90	10	900	2	6	\$150.00	\$483.43	\$633.43
Best	90	10	900	1	3	\$300.00	\$241.71	\$541.71

Expenses

Item	Quantity	Cost per Item (\$)	Cost (\$)
Best Paint	3	100.00	300.00
Paint Labour	1	241.71	241.71
Area Rug	2	250.00	500.00
Tables	4	125.00	500.00
Couches	3	800.00	2 400.00
Chairs	6	600.00	3 600.00
Microwave	1	110.00	110.00
Stereo	1	600.00	600.00
Computer	2	750.00	1 500.00
Printer	1	435.00	435.00
Security Camera	1	450.00	450.00
Bulletin Board	1	387.00	387.00
Install Bulletin Board	1	23.50	23.50
Whiteboard	1	500.00	500.00
Install Whiteboard	1	23.50	23.50
Custodial Labour	10 months	50.00	500.00
Sub Total			12 070.71
18% Contingency Fund			2 172.73
TOTAL			\$14 243.44

Fundraising Calculations (based on expenses of \$14 243.44)

					Fundraising Options		
Grade Level	Number of Students	Rate of Participation	Number of Participants	Cost per Participant	Number of Magazine Subscriptions	Number of Fruit Boxes	Number of Coupon Books
12	175	45%	78	\$182.61	37	19	10
11	203	65%	131	\$108.73	22	11	6
10	214	30%	64	\$222.55	45	23	12
9	186	52%	96	\$148.37	30	15	8
12 and 11			209	\$68.15	14	7	4
12, 11, and 10			273	\$52.17	11	6	3
12, 11, 10 and, 9			369	\$38.60	8	4	2

Note:

The three fundraising options represent the maximum number of items that each student must sell to reach the required goal of \$14 243.44 (e.g., 78 Grade 12 students \times 37 Subscriptions \times \$5 each = \$14 430). A combination of the three options is also possible.

Concepts/Reasoning

Students may make many different decisions based on the participating grade levels and the combination of fundraising options used. While some options may seem unrealistic in certain situations (e.g., students needing to raise \$182.61 each, if only Grade 12 students sold subscriptions), the proper justifications can sometimes provide evidence of practical thinking.

