
Grade 12
Consumer Mathematics
Standards Test

Project Scoring Guide

“Grand Days”
at Fun Beach

December 2010

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Ce document est disponible en français.

Excerpts from the Project Resource Package

Welcome to the “*Grand Days*” at Fun Beach 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

- 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 “Grand Days” at Fun Beach Project

In this project, you are hired as an activity coordinator for the revival of the “Grand Days” at Fun Beach.

In doing this project the following scenarios and requirements apply:

1. You will organize a sand sculpture contest at Fun Beach for a day in August.
2. The sculpting area is 50 feet wide by 200 feet long.
3. There are categories for the different levels of sculptors. The requirements for each category are listed in the chart below:

Category	Plot Size (in feet)	Volume of Additional Sand Required per plot (in ft ³)	Minimum Number of Plots Required	All-inclusive Entry Fee per Participant
Professional	10' × 10'	100	10	\$50
Amateur	5' × 5'	25	14	\$20
Youth 10–15 years	5' × 5'	25	10	\$5
Children 9 and under	5' × 5'	25	10	Free

4. You must provide extra sand for each plot for the contest at a cost of \$0.10 per cubic foot (ft³).
5. Each plot needs to be sectioned off with stakes (every 5 feet) and plastic tape. There must be 5 feet between each plot.
6. You must provide prizes for the participants and winners at each level. The winner of the “Professional” category will receive a cash prize worth 25% of the professional fees. You will decide on the prizes for the other categories.
7. You must choose a minimum of 3 food vendors to be present during the contest. These vendors are located on the boardwalk.
8. You must provide security and first aid personnel during the day.
9. You must choose a minimum of one advertising option.
10. The number of visitors expected for this day at Fun Beach is 13 000.
11. Any profits from the contest are to be donated to a local wildlife fund.
12. All applicable taxes have been included.

Directions for the “Grand Days” at Fun Beach Project

Your completed project must include the following information:

- a detailed scale drawing showing the used plots in the contest area
- a list of prizes available to the participants
- a list of revenues and expenses for the contest

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, Structure and 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?• Did you use mathematical procedures correctly?	<ul style="list-style-type: none">• Did you include 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 “*Grand Days*” at *Fun Beach* project is anticipated. Student explanations for their decision making will vary. When organizing the project students may consider many issues.

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

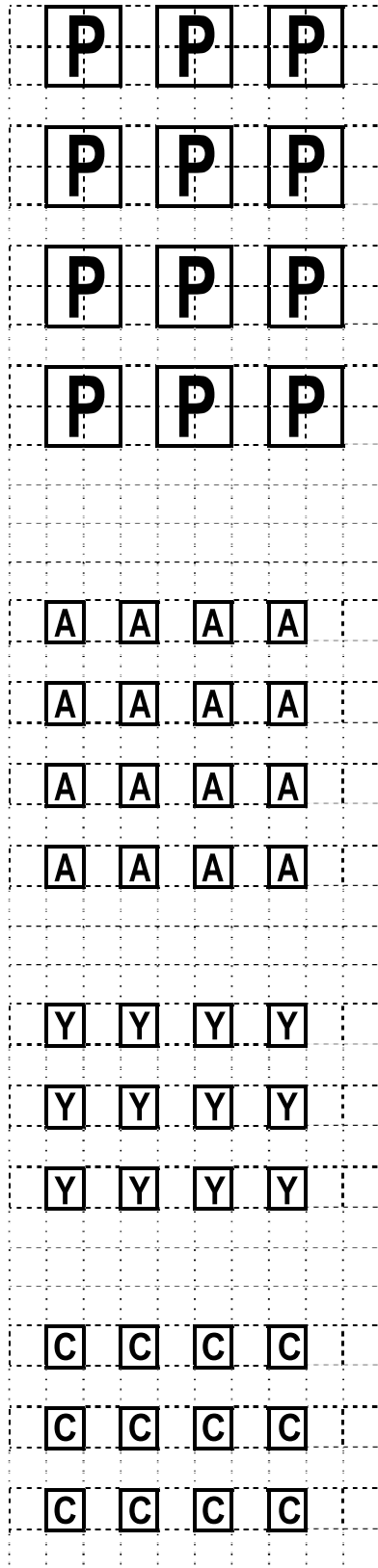
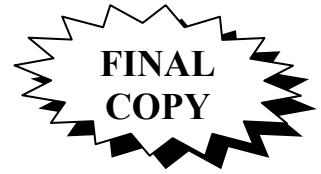
“Grand Days” at Fun Beach

Consumer Mathematics Project Scoring Rubric	Consider the Following:
<p>Organization/Structure and Communication Has the student communicated mathematical and other relevant information in a clear and organized way?</p> <p>— Organization/Structure (effective use of introduction[s], sections and/or headings, conclusion[s] or summary statement[s]...)</p> <p>— Communication (effective use of charts, tables, graphs, etc. to display data and relevant information; clear presentation; effective use of terminology)</p>	<p>— Introduction, headings, conclusion, and summary statements</p> <p>— Presentation of:</p> <ul style="list-style-type: none"> • prize listings • contest revenue and expenses • scale drawing of contest area
<p>Data Selection/Analysis Has the student selected and analyzed data appropriately?</p> <p>— Selection (required data selected)</p> <p>— Analysis (exploration of any relevant patterns or relationships, used mathematical procedures appropriately)</p>	<p>— Detailed calculations for revenue:</p> <ul style="list-style-type: none"> • vendor fees • percentage of vendor sales • entrance fee for participants <p>— Detailed calculations for expenses:</p> <ul style="list-style-type: none"> • prizes • extra sand • stakes and plastic tape • security and first aid personnel • advertising choice • optional supplies and expenses <p>— Accurate scale drawing</p>
<p>Concepts/Reasoning Has the student demonstrated an understanding of mathematical concepts as well as the ability to reason logically and draw appropriate conclusions?</p> <p>— Concepts (demonstrated understanding of essential mathematical concepts...)</p> <p>— Reasoning (evidence reasoning/logical thinking was involved in producing the project and in drawing appropriate conclusions...)</p>	<p>— Realistic justifications and assumptions for:</p> <ul style="list-style-type: none"> • prize selection • choice of food vendors • number of participants • choice of advertising • any profit/loss
<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

Contest Area



Legend:

P	Professional
A	Amateur
Y	Youth
C	Children

Scale:
1 square = 5 feet

SAMPLE CALCULATIONS

This sample is based on the following: 12 professional, 16 amateur, 12 youth, and 12 children participants. All five vendors were selected. Actual calculations will vary.

REVENUE

Vendors	Visitors	Purchasing Percentage	Average Order Price	Commission Rate	Commission Earned
Jumpin' Dog Hot Dog Cart	13 000	14%	\$8.50	3%	\$464.10
Frozen Fruzzies	13 000	19%	\$3.50	4%	\$345.80
Pappa's Pizza	13 000	6.5%	\$7.75	5%	\$327.44
On a Stick	13 000	5%	\$7.00	3%	\$136.50
Fritz Wagon	13 000	25%	\$5.00	4%	\$650.00
Subtotal					\$1 923.84

Vendor Flat Fees		$\$175 \times 5$	\$875.00
Participant Fees	Pros	$\$50 \times 12$	\$600.00
	Amateurs	$\$20 \times 16$	\$320.00
	Youth	$\$5 \times 12$	\$60.00
	Children	$\$0 \times 12$	\$00.00
Total Revenue			\$3 778.84

EXPENSES

Sand

Participants	Number of Participants	Volume of Sand Required per Plot	Total Volume Required
Pros	12	100 ft ³	1 200 ft ³
Amateurs	16	25 ft ³	400 ft ³
Youth	12	25 ft ³	300 ft ³
Children	12	25 ft ³	300 ft ³

Total Cost for Sand: $2\,200\text{ ft}^3 \times \0.10 **\$220.00**

Tape

Participants	Number of Participants	Perimeter of Each Plot	Perimeter for the Category
Pro	12	40 ft.	480 ft.
Amateur, Youth, and Children	40	20 ft.	800 ft.

Total Cost for Tape: $1\,280\text{ ft.} \div 200\text{ ft.} = 6.4\text{ rolls} \therefore 7\text{ rolls} \times \8.00 **\$56.00**

Stakes $1\,280\text{ ft.} \div 5 = 256\text{ stakes} \times \0.30 **\$76.80**

Prizes

Pro Cash Prize $\$600\text{ fee} \times 25\%$ **\$150.00**

Ribbons $52\text{ participants} \div 20 = 2.6\text{ boxes} \therefore 3\text{ boxes} \times \4.00 **\$12.00**

Small Trophy $4 \times \$10.00$ **\$40.00**

Medium Trophy $4 \times \$13.00$ **\$52.00**

Large Trophy $4 \times \$20.00$ **\$80.00**

Security **\$750.00**

First Aid **\$500.00**

Advertising **\$300.00**

Music **\$800.00**

TOTAL EXPENSES **\$3 036.80**

NET PROFIT **\$742.04**

