

Unit G: Completing a Portfolio

Half Course VI

HALF COURSE VI

Unit G: Completing a Portfolio

Hours: 5

General Learning Outcome:

Demonstrate an ability to organize a portfolio and discuss its contents in terms of consumer mathematics skills, strategies, and activities.

The intent of this unit is to provide some class time for students to complete their mathematics portfolios according to specific criteria or requirements. The time provided could be used by students to select and to reflect upon items included in their portfolios.

Specific Learning Outcomes

- G-1 Develop a portfolio of consumer mathematics skills, strategies, and activities.
- G-2 Discuss the contents of the portfolio and their relation to consumer mathematics.
- G-3 Justify the inclusion of portfolio items.

COMPLETING A PORTFOLIO

**PRESCRIBED LEARNING
OUTCOMES**

SUGGESTIONS FOR INSTRUCTION

General Outcome

Demonstrate an ability to organize a portfolio and discuss its contents in terms of consumer mathematics skills, strategies, and activities.

Specific Outcome(s)

G-1 develop a portfolio of consumer mathematics skills, strategies, and activities

G-2 discuss the contents of the portfolio and their relation to consumer mathematics

G-3 justify the inclusion of portfolio items

A primary goal of Consumer Mathematics is decision making. Students in *Senior 4 Consumer Mathematics* are expected to make and to justify decisions throughout the course. In this unit, students are required to make decisions as to what is included in their mathematics portfolio and to justify those decisions.

A mathematics portfolio is a purposeful collection of student work selected and arranged according to specific criteria or requirements. The suggested components required in a portfolio are outlined below:

- Statement of Introduction
- Table of Contents
- Student-selected Work
- Career/Life Project
- Income Tax Return

Statement of Introduction

Once your portfolio is ready to be assessed, write an introduction to present with it. The introduction should be about 250 words (approximately one typed page).

This introduction should:

- explain how your portfolio is organized and why you organized it that way
- identify your “best” piece of work and explain why you feel it is your best work
- explain ways in which preparing your mathematics portfolio has been of value to you

✓ Communications	Patterns
✓ Connections	Problem Solving
Number Sense	✓ Reasoning
✓ Organization and Structure	Technology
	Visualization

— *continued*

SUGGESTIONS FOR ASSESSMENT

The portfolio may be assessed either through an interview process allowing the student to demonstrate their knowledge of consumer mathematics through their portfolio, or by the teacher assessing the portfolio. Both methods use the same scoring rubric.

Portfolio Scoring Strategy

Format—Holistically Scan the Portfolio

This scoring focuses on overall impression, neatness, and completeness. The marker is answering the question, “Generally, are the portfolio samples varied, legible, carefully arranged?” The following marking strategy is recommended:

- Scan the student’s portfolio for a general sense of how the student has selected samples and arranged them.
- Read the descriptors under Level 2 on the rubric (which are identical to the outcomes) and decide if they are appropriate. If not, read the descriptors of the level above or below.
- If only some of the descriptors in a particular level of performance fit, determine the degree to which the student is approaching the next or previous level and whether the “approaching level” is a more appropriate description of the portfolio.

Reflection—Holistically Consider Each Student Sample

- Focus on each sample in the student’s portfolio collection. The marker is answering the question, “For each sample, has the student linked the content of the explanation sheet to the work sample in terms of real-world connections and consumer mathematics skills and strategies?”
- Search for evidence of mathematical analysis and synthesis as it relates to the real world and other units of study.
- Read each student’s explanation sheet for evidence of specific reflections related to each portfolio sample. (If using the interview approach, ask the student to respond orally.)
- Form a judgement on the logic of reasoning in terms of each sample provided, the mathematical connections, and the connections to the real world. (If using the interview approach, form a judgement based on the logic provided orally by the student.)

SUGGESTED LEARNING RESOURCES

Print

Ainsworth, Larry, and Jan Christinson. *Student Generated Rubrics: An Assessment Model to Help All Students Succeed*. Palo Alto, CA: Dale Seymour Publications, 1998.

Schoenfeld, Alan, et al. *Balanced Assessment for the Mathematics Curriculum: High School Assessment*. Palo Alto, CA: Dale Seymour Publications, 2000.

Refer to *Senior 4 English Language Arts: A Foundation for Implementation*. Winnipeg, MB: Manitoba Education and Training, 2000, pages 222 and 265.

For additional information on constructing rubrics, see *Senior 4 English Language Arts: A Foundation for Implementation*, Winnipeg, MB: Manitoba Education and Training, 2000, Appendix A: Developing Assessment Rubrics, pages 3-4.

**PRESCRIBED LEARNING
OUTCOMES**

- G-1 develop a portfolio of consumer mathematics skills, strategies, and activities
– *continued*
- G-2 discuss the contents of the portfolio and their relation to consumer mathematics
– *continued*
- G-3 justify the inclusion of portfolio items
– *continued*

SUGGESTIONS FOR INSTRUCTION

Student-selected Work

Choose from five to eight items for the portfolio. (The Career/Life Project and the Income Tax Return are two additional items.) A total of seven to ten items are to be in the portfolio, each with a Portfolio Item Explanation Sheet.

The chosen items should reflect a variety of types of work done in consumer mathematics, i.e., not just tests.

Students might choose:

- | | |
|--------------------|------------------------------|
| • budget | • technology/spreadsheet/CAD |
| • daily assignment | • chart/graph/diagram |
| • journal entry | • game/puzzle |
| • scaled drawing | • research |
| • unit summary | • test/quiz |
| • case study | • reflection on a speaker |
| • discussion notes | • reflection on an activity |
| • project | • other _____ |

Each item must also have an accompanying explanation sheet.

Career/Life Project

The Career/Life Project is to be included in the portfolio.

Income Tax Return

A prepared income tax return for an individual is to be included in the portfolio.

See the Appendix for a sample Portfolio Item Explanation Sheet.

- | | |
|-------------------------------------|--------------------|
| ✓ Communications | Patterns |
| ✓ Connections | Problem Solving |
| Number Sense | ✓ Reasoning |
| ✓ Organization and Structure | Technology |
| | Visualization |

— *continued*

SUGGESTIONS FOR ASSESSMENT

SUGGESTED LEARNING RESOURCES

Special Note: The first part of the Portfolio Item Explanation Sheet is a reflection opportunity (not necessarily a large focus for assessment). The second and third parts are what the students need to focus on for the interview process or for the teacher assessment of the portfolio.

Senior 4 Consumer Mathematics Portfolio Scoring Rubric					
	Level 1 Portfolio	Level 2 Portfolio	Level 3 Portfolio		
Context	<p>Incomplete Portfolio: Unclear, inconsistent, or incomplete portfolio</p> <ul style="list-style-type: none"> Disorganized: some parts are legible Limited selection of samples; some samples are missing or incomplete 	<p>Complete Portfolio: Relatively clear and complete portfolio</p> <ul style="list-style-type: none"> Organized: all parts are legible Complete selection of samples; all samples are complete and relevant 	<p>Clear, Complete Portfolio: Clear, coherent, and complete portfolio</p> <ul style="list-style-type: none"> Organized: all parts are easy to read Complete and varied selection of samples; all samples are complete and relevant 		
Format					
Collection: Analysis/Synthesis	<p>Limited Reflections: Reflections on explanation sheets are sketchy or not present</p> <ul style="list-style-type: none"> Errors in reasoning: ideas are sometimes unrelated to mathematical concepts Explanation relates loosely to portfolio work sample No attempt to connect across concepts or everyday life 	<p>Routine Reflections: Reflections on explanation sheets are limited and/or similar</p> <ul style="list-style-type: none"> Logical reasoning: ideas are related to mathematical concepts Explanation relates to portfolio work sample Connects mathematical concepts to everyday life where applicable 	<p>Thorough/Insightful Reflections: Insightful reflections on explanation sheets</p> <ul style="list-style-type: none"> Insightful reasoning: ideas combine mathematical concepts Explanation is linked directly to portfolio work sample Makes multiple connections between mathematical concepts and everyday life where applicable 		
Reflection	<p>Mathematical Connection (Question 1)</p> <ul style="list-style-type: none"> Real-World Connection (Question 2) 				
Performance Level:	Level 1	Approaching Level 2	Level 2	Approaching Level 3	Level 3

**PRESCRIBED LEARNING
OUTCOMES**

SUGGESTIONS FOR INSTRUCTION

- G-1 develop a portfolio of consumer mathematics skills, strategies, and activities
– *continued*
- G-2 discuss the contents of the portfolio and their relation to consumer mathematics
– *continued*
- G-3 justify the inclusion of portfolio items
– *continued*

Since a portfolio mirrors an individual student, allow students to demonstrate creativity in their portfolio while following the stated criteria or requirements. Structured brainstorming sessions were found to be helpful where organizational ideas were generated by the students. In addition, the following suggestions are helpful:

- Provide a safe place for students to keep their selections. Some teachers used an empty file drawer; others used a box with individual student file folders.
- Encourage students to **Collect, Select, Reflect** a variety of items for inclusion in their portfolio (refer to the Appendix 2). It is recommended that students choose two or three items from each unit and select from those at the end of the year.
- Students found it easier to complete their portfolio if they had spent time at the end of each unit selecting potential items for the portfolio and if they had written brief notes explaining why they were including a particular item in the portfolio or used a Portfolio Item Explanation Sheet as a reflection tool. See the Appendix for a sample Portfolio Item Explanation Sheet. (Modify the Portfolio Item Explanation Sheet as needed.)

The third part of the Portfolio Item Explanation Sheet may be completed after the selected items for the portfolio have been chosen.

✓ Communications	Patterns
✓ Connections	Problem Solving
Number Sense	✓ Reasoning
✓ Organization and Structure	Technology
	Visualization

SUGGESTIONS FOR ASSESSMENT

SUGGESTED LEARNING
RESOURCES

Appendix

Senior 4 Consumer Mathematics Portfolio Scoring Rubric				
	Level 1 Portfolio	Level 2 Portfolio	Level 3 Portfolio	
Context	<p>Incomplete Portfolio: Unclear, inconsistent, or incomplete portfolio</p> <ul style="list-style-type: none"> • Disorganized; some parts are legible • Limited selection of samples; some samples are missing or incomplete 	<p>Complete Portfolio: Relatively clear and complete portfolio</p> <ul style="list-style-type: none"> • Organized; all parts are legible • Complete selection of samples; all samples are complete and relevant 	<p>Clear, Complete Portfolio: Clear, coherent, and complete portfolio</p> <ul style="list-style-type: none"> • Organized; all parts are easy to read • Complete and varied selection of samples; all samples are complete and relevant 	
Format	<ul style="list-style-type: none"> • Overall impression • Selection (variety) 			
Reflection	<p>Collection: Analysis/Synthesis</p> <ul style="list-style-type: none"> • Mathematical Connection (Question 1) • Real-World Connection (Question 2) 	<p>Routine Reflections: Reflections on explanation sheets are limited and/or similar</p> <ul style="list-style-type: none"> • Logical reasoning; ideas are related to mathematical concepts • Explanation relates to portfolio work sample • Connects mathematical concepts to everyday life where applicable 	<p>Thorough/Insightful Reflections: Insightful reflections on explanation sheets</p> <ul style="list-style-type: none"> • Insightful reasoning; ideas combine mathematical concepts • Explanation is linked directly to portfolio work sample • Makes multiple connections between mathematical concepts and everyday life where applicable 	
Performance Level:	Level 1	Approaching Level 2	Level 2	Approaching Level 3
				Level 3

Portfolio Item Explanation Sheet

Name: _____ Date: _____

Title of Assignment: _____

Unit: _____

Part 1

Describe the assignment:

What part of the assignment did you like? (Be sure to explain your answer.)

What part of the assignment did you not like? (Be sure to explain your answer.)

Summarize what you learned from doing this assignment.

How does this assignment relate to the unit?

Why did you include this activity in your portfolio?

Part 2

Checklist for multiple intelligences used in this assignment:

Bodily/Kinesthetic (movement/dexterity)	<input type="checkbox"/>	Linguistic (using words)	<input type="checkbox"/>
Logical/Mathematical (numbers and reasoning)	<input type="checkbox"/>	Spatial (manipulating pictures and images)	<input type="checkbox"/>
Musical (tone and rhythm)	<input type="checkbox"/>	Intrapersonal (self-knowledge)	<input type="checkbox"/>
Interpersonal (social interaction)	<input type="checkbox"/>		

Checklist for employability skills used in this assignment:

Communication (listening, speaking, understanding, reading, writing)	<input type="checkbox"/>	Thinking (critical and logical, problem solving, using technology)	<input type="checkbox"/>
Learning (positive attitude, initiative, energy)	<input type="checkbox"/>	Responsibility (setting priorities, reaching goals, time management, accountability)	<input type="checkbox"/>
Adaptability (try new ideas, maintain a positive attitude)	<input type="checkbox"/>	Co-operative Skills (ability to plan and work with others)	<input type="checkbox"/>

Part 3

Write what it is that you feel is important about this chosen item to have it included in your portfolio.

- Describe the item and process used to complete it.
- What math-related skills did you use?
- What is its connection to everyday life?
- How does this relate to your skills and interests?
- Where might this type of information be used?