

Numeracy

What is numeracy?

Numeracy is the Essential Skill that requires individuals to use numbers in order to carry out tasks in real-life situations. Here are just a few examples of numeracy at home, school and work:

- Calculating monthly household expenses
- Calculating quantities of supplies required for a renovation
- Purchasing school supplies
- Comparing costs of cell phone plans to determine which is a better value

The Essential Skills research organizes numeracy tasks into five categories: money math; scheduling or budgeting and accounting; measurement and calculation; data analysis; and estimation. But regardless of the category, examining a few task features will help educators understand how complex numeracy tasks are.

What makes numeracy tasks complex?

A number of elements contribute to making numeracy tasks complex. They include:

- Type of operation
- Number of steps in task
- Task features (includes the degree to which required information is available)

Complexity Features	Level 1	Level 2	Level 3
Operations required	Very simple	Simple	Combinations of operations
Steps in task	One step	Few steps	Multiple steps
Task elements	All information required is provided	May need to collect some numbers required for solution	Need to identify relevant information; may require inference

Complexity levels for Numeracy tasks range from skill levels 1 to 4 or 5 depending on the skill. This practice activity features levels 1 to 3. For more information on complexity levels, please go to the Ontario Skills Passport (OSP) website at www.ontario.ca/skillspassport

Using the complexity features above, take a look at how numeracy activities become more complex:

Level 1	Level 2	Level 3
Make a cash transaction.	Calculate mileage for a trip.	Calculate trip expenses, including taxes and discounts

Knowing what makes numeracy tasks complex allows educators to adjust activities to meet the needs of learners at a range of levels. Educators can also consider how to help learners develop skills in realistic contexts by introducing aspects of tasks in stages. The following shows how a numeracy activity can be adjusted to increase its complexity.

Key to numeracy tasks is not only knowing how to make the calculations, but identifying which calculations to make. This is often the difference between traditional math activities, in which learners develop and practice their calculations skills, and numeracy tasks, where learners are asked to use their skills in context. Providing opportunities for both ensures learners will have the skills and be able to transfer them to real-life situations.

One other consideration when introducing numeracy tasks is how commonly document use accompanies these tasks. Consider checking store receipts for accuracy, paying bills and placing orders as just a few examples – many real-life numeracy tasks require the use of documents. When introducing activities that draw on both document use and numeracy, just keep in mind that document use has its own complexity scale. Make sure to introduce documents that are at appropriate levels for the learners you work with.

Practice activity

1. Ask learners to describe situations when they are required to work with numbers. These situations might include activities at home, in a work setting, or at school.
2. Distribute Document A (order form). Ask learners to tell you what it is and when they might have seen a similar document. Ensure everyone is familiar with the row and column structure of the document.
3. Explain that this is an order form for a customer who has bought lumber in order to build a deck. You can introduce this activity to learners at different levels, keeping in mind that expectations about what learners can do will

change. Note: a completed form with the correct responses is available at the end of this activity set.

Level 1:

- Once learners are comfortable with the organization and purpose of the document, show them how each row corresponds to one item.
- Ask learners how to figure out how much it will cost to purchase each of the items listed (e.g. 20 cedar planks). Have learners make calculations.

Instructor notes: Learners multiply each number of units purchased by the unit price. The task requires only one operation. The same calculation is repeated several times. While learners are not completing the order form as required in a real-life context (where they would have to make all calculations independently), they are building skills within a realistic context.

Level 2:

- Carry out activity as outlined above.
- Ask learners to calculate the subtotals, tax and total.

Instructor notes: To complete the task, learners make multiple calculations: multiplication, addition, percentage. Learners carry out calculations in stages, using the result of one calculation in subsequent calculations.

Level 3:

- Ask learners to complete the order form, without prompting or support.

Instructor notes: Learners make multiple calculations: multiplication, addition, percentage. The task requires that learners figure out which calculations to make, and in what order. They complete the task in stages, with the result of one calculation used in subsequent calculations.

The Ontario Skills Passport (OSP) is a bilingual web-based resource that provides easy-to-understand descriptions of the Essential Skills and work habits that are important in work, learning, and life. It includes the Essential Skills identified and validated by Human Resources and Skills Development Canada (HRSDC), such as Reading Text, Writing, Document Use, Oral Communication, Money Math, and Problem Solving, as well as work habits such as working safely, teamwork, reliability, and initiative. The OSP also illustrates how people use these skills and work habits in everyday life as well as in specific occupations. It offers numerous tools and resources for use in educational, training, and workplace contexts that can help learners and job seekers assess, practise, and build their Essential Skills and work habits.



Essential Skills for work, learning and life
www.ontario.ca/skillspassport

Document A

Pinecroft Lumber			
Customer	J. LeBlanc		
Address	123 Grand Avenue Anywhere, Ontario A1A 1A1		
Ship to	same		
Shipped	Description	Unit Price	Total
8	2 x 4 x 8 cedar rails	12.00	
5	4 x 4 x 8 fence posts	18.00	
50	1 x 4 x 10 – slats cedar	11.25	
5 lbs	Galvanized nails – 3”	1.35/pd	
5	Post caps	14.95	
8 litres	Wood preservative	4.95/litre	
		SUBTOTAL	
		HST (13%)	
		TOTAL	
Return Policy: Unused goods with receipt may be returned within 7 days for refund or exchange.			

Answer Key

Pinecroft Lumber			
Customer	J. LeBlanc		
Address	123 Grand Avenue Anywhere, Ontario A1A 1A1		
Ship to	same		
Shipped	Description	Unit Price	Total
8	2 x 4 x 8 cedar rails	12.00	96.00
5	4 x 4 x 8 fence posts	18.00	90.00
50	1 x 4 x 10 – slats cedar	11.25	562.50
5 lbs	Galvanized nails – 3”	1.35/pd	6.75
5	Post caps	14.95	74.75
8 litres	Wood preservative	4.95/litre	39.60
		SUBTOTAL	869.60
		HST (13%)	113.05
		TOTAL	982.65
Return Policy: Unused goods with receipt may be returned within 7 days for refund or exchange.			