

# Diabetes Essential Skills Kit

## Learning Modules



Ontario  
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For her tremendous contribution to this project as the Essential Skills Profiler and for all the extra advice, Lesley Hamilton has my profound gratitude.

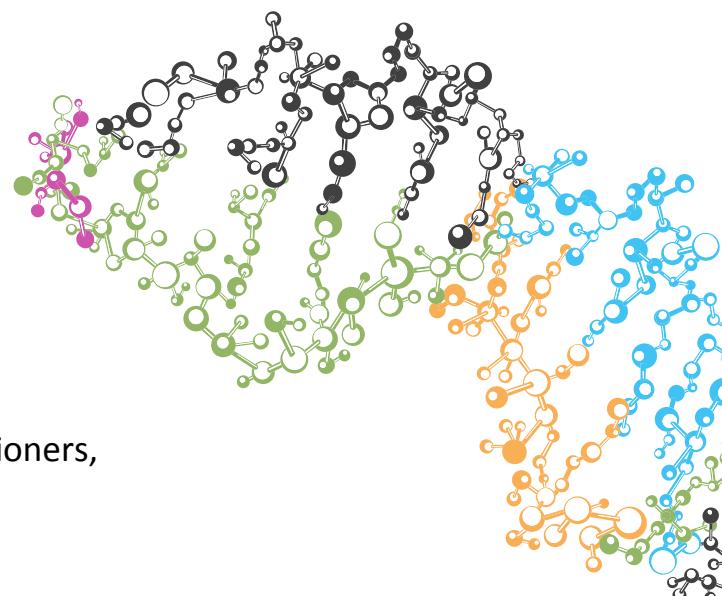
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- Melissa Hallock, Registered Nurse
- Melissa Murray, Registered Dietitian
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Thank you everyone,

Lisa McArthur, Project Consultant and Health Literacy Lead

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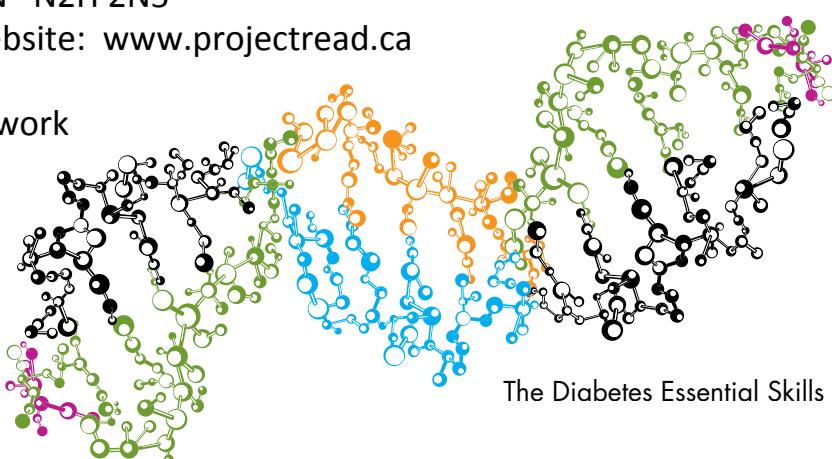
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# **Essential Skills for Chronic Disease Management Series**

## **The Diabetes Essential Skills Kit (DESK)**

### Introduction

Health and education research continue to show links between low literacy and poor health outcomes. As patients develop increasingly complex health issues and as chronic disease management and prevention become factors of daily life, many Canadians struggle to effectively self-manage their own health because their literacy levels are a barrier.

This project created resources that enable Health Practitioners and Literacy Practitioners to work together to with patients and learners identify barriers, develop skills and improve health outcomes. These resources are the **Diabetes Essential Skills Kit**. They include

- Diabetes Essential Skills Profiles
- Learning Modules

# Introduction to the Learning Modules

This project identified 6 common barriers to a patient's independent diabetes self-management. These 6 barriers are

- Reading and understanding diabetes related information
- Understanding and remembering information given verbally
- Using math to count carbohydrates and manage dietary needs
- Using ratios to calculate correct insulin dosage
- Filling in forms correctly
- Recognizing and analyzing patterns in blood glucose test results

The Diabetes Essential Skills Kit includes 12 learning modules that address these 6 barriers. The learning modules can also be used with learners who have different goal paths as they include activities from various contexts including diabetes, employment and education.

The learning modules are

- Thinking through Reading Module 1
- Thinking through Reading Module 2
- Thinking through Reading Module 3
- Filling in Forms
- Taking Notes
- Using a Table
- Analyzing Data in Tables
- Addition and Subtraction
- Multiplication and Division
- Fractions and Percent
- Ratio Module 1
- Ratio Module 2

# **Each Module has**

## **A cover page**

Includes description, prerequisite information, materials required, objectives and samples of goal paths the module supports

## **Module Levels page(s)**

Includes Essential Skills levels and OALCF competencies and performance descriptors

## **Practitioner instructions**

Includes instructions for the whole module and each activity

Includes additional resources

## **Lessons & Handouts**

## **Answers**

Some tasks in the reading modules have no answer key as each learner will be using different resources depending on their goal path

## **How to use the Learning Modules**

1. Determine which skills the learner needs to improve. Use the Diabetes Essential Skills Profiles or any other assessment process to find this information
2. Scan the Module Levels page(s) to determine if the module supports the skills and competencies the learner needs
3. Check the cover sheet to determine if there is a prerequisite for that module. Learners may skip the numeracy prerequisites if a practitioner is confident that they have the foundation skills necessary. Check the Modules Level page(s) of the prerequisite module to make sure that the learner has all the prerequisite skills. Learners should not skip modules when using the Analyzing Data in a Table or Thinking through Reading modules. Information in these modules is sequential and linked together
4. Read all the practitioner instructions
5. Print all lesson pages, handouts and answer sheets for the learner
6. Work through the module with the learner. Some learners may be able to work independently through the modules
7. Provide additional resources to the learner to reinforce learning
8. Use the Module Levels page(s) for reference when recording OALCF information in the learner's EOIS CAMS file

# Diabetes Essential Skills Kit

## Learning Modules



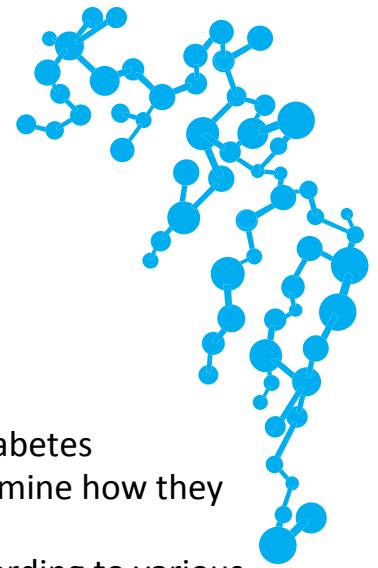
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Thinking through

# Reading Module 1

## Supports the following type of tasks

- Sample Diabetes task—Finding credible information on Type2 Diabetes
- Sample Employment task—Analyzing workplace policies to determine how they affect the individual
- Sample Education task—Prioritizing working on assignments according to various factors
- Sample Independence task—Deciding to save up for a purchase instead of borrowing on credit

**Pre-requisites – None**

**Time – Variable**

## Materials required

- Pens
- Paper
- Internet access or authentic documents brought to class by the learner
- Optional LED projector or smart board
- White board or flip chart paper
- Post it notes
- Headphones or speakers to listen to text-to-speech software on the computer

Access to <http://text-to-speech.imtranslator.net/>

## Objectives

The activities in this module focus on developing the thinking skills needed to read and understand a variety of document types as well process information from other non-text sources. The learner will

- Recognize that thinking skills are used in all aspects of work, learning and life
- Use a variety of thinking skills while reading
- Decode new vocabulary using a variety of skills and resources

## Format

The activities in this module can be delivered as a practitioner facilitated lesson or as a self-directed lesson depending on the skills of the learner. The activities can be worked on by individual learners, in pairs or as a small group.



## OALCF Levels used in ThinkingThrough Reading Modules 1-3

Learners who complete these modules will perform A1 Tasks when using the sample reading text provided. Learners are also expected to choose another document on which they will practice their skills. Competency Task Groups and levels will change depending on the type of document that the learner chooses. Learners who choose prose texts will use tasks in the A1 Task Group. Learners using documents with shorter texts and more graphics will perform tasks from the A2 Task Group. Learners who use these modules to find and use information from presentations, lectures, films etc...will use tasks from the A3 Task Group.

<b>Primary OALCF Competencies</b>	<b>Performance Descriptors</b>
A1.1	<ul style="list-style-type: none"> <li>• reads short texts to locate a single piece of information</li> <li>• decodes words and makes meaning of sentences in a single text</li> <li>• follows the sequence of events in straightforward chronological texts</li> <li>• follow simple, straightforward instructional texts</li> <li>• identifies the main idea in brief texts</li> <li>• requires support to identify sources and to evaluate and integrate information</li> </ul>
A1.2	<ul style="list-style-type: none"> <li>• scans text to locate information</li> <li>• locates multiple pieces of information in simple texts</li> <li>• makes low-level inferences</li> <li>• makes connections between sentences and between paragraphs in a single text</li> <li>• reads more complex texts to locate a single piece of information</li> <li>• follows the main events of descriptive, narrative and informational texts</li> <li>• obtains information from detailed reading</li> <li>• begins to identify sources and evaluate information</li> </ul>
A1.3	<ul style="list-style-type: none"> <li>• integrates several pieces of information from texts</li> <li>• manages unfamiliar elements (e.g. vocabulary, context, topic) to complete tasks</li> <li>• identifies the purpose and relevance of texts</li> <li>• skims to get the gist of longer texts</li> <li>• begins to recognize bias and points of view in texts</li> <li>• infers meaning which is not explicit in texts</li> <li>• compares or contrasts information between two or more texts</li> <li>• uses organizational features, such as headings, to locate information</li> <li>• follows the main events of descriptive, narrative, informational and persuasive texts</li> <li>• obtains information from detailed reading</li> <li>• makes meaning of short, creative texts (e.g. poems, short stories)</li> <li>• identifies sources, evaluates and integrates information</li> </ul>

<b>Primary OALCF Competencies</b>	<b>Performance Descriptors</b>
A2.1	<ul style="list-style-type: none"> <li>scans to locate specific details</li> <li>interprets brief text and common symbols</li> <li>locates specific details in simple documents, such as labels and signs</li> <li>identifies how lists are organized (e.g. sequential, chronological, alphabetical)</li> <li>requires support to identify sources and to evaluate and integrate information</li> </ul>
A2.2	<ul style="list-style-type: none"> <li>performs limited searches using one or two search criteria</li> <li>extracts information from tables and forms</li> <li>locates information in simple graphs and maps</li> <li>uses layout to locate information</li> <li>makes connections between parts of documents</li> <li>makes low-level inferences</li> <li>begins to identify sources and evaluate information</li> </ul>
A2.3	<ul style="list-style-type: none"> <li>performs complex searches using multiple search criteria</li> <li>manages unfamiliar elements (e.g. vocabulary, context, topic) to complete tasks</li> <li>integrates several pieces of information from documents</li> <li>compares or contrasts information between two or more documents</li> <li>uses layout to locate information</li> <li>identifies the purpose and relevance of documents</li> <li>begins to recognize bias in displays, such as graphs</li> <li>makes inferences and draws conclusions from information displays</li> <li>identifies sources, evaluates and integrates information</li> </ul>
A3	Extract information from films, broadcasts and presentations

Primary OALCF Competencies	Performance Descriptors
E.1	<ul style="list-style-type: none"> <li>• begins to use a limited number of learning strategies (e.g. follows instructions, takes literal notes, highlights or underlines key information, uses a calendar or agenda)</li> <li>• begins to identify ways to remember information and reinforce learning (e.g. reviewing notes)</li> <li>• creates “to do” lists to keep organized</li> <li>• begins to monitor own learning</li> <li>• identifies one source of information (e.g. text, document, classmate, co-worker) to complete tasks</li> <li>• uses feedback to improve performance</li> </ul>
E.2	<ul style="list-style-type: none"> <li>• uses a limited number of learning strategies (e.g. takes notes, organizes learning materials)</li> <li>• sequences activities in multi-step tasks</li> <li>• monitors own learning</li> <li>• begins to adapt to instructional approaches and learning materials that do not reflect preferred learning style</li> <li>• begins to identify how skills and strategies can transfer to different contexts</li> <li>• identifies multiple sources of information to complete tasks</li> <li>• begins to identify ways to improve performance</li> </ul>
E.3	<ul style="list-style-type: none"> <li>• uses a variety of learning strategies (e.g. takes and summarizes notes from multiple sources, sets a study schedule)</li> <li>• identifies ways to clarify, check understanding and reinforce learning</li> <li>• develops plans to complete longer-term tasks (e.g. essays projects)</li> <li>• monitors and evaluates own learning</li> <li>• identifies how skills and strategies can transfer to different contexts</li> <li>• evaluates the quality and comprehensiveness of multiple resources to complete tasks</li> <li>• identifies ways to improve performance</li> </ul>

<b>Secondary OALCF Competencies</b>	<b>Performance Descriptors</b>
D.1	<ul style="list-style-type: none"> <li>• follows simple prompts</li> <li>• follows apparent steps to complete tasks</li> <li>• interprets brief text and icons</li> <li>• locates specific functions and information</li> <li>• requires support to identify sources and to evaluate and integrate information</li> <li>• begins to perform simple searches (e.g. internet, software help menu)</li> </ul>
D.2	<ul style="list-style-type: none"> <li>• selects and follows appropriate steps to complete tasks</li> <li>• locates and recognizes functions and commands</li> <li>• begins to identify sources and evaluate information</li> <li>• performs simple searches using keywords (e.g. internet, software help menu)</li> </ul>
F	If learner completes modules as part of a group

## Essential Skills used in Thinking Through Reading Modules 1-3

Essential Skills	Level	Essential Skills	Level
Reading Text	1-3	Numeracy <input type="checkbox"/> Money math	
Document Use	1-3	<input type="checkbox"/> Scheduling and budgeting <input type="checkbox"/> Measurement and calculation	
Writing	1-2	<input type="checkbox"/> Data Analysis <input type="checkbox"/> Numerical estimation	
Oral Communication	<input checked="" type="checkbox"/>	Thinking Skills <input checked="" type="checkbox"/> Problem solving	<input checked="" type="checkbox"/>
Working With others	<input type="checkbox"/>	<input checked="" type="checkbox"/> Decision making <input checked="" type="checkbox"/> Critical thinking	
Computer Use	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Job task planning and organization	
Continuous Learning	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Significant use of memory	

## Practitioner Instructions

When presenting this module to a group of learners, information sheets can be converted to be used with PowerPoint, smart boards or can be used as prompts for practitioner notes on a flip-chart or white board.

When delivering the module, practitioners should encourage discussion to help enhance speaking and listening skills as well as writing skills.

Each learner will receive information sheets and activity sheets and are encouraged to underline, or highlight important information. Additional paper should be provided for longer notes.

Read each page aloud with the learner. Perform self-questioning and thinking processes out loud and in writing to demonstrate these skills to the learner. Encourage learners to engage in thinking out loud, as hearing their own thoughts and writing down stages of the thinking process, provides a multi-sensory approach to this module.

Providing a “running commentary” of your own thinking process and self-questioning makes each of these skills a conscious act rather than something mysterious that is taken for granted. It also shows the learner that having an internal dialogue is an important part of critical thinking, decision making, problem solving and learning. An internal dialogue is an important part of self-reflection and self-assessment; skills needed for goal-setting and behaviour change. While the “running commentary” and internal dialogue are used in this module to teach reading and thinking skills, these tools can be used in all areas of work, learning and life.

Essential Skills THINKING SKILLS are noted in capital letters and have been broken down into

- FINDING INFORMATION
- SIGNIFICANT USE OF MEMORY
- CRITICAL THINKING
- PROBLEM SOLVING
- DECISION MAKING
- JOB TASK ORGANIZATION

CRITICAL THINKING has also been defined further as learners often have difficulty with this particular skill.

When presenting the information sheets, draw particular attention to each of the THINKING SKILLS. Learners may need to be reminded that this module is about the THINKING SKILLS and that the reading skills are only a way to showcase the THINKING SKILLS.

Please note: “Thinking Through Reading Modules 1-3” are long modules and learners may find them very complex. Practitioners might consider breaking the modules down into smaller segments. Some learners may be more comfortable doing only one or two tasks per day. Breaking the modules down into more manageable pieces also reinforces the benefit of having a system that breaks down large tasks into smaller tasks.

## **Use of Resources**

THINKING SKILLS will be demonstrated in this module using reading as sample task. One reading resource is provided. Learners will need to choose one additional reading resource to complete the 3 “Thinking Through Reading” modules

Reading materials can be chosen from

- The learner’s home or work
- The internet
- Newspapers and magazines
- Books and text books
- Literacy Program pamphlets or brochures
- Instruction booklets
- School documents or handouts
- Banking information or contracts
- Pharmacy information sheets
- Health pamphlets or brochures

Learners living with diabetes may want to download information sheets from

<http://www.diabetes.ca/diabetes-and-you/>

Learners interested in workplace health and safety can find fact sheets here

<http://www.wsib.on.ca/en/community/WSIB/230/ArticleDetail/24338?vgnextoid=23c32ac8e5ed7210VgnVCM100000449c710aRCRD>

Learners interested in apprenticeship or trades might look at course offerings at community colleges in their area. The following website has a complete list of Ontario colleges. Search for Apprenticeship or Apprenticeship Courses in the “search box”

<https://www.ontario.ca/education-and-training/ontario-colleges>

Learners interested in current affairs may choose from a variety of news websites.

Reading should be a multisensory experience. During this module, learners will be encouraged to use their eyes, ears, hands and voices to maximize retention of information.

Learners who struggle pronouncing unfamiliar vocabulary and learners who understand text better when it is read aloud can try text-to-speech software if they are working independently.

Learners can use the following website to have a single word pronounced or whole sentences or paragraphs read to them.

<http://text-to-speech.imtranslator.net/>

Once the web page is open, copy and paste or type up to 1000 characters into the window and press the “say it” button. The reader will read the text with a fairly natural reading voice.

## **Additional Resources**

Task 5 asks learners to use decoding strategies. Learners who need more practice with root words, prefixes and suffixes may use the work sheet on page 11 BEFORE attempting Task 5.

## Additional Resources

### **Prefixes and Suffixes**

**Prefix:** A word part that is added to the beginning of a word. Prefixes have meanings. When you add them to words, they change the meanings of those words.

**Suffix:** A word part that is added to the end of a word or word part. Suffixes can change a word's part of speech as well as its meaning.

**Write down the prefix and the suffix that was added to each root word in the list below:**

Prefix	Word	Suffix
	<b>misinformed</b>	
	<b>unlikely</b>	
	<b>encouragement</b>	
	<b>disgraceful</b>	
	<b>unreasonable</b>	
	<b>reusable</b>	
	<b>biweekly</b>	
	<b>unhappier</b>	
	<b>invaluable</b>	
	<b>unfriendly</b>	
	<b>disconnected</b>	
	<b>unacceptable</b>	



## Practitioner Activity Instructions

Tasks in this module ask the learner to think about a concept and write or discuss their answers to specific questions. The learner will be asked to perform tasks using a document provided in the module: “Privacy Policies and Laws”. The tasks will be repeated using their own document of choice. Encourage the learner to

- highlight unfamiliar words
- use post-it notes for definitions
- think out loud

When using a running commentary of their own learners may feel awkward. Remind learners that the more they hear themselves thinking out loud and the more they write their questions down, the better they will understand the thinking skills that they are practicing as they read their own document.

### **Activity 1 – Task Instructions**

Task 1 asks the learner to list their housework chores and then put them in order. Ask the learner why they do the chores in a particular order. Each learner will have different criteria for the order they have chosen including but not limited to

- Like or dislike of certain tasks
- Ease of doing certain tasks
- Needing help with certain tasks
- Logical order of tasks (dust before vacuuming so that you don’t drop dust or crumbs on a clean floor or, clean toilets last so that you don’t transfer bacteria from the toilet to sink taps or door handles.)

### **Activity 2 – Task Instructions**

Task 2 asks the learner what they already know about privacy issues.

Encourage the learner to start thinking about their experiences in the past and then discussing what facts they know about privacy issues. Learners should be encouraged to steer away from emotional anecdotes or opinions and eventually concentrate on facts.

### **Activity 3 – Task Instructions**

Learners are asked to repeat the steps from task 2 using their document of choice.

### **Activity 4 – Task Instructions**

The learners must first identify unfamiliar words in the Privacy Policies and Laws document. They can highlight, underline, circle or rewrite the words.

### **Activity 5 – Task Instructions**

Learners must use a variety of skills to decode the unfamiliar words. If the learner's list of unfamiliar words is very long, in the interest of time, you may provide some definitions. The learner should decode at least 3 words in addition to the words in the examples. If the learner has no discomfort with any of the words, choose one word from the text and ask them to look up the word in a dictionary. Ask them to use their critical thinking and decision making skills to choose the likely definition of the word based on the subject matter of the article.

### **Activity 6 – Task Instructions**

Learners repeat Tasks 4 & 5 using their document of choice.

### **Activity 7 – Task Instructions**

Task 7 asks the learner to skim the document using 7 steps. Encourage the learner to use a pencil to underline only the elements of the text that they should be skimming to prevent them from reading the entire document. Encourage the learners to give at least one example of what was easy and what was hard about skimming.

### **Activity 8 – Task Instructions**

Task 8 asks the learner to repeat the 7 steps of skimming used in Task 8 on their own document of choice.

## **Thinking Skills**

We use a variety of thinking skills every day. We

- Find information
- Remember and recall information (Significant use of Memory)
- Evaluate, weigh, judge or classify information (Critical Thinking)
- Solve problems
- Make decisions
- Organize jobs and tasks

At home we might

- Follow a list of instructions to re-set a digital clock after a power outage
- Decide which items to buy from a sale flyer
- Organize housework to get the most important jobs done first

At school we might

- Prioritize homework depending on which assignments are due first
- Consider all the information learned about a topic before writing an essay on an exam
- Identify the cause of a poor mark on an assignment

At work we might

- Use calendars, agendas and to-do lists to help organize jobs for the week
- Follow a supervisor's list of tasks, in order of priority
- Recognize key information or facts that relate to a problem

Someone living with diabetes might

- Use a correction factor when injecting insulin to correct high blood sugar
- Find information from blood sugar log books, diet records and memory to help understand why blood sugar is too high and how to fix the problem
- Decide whether to call 911, go to a walk in clinic or make a doctor's appointment when there is a problem

## **Critical Thinking**

### Critical thinking

- Is a process of weighing or evaluating ideas or information
- Is a logical process that might include
  - Clarifying the meaning of words
  - Sorting or classifying something
  - Finding cause and effect
  - Summarizing or generalizing
  - Analyzing
  - Evaluating the source of information
- Refers to objective criteria –measures the information against a set of rules or benchmarks/features
- Identifies strengths and weakness or reaches a judgement about worth or value

When we go through the “Thinking Through Reading Modules 1-3”, we will be using all of the thinking skills. We will be reading a piece of writing about Privacy Laws and will be

- Finding information –using a dictionary for new vocabulary
- Using memory- thinking what we already know about a specific topic
- Evaluating or weighing information (Critical Thinking) reading information and seeing if it matches our criteria (answers our questions)
- Solving problems –determining what to do next if our questions have not been answered
- Making decisions—deciding what information we want to know about privacy
- Organizing jobs and tasks—splitting the reading process into parts and doing each part one at a time

Each of the **THINKING SKILLS** will appear in CAPITAL LETTERS so you can see them clearly.

## **Using Thinking and Reading Together**

It is a myth that very good readers read something once and understand fully what the writer wanted to get across.

Very good readers plan before they read and use a variety thinking skills and different steps during reading. They become so practised at using these steps that they don't seem to be using any steps at all.

Very good readers

- Think first
- Scan
- Skim
- Think again
- Read
- Take notes
- Think again
- Retell and remember



## **Activity 1 – Task**

How do you break down your housework into specific steps or jobs (vacuuming dusting, dishes, bathroom sink, toilets etc....?)

Write the steps out and then put them in the order that you do them.

Why do you do them in that order?

Housework Organization

**Task**

This is an example of JOB TASK ORGANIZATION. You might not need to write the tasks down to do your housework because you have done it so many times. In a new job or with new tasks, you might need to write them down and clearly plan your steps out.



We will use our JOB TASK ORGANIZATION SKILLS to break down the reading and thinking process. There will be specific steps in a specific order. Each step has a specific action that is different from the other steps.

### A very good reader is an excellent PLANNER



#### **Prepare** to read by

- reading the title or headings
- looking at any pictures or diagrams
- thinking about your own experience of the topic
- thinking about what you want to learn about the topic
- thinking about where the writer got the information



#### **Locate** important parts or details in the writing

- by scanning for names, dates, statistics, special terms or vocabulary
- by skimming for general ideas and content
- by reading the text fully

It is helpful to highlight these important words or parts of the writing so you pay special attention when you re-read later



#### **Analyze** information to see if it answers certain questions

- who, what, when, where, why, how
- cause and effect
- main idea and supporting details
- a series of events
- did the writing tell me what I wanted to know about this topic
- what did the writing describe (a person, place, event, instructions etc...)



**Note down what you have learned by reading this text**

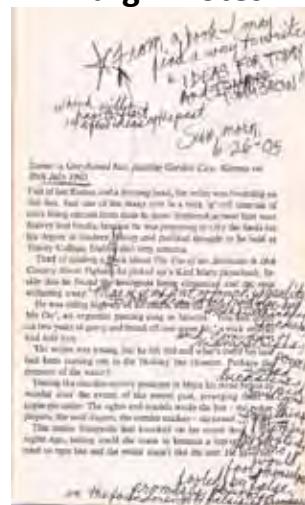
You can mark up the text by using

- Highlighters, circles, underlining
- Margin notes

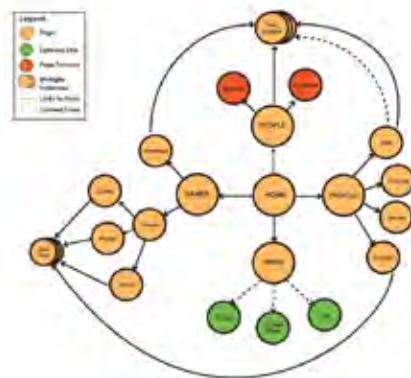
Or you can use other methods so you don't damage a text book

- post-it notes or flags
- graphic organizers
- lists
- concept maps
- plot lines

### Margin notes



### Concept map



**Necessary information—** Look at your notes and the text

- decide which information is necessary?
- which information do you **need** in order to understand what is important



**Edit** your notes. Only keep the important information that you need



**Re-read** the text and your notes to make sure you have not missed anything important.

**Recite** the information to yourself. Read parts of the text out loud if you are struggling to understand the meaning. Use a text-reader for extra help.

**Re-tell** the information to someone else or to yourself. Use your own words to explain what you have read. Summarize what you read. (Sum up, outline, recap simplify or boil down the information into a shorter form).

**Remember** what you have read by

- going over your notes
- skimming and scanning the text again
- discussing with other people what you have read
- writing a summary of what you have read

**Research** the topic to get more information if your questions have not been answered.

You can

- ask a peer
- check the internet
- talk to a specialist in the subject
- talk to family and friends
- contact an information specialist at your local library
- look for more information by the same author

This is the reading PLANNER process and we will be practising all of these steps. The more you practise these steps, the faster and easier it will become. Eventually, just like housework, you won't need a list to remind you anymore of how to use JOB TASK ORGANIZATION SKILLS for reading.

To demonstrate these skills we will look at one document for all 7 PLANNER steps.

You are going to be handed a 2-page document called Privacy Policies and Laws.



**DO NOT READ THIS DOCUMENT YET!**  
**We will go through the PLANNER steps together.**

## **Privacy Policies and Laws**

A Privacy policy is a statement or a legal document (privacy law) that discloses some or all of the ways a party gathers, uses, discloses and manages a customer or client's data.

Personal information can be anything that can be used to identify an individual, not limited to but including; name, address, date of birth, marital status, contact information, ID issue and expiry date, financial records, credit information, medical history, where you travel, and intentions to acquire goods and services. In the case of a business it is often a statement that declares a party's policy on how it collects, stores, and releases personal information it collects. It informs the client what specific information is collected, and whether it is kept confidential, shared with partners, or sold to other firms or enterprises

### **What is in a privacy policy?**

The exact contents of a privacy policy will depend upon the applicable law and may need to address requirements across geographical boundaries and legal jurisdictions. Most countries have their own legislation and guidelines of who is covered, what information can be collected, and what it can be used for. In North America, privacy laws (except in Quebec) apply only to the public sector, not to the private sector. However, most private sector organizations in North America have taken the initiative to develop their own privacy policies and codes of conduct.



## **Privacy Law in Canada**

In Canada, a Privacy Commissioner of Canada was established under the Canadian Human Rights Act in 1977. In 1982, the appointment of a Privacy Commissioner was part of the new Privacy Act. Canada signed the OECD guidelines in 1984.

Canada's Federal Privacy Law applicable to the private sector is formally referred to as Personal Information Protection and Electronic Documents Act (PIPEDA). The purpose of the act is to establish rules to govern the collection, use and disclosure of personal information by commercial organizations. The organization is allowed to collect, disclose and use the amount of information for the purposes that a reasonable person would consider appropriate in the circumstance.

## **Complaints**

The Act establishes the Privacy Commissioner of Canada as the Ombudsman for addressing any complaints that are filed against organizations. The Commissioner works to resolve problems through voluntary compliance, rather than heavy-handed enforcement. The Commissioner investigates complaints, conducts audits, promotes awareness of and undertakes research about privacy matters.

For more information on Canada's privacy laws go to

[http://www.priv.gc.ca/leg\\_c/legislation/02\\_07\\_01\\_01\\_e.asp](http://www.priv.gc.ca/leg_c/legislation/02_07_01_01_e.asp)

<http://laws-lois.justice.gc.ca/PDF/P-8.6.pdf>

Source [http://en.wikipedia.org/wiki/Privacy\\_policy](http://en.wikipedia.org/wiki/Privacy_policy)



## Let's start the Thinking and Reading process



### Prepare to read by

- reading the title or headings (FINDING INFORMATION)
- looking at any pictures or diagrams (FINDING INFORMATION)
- thinking about what you already know about the topic (SIGNIFICANT USE OF MEMORY)
- thinking about what you want to learn about the topic (DECISION MAKING)
- thinking about where the writer got the information (CRITICAL THINKING)

### FINDING INFORMATION

If we look at the title and headings on these two pages, we can see that the document is about

- privacy
- policies
- laws
- Canada
- complaints

There are no images in this document to give us hints about the content

## **SIGNIFICANT USE OF MEMORY**

What do we already know about privacy? Discussions could include topics like

- identity theft
- some websites are not safe
- privacy settings on Facebook and Twitter accounts
- private health records
- keep debit and credit PIN numbers safe so they are not stolen
- never give out your Social Insurance Number
- shredding bills and credit card statements instead of throwing them in the garbage
- sometimes need to sign to say you will release confidential information
- many privacy policies are hard to understand
- human rights

## **Activity 2 – Task**

What comes to mind when you think about privacy? Discuss or write your answer.

My thoughts on privacy...

**Task**

## **CRITICAL THINKING**

Evaluating the information source

Where did this information come from? Can the information be trusted?

The Privacy Policies and Laws article in this module came from Wikipedia. Wikipedia has information on just about everything so we don't have any real clues about the content of this writing. Not all information on Wikipedia is 100% correct because it is written by a lot of different people and it may reflect their opinions more than real facts. We may want to find other sources of information about the topic.

There are other resources listed at the end of the paper. The gc.ca part of the web address means the sites are Government of Canada websites. These might be good places to get more information.

### **Review**

There are a lot of thinking skills going on behind the scenes when we read.

We have used

- JOB TASK ORGANIZATION—to break down the reading process into PLANNER
- FINDING INFORMATION—to locate titles, headings or pictures in the article
- SIGNIFICANT USE OF MEMORY—to think about what we already know about privacy
- CRITICAL THINKING—to evaluate or determine whether this information comes from a trusted source

### **Activity 3 – Task**

**Choose an article or document that interests you.** It can be on any subject. It can be part of your other school work, a document from work or a letter from home.

You will be using this document over and over again as you go through these modules.

Follow the steps you have just learned in Task 2 and use your document instead of the privacy article. Use THINKING SKILLS in each step

Remember to



#### **Prepare to read by**

- reading the title or headings (FINDING INFORMATION)
- looking at any pictures or diagrams (FINDING INFORMATION)
- thinking about what you already know about the topic (SIGNIFICANT USE OF MEMORY)
- thinking about what you want to learn about the topic (DECISION MAKING)
- thinking about where the writer got the information (CRITICAL THINKING)

We will use the thinking skills over and over again as we go through the reading process.

# Finding Information Skills



**Locate** important parts or details in the writing

- by scanning for names, dates, statistics, special terms or vocabulary
- by skimming for general ideas and content
- by reading the text fully

It is helpful to highlight these important words or parts of the writing so you pay special attention when you re-read later

If we need to clarify the meaning of words, that is a CRITICAL THINKING SKILL. We have to recognize that we do not know the word and follow a process to find out what the word means.

## Activity 4 – Task

Let's look at our Privacy Policies and Laws pages again.

Start by looking for any words that you

- have never seen before
- do not understand

Highlight, circle or underline those words.

“Privacy Policies and Laws” is a complicated document so there might be many words. Here is a list of words that might be new to some learners. Clarifying, or making the meaning of a word clear, is a CRITICAL THINKING skill.

### Privacy Policy Word List

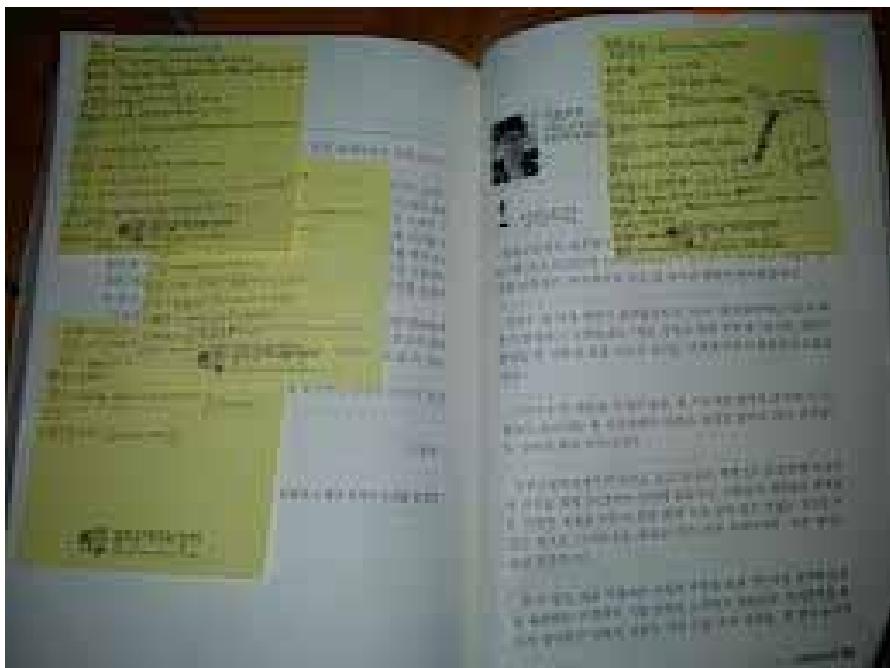
Policy	Applicable	Reasonable
Discloses	Requirements	Circumstance
Gathers	Geographical boundaries	Ombudsman
Manages	Jurisdictions	Resolve
Data	Legislation	Voluntary
Identify	Public sector	Compliance
Marital status	Private sector	Enforcement
Expiry	Initiative	Investigates
Intentions	Codes of conduct	Conducts
Acquire	Commissioner	Audits
Releases	Established	Undertakes
Informs	OECD	
Confidential	Federal	
Partners	Govern	
Firms	Disclosure	
Enterprises	Commercial	

We have to figure out what a lot of these words mean before we move on to the next PLANNER step. This is more CRITICAL THINKING and DECISION MAKING

We have a process to follow when it comes to figuring out what words mean. **Depending on what we think will work best**, we can DECIDE to

- **Decode the word by using our ears**—sometimes we know what the word means but we have never seen it written down before—if we can read it out loud we can understand the word
- **Decode the words using prefixes, suffixes, root words**—we can sometimes figure out what a word means by breaking it up into pieces. If we know what the pieces mean we can put the word back together and understand the meaning of the whole word
- **Decode the word using context**—we can tell what words mean by how they are used in a sentence. Sometimes the sentence gives us a definition of the word. Sometimes it will make a comparison that explains our word. The sentence might give an example that explains our word. Sometimes we have to read between the lines or make an inference to understand the meaning of the word
- **Decode the word using a dictionary or thesaurus**—book versions, online versions and smart phone apps are great tools to get the meaning of a word quickly

When we have figured out the meaning of the word we can write it on a sticky note and stick it to the edge of the page. We can also write a synonym (word with the same meaning) over top of the difficult word or in the margin of the article. When you read the article later, you will have the definition of all the difficult words at your fingertips.



## Examples

Let's choose 4 words from the privacy policy word list and CRITICALLY THINK about which way we will DECIDE to decode each word

**Disclose**—we recognize that the word disclose is similar to the word close so we DECIDE to use prefixes and suffixes to decode the word

Split the word “disclose” into prefix and root word (dis + close)

- Dis means the opposite of something - like in the words disagree and disconnect
- The opposite of close is open

Now we have to CRITICALLY THINK about our definition and EVALUATE whether the definition fits into the context of the writing.

- What does it mean from a privacy standpoint to disclose something?
- It might mean that information is open or not kept private.

**Jurisdiction**—read the word jurisdiction out loud by breaking into syllables

Jur is dic tion



If a word is hard to pronounce you can use a text-to-speech website like

<http://text-to-speech.imtranslator.net/>

Sometimes we understand a word when we hear it but we have difficulty reading it.

We might have to use our MEMORY to help decode this word or to help us DECIDE how to decode the word.

Do we recognize the word?

Have we heard it anywhere else?

On TV we might have heard police and FBI arguing that a crime was committed inside their jurisdiction. Does that give us a hint of its meaning? Does it relate to place or does it relate to who has the power? This only gives us part of an answer.

We definitely need more help.



We DECIDE to look up the word in the dictionary

<http://www.merriam-webster.com> says that jurisdiction means

- 1: the power, right, or authority to interpret and apply the law
- 2: a: the authority of a sovereign power to govern or legislate  
b: the power or right to exercise authority : control
- 3: the limits or territory within which authority may be exercised

It also tells gives us some examples of how the word is used

- The matter falls outside the jurisdiction of this court
- This territory is under the jurisdiction of the federal government
- He was arrested in another jurisdiction



If we click on the “thesaurus” tab Merriam Webster will also give us some synonyms (words that mean the same thing—or very close to the same thing)

lawful control over the affairs of a political unit (as a nation)  
<the United States has no jurisdiction over Cuba>

Synonyms administration, authority, governance, government, jurisdiction, regime (also régime), regimen



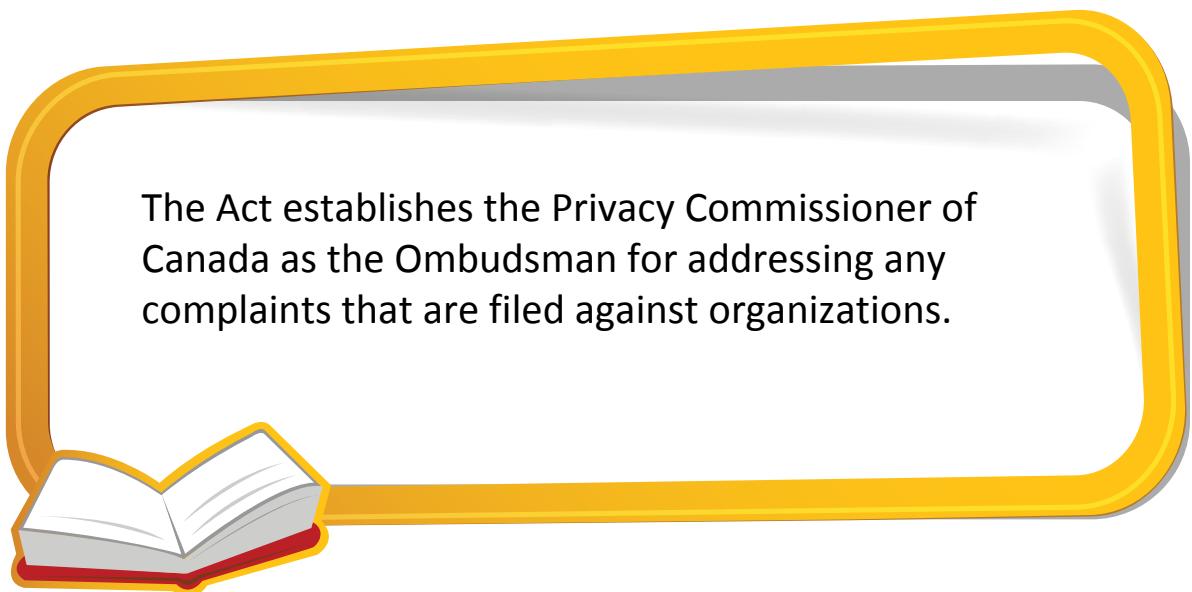
From a privacy law stand point, jurisdiction might mean places with different laws or laws that control different things.

**Ombudsman** – DECIDE to split the word ombudsman into root and suffix (ombuds + man)

- Man means a person
- An Ombudsman is a specific type of person.

This doesn't really help. To SOLVE THE PROBLEM we can choose a different method of decoding.

We DECIDE to decode this word using context or by getting hints from how it is used in the sentence in “Privacy Policies and Laws”



The Act establishes the Privacy Commissioner of Canada as the Ombudsman for addressing any complaints that are filed against organizations.

What can we tell from this sentence?

- The Privacy Commissioner is the Ombudsman
- The Ombudsman deals with complaints that are filed
- It sounds like an Ombudsman is the specific person that the public can go to, or the head of the complaints department.

We DECIDE check the dictionary definition if we are not sure.

<http://www.learnersdictionary.com/search/ombudsman>

plural om·buds·men  /-mən/

[count] : a person (such as a government official or an employee) who investigates complaints and tries to deal with problems fairly



We have to THINK CRITICALLY to see if we trust where the definition comes from. When we add up all the ways we decoded the new information we have to make a judgement on whether the definition is a strong one or a weak one. This is judgement is another part of CRITICAL THINKING.

## Audits

We DECIDE to decode “audits” by looking at how it was used in the article.

The Ombudsman conducts audits. How does that change what we know about the word audit? If the Ombudsman investigates complaints and does audits, maybe audits are a type of investigation.

We DECIDE to make sure and look in the dictionary  
<http://www.merriam-webster.com/dictionary/audit>

we see there are 2 sets of definitions.

The first set is for audit- a noun or thing.

### Definition of AUDIT

- 1a: a formal examination of an organization's or individual's accounts or financial situation
- b: the final report of an audit

- 2: a methodical examination and review



The second set of definitions is for audit- a verb or an action. We have to DECIDE which definition is the best fit.

### Definition of AUDIT

- 1: to perform an audit of or for <audit the books> <audit the company>
- 2: to attend (a course) without working for or expecting to receive formal credit



Based on what we know about privacy and the Ombudsman, which definition seems like it is the best fit? Methodical examination or review

### **Activity 5 – Task**

Look at the words you circled or highlighted on the Privacy Policies and Laws reading sheet.

DECIDE which way of decoding works best for each word

- separating into prefix + root + suffix
- using context
- using a dictionary or thesaurus

Write your definition or synonyms on a post-it note and stick it to the side of the Privacy Policies and Laws reading sheet.

### **Activity 6 – Task**

Using your own document, repeat the skills you just learned and used in Activities 4 & 5.

Remember to

- Highlight or circle any new words in your document
- Decode those words using one or more decoding strategies
- Use post-it notes for word definitions

## So where are we in the PLANNER reading process?



**Locate** important parts or details in the writing

- by scanning for names, dates, statistics, special terms or vocabulary
- by skimming for general ideas and content
- by reading the text fully



It is helpful to highlight these important words or parts of the writing so you pay special attention when you re-read later

### Review

What THINKING SKILLS have we used so far? What did we use them for?

Write them in the box below.

**Task**

## **Skimming**

Now that you have tackled some of the difficult vocabulary in the writing you are ready to skim for general ideas and content.

Skimming means quickly moving your eyes over a piece of writing to get main ideas and an overview of the content.

Skimming is helpful for

- **Pre-reading** a piece of writing—this is how we are about to use skimming
- **Reviewing**—re-reading a piece of writing to make sure you understand
- **Reading quickly**—especially pieces of writing that are not all that important

We can ORGANIZE the TASKS in skimming by breaking them into smaller parts.

To skim a document or a piece of writing

1. Read the title—in our case, read the title again
2. Read the introduction or the lead-in paragraph
3. Read the whole first paragraph
4. Read the subheadings and think about relationships between the subheadings
5. Read the first sentence of each remaining paragraph—the main idea of a paragraph is usually in the first sentence
6. Dip into the text for more information if needed
7. Read the last paragraph completely

## **Activity 7 – Task**

Try the 7 skimming steps with the Privacy Policies and Laws reading sheet.

THINK CRITICALLY about the ideas or information that you have just skimmed. Do you feel you have some understanding of Privacy Policies and Laws from what you have read? How much? Was skimming helpful?

When you make a value judgement on whether skimming was helpful or not this is part of CRITICAL THINKING.

What part of skimming was easy? What part was hard?

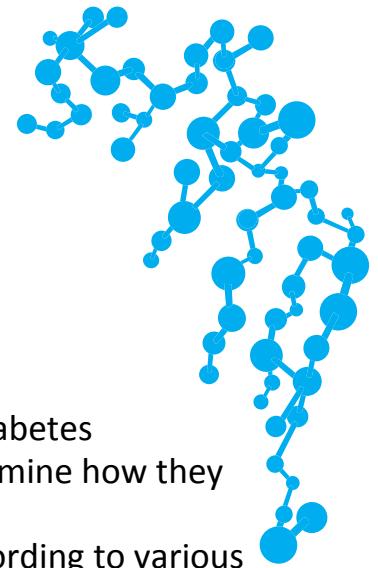
## **Activity 8 – Task**

Repeat the skimming skills you just learned with your own document.

Remember to THINK CRITICALLY while you are reading. How much do you understand from your own document now that you have

- P-Planned to read it
- L-Located special vocabulary and skimmed for general ideas and content





**Thinking through**

# Reading Module 2

## Supports the following type of tasks

- Sample Diabetes task—Finding credible information on Type2 Diabetes
- Sample Employment task—Analyzing workplace policies to determine how they affect the individual
- Sample Education task—Prioritizing working on assignments according to various factors
- Sample Independence task—Deciding to save up for a purchase instead of borrowing on credit

**Pre-requisites – Thinking Through Reading Module 1      Time – Variable**

## Materials required

- Pens & paper
- Internet access or authentic documents brought to class by the learner
- Optional LED projector or smart board
- White board, or flip chart paper
- Post it notes

## Objectives

The activities in this module focus on developing the thinking skills needed to read and understand a variety of document types as well process information from other non-text sources.

## The learner will

- Develop questions based on what information they want from a piece of writing
- Analyze information in the text and determine if their questions have been answered
- Develop notes in various formats

## Format

The activities in this module can be delivered as a practitioner facilitated lesson or as a self-directed lesson depending on the skills of the learner. The activities can be worked on by individual learners, in pairs or as a small group.



## OALCF Levels used in Thinking Through Reading Modules 1-3

Learners who complete these modules will perform A1 Tasks when using the sample reading text provided. Learners are also expected to choose another document on which they will practice their skills. Competency Task Groups and levels will change depending on the type of document that the learner chooses. Learners who choose prose texts will use tasks in the A1 Task Group. Learners using documents with shorter texts and more graphics will perform tasks from the A2 Task Group. Learners who use these modules to find and use information from presentations, lectures, films etc...will use tasks from the A3 Task Group.

<b>Primary OALCF Competencies</b>	<b>Performance Descriptors</b>
A1.1	<ul style="list-style-type: none"> <li>• reads short texts to locate a single piece of information</li> <li>• decodes words and makes meaning of sentences in a single text</li> <li>• follows the sequence of events in straightforward chronological texts</li> <li>• follow simple, straightforward instructional texts</li> <li>• identifies the main idea in brief texts</li> <li>• requires support to identify sources and to evaluate and integrate information</li> </ul>
A1.2	<ul style="list-style-type: none"> <li>• scans text to locate information</li> <li>• locates multiple pieces of information in simple texts</li> <li>• makes low-level inferences</li> <li>• makes connections between sentences and between paragraphs in a single text</li> <li>• reads more complex texts to locate a single piece of information</li> <li>• follows the main events of descriptive, narrative and informational texts</li> <li>• obtains information from detailed reading</li> <li>• begins to identify sources and evaluate information</li> </ul>
A1.3	<ul style="list-style-type: none"> <li>• integrates several pieces of information from texts</li> <li>• manages unfamiliar elements (e.g. vocabulary, context, topic) to complete tasks</li> <li>• identifies the purpose and relevance of texts</li> <li>• skims to get the gist of longer texts</li> <li>• begins to recognize bias and points of view in texts</li> <li>• infers meaning which is not explicit in texts</li> <li>• compares or contrasts information between two or more texts</li> <li>• uses organizational features, such as headings, to locate information</li> <li>• follows the main events of descriptive, narrative, informational and persuasive texts</li> <li>• obtains information from detailed reading</li> <li>• makes meaning of short, creative texts (e.g. poems, short stories)</li> <li>• identifies sources, evaluates and integrates information</li> </ul>

<b>Primary OALCF Competencies</b>	<b>Performance Descriptors</b>
A2.1	<ul style="list-style-type: none"> <li>scans to locate specific details</li> <li>interprets brief text and common symbols</li> <li>locates specific details in simple documents, such as labels and signs</li> <li>identifies how lists are organized (e.g. sequential, chronological, alphabetical)</li> <li>requires support to identify sources and to evaluate and integrate information</li> </ul>
A2.2	<ul style="list-style-type: none"> <li>performs limited searches using one or two search criteria</li> <li>extracts information from tables and forms</li> <li>locates information in simple graphs and maps</li> <li>uses layout to locate information</li> <li>makes connections between parts of documents</li> <li>makes low-level inferences</li> <li>begins to identify sources and evaluate information</li> </ul>
A2.3	<ul style="list-style-type: none"> <li>performs complex searches using multiple search criteria</li> <li>manages unfamiliar elements (e.g. vocabulary, context, topic) to complete tasks</li> <li>integrates several pieces of information from documents</li> <li>compares or contrasts information between two or more documents</li> <li>uses layout to locate information</li> <li>identifies the purpose and relevance of documents</li> <li>begins to recognize bias in displays, such as graphs</li> <li>makes inferences and draws conclusions from information displays</li> <li>identifies sources, evaluates and integrates information</li> </ul>
A3	Extract information from films, broadcasts and presentations

<b>Primary OALCF Competencies</b>	<b>Performance Descriptors</b>
E.1	<ul style="list-style-type: none"> <li>• begins to use a limited number of learning strategies (e.g. follows instructions, takes literal notes, highlights or underlines key information, uses a calendar or agenda)</li> <li>• begins to identify ways to remember information and reinforce learning (e.g. reviewing notes)</li> <li>• creates “to do” lists to keep organized</li> <li>• begins to monitor own learning</li> <li>• identifies one source of information (e.g. text, document, classmate, co-worker) to complete tasks</li> <li>• uses feedback to improve performance</li> </ul>
E.2	<ul style="list-style-type: none"> <li>• uses a limited number of learning strategies (e.g. takes notes, organizes learning materials)</li> <li>• sequences activities in multi-step tasks</li> <li>• monitors own learning</li> <li>• begins to adapt to instructional approaches and learning materials that do not reflect preferred learning style</li> <li>• begins to identify how skills and strategies can transfer to different contexts</li> <li>• identifies multiple sources of information to complete tasks</li> <li>• begins to identify ways to improve performance</li> </ul>
E.3	<ul style="list-style-type: none"> <li>• uses a variety of learning strategies (e.g. takes and summarizes notes from multiple sources, sets a study schedule)</li> <li>• identifies ways to clarify, check understanding and reinforce learning</li> <li>• develops plans to complete longer-term tasks (e.g. essays projects)</li> <li>• monitors and evaluates own learning</li> <li>• identifies how skills and strategies can transfer to different contexts</li> <li>• evaluates the quality and comprehensiveness of multiple resources to complete tasks</li> <li>• identifies ways to improve performance</li> </ul>

<b>Secondary OALCF Competencies</b>	<b>Performance Descriptors</b>
D.1	<ul style="list-style-type: none"> <li>• follows simple prompts</li> <li>• follows apparent steps to complete tasks</li> <li>• interprets brief text and icons</li> <li>• locates specific functions and information</li> <li>• requires support to identify sources and to evaluate and integrate information</li> <li>• begins to perform simple searches (e.g. internet, software help menu)</li> </ul>
D.2	<ul style="list-style-type: none"> <li>• selects and follows appropriate steps to complete tasks</li> <li>• locates and recognizes functions and commands</li> <li>• begins to identify sources and evaluate information</li> <li>• performs simple searches using keywords (e.g. internet, software help menu)</li> </ul>
F	If learner completes modules as part of a group

## Essential Skills used in Thinking Through Reading Modules 1-3

Essential Skills	Level	Essential Skills	Level
Reading Text	1-3	Numeracy <input type="checkbox"/> Money math	
Document Use	1-3	<input type="checkbox"/> Scheduling and budgeting <input type="checkbox"/> Measurement and calculation	
Writing	1-2	<input type="checkbox"/> Data Analysis <input type="checkbox"/> Numerical estimation	
Oral Communication	<input checked="" type="checkbox"/>	Thinking Skills <input checked="" type="checkbox"/> Problem solving	<input checked="" type="checkbox"/>
Working With others	<input type="checkbox"/>	<input checked="" type="checkbox"/> Decision making <input checked="" type="checkbox"/> Critical thinking	
Computer Use	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Job task planning and organization	
Continuous Learning	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Significant use of memory	

## Practitioner Instructions

When presenting to a group of learners, information sheets can be converted for use with PowerPoint or smart boards or they can be used as prompts for practitioner notes on flip-chart or white board.

When delivering the module, instructors should encourage discussion to help enhance speaking and listening skills as well as writing skills.

Each learner will receive information sheets and activity sheets and are encouraged to underline, or highlight important information. Additional paper should be provided for longer notes.

Read each page aloud with the learner. Perform self-questioning and thinking processes out loud and in writing to demonstrate these skills to the learner. Encourage learners to engage in thinking out loud as hearing their own thoughts and writing down stages of the thinking process provides a multi-sensory approach to this module.

Providing a “running commentary” of your own thinking process and self-questioning makes each of these skills a conscious act rather than something mysterious that is taken for granted. It also shows the learner that having an internal dialogue is an important part of critical thinking, decision making, problem solving and learning. An internal dialogue is an important part of self-reflection and self-assessment; skills needed for goal-setting and behaviour change. While the “running commentary” and internal dialogue are used in this module to teach reading and thinking skills, these tools can be used in all areas of work, learning and life.

Please note: “Thinking Through Reading Modules 1-3” are long modules and learners may find them very complex. Practitioners might consider breaking the modules down into smaller segments. Some learners may be more comfortable doing only one task or 2 tasks per day. Breaking the modules down into more manageable pieces also reinforces the benefit of having a system that breaks down large tasks into smaller tasks.

## **Use of resources**

THINKING SKILLS will be demonstrated in this module using reading as sample task. One reading resource is provided. Learners will need to choose one additional reading resource to complete the 3 “Thinking Through Reading” modules

Reading materials can be chosen from

- The learner’s home or work
- The internet
- Newspapers and magazines
- Books and text books
- Literacy Program pamphlets or brochures
- Instruction booklets
- School documents or handouts
- Banking information or contracts
- Pharmacy information sheets
- Health pamphlets or brochures

Learners living with diabetes may want to download information sheets from

<http://www.diabetes.ca/diabetes-and-you/>

Learners interested in workplace health and safety can find fact sheets from

<http://www.wsib.on.ca/en/community/WSIB/230/ArticleDetail/24338?vgnextoid=23c32ac8e5ed7210VgnVCM100000449c710aRCRD>

Learners interested in apprenticeship or trades might look at course offerings at community colleges in their area. This website has a complete list of Ontario colleges.

Search for Apprenticeship or Apprenticeship courses in the “search box”.

<https://www.ontario.ca/education-and-training/ontario-colleges>

Learners interested in current affairs may choose from a variety of news websites.

Reading should be a multisensory experience. During this module, learners will be encouraged to use their eyes, ears, hands and voices to maximize retention of information.

## Practitioner Activity Instructions

Learners will build skills in Skill Building exercises and then perform tasks based on the Privacy Policies and Laws article found in Module 1. Once the learner has demonstrated success with those tasks, they will be asked to repeat the task using the document that they chose for themselves at the beginning of *Thinking through Reading Module 1*.

Encourage learners to use multi-sensory techniques while they work on their own document including

- Setting criteria or asking questions out loud and writing them down
- Using note-taking strategies
- Making notes verbally and in writing on the type of THINKING SKILLS they are using at each step of the process

Learners should be encouraged to find their own way of using the PLANNER process so that it becomes a natural tool for their own purposes. However, learners who need more structure may benefit from using a sheet to answer Task 4. There is a sample template on page 70. You and the learner can decide whether they are comfortable using the template or developing their own system.

Title	
Thinking skills I need to use	
What do I want to know?	
Was my question answered?	
What have I learned?	
Where can I get more information?	

## Practitioner Activity Instructions Continued

### **Activity 2 & 3 Skill Builders**

Answer keys are at the end of the module

#### **Activity 1 – Task**

This task asks the learner to write down what they want to learn from this article. The learners need to be able to articulate what SPECIFIC information they want.

Deciding on specific information can be difficult for some learners so you may need to lead them in order to narrow the scope of the information.

If a learner “has been getting telemarketer calls and wants to know what to do about it”... you might get them to narrow the statement down by asking

What is your goal in taking action?

- Stopping the phone calls?
- Filing a formal complaint?
- Pressing charges? etc...

Learners should be encouraged to WRITE their questions either in the margin of the actual document, on a post-it note or on a separate sheet of paper.

#### **Activity 2 – Task**

This task asks the learner to repeat Activity 1 skills using their document of choice.

### **Activity 3 – Task**

This task asks the learner to look back at the question or criteria that they set in Activity 1.

The learner must FIND the answer in the text and DECIDE if the information in the text meets their criteria.

The learner must write their question, the answer and the THINKING SKILLS they used to get that answer.

This article will NOT answer all learners' questions. This issue will be dealt with in Module 3 in greater detail. Explain to learners that not all documents are perfect. Sometimes we need to go to other documents or sources to find the information we are looking for. Ask the learner what THINKING SKILLS need to be used in this scenario.

1. Analyzing the information and not finding that it meets the criteria - CRITICAL THINKING
2. PROBLEM SOLVING and DECIDING - what document, website, person, book etc... would be a good source for FINDING INFORMATION
3. Weighing and analyzing the new information - CRITICAL THINKING

Other skills might include

- SIGNIFICANT USE OF MEMORY—to remember where you saw the information before
- JOB TASK ORGANIZATION—setting aside time or writing a plan of action to look up new information

## **Activity 4 – Task**

This task asks the learner to repeat Task 3 skills using their document of choice

## **Activity 5 – Task**

This task asks the learner to use CRITICAL THINKING skills to reflect on their experiences in Task 3 Skill builder. Think about using graphic organizers. When you ANALYZE your experiences like this, you are using CRITICAL THINKING Skills. You are asking yourself questions, FINDING answers, DECIDING which answer is most correct or the best fit. You are also making value judgements about what is good for you or not so good for you in different situations. This is more CRITICAL THINKING. Encourage the learners to discuss their answers or write them below the questions.

Learners may need to be reminded of the names of the types of graphic organizers. You can also print various free graphic organizers from [www.freeology.com](http://www.freeology.com)

When asked which graphic organizer worked best for them, some learners might simply pick one and either not know or be able to articulate why they liked this format best. Encourage the learner to analyze their choice by asking whether they have a particular learning style preference. Visual learners often see connections and relationships better when using concept maps. Others may prefer lists because they are already master list-makers and the other graphic organizers are a new concept.



## **Thinking Through Reading Review**

### **Remember**

We use a variety of thinking skills every day. We

- Find information
- Remember and recall information (Significant use of Memory)
- Evaluate, weigh, judge or classify information (Critical Thinking)
- Solve problems
- Make decisions
- Organize jobs and tasks

Remember - a very good reader is an excellent PLANNER





**P** Prepare to read



**L** Locate important parts or details in the writing



**A** Analyze information to see if it answers certain questions



**N** Note down what you have learned by reading this text



**N** Necessary information  
Look at your notes and the text



**E** Edit your notes. Only keep the important information that you need



**R** Re-read the text and your notes  
Recite the information to yourself  
Re-tell the information to someone else or to yourself  
Remember what you have read  
Research more information

In *Thinking through Reading Module 1* you prepared for reading and located and decoded vocabulary. You skimmed the article to get an overall idea of what the article is about and read the article once from start to finish. You used FINDING INFORMATION Skills, JOB TASK ORGANIZATION Skills, CRITICAL THINKING Skills, DECISION MAKING Skills and SIGNIFICANT USE OF YOUR MEMORY Skills.

You were practising these skills using an article called *Privacy Policies and Laws* and you were using a document that you chose to perfect these skills.

You will need all your notes from “Thinking Through Reading Module 1”.

Let's pick up where we left off.



**Analyze** information to see if it answers certain questions

- who, what, when, where, why, how
- cause and effect
- main idea and supporting details
- a series of events
- did the writing tell me what I wanted to know about this topic
- what did the writing describe (a person, place, event, instructions etc...)

Remember what we said about CRITICAL THINKING

#### Critical Thinking

- Is a process of weighing or evaluating ideas or information
- Is a logical process that might include
  - Clarifying the meaning of words
  - Sorting or classifying something
  - Finding cause and effect
  - Summarizing or generalizing
  - Analyzing
  - Evaluating the source of information
- Refers to objective criteria –measures the information against a set of rules or benchmarks/features
- Identifies strengths and weakness or reaches a judgement about worth or value

There's a lot of CRITICAL THINKING to the A-Analyze part of the PLANNER process.

## **Setting and Meeting Criteria or Asking Questions that Must be Answered**

Before we can see if an article answers questions (or meets the criteria we set for the piece of writing) we have to know what the questions are. We have to set the criteria that the writing has to meet. The questions will be as different as the people reading the article.

We all have different reasons for reading anything. Even if we read the same article we will have different questions from our neighbours, family members, co-workers, peers or other learners. We have to decide what our reasons are for reading a piece of writing.

### **DECISION MAKING**

- What do you want to know about the topic? You have to decide what questions you want to ask. What is important to you? If you could talk to the writer what questions would you ask? When you DECIDE what you want to ask, you are **setting criteria that the article has to meet**. This means you are creating **ways to measure if the article does the job you want it to do**. Referring to this measuring tool or criteria is an important part of CRITICAL THINKING.

Learners might have very different reasons for reading about privacy policies and laws.

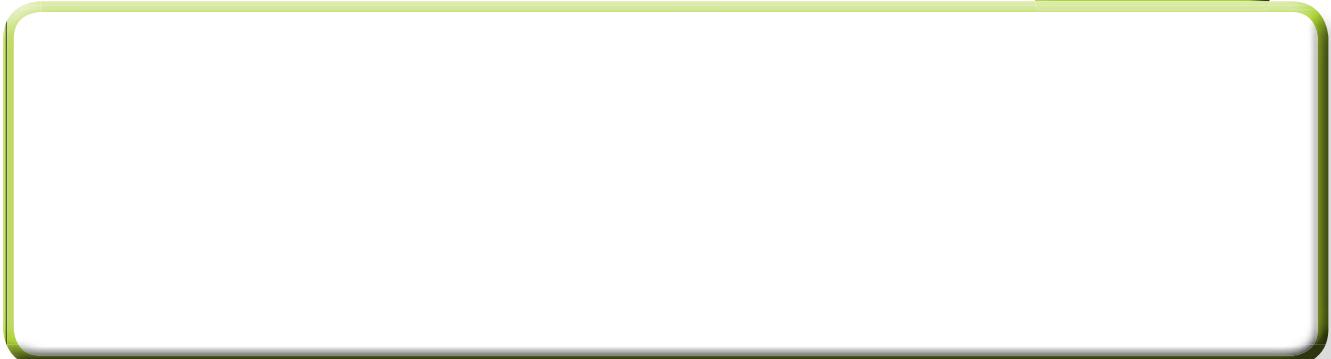
- An employee who is responsible for keeping company information or customer information private according to their company privacy policy might want more information about privacy laws
- A student may have to provide specific answers on a test about privacy laws in Canada. They would be looking for different information from this article
- Someone living with diabetes might read this article looking for information about how hospitals keep health information private
- Someone who has been getting a lot of telemarketer calls, even though they put themselves on a no-call list, might want to know how to report that their private information has been released without their permission

### **Activity 1 – Task**

DECIDE what you want to know from this article about privacy laws. What criteria do you want this article to meet?

Write your question in the box.

**Task**



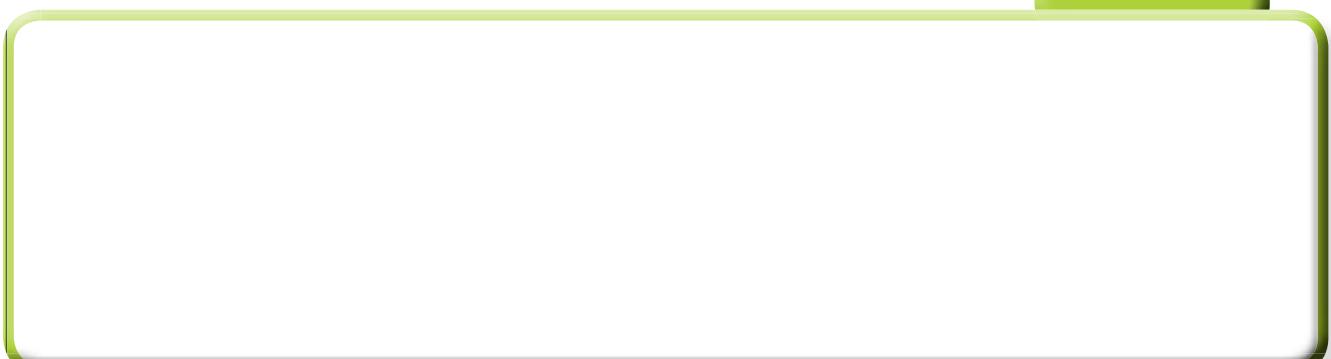
### **Activity 2 – Task**

Look at the document you were working on in Thinking Through Reading Module 1. What question or questions do you want this document to answer? What criteria do you want this document to meet?

Write the question or questions in this box.

Write the question or questions in this box.

**Task**



Readers will usually keep these questions in their head and may have difficulty remembering the questions while they read. The easy answer to this problem is to write the questions down.

There are lots of options to choose from when it comes to writing down questions. You could use

- A list
- A table
- A graphic organizer
- Sticky notes
- A bookmark
- The margin of the text you are reading

A reader must figure out what **TYPE** of information they have to look for when they are reading. It helps to classify or group the type of information into categories. This is another **CRITICAL THINKING** Skill.

Are they looking for

- Who – a person
  - What – could be anything
  - When – a date
  - Where – a place or location
  - Why – a reason
  - How much – an amount
  - How – a process or the way something is done
- 
- Which - one of several things
  - Purpose or function
  - Sequence or order of events
  - Cause and Effect
  - Main Idea
  - Parts of a whole
  - Similarities and differences
  - Equivalent or replacement

When you know **exactly** what the question is asking you can **analyze** the information in the text to make sure it answers those questions or **meets your criteria**.

This is more **CRITICAL THINKING**.

When we go through the 3 examples, write the question on a post-it note and keep it in front of you while you read the article. Highlight or underline where you find that information in the article so you don't lose the answer.

### **Example 1**

Students will generally not have to make up their own questions for a test. There will be expectations or criteria for a correct answer that are set by the practitioner, the course, the government or another organization. Students will have to make up questions when they study for a test. They will need to predict the kind of questions that they might be asked.

If a student reading the “Privacy Policies and Laws” reading sheet was asked this question “When did Canada sign the OECD guidelines?” This sets the criteria - CRITICAL THINKING

What are they being asked to find? They are being asked a “When” question. The learner then has to predict what might answer that question.....A date would answer the question. We have now classified what type of information we are looking for—more CRITICAL THINKING

Then the student has to skim through the “Privacy Policies and Laws” to find a date.

#### FINDING INFORMATION

In Canada, a Privacy Commissioner of Canada was established under the Canadian Human Rights Act in 1977. In 1982, the appointment of a Privacy Commissioner was part of the new Privacy Act. Canada signed the OECD guidelines in 1984. Canada's Federal Privacy Law applicable to the private sector is formally referred to as Personal Information Protection and Electronic Documents Act (PIPEDA). The purpose of the act is to establish rules to govern the collection, use and disclosure of personal information by commercial organizations. The organization is allowed to collect, disclose and use the amount of information for the purposes that a reasonable person would consider appropriate in the circumstance.



The first paragraph of page 2 talks about 3 different dates

- 1977
- 1982
- 1984

Now the reader has to

1. match other parts of the question (signed OECD guidelines)
2. find that information connected to one of the dates - FINDING INFORMATION
3. decide what the correct answer is - DECISION MAKING

Canada signed the OECD guidelines in 1984.

All those THINKING SKILLS to find an answer to one question!

## **Example 2**

Most people reading “Privacy Policies and Laws” would form their own questions that they want answered by the writing.

A person who thinks that their personal information has been given or sold to a telemarketing company might ask

“Who do I talk to if my privacy has not been respected?” Set criteria –CRITICAL THINKING

The question is a WHO question. So the answer must be a person. Classifying –CRITICAL THINKING

When we look for a person in the text we find the Privacy Commissioner in the last paragraph - FINDING INFORMATION

Now the reader must match the rest of the information and DECIDE if the person in the text meets the criteria set by the question. Does this person sound like the person you need to talk to if your privacy has not been respected? - CRITICAL THINKING

The Commissioner investigates complaints.

Sometimes matching the information can be tricky. Sometimes the information that you are looking for is not all in the same place. Sometimes you have to read between the lines.

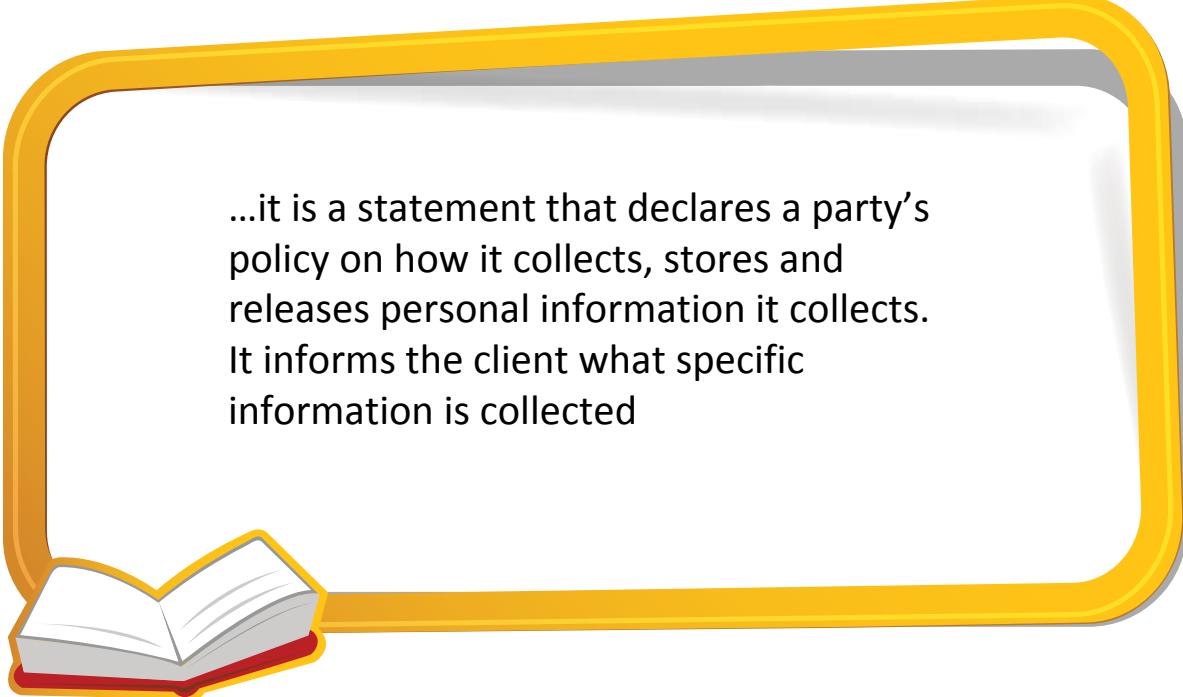
### **Example 3**

Bob just signed a privacy waiver at his doctor's office that says his information will be held in accordance with the clinic's privacy policy. Bob knows there is a privacy policy at his work and that his internet provider has one but thinks they can't all be the same. Bob wants to know: "what information is in a privacy policy?" Setting criteria—CRITICAL THINKING

Bob is asking a "what" question. This is a pretty broad topic so the information could be throughout the document instead of only in one place. There is also a lot of information in the text that could answer "what" type of questions. Bob will have to read the headings for a hint or read the whole paragraph again if the headings don't help. Classifying the type of information we are looking for—CRITICAL THINKING.

The 2<sup>nd</sup> paragraph of the document talks about “what is in a privacy policy?” but it says that the contents depend on the law in that country or area of work or life - FINDING INFORMATION

If Bob reads back into the previous paragraph he will find



...it is a statement that declares a party's policy on how it collects, stores and releases personal information it collects. It informs the client what specific information is collected

This uses the FINDING INFORMATION Skill

Bob has to look at the similarities and differences in the information in the two parts of the text. CRITICAL THINKING

He has to DECIDE which parts of each paragraph meet his criteria - CRITICAL THINKING  
From reading paragraphs 1 and 2 the answer to Bob's question, “What information is in a privacy policy” is

Privacy policies contain information on how someone or a company collects, stores and releases personal information. These contents can change from place to place and company to company depending on the law in that area.

### **Activity 3 – Skill Builder**

Use the “Privacy Policies and Laws” reading sheet to answer the next 2 questions. Each question looks at reading this article from a different person’s view-point so they will have different questions. Circle, highlight or underline the part of the article that answers each question. Write down each THINKING SKILL that you use when you go through the process of answering the questions.

Sarah knows the hospital keeps her medical information private but she has heard that the privacy act protects all personal information. What Sarah wants to know from this article is: “What is considered personal information?”

Tony has been doing some skills upgrading at a private college and has been taking courses online. He knows that governments (the public sector) have to keep his personal information private and have online security to do that. He wants to know: “Is there a law that protects my information even though a private college is part of the private sector?”

## Activity 3 – Task



**Analyze** information to see if it answers certain questions

- who, what, when, where, why, how
- cause and effect
- main idea and supporting details
- a series of events
- did the writing tell me what I wanted to know about this topic
- what did the writing describe (a person, place, event, instructions etc...)

Make sure you have read the Privacy article from beginning to end.

Look back at Activity 1. What question did you want this article to answer for you?

What criteria did you set?

Did the article meet your criteria? Did it answer your question?

What thinking skills did you have to use?

Don't worry if the article did NOT answer your question. We can't always find what we are looking for in one document or from one source. We will talk about SOLVING the PROBLEM in Module 3.

### Task

My question –

The answer

Thinking skills I used

## **Activity 4 – Task**

Using your own document, make sure you have read the document from beginning to end.

Look back at Activity 2. What question did you want your document to answer for you?

What criteria did you set?

Did the document meet your criteria? Did it answer your question?

What thinking skills did you have to use?

Don't worry if the article did NOT answer your question. We can't always find what we are looking for in one document or from one source. We will talk about SOLVING the PROBLEM in Module 3

### **Task**

My question –

The answer

Thinking skills I used

Now that we have found the information we are looking for to answer our questions, what next?

We eventually have to either remember that information for personal use or be able to give the information to someone else. It is easier to remember information when we have written it down or when we take notes.

## **Why take notes?**

We gather information in many ways. We listen to the news on the radio. We watch a co-worker demonstrate how to use a new piece of equipment. We read textbook to prepare for a test. We practice an exercise with our physiotherapist. How much of the new information do we remember?

Research tells us that we only remember

- 10% of what we read
- 20% of what we hear
- 30% of what we see
- 50% of what we see and hear
- 70% of what we say
- 90% of what we say and do

If we take good notes, we can remember 100% of that information.

Taking notes means we can

- remember lots of new information
- refer back to that information over time if we forget
- more easily teach or relay that information to someone else

Good notes

- Are accurate - clarifying information—CRITICAL THINKING
- Include important information, NOT ALL information - DECISION MAKING
- Are re-written and edited for easy reading - CRITICAL THINKING

# PLANNER

includes note-taking.



Note down what you have learned by reading this text

- You can mark up the text by using
- Highlighters, circles, underlining
  - Margin notes

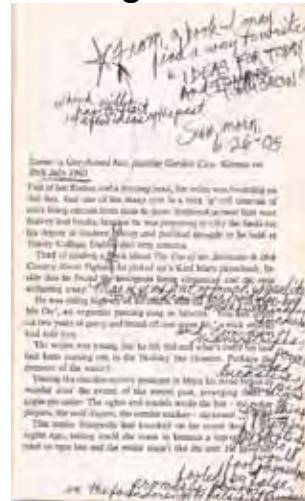
Or you can use other methods so you don't damage a text book

- post-it notes or flags
- graphic organizers
- lists
- concept maps
- plot lines

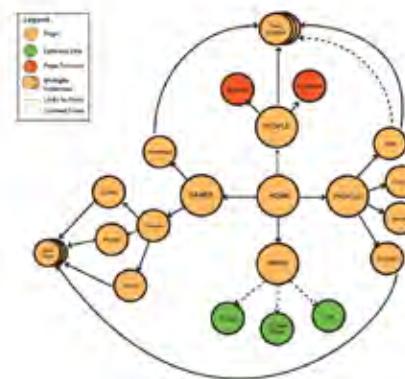
Don't worry about

- writing a paragraph
- grammar
- spelling

## Margin notes



## Concept map



Choosing the “right” technique to take notes means you have to CRITICALLY THINK about cause and effect (damage to the text) or judge whether one graphic organizer is better than another for a displaying a specific type of information. Value judgement—CRITICAL THINKING Then you have to DECIDE which technique to use based on the results of your thinking process.

## **Example 1**

Let's look at Sarah's case from the last activity.

Sarah knows the hospital keeps her medical information private but she has heard that the privacy act protects all personal information. What

Sarah wants to know from this article is "What is considered personal information?" Setting criteria—CRITICAL THINKING

You have already highlighted the answer to Sarah's question.

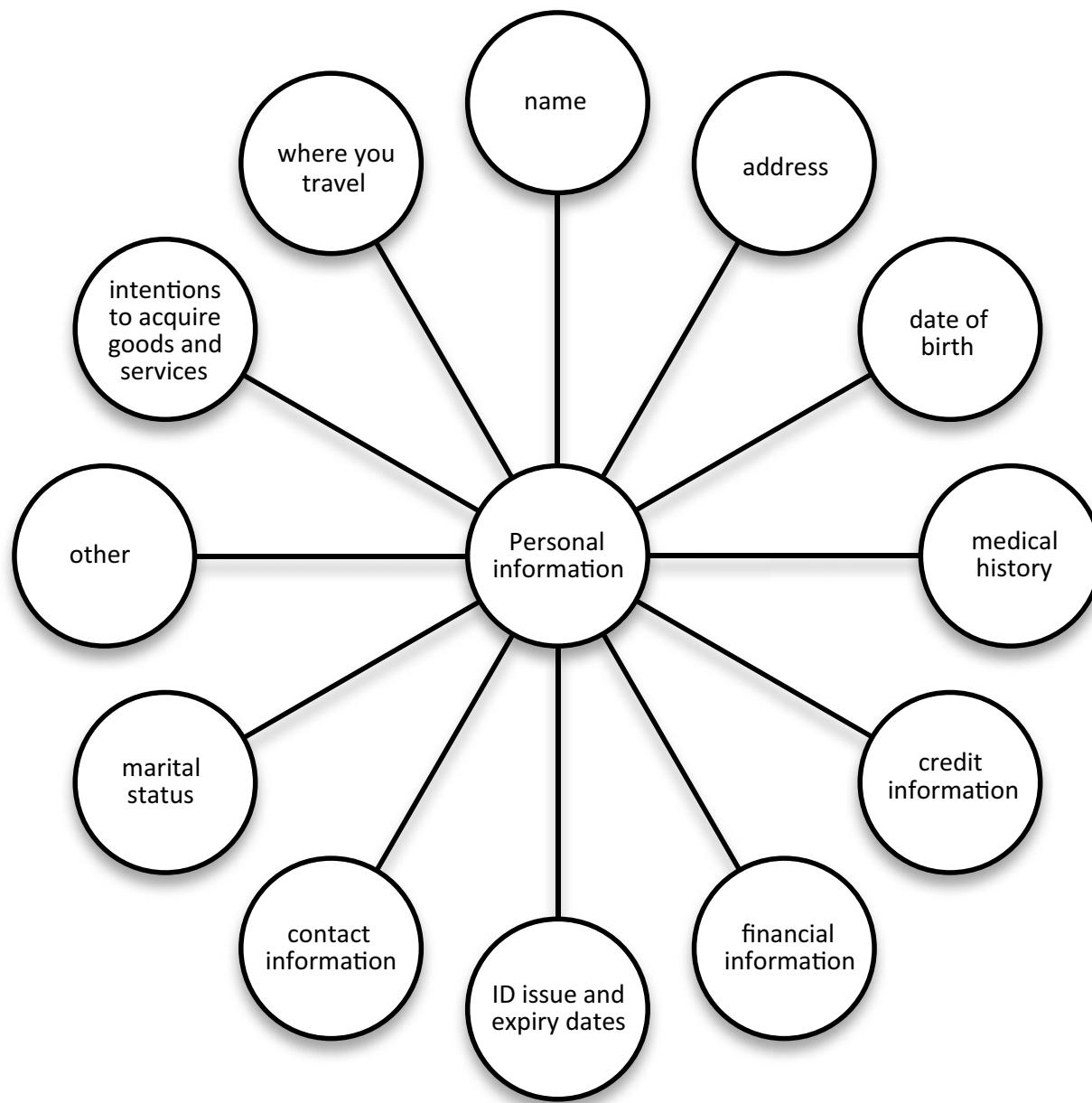
We can use a graphic organizer to transfer the information to a format that is easy to read, remember and explain to someone else. What would be a good format?  
—CRITICAL THINKING

We might use a simple bulleted list.

Personal information is

- Name
- Address
- Date of birth
- Marital status
- Contact information
- ID issue and expiry date
- Financial records
- Credit information
- Medical history
- Where you travel
- Intentions to acquire goods and services
- Other information that might identify an individual

If you are a visual person, you could use a spider plan or concept map.



Let's CRITICALLY THINK about these two options.

Which one works best for this type of information?

Why?

DECIDE which graphic organizer you would use to present Sara's information.

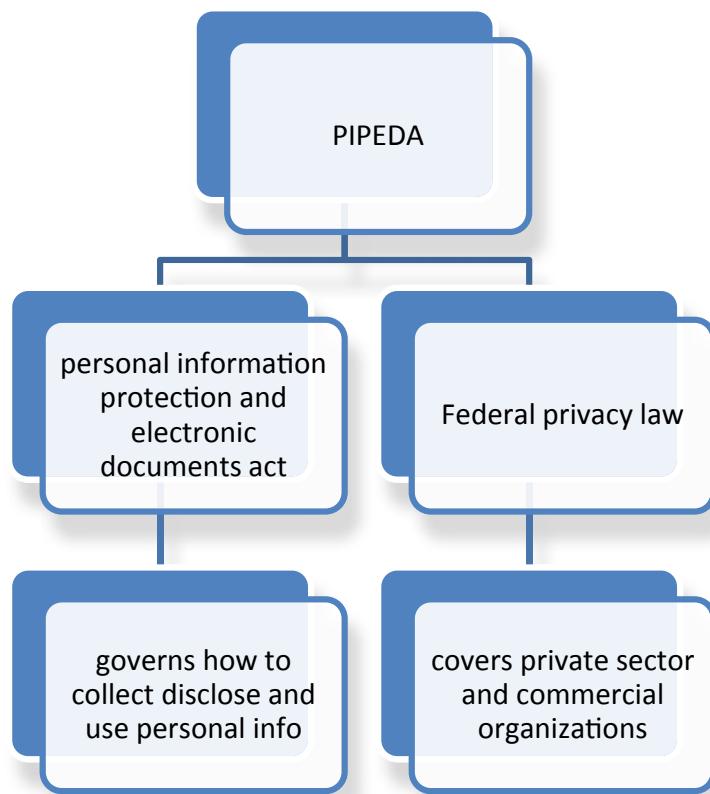
### Example 2

Now let's look at Tony's situation.

Tony has been doing some skills upgrading at a private college and has been taking courses online. He knows that governments (the public sector) have to keep his personal information private and have online security to do that. He wants to know; "Is there a law that protects my information even though a private college is part of the private sector?"  
Setting criteria—CRITICAL THINKING

You have identified the information that Tony needed from the article. Now how do you present that information? - DECISION MAKING

You might show this information in a different kind of graphic organizer



This hierarchy shows how information can be grouped together.

Would a list or a spider plan/concept map show this information better? Why or why not?

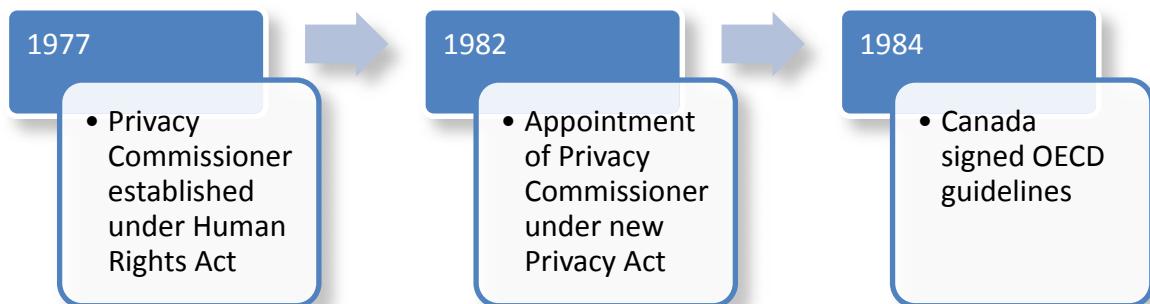
### Example 3

What if the question on a test was

“What are some important dates in the history of Canada’s privacy laws?”

First you would have to find the information in the document and then decide how to present that information - FINDING INFORMATION and DECISION MAKING

When dealing with dates, sometimes a time-line or flow chart works well.



What about using lists, concept maps or hierarchies like the other two examples?

Would they be better to use than a flow chart? Why or why not?

## **Activity 5 – Skill Builder**

Try using a graphic organizer to show the answers to the following questions. If you need more room, use another piece of paper.

Write down the THINKING SKILLS that you use during each step of the process.

What is the role of the Privacy Commissioner of Canada?

What does a business' privacy policy tell the customer or client?

## **Activity 5 – Task**

Think about using graphic organizers. When you ANALYZE your experiences like this, you are using CRITICAL THINKING Skills. You are asking yourself questions, FINDING answers, DECIDING which answer is most correct or the best fit. You are also making value judgements about what is good for you or not so good for you in different situations. This is more CRITICAL THINKING.

Discuss your answers or write them below the questions.

### **Task**

Which graphic organizers did you use in Activity 2?

Does it make taking notes easier or harder?

Does it help you remember the information better?

Are there graphic organizers that work better for some types of information?

Are there graphic organizers that work better for you? Why?

## Activity 6

Using your own document, follow the steps you have learned for taking notes



**Note** down what you have learned by reading this text

You can mark up the text by using

- Highlighters, circles, underlining
- Margin notes

Or you can use other methods so you don't damage a text book

- post-it notes or flags
- graphic organizers
- lists
- concept maps
- plot lines

Don't worry about

- writing a paragraph
- grammar
- spelling



## Answers

### **Activity 2 – Skill Builder**

Sarah knows the hospital keeps her medical information private but she has heard that the privacy act protects all personal information. What Sarah wants to know from this article is: “What is considered personal information?”

**Personal information can be anything used to identify an individual (name, address, date of birth, contact info, marital status, financial records, ID numbers, credit information etc.....)**

Tony has been doing some skills upgrading at a private college and has been taking courses online. He knows that governments (the public sector) have to keep his personal information private and have online security to do that. He wants to know, “Is there a law that protects my information even though a private college is part of the private sector?

**PIPEDA, the Personal Information Protection and Electronic Documents Act, protects personal information collected , used, and disclosed by commercial organizations and the private sector.**

### **Activity 3 – Skill Builder**

Choice of presentation may vary but the following information should be included.

What is the role of the Privacy Commissioner of Canada?

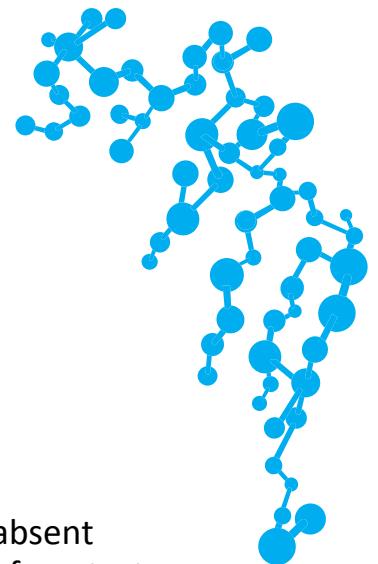
#### **The Privacy Commissioner of Canada**

- Acts as the Ombudsman
- Addresses complaints
- Resolves problems
- Investigates complaints
- Conducts audits
- Promotes awareness
- Undertakes research about privacy matters

What does a business' privacy policy tell the customer or client?

A privacy policy tells the client

- How information is collected
- How information is stored
- How information is released
- What specific information is collected
- If information is kept confidential
- If information is shared with partners
- If information is sold to other firms or enterprises



Thinking through

# Reading Module 3

Supports the following type of tasks

- Sample Diabetes task—reading an information sheet to learn about Type 2 Diabetes
- Sample Employment task—Reading workplace policies on being absent
- Sample Education task—reading a text book to learn information for a test
- Sample Independence task—reading a privacy policy to understand and protect your rights

Pre-requisites – Thinking Through Reading Module 2

Time – Variable

## Materials required

- Pens
- Paper
- Internet access or authentic documents brought to class by the learner
- Optional LED projector or smart board
- White board, or flip chart paper
- Post it notes

Access to <http://text-to-speech.imtranslator.net/>

Headphones or speakers to listen to text-to-speech software on the computer

## Objectives

The activities in this module focus on developing the thinking skills needed to read and understand a variety of document types as well as process information from non-text sources. The learner will learn to

- Summarize and relate information to a third party
- Search for more information about a topic they have read
- Evaluate information sources

## Format

The activities in this module can be delivered as a practitioner facilitated lesson or as a self-directed lesson depending on the skills of the learner. The activities can be worked on by individual learners, in pairs or as a small group.



## OALCF Levels used in Thinking Through Reading Modules 1-3

Learners who complete these modules will perform A1 Tasks when using the sample reading text provided. Learners are also expected to choose another document on which they will practice their skills. Competency Task Groups and levels will change depending on the type of document that the learner chooses. Learners who choose prose texts will use tasks in the A1 Task Group. Learners using documents with shorter texts and more graphics will perform tasks from the A2 Task Group. Learners who use these modules to find and use information from presentations, lectures, films etc...will use tasks from the A3 Task Group.

<b>Primary OALCF Competencies</b>	<b>Performance Descriptors</b>
A1.1	<ul style="list-style-type: none"> <li>• reads short texts to locate a single piece of information</li> <li>• decodes words and makes meaning of sentences in a single text</li> <li>• follows the sequence of events in straightforward chronological texts</li> <li>• follow simple, straightforward instructional texts</li> <li>• identifies the main idea in brief texts</li> <li>• requires support to identify sources and to evaluate and integrate information</li> </ul>
A1.2	<ul style="list-style-type: none"> <li>• scans text to locate information</li> <li>• locates multiple pieces of information in simple texts</li> <li>• makes low-level inferences</li> <li>• makes connections between sentences and between paragraphs in a single text</li> <li>• reads more complex texts to locate a single piece of information</li> <li>• follows the main events of descriptive, narrative and informational texts</li> <li>• obtains information from detailed reading</li> <li>• begins to identify sources and evaluate information</li> </ul>
A1.3	<ul style="list-style-type: none"> <li>• integrates several pieces of information from texts</li> <li>• manages unfamiliar elements (e.g. vocabulary, context, topic) to complete tasks</li> <li>• identifies the purpose and relevance of texts</li> <li>• skims to get the gist of longer texts</li> <li>• begins to recognize bias and points of view in texts</li> <li>• infers meaning which is not explicit in texts</li> <li>• compares or contrasts information between two or more texts</li> <li>• uses organizational features, such as headings, to locate information</li> <li>• follows the main events of descriptive, narrative, informational and persuasive texts</li> <li>• obtains information from detailed reading</li> <li>• makes meaning of short, creative texts (e.g. poems, short stories)</li> <li>• identifies sources, evaluates and integrates information</li> </ul>

<b>Primary OALCF Competencies</b>	<b>Performance Descriptors</b>
A2.1	<ul style="list-style-type: none"> <li>scans to locate specific details</li> <li>interprets brief text and common symbols</li> <li>locates specific details in simple documents, such as labels and signs</li> <li>identifies how lists are organized (e.g. sequential, chronological, alphabetical)</li> <li>requires support to identify sources and to evaluate and integrate information</li> </ul>
A2.2	<ul style="list-style-type: none"> <li>performs limited searches using one or two search criteria</li> <li>extracts information from tables and forms</li> <li>locates information in simple graphs and maps</li> <li>uses layout to locate information</li> <li>makes connections between parts of documents</li> <li>makes low-level inferences</li> <li>begins to identify sources and evaluate information</li> </ul>
A2.3	<ul style="list-style-type: none"> <li>performs complex searches using multiple search criteria</li> <li>manages unfamiliar elements (e.g. vocabulary, context, topic) to complete tasks</li> <li>integrates several pieces of information from documents</li> <li>compares or contrasts information between two or more documents</li> <li>uses layout to locate information</li> <li>identifies the purpose and relevance of documents</li> <li>begins to recognize bias in displays, such as graphs</li> <li>makes inferences and draws conclusions from information displays</li> <li>identifies sources, evaluates and integrates information</li> </ul>
A3	Extract information from films, broadcasts and presentations

<b>Primary OALCF Competencies</b>	<b>Performance Descriptors</b>
E.1	<ul style="list-style-type: none"> <li>• begins to use a limited number of learning strategies (e.g. follows instructions, takes literal notes, highlights or underlines key information, uses a calendar or agenda)</li> <li>• begins to identify ways to remember information and reinforce learning (e.g. reviewing notes)</li> <li>• creates “to do” lists to keep organized</li> <li>• begins to monitor own learning</li> <li>• identifies one source of information (e.g. text, document, classmate, co-worker) to complete tasks</li> <li>• uses feedback to improve performance</li> </ul>
E.2	<ul style="list-style-type: none"> <li>• uses a limited number of learning strategies (e.g. takes notes, organizes learning materials)</li> <li>• sequences activities in multi-step tasks</li> <li>• monitors own learning</li> <li>• begins to adapt to instructional approaches and learning materials that do not reflect preferred learning style</li> <li>• begins to identify how skills and strategies can transfer to different contexts</li> <li>• identifies multiple sources of information to complete tasks</li> <li>• begins to identify ways to improve performance</li> </ul>
E.3	<ul style="list-style-type: none"> <li>• uses a variety of learning strategies (e.g. takes and summarizes notes from multiple sources, sets a study schedule)</li> <li>• identifies ways to clarify, check understanding and reinforce learning</li> <li>• develops plans to complete longer-term tasks (e.g. essays projects)</li> <li>• monitors and evaluates own learning</li> <li>• identifies how skills and strategies can transfer to different contexts</li> <li>• evaluates the quality and comprehensiveness of multiple resources to complete tasks</li> <li>• identifies ways to improve performance</li> </ul>

<b>Secondary OALCF Competencies</b>	<b>Performance Descriptors</b>
D.1	<ul style="list-style-type: none"> <li>• follows simple prompts</li> <li>• follows apparent steps to complete tasks</li> <li>• interprets brief text and icons</li> <li>• locates specific functions and information</li> <li>• requires support to identify sources and to evaluate and integrate information</li> <li>• begins to perform simple searches (e.g. internet, software help menu)</li> </ul>
D.2	<ul style="list-style-type: none"> <li>• selects and follows appropriate steps to complete tasks</li> <li>• locates and recognizes functions and commands</li> <li>• begins to identify sources and evaluate information</li> <li>• performs simple searches using keywords (e.g. internet, software help menu)</li> </ul>
F	If learner completes modules as part of a group

## Essential Skills used in Thinking Through Reading Modules 1-3

Essential Skills	Level	Essential Skills	Level
Reading Text	1-3	Numeracy <input type="checkbox"/> Money math	
Document Use	1-3	<input type="checkbox"/> Scheduling and budgeting <input type="checkbox"/> Measurement and calculation	
Writing	1-2	<input type="checkbox"/> Data Analysis <input type="checkbox"/> Numerical estimation	
Oral Communication	<input checked="" type="checkbox"/>	Thinking Skills <input checked="" type="checkbox"/> Problem solving	<input checked="" type="checkbox"/>
Working With others	<input type="checkbox"/>	<input checked="" type="checkbox"/> Decision making <input checked="" type="checkbox"/> Critical thinking	
Computer Use	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Job task planning and organization	
Continuous Learning	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Significant use of memory	

## Practitioner Instructions

When presenting to a group of learners, information sheets can be converted for use with PowerPoint or smart boards or they can be used as prompts for facilitator notes on flip-chart or white board.

When delivering the module, instructors should encourage discussion to help enhance speaking and listening skills as well as writing skills.

Each learner will receive information sheets and activity sheets and are encouraged to underline, or highlight important information. Additional paper should be provided for longer notes.

Read each page aloud with the learner. Perform self-questioning and thinking processes out loud and in writing to demonstrate these skills to the learner. Encourage learners to engage in thinking out loud as hearing their own thoughts and writing down stages of the thinking process provides a multi-sensory approach to this module.

Providing a “running commentary” of your own thinking process and self-questioning makes each of these skills a conscious act rather than something mysterious that is taken for granted. It also shows the learner that having an internal dialogue is an important part of critical thinking, decision making, problem solving and learning. An internal dialogue is an important part of self-reflection and self-assessment; skills needed for goal-setting and behaviour change. While the “running commentary” and internal dialogue are used in this module to teach reading and thinking skills, these tools can be used in all areas of work, learning and life.

Please note, “Thinking Through Reading Modules 1-3” are long modules and learners may find them very complex. Practitioners might consider breaking the modules down into smaller segments. Some learners may be more comfortable doing only one or 2 tasks per day. Breaking the modules down into more manageable pieces also reinforces the benefit of having a system that breaks down large tasks into smaller tasks.

## **Use of Resources**

THINKING SKILLS will be demonstrated in this module using reading as sample task. One reading resource is provided. Learners will need to choose one additional reading resource to complete the 3 “Thinking through Reading” modules.

Reading materials can be chosen from

- The learner’s home or work
- The internet
- Newspapers and magazines
- Books and text books
- Literacy Program pamphlets or brochures
- Instruction booklets
- School documents or handouts
- Banking information or contracts
- Pharmacy information sheets
- Health pamphlets or brochures

Learners living with diabetes may want to download information sheets from  
<http://www.diabetes.ca/diabetes-and-you/>

Learners interested in workplace health and safety can find fact sheets at  
<http://www.wsib.on.ca/en/community/WSIB/230/ArticleDetail/24338?vgnnextoid=23c32ac8e5ed7210VgnVCM100000449c710aRCRD>

Learners interested in apprenticeship or trades might look at course offerings at community colleges in their area. This website has a complete list of Ontario colleges.

Search for Apprenticeship or Apprenticeship courses in the “search box”.

<https://www.ontario.ca/education-and-training/ontario-colleges>

Learners interested in current affairs may choose from a variety of news websites.

Reading should be a multisensory experience. During this module, learners will be encouraged to use their eyes, ears, hands and voices to maximize retention of information. Learners who struggle with reading and understand text better when it is read aloud can try text-to-speech software if they are working independently or if they are not comfortable reading aloud. Learners should be encouraged to practice reading aloud over time but may not be comfortable at the start of this module.

Learners can use this website to have a single word pronounced or whole sentences or paragraphs read to them. <http://text-to-speech.imtranslator.net/>

Once the web page is open, copy and paste or type up to 1000 characters into the window and press the “say it” button. The reader will read the text with a fairly natural reading voice.



## Practitioner Activity Instructions

Learners will build skills in Skill Building exercises and then perform tasks based on the Privacy Policies and Laws article found in Module 1. Once the learner has demonstrated success with those tasks, they will be asked to repeat the task using the document that they chose for themselves at the beginning of “Thinking through Reading Module 1”.

### **What is in a privacy policy?**

The exact contents of a privacy policy will depend upon the applicable law and may need to address requirements across geographical boundaries and legal jurisdictions. Most countries have their own legislation and guidelines of who is covered, what information can be collected, and what it can be used for. In North America, privacy laws (except in Quebec) apply only to the public sector, not to the private sector. However, most private sector organizations in North America have taken the initiative to develop their own privacy policies and codes of conduct.



## **Activity 1 – Task**

Task 1 asks the learner to edit information from the spider plan in Module 2 and to discuss the reasons why they edited certain information. Learners must weigh the pros and cons of leaving certain information in or removing it. They must judge whether there are weak or strong reasons for keeping the information in or whether there are weak or strong reasons for removing pieces of information.

Judging and weighing information is a CRITICAL THINKING Skill

Choosing is a DECISION MAKING Skill. Highlight the word “choose” as a key-word that shows that decision making is required.

There are NO WRONG ANSWERS to this task as long as the learner can back up their decisions with critical thinking and a logical reason for their choices.

## **Activity 2 – Task**

This task asks the learner to repeat Task 1 using their own document of choice.

## **Activity 3 – Tasks**

### **Part 1**

Learners must read aloud to themselves in this task. If the learner is not comfortable doing this in front of anyone else, provide them with a few minutes privacy. Learners should be encouraged to read at normal voice level instead of whispering to themselves or just mouthing the words. Learners need to hear the words as well as say the words for this activity.

### **Part 2**

Learners will need a computer with internet access and either headphones or speakers for this activity.

Learners must go to the free software found at <http://text-to-speech.imtranslator.net/>

Once the web page is open ask the learner to type the paragraph into the text window. Press the “say it” button. The reader will read the text with a fairly natural reading voice. For learners who are not comfortable with computer or keyboard skills you can copy and paste the paragraph from this word document directly into the text box.

Learners must then judge whether they understood the information better after typing the information into the computer or listening to it being read to them.

Judging and making comparisons is a CRITICAL THINKING Skill.

### **Part 3**

In part 3, the learner listens to the practitioner read the paragraph out loud. When you read the paragraph, read with emphasis. The object is to differentiate your reading from the automated reading of the computer. Feel free to use hand gestures to highlight information (e.g. hold up fingers when counting off “who is covered, what information can be collected, and what it can be used for”). You can use exaggerated pauses for punctuation.

Make reading the paragraph below a performance.

### **Part 3 Continued**

Learners are then asked to judge which type of reciting works best for them:

- Your reciting to themselves
- Using the text-to-speech software
- Practitioner reading out loud

There are NO WRONG answers to this task as long as the learner presents their answers based on CRITICAL THINKING.

They must weigh and judge each technique to see which works best for them. If learners are quick to answer, make sure to ask them why they think that technique works best.

Learners are also asked what THINKING SKILLS are used to judge these 3 different reciting techniques. – CRITICAL THINKING

Learners are then asked

If the text-to-speech software works best for you but you don't have an internet connection, what THINKING SKILLS will you have to use to actually recite the paragraph?

- They will use PROBLEM SOLVING in recognizing that they have to make another option and recognize that they have 2 other options for reciting
- They will use CRITICAL THINKING to figure the pros and cons of the other two choices
- They will use DECISION MAKING when they choose the next best option

## **Activity 4 – Task**

Activity 4 asks the learner to repeat Activity 3, parts 1-3 using their own document of choice.

## **Activity 5 & 6 – Skill Builders**

Learners are asked to use their own words to summarize or paraphrase the information in the graphic organizers.

## **Activity 5 & 6 – Tasks**

Learners are asked to look at how the text answers their questions regarding privacy issues and to paraphrase the answer. When learners paraphrase, summarize, generalize, or create a parallel, they must use CRITICAL THINKING to evaluate whether the information they are giving is equal to the information in the text.

## **Activity 7 – Task**

The learners must make a list of at least 4 sources of information for researching into privacy issues. There are 2 sources provided in the document itself

[http://www.priv.gc.ca/leg\\_c/legislation/02\\_07\\_01\\_01\\_e.asp](http://www.priv.gc.ca/leg_c/legislation/02_07_01_01_e.asp)

<http://laws-lois.justice.gc.ca/PDF/P-8.6.pdf>

Learners must be able to provide some rationale as to why they would choose a particular source of information.

Learners are also asked to judge which sources would be more reliable.

The two sources cited in the document are Government of Canada websites. Explain to the learner that you can tell that by the web address.

You can usually trust information that you find at websites that end in

- [.gc.ca](http://.gc.ca) Government of Canada
- [.on.ca](http://.on.ca) Ontario Government
- [.gov](http://.gov) Other government sites (usually USA)
- [.edu](http://.edu) Educational institutions like USA universities and colleges

Be careful with information that you find on websites that are full of advertisements. They are usually more interested in getting you to click on an ad so they get paid than making sure their information is trustworthy.

## **Activity 8 – Task**

Using their document of choice, learners are asked to repeat Activity 6 – Task.

## **Thinking Through Reading Review**

Remember

We use a variety of thinking skills every day. We

- Find information
- Remember and recall information (Significant use of Memory)
- Evaluate, weigh, judge or classify information (Critical Thinking)
- Solve problems
- Make decisions
- Organize jobs and tasks

## **Thinking Through Reading Review**

Remember what we said about CRITICAL THINKING

Critical Thinking

- Is a process of weighing or evaluating ideas or information
- Is a logical process that might include
  - Clarifying the meaning of words
  - Sorting or classifying something
  - Finding cause and effect
  - Summarizing or generalizing
  - Analyzing
  - Evaluating the source of information.
- Refers to objective criteria –measures the information against a set of rules or benchmarks/features
- Identifies strengths and weakness or reaches a judgement about worth or value

There's a lot of CRITICAL THINKING to the N –Necessary information, E-Edit and R-re-read, recite, retell, remember and research, part of the PLANNER process.



Remember - a very good reader is an excellent PLANNER



**P** Prepare to read



**L** Locate important parts or details in the writing



**A** Analyze information to see if it answers certain questions



**N** Note down what you have learned by reading this text



**N** Necessary information  
Look at your notes and the text



**E** Edit your notes. Only keep the important information that you need



**R** Re-read the text and your notes  
**Recite** the information to yourself  
**Re-tell** the information to someone else or to yourself  
**Remember** what you have read  
**Research** the topic to get more information

In “Thinking through Reading Module 1” you

- prepared for reading
- located and decoded vocabulary
- skimmed the article to get an overall idea of what the article is about
- read the article once from start to finish

You used the following THINKING SKILLS

- FINDING INFORMATION
- JOB TASK ORGANIZATION
- CRITICAL THINKING
- DECISION MAKING
- SIGNIFICANT USE OF YOUR MEMORY

In “Thinking Through Reading Module 2” you

- started to ask what you wanted to learn from reading a particular document
- began to analyze the information in the text
- decided if the text met your criteria or answered your question
- learned how to take notes using graphic organizers

You used the following THINKING SKILLS

- FINDING INFORMATION
- CRITICAL THINKING
- DECISION MAKING

You were practicing these skills using an article called *Privacy Policies and Laws* and you were using a document that you chose to perfect these skills.

You will need all your notes from Modules 1 and 2.

Let's pick up where we left off.

The next two steps in PLANNER are linked together.



### Necessary information

Look at your notes and the text

- Decide which information is necessary? - DECISION MAKING
- Which information do you need in order to understand what is important. Referring to specific criteria and judging information is CRITICAL THINKING



Edit your notes. Only keep the important information that you need

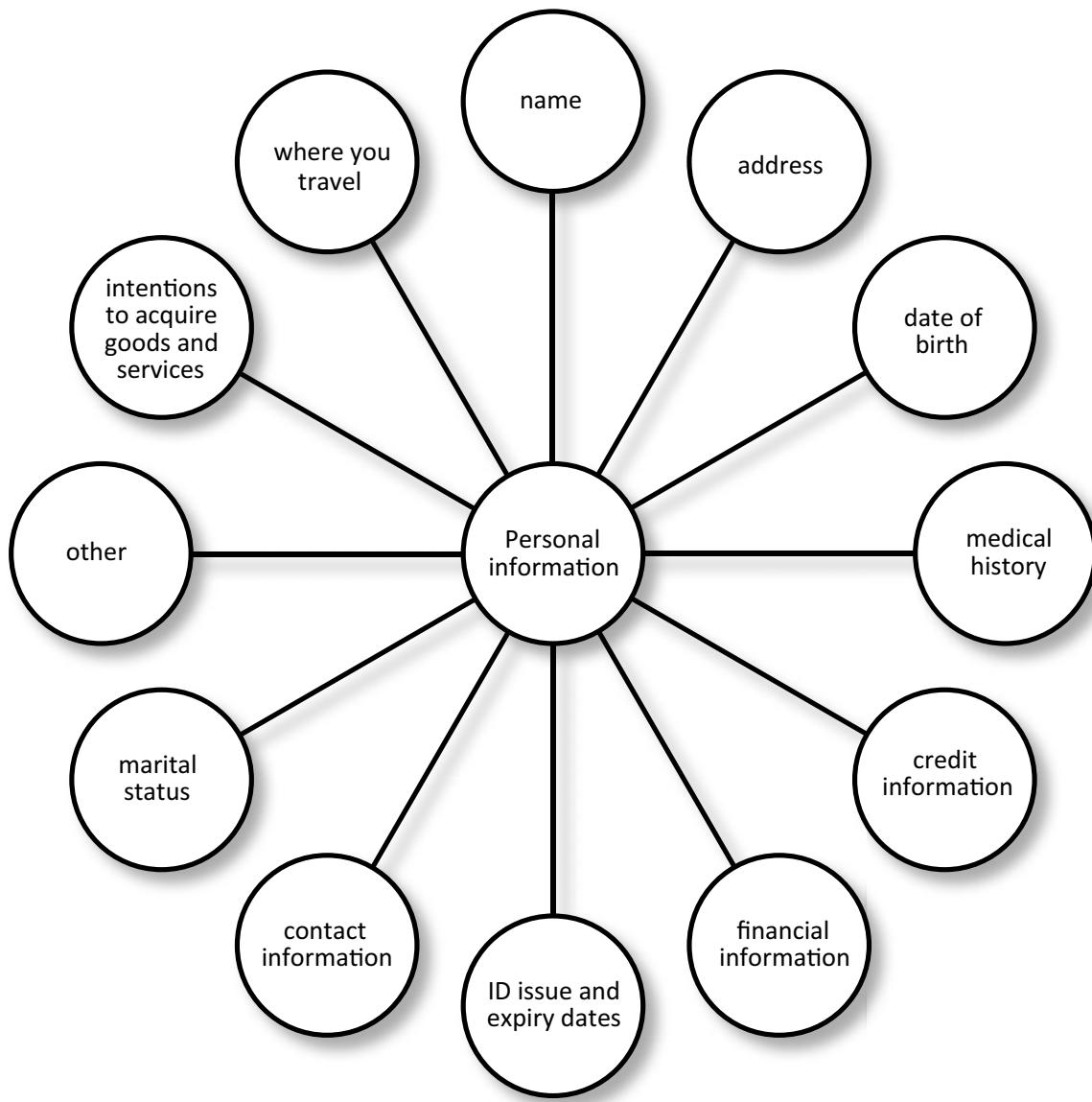
Once you have your notes in an easy-to-read format like a list or a concept map, you can more easily see what information is necessary and what is not needed.

Making judgements is CRITICAL THINKING

Once you are sure of the necessary parts of the information, you can edit out the less important information.

## Example 1

Let's look at our spider plan from Module 2



Sarah knows the hospital keeps her medical information private but she has heard that the privacy act protects all personal information. What Sarah wants to know from this article is: "What is considered personal information?"

We made a spider plan that gave every single item of personal information that was mentioned in the Privacy Policies and Laws article. How many samples of personal information do you need in order to fully understand what Personal Information means?

The answer to this might be different for each reader.

Some readers might feel that name, address and medical information is considered personal information. Even in the question, it says that Sarah knows that her medical information is protected.

In this situation Sarah might not need name, address and medical history to appear in her list because she already knows those facts. She might edit those examples out.

Some readers may edit credit information out because they feel that financial information covers credit information as well.

Some readers may edit out address and name because they feel contact information says it all.

We can classify information into what is important and what is not by using CRITICAL THINKING. Every situation will be slightly different. CRITICAL THINKING helps us tailor the information to different situations.

## **Activity 1 – Skill Builder**

How would you edit Sarah’s spider plan? Discuss.

Remember, you only need to keep enough information to fully answer the question that you have asked yourself or that you have been asked by someone else.

What THINKING SKILLS are you using when you are judging and weighing information?

What THINKING SKILLS are you using when you choose to remove certain pieces of information?

## **Activity 1 – Task**

Look back at the question you wanted the Privacy Policies and Laws article to answer in Module 2.

Edit your own notes about the Privacy Policies and Laws article.

Remember to keep enough information to fully answer the question that you asked yourself.

## **Activity 2 – Task**

Using your own document, follow the steps you have learned in this part of the module.

Remember to



### **Necessary information**

Look at your notes and the text

- Decide which information is necessary? - DECISION MAKING
- Which information do you need in order to understand what is important. Referring to specific criteria and judging information is CRITICAL THINKING



**Edit** your notes. Only keep the important information that you need

Now that you have an edited version of your notes you have arrived at the last PLANNER step.



R stands for a lot of things in the PLANNER process

- **Re-read** the text and your notes to make sure you have not missed anything important
- **Recite** the information to yourself. Read parts of the text out loud if you are struggling to understand the meaning. Use a text-reader for extra help
- **Re-tell** the information to someone else or to yourself. Use your own words to explain what you have read. Summarize what you read. (Sum up, outline, recap simplify or boil down the information into a shorter form)
- **Remember** what you have read
- **Research** the topic to get more information if your questions have not been answered.



**Re-read** the text and your notes to make sure you have not missed anything important. You have to use your MEMORY to recall what facts you wanted to take from the text. You have to use CRITICAL THINKING to analyze whether your notes are complete with strong information or weak information.

Add information you have missed into your notes.

**Recite** the information to yourself. Read parts of the text out loud if you are struggling to understand the meaning. Use a text-reader for extra help if listening to the information helps you remember better.

## Example 1

Let's use one paragraph from the Privacy Policies and Laws reading sheet.  
Read the paragraph to yourself silently.

### What is in a privacy policy?

The exact contents of a privacy policy will depend upon the applicable law and may need to address requirements across geographical boundaries and legal jurisdictions. Most countries have their own legislation and guidelines of who is covered, what information can be collected, and what it can be used for. In North America, privacy laws (except in Quebec) apply only to the public sector, not to the private sector. However, most private sector organizations in North America have taken the initiative to develop their own privacy policies and codes of conduct.



If this paragraph was difficult to understand it may be because

- there is a lot of complicated and technical vocabulary
- there is multiple mention of private and public sectors
- the information is vague and requires us to either have some background knowledge or to read between the lines. (Phrases like .....exact contents depend... may need to address.....**Most** countries... mean that the information is not exact and we will need more information)

When we have to read information that is written like this, sometimes it is helpful to hear it as well as read it.

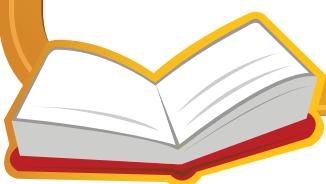
## **Activity 3 – Task**

### **Part 1**

Read the paragraph again. This time out loud to yourself –really read it out loud. Just whispering under your breath doesn't really count. You have to be able to hear the words. Don't worry if your reading is not perfect. This is not for anyone else's benefit. You are not being tested on how well you read aloud. This is only for you to listen to.

#### **What is in a privacy policy?**

The exact contents of a privacy policy will depend upon the applicable law and may need to address requirements across geographical boundaries and legal jurisdictions. Most countries have their own legislation and guidelines of who is covered, what information can be collected, and what it can be used for. In North America, privacy laws (except in Quebec) apply only to the public sector, not to the private sector. However, most private sector organizations in North America have taken the initiative to develop their own privacy policies and codes of conduct.



Does reading aloud help you to understand the paragraph better? Why or why not?

## **Activity 3 – Task**

### **Part 2**

Try typing the same paragraph into the text reader at

<http://text-to-speech.imtranslator.net/>

### **Task**

When you have typed the paragraph into the text window, press the “say it” button.

Be sure to write in all punctuation marks as this affects how the reader reads the text.

Does typing the information help you understand it better? Why or why not?

Does hearing the paragraph help you understand it better? Why or why not?

## **Activity 3 – Task**

### **Part 3**

Listen to your practitioner read the same paragraph out loud.

Does hearing a person read the paragraph to you help you understand it better? Why or why not?

Which worked best?

- You reading out loud to yourself
- Using the text-to-speech software
- Practitioner reading out loud

**Task**

Why do you think this method worked best for you? Explain your answer.

What THINKING SKILLS are you using when you judge and compare these techniques?

If the text-to-speech software works best for you but you don't have an internet connection, what THINKING Skills will you have to use to actually recite the paragraph?

## **Activity 4 – Task**

Using your own document, use the skills you have learned to recite the information. Try each of the techniques you used in Activity 3 Task. Which worked best for you this time?

- Reading silently to yourself?
- Reading out loud to yourself?
- Using the text-to-speech software?
- Practitioner reading out loud?

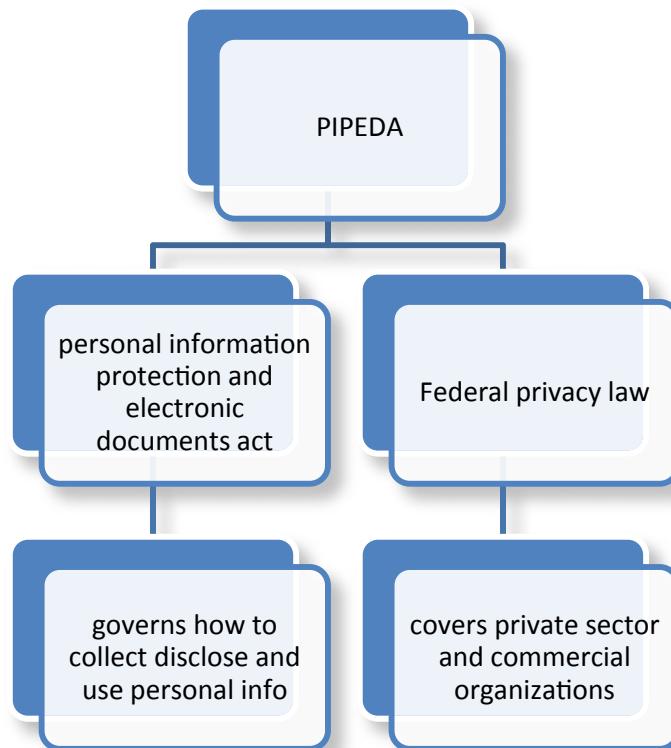


### **Re-tell**

**Re-tell** the information to someone else or to yourself. Use your own words to explain what you have read. Summarize what you have read. (Sum up, outline, recap simplify or boil down the information into a shorter form or turn specific information into general information) In all these cases, you will have to think about what information to present and how to say what you want to say. This involves CRITICAL THINKING.

## Activity 5 – Skill Builder

Tony has been doing some skills upgrading at a private college and has been taking courses online. He knows that governments (the public sector) have to keep his personal information private and have online security to do that. He wants to know, “Is there a law that protects my information even though a private college is part of the private sector?



We made this graphic organizer to answer Tony’s question. Use your own words to explain the law that protects Tony’s personal information. You can work with a partner and tell them in your own words or you can write your answers down.

## **Activity 5 – Task**

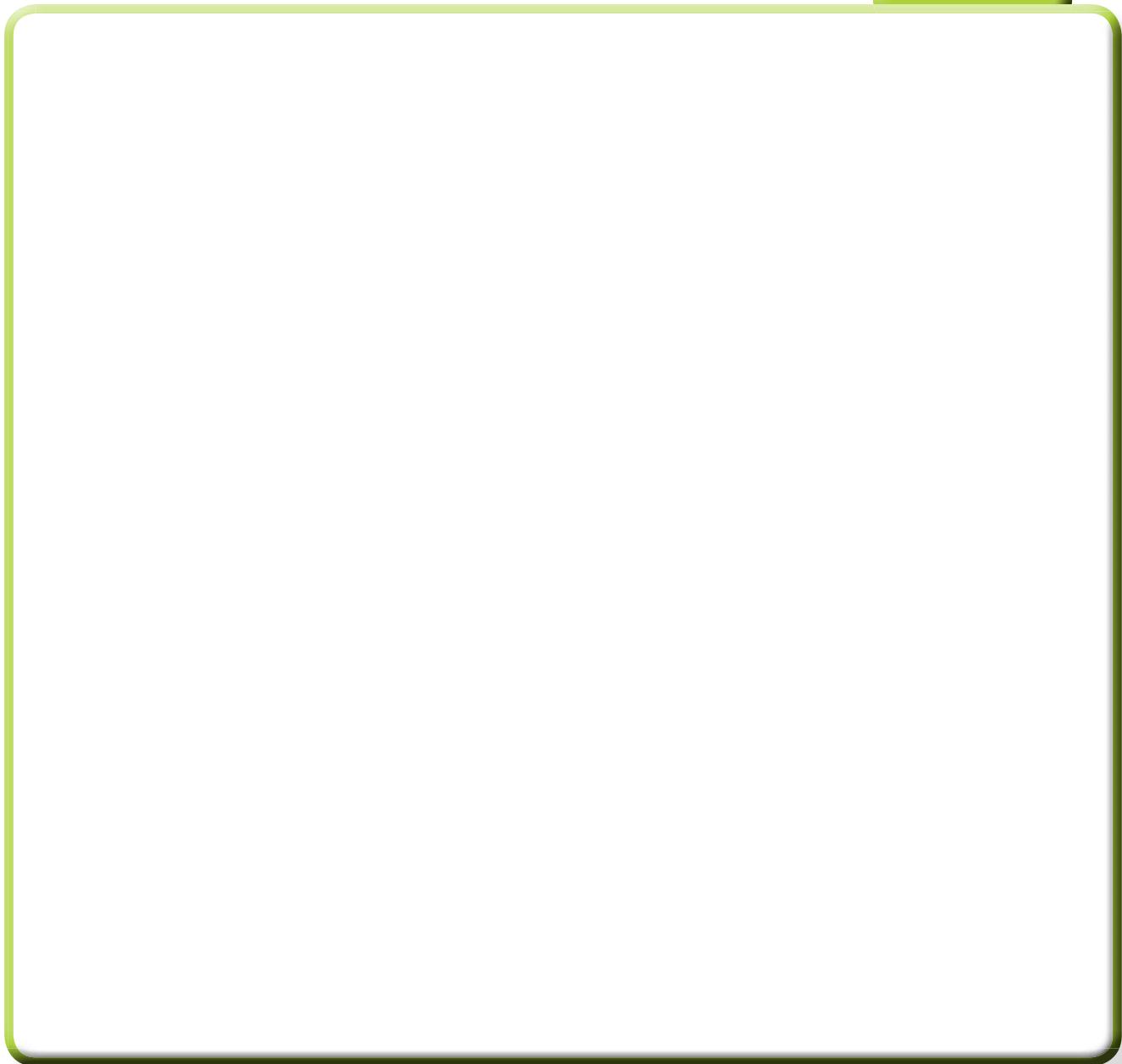
**Use your question about privacy issues.**

Paraphrase how *Privacy Policies and Laws* answers your question. In other words, use your own words to explain how your question was answered.

Work with your practitioner, a partner or write your answer down.

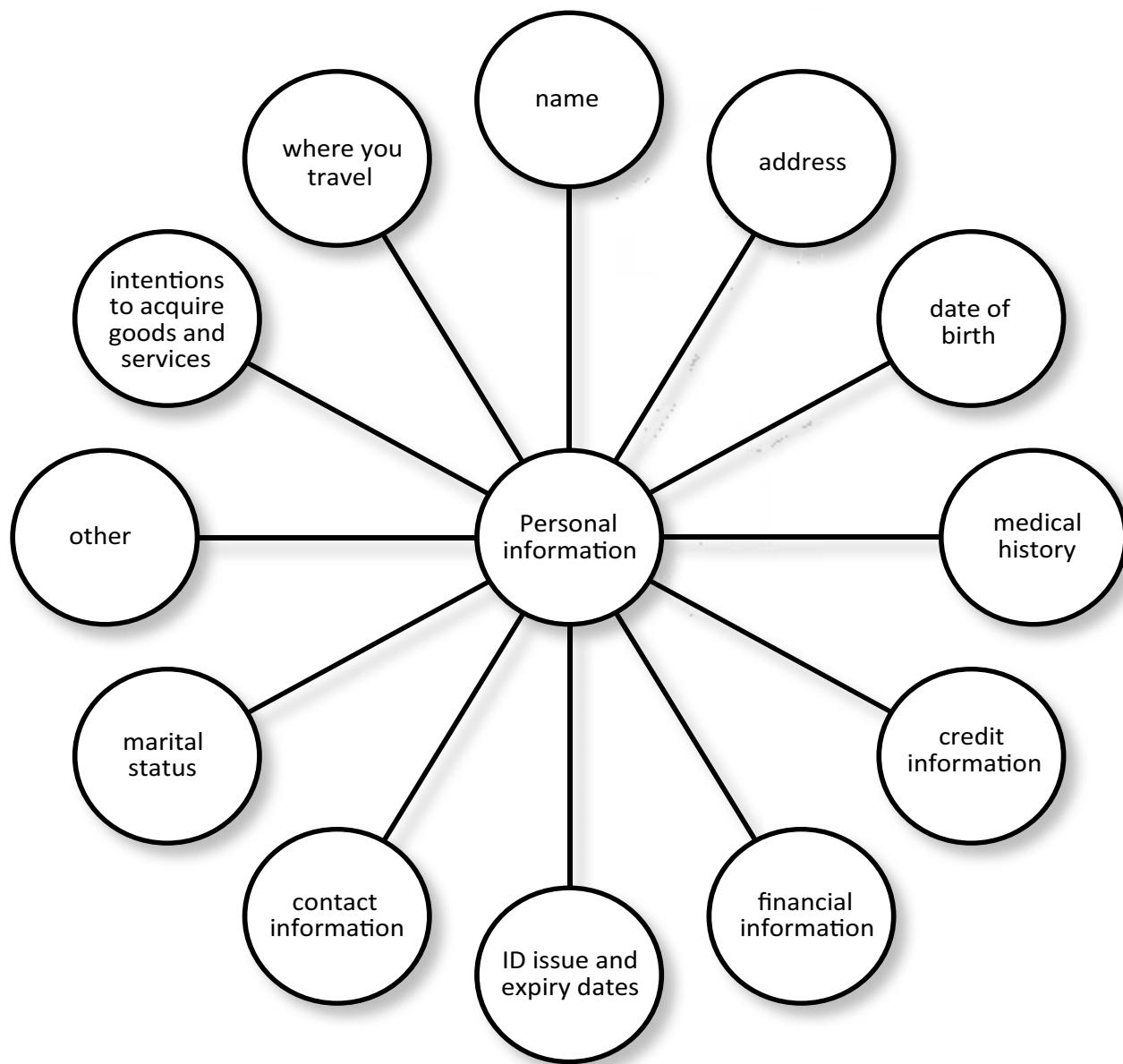
What THINKING SKILLS are you using when you paraphrase, generalize, summarize or create a similar answer using your own words?

**Task**



## Activity 6 – Skill Builder

Use this spider plan and your own words to recap what is considered personal information.



You can work with a partner, with your practitioner or by yourself.

## **Activity 6 – Task**

Using your own document, paraphrase the answer to your own questions. You can work with your practitioner, a partner or you can write your answer down.

**Task**



### **Remember**

#### **Remember what you have read by**

- Going over your notes
- Skimming and scanning the text again
- Discussing with other people what you have read
- Writing a summary of what you have read

The more techniques you use to improve your memory, the better your SIGNIFICANT USE OF MEMORY Skills become.



## Research

**Research** the topic to get more information if your questions have not been answered (your criteria has not been met) - **FINDING INFORMATION.**

You can

- See if the document shows you where to find more information
- Check the internet
- Talk to a specialist in the subject
- Talk to family, friends, peers and co-workers
- Talk to employers and teachers
- Contact an information specialist at your local library
- Look for more information by the same author

You have to analyze other sources of information - **CRITICAL THINKING**

- This means you might have to check more than one source (like getting a second opinion). You can ask specialists in the area or people who have lots of experience with a topic where they get their information.

Choose where you are going to research - **DECISION MAKING**

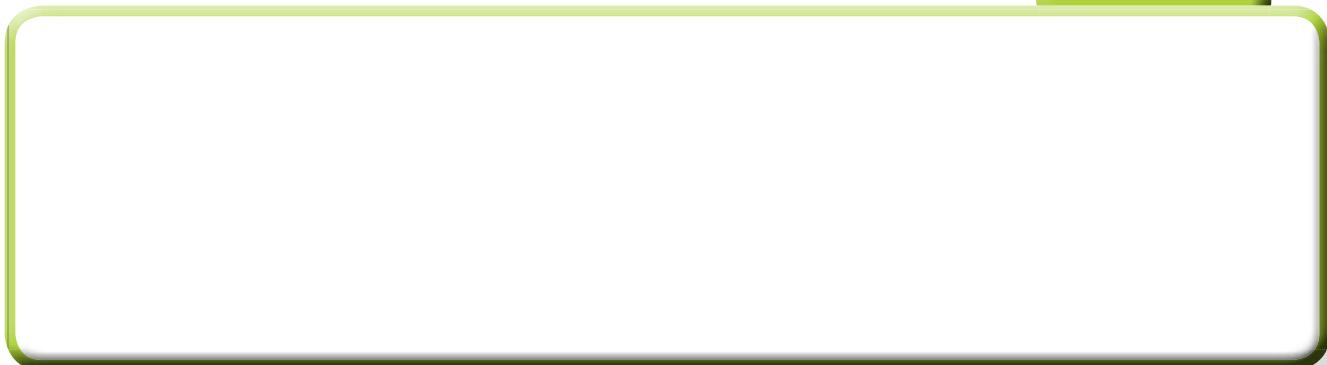
Locate the information you are looking for - **FINDING INFORMATION**

### **Activity 7 – Task**

If your own personal questions about privacy policies and laws have not been answered, or if you have more questions, where could you go for more information?

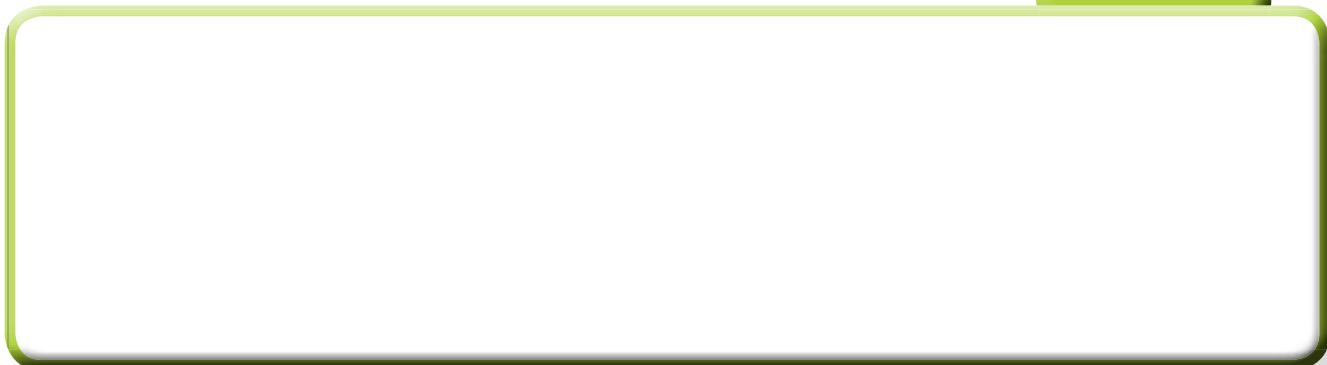
Make a list of at least 4 ways you could research privacy issues.

**Task**



Which sources of information would be the most reliable? Why?

**Task**



### **Activity 8 – Task**

Has your own document answered your questions? If not, where could you go for more information? Make a list of 4 ways you could research this topic. Which sources of information would be the most reliable? Why?

## **Using THINKING SKILLS and the PLANNER process for more than reading**

You have now finished the PLANNER process and have used a variety of THINKING SKILLS throughout the process.

Remember, the more you practise these steps, the faster and easier it will become. The more you THINK about the THINKING process, the better you will be at

- FINDING INFORMATION
- SIGNIFICANT USE OF MEMORY
- CRITICAL THINKING
- PROBLEM SOLVING
- DECISION MAKING
- JOB TASK ORGANIZATION

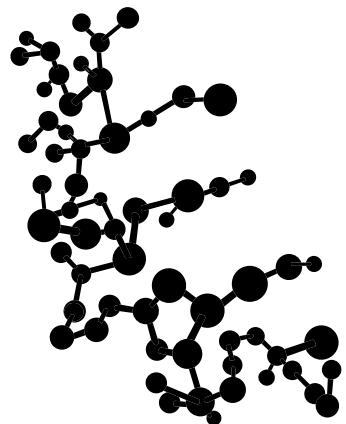
You can use the same process and the same THINKING SKILLS for understanding information from a lot of different sources- not just the ones you have to read.

You can use the same process when you

- Listen to lectures in a classroom
- Attend a meeting at work
- Meet with a health practitioner about your diabetes or other health concerns
- Meet with your child's teacher at parent-teacher night
- Listen to news programs or documentaries on the radio
- Watch a WHMIS training video

Can you think of situations in your life that would benefit from the skills you have learned in the “Thinking through Reading Modules”?





# Filling in Forms

## Supports the following types of tasks

- Sample Diabetes Task—filling in health history when seeing a health practitioner for the first time
- Sample Employment Task—Filling in a job application
- Sample Education Task—Filling in course registration forms
- Sample Independence Task—filling in financial assistance application forms

**Pre-requisites – None**

**Time – Variable**

## Materials required

- Pens
- Paper
- Internet access
- Optional LED projector, or smart board for overhead viewing
- white board, or flip chart paper
- Paper or electronic copy of WSIB Form 6
- Paper copy of Tim Horton's Application Form

<http://www.wsib.on.ca/files/Content/Downloadable%20FileForm%206%20for%20Worker/0006A.pdf>

[http://www.timhortons.com/ca/pdf/Restaurant\\_Recruitment\\_Application\\_FormEN.pdf](http://www.timhortons.com/ca/pdf/Restaurant_Recruitment_Application_FormEN.pdf)

## Objectives

The activities in this module focus on developing the skills needed to accurately complete forms containing personal information and short narratives. The learner will

- Be able to fill in personal information in a variety of documents
- Be able to fill in personal information on someone else's behalf
- Be able to complete a short narrative in point form

## Format

The activities in this module can be delivered as a practitioner facilitated lesson or as a self-directed lesson depending on the skills of the learner. The activities can be worked on by individual learners, in pairs or as a small group.



## OALCF Levels used in Filling in Forms Module

<b>Primary OALCF Competencies</b>	<b>Performance Descriptors</b>
B3.1a	<ul style="list-style-type: none"><li>• makes a direct match between what is requested and what is entered</li><li>• makes entries using familiar vocabulary</li></ul>
B3.2a	<ul style="list-style-type: none"><li>• uses layout to determine where to make entries</li><li>• begins to make some inferences to decide what information is needed, where and how to enter the information</li><li>• makes entries using a limited range of vocabulary</li><li>• follows instructions on documents</li></ul>
B3.3	<ul style="list-style-type: none"><li>• uses layout to determine where to make entries</li><li>• makes inferences to decide what, where and how to enter information</li></ul>
D1	<ul style="list-style-type: none"><li>• follows simple prompts</li><li>• follows apparent steps to complete tasks</li><li>• interprets brief text and icons</li><li>• locates specific functions and information</li><li>• requires support to identify sources and to evaluate and integrate information</li><li>• begins to perform simple searches (e.g. internet, software help menu)</li></ul>
D2	<ul style="list-style-type: none"><li>• selects and follows appropriate steps to complete tasks</li><li>• locates and recognizes functions and commands</li><li>• makes low-level inferences to interpret icons and text</li><li>• begins to identify sources and evaluate information</li><li>• performs simple searches using keywords (e.g. internet, software help menu)</li></ul>

<b>Primary OALCF Competencies</b>	<b>Performance Descriptors</b>
A1.1	<ul style="list-style-type: none"> <li>• reads short texts to locate a single piece of information</li> <li>• decodes words and makes meaning of sentences in a single text</li> <li>• follows the sequence of events in straightforward chronological texts</li> <li>• follows simple, straightforward instructional texts</li> <li>• requires support to identify sources and to evaluate and integrate information</li> </ul>
A1.2	<ul style="list-style-type: none"> <li>• scans text to locate information</li> <li>• locates multiple pieces of information in simple texts</li> <li>• makes low-level inferences</li> </ul>
A2.1	<ul style="list-style-type: none"> <li>• scans to locate specific details</li> <li>• interprets brief text and common symbols</li> <li>• locates specific details in simple documents, such as labels and signs</li> <li>• requires support to identify sources and to evaluate and integrate information</li> </ul>
A2.2	<ul style="list-style-type: none"> <li>• makes connections between parts of documents</li> <li>• makes low-level inferences</li> <li>• begins to identify sources and evaluate information</li> <li>• performs limited searches using one or two search criteria</li> <li>• extracts information from tables and forms</li> </ul>
E1	<ul style="list-style-type: none"> <li>• begins to use a limited number of learning strategies (e.g. follows instructions, takes literal notes, highlights or underlines key information, uses a calendar or agenda)</li> <li>• begins to identify ways to remember information and reinforce learning (e.g. reviewing notes)</li> <li>• begins to monitor own learning</li> <li>• uses feedback to improve performance</li> </ul>
E2	<ul style="list-style-type: none"> <li>• uses a limited number of learning strategies (e.g. takes notes, organizes learning materials)</li> <li>• sequences activities in multi-step tasks</li> <li>• monitors own learning</li> <li>• begins to identify how skills and strategies can transfer to different contexts</li> </ul>
F	If learner completes module as part of a group

## Essential Skills Levels used in Filling in Forms Module

Essential Skills	Level	Essential Skills	Level
Reading Text	2	Numeracy <input type="checkbox"/> Money math	
Document Use	3	<input type="checkbox"/> Scheduling and budgeting <input type="checkbox"/> Measurement and calculation	
Writing	2	<input type="checkbox"/> Data Analysis <input type="checkbox"/> Numerical estimation	
Oral Communication	<input type="checkbox"/>	Thinking Skills <input checked="" type="checkbox"/> Problem solving	<input checked="" type="checkbox"/>
Working With others	<input type="checkbox"/>	<input checked="" type="checkbox"/> Decision making <input checked="" type="checkbox"/> Critical thinking	
Computer Use	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Job task planning and organization	
Continuous Learning	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Significant use of memory	



## Practitioner Instructions

When presenting to a group of learners, information sheets can be converted for use with an LED projector or smart board or can be used as prompts for practitioner notes on flip-chart or white board.

When delivering the module, practitioners should encourage discussion to help enhance speaking and listening skills as well as document use skills.

Each learner will receive information sheets and activity sheets.

Read each page aloud with the learner.

Learners are encouraged to underline, or highlight important information . Additional paper should be provided.

Learners can become overwhelmed with complex or long forms. Encourage learners to start filling in forms using pencil and eraser as they begin. Once they are confident with how they have completed the form, they can either fill in a duplicate form in pen or write over their pencil version and erase the pencil later.

Learners may abandon forms when they see requests for information they do not know. Encourage the learner to fill in everything that they do know first and then look for information that they are missing. Documents may ask for ID numbers, credit card information, dates and contact information that the learner may not have memorized. They can find the sources of the missing information and then copy directly into the form at a later date.

Learners with computer skills may want to download and print their own WSIB & job application forms. For learners who struggle with computer skills, pre-printed versions or assistance with computer skills should be provided.



## Practitioner Activity Instructions

### **Hand out – Filling in Forms or Document Use**

Read the handout out loud with the learner.

Ask the learners for examples of forms they have filled in today, this week, this month etc... Encourage learners to think about electronic documents as well as paper format. Electronic documents might be fillable PDF documents, emails, texts on their phone, online surveys, even very simple check boxes like those that need to be navigated when depositing money at an ATM or paying bills online. Any document that asks the learner to fill in the blanks, check the boxes, or circle their answers counts.

### **Activity 1 – Instructions**

Purpose—introduce common vocabulary found in documents

Provide the learners with the Document Use Vocabulary list. Read each word out loud. Encourage learners to identify any vocabulary that is unknown to them. Explain that this is not a complete list of terms.

On a separate sheet of paper, have the learner list the vocabulary words on every 3<sup>rd</sup> line. Ask them to create a definition for the word and encourage them to give an example of how the word can be used.

If the learner does not know the definition of the word, encourage them to use a dictionary, online dictionary, thesaurus or discuss with a partner.

Discuss the list as a group when everyone has finished the activity.

Discuss other problem vocabulary from learners' experience with documents. A sample list of definitions has been included at the end of the module in the answers section.

## **Activity 2 – 4 Instructions**

Activities 2-4 use a case study instead of asking learners to enter their own personal information. Remind the learner to use the case study information to fill in the forms. Learners should use today's date when filling in the forms. The year that the case study individual was born was not included in the information. The learners will have to calculate the year of his birth based on today's date and his age.

### **Activity 2**

The Tim Horton's Job Application Form must be printed and filled in on the paper, not online. There is no answer key for this form.

[http://www.timhortons.com/ca/pdf/Restaurant\\_Recruitment\\_Application\\_FormEN.pdf](http://www.timhortons.com/ca/pdf/Restaurant_Recruitment_Application_FormEN.pdf)

Discussions regarding missing information in Activity 2 might include:

- Date available to start—Accept any answers that coincide with high school ending for the summer
- Reference information—Dev might choose to use his friend Alex but we do not have Alex's contact information
- Pay Expectations—answers may vary- this is an entry level job that will likely pay minimum wage, particularly for someone with no employment experience
- E-mail—not known
- Highest level of education—not known but we can infer based on Dev's age that he is a senior in high school

### **Activity 3**

The form template for Activity 3 is contained in the body of this module. Answers to this activity are at the end of the module.

Instruct the learners to use today's date when filling in the form

Discussions regarding missing information in Activity 2 might include

- Parents' contact information—not provided
- Doctor contact information—might be able to look up a real doctor in the College of Physicians and Surgeons of Ontario website or other listing for doctors
- Names of medication—we are only told Dev takes insulin by pump and a puffer for his asthma but we don't know what specific medication he is using

## **Activity 4**

The WSIB Form 6 can be printed and filled in on paper. It can also be used as a fillable PDF by learners who want to practice their computer skills. There is no answer key for this form.

<http://www.wsib.on.ca/files/Content/Downloadable%20FileForm%206%20for%20Worker/0006A.pdf>

Instruct the learners to use today's date as the accident date.

Review completed forms with learners as a group and discuss any differences. Discussions regarding missing information in Activity 4 might include

- SIN number—found on your SIN card and needed for any employment or to file your income tax

## **Additional Activities**

Find online forms or other authentic documents and practice filling in forms with personal information.

Work with a partner and fill in a form on their behalf.

Learners can repeat activities 2-4 using their own information but should be made aware that their personal and health information should be kept confidential. It is recommended that they are encouraged to shred the documents or be sure to keep the information safe. A short discussion on identity theft may be beneficial.

There are numerous sites where forms and templates can be found. Health insurance forms are available at all insurance carrier websites.

The Government of Canada has all taxation forms online as either printable versions or fillable PDF's. <http://www.cra-arc.gc.ca/formspubs/rqst-eng.html>

A general menu of Ontario government forms can be found at <http://www.ontario.ca/government/search-results?query=forms&op=Search>

Online forms include applications for health cards, birth certificates, photo ID, baby registration and Social Insurance Number, as well as many others.

## Filling in Forms or Document Use

Forms are all around us. We fill them in on paper and electronically. Forms or documents can be set up in different ways. Some are set up like a calendar, others are like a list. Some forms or documents might ask you to check boxes or circle answers or information that is relevant to you.



You might fill in a calendar or day-timer with important personal or work information.



You might send a text or e-mail using an electronic form

The form contains several sections:

- Identification:** Fields for First name and middle name, Last name, Address, and SIN.
- Information about place:** Fields for Order your date of birth, Your language or communication, and Your sex.
- Information about your residence:** Fields for Enter your province or territory of residence on December 31, 2008, Enter the province or territory where you usually reside if it is not the same as that shown, Enter the province or territory where you usually reside if it is not the same as that shown, and Enter the province or territory of usual residence.
- Person deceased in 2008:** Fields for If this return is for a deceased, Enter the date of death, and Did the deceased file a tax return?
- Electronics Canada:** Questions about Canadian income tax and electronic filing.
- Goods and services tax/Harmonized sales tax (GST/HST) credit application:** Questions about GST/HST credits.

You might fill in a complaint form or your income tax forms



Even when you fill in your lottery numbers or complete a multiple choice test you are filling in a form

## **Form Layout**

Forms are laid out differently depending on what they are used for.

Each form will have sections. They might be

- Instructions
- Contact information
- Personal information
- Details
- Consent or Declaration
- Signature
- Return address

Instructions might be a large section of instructions written at the beginning or you might get instructions on every line of the form. There could be a glossary or list of terms at the beginning or end of a very long form.

Each form will be different. We need to be able to recognize what information is needed in each section. The form will tell us which information goes where but we have to understand the vocabulary that is used on the form

## **Activity 1 – Skill Builder**

### **Document Use Vocabulary**

Forms may use words that you have not seen before.

Which words in the following list are new to you?

Write the write the new words on a separate sheet of paper. Using your own words, write the definition or the meaning of the words.

You can use a dictionary or online resource to help you if you are not sure.

- |                          |                     |
|--------------------------|---------------------|
| 1. Maiden Name           | 16. Authorize       |
| 2. Not applicable or N/A | 17. Title           |
| 3. SIN                   | 18. Confirm         |
| 4. Signature             | 19. Confidential    |
| 5. Initial               | 20. Disclose        |
| 6. Occupation            | 21. Family history  |
| 7. Marital Status        | 22. Current address |
| 8. D.O.B.                | 23. Declaration     |
| 9. Spouse                | 24. Gender          |
| 10. Common Law           | 25. Office use      |
| 11. Convictions          | 26. Duplicate       |
| 12. Reference            | 27. Guardian        |
| 13. Next of kin          | 28. Enclose         |
| 14. Dependents           | 29. Surname         |
| 15. Applicant            | 30. Alternate       |

What other words have you seen on forms that were new to you or were confusing? Add those words and their definitions to your list.

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## Filling in Personal Information

We are often asked to fill in forms using our personal information. It is important to fill this information in accurately and to put the right information into the right place.

Complicated forms might have instruction guides. The T1 General Income Tax form has a whole booklet of instructions to help you fill it in. Some forms might have instructions written into parts of the form.

You might see instructions like

- Please print
- Check all that apply
- dd/mm/yy

What do these instructions mean?

Fill in this mini form.

Follow any instructions you see.

Name \_\_\_\_\_

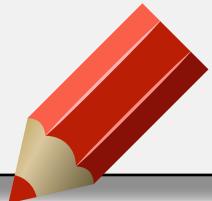
(please print)

Date \_\_\_\_\_

(dd/mm/yy)

Which appointment time would you prefer? (Check all that apply)

- Morning
- Afternoon
- Evening
- Weekend



What other instructions have you seen on forms?

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## Filling in Personal Information

### A Case Study

For the next 3 Activities we will be looking at a case study. Instead of filling in your own personal information, we will be looking at Dev Pryde's situation.

Read Dev's story below. Activities 2, 3 and 4 will be based on his personal information.

**Dev**

William Devi Pryde was born on July 15 and is 17 years old. His father, William, was originally from Scotland and his mother, Sangeeta, was from India. He was given his grandfather's name as a middle name and his friends call him either Billy or Dev. He was born in Canada and has always lived in the same house at 18 Yew Tree Avenue, Burlington ON L7R 4Y3. His home phone number is 905-218-7456 and his new cell phone number is 905-882-7452.

When Dev was 3 he was diagnosed with Type 1 Diabetes and since then he has learned how live with the disease by staying active, eating well, as well as using insulin and an insulin pump. He has an allergy to cats which can sometimes bring on his asthma. He uses a puffer if that happens. He broke his right ankle playing soccer when he was 11 and his right index finger playing volleyball 3 months ago. Luckily, Dev is left-handed so the injury did not prevent him from finishing his exams and it is almost completely healed and back to normal.

## Activity 2

### Dev applies for a job

**Dev**

Dev just passed his driving license and is looking forward to getting a full-time job for the summer after school finishes for the year. He will have to work his job schedule around Thursday night volleyball practice and taking his sister to Brownies on Wednesday nights. He is willing to work any other shifts to make money because he is saving to buy his own car. There were a lot of other job openings but Dev loves cooking and working with people so he thought Tim Horton's would be a good place for him for his very first job. His friend Alex Caffrey works there and told Dev it was a fun place to work and that they were hiring.

Fill in the Tim Horton's Job Application for Dev using the information from the case study and the information on this sheet.

Use today's date on the application form.

Only fill in the information that you know.

If there is information missing, discuss where you could get that information.

You can find a printable version of the Tim Horton's Job Application form here  
[http://www.timhortons.com/ca/pdf/Restaurant\\_Recruitment\\_Application\\_FormEN.pdf](http://www.timhortons.com/ca/pdf/Restaurant_Recruitment_Application_FormEN.pdf)

### **Activity 3**

#### **Dev signs up for hockey**

**Dev**

Dev wants to sign up for hockey this fall and has to fill in the medical history form. He checked with his doctor, Dr. Jane Siddal, at his last medical on April 12th 2012, to make sure that it is safe for him to play hockey and she said that even with his diabetes it would be fine.

Using the information you have learned about Dev fill in the medical information sheet.

Only fill in the information you know.

If there is information missing, discuss where you could get that information.

## MEDICAL INFORMATION SHEET

Name: \_\_\_\_\_

Date of birth: Day \_\_\_\_\_ Month \_\_\_\_\_ Year \_\_\_\_\_

Address: \_\_\_\_\_

Postal Code: \_\_\_\_\_ Telephone: ( \_\_\_\_ ) \_\_\_\_\_

Provincial Health Number (optional): \_\_\_\_\_

Mother's Name: \_\_\_\_\_

Father's Name: \_\_\_\_\_

Business Telephone Numbers:

Mother \_\_\_\_\_ Father \_\_\_\_\_

Alternate emergency contact (if parents are not available)

Name: \_\_\_\_\_

Telephone: ( \_\_\_\_ ) \_\_\_\_\_

Address: \_\_\_\_\_

Doctor's Name: \_\_\_\_\_

Telephone: ( \_\_\_\_ ) \_\_\_\_\_

Dentist's Name: \_\_\_\_\_

Telephone: ( \_\_\_\_ ) \_\_\_\_\_

Date of last complete physical examination: \_\_\_\_\_

\* Before a player participates in a hockey program, any medical condition or injury problem should be checked by that individual's family physician.

Please circle the appropriate response and provide details below if you answer "Yes" to any of the questions.

- Yes   No   Previous history of concussions
- Yes   No   Fainting episodes during exercise
- Yes   No   Epileptic
- Yes   No   Wears glasses
- Yes   No   Are lenses shatterproof
- Yes   No   Wears contact lenses
- Yes   No   Wears dental appliance
- Yes   No   Hearing problem
- Yes   No   Asthma
- Yes   No   Trouble breathing during exercise
- Yes   No   Heart condition
- Yes   No   Diabetic – Type 1 or Type 2
- Yes   No   Medication
- Yes   No   Allergies
- Yes   No   Wears a medical information bracelet or necklace  
For what purpose? \_\_\_\_\_
- Yes   No   Has a health problem that would interfere with participation on a hockey team
- Yes   No   Has had an illness that lasted more than a week and required medical attention
- Yes   No   Has had injuries requiring medical attention in the past year
- Yes   No   Has been admitted to hospital in the last year
- Yes   No   Surgery in the last year
- Yes   No   Presently injured. Injured body part: \_\_\_\_\_
- Yes   No   Vaccinations up to date.  
Date of last Tetanus Shot: \_\_\_\_\_
- Yes   No   Hepatitis B vaccination

Please give details if you answered “Yes” to any of the above.  
Use separate sheet if necessary.

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Medications: \_\_\_\_\_

Allergies: \_\_\_\_\_

Medical conditions: \_\_\_\_\_

Recent injuries: \_\_\_\_\_

Any information not covered above:

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I understand that it is my responsibility to keep the team Safety Person advised of any change in the above information as soon as possible. In the event of a medical emergency and that no one can be contacted, team management will arrange to take my child to the hospital or a physician if deemed necessary.

I hereby authorize the physician and nursing staff to undertake examination, investigation and necessary treatment of my child.

I also authorize release of information to appropriate people (coach, physician) as deemed necessary.

Date: \_\_\_\_\_

Signature of Parent or Guardian: \_\_\_\_\_

Disclaimer: Personal information used, disclosed, secured or retained by Hockey Canada will be held solely for the purposes for which we collected it and in accordance with the National Privacy Principles contained in the Personal Information Protection and Electronic Documents Act as well as this organization’s privacy policy.

## Activity 4

### Dev has an accident at work

**Dev**

Dev has been working at Coverall Siding as a warehouse worker stacking shelves since January 21, 2012. It is a convenient place to work as it is on the same street as his house. Coverall Siding is down the street at number 100 and he can walk to work. Today, at 5:30 pm he fell over some packing material (cardboard, strapping and plastic wrap) that was left in the middle of aisle P and has hurt his right index finger. It is very painful to move and is swollen and black and blue.

His co-worker, Terri, reported the injury right away to Brian their boss. Terri then helped Dev by putting ice on his hand. When Dev was unable to move the finger after icing it, Terri checked with the supervisor and took Dev to the local emergency room to have his finger looked at by a doctor.

The doctor says Dev has broken the finger and he is not able to use it for 4 weeks till it heals.

Use the information you know about Dev to fill in his WSIB Worker's Report. You can use the online form or print the form and fill it in using a pen.

You can find the WSIB Form 6 here

<http://www.wsib.on.ca/files/Content/Downloadable%20FileForm%206%20for%20Worker/0006A.pdf>

Only fill in the information that you know.

If you are missing information discuss where you could get that information.

## Answers

### **Activity 1**

Maiden name	Your last name before you were married or the name you were given at birth
Not applicable or N/A	This part does not apply
SIN	Social insurance number
Signature	The place where you write or sign your name
Initial	The place where you put the first letter of your first name and the first letter of your last name
Occupation	The job that you do
Marital status	Are you married, single, divorced, widowed or living with someone (common-law)
D.O.B	Date of birth
Spouse	Husband, wife, or partner (some provinces have different laws about who to call your spouse)
Common law	Someone you are living with but not married to. This is different than a room-mate.
Convictions	Have you been found guilty of a crime?
Reference	Someone who can speak on your behalf about your skills
Next of kin	Your nearest or closest relative
Dependants	Family members who rely on you for financial support or help with money
Applicant	The person who is applying for something by filling in the form
Authorize	Giving permission or allowing something
Title	Mr, Mrs, Miss, Ms, Dr, Rev, Sir etc...
Confirm	Certify, verify, and confirm mean that you are saying that you are sure about something
Confidential	Private or not to be shared with anyone else
Disclose	To share with someone or to make public
Family history	Information about your parents, grand-parents, brothers and sisters - usually on health forms
Current employer	The company or person that you work for right now
Registration	To put yourself on an official list (community centre, car licence, bank account)

Current address	Where you live right now
Declaration	Something you swear to be true
Gender	Are you male or female? Sometimes this might be listed as "sex".
Office use	Do not write in this space on the form
Duplicate	An exact copy
Guardian	A person who has legal custody of a child. You might also see POA or PA-Power of Attorney. This is usually an adult child of a senior citizen who may not be able to make money or health decisions for themselves
Enclose	Put in the envelope with the form
Surname	Your last name or family name
Alternate	Another—like another phone number or alternate emergency contact

## Activity 3 – Medical Information Sheet

### MEDICAL INFORMATION SHEET

Name: William Devi Pryde (Dev)

Date of birth: Day 15 Month July Year \_\_\_\_\_

Address: 18 Yew Tree Ave Burlington ON

Postal Code: L7R 4Y3 Telephone: ( 519 ) 218-7456

Provincial Health Number (optional): \_\_\_\_\_

Mother's Name: Sangeeta Pryde

Father's Name: William Pryde

Business Telephone Numbers:

Mother \_\_\_\_\_ Father \_\_\_\_\_

Alternate emergency contact (if parents are not available)

Name: Jane Siddal

Telephone: (    ) \_\_\_\_\_

Address: \_\_\_\_\_

Doctor's Name: \_\_\_\_\_

Telephone: (    ) \_\_\_\_\_

Dentist's Name: \_\_\_\_\_

Telephone: (    ) \_\_\_\_\_

Date of last complete physical examination: April 12, 2012

\* Before a player participates in a hockey program, any medical condition or injury problem should be checked by that individual's family physician.

Please circle the appropriate response and provide details below if you answer "Yes" to any of the questions.

Yes   No   Previous history of concussions

Yes   No   Fainting episodes during exercise

Yes   No   Epileptic

Yes   No   Wears glasses

Yes   No   Are lenses shatterproof

Yes   No   Wears contact lenses

Yes   No   Wears dental appliance

Yes   No   Hearing problem

Yes   No   Asthma

Yes   No   Trouble breathing during exercise

Yes   No   Heart condition

Yes   No   Diabetic –  Type 1 or  Type 2

Yes   No   Medication

Yes   No   Allergies

Yes   No   Wears a medical information bracelet or necklace

For what purpose? \_\_\_\_\_

Yes   No   Has a health problem that would interfere with participation on a hockey team

Yes   No   Has had an illness that lasted more than a week and required medical attention

Yes   No   Has had injuries requiring medical attention in the past year

Yes   No   Has been admitted to hospital in the last year

Yes   No   Surgery in the last year

Yes   No   Presently injured. Injured body part: \_\_\_\_\_

Yes   No   Vaccinations up to date.  
Date of last Tetanus Shot: \_\_\_\_\_

Yes   No   Hepatitis B vaccination

Please give details if you answered "Yes" to any of the above.  
Use separate sheet if necessary

Type 1 Diabetes since age 3,

Broken right index finger 3 months ago- almost back to normal

Medications: Insulin for Type 1 Diabetes—uses a pump, puffer for asthma

Allergies: cats

Medical conditions: Type 1 Diabetes

Recent injuries: Broken right index finger 3 months ago- almost back to normal

Any information not covered above:

Broke right ankle at age 11

I understand that it is my responsibility to keep the team Safety Person advised of any change in the above information as soon as possible. In the event of a medical emergency and that no one can be contacted, team management will arrange to take my child to the hospital or a physician if deemed necessary.

I hereby authorize the physician and nursing staff to undertake examination, investigation and necessary treatment of my child.

I also authorize release of information to appropriate people (coach, physician) as deemed necessary.

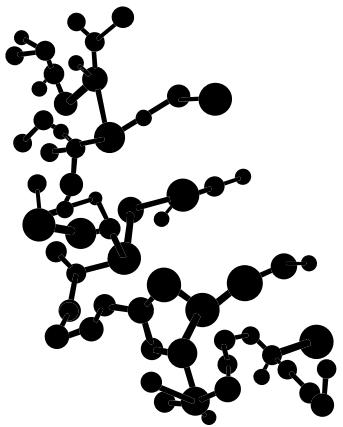
Date: Today

Signature of Parent or Guardian:

Disclaimer: Personal information used, disclosed, secured or retained by Hockey Canada will be held solely for the purposes for which we collected it and in accordance with the National Privacy Principles contained in the Personal Information Protection and Electronic Documents Act as well as this organization's privacy policy.



# Taking Notes



## Supports the following type of tasks

- Sample Diabetes task—writing down Dietitian’s recommendations for sugar substitute
- Sample Employment task—writing down the steps in a new procedure at a staff meeting
- Sample Education task—writing study notes from a classroom lecture
- Sample Independence task—taking a phone message for a family member

**Pre-requisites – None**

**Time – Variable**

## Materials required

- Pens
- Paper
- Audio, video or internet interviews or peer partner
- Optional smart board, LED projector ,
- White board or flip chart paper

## Objectives

The activities in this module focus on developing the skills needed to take accurate notes in a variety of settings. The learner will understand

- That note-taking is an important part of learning
- How to recognize important information
- How to check accuracy

## Format

The activities in this module can be delivered as an practitioner facilitated lesson or as a self-directed lesson depending on the skills of the learner. The activities can be worked on by individual learners, in pairs or as a small group.



## OALCF Levels used in the Taking Notes Module

<b>Primary OALCF Competencies</b>	<b>Performance Descriptors</b>
B1.1	<ul style="list-style-type: none"><li>• shows an awareness of factors such as social, linguistic and cultural differences that affect interactions in brief exchanges with others</li><li>• repeats or questions to confirm understanding</li><li>• uses and interprets non-verbal cues (e.g. body language, facial expressions, gestures)</li></ul>
B1.2	<ul style="list-style-type: none"><li>• rephrases to confirm or increase understanding</li><li>• uses and interprets non-verbal cues (e.g. body language, facial expressions, gestures)</li><li>• uses strategies to maintain communication, such as encouraging responses from others and asking questions</li></ul>
B2.1	<ul style="list-style-type: none"><li>• writes simple texts to request, remind or inform</li><li>• conveys simple ideas and factual information</li><li>• demonstrates a limited understanding of sequence</li><li>• uses highly familiar vocabulary</li></ul>
B3.1a	<ul style="list-style-type: none"><li>• makes a direct match between what is requested and what is entered</li><li>• makes entries using familiar vocabulary</li></ul>

<b>Primary OALCF Competencies</b>	<b>Performance Descriptors</b>
A1.1	<ul style="list-style-type: none"> <li>• reads short texts to locate a single piece of information</li> <li>• decodes words and makes meaning of sentences in a single text</li> <li>• follows the sequence of events in straightforward chronological texts</li> <li>• follows simple, straightforward instructional texts</li> <li>• requires support to identify sources and to evaluate and integrate information</li> </ul>
A1.2	<ul style="list-style-type: none"> <li>• scans text to locate information</li> <li>• locates multiple pieces of information in simple texts</li> <li>• makes low-level inferences</li> </ul>
D1	<ul style="list-style-type: none"> <li>• interprets brief text and common symbols</li> </ul>
E.1	<ul style="list-style-type: none"> <li>• begins to use a limited number of learning strategies (e.g. follows instructions, takes literal notes, highlights or underlines key information, uses a calendar or agenda)</li> <li>• begins to identify ways to remember information and reinforce learning (e.g. reviewing notes)</li> <li>• begins to monitor own learning</li> <li>• uses feedback to improve performance</li> </ul>
E.2	<ul style="list-style-type: none"> <li>• uses a limited number of learning strategies (e.g. takes notes, organizes learning materials)</li> <li>• sequences activities in multi-step tasks</li> <li>• monitors own learning</li> <li>• begins to identify how skills and strategies can transfer to different contexts</li> </ul>
F	If learner completes module as part of a group

## Essential Skills used in the Taking Notes Module

Essential Skills	Level	Essential Skills	Level
Reading Text	1-2	Numeracy <input type="checkbox"/> Money math	
Document Use	1-2	<input type="checkbox"/> Scheduling and budgeting <input type="checkbox"/> Measurement and calculation	
Writing	1-2	<input type="checkbox"/> Data Analysis <input type="checkbox"/> Numerical estimation	
Oral Communication	<input checked="" type="checkbox"/>	Thinking Skills <input checked="" type="checkbox"/> Problem solving	<input checked="" type="checkbox"/>
Working With others	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Decision making <input type="checkbox"/> Critical thinking	
Computer Use	<input type="checkbox"/>	<input checked="" type="checkbox"/> Job task planning and organization	
Continuous Learning	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Significant use of memory	



## Practitioner Instructions

When presenting to a group of learners, information sheets can be converted to PowerPoint slides or can be used as prompts for practitioner notes on flip-chart or white board.

When delivering the module, practitioners should encourage discussion to help enhance speaking and listening skills as well as writing skills.

Each learner will receive information sheets and activity sheets and are encouraged to underline, or highlight important information. Additional paper should be provided for longer notes.

Read each page aloud with the learner.



## Practitioner Activity Instructions

### **Activity 1 – Instructions**

#### Purpose

- To recognize and interpret body language
- To use body language cues to identify important information

Read the information sheet aloud. Model each body language behaviour (act out each activity in the body language list).

Encourage learners to discuss behaviours/body language they have seen around them. Ask them if you, as their practitioner, have a specific way of getting important information across.

Examples might include:

- Hand signals like a thumbs up or thumbs down or the “okay” hand signal
- Using facial expressions like raised eyebrows or frowns to indicate correct or incorrect answers or positive and negative results
- Touching the chin (adopting a thinking pose) to encourage thinking in the learner
- Head nodding or shaking

## Activity 2 – Instructions

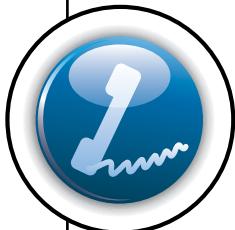
### Purpose

- To listen and accurately record important information from a phone message.

Read the sample script to the learner. Be sure to read the sample script naturally as you would leave a message on an answering machine. Do not repeat the message in this task. Task 3 will focus on checking for accuracy. Learners will be able to compare their accuracy between task 2 & 3.

Learners who struggle taking notes because of weak listening or writing skills or learners with limited English language vocabulary may benefit from using the Sample Message Pad. Learners should be encouraged to use blank paper to take notes as their skills improve.

#### Sample Script—Medical Appointment



**Good morning, this message is for Helen.  
Helen, it's Domenic calling from Dr. Hall's office.**

**Your appointment has been changed to Thursday,  
April 10<sup>th</sup> at 3:30 pm.**

**Please remember to bring your old glasses with you so  
we can repair them for you. If you have any questions,  
please call the clinic at 519-745-2121.**

**Have a great day.**

Encourage the learner to make notes as you read.

Discuss the key points (intended recipient, caller name, date, Dr.'s name, bring glasses, phone number).

Introduce the concept of checking for accuracy using information sheet and use these concepts for Activity 3.

### **Activity 3 – Instructions**

Learners who struggle taking notes because of weak listening or writing skills or learners with limited English language vocabulary may benefit from using the Sample Message Pad. Learners should be encouraged to use blank paper to take notes as their skills improve.

Repeat Activity 2 with this sample script.

#### **Sample Script—Delivery Instructions**



**Hi Pete. I need an emergency delivery done before 4pm today. The client is leaving town and needs this package before she goes.**

**The address is 242 Thompson Drive in Cambridge. Unit 7B. Don't leave it with the receptionist. Make sure the manager signs for it herself.**

**I had a hard time finding them the last time I was out there. The door to their unit is on the far right of the parking lot past the loading zone. Call me when you have delivered it. I'll be on my cell. 212-555-7036.**

Encourage the learner to ask for confirmation. Have the learners compare notes if working in pairs or a group. Learners should include

- Latest delivery time - 4pm
- Manager signature
- Address
- Unit is past the loading zone
- Call the speaker to confirm delivery
- Cell number

## **Additional Resources for Skill Reinforcement and Practice**

Learners need to practice listening and note-taking regularly to reinforce the skill and to feel comfortable applying the skill in new settings. It is not always possible to have a facilitator to read sample scripts. Encourage learners to use video or audio sources found on the internet to hone their skills. They can try using

- Any news website or learner appropriate YouTube™ tutorial
- <http://www.skillszone.ca/cesl/search/index.cfm>
- [http://skillstest.edu.gov.on.ca/ESCTWeb/jsp/en/ft\\_options.jsp](http://skillstest.edu.gov.on.ca/ESCTWeb/jsp/en/ft_options.jsp)
- <http://www.cdlponline.org/>
- <https://www.khanacademy.org/>
- <http://www.esl-lab.com/>

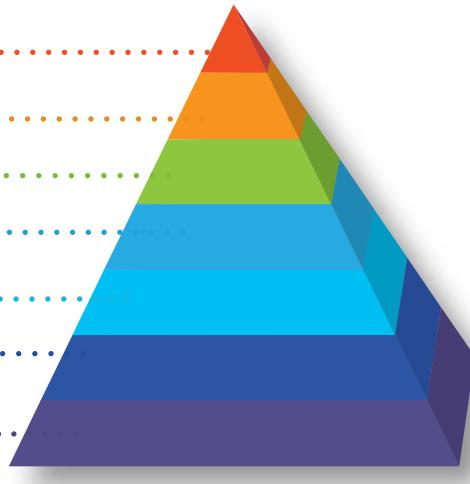
## Why Take Notes?

We gather information in many ways. We listen to the news on the radio. We watch a co-worker demonstrate how to use a new piece of equipment. We read a textbook or books to prepare for a test. We practice an exercise with our physiotherapist. How much of the new information do we remember?

Research tells us that we only remember

- 10% of what we read .....
- 20% of what we hear .....
- 30% of what we see .....
- 50% of what we see and hear .....
- 70% of what we say .....
- 90% of what we say and do .....

If we take good notes, we can remember .....  
100% of that information.



Taking notes means we can

- Remember lots of new information
- Refer back to that information over time if we forget
- More easily teach or relay that information to someone else

Good notes

- Are accurate
- Include important information but NOT ALL information
- Are re-written and edited for easy reading

## **What's important?**

How do you know what to write down?

You can get hints about what information is important in a few ways

### 1. Listen to the words of the speaker

If information is important the speaker might

- Use specific hints or phrases like “remember this”; “it’s important to understand”; “you need to know”; “watch for this”; “keep in mind”
- Repeat information or use phrases like “let’s go over that again”; “let’s recap”; “once again”
- Ask you to teach the information back to them or use phrases like “what do you have to do?”; “what steps do you have to take?”; “what do you have to watch for?”

## 2. Watch the body language of the speaker

If information is important the speaker might

- Make a note or circle information on the board or flip chart
- Use a pointer on a PowerPoint presentation to highlight a picture
- Stop talking and refer to their own notes to make sure they are giving accurate information
- Take a long time and make a lot of eye contact when talking about a piece of information
- Slow down their words or speak more loudly or clearly
- Use their hands in rhythm, like a conductor, to grab your attention
- Move or lean in toward you
- Use a model, diagram or list

## **Activity 1 – Skill Builder**

What other ways have you seen your boss, practitioner, family, or health care provider use words and body language to draw your attention to important information? Discuss and write your answers below.

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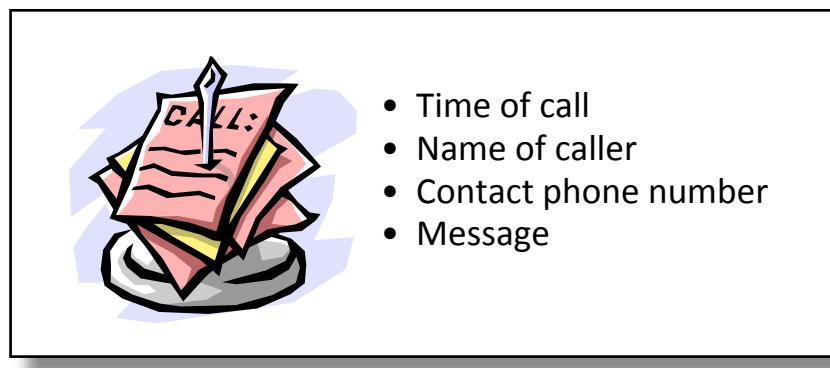
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## How Do You Write the Information Down?

Since you are not writing everything down word for word, you do not need to write in full sentences or paragraphs. You can use a variety of formats for recording information. At work you might take a phone message for a co-worker. What information would you write down?

You might use a phone message form that includes



- Time of call
- Name of caller
- Contact phone number
- Message

If you had to go for a blood test, what information would your note include?

You might write the information as a list like this.

- Date
- Time
- Location of clinic
- Can you eat before the test?
- Do you take your regular medication before the test?

If you are using new equipment at work and you have to follow specific steps in order, you might use a numbered list or a flow chart like the one below to remind you of the steps



## **Activity 2 – Task**

- Listen to the sample phone message

Write the important points in the space below while listening.

Write the important points in the space below while listening.

**Task**



## Sample Message Pad

Date \_\_\_\_\_

Time \_\_\_\_\_

For \_\_\_\_\_

While you were out

\_\_\_\_\_ called

From \_\_\_\_\_

Contact number \_\_\_\_\_

Message

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## **Checking for Accuracy**

Once you have made your notes, it is important to make sure that the information you have recorded is complete and correct. You can check your notes by

- Listening to a pre-recorded interview or phone message again
- Asking the speaker to repeat the information
- Confirming the information with the speaker by using phrases like “let me see if I have this right” or “can I review the information” and then read your notes to the speaker
- Using your own words to re-tell the information
- Check with a co-worker, classmate or family member to see if they have the same information that you have

Add pieces of information you might have missed and take out any unimportant information.

### **Activity 3 – Task**

- Listen to the sample phone message

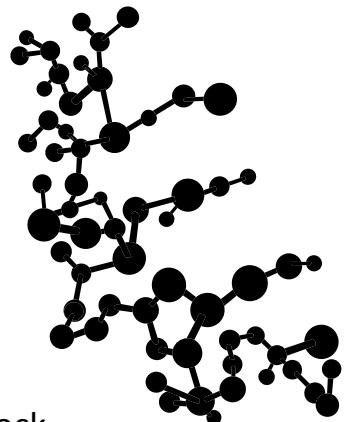
Write the important points in the space below while you are watching and listening.

Check your notes for accuracy using one or more of the techniques on the “Checking for Accuracy” page.

**Task**







# Using a Table

## Supports the following type of tasks

- Sample Diabetes task— read a weekly blood sugar log and recognize patterns of highs and lows
- Sample Employment task—read inventory lists to check for low stock
- Sample Education task—read a multiplication table to find the answer to  $7 \times 9$
- Sample Independence task—reviewing internet or phone usage to track expenses

**Pre-requisites – None**

**Time – Variable**

## Materials required

- Pens
- Paper
- Optional overhead projector
- White board or flip chart paper

## Objectives

The activities in this module focus on developing the skills needed to read and understand how to use a variety of tables. The learner will understand that

- Tables have a variety of names
- There is a specific way of reading tables using columns and rows
- Information in a table can be analyzed to determine cause and effect
- Prior knowledge and making inferences may be required when analyzing data

## Format

The activities in this module can be delivered as a practitioner facilitated lesson or as a self-directed lesson depending on the skills of the learner. The activities can be worked on by individual learners, in pairs or as a small group.



## OALCF Levels used in the Using A Table Module

<b>Primary OALCF Competencies</b>	<b>Performance Descriptors</b>
C4.1	<ul style="list-style-type: none"> <li>• identifies and compares quantities of items</li> <li>• understands numerical order</li> <li>• makes simple estimates</li> <li>• interprets and represents values using whole numbers</li> <li>• recognizes simple patterns</li> </ul>
C4.2	<ul style="list-style-type: none"> <li>• makes estimates</li> <li>• recognizes patterns and begins to identify trends in data (e.g. population, crime, demographic, inventory, injury)</li> </ul>
A2.1	<ul style="list-style-type: none"> <li>• scans to locate specific details</li> <li>• interprets brief text and common symbols</li> <li>• locates specific details in simple documents, such as labels and signs</li> <li>• requires support to identify sources and to evaluate and integrate information</li> </ul>
A2.2	<ul style="list-style-type: none"> <li>• makes connections between parts of documents</li> <li>• makes low-level inferences</li> <li>• begins to identify sources and evaluate information</li> <li>• performs limited searches using one or two search criteria</li> <li>• extracts information from tables and forms</li> <li>• uses layout to locate information</li> </ul>
<b>Primary OALCF Competencies</b>	<b>Performance Descriptors</b>
A1.1	<ul style="list-style-type: none"> <li>• scans to locate specific details</li> <li>• interprets brief text and common symbols</li> <li>• locates specific details in simple documents, such as labels and signs</li> <li>• identifies how lists are organized (e.g. sequential, chronological, alphabetical)</li> <li>• requires support to identify sources and to evaluate and integrate information</li> </ul>
A1.2	<ul style="list-style-type: none"> <li>• scans text to locate information</li> <li>• locates multiple pieces of information in simple texts</li> <li>• makes low-level inferences</li> </ul>
F	<ul style="list-style-type: none"> <li>• If learner completes module as part of a group</li> </ul>



## Essential Skills used in the Using A Table Module

Essential Skills	Level	Essential Skills	Level
Reading Text	1-2	Numeracy <input type="checkbox"/> Money math	1-2
Document Use	1-2	<input type="checkbox"/> Scheduling and budgeting <input type="checkbox"/> Measurement and calculation	
Writing		<input checked="" type="checkbox"/> Data Analysis <input type="checkbox"/> Numerical estimation	
Oral Communication	<input type="checkbox"/>	Thinking Skills <input type="checkbox"/> Problem solving	<input type="checkbox"/>
Working With others	<input type="checkbox"/>	<input checked="" type="checkbox"/> Decision making <input checked="" type="checkbox"/> Critical thinking	
Computer Use	<input type="checkbox"/>	<input type="checkbox"/> Job task planning and organization	
Continuous Learning	<input type="checkbox"/>	<input type="checkbox"/> Significant use of memory	



## Practitioner Instructions

When presenting to a group of learners, information sheets can be converted to overheads or can be used as prompts for practitioner notes on flip-chart or white board.

When delivering the module, practitioners should encourage discussion to help enhance speaking and listening skills as well as writing skills.

Each learner will receive information sheets and activity sheets and are encouraged to underline, or highlight important information. Additional paper should be provided for longer notes.

Read each page aloud with the learner.



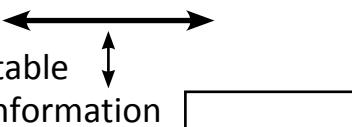
## Using a Table

### Introduction

Tables are a way to arrange a lot of information. Tables can be used to show information like

- Employee shifts on a time sheet
- The number of items in a warehouse and where each item is located
- Baseball statistics
- Medication doses, side-effects and precautions
- Student ID numbers and exam scores

All tables have common features. They have

- Rows that go across the table
  - Columns that go up and down the table
  - Cells or boxes that contain all the information
- 

It is helpful to use a table because

- They can be read quickly
- They are in a visual format
- They can hold lots of information in a small space

A table might also be called a

- |   |  |
|---|--|
| <ul style="list-style-type: none"><li>• Chart</li><li>• Spreadsheet</li><li>• Register</li><li>• Schedule</li></ul> | <ul style="list-style-type: none"><li>• Registry</li><li>• Listing</li><li>• Catalogue</li><li>• Log</li></ul> |
|---|--|

## How to use a Table

There is a row across the top of the table that has headings or information to help you find details inside the table. Many tables have a special column on the side (usually the left side) that has more headings or information to help you find details inside the table. We can tell what information is inside the table by the title of the table. In the example below, the numbers in the columns represent the statistics or number of wins and losses of each team.

Toronto Sports Team Stats

Team name	Wins	Losses
Blue Jays	25	13
Maple Leafs	17	31
Argos	9	11
Raptors	17	6

If we wanted to know how many times the Maple Leafs lost this season, we would have to follow these steps

1. Find the team name in the left hand column
2. Find the heading for the “Losses” column at the top right
3. Use our finger to trace right across the Maple Leafs row
4. Use our finger to trace down the “Losses” column
5. Read the information in the box or cell where our fingers meet

The answer is - the Maple Leafs lost 31 games this season.

## Activity 1

Using the Toronto Sports Team Stats table, answer the following questions

1. How many games did the Argos win? \_\_\_\_\_
2. How many games did the Raptors lose? \_\_\_\_\_

Toronto Sports Team Stats

Team name	Wins	Losses
Blue Jays	25	13
Maple Leafs	17	31
Argos	9	11
Raptors	17	6

Tables can also be used “backwards”. You can look for information in the body of the table and trace back to find more information.

#### Activity Pass Fee Schedule

Type of Activity Pass	West Point Activity Centre	Market Street Activity Centre
Youth (17 & Under)	\$22.56	\$25.78
Adults	\$38.53	\$40.38
Senior (50+)	\$27.66	\$30.38
Family	\$61.40	\$74.34

Using the Activity Pass Fee Schedule, which is the cheapest activity pass?

Here are the steps to find the answer.

1. Recognize that the dollar amounts inside the table represent the cost of the Activity Passes for each activity centre. There are different prices depending on how old you are and which activity centre you want to use
2. Locate the smallest number in the table (\$22.56) and trace up the column to find West Point Activity Centre
3. Locate the smallest number again and trace left across the row to Youth (17 & Under)
4. The answer - The cheapest activity pass is the Youth pass at the West Point Centre

## Activity 2

Using the Activity Pass Fee Schedule answer the following questions

1. Which activity pass is most expensive? \_\_\_\_\_
2. If you only had \$40.00 which adult pass could you buy? \_\_\_\_\_
3. Which passes cost more than \$35.00? \_\_\_\_\_

Activity Pass Fee Schedule

Monthly Fees	West Point Activity Centre	Market Street Activity Centre
Youth (17 & Under)	\$22.56	\$25.78
Adults	\$38.53	\$40.38
Senior (50+)	\$27.66	\$30.38
Family	\$61.40	\$74.34

### Activity 3

The Bulk Barn opens at 8:00 a.m. and closes at 8:00 p.m. There are 3 different shifts that an employee can work.

- 8:00 a.m. to 12:00 p.m. (noon)
- 12:00 p.m. to 4:00 p.m.
- 4:00 p.m. to 8:00 p.m.

Sometimes an employee has to work a double shift to cover for another employee when they have a day off.

Weekly Employee Shifts

Day	MON	TUES	WED	THUR	FRI	SAT	SUN
Name↓							
Gene	8-12	8-12	8-4	8-12	8-12	8-4	Closed
Kelly	12-4	12-4	off	12-4	12-4	12-8	Closed
Amira	4-8	4-8	4-8	4-8	4-8	off	Closed

Use the work schedule above to answer these questions

1. What time does Kelly work on Saturday? \_\_\_\_\_
2. Which is Amira's day off? \_\_\_\_\_
3. When does Gene work longer shifts? \_\_\_\_\_
4. Who has the day off on Wednesday? \_\_\_\_\_
5. Who starts work first on Monday? \_\_\_\_\_
6. Who works the evening shift on Saturday? \_\_\_\_\_
7. Who covered Kelly's hours on Wednesday? \_\_\_\_\_

#### Activity 4

Division chart	30	40	50	60	70
1	30	40	50	60	70
2	15	20	25	30	35
5	6	8	10	12	14
10	3	4	5	6	7

Using this division chart answer the questions below. Even if you know the division facts from memory or can figure the math out in your head, practice using the table to find the answer. Remember, this is not a math module, it is a module to help you learn how to use tables.

1.  $70 \div 2 =$  \_\_\_\_\_
2.  $40 \div 10 =$  \_\_\_\_\_
3.  $30 \div 5 =$  \_\_\_\_\_
4.  $70 \div 5 =$  \_\_\_\_\_
5.  $60 \div 12 =$  \_\_\_\_\_
6.  $40 \div 8 =$  \_\_\_\_\_
7.  $70 \div 14 =$  \_\_\_\_\_
8.  $60 \div 30 =$  \_\_\_\_\_
9.  $50 \div 50 =$  \_\_\_\_\_
10.  $40 \div 8 =$  \_\_\_\_\_



## Answers

### **Activity 1**

Using the Toronto Sports Team Stats table above answer the following questions

1. How many games did the Argos win? 9
2. How many games did the Raptors lose? 6

### **Activity 2**

Using the Activity Pass Fee Schedule answer the following questions

1. Which activity pass is most expensive?  
A Market Street Activity Centre Family pass
2. If you only had \$40.00 which adult pass could you buy?  
A West Point Activity Centre adult pass
3. Which passes cost more than \$35.00?  
Adult and family passes at West Point and Market Street Activity Centre cost more than \$35.00

### **Activity 3**

Use the work schedule below to answer these questions

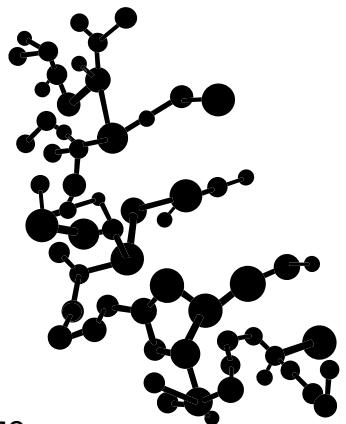
1. What time does Kelly work on Saturday? 12-8
2. Which is Amira's day off? Saturday
3. When does Gene work longer shifts? Wednesday and Saturday
4. Who has the day off on Wednesday? Kelly
5. Who starts work first on Monday? Gene
6. Who works the evening shift on Saturday? Kelly
7. Who covered Kelly's hours on Wednesday? Gene

#### **Activity 4**

Using this division chart answer the following questions

1.  $70 \div 2 = 35$
2.  $40 \div 10 = 4$
3.  $30 \div 5 = 6$
4.  $70 \div 5 = 14$
5.  $60 \div 12 = 5$
6.  $40 \div 8 = 5$
7.  $70 \div 14 = 5$
8.  $60 \div 30 = 2$
9.  $50 \div 50 = 1$
10.  $40 \div 8 = 5$

# Finding Patterns in a Table



## Supports the following type of tasks

- Sample Diabetes task—read a weekly blood sugar log and recognize patterns of highs and lows
- Sample Employment task—read inventory lists to check for low stock
- Sample Education task—read a multiplication table to find the answer to  $7 \times 9$
- Sample Independence task—reviewing internet or phone usage to track expenses

**Pre-requisites –** Using a table

**Time –** Variable

## Materials required

- Pens
- Paper
- Optional LED projector or smart board
- White board, or flip chart paper

## Objectives

The activities in this module focus on developing the skills needed to read and understand how to use a variety of tables. The learner will understand that

- tables have a variety of names
- there is a specific way of reading tables using columns and rows
- information in a table can be analyzed to determine cause and effect
- prior knowledge and making inferences may be required when analyzing data

## Format

The activities in this module can be delivered as a practitioner facilitated lesson or as a self-directed lesson depending on the skills of the learner. The activities can be worked on by individual learners, in pairs or as a small group.



## OALCF Levels used in Finding Patterns in a Table

<b>Primary OALCF Competencies</b>	<b>Performance Descriptors</b>
C4.1	<ul style="list-style-type: none"><li>• identifies and compares quantities of items</li><li>• understands numerical order</li><li>• makes simple estimates</li><li>• interprets and represents values using whole numbers</li><li>• recognizes simple patterns</li></ul>
C4.2	<ul style="list-style-type: none"><li>• makes estimates</li><li>• recognizes patterns and begins to identify trends in data (e.g. population, crime, demographic, inventory, injury)</li></ul>
C4.3	<ul style="list-style-type: none"><li>• manages unfamiliar elements (e.g. context, content) to complete tasks</li><li>• begins to recognize bias in data and in displays, such as graphs</li><li>• finds integrates and analyzes data</li><li>• makes predictions using data; identifies trends</li></ul>
A2.1	<ul style="list-style-type: none"><li>• scans to locate specific details</li><li>• interprets brief text and common symbols</li><li>• locates specific details in simple documents, such as labels and signs</li><li>• requires support to identify sources and to evaluate and integrate information</li></ul>
A2.2	<ul style="list-style-type: none"><li>• makes connections between parts of documents</li><li>• makes low-level inferences</li><li>• begins to identify sources and evaluate information</li><li>• performs limited searches using one or two search criteria</li><li>• extracts information from tables and forms</li><li>• uses layout to locate information</li></ul>
A2.3	<ul style="list-style-type: none"><li>• integrates several pieces of information from documents</li><li>• compares or contrasts information between two or more documents</li><li>• uses layout to locate information</li><li>• makes inferences and draws conclusions from information displays</li></ul>

<b>Secondary OALCF Competencies</b>	<b>Performance Descriptors</b>
A1.1	<ul style="list-style-type: none"> <li>• reads short texts to locate a single piece of information</li> <li>• decodes words and makes meaning of sentences in a single text</li> <li>• follows the sequence of events in straightforward chronological texts</li> <li>• follows simple, straightforward instructional texts</li> <li>• requires support to identify sources and to evaluate and integrate information</li> </ul>
F	If learner completes module as part of a group

## Essential Skills Levels used in Finding Patterns in a Table

Essential Skills	Level	Essential Skills	Level
Reading Text	1-2	Numeracy <input checked="" type="checkbox"/> Money math	1-3
Document Use	1-2	<input type="checkbox"/> Scheduling and budgeting <input type="checkbox"/> Measurement and calculation	
Writing		<input checked="" type="checkbox"/> Data Analysis <input type="checkbox"/> Numerical estimation	
Oral Communication	<input type="checkbox"/>	Thinking Skills <input checked="" type="checkbox"/> Problem solving	<input type="checkbox"/>
Working With others	<input type="checkbox"/>	<input checked="" type="checkbox"/> Decision making	
Computer Use	<input type="checkbox"/>	<input checked="" type="checkbox"/> Critical thinking <input type="checkbox"/> Job task planning and organization	
Continuous Learning	<input type="checkbox"/>	<input checked="" type="checkbox"/> Significant use of memory	



## Practitioner Instructions

When presenting to a group of learners, information sheets can be converted to be used as a PowerPoint or on a smart board or they can be used as prompts for practitioner notes on a flip-chart or white board.

When delivering the module, practitioners should encourage discussion to help enhance speaking and listening skills as well as writing skills.

Each learner will receive information sheets and activity sheets and are encouraged to underline, or highlight important information. Additional paper should be provided for longer notes.

Read each page aloud with the learner.



## Practitioner Activity Instructions

### **Activity 1 – Skill Builder**

Have the learner look over the carbohydrate table for a few minutes. Lead a discussion using the questions in Activity 1. Possible patterns are included in the answer section of this module.

Note: Encourage learners to use different coloured pens or highlighters to identify groups of numbers. For example: highlight all zeros with yellow, all numbers that are very close to target numbers (15 grams for snack and 50 grams for meals) in green and all numbers that are far above or far below (+/- 10 grams) in pink. Some learners may see patterns more easily when they have colour reinforcement.

### **Activity 2 – Skill Builder**

Have the learner look over the weather chart and accident table for a few minutes. Lead a discussion using the questions in Activity 2. Possible patterns are included in the answer section of this module.

Note: Encourage learners to transpose the information from the accident table to the weather report. Some learners need to see the information together to see patterns.



## **Activity 2 – Task**

### **Make your own calendar for the last 30 days.**

Provide the learner with a calendar template or show the learner how to make their own table with date headings and enough cells to capture the previous 30 days.

- **Write into the calendar the days that your class was scheduled in one colour of pen.** Learners may need assistance remembering PD days or stat holidays.
- **In a different colour pen, write in the days that you were absent, late or left early.** Learners may need assistance recalling their absences in the past 30 days. You may need to refer to class stats for accurate information.
- **In a third colour pen, write in any information you can remember about the last 30 days (family birthdays, illness, work schedule, child or childcare issues, weather issues, anything at all.)** Learners may need to discuss these issues to accurately identify when these events happened.

Analyze the information in your calendar

- Do you see any patterns?
- What do you think was the cause of these patterns?

Patterns may include

- Absence during bad weather
- Lateness on Monday mornings
- Leaving early at the end of the week
- Absence at the end of the month

Causes may include

- Childcare issues cause absence or lateness
- Absence due to illness or family illness
- Less funds at the end of the month –took extra work shifts

Learners may not be able to correlate their attendance patterns with external events independently. You may need to point out patterns that the learner cannot see.

There may be no patterns to see in the last 30 days.

Encourage learners to discuss how they may be able to change any patterns they do see.

## Analyzing Data

Tables can be used for more than just finding information. They can be used to analyze data. Analyzing data means you can look at a lot of information and see if there are patterns in the information. Analyzing data means we can find the cause of something or the effect that one thing has on something else.

Sometimes we have to use prior knowledge to see patterns. This means that we use information that is NOT in the table. We use information that we know already either from work we've already done or things we've already learned.

Sometimes we have to make an educated guess or read between the lines. This is called making an inference. The information is not given to us directly but we put the pieces together like a puzzle.

Here is a table that shows the sale of bottles of sun screen throughout the year across Ontario. What patterns do you see? What do you think caused this pattern?

Month	Sales in \$1000	Month	Sales in \$1000
January	1	July	5
February	2	August	4
March	3	September	2
April	1	October	1
May	1	November	1
June	2	December	1

Answers may vary: increase in sales in summer when children are out of school and during March Break when many go south on holiday. There are lower sales in winter months when danger of sun burn is low.

Once we have found the patterns and analyzed what might have caused the pattern, we can make decisions or solve problems.

What decisions might a store keeper make based on these patterns in the sales of sun screen?

- Have more sunscreen in stock
- Increase price
- More variety
- Advertise more

## Activity 1 – Skill Builder

A person living with diabetes has to keep track of how many carbohydrates (starch and sugar) they eat every day and at every meal. Food like potatoes, breads, cereals, sugar, soft drinks, sweets, and chips are very high in carbohydrates. Liz is supposed to eat about 50 grams of carbohydrates at every meal and about 15 in every snack. René is supposed to eat 3 meals and 3 snacks every day.

Look at this page from Liz's carbohydrate log book. Liz has written in the amount of carbohydrates for each meal. The amounts are all in grams.

Grams of Carbohydrates per Meal

	MON	TUES	WED	THUR	FRI	SAT	SUN
Breakfast	51	48	53	15	46	75	80
Snack	10	15	20	35	10	0	0
Lunch	40	55	45	60	45	46	22
Snack	20	20	15	0	0	0	75
Dinner	53	60	48	80	80	70	80
Snack	10	12	15	0	50	70	30

What patterns you see?

Is there a day of the week that Liz has difficulty sticking to her nutrition plan?

Are there times of day where there is a pattern of high numbers or low numbers?

Why do you think there might be problems on those days or those times of day?

## Integrating Data

Sometimes you need to look at information or data from two parts of a table or from 2 tables to really understand cause and effect. We have to integrate or blend the information to find an answer.

If we look at the next two tables, a weather report and a summary of accidents, we can analyze the data, integrate or blend the information and make some connections between possible causes and effects.

December 2011

Kingston Ontario Weather

SUN	MON	TUES	WED	THUR	FRI	SAT
				1 	2 	3 
4 	5 	6 	7 	8 	9 	10 
11 	12 	13 	14 	15 	16 	17 
18 	19 	20 	21 	22 	23 	24 
25 	26 	27 	28 	29 	30 	31 

## December 2011 Kingston Ontario Auto Collisions

Dates	Highway Collisions	Regional/Municipal Road Collisions
Dec 1-3	4	2
Dec 4-10	5	4
Dec 11-17	12	21
Dec 18-24	9	11
Dec 25-31	4	30

How do we use these two tables?

Start by looking for patterns or numbers that stand out.

What connections can you make between the two tables?

Do you have any prior knowledge (extra information) about this situation?

Can you read between the lines (make inferences)?

What possible cause and effect statements can you make?

Follow these steps

1. There are more car accidents (12) on the highway on the week of December 11.
2. What was happening with the weather that week? It snowed for 4 days and was cloudy most of the week.

## CAUSE → Effect

The snow might have caused the increase in highway accidents.

1. There were a lot of accidents on regional or municipal roads the week of December 24. What could have caused this?
2. What was the weather like? The weather was mostly fair that week. What other information do we know about that week?
3. It is a major Canadian holiday that week. A lot of people are on the roads at that time of year doing shopping and visiting friends and relatives.

## CAUSE → Effect

More traffic on the roads might have caused more accidents that week even though the weather was okay.

1. Are there any other factors that could explain the numbers of car accidents the week of December 25?
2. People are celebrating at that time of year. There may be more people stressed, not paying attention or drinking and driving at that time of year.

## CAUSE → Effect

People being stressed, not paying attention, or drinking and driving might have caused more minor road accidents that week.

## Activity 2 – Skill Builder

This worker injury report log shows which workers have been injured at work, where it happened and when they last had safety training.

Worker Injury Report – As of December 2011

Worker	Age	Injury	Work area	Safety training within last 6 months	Safety training within last 18 months
1	28	Hand	Press machine	No	Yes
2	19	None	Warehouse	Yes	Yes
3	37	Finger	Press machine	No	Yes
4	55	None	Warehouse	Yes	Yes
5	31	None	Press machine	Yes	Yes
6	61	Back	Warehouse	Yes	Yes
7	58	Back	Warehouse	No	Yes

Discuss the following questions.

- Do you see any patterns at all?
- Do you see any patterns that relate injury to age?
- Do you see any patterns that relate injury to work area?
- Do you see any patterns that relate injury to training?
- What cause and effect statements can you make?
- What could an employer do to change the effects?

## Activity 2 – Task

Make your own calendar for the last 30 days.

- Write into the calendar the days that your class was scheduled in one colour of pen.
- In a different colour pen, write in the days that you were absent, late or left early.
- In a third colour pen, write in any information you can remember about the last 30 days (family birthdays, illness, work schedule, weather issues, anything at all.)

Analyze the information in your calendar

- Do you see any patterns?
- What do you think was the cause of these patterns?
- What actions could you take to change any of these patterns?
- 

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday

## Answers

### **Activity 1 – Skill Builder**

Answers may vary

Key patterns should include

- High numbers on weekends
- Skipping snacks toward the end of the week
- Tend to over eat after skipping snacks
- Possibly eating junk food on the weekends

### **Activity 2 – Skill Builder**

Answers may vary

Key patterns should include

- More injuries when training is older than 6 months
- More hand injuries working on press
- More back injuries related to older age

### **Cause→ Effect Statements**

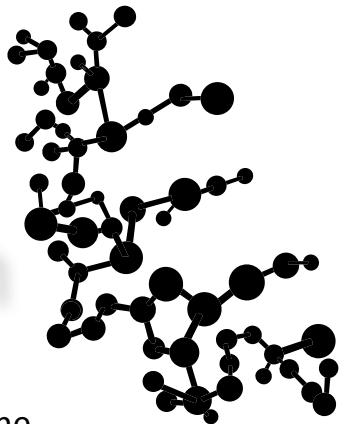
- Older age might have caused back injuries
- Less frequent safety training might have caused press machine injuries

### **Employer might**

- Increase amount of training on press equipment
- Increase training frequency
- Have more back safety training for all workers to prevent back injuries



# Using Addition and Subtraction



## Supports the following type of tasks

- Sample Diabetes task—use addition and subtraction to calculate the number of carbohydrates in a serving of food
- Sample Employment task—use addition and subtraction to manage inventory
- Sample Education task—use addition and subtraction to solve word problems and prepare for secondary school math credits
- Sample Independence task—use addition and subtraction to total a grocery bill and make change

**Pre-requisites – None**

**Time – Variable**

## Materials required

- Pens, pencils and coloured pens
- Paper and graph paper
- Calculator (learners may use the calculator in their cell phone)
- Optional LED projector or smart board
- White board, or flip chart paper

## Objectives

The activities in this module focus on developing the skills needed to use addition and subtraction in a variety of settings. The learner will be able to

- Recognize when a particular operation should be used in a word problem
- Use alternate methods when mental math skills are weak

## Format

The activities in this module can be delivered as a facilitated lesson or as a self-directed lesson depending on the skills of the learner. The activities can be worked on by individual learners, in pairs or as a small group.



## OALCF Levels Used in the Addition and Subtraction Module

<b>Primary OALCF Competencies</b>	<b>Performance Descriptors</b>
C1.1	<ul style="list-style-type: none"><li>• adds, subtracts, multiplies and divides whole numbers and decimals</li><li>• recognizes values in number and word format</li><li>• understands numerical order</li><li>• identifies and performs required operation</li><li>• follows apparent steps to reach solutions</li><li>• uses strategies to check accuracy (e.g. estimating, using a calculator, repeating a calculation, using the reverse operation)</li></ul>
C2.1	<ul style="list-style-type: none"><li>• understands chronological order</li><li>• understands and uses common date formats</li><li>• identifies and performs required operation</li><li>• represents dates and times using standard conventions</li><li>• follows apparent steps to reach solutions</li><li>• rounds to nearest minute or hour</li><li>• chooses appropriate units of measurement (e.g. hours, minutes, seconds)</li><li>• uses strategies to check accuracy (e.g. estimating, using a calculator, repeating a calculation, using the reverse operation)</li></ul>
C4.1	<ul style="list-style-type: none"><li>• adds, subtracts, multiplies and divides whole numbers and decimals</li><li>• recognizes values in number and word format</li><li>• identifies and compares quantities of items</li><li>• makes simple estimates</li></ul>

Secondary OALCF Competencies	Performance Descriptors
A1.1	<ul style="list-style-type: none"> <li>• reads short texts to locate a single piece of information</li> <li>• decodes words and makes meaning of sentences in a single text</li> <li>• follows the sequence of events in straightforward chronological texts</li> <li>• follows simple, straightforward instructional texts</li> <li>• requires support to identify sources and to evaluate and integrate information</li> </ul>
A2.1	<ul style="list-style-type: none"> <li>• scans to locate specific details</li> <li>• interprets brief text and common symbols</li> <li>• locates specific details in simple documents, such as labels and signs</li> <li>• requires support to identify sources and to evaluate and integrate information</li> </ul>
A2.2	<ul style="list-style-type: none"> <li>• makes connections between parts of documents</li> <li>• makes low-level inferences</li> <li>• begins to identify sources and evaluate information</li> <li>• performs limited searches using one or two search criteria</li> <li>• extracts information from tables and forms</li> </ul>
E.1	<ul style="list-style-type: none"> <li>• begins to use a limited number of learning strategies (e.g. follows instructions, takes literal notes, highlights or underlines key information, uses a calendar or agenda)</li> <li>• begins to identify ways to remember information and reinforce learning (e.g. reviewing notes)</li> <li>• begins to monitor own learning</li> <li>• uses feedback to improve performance</li> </ul>
E.2	<ul style="list-style-type: none"> <li>• uses a limited number of learning strategies (e.g. takes notes, organizes learning materials)</li> <li>• sequences activities in multi-step tasks</li> <li>• monitors own learning</li> <li>• begins to identify how skills and strategies can transfer to different contexts</li> </ul>
F	If learner completes module as part of a group

## Essential Skills used in the Addition and Subtraction Module

Essential Skills	Level	Essential Skills	Level
Reading Text	1	Numeracy <input checked="" type="checkbox"/> Money math	1
Document Use	1-2	<input type="checkbox"/> Scheduling and budgeting <input checked="" type="checkbox"/> Measurement and calculation <input type="checkbox"/> Data Analysis <input checked="" type="checkbox"/> Numerical estimation	
Writing			
Oral Communication	<input type="checkbox"/>	Thinking Skills <input checked="" type="checkbox"/> Problem solving	<input checked="" type="checkbox"/>
Working With others	<input type="checkbox"/>	<input type="checkbox"/> Decision making <input checked="" type="checkbox"/> Critical thinking	
Computer Use	<input type="checkbox"/>	<input checked="" type="checkbox"/> Job task planning and organization	
Continuous Learning	<input type="checkbox"/>	<input checked="" type="checkbox"/> Significant use of memory	



## Practitioner Instructions

When presenting to a group of learners, information sheets can be converted to PowerPoint presentations or can be used as prompts for practitioner notes on a flip-chart or white board.

When delivering the module, practitioners should encourage discussion to help enhance speaking and listening skills as well as numeracy skills.

Each learner will receive information sheets and activity sheets and are encouraged to underline, or highlight important information. Additional paper should be provided for longer notes.

Read each page aloud with the learner. Encourage the learner to use coloured pens when regrouping so work stands out. Encourage the learner to show all their work and write in words what they are thinking and doing while they complete the math computations.

When adding long strings of numbers, some learners' mental math skills may be a barrier. Encourage learners to use their fingers, scrap paper, "spot counting" or a calculator to do the mental math part. The learners' ability to solve word problems using addition and subtraction can improve even if their mental math skills are weak and if they have strategies for dealing with this barrier.

Learners who struggle with mental math addition may find that "spot counting" helps to make numbers concrete instead of abstract.

When learners have a visual image of the number they are counting, they do not lose track. Counting domino spots superimposed on top of a number on the page is less obvious than finger-counting and can be more accepted by learners who are embarrassed by finger-counting.



## Practitioner Activity Instructions

### **Activity 1 – Skill Builder Instructions**

Encourage learners to use the spot-counting technique to add up columns of numbers.

### **Activity 2 – Skill Builder Instructions**

Encourage learners to use the spot-counting technique to add up columns of numbers.

### **Activity 3 – Task Instructions**

Add up your contact hours in class for the last 6 weeks

Learners must

- a. Remember or locate their contact hours on a class sheet
- b. Add the contact hours

### **Activity 5 – Task Instructions**

Calculate the difference in how much you would spend on transport costs if you walked to school 1 day per week for 8 weeks (or 2 months)

Learners must

- a. Calculate or estimate their daily transport costs
- b. Add the daily transport costs for 8 weeks to find the total
- c. Calculate the transport cost for 8 days
- d. Subtract the cost for 8 days from the total cost for 8 weeks to find the difference in costs

Additional web resources on addition and subtraction can be found at

[www.khanacademy.org](http://www.khanacademy.org)

[www.skillsworkshop.org](http://www.skillsworkshop.org)

<http://www.projectread.ca/pdf/AddingToMySkills.pdf>



## Spot Counting When Adding

Sometimes we have to add long series or strings of numbers. We might be adding

- The number of pieces of lumber delivered on 7 different shipments
- The price of 12 items on an invoice to check that the total is accurate
- The number of calories in 20 different foods that we have eaten today
- The total number of marks we got on 17 quizzes throughout the year
- The number of kilometres we walked last month

We could use a calculator, the calculator in our cell phone or an Excel spread sheet to add up all these numbers. If we don't have these tools with us, we could also add them up with a pen and paper.

Adding long strings of numbers like this means we need to use our mental math skills but sometimes this is difficult. We might

- Have weak mental math skills
- Be easily distracted because of a loud work place
- Be tired or hungry and find it hard to concentrate

We can use finger-counting to help keep track of long lists of numbers while we add. If we are not comfortable with finger-counting, we can use "spot counting" instead.

## Spot counting

- Uses the mental image of domino spots
- Is more private than finger-counting
- Makes numbers more “real” instead of theoretical or abstract

If you are asked to add  $25 + 13 + 43 + 31 + 34 + 66 + 52$

You can lay the numbers out in a traditional addition format like this

25

13

43

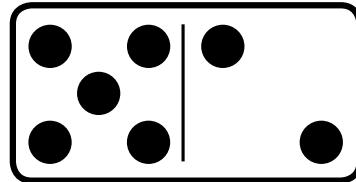
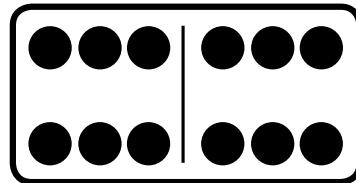
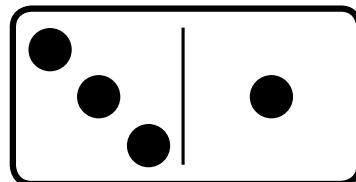
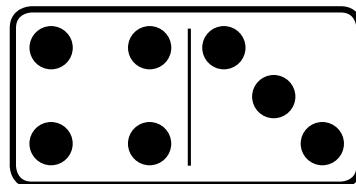
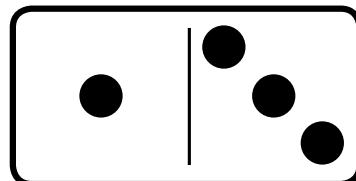
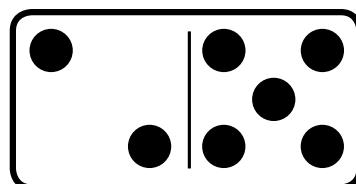
31

34

66

52

If you used dominoes to “write” the addition question it would look like this.



Start adding at the top of the ones column. When you get to the point where you are having difficulty adding the next number to the list, imagine or write the spots on top of the number and count the spots out loud or in your head.

Let's try with our example

5 + 3 is 8

Imagine or count 3 spots on the next three and count

9, 10, 11

Add 1 is 12

(add 4 spots to the 4) 13, 14, 15, 16

(add 6 spots to the 6) 17, 18, 19, 20, 21, 22

And 2 more is 24

Write the 4 in the ones answer space and carry the 2 into the top of tens column and repeat the process

2 and 2 is 4 and 1 is 5 and 4 is 9

(add 3 spots to the 3) 10, 11, 12

(add 3 spots to the 3) 13, 14, 15

16, 17, 18, 19, 20, 21

And 5 is 26

Write 26 into the answer box under the tens and hundreds column for the correct answer of 264.

25

13

43

31

34

66

52

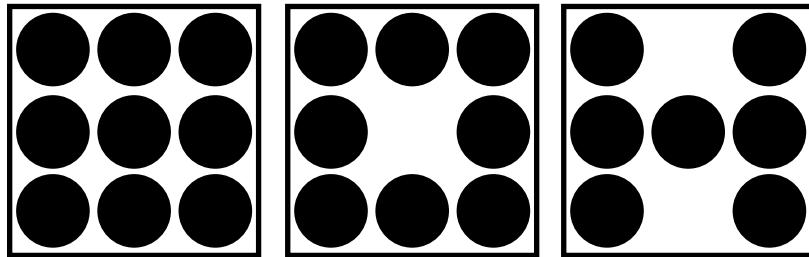
**Activity 1 – Skill Builder****Practice spot counting by adding these numbers**

22	14	12	651	565
41	25	31	533	343
66	36	34	256	545
43	41	44	544	141
56	52	56	611	222
61	63	61	352	363
24	31	35	166	661

## Spot Counting Using Larger Numbers

What if you have to add numbers like 79, 48, 77, 98 and 86?

You can use the spot formation from 12-spot dominoes for the numbers 7, 8 and 9.



### Activity 2 – Skill Builder

Use the same Spot Counting technique to add up these numbers

59	98	123	798	4560
28	65	456	645	6791
37	32	789	312	3691
46	78	963	285	9875
98	45	852	936	6985
18	12	741	714	4569
71	91	195	735	9587

## Using Addition to Solve Word Problems

Word problems are a good way to see how addition is used in different ways. You might have to

- Tally up the amount of money in your cash register at the end of your shift
- Count up the number of carbohydrates in a meal
- Keep track of expenses for the week

You can tell that you have to use addition when solving real-life math problems if you see certain words and phrases. These are called addition key words

- sum
- and
- in all
- total
- perimeter
- increase
- more
- raise
- both
- combined
- all together
- later
- add
- plus



## Addition Word Problem Examples

### Example 1

My friend's rent has increased by \$120 a month. She used to pay \$650. How much is her rent now?

Key word –increased

$$650 + 120 = 770$$

The rent is now \$770.

### Example 2

Today Helen and I each had a spinach salad (\$3) and bottled water (\$1) for lunch. How much did our lunch cost altogether?

Key word – and & altogether

$$3+3+1+1 = 8$$

Our lunches were \$8 altogether.

### Example 3

Jane ate 1200 calories every day during the week and 1500 calories on the weekend. In total, how many calories did she eat?

Key word - in total

$$\text{Mon} + \text{Tue} + \text{Wed} + \text{Thu} + \text{Fri} + \text{Sat} + \text{Sun} =$$

$$1200 + 1200 + 1200 + 1200 + 1200 + 1500 + 1500 = 9000$$

During the whole week, Jane ate a total of 9000 calories.

### **Activity 3 – Skill Builder**

Use your pen and paper addition skills or a calculator to answer these word problems. Write out the math statement and give your answer in words.

1. Fred's holiday was going to be from June 3rd to June 17th. He now has to change the dates to begin and end 10 days later. What are the new dates?
2. Ted brought 9 cokes to the party. I already had 21. How many did we have all together?
3. The health and safety workshop is 90 minutes on Monday and Wednesday and 180 minutes on Tuesday and Thursday. How many total minutes of training is the workshop?
4. Traffic is so bad these days that my drive to work has increased 35 minutes every day. It used to take me 25 minutes to get to work. How long does it take now?
5. Hannah, John, Rita, Simon and Akash each have 21, 18, 14, 11 and 7 years of experience in sales, respectively. How many combined years of experience do they have?
6. Look at the table below and calculate the combined yearly contact hours for all departments.

Health and Safety	418
Maintenance	221
Reception	1014
Sales	4309
Customer Service	2997
Management	385
Administration	291
Total	

### **Activity 3 – Task**

Add up your contact hours in class for the last 6 weeks

**Task**

## Using Subtraction

One of the biggest problems when subtracting is borrowing or regrouping.

Here's an example

$$\begin{array}{r} 781 \\ - 496 \\ \hline \end{array}$$

You can't take 6 away from 1 so you have to borrow.

The question above tells us we have

- 7 hundreds
- 8 tens
- 1 ones

And we want to take away

- 4 hundreds
- 9 tens
- 6 ones

We can think of this in terms of money. Thinking in terms of money makes subtraction easier.

We have

- 7 hundred dollar bills
- 8 ten dollar bills
- 1 loonie

And we want to take away or subtract

- 4 hundred dollar bills
- 9 ten dollar bills
- 6 loonies

We start with the loonies and realize that we can't take 6 loonies away from 1 loonie so we have to borrow or **MAKE CHANGE** from one of the tens.

If you convert one of the ten dollar bills into loonies that leaves us with 7 ten dollar bills and now we have 11 loonies.

Now we can take 6 of those loonies away and we get 5 loonies.

We usually show this in regrouping by crossing out the 8 and writing 7.

We then write a 1 beside the 1 to make it look like 11.

Then we subtract.

What happens when we have to do the next column?

7 subtract 9 doesn't work.

Convert one of the \$100 bills to ten dollar bills.

We now have 6 hundred dollar bills and 17 ten dollar bills.

17 subtract 9 is 8.

$$\begin{array}{r} & 7 & 1 \\ & \cancel{8} & 1 \\ - & 4 & 9 & 6 \\ \hline \end{array}$$

What about the third column—the hundreds column?

$6 - 4 = 2$ .

#### **Activity 4 – Skill Builder**

Subtract the following numbers and show your work where you regrouped or borrowed

$$\begin{array}{r} 963 \\ -544 \\ \hline \end{array}$$

$$\begin{array}{r} 741 \\ -123 \\ \hline \end{array}$$

$$\begin{array}{r} 987 \\ -456 \\ \hline \end{array}$$

$$\begin{array}{r} 951 \\ -369 \\ \hline \end{array}$$

$$\begin{array}{r} 852 \\ -638 \\ \hline \end{array}$$

$$\begin{array}{r} 357 \\ -159 \\ \hline \end{array}$$

$$\begin{array}{r} 222 \\ -189 \\ \hline \end{array}$$

$$\begin{array}{r} 856 \\ -117 \\ \hline \end{array}$$

$$\begin{array}{r} 483 \\ -289 \\ \hline \end{array}$$

$$\begin{array}{r} 777 \\ -148 \\ \hline \end{array}$$

## Using Subtraction to solve word problems

If you are still practising borrowing or regrouping you can use a calculator or the calculator in your phone for the next part. Keep practising your subtraction skills so you feel comfortable doing it without a calculator.

Word problems are a good way to see how subtraction is used in different ways. You might have to

- Figure out how much money will be in your bank account after you have paid some bills
- Subtract the amount of fibre from carbohydrates to get the total number of carbohydrates in a meal
- Figure out how much time you have left after making several deliveries
- Buy groceries from a strict budget

You can tell that you have to use subtraction when solving real-life math problems if you see certain words and phrases. These are called subtraction key words

- difference
- how much more
- remain
- exceed
- left
- reduce
- decrease
- change
- more than
- less than
- deduct



**Example 1**

Mary had 25 deliveries on her list. By the end of her shift she completed 17 of them. How many were left?

Key word - left

$$25 - 17 = 8$$

Mary had 8 deliveries left.

**Example 2**

This week the average temperature was 24 degrees. Next week it is supposed to be 9 degrees. What's the difference in temperature?

Key word - difference

$$24 - 9 = 15$$

The difference in temperature from this week to next is 15 degrees.

**Example 3**

Rene drove his car 148 km for work last week. Bill drove 293 km. Sarah drove 486 km . How much more did Sara drive than each of the men? How much more did Bill drive than Rene?

Key word – how much more

$$486 - 293 = 193 \quad \text{Sara drove 193 km more than Bill}$$

$$486 - 148 = 338 \quad \text{Sara drove 338 km more than Rene}$$

$$293 - 148 = 145 \quad \text{Bill drove 145 km more than Rene}$$

## **Activity 5 – Skill Builder**

Use your pen and paper subtraction skills or a calculator to answer these word problems. Write out the math statement and give your answer in words.

1. There were 267 students at Lakeshore Middle School. On Tuesday, 127 of those students left for a field trip. How many students were left at school on Tuesday?
2. The music store had stocked 500 copies of the new #1 album. They sold 258 copies that day. How many copies remained at the end of the day?
3. Adam recorded 142 hours of television on his PVR. The unit holds a maximum of 160 hours. How many hours of TV can he still record?
4. A standard burnable CD holds 700MB of data. I burned 372MB of photographs to the disc. How much storage space is remaining on the disc?
5. My T1 general (income tax form) says I still have to pay the difference between what I owe in tax this year (\$1700) and what I already paid on my pay cheques (\$1263). How much money do I still have to pay?
6. I earn \$475 a week (gross pay). I have deductions for income tax, CPP and EI as well as union dues. My net pay (take-home pay) is \$348. How much am I paying in total deductions?

## Activity 5 – Skill Builder-Continued

To calculate the amount of carbohydrates in a serving subtract the fibre from the total carbohydrates.

7. Look at these labels. How many grams of carbohydrate are in each serving?

<b>Nutrition Facts</b>	
Serving Size 1 cup (228g)	
Servings Per Container 2	
<b>Amount Per Serving</b>	
<b>Calories</b> 260	Calories from Fat 120
<b>% Daily Value*</b>	
<b>Total Fat</b> 13g	20%
Saturated Fat 5g	25%
Trans Fat 0g	
<b>Cholesterol</b> 30mg	10%
<b>Sodium</b> 660mg	28%
<b>Total Carbohydrate</b> 31mg	10%
Dietary Fiber 0g	0%
Sugars 5g	
<b>Protein</b> 5g	
<b>Vitamin A</b> 4% • <b>Vitamin C</b> 2%	
<b>Calcium</b> 15% • <b>Iron</b> 4%	

<b>Nutrition Facts</b>	
Serving Size $\frac{3}{4}$ cup (55g)	
Servings Per Container 5	
<b>Amount Per Serving</b>	
<b>Calories</b> 250	Calories from Fat 50
<b>% Daily Value*</b>	
<b>Total Fat</b> 6g	9%
Saturated Fat 0.5g	3%
<b>Cholesterol</b> <5mg	<2%
<b>Sodium</b> 200mg	8%
<b>Total Carbohydrate</b> 40g	13%
Dietary Fiber 4g	16%
Sugars 18g	
<b>Protein</b> 9g	18%
Vitamin A 25% • Vitamin C 50% • Calcium 30% • Iron 25%	
*Percent Daily Values based on a 2,000 Calorie diet.	

## **Activity 5 – Task**

Calculate how much money you would save in 2 months on transport costs if you walked to school 1 day per week.

If you are not sure of your exact transport costs per day, make a rough estimate.

### **Task**



## Answers

### **Activity 1 – Skill Builder**

22	14	12	651	565
41	25	31	533	343
66	36	34	256	545
43	41	44	544	141
56	52	56	611	222
61	63	61	352	363
24	31	35	166	661
313	262	273	3113	2840

### **Activity 2 – Skill Builder**

59	98	123	798	4560
28	65	456	645	6791
37	32	789	312	3691
46	78	963	285	9875
98	45	852	936	6985
18	12	741	714	4569
71	91	195	735	9587
357	421	4119	4425	46058

### Activity 3 – Skill Builder

1.  $3 + 10 = 13$  and  $17 + 10 = 27$   
The new dates are June 13 to 27<sup>th</sup>
2.  $9 + 21 = 30$   
There are now 30 cokes
3.  $90 + 90 + 180 + 180 = 540$   
The workshop is a total of 540 minutes
4.  $25 + 35 = 60$   
It now takes 60 minutes to get to work
5.  $21 + 18 + 14 + 11 + 7 = 71$   
They have 71 years of combined experience
6. The total contact hours are 9635

418
221
1014
4309
2997
385
291
9635

### Activity 4 – Skill Builder

963      741      987  
544      123      456  
**419**      **618**      **531**

951      852      357  
369      638      159  
**582**      **214**      **198**

222      856      483  
189      117      289  
**33**      **739**      **194**

777  
148  
**629**

## **Activity 5 – Skill Builder**

1.  $267 - 127 = 140$

There were 140 students left at school on Tuesday

2.  $500 - 258 = 242$

There were 242 copies remaining at the end of the day

3.  $160 - 142 = 18$

Adam can record 18 more hours of TV

4.  $700 - 372 = 328$

There is 328 MB of space remaining on the disc

5.  $1700 - 1263 = 437$

I still have to pay \$437 in taxes

6.  $475 - 348 = 127$

I am paying \$127 in total deductions

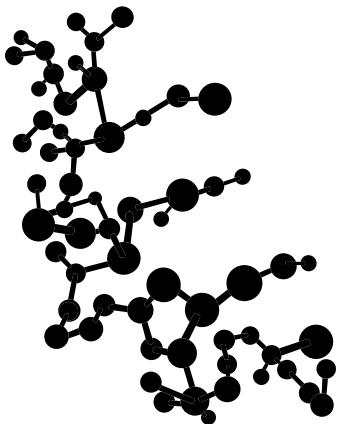
7.  $31 - 0 = 31$

There are 31 grams of total carbohydrates in a 1 cup serving

There are 36 grams of carbohydrates in a  $\frac{3}{4}$  cup serving.



# Multiplication and Division



## Supports the following type of tasks

- Sample Diabetes task—use multiplication and division to calculate the serving sizes and percent of daily intake
- Sample Employment task—use multiplication and division to calculate paint coverage area
- Sample Education task—use multiplication and division to prepare for secondary credit math courses
- Sample Independence task—use multiplication and division to determine total cost when using a payment plan

**Pre-requisites – Addition and Subtraction**

**Time – Variable**

## Materials required

- Pens, pencils and coloured pens
- Paper and graph paper
- Calculator (learners may use the calculator in their cell phone)
- Optional LED projector or smart board
- white board, or flip chart paper

## Objectives

The activities in this module focus on developing the skills needed to use multiplication and division in a variety of settings, particularly for calculating percent. The learner will be able to

- Recognize when a particular operation should be used in a word problem
- Use alternate methods when mental math skills are weak
- Use multiplication and division to solve word problems

## Format

The activities in this module can be delivered as a practitioner facilitated lesson or as a self-directed lesson depending on the skills of the learner. The activities can be worked on by individual learners, in pairs or as a small group.



## OALCF Levels used in the Multiplication and Division Module

<b>Primary OALCF Competencies</b>	<b>Performance Descriptors</b>
C1.1	<ul style="list-style-type: none"><li>• adds, subtracts, multiplies and divides whole numbers and decimals</li><li>• recognizes values in number and word format</li><li>• understands numerical order</li><li>• identifies and performs required operation</li><li>• follows apparent steps to reach solutions</li><li>• uses strategies to check accuracy (e.g. estimating, using a calculator, repeating a calculation, using the reverse operation)</li></ul>
C1.2	<ul style="list-style-type: none"><li>• chooses and performs required operation(s); may make inferences to identify required operation(s)</li><li>• selects appropriate steps to reach solutions</li><li>• uses strategies to check accuracy (e.g. estimating, using a calculator, repeating a calculation, using the reverse operation)</li><li>• interprets and applies rates (e.g. \$/kg, \$/l)</li></ul>
C2.1	<ul style="list-style-type: none"><li>• understands chronological order</li><li>• understands and uses common date formats</li><li>• identifies and performs required operation</li><li>• represents dates and times using standard conventions</li><li>• follows apparent steps to reach solutions</li><li>• rounds to nearest minute or hour</li><li>• chooses appropriate units of measurement (e.g. hours, minutes, seconds)</li><li>• uses strategies to check accuracy (e.g. estimating, using a calculator, repeating a calculation, using the reverse operation)</li></ul>

<b>Primary OALCF Competencies</b>	<b>Performance Descriptors</b>
C3.1	<ul style="list-style-type: none"> <li>• recognizes values in number and word format</li> <li>• measures distance, length, width, height, weight, liquid volume, angles and temperature</li> <li>• uses common measuring tools, such as rulers, scales and thermometers</li> <li>• understands numerical order</li> <li>• makes simple estimates</li> <li>• chooses appropriate units (e.g. metres, inches) and non-standard units (e.g. paces, cupfuls, scoops)</li> <li>• identifies and performs required operation</li> <li>• interprets and represents measures using whole numbers</li> <li>• interprets and represents measures using symbols and abbreviations (e.g. inches as ", centimeters as cm, pounds as lbs, kilograms as kilos or kg)</li> <li>• follows apparent steps to reach solutions</li> <li>• uses strategies to check accuracy (e.g. estimating, using a calculator, repeating a calculation, using the reverse operation)</li> </ul>
C3.2	<ul style="list-style-type: none"> <li>• calculates using numbers expressed as whole numbers</li> <li>• makes estimates</li> <li>• interprets and applies rates (e.g. km/hr) and ratios (e.g. map scales)</li> <li>• chooses and performs required operation(s); may make inferences to identify required operation(s)</li> <li>• selects appropriate steps to solutions</li> <li>• uses strategies to check accuracy (e.g. estimating, using a calculator, repeating a calculation, using the reverse operation)</li> </ul>
C3.3	<ul style="list-style-type: none"> <li>• calculates using numbers expressed as whole numbers</li> </ul>

<b>Secondary OALCF Competencies</b>	<b>Performance Descriptors</b>
A1.1	<ul style="list-style-type: none"> <li>• reads short texts to locate a single piece of information</li> <li>• decodes words and makes meaning of sentences in a single text</li> <li>• follows the sequence of events in straightforward chronological texts</li> <li>• follows simple, straightforward instructional texts</li> <li>• requires support to identify sources and to evaluate and integrate information</li> </ul>
A1.2	<ul style="list-style-type: none"> <li>• scans text to locate information</li> <li>• locates multiple pieces of information in simple texts</li> <li>• makes low-level inferences</li> </ul>
E.1	<ul style="list-style-type: none"> <li>• begins to use a limited number of learning strategies (e.g. follows instructions, takes literal notes, highlights or underlines key information, uses a calendar or agenda)</li> <li>• begins to identify ways to remember information and reinforce learning (e.g. reviewing notes)</li> <li>• begins to monitor own learning</li> <li>• uses feedback to improve performance</li> </ul>
E.2	<ul style="list-style-type: none"> <li>• uses a limited number of learning strategies (e.g. takes notes, organizes learning materials)</li> <li>• sequences activities in multi-step tasks</li> <li>• monitors own learning</li> <li>• begins to identify how skills and strategies can transfer to different contexts</li> </ul>
F	If learner completes module as part of a group

## Essential Skills Used in the Multiplication and Division Module

Essential Skills	Level	Essential Skills	Level
Reading Text	1	Numeracy <input type="checkbox"/> Money math	1
Document Use	1-2	<input type="checkbox"/> Scheduling and budgeting <input checked="" type="checkbox"/> Measurement and calculation	
Writing		<input type="checkbox"/> Data Analysis <input checked="" type="checkbox"/> Numerical estimation	
Oral Communication	<input type="checkbox"/>	Thinking Skills <input checked="" type="checkbox"/> Problem solving	<input checked="" type="checkbox"/>
Working With others	<input type="checkbox"/>	<input type="checkbox"/> Decision making <input checked="" type="checkbox"/> Critical thinking	
Computer Use	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Job task planning and organization	
Continuous Learning	<input type="checkbox"/>	<input type="checkbox"/> Significant use of memory	

## Practitioner Instructions

When presenting to a group of learners, information sheets can be converted to overheads or can be used as prompts for practitioner notes on flip-chart or white board.

When delivering the module, practitioners should encourage discussion to help enhance speaking and listening skills as well as numeracy skills.

Each learner will receive information sheets and activity sheets and are encouraged to underline, or highlight important information. Additional paper should be provided for longer notes.

Read each page aloud with the learner. Encourage the learner to use coloured pens when regrouping so work stands out. Encourage the learner to show all their work and write in words what they are thinking and doing while they complete the math computations.

Learners may struggle to remember multiplication and division facts. Learners should be encouraged to use a multiplication grid or their calculator to support their mental math skills but should be encouraged to only use the calculator for this purpose while they learn the fundamentals of long division, long multiplication and percent. Additional web resources on multiplication and division can be found at

- [www.khanacademy.org](http://www.khanacademy.org)
- [www.skillsworkshop.org](http://www.skillsworkshop.org)
- <http://www.projectread.ca/pdf/AddingToMySkills.pdf>
- [www.bbc.co.uk/skillswise](http://www.bbc.co.uk/skillswise)

## **Long Multiplication Review**

It is important to practice long multiplication skills. You can often solve a single question faster than it takes you to find a calculator. There are some simple steps that you use every time you multiply multi-digit numbers. Remember place value as you work through the problem.

In the number 1486 there are 6 ones in the ones column, 8 tens in the tens column, 4 hundreds in the hundreds column and 1 thousand in the thousands column

thousands	hundreds	tens	ones
1	4	8	6

## **Multiplication Steps**

1. Multiply everything by the lower number in the ones column first
2. Write that answer below the line
3. Place a zero in the ones column on the next line
4. Multiply everything by the number in the tens column
5. Write that answer below the answer in step 2
6. Draw a line
7. Add the two bottom lines together

### Example 1

Follow those steps for this question  $48 \times 21 =$

$$\begin{array}{r} \text{Th} \quad \text{h} \quad \text{t} \quad \text{o} \\ & 4 & 8 \\ \times & 2 & 1 \\ \hline & 4 & 8 \\ + & 9 & 6 & 0 \\ \hline 1 & 0 & 0 & 8 \end{array}$$

1.  $1 \times 8 = 8$  write 8 in the ones column
2.  $1 \times 4 = 4$  write 4 in the tens column
3. Put a zero in the ones column because when you multiply by 2 you are really multiplying by 20
4.  $2 \times 8 = 16$  write 6 in the tens column and carry 1
5.  $2 \times 4 = 8 + 1 = 9$  write 9 in the hundreds column
6. Add the two lines
7.  $8 + 0 = 8$  write 8 in the ones column
8.  $4 + 6 = 10$  write 0 in the tens column and carry 1
9.  $9 + 1 = 10$  write 0 in the hundreds column and carry 1
10.  $1 + \text{nothing}$  write 1 in the thousands column

## Try these questions

$$\begin{array}{r} 65 \\ \times 24 \\ \hline \end{array}$$

$$\begin{array}{r} 35 \\ \times 47 \\ \hline \end{array}$$

$$\begin{array}{r} 79 \\ \times 35 \\ \hline \end{array}$$

Remember-only use your calculator to help with basic multiplication facts like  $4 \times 6$  or for checking your final answer. Do NOT use the calculator to solve the whole question. Show your work for every stage including carrying etc.

### Three digit multiplication

What about when you have to multiply by 3 digits?

Follow the same steps

1. Multiply everything by the number in the ones column first
2. Write that answer below the line
3. Place a zero in the ones column on the next line
4. Multiply everything by the number in the tens column
5. Write that answer below the answer in step 2
6. Place a zero in the tens column on the next line
7. Multiply everything by the number in the hundreds column
8. Write that answer under the answer from step 4
9. Draw a line
10. Add the three bottom lines together

## Example 2

$$\begin{array}{r} \text{tth th h t o} \\ & 2 4 8 \\ \times & 2 2 1 \\ \hline & 2 4 8 \\ & 4 9 6 0 \\ + & 4 9 6 0 0 \\ \hline 5 & 4 8 0 8 \end{array}$$

1.  $1 \times 8 = 8$  write 8 in the ones column
2.  $1 \times 4 = 4$  write 4 in the tens column
3.  $1 \times 2 = 2$  write 2 in the hundreds column
4. Put a zero in the ones column because when you multiply by 2 you are really multiplying by 20
5.  $2 \times 8 = 16$  write 6 in the tens column and carry 1
6.  $2 \times 4 = 8 + 1 = 9$  write 9 in the hundreds column
7.  $2 \times 2 = 4$  write 4 in the thousands column
8. Put a zero in the ones and a zero in the tens column because when you multiply by 2 again you are really multiplying by 200
9.  $2 \times 8 = 16$  write 6 in the hundreds column and carry 1
10.  $2 \times 4 = 8 + 1 = 9$  write 9 in the thousands column
11.  $2 \times 2 = 4$  write 4 in the ten-thousands column
12. Add the three last lines together
13.  $8 + 0 + 0 = 8$  write 8 in the ones column
14.  $4 + 6 + 0 = 10$  write 0 in the tens column and carry 1
15.  $2 + 9 + 6 + 1 = 18$  write 8 in the hundreds column and carry 1
16.  $14 + 9 + 1 = 14$  write 4 in the thousands column and carry 1
17.  $4 + 1 = 5$  write 5 in the ten-thousands column

## Try these questions

$$\begin{array}{r} 458 \\ \times 192 \\ \hline \end{array}$$

$$\begin{array}{r} 186 \\ \times 134 \\ \hline \end{array}$$

$$\begin{array}{r} 2144 \\ \times 329 \\ \hline \end{array}$$

### Activity 1—Skill Builder

Remember—only use your calculator to help with basic multiplication facts like  $4 \times 6$  or for checking your final answer. Do NOT use the calculator to solve the whole question. Show your work for every stage, including carrying etc.

$$\begin{array}{r} 18 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 84 \\ \times 7 \\ \hline \end{array}$$

$$\begin{array}{r} 104 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} 35 \\ \times 30 \\ \hline \end{array}$$

$$\begin{array}{r} 271 \\ \times 11 \\ \hline \end{array}$$

$$\begin{array}{r} 872 \\ \times 206 \\ \hline \end{array}$$

## Using Multiplication to Solve Word Problems

Word problems are a good way to see how multiplication is used in different ways. You might have to

- Calculate the area you need to cover with paint or flooring
- Calculate the number of calories, carbohydrates or fat in multiple servings
- Keep track of purchases of multiple items
- Count how many pieces of lumber are stacked on a pallet
- Calculate weekly pay based on an hourly rate

You can tell that you have to use multiplication when solving real-life math problems if you see certain words and phrases. These are called multiplication key words.

- Product
- Area
- So many times as much
- Twice
- By
- Volume



**Example 1**

Six people bought tickets to the cinema at \$8 per ticket. How much did they pay altogether?

- 6 tickets, \$8 per ticket
- $6 \times 8 = 48$
- They paid \$48 all together

**Example 2**

Terry's living room is 13 feet by 20 feet. What is the total area in square feet?

- $13 \times 20 = 260$  square feet

## **Activity 2 – Skill Builder**

You can use your long multiplication skills to solve these word problems or you can use your calculator. Write out the math statement, solve and write your answers in words.

1. I want to buy 6 shrubs for my garden. How much will I pay if they are \$15 per shrub?
2. How many apartments are in a building with 13 floors and 2 apartments per floor?
3. Ted bought 12 boxes of annual plants with 15 plants per box. How many plants is that altogether? Malika bought four times as many as Ted. How many did she buy?
4. This spreadsheet has 3 columns and 2 rows. How many cells (boxes) are there?


5. Each of Toni's inventory spreadsheets has 17 columns by 17 rows. How many cells are there on Toni's spreadsheets?
6. I have seen a washing machine on sale for \$399. If I pay monthly I will have to make 24 monthly payments of \$28. How much will I end up paying for the washing machine? Am I getting a deal?
7. My area rug measures 4 feet in length and 3 feet in width. The area of the area rug (ever wonder why they call it an area rug?) is 12 square feet. If I wanted to buy a 5 by 7 area rug, what would the area be in square feet?
8. There are 120 calories and 9 grams of fat per 1 serving of creamy ranch salad dressing. I like to put 3 servings of salad dressing in my mashed potatoes. How many calories and how much fat come from the salad dressing?

## **Activity 2 – Task**

If taking the bus to class costs \$10 per day (to and from class) how much money would you spend on bus fare in the month of March? Remember to only calculate bus fare based on the number of days that you attend class.

### **Task**

## Long Division Review

Before we tackle long division, let's go over the names and meanings of each part of a division question.

- The number that is being split into pieces goes “inside the box”. This is the Dividend
- The number of parts you are splitting it up into goes “outside the box” . This is the Divisor
- The answer goes “on top of the box”. This is the Quotient
- What is left over if the Dividend can’t be split evenly is the last number at the bottom. This is the Remainder

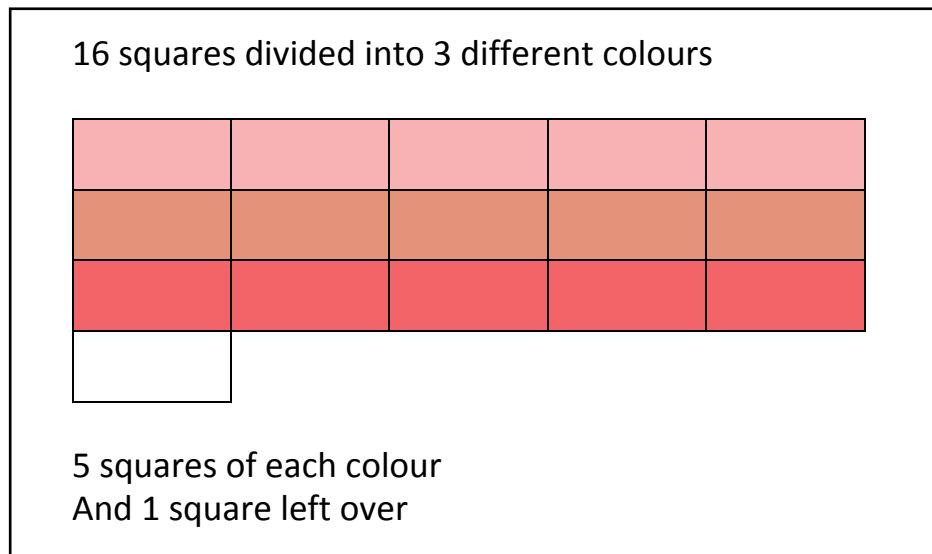
$$\begin{array}{r} \text{quotient}\rightarrow 5 \\ \text{divisor}\rightarrow 3 \overline{)16} \\ \text{dividend} \nearrow 15 \\ \text{remainder}\rightarrow 1 \end{array}$$

### Example 1

$$16 \div 3 =$$

We can tell by this chart that

$$16 \div 3 = 5 \text{ with one left over}$$



- 16 is being split into equal parts so 16 is the dividend
- We are splitting the group into 3 parts so 3 is the divisor (the number that is doing the dividing)
- 5 is the answer or the quotient
- And there is 1 left over so the remainder is 1

## **Long Division Continued**

Long division has a similar process to long multiplication. You tackle each number separately and stack up your answers.

There's a helpful mnemonic device or memory tip for long division. It will help you remember the order of the steps you have to follow. It is "Does McDonalds Serve Burgers"

D—Does

M—McDonalds

S—Serve

B—Burgers

D—Division

M—Multiplication

S—Subtraction

B—Bring down ↓

Write DMSB at the corner of your work sheet or beside a division question and check off each step as you complete it.

Let's use our example to show these steps

$$16 \div 3 =$$

$$\begin{array}{r} 5 \\ 3 \overline{)1 \quad 6} \end{array}$$

$$\begin{array}{r} 5 \\ 3 \overline{)1 \quad 6} \\ \underline{-1} \quad 5 \end{array}$$

$$\begin{array}{r} 5 \\ 3 \overline{)1 \quad 6} \\ \underline{-1} \quad 5 \\ \quad \quad 1 \end{array}$$

Start by asking "how many times does 3 go into 1?"

It doesn't so now ask "how many times does 3 go into 16?"

**This is a division question- the D from your memory trick. D**

The answer is 5.

Write 5 over top of the 6 in the quotient space

Now ask what is  $5 \times 3$  (the quotient times the divisor) ?

**This is a multiplication question –the M from your memory trick M**

The answer is 15

Write the 15 under the 16

Now ask what is 16 subtract 15?

**This is the S from your memory trick S**

The answer is 1

Write 1 under the 5

This question has nothing to **BRING DOWN** for the **B** part of your memory trick so you have a remainder of 1

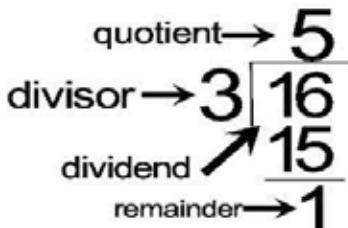
## Example 2

$$846 \div 6 =$$

$$\begin{array}{r} 1 & 4 & 1 \\ 6 \overline{)8} & 4 & 6 \\ 6 & \downarrow & \downarrow \\ 2 & 4 & \downarrow \\ 2 & 4 & \downarrow \\ \hline 0 & 6 & \\ & 6 & \\ \hline & 0 & \end{array}$$

Remember the steps using this memory trick  
Does—D—Division  
McDonalds—M—  
Multiplication  
Serve—S—Subtraction  
Burgers—B—Bring Down

Remember long division terminology



Start by asking how many times does 6 go into 8? 1 D

Write 1 directly over the 8.

Multiply  $1 \times 6$  M

Write the answer 6 directly under the 8--this is the start of your rough work

Subtract 6 from 8 S

Write the answer 2 directly under the 6

Bring down the 4 till it is beside the 2 B

REPEAT

Ask yourself how many times does 6 go into 24? 4 D

Write the 4 directly over the 4 in the dividend

Multiply  $4 \times 6$  M

Write the answer 24 directly under the 24 in the rough work

Subtract 24 from 24 S

Write the answer 0 below the 4 in the rough work

Bring down the 6 B

REPEAT

Ask yourself how many times does 6 go into 6? 1 D

Write the 1 directly over the 6 in the dividend

Multiply  $1 \times 6$  M

Write the answer 6 directly under the 6 in the rough work

Subtract 6 from 6 S

Write the answer 0 below the 6 in the rough work

There is nothing to Bring down so the process stops here

### Example 3

$$187 \div 11 =$$

$$\begin{array}{r} 17 \\ 11 \overline{)187} \\ 11 \\ \hline 77 \\ 77 \\ \hline 0 \end{array}$$

Remember the steps using this memory trick  
Does—D—Division  
McDonalds—M—  
Multiplication  
Serve—S—Subtraction  
Burgers—B—Bring Down

Remember long division terminology

$$\begin{array}{r} 5 \\ 3 \overline{)16} \\ 15 \\ \hline 1 \end{array}$$

You can use the same process for double digit divisors  
Start by asking how many times does 11 go into 1? None  
Write 0 in the space over the 1 in the dividend or leave the space blank

Ask yourself how many times does 11 go into 18? 1 D

Write 1 directly over the 8 in the dividend

Multiply  $1 \times 11$

M

Write the answer 11 directly under the 18—this is the start of your rough work

Subtract 11 from 18 S

S

Write the answer 7 directly below the 1 in the rough work

Bring down the 7 B

B

REPEAT

Ask how many times does 11 go into 77? 7 D

Write the answer 7 directly over the 7 in the dividend

M

Multiply  $7 \times 11$

Write the answer 77 directly under the 77 in the rough work

Subtract 77 from 77 S

S

Write the answer 0 below the right hand 7 in the rough work

There is nothing to Bring down so the process stops here

### **Activity 3 – Skill Builder**

Solve these division questions by using long division

Remember to only use your calculator to help with basic division facts like  $144 \div 24$  or for checking your final answer. Do NOT use the calculator to solve the whole question. Show all your rough work

$$6 \overline{)4632}$$

$$9 \overline{)729}$$

$$11 \overline{)3467}$$

$$15 \overline{)4862}$$

$$26 \overline{)8060}$$

$$44 \overline{)36212}$$

## Using Division to Solve Word Problems

Word problems are a good way to see how division is used in different ways. You might have to

- Split a certain amount of money evenly between people
- Figure out the average number of carbohydrates in a weekly meal plan
- Find out how to share inventory between shelves

You can tell that you have to use division when solving real-life math problems if you see certain words and phrases. These are called division key words

- Quotient
- Average
- Share
- Split
- Cut
- Out of
- Ratio
- Each
- Every
- Equal pieces
- Per
- Percent



### Example 1

Four of us went for Chinese food. The bill came to \$36. How much did we each have to pay?

\$36 for 4 people. How much each?  $36 \div 4 = 9$

We each had to pay \$9 for the food

### **Activity 4 – Skill Builder**

You can use your long division skills to solve these word problems or you can use your calculator. Write out the math statement, solve and write your answers in words.

1. 25 Kg of grain cost \$100 and 5 kg of grain costs \$25. Is it cheaper to buy a 25 kg bag or five 5kg bags?
2. Jim saves \$5.00 per week. How long will it take him to save \$145.00 for a new Xbox game?
3. Jamil wants to make some shelves to fit in an alcove that is 3 feet wide. How many shelves can he make out of an 8 foot plank of wood?
4. Karen needs to lose 10 kilograms. If she manages to lose 2 kilos per week, how long will it take her to reach her target weight?
5. I brought 2 dozen small chocolate bars to share between 10 co-workers. How many can each co-worker have? Will there be any left over?
6. Greta drove 100 kilometers in 5 days. How far did she go (on average) each day?

### **Activity 4 – Task**

Your program has won \$2500 for supplies for learners. How much will each learner in your program get for supplies?



## Answers

### Activity 1

$$\begin{array}{r} 18 \\ \times 3 \\ \hline 54 \end{array}$$

$$\begin{array}{r} 84 \\ \times 7 \\ \hline 588 \end{array}$$

$$\begin{array}{r} 104 \\ \times 4 \\ \hline 416 \end{array}$$

$$\begin{array}{r} 35 \\ \times 30 \\ \hline 1050 \end{array}$$

$$\begin{array}{r} 271 \\ \times 11 \\ \hline 2981 \end{array}$$

$$\begin{array}{r} 872 \\ \times 206 \\ \hline 179632 \end{array}$$

### Activity 2

- I want to buy 6 shrubs for my garden. How much will I pay if they are \$15 per shrub?  
 **$6 \times 15 = 90$**

- How many apartments are in a building with 13 floors and 2 apartments per floor?  
 **$13 \times 2 = 26$**

- Ted bought 12 boxes of annual plants with 15 plants per box. How many plants is that altogether? Malika bought four times as many as Ted. How many did she buy?  
 **$12 \times 15 = 180$  Ted bought 180 plants.  $180 \times 4 = 720$  Malika bought 720 plants**

- This spreadsheet has 3 columns and 2 rows. How many cells (boxes) are there?  
 **$3 \times 2 = 6$**

- Each of Toni's inventory spreadsheets has 17 columns by 17 rows. How many cells are there on Toni's spreadsheets?  
 **$17 \times 17 = 289$**

- I have seen a washing machine on sale for \$399. If I pay monthly I will have to make 24 monthly payments of \$28. How much will I end up paying for the washing machine? Am I getting a deal?  
 **$24 \times 28 = 672$ . It is not a deal to pay monthly. You end up spending \$672**

7. My area rug measures 4 feet in length and 3 feet in width. The area of the area rug (ever wonder why they call it an area rug?) is 12 square feet. If I wanted to buy a 5 by 7 area rug, what would the area be in square feet?  **$5 \times 7 = 35$  the new rug would be 35 square feet**
8. There are 120 calories and 9 grams of fat per 1 serving creamy ranch salad dressing. I like to put 3 servings of salad dressing in my mashed potatoes. How many calories and how much fat come from the salad dressing?  
 **$120 \times 3 = 360$  calories**  
 **$9 \times 3 = 27$  grams of fat**

### Activity 3

$$\begin{array}{r} 772 \\ 6 ) 4632 \end{array}$$

$$\begin{array}{r} 81 \\ 9 ) 729 \end{array}$$

$$\begin{array}{r} 315 \text{ R2} \\ 11 ) 3467 \end{array}$$

$$\begin{array}{r} 324 \text{ R2} \\ 15 ) 4862 \end{array}$$

$$\begin{array}{r} 310 \\ 26 ) 8060 \end{array}$$

$$\begin{array}{r} 823 \\ 44 ) 36212 \end{array}$$

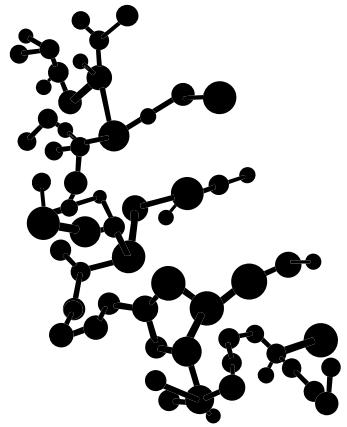
#### Activity 4

1. 25 kg of grain costs \$100 and 5kg of grain costs \$25 . Is it cheaper to buy a 25 kilo bag or five 5 kilo bags?  **$100 \div 25 = 4$  (\$4 per kilo when you buy a 25 kilo bag)  $25 \div 5 = 5$  (\$5 per kilo when you buy 5 kilo bags)( If you wanted 25 kg at the higher price it would cost \$125 ) It is cheaper to buy the larger bag**
2. Jim saves \$5.00 per week. How long will it take him to save \$145.00 for a new Xbox game?  **$145 \div 5 = 29$  weeks**
3. Jamil wants to make some shelves to fit in an alcove that is 3 feet wide. How many shelves can he make out of an 8 foot plank of wood?  **$8 \div 3 = 2$  and 2 feet left over**
4. Karen needs to lose 10 kilograms. If she manages to lose 2 kilos per week, how long will it take her to reach her target weight?  **$10 \div 2 = 5$  weeks**
5. I brought 2 dozen small chocolate bars to share between 10 co-workers. How many can each co-worker have? Will there be any left over?  **$24 \div 10 = 2$  remainder 4**
6. Greta drove 100 kilometers in 5 days. How far did she go (on average) each day?  **$100 \div 5 = 20$  Km per day on average**



**Recognizing and Using**

# Fractions and Percent



**Supports the following type of tasks**

- Sample Diabetes task—use the fraction-based “plate method” to portion food
- Sample Employment task—use fractions of an inch to measure lumber
- Sample Education task—use fractions to understand marks on a test
- Sample Independence task—measure fractions of a cup when baking

**Pre-requisites** - Multiplication and Division Module

**Time** - Variable

## **Materials required**

- Pens, pencils and coloured pens
- Paper
- Optional LED projector , smart board
- White board, or flip chart paper
- Calculator

## **Objectives**

The activities in this module focus on developing the skills needed to use basic fractions in a variety of settings. The learner will understand and be able to

- Read and write commonly used fractions and percent
- Convert fractions to equivalent fractions and percent
- Reduce fractions to lowest terms

## **Format**

The activities in this module can be delivered as an practitioner facilitated lesson or as a self-directed lesson depending on the skills of the learner. The activities can be worked on by individual learners, in pairs or as a small group.



## **OALCF Levels used in Using Fractions and Percent Module**

<b>Primary OALCF Competencies</b>	<b>Performance Descriptors</b>
C1.1	<ul style="list-style-type: none"><li>• adds, subtracts, multiplies and divides whole numbers and fractions</li><li>• recognizes values in number and word format</li><li>• understands numerical order</li><li>• identifies and performs required operation</li><li>• follows apparent steps to reach solutions</li><li>• interprets and represents costs using monetary symbols and decimals</li></ul>
C1.2	<ul style="list-style-type: none"><li>• chooses and performs required operation(s); may make inferences to identify required operation(s)</li><li>• selects appropriate steps to reach solutions</li><li>• uses strategies to check accuracy (e.g. estimating, using a calculator, repeating a calculation, using the reverse operation)</li><li>• interprets and applies rates (e.g. \$/kg, \$/1)</li></ul>
C1.3	<ul style="list-style-type: none"><li>• calculates using numbers expressed as whole numbers, fractions</li><li>• manages unfamiliar elements (e.g. context, content) to complete the task</li><li>• chooses and performs required operations; makes inferences to identify operations</li><li>• selects appropriate steps to reach solutions from among options</li><li>• identifies a variety of ways to complete the task</li><li>• makes estimates</li><li>• uses strategies to check accuracy</li></ul>

<b>Primary OALCF Competencies</b>	<b>Performance Descriptors</b>
C3.1	<ul style="list-style-type: none"> <li>• adds and subtracts whole number measurements</li> <li>• recognizes values in number and word format</li> <li>• measures distance, length, width, height</li> <li>• uses common measuring tools, such as rulers, scales and thermometers</li> <li>• understands numerical order</li> <li>• makes simple estimates</li> <li>• begins to interpret integers (e.g. temperature, elevation)</li> <li>• chooses appropriate units (e.g. metres, inches) and non-standard units (e.g. paces, cup-fulls, scoops)</li> <li>• identifies and performs required operation</li> <li>• interprets and represents measures using whole numbers, decimals and simple, common fractions (e.g. <math>\frac{1}{2}</math>, <math>\frac{1}{4}</math>)</li> <li>• interprets and represents measures using symbols and abbreviations (e.g. inches as ", centimeters as cm, pounds as lbs, kilograms as kilos or kg)</li> <li>• follows apparent steps to reach solutions</li> <li>• rounds to the nearest whole unit (e.g. kilos)</li> <li>• uses strategies to check accuracy (e.g. estimating, using a calculator, repeating a calculation, using the reverse operation)</li> </ul>
C3.2	<ul style="list-style-type: none"> <li>• calculates using numbers expressed as whole numbers, fractions and percentages</li> <li>• makes estimates</li> <li>• interprets and represents area using symbols and abbreviations (e.g. <math>m^2</math>)</li> <li>• interprets and applies rates (e.g. km/hr) and ratios (e.g. map scales)</li> <li>• chooses and performs required operation(s); may make inferences to identify required operation(s)</li> <li>• selects appropriate steps to solutions</li> <li>• interprets, represents and converts measures using whole numbers, percentages and simple, common fractions (e.g. <math>\frac{1}{2}</math>, <math>\frac{1}{4}</math>)</li> <li>• uses strategies to check accuracy (e.g. estimating, using a calculator, repeating a calculation, using the reverse operation)</li> </ul>

<b>Primary OALCF Competencies</b>	<b>Performance Descriptors</b>
C3.3	<ul style="list-style-type: none"> <li>• calculates using numbers expressed as whole numbers, fractions, decimals, percentages</li> <li>• manages unfamiliar elements (e.g. context, content) to complete tasks</li> <li>• chooses and performs required operations; makes inferences to identify required operations</li> <li>• selects appropriate steps to solutions from among options</li> <li>• identifies a variety of ways to complete tasks</li> <li>• interprets, represents and converts measures using whole numbers, percentages, and fractions</li> <li>• uses strategies to check accuracy (e.g. estimating, using a calculator, repeating a calculation, using the reverse operation)</li> </ul>
C4.1	<ul style="list-style-type: none"> <li>• adds, subtracts, multiplies and divides whole numbers</li> <li>• recognizes values in number and word format</li> <li>• identifies and compares quantities of items</li> <li>• understands numerical order</li> <li>• identifies and performs required operation</li> <li>• makes simple estimates</li> <li>• interprets and represents values using whole numbers, percentages and simple, common fractions (e.g. <math>\frac{1}{2}</math>, <math>\frac{1}{4}</math>)</li> <li>• follows apparent steps to reach solutions</li> <li>• uses strategies to check accuracy (e.g. estimating, using a calculator, repeating a calculation, using the reverse operation)</li> </ul>
C4.2	<ul style="list-style-type: none"> <li>• calculates using numbers expressed as whole numbers percentages and fractions</li> <li>• makes estimates</li> <li>• calculates averages (mean) and percentages</li> <li>• interprets rates (e.g. crime rates) and ratios (e.g. shots-on-net to goals)</li> <li>• chooses and performs required operation(s); may make inferences to identify required operation(s)</li> <li>• selects appropriate steps to solutions</li> <li>• uses strategies to check accuracy (e.g. estimating, using a calculator, repeating a calculation, using the reverse operation)</li> </ul>

<b>Secondary OALCF Competencies</b>	<b>Performance Descriptors</b>
A1.1	<ul style="list-style-type: none"> <li>• reads short texts to locate a single piece of information</li> <li>• decodes words and makes meaning of sentences in a single text</li> <li>• follows the sequence of events in straightforward chronological texts</li> <li>• follows simple, straightforward instructional texts</li> <li>• requires support to identify sources and to evaluate and integrate information</li> </ul>
A1.2	<ul style="list-style-type: none"> <li>• scans text to locate information</li> <li>• locates multiple pieces of information in simple texts</li> <li>• makes low-level inferences</li> </ul>
E.1	<ul style="list-style-type: none"> <li>• begins to use a limited number of learning strategies (e.g. follows instructions, takes literal notes, highlights or underlines key information, uses a calendar or agenda)</li> <li>• begins to identify ways to remember information and reinforce learning (e.g. reviewing notes)</li> <li>• begins to monitor own learning</li> <li>• uses feedback to improve performance</li> </ul>
F	If learner completes module as part of a group

## Essential Skills used in Using Fractions and Percent Module

Essential Skills	Level	Essential Skills	Level
Reading Text	1-2	Numeracy <input checked="" type="checkbox"/> Money math	1-3
Document Use	1-2	<input type="checkbox"/> Scheduling and budgeting <input checked="" type="checkbox"/> Measurement and calculation	
Writing		<input checked="" type="checkbox"/> Data Analysis <input checked="" type="checkbox"/> Numerical estimation	
Oral Communication	<input type="checkbox"/>	Thinking Skills <input type="checkbox"/> Problem solving	<input checked="" type="checkbox"/>
Working With others	<input type="checkbox"/>	<input checked="" type="checkbox"/> Decision making <input checked="" type="checkbox"/> Critical thinking	
Computer Use	<input type="checkbox"/>	<input checked="" type="checkbox"/> Job task planning and organization	
Continuous Learning	<input type="checkbox"/>	<input type="checkbox"/> Significant use of memory	



## Practitioner Instructions

When presenting to a group of learners, information sheets can be converted to PowerPoints or can be used as prompts for practitioner notes on flip-chart or white board. When delivering the module, practitioners should encourage discussion to help enhance speaking and listening skills as well as numeracy skills.

Each learner will receive information sheets and activity sheets and are encouraged to underline, or highlight important information. Additional paper should be provided for longer notes.

Read each page aloud with the learner. Encourage the learner to use coloured pens to identify which part of the ratio refers to which thing it represents. Encourage the learner to show all their work and write in words what they are thinking and doing while they complete the math computations. Each section of this module gives an example of how to combine math and writing to make the concepts more clear.

When reducing fractions to lowest terms or converting to percent, some learners' mental math skills may be a barrier. Encourage learners to use a multiplication grid or calculator to do the mental math part. The learners' understanding of fractions and percent can improve even if their memory for multiplication and division facts is weak.



## Practitioner Activity Instructions

### **Activity 1 – Skill Builder Instructions**

Have learners write the fraction on the sheet.

### **Activity 2 – Skill Builder Instructions**

Have the learners write the fraction on the sheet

### **Activity 2 – Task Instructions**

If learners are struggling with completing these tasks, walk them through the following steps.

1. Think of the people in your family. What fraction of your family are women? What fraction are men?

Learners must

- a. list their family members
- b. write the total number as the denominator
- c. Count the number of women
- d. Write that number as the numerator

2. There are 52 weeks in a year. What fraction of this year have you been coming to class?

Learners must

- a. Write 52 as the denominator
- b. Count up the number of weeks they have been attending class
- c. Write that number as the numerator

### **Activity 3 – Skill Builder Instructions**

Have the learners use a separate sheet of paper to write an equivalent fraction for each question.

### **Activity 3 – Task Instructions**

Learners must count the number of family members and multiply every ingredient by that number.

### **Activity 4 – Skill Builder Instructions**

Have the learners use a separate sheet of paper to calculate fractions and show them in simplest form or lowest terms.

## **Activity 4 – Task Instructions**

What fraction of your birthdays have been on a weekend? (Give your answer in simplest form)

Learners must

- a. Use their age as the denominator
- b. Use a calendar (online or the calendar on their phone) to find how many of their birthdays were on a Saturday or Sunday.
- c. Use this number as the numerator
- d. Reduce to lowest terms where possible

## **Activity 5 – Skill Builder Instructions**

Encourage learners to use multiplication to convert fractions to percent.

## **Activity 6 – Skill Builder Instructions**

Encourage learners to use long division or a calculator to convert fractions to percent.

## **Activity 6 – Task Instructions**

In a 24 hour day, what percent of the time do you spend in class?

Learners must

- a. Create a fraction using 24 as the denominator
- b. Count up the number of hours they spend in class and use that as the numerator
- c. Divide the numerator by 24
- d. Multiply by 100%

In the past month, what percent of classes did you attend?

Learners must

- a. Create a fraction using the number of days in the past month (eg 30) as the denominator
- b. Count up the number of days they have been present in class and use this number as the numerator
- c. Divide the numerator by the number of days in the month
- d. Multiply by 100%

Additional web lectures and power point presentations on fractions and percent can be found at

- [www.khanacademy.org](http://www.khanacademy.org)
- [www.skillsworkshop.org](http://www.skillsworkshop.org)
- [www.bbc.co.uk/skillswise](http://www.bbc.co.uk/skillswise)

## What are Fractions?

Fractions are equal parts of a whole. Each fraction represents an amount of something or a portion of something

Fractions can be written as

A fraction  $\frac{1}{2}$  or  $\frac{2}{3}$  or  $\frac{10}{100}$

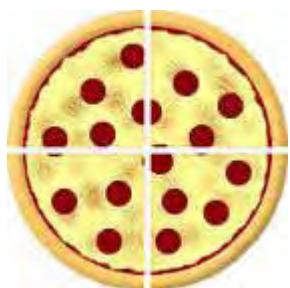
A decimal 0.5 or 0.66 or 0.1

A percent 50% or 66% or 10%

## Fractions

There are fractions all around us.

We cut pizza into fractions when we slice it



We use fractions of an inch on imperial tape



We measure time in quarters and halves



Measuring spoons and jugs come in fractions of a spoon and fractions of a cup



## **Understanding fractions**

Fractions are made up of 2 parts

- The **denominator** is the bottom number of the fraction. It tells us the “name of the fraction” or the type of fraction. It tells you how many parts the whole has been divided into. It tells you the type of fraction you are using. For example

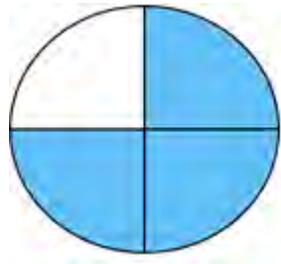
- $\frac{?}{4}$  quarters
- $\frac{?}{3}$  thirds
- $\frac{?}{100}$  hundredths

- The **numerator** is the top number of the fraction. It tells us the NUMBER of pieces we are using. For example

- $\frac{3}{#}$  three
- $\frac{2}{#}$  two
- $\frac{12}{#}$  twelve

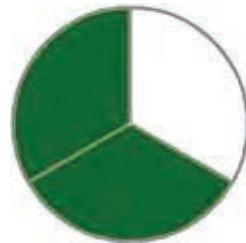
## Fractions of a Whole

When you put the pieces of the fraction together you get all the information you need to figure out how many pieces something has been cut into and how many of those pieces you are working with.

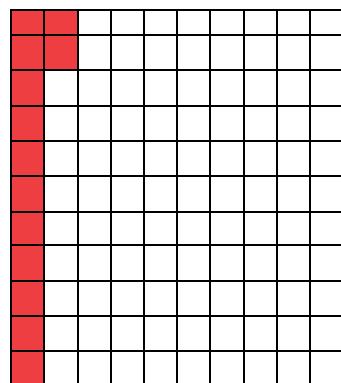


$\frac{3}{4}$  means the whole has been split into 4 pieces and we are talking about 3 of those pieces

$\frac{2}{3}$  means that the whole has been split into 3 pieces and that we are talking about 2 of those pieces

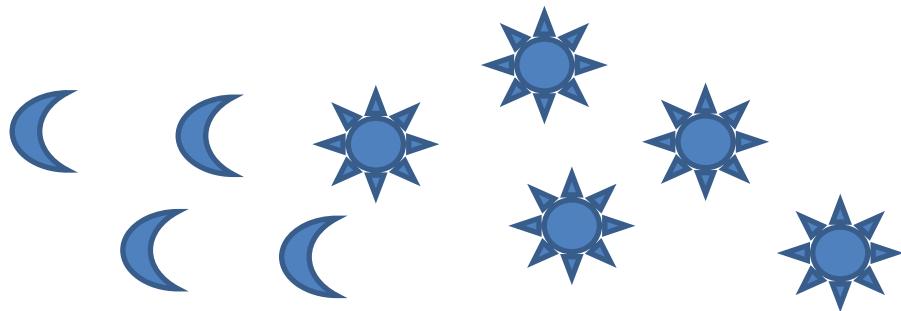


$\frac{12}{100}$  means that the whole has been divided into 100 pieces and that we are talking about 12 of those pieces.



## Fractions of a Group

You can also divide a group of objects up and write each part of the group as a fraction



There are nine shapes in this group. Five are suns and four are moons.

$\frac{5}{9}$  are suns and  $\frac{4}{9}$  are moons

## **How do you read fractions?**

You can read fractions in a few different ways.

If we look at our examples  $\frac{3}{4}$ ,  $\frac{2}{3}$  and  $\frac{12}{100}$

You can read them like this

- Three fourths or three quarters
- Two thirds
- Twelve one hundredths

Or you can read them like this

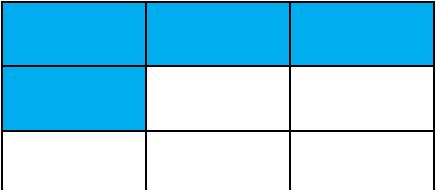
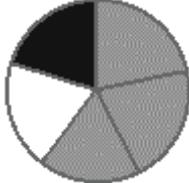
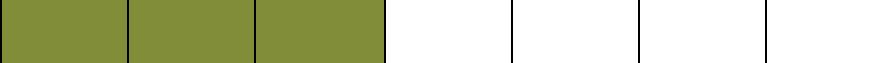
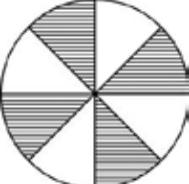
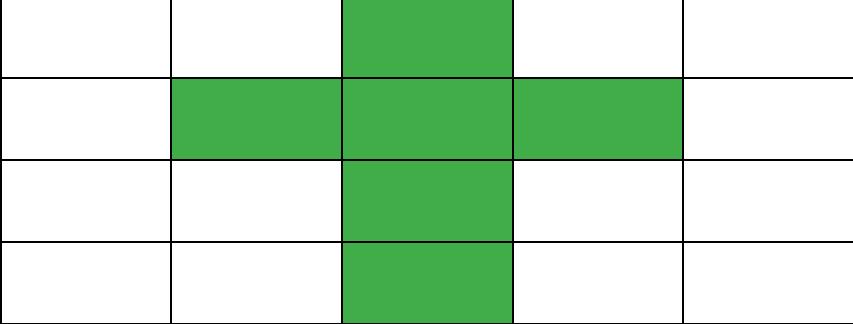
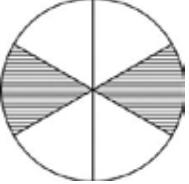
- Three over four
- Two over three
- Twelve over one hundred

Or you can read them like this

- Three out of four
- Two out of three
- Twelve out of one hundred

## Activity 1 – Skill Builder

Show each part of the diagram as a fraction. We have done the first one for you

1		$\frac{4}{9}$ shaded $\frac{5}{9}$ white
2		
3		
4		
5		
6		
7		

8	
9	
10	

## Fraction Vocabulary

You can tell when someone is talking about fractions if they use words like quarter, half, third, fifth, or tenth. You can also tell that a situation is dealing with fractions when you hear words or phrases like

- Divided by
- Share equally between
- Out of
- Of the
- Split into

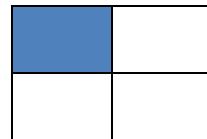
## Examples

1. If 1Kg of tile grout is split between 4 rooms, how much grout will each room have?

*We have 1 kg of grout and it is being split into 4 parts.*

*Each room gets one part.*

Each room gets  $\frac{1}{4}$  of a kg.

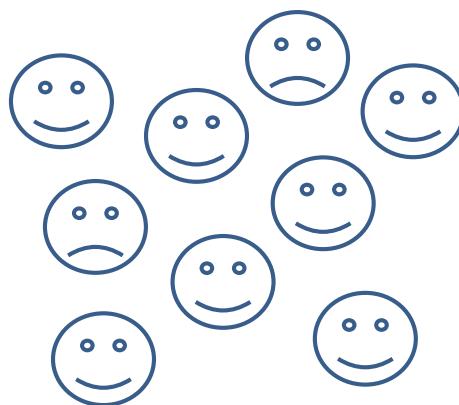


2. Out of the 9 people on the afternoon shift, 2 are off sick.

*There are 9 people in the group*

*2 of them are sick*

$\frac{2}{9}$  people are sick



## **Activity 2 – Skill Builder**

Write the fraction for each sentence

1. Two out of four parts of your meal should be vegetables
2. Six out of my seven work shifts are at night
3. We split the 5 popsicles between the 10 children
4. 5 of the 20 deliveries were late
5. One tenth of the forest was destroyed in the fire
6. We divided the warehouse into four parts so we could share the cleaning
7. Of the 12 children on the bus, only one had a bus pass
8. I have only used 3 out of my 14 sick days this year
9. For 2 of my 3 weeks holidays, I am going away
10. \$25 of the \$30 was spent on food

## **Activity 2 – Task**

Write the fraction for these two questions. Show how you got your answer

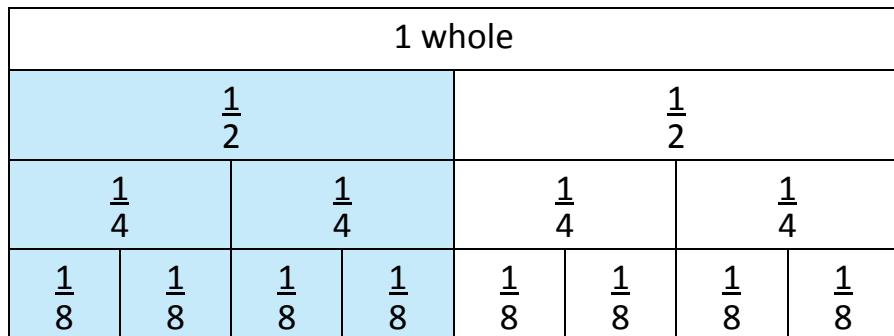
1. Think of the people in your family. What fraction of your family are women? What fraction are men?
2. There are 52 weeks in a year. What fraction of this year have you been coming to class?

**Task**

## Equivalent Fractions

Some fractions are written differently but they actually mean the same thing.

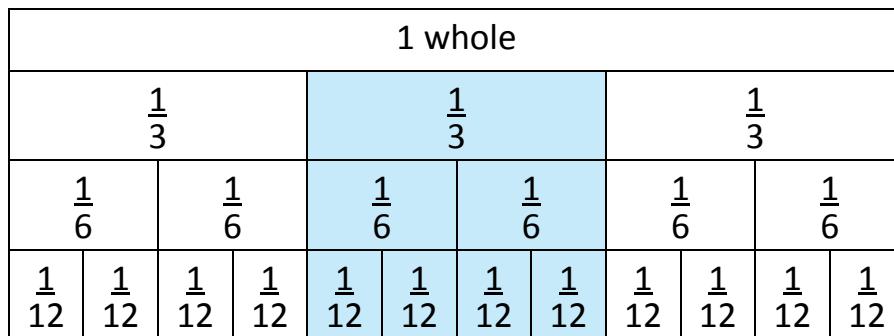
For example, if you have used  $\frac{1}{2}$  a gallon of blue paint to paint one room and  $\frac{2}{4}$  of a gallon of green paint to paint another room, you have used exactly the same amount of paint for each room.



The charts below show some common equivalent fractions.

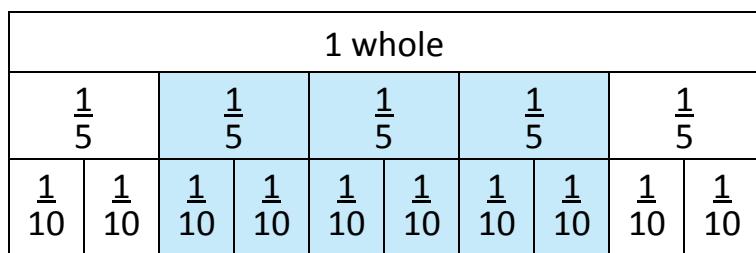
How many eighths does it take to make  $\frac{1}{2}$ ?

It takes  $\frac{4}{8}$  to make  $\frac{1}{2}$



How many twelfths can you get out of  $\frac{2}{6}$ ?

It takes  $\frac{4}{12}$  to make  $\frac{2}{6}$



How many tenths make up  $\frac{3}{5}$ ?

$\frac{6}{10}$  make up  $\frac{3}{5}$

## Equivalent Fractions

We know that from our example in the first chart that it takes  $\frac{4}{8}$  to make  $\frac{1}{2}$

How do we figure out equivalent fractions using just math instead of diagrams?

Start with  $\frac{1}{2}$

What do we have to do to  $\frac{1}{2}$  to make it  $\frac{4}{9}$  ?

We could multiply the top number (numerator) by 4 and the bottom number (denominator) by 4. **You must always multiply by the same number.**

$$\frac{1 \times 4}{2 \times 4} = \frac{4}{8}$$

Or you can write it as

$$\frac{1}{2} \times \frac{4}{4} = \frac{4}{8}$$

## Equivalent Fractions – More Examples

We know from the charts on page J-22 that you can get  $\frac{4}{12}$  out of  $\frac{2}{6}$

How can we show that using just math?

*We know you can get  $\frac{4}{12}$  out of  $\frac{2}{6}$*

*What do we have to do to  $\frac{2}{6}$  to get  $\frac{4}{12}$  ?*

$$\frac{2 \times 2}{6 \times 2} = \frac{4}{12}$$

Or

$$\frac{2}{6} \times \frac{2}{2} = \frac{4}{12}$$

We know from the charts on page J-22 that  $\frac{6}{10}$  is the same as  $\frac{3}{5}$

How can we show that using just math?

*We know  $\frac{6}{10}$  is the same as  $\frac{3}{5}$*

*What do we have to do to  $\frac{3}{5}$  to get  $\frac{6}{10}$  ?*

$$\frac{3 \times 2}{5 \times 2} = \frac{6}{12}$$

Or

$$\frac{3}{5} \times \frac{2}{2} = \frac{6}{10}$$

### **Activity 3 – Skill Builder**

Write each example as a fraction and make up 2 equivalent fractions by multiplying for each example.

Show each step of your work.

- |                |                       |
|----------------|-----------------------|
| 1. Two fifths  | 6. Two tenths         |
| 2. 4 over 7    | 7. 3 out of 4         |
| 3. One quarter | 8. Eleven over twelve |
| 4. 7 out of 9  | 9. 15 out of 30       |
| 5. 3 over 50   | 10. Four ninths       |

### **Activity 3 – Skill builder**

Find the **equivalent fraction** in each of these problems.

1. Martin can make the beds and clean 3 out of 5 hotel rooms in 2 hours. What fraction of rooms can he do in twice as much time?
2. Helen can complete 7 of her 9 deliveries on 20 litres of gas. What fraction of deliveries can she finish if she has 80 litres of gas?

### **Activity 3 – Task**

If this recipe makes enough for 1 person to eat a brownie a day for 1 week, increase the recipe to serve your whole family one brownie a day for a week.

1/2 cup vegetable oil  
1 cup white sugar  
1 teaspoon vanilla extract  
2 eggs  
1/2 cup all-purpose flour  
1/3 cup unsweetened cocoa powder  
1/4 teaspoon baking powder  
1/4 teaspoon salt  
1/2 cup chopped walnuts (optional)

**Task**



## Reducing Fractions to Lowest Terms

Some fractions use very large numbers.  $\frac{25}{100}$   $\frac{100}{1000}$   $\frac{21}{63}$   $\frac{144}{240}$

Fractions like these can be difficult to work with when it comes to using them in calculations.

You can make equivalent fractions that are easier to use by dividing. This is sometimes called reducing the fraction to its simplest form or to lowest terms. To reduce a fraction to its simplest form you must divide the numerator and the denominator by the largest number possible. Remember, you must divide each part of the fraction by the same number.

### Example 1

Let's start with an equivalent fraction we know.

We know  $\frac{6}{10}$  is the same as  $\frac{3}{5}$

What do we have to do to  $\frac{6}{10}$  to get  $\frac{3}{5}$  ?

Divide both numbers by 2

$$\frac{6 \div 2}{10 \div 2} = \frac{3}{5}$$

Or

$$\frac{6}{10} \div \frac{2}{2} = \frac{3}{5}$$

## Example 2

Follow these steps to reduce fractions to simplest form

1. Write the fraction
2. Ask yourself what is the largest number that divides into both the numerator and the denominator
3. Write the division question
4. Do the math

$$\frac{25}{100}$$

*What's the largest number that divides into 25 and 100? 25*

$$\frac{25}{100} \div \frac{25}{25} = \frac{1}{4}$$



## Example 3

1. Write the fraction
2. Ask yourself what is the largest number that divides into both the numerator and the denominator
3. Write the division question
4. Do the math

$$\frac{100}{1000}$$

*What's the largest number that divides into 100 and 1000? 100*

$$\frac{100}{1000} \div \frac{100}{100} = \frac{1}{10}$$



## Example 4

1. Write the fraction
2. Ask yourself what is the largest number that divides into both the numerator and the denominator
3. Write the division question
4. Do the math

$$\frac{21}{63}$$

*What's the largest number that divides into 21 and 61? 21*

$$\frac{21}{63} \div \frac{21}{21} = \frac{1}{4}$$



If reducing large numbers is difficult, you can use a calculator to do the division part or you can reduce the fraction over and over again. To find the largest number that goes into the numerator and the denominator, multiply all the dividing numbers you have used.

### Example 5



$$\frac{144}{240}$$

What's the largest number that divides into 144 and 240? 12

$$\frac{144 \div 12}{240 \div 12} = \frac{12}{20}$$

$\frac{12}{20}$  can be reduced even more

$$\frac{12}{20} \div \frac{4}{4} = \frac{3}{5}$$

$$12 \times 4 = 48$$

The largest number that goes into 144 and 240 is 48

### Example 6



$$\frac{224}{256}$$

This might be a difficult fraction to reduce. Do it in stages.

$$\frac{244}{256} \div \frac{2}{2} = \frac{112}{128} \div \frac{2}{2} = \frac{56}{64} \div \frac{2}{2} = \frac{28}{32} \div \frac{2}{2} = \frac{14}{16} \div \frac{2}{2} = \frac{7}{8}$$

$$2 \times 2 \times 2 \times 2 \times 2 = 32$$

The largest number that goes into 224 and 256 is 32

## Activity 4 – Skill Builder

Reduce the following fractions to lowest terms and show your work.

$$1. \frac{6}{24}$$

$$4. \frac{140}{200}$$

$$2. \frac{16}{24}$$

$$5. \frac{45}{245}$$

$$3. \frac{45}{72}$$

Write the fraction for each sentence and reduce to lowest terms

1. 20 of the 100 employees work evenings.
2. Of the 30 items in the flyer, 24 of them were on sale
3. 15 of the 48 grams of carbohydrates in the meal came from sugar
4. The 3 cement trucks split their loads between 15 houses
5. 28 out of 60 days this winter were snowy
6. 12 of the 36 inches of wood were rotten
7. James inspects 100 pallets or skids in the warehouse. 4 of them have been damaged by water.
  - Pallet A has 60 boxes on it. 40 of those boxes are ruined.
  - Pallet B has 75 boxes on it. 25 of those boxes are damaged.
  - Pallet C has 14 pieces of drywall on it. The top 2 pieces are damaged.
  - Pallet D has 30 bags of cement on it. 9 of them were so wet the bags split open.

James has to report the fraction of damaged pallets and the fraction of damaged inventory on those pallets to his manager in simplest form.

#### **Activity 4 – Task**

What fraction of your birthdays has been on a weekend? (Give your answer in simplest form)

**Task**

## **Percent**

Percent is a very specific fraction. The word “Percent” tells us what kind of fraction it is.

“Per” means “out of”

- 4 days per week means 4 days out of a week (or out of 7 days)

“Cent” means 100

- A **Century** is 100 years
- There are 100 **cents** in a dollar

Per + cent = “out of 100”

We already know that if we see a fraction like  $2/3$  we can read this in words as “2 out of 3” or  $3/18$  can be read “three out of 18”.

If percent means “out of 100” that means that

- 3 percent means  $3/100$
- 40 percent means  $40/100$
- 99 percent means  $99/100$

We can also write the word percent as the symbol %

The % symbol actually looks like a fraction made up of the number 100

Any time you see a fraction that has a denominator of 100, you can express this fraction as a percent.

- $\frac{9}{100} = 9\%$
- $\frac{40}{100} = 40\%$
- $\frac{21.5}{100} = 21.5\%$

If a fraction does not have 100 as a denominator, you can make an equivalent fraction that does have 100 as a denominator and then you can express the fraction as a percent.

### **Example 1**

$$\frac{2}{4} \times \frac{25}{25} = \frac{50}{100} = 50\%$$

### **Example 2**

$$\frac{1}{10} \times \frac{10}{10} = \frac{10}{100} = 10\%$$

### **Example 3**

$$\frac{21}{25} \times \frac{4}{4} = \frac{84}{100} = 84\%$$

## Activity 5 – Skill Builder

Write these fractions as a percent

1.  $\frac{3}{100}$

6.  $\frac{7}{20}$

2.  $\frac{5}{100}$

7.  $\frac{21}{50}$

3.  $\frac{75}{100}$

8.  $\frac{20}{25}$

4.  $\frac{81}{100}$

9.  $\frac{1}{4}$

5.  $\frac{9}{10}$

10.  $\frac{2}{5}$

## Using Division to Calculate Percent

You can also calculate the percent of a complicated fraction. Even if you can't make an equivalent fraction, you can find the percent by dividing and multiplying.

A fraction is also a division question. Think of the division symbol.



The symbol looks a lot like a fraction.

Let's use an easy example that we know to be true.

$$\frac{1}{4} = 25\%$$

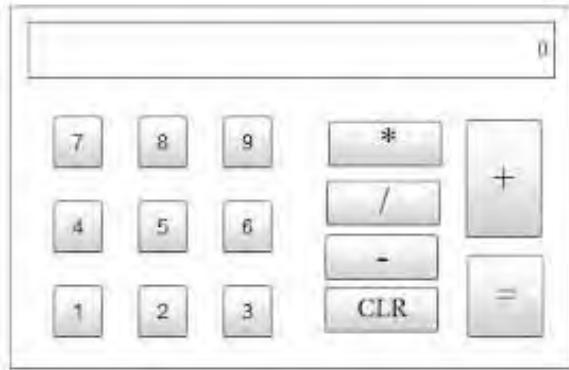
If we think of the fraction  $\frac{1}{4}$  as a division question what does the math statement look like?

$$\frac{1}{4} = 1 \div 4$$

If you have good long division skills you might do this division question with long division and decimals. Like this

$$\begin{array}{r} .2 \quad 5 \\ \hline 4 \Big) 1 \quad .0 \quad 0 \\ \quad 8 \quad \downarrow \\ \hline \quad 2 \quad 0 \\ \quad 2 \quad 0 \\ \hline \quad \quad 0 \end{array}$$

Or you could use your calculator  
Key in  
 $1 / 4$



Or  $1 \div 4$   
Depending on the symbol for divide on your calculator

Either way you will see the decimal number 0.25 or .25 for your answer



Now to read .25 as a percent we need to multiply it by 100.

Move the decimal point 2 spaces to the right (there are 2 zeroes in 100) if you are doing the work on paper or multiply by 100 on your calculator.

The answer on your screen or on your paper will be 25.  
This number is read as 25 %

We have just proved how  $\frac{1}{4} = 25\%$

## Using Division to Calculate Percent

Let's try this process with more examples

### Example 1

7/8

With your calculator

$$7 \div 8 = 0.875$$

$$X 100 = 87.5$$

Write it as a %

$$7/8 = 87.5 \%$$

### Example 2

7/9

$$7 \div 9 = 0.777777777777778$$

Or you can round it up to

0.78

$$0.78 \times 100 = 78$$

$$7/9 = 78\%$$

Long division

$$\begin{array}{r} .8 \quad 7 \quad 5 \\ \hline 8 \quad \boxed{7} \quad .0 \quad 0 \quad 0 \\ \quad 6 \quad 4 \quad \downarrow \quad \downarrow \\ \hline \quad 6 \quad 0 \quad \downarrow \\ \quad 5 \quad 6 \quad \downarrow \\ \hline \quad 4 \quad 0 \\ \quad 4 \quad 0 \\ \hline \quad \quad \quad 5 \end{array}$$

.875

Move decimal 2 spaces to the right and express as a percent

87.5 %

### Example 3

746/ 999

(Yes, you can make a percent from a fraction that has a denominator over 100. )

$$746 \div 999 = 0.746746746746$$

Or you can round it up to

0.75

$$0.75 \times 100 = 75\%$$

## **Activity 6 – Skill Builder**

Express each fraction as a percent.

You can use a calculator or long division for these questions

- |            |             |
|------------|-------------|
| 1. 21/86   | 6. 300/450  |
| 2. 18/30   | 7. 98/150   |
| 3. 17/21   | 8. 2/3      |
| 4. 87/90   | 9. 47/55    |
| 5. 147/206 | 10. 421/600 |

## **Activity 6 – Skill Builder**

Use what you have learned about division, fractions and percent to answer these word problems.

1. 4 out of the 28 deliveries were late today. What percent of deliveries were late?
2. 300 boxes on the skid were damaged. There are 482 boxes on every skid. What percent of the boxes were damaged?
3. Shelly got 28 out of 30 on her test. What was her score in percent?
4. 78 percent of the students did not pass the test. There are 50 students in class. How many did not pass?
5. Joe's blood sugar is on target 75% of the time. Out of a 30 day month, how many days is Joes blood sugar on target?

## **Activity 6 – Task**

In a 24 hour day, what percent of the time do you spend in class?

In the past month, what percent of classes did you attend?

**Task**

## Answers

### **Activity 1 – Skill Builder**

1.  $\frac{4}{9}$  are shaded and  $\frac{5}{9}$  are white
2.  $\frac{6}{11}$  are  and  $\frac{5}{9}$  are 
3.  $\frac{1}{5}$  is black  $\frac{1}{5}$  is white and  $\frac{3}{5}$  are grey
4.  $\frac{3}{7}$  are shaded and  $\frac{4}{7}$  are white
5.  $\frac{4}{8}$  are shaded and  $\frac{4}{8}$  are white
6.  $\frac{6}{20}$  are shaded and  $\frac{14}{20}$  are white
7.  $\frac{2}{6}$  are shaded and  $\frac{2}{6}$  are white
8.  $\frac{4}{4}$  are shaded
9.  $\frac{5}{10}$  are shaded and  $\frac{5}{10}$  are white
10.  $\frac{3}{9}$  are white and  $\frac{6}{9}$  have their points down and  $\frac{4}{9}$  have their points down

### **Activity 2 – Skill Builder**

1. 2/4
2. 6/7
3. 5/10
4. 5/20
5. 1/10
6. 1/4
7. 1/12
8. 3/14
9. 2/3
10. 25/30

## **Activity 2 – Task Answers will vary**

## **Activity 3 – Skill Builder**

Answers may vary

1. Two fifths
2. 4 over 7
3. One quarter
4. 7 out of 9
5. 3 over 50
6. Two tenths
7. 3 out of 4
8. Eleven over twelve
9. 15 out of 30
10. Four ninths

## **Activity 3 – Skill Builder (Word Problems)**

1. Martin can clean 6/10 rooms in 4 hours
2. Helen can complete 28/36 deliveries if she has 80 litres of gas

## **Activity 3 Task – Brownie Recipe—Answers will vary**

## **Activity 4 – Skill Builder**

1.  $1/4$
  2.  $2/3$
  3.  $5/8$
  4.  $7/10$
  5.  $3/16$
- 
1.  $20/100 = 1/5$
  2.  $24/30 = 4/5$
  3.  $15/48 = 5/16$
  4.  $3/15 = 1/5$
  5.  $28/60 = 7/15$
  6.  $12/36 = 1/3$

7. James inspects 100 pallets or skids in the warehouse. 4 of them have been damaged by water.  $4/100 = 1/25$
- Pallet A has 60 boxes on it. 40 of those boxes are ruined.  $40/60 = 2/3$
  - Pallet B has 75 boxes on it. 25 of those boxes are damaged.  $25/75 = 1/3$
  - Pallet C has 14 pieces of drywall on it. The top 2 pieces are damaged.  $2/14 = 1/7$
  - Pallet D has 30 bags of cement on it. 9 of them were so wet the bags split open.  $9/30 = 3/10$

#### **Activity 4 – Task—answers will vary**

#### **Activity 5 – Skill builder**

1.  $30/100 = 30\%$
2.  $5/100 = 5\%$
3.  $75/100 = 75\%$
4.  $81/100 = 81\%$
5.  $9/10 = 90\%$
6.  $7/20 = 35\%$
7.  $21/50 = 42\%$
8.  $20/25 = 80\%$
9.  $1/4 = 25\%$
10.  $2/5 = 40\%$

#### **Activity 6 – Skill Builder**

1.  $21/86 = 24\%$
2.  $18/30 = 60\%$
3.  $17/21 = 81\%$
4.  $87/90 = 97\%$
5.  $147/206 = 71\%$
6.  $300/450 = 66.7\%$
7.  $98/150 = 65.3\%$
8.  $2/3 = 66.7\%$
9.  $47/55 = 85.5\%$
10.  $421/600 = 70.2\%$

### **Activity 6 – Skill Builder (Word Problems)**

1. 4 out of the 28 deliveries were late today. What percent of deliveries were late?  
 $4 \div 28 \times 100 = 14\%$
2. 300 boxes on the skid were damaged. There are 482 boxes on every skid. What percent of the boxes were damaged?  $300 \div 482 \times 100 = 62\%$
3. Shelly got 28 out of 30 on her test. What was her score in percent?  
 $8 \div 30 \times 100 = 93.3\%$
4. 78 percent of the students did not pass the test. There are 50 students in class. How many did not pass?
  - $78\% = 78/100$  (like saying 78 out of 100 students)
    - But we are only talking about 50 students
  - we need a fraction out of 50 that is equivalent to  $78/100$ 
    - $78/100 = ?/50$
  - We have to divide 100 by 2 to get 50 so we have to divide 78 by the same number
  - $78 \div 2 = 39$
  - $78/100 = 39 / 50$

39 of the students did not pass the test.

5. Joe's blood sugar is on target 22 days out of a 30 day month. What percent of the time is Joe's blood sugar on target?

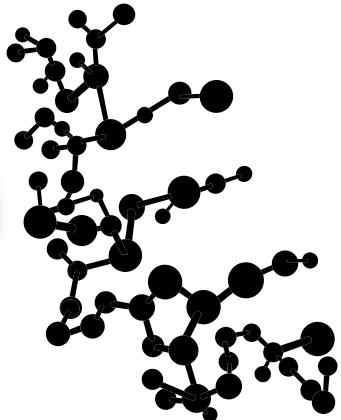
$$22 \div 30 \times 100 = 73.3\%$$

### **Activity 6 – Task—Answers will vary**

**Using**

# Ration and Proportion

## Module 1



### Supports the following type of tasks

- Sample Diabetes task—figuring out how much ratio insulin to take at meal times
- Sample Employment task—figuring out how much water to mix with floor cleaner concentrate
- Sample Education task—using basic ratio to prepare for Secondary Credit math class
- Sample Independence task—figuring out how to increase recipes for more people

**Pre-requisites** – Multiplication and Division Module

**Time** – Variable

### Materials required

- Pens, pencils and coloured pens
- Paper
- Flexible tape measure and ruler
- Optional LED projector or smart board
- White board, or flip chart paper, calculator

### Objectives

The activities in this module focus on developing the skills needed to use basic ratio and proportion in a variety of settings. The learner will understand and be able to

- Write ratios as a fraction, in words and using a colon
- Show equivalent ratios and direct proportions

### Format

The activities in this module can be delivered as a practitioner facilitated lesson or as a self-directed lesson depending on the skills of the learner. The activities can be worked on by individual learners, in pairs or as a small group.



## OALCF Levels used in Using Ratio and Proportion Module 1

<b>Primary OALCF Competencies</b>	<b>Performance Descriptors</b>
C1.1	<ul style="list-style-type: none"><li>• adds, subtracts, multiplies and divides whole numbers and decimals</li><li>• recognizes values in number and word format</li><li>• understands numerical order</li><li>• identifies and performs required operation</li><li>• follows apparent steps to reach solutions</li><li>• interprets and represents costs using monetary symbols and decimals</li></ul>
C1.2	<ul style="list-style-type: none"><li>• chooses and performs required operation(s); may make inferences to identify required operation(s)</li><li>• selects appropriate steps to reach solutions</li><li>• uses strategies to check accuracy (e.g. estimating, using a calculator, repeating a calculation, using the reverse operation)</li><li>• interprets and applies rates (e.g. \$/kg, \$/1)</li></ul>
C3.1	<ul style="list-style-type: none"><li>• adds and subtracts whole number measurements</li><li>• recognizes values in number and word format</li><li>• recognizes simple, common shapes (e.g. circle, square, rectangle, triangle)</li><li>• measures distance, length, width, height</li><li>• uses common measuring tools, such as rulers, scales and thermometers</li><li>• understands numerical order</li><li>• makes simple estimates</li><li>• chooses appropriate units (e.g. metres, inches) and non-standard units (e.g. paces, cupfuls, scoops)</li><li>• identifies and performs required operation</li><li>• interprets and represents measures using whole numbers and simple, common fractions (e.g. <math>\frac{1}{2}</math>, <math>\frac{1}{4}</math>)</li><li>• interprets and represents measures using symbols and abbreviations (e.g. inches as ", centimeters as cm, pounds as lbs, kilograms as kilos or kg)</li><li>• follows apparent steps to reach solutions</li><li>• rounds to the nearest whole unit (e.g. kilos)</li><li>• uses strategies to check accuracy (e.g. estimating, using a calculator, repeating a calculation, using the reverse operation)</li></ul>

C4.1	<ul style="list-style-type: none"> <li>• adds, subtracts, multiplies and divides whole numbers</li> <li>• recognizes values in number and word format</li> <li>• identifies and compares quantities of items</li> <li>• understands numerical order</li> <li>• identifies and performs required operation</li> <li>• makes simple estimates</li> <li>• interprets and represents values using whole numbers, and simple, common fractions (e.g. <math>\frac{1}{2}</math>, <math>\frac{1}{4}</math>)</li> <li>• follows apparent steps to reach solutions</li> <li>• uses strategies to check accuracy (e.g. estimating, using a calculator, repeating a calculation, using the reverse operation)</li> </ul>
<b>Secondary OALCF Competencies</b>	<b>Performance Descriptors</b>
A1.1	<ul style="list-style-type: none"> <li>• reads short texts to locate a single piece of information</li> <li>• decodes words and makes meaning of sentences in a single text</li> <li>• follows the sequence of events in straightforward chronological texts</li> <li>• follows simple, straightforward instructional texts</li> <li>• requires support to identify sources and to evaluate and integrate information</li> </ul>
A1.2	<ul style="list-style-type: none"> <li>• scans text to locate information</li> <li>• locates multiple pieces of information in simple texts</li> <li>• makes low-level inferences</li> </ul>
E.1	<ul style="list-style-type: none"> <li>• begins to use a limited number of learning strategies (e.g. follows instructions, takes literal notes, highlights or underlines key information, uses a calendar or agenda)</li> <li>• begins to identify ways to remember information and reinforce learning (e.g. reviewing notes)</li> <li>• begins to monitor own learning</li> <li>• uses feedback to improve performance</li> </ul>
E.2	<ul style="list-style-type: none"> <li>• uses a limited number of learning strategies (e.g. takes notes, organizes learning materials)</li> <li>• sequences activities in multi-step tasks</li> <li>• monitors own learning</li> <li>• begins to identify how skills and strategies can transfer to different contexts</li> </ul>
F	If learner completes module as part of a group

## Essential Skills used in Ratio 1 Module

Essential Skills	Level	Essential Skills	Level
Reading Text	1-2	Numeracy <input checked="" type="checkbox"/> Money math	1-2
Document Use	1-2	<input type="checkbox"/> Scheduling and budgeting <input checked="" type="checkbox"/> Measurement and calculation	
Writing		<input checked="" type="checkbox"/> Data Analysis <input checked="" type="checkbox"/> Numerical estimation	
Oral Communication	<input type="checkbox"/>	Thinking Skills <input checked="" type="checkbox"/> Problem solving	<input checked="" type="checkbox"/>
Working With others	<input type="checkbox"/>	<input checked="" type="checkbox"/> Decision making <input checked="" type="checkbox"/> Critical thinking	
Computer Use	<input type="checkbox"/>	<input checked="" type="checkbox"/> Job task planning and organization	
Continuous Learning	<input type="checkbox"/>	<input type="checkbox"/> Significant use of memory	

## Practitioner Instructions

When presenting to a group of learners, information sheets can be converted to overheads or can be used as prompts for practitioner notes on flip-chart or white board.

When delivering the module, practitioners should encourage discussion to help enhance speaking and listening skills as well as numeracy skills.

Each learner will receive information sheets and activity sheets and are encouraged to underline, or highlight important information. Additional paper should be provided for longer notes.

Read each page aloud with the learner. Encourage the learner to use coloured pens to identify which part of the ratio refers to which thing it represents. (e.g. when writing a ratio apples to oranges learners can use the same colour pen to write apples and the number of apples in the ratio and a different colour for when writing oranges and the number of oranges in the ratio)

Encourage the leaner to show all their work and write in words what they are thinking and doing while they complete the math computations. Each section of this module gives an example of how to combine math and writing to make the concepts more clear.

When using a multiplication factor or when reducing ratios to lowest terms, some learners' mental math skills may be a barrier. Encourage learners to use a multiplication grid or calculator to do the mental math part. The learners' understanding of ratio can improve even if their memory for multiplication and division facts is weak.

## Practitioner Activity Instructions

### **Activity 1 – Task Instructions**

What's the ratio of chairs to tables in your classroom?

What other ratios can you see around you?

- Ratio of doors to windows
- Ratio of lights to light switches
- Ratio of computers to printers
- Length and width of surfaces
- Ratio of waist to hip

Encourage the learners to see the ratios around them. Each time they identify a ratio, have the learner express the ratio in words and numbers.

For learners comfortable using tape measures, use metric and imperial flexible tape measures to find the ratios of length and widths of surfaces and waist to hip measurements. Learners can also use a ruler as a “unit” of measure instead of using the graduations on the ruler (e.g. The desk is 3 rulers high by 2 rulers wide. The ratio is 3:2.)

### **Activity 2 – Task Instructions**

If learners are having difficulty with this task walk them through the following steps.

Learners must

- a. Count the number of women and men in the class and write the ratio
- b. Multiply both numbers in the ratio by 7
- c. Express the weekly ratio of men to women

### **Activity 3 – Task Instructions**

Learners can use either metric or imperial tape measures depending on their comfort level with these tools. Encourage learners to use round numbers instead of decimals or fractions if they are uncomfortable dealing with these numeracy concepts. (Learners can also use a ruler as a single unit of measure as they did in Task 1)

What is the height to width ratio of your classroom door in its simplest form?

Learners must

- a. Measure the height and width of the door using a tape measure or ruler
- b. Write the ratio of height to width
- c. Express the ratio in its simplest form by dividing

Additional web lectures and power point presentations on proportion and ratio can be found at

- [www.khanacademy.org](http://www.khanacademy.org)
- [www.skillsworkshop.org](http://www.skillsworkshop.org)
- [www.bbc.co.uk/skillswise](http://www.bbc.co.uk/skillswise)

## What is Ratio?

A ratio

- shows the relative sizes of two or more values
- is a relation in degree or number between two similar things
- is a relationship between two numbers of the same kind

## What does that mean?

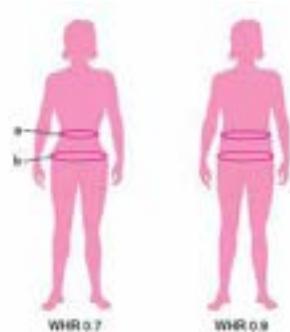
A ratio is a way to compare the amount of two or more things

Ratios are all around us. You might have seen some of these ratios



Steps should  
be built with a  
rise-to-run ratio  
of 7:11 to be safe

You can make  
a great salad  
dressing with  
a 3:1 oil and  
vinegar mixture



A waist-to-hip ratio  
can be helpful  
information if you  
are trying to stay fit

You have to mix  
paint in a specific  
ratio to get the  
colour just right



## Example 1

Let's look at the example of frozen concentrated orange juice. The label says we have to add 3 cans of water to every can of orange juice.

We can say this ratio in a few different ways

- 3 parts water to 1 part juice
- 3 to 1, water to juice mix
- 3 to 1 ratio
- 1 part juice to 3 parts water
- 1 to 3, juice to water mix
- 1 to 3 ratio



We can show that mathematically in a few ways. Read the colon between the numbers as the word "to"

- 3 : 1 Water : Juice
- 1 : 3 Juice : Water

Ratios can also be shown as fractions

- 3/1 Water/Juice
- 1/3 Juice/Water

### Quick Tip

It is helpful to label your ratios in words so you don't forget which number represents which thing. You can colour code the numbers so you don't mix them up.

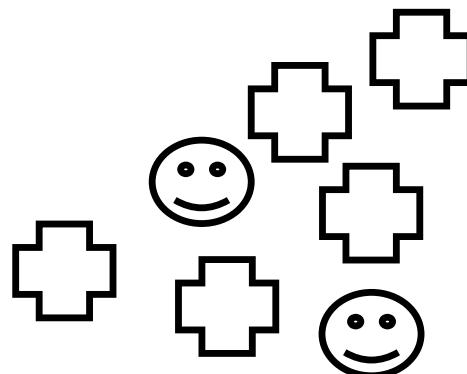
## Example 2

There are 2 happy faces and 5 crosses in this example.

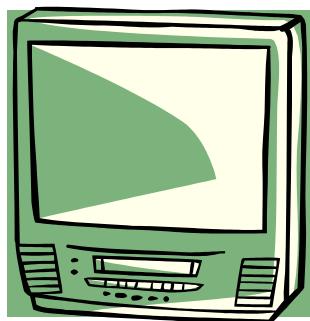
We can say that the ratio of happy faces to crosses is

- Two to five (in words)
- 2 : 5 (using a colon)
- 2/5 (as a fraction)

All 3 answers mean the same thing.



### Example 3

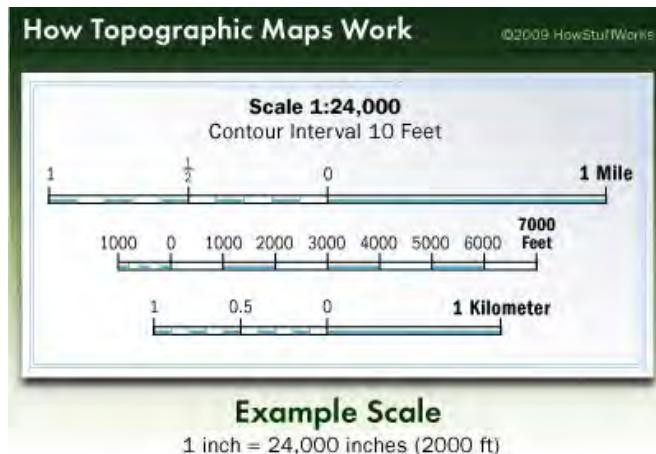


If a widescreen TV is 16 units wide and 9 units tall, what is the aspect ratio of a widescreen TV?  
 $16 : 9$

If a standard TV screen is 4 units wide and 3 units tall, the aspect ratio is  $4 : 3$



### Example 4



What is the ratio on this map scale?

There are 2 ratios here.

$1 : 24,000$   
(inches to inches)

$1 : 2000$   
(inches to feet)

## **Activity 1 – Skill Builder**

Write the ratios for the examples below. Write the ratio using a colon, as a fraction and in words.

1. My tuna casserole uses 2 cans of tuna and 3 cans of cream of chicken soup
2. Mix one tablespoon of plant food with 2 litres of water
3. There are 17 men on my shift and only 9 women
4. I take 3 calcium pills every day and 1 multi-vitamin
5. To clean the pool you need 1 bottle of chemical for 500 litres of water
6. Each table needs 17 screws to put it together
7. My car gets 34 miles per gallon of gas
8. It took me 3 hours to make 4 dozen cookies
9. Mary must take 1 unit of insulin for every 15 grams of carbohydrates
10. The kit needs 70 short screws and 31 long screws

## **Activity 1 – Task**

What's the ratio of chairs to tables in your classroom?

What other ratios can you see around you?

- Ratio of doors to windows
- Ratio of lights to light switches
- Ratio of computers to printers

What other ratios can you measure around you? Try using a tape measure to find the ratio of

- Ratio of height to width of the door, windows and desk
- Your waist to hip measurements
- Your height to leg length

## Equivalent Ratios

We use equivalent ratios all the time. We use them when we

- Double a recipe
- Mix a quart of tinted paint instead of a gallon
- Mix a small amount of concentrated cleaner to do a small clean up job



### Example 1

Let's go back to our concentrated orange juice example.

The label told us we had to mix 1 can of juice with 3 cans of water.

We wrote this as a ratio of 1 : 3

What if we were making juice for a football tournament and needed 100 times the amount of juice. We want the juice to taste the same in the big batch as it did in the small batch so the relationship between the juice and the water must stay the same. The ratio must still be 1 : 3.

How can we show this using math?

If we want to take a 1 : 3 ratio of Juice-to-Water and increase the amount 100 times for a football tournament, we can do the math like this



1. Write original ratio out
2. Decide what your multiplication factor is
3. Multiply the both parts of the ratio by the multiplication factor
4. Put the ratio back together.  
Make sure you put the numbers back in the right order.
5. Write your answer in words

*One can of juice concentrate to 3 cans of water*

*1 : 3*

*Need 100 times more juice—multiplication factor is 100*

$$1 \times 100 = 100$$

$$3 \times 100 = 300$$

*We would need 100 cans of juice concentrate and 300 cans of water*

## Example 2

What about the baking example from activity 1. It took 3 hours to bake 4 dozen cookies. What if we need 4 times that amount of cookies?



1. Write original ratio out
2. Decide what your multiplication factor is
3. Multiply the both parts of the ratio by the multiplication factor
4. Put the ratio back together. Make sure you put the numbers back in the right order.
5. Write your answer in words

*3 hours to bake 4 dozen cookies*

*The ratio is  $\frac{3}{4}$*

$$\frac{3 \times 4}{4 \times 4} = \frac{12}{16}$$

*The ratio is  $\frac{12}{16}$*

*It will take 12 hours to bake 16 dozen cookies*

The numbers are different but the relationship between the time it takes to bake the cookies and the number of cookies stays the same. The ratio is equivalent or equal.

### Example 3

I take 3 calcium pills and 1 multi-vitamin every day. I am going on holiday for 21 days. What's the equivalent ratio of pills I need to take with me?

We'll do the math as a ratio with a colon and written as a fraction



*3 calcium and 1 multi-vitamin*

*Ratio is 3: 1*

*Multiplication factor is 21*

$$3 \times 21 = 63$$

$$1 \times 21 = 21$$

*New ratio is 63 : 21*



*3 calcium and 1 multi-vitamin*

*Ratio is  $\frac{3}{1}$*

*Multiplication factor is 21*

$$\frac{3 \times 21}{1 \times 21} = \frac{63}{21}$$

*New ratio is  $\frac{63}{21}$*

## **Activity 2 – Skill Builder**

Change these ratios to an equivalent ratio using the multiplication factor that is given.

Ratio	Multiplication Factor
-------	-----------------------

1. $2/7$	7
2. $13 : 29$	2
3. $4/11$	6
4. $18/5$	3
5. $6 : 13$	9
6. $1 : 23$	8
7. $7/30$	5
8. $10 : 1$	4
9. $7 : 2$	12
10. $11 : 3$	9

11. Sarah Is going on vacation for 9 days. Every day she takes cholesterol and blood pressure pills in a ratio of  $1 : 2$ . What is the ratio of pills she needs for her entire vacation?
12. Mark uses 5 ml of cleaner for every 2 toilets. What is the ratio if he cleans 10 toilets?

## **Activity 2 – Task**

What is the ratio of men to women in your classroom? What would the weekly ratio be if the same students came to class for 7 days? Show your work

## Reducing Ratios to Lowest Terms

It is common practice to write ratios in lowest terms or simplest form. This means writing the equivalent ratio with the smallest possible numbers without using decimals. It makes the ratio easier to read and it is much easier to do calculations with small numbers.

How do we change ratios to their simplest form?

Let's use some examples to explain.

### Example 1

You have been asked to set up a banquet hall with tables and chairs. There are 10 tables and 60 chairs.

The ratio of tables to chairs is 10 : 60.

We need to know the simplest form of this ratio to find out how many chairs go around each table.

How do we do the math to change the ratio into its simplest form?

Follow these steps.

1. Write original ratio out
2. Figure out the largest number that divides into both parts of the ratio
3. Do the division
4. Put the ratio back together.  
Make sure you put the numbers back in the right order.
5. Write your answer in words

*10 tables to 60 chairs or 10 : 60*

*Both numbers can be divided by 10*

$$10 \div 10 = 1$$

$$60 \div 10 = 6$$

*The ratio in its simplest form is 1 : 6  
For every 1 table there are 6 chairs*



## Example 2

Let's try it again using the ratio in fraction form using 100 chairs and 20 tables.

1. Write the ratio out
2. Figure out the largest number that divides into both parts of the ratio
3. Do the division
4. Put the ratio back together. Make sure you put the numbers back in the right order. This is the simplest form
5. Write your answer in words



$$100 \text{ chairs and } 20 \text{ tables} = \frac{100}{20}$$

20 goes into both numbers

$$\frac{100}{20} \div \frac{20}{20} = \frac{5}{1}$$

$$\text{The ratio in simplest form is } \frac{5}{1}$$

For every 5 chairs there is one table

### Example 3

What about if there are 25 tables and 200 chairs? What's the ratio of tables to chairs in simplest form?

Let's do both forms of the calculation for this one

Fraction Version



$$25 \text{ tables and } 200 \text{ chairs} = \frac{25}{200}$$

25 goes into both numbers

$$\frac{25}{200} \div \frac{25}{25} = \frac{1}{8}$$

$$\text{Or } \frac{25 \div 25}{200 \div 25} = \frac{1}{8}$$

The ratio in the simplest form is  $\frac{1}{8}$

For every table there are 8 chairs

Ratio with a colon



$$25 \text{ tables and } 200 \text{ chairs} =$$

$$25 : 200$$

Both numbers can be divided by 25

$$\begin{aligned} 25 \div 25 &= 1 \\ 200 \div 25 &= 8 \end{aligned}$$

The ratio in simplest form is 1:8

For every table there are 8 chairs

### **Activity 3 – Skill Builder**

**Change the ratios to lowest terms or simplest form.**

- |           |             |
|-----------|-------------|
| 1. 10:100 | 6. 12/18    |
| 2. 4/20   | 7. 99/27    |
| 3. 11:55  | 8. 84:24    |
| 4. 33/55  | 9. 140 : 77 |
| 5. 21 : 7 | 10. 81 : 18 |

**Show the ratio and reduce to simplest form.**

11. 2 in 500 people are left handed
12. Canada won 18 medals at the 2012 Olympics. 12 of them were bronze
13. The chance of having a bad reaction to medication is 3 in 300.
14. Mix 40 kilos of plaster with 2 litres of water to make plaster of Paris
15. Selina has to take 3 units of insulin for every 60 grams of carbohydrates
16. My potato salad uses 6 eggs and 8 potatoes
17. 100 litres of water drains out of a tub in 10 minutes
18. 2 gallons of paint covers 700 square feet of wall surface
19. 82 out of 100 students got hired after their co-op placement
20. 5 boxes of tiles covers 550 square metres of floor space

### **Activity 3 – Task**

What is the height to width ratio of your classroom door in its simplest form?



## Answers

### **Activity 1 – Skill Builder**

1.	2 : 3	2/3	two to three
2.	1 : 2	1/2	one to two
3.	17 : 9	17/9	seventeen to nine
4.	3 : 1	3/1	three to one
5.	1 : 500	1/500	one to five hundred
6.	1 : 17	1/17	one to seventeen
7.	34 : 1	34/1	thirty-four to one
8.	3 : 4	3/4	three to four
9.	1 : 15	1/15	one to fifteen
10.	70 : 31	70/31	seventeen to thirty-one

### **Activity 1 Task - Answers will vary**

### **Activity 2 Skill Builder**

1.	14/49	7.	35/150
2.	26 : 58	8.	99/27
3.	24/66	9.	84 : 24
4.	54/15	10.	99 : 27
5.	54 : 117	11.	9 : 18
6.	8 : 184	12.	50 : 20

### **Activity 2 Task—Answers will vary**

### **Activity 3**

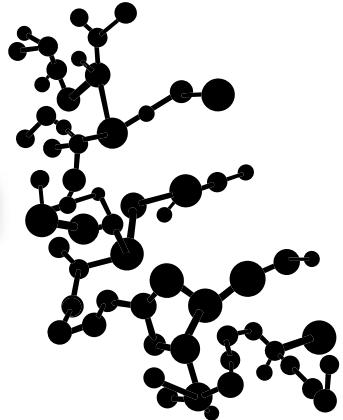
- |           |     |       |
|-----------|-----|-------|
| 1. 1 : 10 | 6.  | 2/3   |
| 2. 1/5    | 7.  | 11/3  |
| 3. 1/5    | 8.  | 7 : 2 |
| 4. 3/5    | 9.  | 20/11 |
| 5. 3 : 1  | 10. | 9 : 2 |
11.  $2 : 500 = 1 : 250$   
12.  $18/12 = 3/2$   
13.  $3/300 = 1/100$   
14.  $42 : 2 = 21 : 1$   
15.  $3 : 60 = 1 : 20$   
16.  $6 : 8 = 3/4$   
17.  $100/10 = 10/1$   
18.  $2 : 700 = 1:350$   
19.  $82 : 100 = 41 : 50$   
20.  $5/550 = 1/110$

**Activity 3 – Task – Answers will vary**

**Using**

# Ration and Proportion

## Module 2



### Supports the following type of tasks

- Sample Diabetes task—figuring out how much ratio insulin to take at meal times
- Sample Employment task—figuring out how much water to mix with floor cleaner concentrate
- Sample Education task—using basic ratio to prepare for Secondary Credit math class
- Sample Independence task—figuring out how to increase recipes for more people

**Pre-requisites – Using Ratio and Proportion Module 1**

**Time – Variable**

### Materials required

- Pens, pencils and coloured pens
- Paper
- Optional LED projector or Smart board
- White board, or flip chart paper, calculator

### Objectives

The activities in this module focus on developing the skills needed to use basic ratio and proportion in a variety of settings. The learner will understand and be able to

- Show equivalent ratios and direct proportions for 3 part ratios
- Solve for the unknown in a proportion

### Format

The activities in this module can be delivered as a practitioner facilitated lesson or as a self-directed lesson depending on the skills of the learner. The activities can be worked on by individual learners, in pairs or as a small group.



## OALCF Levels used in Ratio and Proportion Module 2

<b>Primary OALCF Competencies</b>	<b>Performance Descriptors</b>
C1.1	<ul style="list-style-type: none"><li>• adds, subtracts, multiplies and divides whole numbers and decimals</li><li>• recognizes values in number and word format</li><li>• understands numerical order</li><li>• identifies and performs required operation</li><li>• follows apparent steps to reach solutions</li><li>• interprets and represents costs using monetary symbols and decimals</li></ul>
C1.2	<ul style="list-style-type: none"><li>• chooses and performs required operation(s); may make inferences to identify required operation(s)</li><li>• selects appropriate steps to reach solutions</li><li>• uses strategies to check accuracy (e.g. estimating, using a calculator, repeating a calculation, using the reverse operation)</li><li>• interprets and applies rates (e.g. \$/kg, \$/1)</li></ul>
C1.3	<ul style="list-style-type: none"><li>• calculates using numbers expressed as whole numbers, fractions</li><li>• manages unfamiliar elements (e.g. context, content) to complete the task</li><li>• chooses and performs required operations; makes inferences to identify operations</li><li>• selects appropriate steps to reach solutions from among options</li><li>• identifies a variety of ways to complete the task</li><li>• makes estimates</li><li>• uses strategies to check accuracy</li></ul>

<b>Primary OALCF Competencies</b>	<b>Performance Descriptors</b>
C3.1	<ul style="list-style-type: none"> <li>• adds and subtracts whole number measurements</li> <li>• recognizes values in number and word format</li> <li>• measures distance, length, width, height</li> <li>• uses common measuring tools, such as rulers, scales and thermometers</li> <li>• understands numerical order</li> <li>• makes simple estimates</li> <li>• begins to interpret integers (e.g. temperature, elevation)</li> <li>• chooses appropriate units (e.g. metres, inches) and non-standard units (e.g. paces, cupfuls, scoops)</li> <li>• identifies and performs required operation</li> <li>• interprets and represents measures using whole numbers, decimals and simple, common fractions (e.g. <math>\frac{1}{2}</math>, <math>\frac{1}{4}</math>)</li> <li>• interprets and represents measures using symbols and abbreviations (e.g. inches as ", centimeters as cm, pounds as lbs, kilograms as kilos or kg)</li> <li>• follows apparent steps to reach solutions</li> <li>• rounds to the nearest whole unit (e.g. kilos)</li> <li>• uses strategies to check accuracy (e.g. estimating, using a calculator, repeating a calculation, using the reverse operation)</li> </ul>
C3.2	<ul style="list-style-type: none"> <li>• calculates using numbers expressed as whole numbers, fractions</li> <li>• makes estimates</li> <li>• understands and uses ratio and proportion</li> <li>• interprets and represents area using symbols and abbreviations (e.g. <math>m^2</math>)</li> <li>• interprets and applies rates (e.g. km/hr) and ratios (e.g. map scales)</li> <li>• chooses and performs required operation(s); may make inferences to identify required operation(s)</li> <li>• selects appropriate steps to solutions</li> <li>• interprets, represents and converts measures using whole numbers, ratios and simple, common fractions (e.g. <math>\frac{1}{2}</math>, <math>\frac{1}{4}</math>)</li> <li>• uses strategies to check accuracy (e.g. estimating, using a calculator, repeating a calculation, using the reverse operation)</li> </ul>

<b>Primary OALCF Competencies</b>	<b>Performance Descriptors</b>
C4.1	<ul style="list-style-type: none"> <li>• adds, subtracts, multiplies and divides whole numbers</li> <li>• recognizes values in number and word format</li> <li>• identifies and compares quantities of items</li> <li>• understands numerical order</li> <li>• identifies and performs required operation</li> <li>• makes simple estimates</li> <li>• interprets and represents values using whole numbers, and simple, common fractions (e.g. <math>\frac{1}{2}</math>, <math>\frac{1}{4}</math>)</li> <li>• follows apparent steps to reach solutions</li> <li>• uses strategies to check accuracy (e.g. estimating, using a calculator, repeating a calculation, using the reverse operation)</li> </ul>
C4.2	<ul style="list-style-type: none"> <li>• calculates using numbers expressed as whole numbers and fractions</li> <li>• understands and uses ratio and proportion</li> <li>• makes estimates</li> <li>• interprets rates (e.g. crime rates) and ratios (e.g. shots-on-net to goals)</li> <li>• chooses and performs required operation(s); may make inferences to identify required operation(s)</li> <li>• selects appropriate steps to solutions</li> <li>• uses strategies to check accuracy (e.g. estimating, using a calculator, repeating a calculation, using the reverse operation)</li> </ul>

<b>Secondary OALCF Competencies</b>	<b>Performance Descriptors</b>
A1.1	<ul style="list-style-type: none"> <li>• reads short texts to locate a single piece of information</li> <li>• decodes words and makes meaning of sentences in a single text</li> <li>• follows the sequence of events in straightforward chronological texts</li> <li>• follows simple, straightforward instructional texts</li> <li>• requires support to identify sources and to evaluate and integrate information</li> </ul>
A1.2	<ul style="list-style-type: none"> <li>• scans text to locate information</li> <li>• locates multiple pieces of information in simple texts</li> <li>• makes low-level inferences</li> </ul>
E.1	<ul style="list-style-type: none"> <li>• begins to use a limited number of learning strategies (e.g. follows instructions, takes literal notes, highlights or underlines key information, uses a calendar or agenda)</li> <li>• begins to identify ways to remember information and reinforce learning (e.g. reviewing notes)</li> <li>• begins to monitor own learning</li> <li>• uses feedback to improve performance</li> </ul>
E.2	<ul style="list-style-type: none"> <li>• uses a limited number of learning strategies (e.g. takes notes, organizes learning materials)</li> <li>• sequences activities in multi-step tasks</li> <li>• monitors own learning</li> <li>• begins to identify how skills and strategies can transfer to different contexts</li> </ul>
F	If learner completes module as part of a group

## Essential Skills used in Ratio and Proportion Module 2

Essential Skills	Level	Essential Skills	Level
Reading Text	1-2	Numeracy <input checked="" type="checkbox"/> Money math	1-3
Document Use	1-2	<input type="checkbox"/> Scheduling and budgeting <input checked="" type="checkbox"/> Measurement and calculation <input checked="" type="checkbox"/> Data Analysis <input checked="" type="checkbox"/> Numerical estimation	
Writing			
Oral Communication	<input type="checkbox"/>	Thinking Skills <input checked="" type="checkbox"/> Problem solving	<input checked="" type="checkbox"/>
Working With others	<input type="checkbox"/>	<input checked="" type="checkbox"/> Decision making <input checked="" type="checkbox"/> Critical thinking	
Computer Use	<input type="checkbox"/>	<input checked="" type="checkbox"/> Job task planning and organization	
Continuous Learning	<input type="checkbox"/>	<input type="checkbox"/> Significant use of memory	



## Practitioner Instructions

When presenting to a group of learners, information sheets can be converted for use with PowerPoint or smart boards or they can be used as prompts for practitioner notes on flip-chart or white board.

When delivering the module, practitioners should encourage discussion to help enhance speaking and listening skills as well as numeracy skills.

Each learner will receive information sheets and activity sheets and are encouraged to underline, or highlight important information as the practitioner goes through the material. Additional paper should be provided for longer notes.

Read each page aloud with the learner. Encourage the learner to use coloured pens to identify which number of the ratio refers to which thing it represents. Encourage the learner to show all their work and write in words what they are thinking and doing while they complete the math computations. Each section of this module gives an example of how to combine math and writing to make the concepts more clear.

When using a multiplication factor or when reducing ratios to lowest terms, some learners' mental math skills may be a barrier. Encourage learners to use a multiplication grid or calculator to do the mental math part. The learners' understanding of ratio can improve even if their memory for multiplication and division facts is weak.

**Additional web lectures and PowerPoint presentations on proportion and ratio can be found at**

- [www.khanacademy.org](http://www.khanacademy.org)
- [www.skillsworkshop.org](http://www.skillsworkshop.org)
- [www.bbc.co.uk/skillswise](http://www.bbc.co.uk/skillswise)

## Ratio and Proportion Review

We have learned that ratio

- is the relationship between two things (apples to oranges)
- can be written in different ways (3:2 or  $\frac{3}{2}$  or three to two)
- can be written as an equivalent ratio (3 : 2 is the same as 6 : 4)
- is usually written in its simplest form (100 : 10 should be reduced to 10 : 1)

Ratio can also show the relationship between more than two things.

### Example 1

A paint store mixes paint from a recipe or formula so you get the perfect colour.

Into the gallon of paint base, the sales person mixes 20 ml of Yellow Oxide tint, 30 ml Black tint and 15 ml of Burnt Umber tint. What is the ratio of yellow to black to burnt umber tints in its simplest form?

You can use exactly the same process that we used for two part ratios.

1. Write the ratio out
2. Figure out the largest number that divides into all three parts of the ratio
3. Do the division
4. Put the ratio back together.  
Make sure you put the numbers back in the right order.
5. Write your answer in words

20 : 30 : 15

*What is the largest number that divides into all three parts of the ratio? 5*

$$20 \div 5 = 4$$

$$30 \div 5 = 6$$

$$15 \div 5 = 3$$

4 : 6 : 3

*The ratio of yellow to black to burnt umber in its simplest form is 4 : 6 : 3*



## **Activity 1 – Skill Builder**

Write the 3 part ratio for each question and reduce to simplest form.

1. Canada won 20 medals at the 2012 Olympics. 12 of them were bronze, 8 were gold
2. A balanced meal for a family of 4 includes 4 servings of protein, 4 servings of carbohydrates and 8 servings of vegetables
3. Mix 40 kilos of plaster with 2 litres of water and 1 kilo of coloured sand to make stucco paste
4. Marcus has to take 2 pills and 2 units of insulin for every 60 grams of carbohydrates
5. My potato salad uses 5 eggs and 10 potatoes and 15 small pickles

## Finding the Unknown Proportion

If you know a ratio and you can find an equivalent ratio or proportion, you can solve all sorts of practical problems.

### Example 2

The label on a pool cleaning concentrate says that you have to mix the concentrate with water in a 1 : 1000 ratio.

The owner's pool holds 4000 litres. What amount of pool cleaning concentrate has to be added to the water?

Follow these steps to find the answer.

1. Label the parts of the ratio
2. Write each ratio part into the correct column
3. Put the third number in the correct column
4. Divide the two numbers that are in the same column
5. Multiply the answer by the number that is in the other column
6. This answer will be the unknown proportion that you are looking for
7. Write your answer in words



*Cleaner to water*

*1 : 1000*

*? : 4000*

*$4000 \div 1000 = 4$*

*$4 \times 1 = 4$*

*You must add 4 litres of pool cleaner concentrate to the pool water*

You can also solve this problem using ratios in fraction form



1. Write the ratio as a fraction and put an equals sign after it
2. Start writing an equivalent ratio using the information that you know
3. Ask yourself what you had to multiply the first part of the original ratio by to get the known information
4. Now multiply the second part of the ratio by that number
5. Your answer will be the unknown proportion or the number you are looking for
6. Write your answer in words

$$\frac{1}{1000} =$$

$$\frac{1}{1000} = \frac{?}{4000}$$

*Had to multiply 1000 X 4 to get 4000*

$$\frac{1 \times 4}{1000 \times 4} = \frac{4}{4000}$$

*Mystery number or unknown proportion is 4*

*You must add 4 litres of pool cleaner to the pool water*

### Example 3

Mohammed is putting down floor tiles. The tile cement can says he can cover 30 square feet with 50 ml of cement. Mohammed has to tile a floor that is 150 square feet. How much cement does he need?

Let's try both ways to solve this problem.



*Floor to cement*

$$30 : 50$$

$$150$$

$$150 \div 30 = 5$$

$$5 \times 50 = 250$$

*Mohammed needs 250 ml  
of tile cement*



*Original ratio is  $\frac{30}{50}$*

$$\frac{30}{50} = \frac{150}{?}$$

*Had to multiply 30 X 5 to get 150*

$$\frac{30 \times 5}{50 \times 5} = \frac{150}{250}$$

*Mohammed needs 250 ml of tile  
cement*

#### Example 4

A daycare centre uses 3 litres of milk for 7 bowls of cereal.

How many bowls of cereal could you make if you had

1. 12 litres of milk
2. 21 litres of milk
3. 57 litres of milk
4. 99 litres of milk

Milk to bowls of cereal

$$3 : 7$$

$$12$$

$$12 \div 3 = 4$$

$$4 \times 7 = 28$$

You could make 28 bowls of cereal



Original ratio is  $\frac{3}{7}$

$$\frac{3}{7} = \frac{21}{?}$$

Had to multiply  $3 \times 7$  to get 21

$$\frac{3 \times 7}{7 \times 7} = \frac{21}{49}$$

You could make 49 bowls of cereal

Milk to bowls of cereal

$$3 : 7$$

$$57$$

$$57 \div 3 = 19$$

$$19 \times 7 = 133$$

You could make 133 bowls of cereal



Original ratio is  $\frac{3}{7}$

$$\frac{3}{7} = \frac{99}{?}$$

Had to multiply  $3 \times 33$  to get 99

$$\frac{3 \times 33}{7 \times 33} = \frac{99}{49}$$

You could make 49 bowls of cereal



## **Activity 2 – Skill Builder**

Solve these ratio and proportion word problems. Try using the column method and the fraction method.

1. Chain saw fuel is a mix of 1 part oil and 50 parts gas
  - a. How much oil would you need if you were mixing with 100 litres of gas?
  - b. How much gas would you need if you used 3 litres of oil?
2. It costs \$24 for 8 bags of oranges
  - a. How much does it cost for 2 bags of oranges?
  - b. How many bags of oranges could you buy with \$120?
3. Suzanne has to take 3 units of insulin for every 35 grams of carbohydrates she eats
  - a. How many units of insulin does she have to take if she eats 70 grams of carbohydrates?
  - b. How many grams of carbohydrates does she have to eat if she has taken 9 units of insulin?
4. It takes \$8 worth of gas for me to drive 25 Kilometres
  - a. How far can I drive on \$56 worth of gas?
  - b. How much will it cost to drive 500 Km?
5. It takes 45 minutes to make 5 deliveries
  - a. How long will it take to make 15 deliveries?
  - b. How many deliveries can I make in 9 minutes?

## **Activity 2 – Task**

What is the ratio of women to men in your classroom?

If you had 400 men, how many women would you need to keep the same ratio as your classroom ratio?

Show all of your work.

**Task**



## Answers

### **Activity 1**

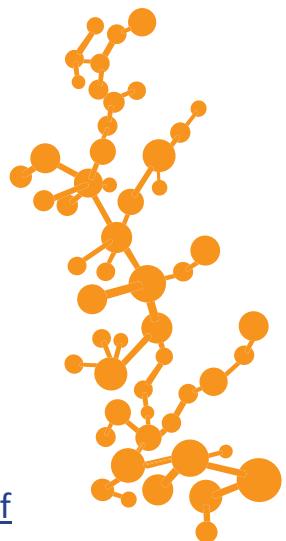
1.  $20 : 12 : 8 = 10 : 6 : 4$  and  $5 : 3 : 2$
2.  $4 : 4 : 8 = 1 : 1 : 2$
3.  $40 : 2 : 1$  – This is the simplest form
4.  $2 : 2 : 60 = 1 : 1 : 30$
5.  $5 : 10 : 15 = 1 : 2 : 3$

### **Activity 2**

1. Chain saw fuel is a mix of 1 part oil and 50 parts gas
  - a. How much oil would you need if you were mixing with 100 litres of gas?  
**2 litres of oil**
  - b. How much gas would you need if you used 3 litres of oil?  
**150 litres of gas**
2. It costs \$24 for 8 bags of oranges
  - a. How much does it cost for 2 bags of oranges? **\$6**
  - b. How many bags of oranges could you buy with \$120? **40 bags**
3. Suzanne has to take 3 units of insulin for every 35 grams of carbohydrates she eats
  - a. How many units of insulin does she have to take if she eats 70 grams of carbohydrates? **6 units of insulin**
  - b. How many grams of carbohydrates does she have to eat if she has taken 9 units of insulin? **105 grams of carbohydrates**
4. It takes \$8 worth of gas for me to drive 25 Kilometres.
  - a. How far can I drive on \$56 worth of gas? **175 Km**
  - b. How much will it cost to drive 500 Km? **\$160**
5. It takes 45 minutes to make 5 deliveries
  - a. How long will it take to make 15 deliveries? **135 minutes**
  - b. How many deliveries can I make in 9 minutes? **1 delivery**



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