Take Flight

toward a career in aviation and aerospace

Essential Skills Volume 2 - Reading

FOR USE WITH THE AVIATION AND AEROSPACE ORIENTATION PROGRAM

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Using the Aviation and Aerospace Orientation Program Essential Skills Workbook

The Aviation and Aerospace Orientation Program Essential Skill workbook is not intended for use as a self-directed independent learning tool. It has been designed to augment the Aviation and Aerospace Orientation Program curriculum and support the learner in attaining Essential Skills that are paramount for success in the workforce. The activities serve to strengthen foundational skills and reinforce basic concepts.

There may be activities in the workbook that require students to solve mathematical calculations or respond with a long passage. While there is space allotted for the activities within the workbook, it may be necessary for the student to work on a separate page/notebook.

Where applicable the workbook is accompanied by an Answer Guide containing sample answers/responses. These Answer Guides also cross-reference the workbook topics to the Aviation and Aerospace Orientation Program curriculum.

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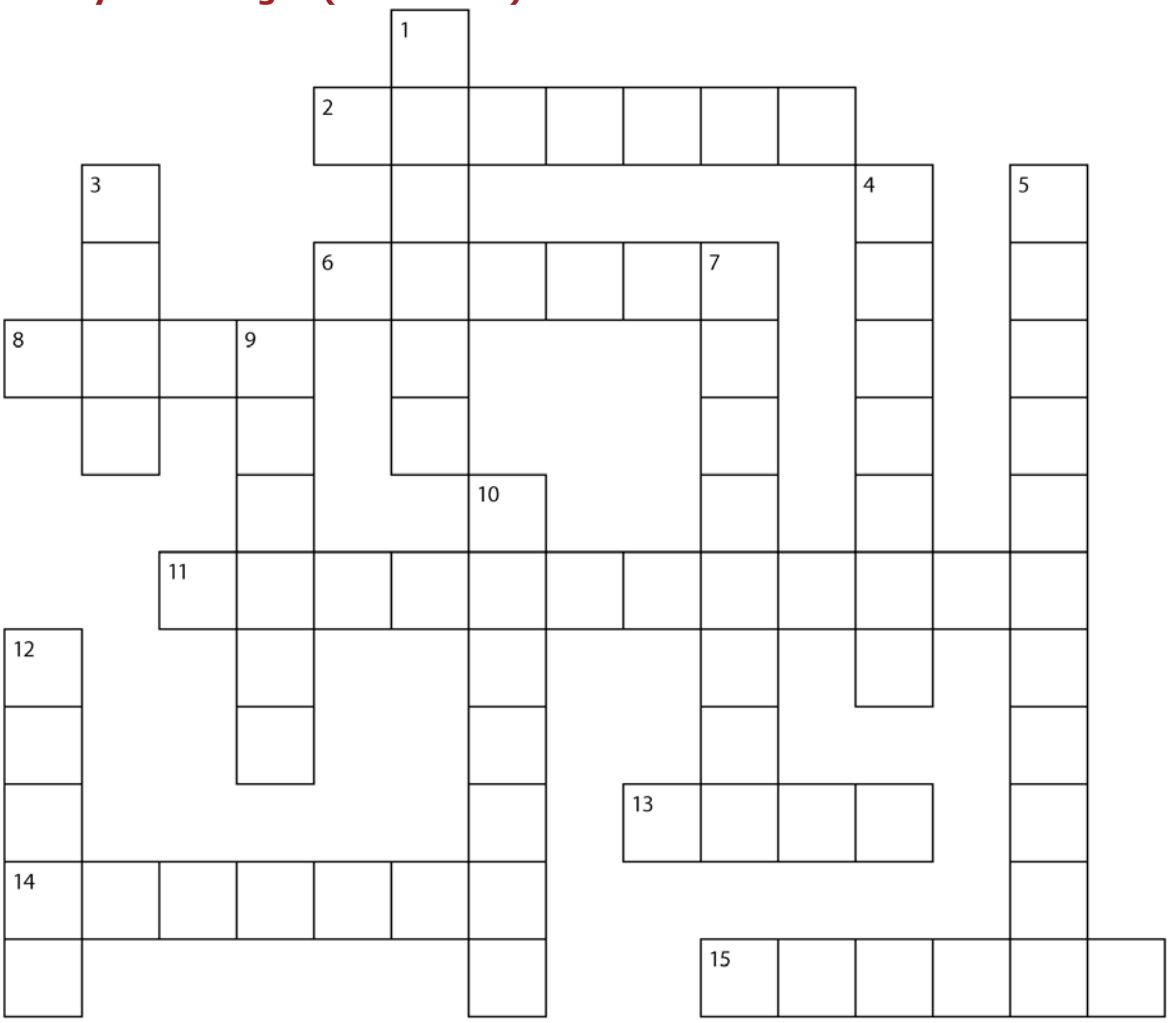
Section One: Vocabulary

Human Resources and Skills Development Canada has determined that being able to effectively read and use regulatory documents in the workplace is an "Essential Skill" that every student should develop.

Vocabulary Activities

Activity 1-1 – Flight (crossword)



ACROSS

2 A smooth covering over a joint to reduce drag
6 A resistance to turning or twisting
8 The force that pushes the aircraft upward
11 A condition of rotorwing flight in which the rotors are turned by aerodynamic action rather than engine power
13 The force that opposes thrust
14 The pilot's compartment of an aircraft
15 The moveable vertical control surface used to rotate the airplane about its vertical axis

DOWN

1 The transparent cover for the airplane's cockpit
3 A condition of uncoordinated flight. The plane moves toward the outside of the turn
4 A streamlined surface that converts air resistance into lift
5 The foremost edge of an airfoil section
7 A horizontal, moveable control surface on the tail of an aircraft
9 The force that moves the aircraft forward
10 The force that pulls the aircraft toward earth
12 The rotation of an airplane about its lateral axis

Activity 1-2 – Make a Crossword

Make a Crossword

1. Choose a partner.
2. Collect 15 aviation terms and their definitions.
3. Look in glossaries, texts, magazines or online.
4. Go to www.puzzle-maker.com/CW/
5. Follow the directions to make your own crossword puzzle.
6. Print your puzzle and the solution.
7. Submit the printouts to your teacher for photocopying.
8. Complete puzzles produced by other pairs of students.

Activity 1-3 – Matching Terms

Term	Definition Number	Definition
throttle		1. Locating and diagnosing breakdowns or malfunctions in equipment.
trailing edge		2. A device used to disrupt lift by changing the airflow over an aerodynamic surface.
fastener		3. A coil consisting of a number of loops of wire to carry electric current.
scale		4. A device such as a rivet or bolt used to connect two objects.
strut		5. The valve in a carburetor or fuel control unit determining the amount of fuel-air mixture fed to the engine.
bulkhead		6. Oxide formed on metal by chemical action of the surface metal with oxygen.
spoiler		7. A structural partition which usually divides a fuselage or wing into bays
fatigue		8. The aft edge of an airfoil or wing.
troubleshooting		9. The condition leading to the progressive fracture of a material, which begins at a point of high stress concentrations or a defect, and increases under repeated cycles.
solenoid		10. The external bracing on a non-cantilever airplane.

Context Clues

Sometimes you can figure out what a word means by the way it is used in the sentence or paragraph. Four kinds of clues follow:

1. Defining the Term

The definition or meaning of a difficult word is often given within a few sentences of its use.

On the CCAA website, under the heading "What is CCAA Certification?" the term "Certification" is defined as follows:

Example: Certification is documented proof that an individual has met the requirements of a particular occupation and possesses the necessary knowledge, skills and abilities for the job.

2. Restating the Meaning

The meaning of an unfamiliar word might be restated in a simpler way immediately following the use of the word. A restatement is normally set off by two commas.

Example: Ailerons, primary control surfaces located near the wing tip, are operated by the lateral motion of the control wheel.

3. Using a Synonym

A synonym is a word that means the same as the original word. Shortly after using a challenging word like "toxic", an author might use the synonym "poisonous" to make the meaning of "toxic" easier to understand.

Example: Toxic substances cannot be stowed in an aircraft compartment with items intended to be food for animals or humans. Poisonous substances may be loaded in one closed unit load device if the foodstuff is loaded in another closed unit load device.

4. Using an Antonym

An antonym is a word meaning opposite to the word in question. An opposite idea could be a word or a phrase. The antonym for "ambiguous" is "clear".

Example: Transport Canada cautions readers to call for help if the meaning of legislation is ambiguous. Action should only be taken if the meaning of the legislation is clear.

Activity 1-4 – Using Context Clues

Write the meaning of the underlined words, and name the context clue used.

1. The old airplane showed many signs of abrasion. This wearing away of surface material was due to the sandstorms the plane had weathered.

2. Only approved parts may be used to repair this engine. Approved parts for installation on aircraft are those, which are manufactured and certified by a production certificate holder for a type of certified product.

3. Coning, the upward bending of the blades of a helicopter rotor in flight, is caused by the combined forces of lift and centrifugal force.

4. The extreme heat caused the components to coalesce. They won't split up now, even if the substance cools.

5. Please check out the engine cowling. I believe that housing was damaged when we hit the birds.

6. The empennage, the tail section of an aircraft, consists of vertical and horizontal stabilizers, elevators, rudder and necessary tabs.

7. Drag is an aerodynamic force on a body acting parallel and opposite to the relative wind.

8. In an emergency, passengers may egress from the rear but under normal circumstances they will enter and egress from the front of the plane.

9. Because of the impurities present, this metal is hard, rigid, and has little tensile strength. We will not be using it in our production because of this embrittleness.

10. The fin, the vertical stabilizer of an aircraft to which the rudder is hinged, provides directional control.

11. If the anomalies in radiographs are not correctly interpreted, these deviations from the norm could cause a fatal accident.

12. Ascend to 3000 feet. Once you have climbed to 3000, I'll give you further instructions.

13. If supersonic speed is faster than the speed of sound, then subsonic must be slower.

Activity 1-5 – Cloze Passages

The following passages have been taken from a Transport Canada Aviation Safety Letter, Issue 2/2004. Fill in the blanks using the words from the word bank below each passage.

1. Weight and Balance of Aircraft

Weight and balance factors are critical to the safe _____ of an aircraft. Weight and balance refer to the _____ of an aircraft and the location of the centre of _____. Aircraft are designed to operate within certain weight and _____ limits.

Air operators must comply with Transport _____ weight and balance requirements for safe takeoffs and _____, as well as for maintaining control of the aircraft during _____. The Canadian Aviation Regulations (CARs) prohibit an air operator from _____ an aircraft unless, during every phase of flight, the _____ restrictions and weight and balance of the aircraft _____ to the limitations specified in the approved aircraft flight _____.

Word Bank

• conform	• balance	• flight	• operation
• load	• Canada	• flying	• manual
• landings	• weight	• gravity	

2. Ballistic Recovery System Parachutes: The Lifesaver

The very _____ and lightweight parachute is located in a special _____ close to the aircraft or ultralight aircraft's centre of _____. It is propelled out of the canister by a _____ fuel rocket motor and deploys at various _____, depending on the height of the aircraft, to preclude any _____ failure of the canopy. The pilot manually deploys the _____ by pulling a handle. Flying small aircraft is no ordinary _____ and has to be taken seriously as it is most _____ of mistakes.

Word Bank

• undertaking	• gravity	• small
• speeds	• system	• canister
• solid	• structural	• unforgiving

(Passages reprinted with permission from Transport Canada)

Section Two: Reading and Interpreting Regulatory Documents

Reading and Interpreting Regulatory Documents

Regulations are rules that have the force of law. In Canada, the aviation industry has been controlled since 1996 by the Canadian Aviation Regulations, also known as CARs.

On the Transport Canada website that contains general information about CARs, the principles under which CARs was developed are discussed.

> In keeping with Aviation Regulation's philosophy of a shared commitment with the aviation community to safety, the CARs include the following four regulatory principles:
>
> 1. Applying a Risk-based Approach to Regulation
>
>   The CARs were developed taking into account the safety risks inherent in aviation activities and the potential consequences of non-compliance. Consequently, commercial activities attract the greatest level of regulation while recreational aviation activities involve minimal regulation and encourage self-regulation. Similarly, the level of regulation differs amongst the types of commercial activities, for instance, the regulations for air taxi operations are much less onerous than those for commuter operations.
>
> 2. Minimizing the Regulatory Burden
>
>   In the CARs, regulations are based on identified needs and safety deficiencies. In so far as it is practicable, the regulations are also harmonized with those of the United States (FARs) and the European Union (JARs). The CARs are intended to be cost effective, allowing for technical innovation and business practices tailored to an operator's specific requirements.
>
> 3. Increasing the Delegation of Regulatory Authorities
>
>   The CARs recognize the extensive use of industry delegates to exercise a variety of regulatory authorities. Delegations are made based on need and cost-effectiveness and recognize the expertise in the private sector. Delegates are closely monitored by Transport Canada Aviation to ensure their continued competency.

4. Increasing Communication with the Aviation Community – Canadian Aviation Regulation Advisory Council (CARAC)

   The CARs were developed in partnership with the aviation community through CARAC, which continues to play a pivotal role in ongoing rule making.

(CARs General Information, https://www.tc.gc.ca/eng/civilaviation/regserv/cars/geninfo-GeneralInfo-116.htm, Transport Canada, 2007. Reproduced with permission of the Minister of Public Works and Government Services Canada, 2009.)

Reading Skills

SCAN to locate specific information by glancing over the text and using standard aids such as table of contents, index and glossary. Let your eyes scan quickly over the material, looking for particular key words.

SKIM for overall meaning by glancing through the text for its main features such as headings, subheadings, highlighted words, diagrams, tables, etc., to get a sense of the meaning.

Activity 2-1 – Scanning and Skimming

Answer the following questions by scanning for specific information or skimming the subheadings of the excerpt on the previous page.

1. In the philosophy of the Aviation Regulations, what is the main commitment that is being made?

_____

_____

2. What was the role of CARAC in developing CARs?

_____

_____

3. On what two factors have the regulations in the CARs been based?

_____

_____

4. Delegations are made based on what two factors?

_____

_____

5. Which activities require a higher level of regulation: commercial or recreational?

_____

_____

6. Which sector is encouraged to self-regulate: commercial or recreational?

_____

_____

7. The Federal Aviation Regulations govern aviation in what country?

_____

_____

8. Quote the phrase that proves that the CARs were not intended to make a huge profit.

_____

_____

9. Why does Transport Canada closely monitor delegates?

_____

_____

10. What further involvement has CARAC had beyond their participation in the development of the CARs?

_____

_____

CARs Part III, Subpart 3-Aircraft Rescue and Firefighting at Airports and Aerodromes

The material quoted on this page is a part of the Canadian Aviation Regulations Part III, Subpart 3, Division IV and relates to a response test.

Response Test

303.18

1. The operator of a designated airport or of a participating airport or aerodrome shall carry out a response test to evaluate the response time and effectiveness of the aircraft fire-fighting service required to be maintained during the hours of operation specified in section **303.04**

   a. Every 12 months; and

   b. At any time at the request of the Minister, where the Minister has reasonable grounds to believe that the aircraft fire-fighting service at the airport or aerodrome does not meet the requirements of this subpart.

2. The operator of a designated airport or of a participating airport or aerodrome shall give the Minister at least four weeks written notice of the date on which a response test is to be carried out.

3. The operator of a designated airport or of a participating airport or aerodrome shall provide the Minister with a copy of the results of a response test within 14 days after the date of the test.

4. A response test at a designated airport or at a participating airport or aerodrome has a satisfactory result if

   a. Within three minutes after an alarm is sounded, aircraft fire-fighting vehicles in a number sufficient for applying the principal extinguishing agent at 50 percent of the total discharge capacity required by **section 303.09** are dispatched from their assigned position and, under optimum surface and visibility conditions at the airport or aerodrome, reach the midpoint of the farthest runway serving commercial passenger-carrying aircraft, or another predetermined point of comparable distance and terrain; and

   b. Within four minutes after the alarm is sounded, any other aircraft fire-fighting vehicle required by section **303.09** reaches the location referred to in paragraph (a).

5. The operator of a designated airport or of a participating airport or aerodrome shall record the results of a response test and shall preserve the records for two years after the date of the test.

6. If a response test does not have a satisfactory result, the operator of a designated airport or of a participating airport or aerodrome shall

   a. Within six hours after the test, identify the deficiencies that caused the result and notify the appropriate air traffic control unit or flight service of the critical category for fire fighting that corresponds to the level of service that can be provided, for publication in a NOTAM; and

   b. Within seven days after the test, if any deficiency is not corrected, submit a plan to the Minister specifying the measures necessary to obtain a satisfactory result and the dates by which they must be taken, which shall be as early as practicable given the circumstances.

(CARs Part III, Subpart 3, Division IV, http://www.tc.gc.ca/eng/civilaviation/regserv/cars/part3-303-1011.htm, Transport Canada, 2007. Reproduced with permission of the Minister of Public Works and Government Services Canada, 2009.)

Activity 2-2 – Practice Reading the CARs

Referring to the portion of the CARs that was quoted on the previous page, answer the following questions.

1. Within how many days must the operator of an aerodrome send the Minister a copy of the results of a response test?

   _____

2. How long must records of response tests by kept?

   _____

3. Who is responsible for notifying the Minister of an upcoming response test?

   _____

4. Name one task that the operator of a designated airport must do within six hours of an unsatisfactory test?

   _____

5. Within how much time after an alarm has sounded, must the first group of fire-fighting vehicles reach the midpoint of the farthest runway serving commercial passenger-carrying aircraft?

   _____

6. Within how much more time must the remainder of the fire-fighting vehicles arrive?

   _____

7. When there has been an unsatisfactory response test, within how many days must an operator of an airport correct deficiencies before the Minister is notified?

_____

8. In which section of CARs are the hours of operation of the aircraft fire-fighting service specified?

_____

9. Indicate in the box beside the sentence whether each of the following sentences are true (T), false (F), or not mentioned (NM).

a.		If visibility conditions at an airport are very poor when an alarm has sounded, fire-fighting vehicles are allowed four minutes to reach the location referred to in paragraph a) of clause (4).
b.		A response test must be held at least once a year.
c.		If a response test has an unsatisfactory result, and the deficiencies cannot be corrected within seven days, a plan specifying the necessary measures must be submitted to the Minister.
d.		The Minister can request that a response test be conducted for no reason at all.
e.		Extinguishing agents used to extinguish fires include water.

Another Regulatory Document

Part Five of the CARs governs Airworthiness, and Chapter 522 deals specifically with gliders and powered gliders. The preamble starts off as follows:

General

The content of this chapter of the Airworthiness Standards is based on the Joint Aviation Requirements, JAR-22 entitled "Gliders and Powered Gliders". These JAR airworthiness standards have been used and adapted as the model for the Canadian standards supplemented by additional airworthiness requirements based on operational experience and environmental conditions in Canada.

Format

The standards in this chapter are presented in a two column format with the JAR presented in the left column and the Canadian standards in the right column. Chapters, sub-chapters, sections and subsections numbering and headings are opposite to the equivalent JAR. Where the Canadian standard is identical to the JAR, the words "No Variation" appear; where a variation exists, the affected part of text is printed opposite to the JAR with all changes underlined.

The JAR numbering system is used; the Canadian standard bears the same number as the JAR equivalent, prefixed by the number "5", as this chapter forms part of Series 5 of the Canadian Aeronautics Code.

Subchapters E (Powerplants), H (Engines), and J (Propellers) are applicable only to Powered Gliders. Where requirements in other subchapters are applicable only to Powered Gliders, they are identified in the margin by a vertical line and the letter P.

(CARs General Information, https://www.tc.gc.ca/eng/civilaviation/regserv/cars/geninfo-generalinfo-116.htm, Transport Canada, 2007. Reproduced with permission of the Minister of Public Works and Government Services Canada, 2009.)

Activity 2-3 – Reading Regulatory Documents

1. Decide if each detail is true (T), false (F), or not mentioned (NM).

a.		JAR stands for Joint Aviation Regulations.
b.		Subchapter F applies only to Powered Gliders.
c.		JAR airworthiness standards have been used exactly, with no changes made to reflect specific Canadian issues.
d.		In subchapters A, B, and C, requirements that refer to Powered Gliders are identified in the margin by a vertical line and the letter P.
e.		The name of JAR-22 is "Powered Gliders".
f.		Subchapter F deals with take-offs and landings.
g.		In the Joint Aviation Requirements, Chapter 23 deals with gliders.
h.		American standards, FARs, are identical to CARs.

American Regulations

In the United States, aviation regulations are the responsibility of the Federal Government. Known as CFRs, Code of Federal Regulations (formerly Federal Aviation Regulations, FARs), these laws govern all aspects of the aviation industry. Part 23 deals with airworthiness standards for normal, utility, acrobatic, and commuter category airplanes. Section 23.803, which addresses emergency evacuation, states in part:

a. For commuter category airplanes, an evacuation demonstration must be conducted utilizing the maximum number of occupants for which certification is desired. The demonstration must be conducted under simulated night conditions using only the emergency exits on the most critical side of the airplane. The participants must be representative of average airline passengers with no prior practice or rehearsal for the demonstration. Evacuation must be completed within 90 seconds.

b. In addition, when certification to the emergency exit provisions of Sec. 23.807 (d)(4) is requested, only the emergency lighting system required by Sec. 23.812 may be used to provide cabin interior illumination during the evacuation demonstration required in paragraph (a) of this section.

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Activity 2-4 – Reading Regulatory Documents

Circle the letter of the best option to complete the following statements:

1. When certification to the emergency exit provisions of Sec. 23.807 (d)(4) is not requested, the evacuation demonstration for commuter category airplanes has:

   a. 4 conditions
   b. 5 conditions
   c. 6 conditions
   d. 7 conditions

2. When certification to the emergency exit provisions of Sec. 23.807 (d)(4) is requested, and an evacuation demonstration is conducted:

   a. There are no requirements governing cabin lighting.
   b. The 90 second time requirement is no longer in effect.
   c. The emergency lighting system required by Sec. 23.812 is the only light allowed in the cabin.
   d. The emergency lighting system required by Sec. 23.812 may be used to provide cabin interior illumination if at least two requirements from paragraph a) have been met.

3. The conditions governing an emergency evacuation demonstration for commuter category airplanes must include the following:

   a. Evacuation must be completed within 90 seconds.
   b. The participants should practice the evacuation.
   c. The participants must all be excessively overweight.
   d. All of the above: a), b), and c).
   e. None of the above: a), b), or c).

Dangerous Goods Regulations

The International Air Transport Association, IATA, which represents 93% of the world's airlines, has established regulations for the transport of dangerous goods. A brief excerpt follows:

> **9.3.9 Stowage of Toxic (Poisonous) and Infectious Substances**
>
> Substances requiring labels of Class 6 (toxic or infectious substances both primary and subsidiary) must not be stowed in the same compartment with animals, substances marked as or known to be foodstuffs, feed or other edible substances intended for consumption by humans or animals. This does not apply if either the toxics or infectious substances and the foodstuffs (including feed or other edible substances) or animals are loaded in separate open unit load devices and the unit load devices are not stowed adjacent to each other or, the toxics or infectious substances are loaded in one closed unit load device and the foodstuffs (including feed or other edible substances) or animals are loaded in another closed unit load device.

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Note: Extracts of the IATA Dangerous Goods Regulations, 50th Edition are reproduced within this workbook. The information contained in the IATA Dangerous Goods Regulations Manual, 50th Edition is subject to constant review in light of changing government requirements and regulations. No reader should act on the basis of any such information without referring to applicable laws and regulations and/or without taking appropriate professional advice. Although every effort has been made to ensure accuracy, neither IATA nor CCAA shall be held responsible for loss or damages caused by errors, omissions, misprints or misinterpretation of the contents hereof. Furthermore, IATA and CCAA expressly disclaim any and all liability to any person or entity, whether a purchaser of the IATA Dangerous Goods Regulations Manual, 50th Edition or not, in respect of anything done or omitted, by any such person or entity in reliance on the contents of that publication or of extracts reproduced herein.

Activity 2-5 – Reading Regulatory Documents

For each sentence that follows, fill in every blank with a word or words from the above excerpt to make the sentence complete and correct.

1. A medical lab in Manitoba needs a sample of Ebola Virus for experimentation purposes; when it is shipped it will require a _____ label.

2. I know that my cat will be safe travelling by air because of Section _____, Subsection _____, Clause _____ of the Dangerous Goods Regulations.

3. This closed unit device contains toxic materials. Please load that flour into _____ closed unit device.

4. We don't have to do that because the flour and the toxic materials are already loaded in separate unit load devices. I will not stow them aboard the aircraft _____ to each other.

5. While working in a Northern fly-in community, I received regular food packages from home. Although the box of garlic wasn't labelled as food, cargo handlers would have known it to be _____.

6. Every day our local hospital ships medical waste by air to a disposal site in Toronto. Next week, I'm flying to Toronto with my dog, Sally, so she will be placed _____.

7. Dog food must be handled the _____ as human food when it is shipped by air.

Section Three: Reading and Interpreting Technical and Safety Documents

WHMIS: Labels

The Workplace Hazardous Materials Information System, more commonly known as WHMIS, is a national system administered by Health Canada. WHMIS has three main responsibilities: labels for hazardous substances, material safety data sheets, and workers' education and training.

The following paragraph resembles text that can be found on the WHMIS labels, which are required on hazardous substances. The product is an imaginary solvent.

> ***FIRST AID***: In case of contact with the eyes, proceed immediately to the nearest eyewash station and rinse eyes with plenty of water for at least 20 minutes. Then seek medical advice. Repeated exposure to skin may cause skin dryness or cracking, so wearing personal protective clothing is advised. After contact with skin, wash immediately with soap and water. In case of accident by inhalation, remove casualty to fresh air and keep at rest. Product should only be used in well-ventilated areas. If swallowed, do not induce vomiting. Seek medical advice immediately and show this container or label.
>
> **ATTENTION! DISPOSE OF THIS MATERIAL AND ITS CONTAINER TO A HAZARDOUS OR SPECIAL WASTE COLLECTION POINT.**

Reading to Learn

Sometimes, the best way to deal with important information that is written in a paragraph is to break it up visually, so the facts can be more easily understood. Converting text into chart format is one way to do this.

Activity 3-1 – Reading Technical Documents

Complete the following chart with facts from the WHMIS label.

First Aid for "imaginary solvent"

Eyes	1. 2.
Skin	1. 2. 3.
Lungs	1. 2.
Mouth	1. 2. 3.

WHMIS: Material Safety Data Sheets

Material Safety Data Sheets, MSDS, provide workers and consumers with a wealth of knowledge about hazardous products. They may identify the substance and its manufacturer, the physical and chemical properties, health effects, first aid measures for any conceivable accident, handling, storage and transporting requirements, ecological impact, procedures for spills, fire fighting measures, and toxicological information. The following excerpt on pure turpentine is from an MSDS available from the supplier Recochem Inc.

> **Handling:** Put on appropriate personal protective equipment (see section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Do not breathe vapour or mist. Do not ingest. Avoid contact with eyes, skin and clothing. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use non-sparking tools. Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring materials. Empty containers retain product residue and can be hazardous. Do not reuse container.
>
> (Reproduced with permission from Recochem Inc.)

One strategy that will help you understand difficult technical material is to formulate questions about the text. Questioning gives the brain a framework about which to organize information.

Activity 3-2 – Read Technical Documents

1. Read the excerpt on "Handling" from the MSDS for turpentine.

2. Compose five questions based on your reading.

_____

_____

_____

_____

_____

3. Submit your questions to your teacher for evaluation.

CCAA Certification

The following excerpt has been taken from the CCAA website. Read the two paragraphs and answer the questions that follow.

What is CCAA Certification?

The Canadian Council for Aviation and Aerospace is the only nationally recognized occupation certifying body representing the aviation/aerospace industry. Certification is documented proof that an individual has met the requirements of a particular occupation and possesses the necessary knowledge, skills and abilities for the job. Each applicant begins to document competencies in a CCAA logbook which describes in detail all the tasks and subtasks required. The applicant works through the tasks in the logbook, demonstrating competencies in each one to an independent, CCAA-approved evaluator, who then signs it off. When the applicant has fulfilled all the requirements for certification, they submit the completed logbook to CCAA, who issues certification upon review and approval. Aircraft Maintenance Engineers (AMEs) who can provide a current Transport Canada license and resume can request to be certified without the requirement of a CCAA logbook.

Why Certify?

Certification provides documented national recognition of knowledge, skills and abilities (competencies) in a specified occupation. It also provides credentials and proof of qualifications, enabling portability of skills, demonstrating that the individual is a career-long learner and identifying them as a professional. Ultimately, industry values certification because it provides a standard benchmark of skills and facilitates an employer's recruitment process.

Activity 3-3 – Reading Documents

1. What is the purpose of the logbook?

2. Would Aircraft Maintenance Technicians who were certified in Ontario be able to work in Alberta? Quote the phrase that proves your answer.

3. What are four factors about an individual that are proven when he or she earns a CCAA certificate?

4. In point form, list the steps that an applicant must complete before earning certification.

5. In your own words, explain what you believe to be the value of certification.

A Little Grammar Challenge

Every pronoun (I, you, he, she, it, we, they, us, them, etc.) must have a word to which it refers. If that word is singular, the pronoun must also be singular, or if plural, the pronoun must be plural too.

Safety in the News

The Flight Safety Foundation, which describes itself as "an independent, non-profit, international organization engaged in research, auditing, education, advocacy and publishing to improve aviation safety", sent out the following news release:

Flight Safety Foundation _____

Alexandria, Virginia, U.S., July 3, 2008—In response to the announcement from France today that prosecutors have decided to charge Continental Airlines with involuntary manslaughter and bring criminal charges against some Continental employees, the French Civil Aviation Authority, and the Concorde program in connection with the tragic crash of the Concorde in 2000, Flight Safety Foundation President and CEO William R. Voss said:

"Like other recent and failed attempts to criminalize aviation accidents in France, these manslaughter charges appear rather dubious and short-sighted. Absent wilful intent or highly egregious conduct, we seriously question the basis for putting companies and aviation professionals through the ordeal of criminal prosecutions. In addition, we're very concerned criminal prosecutions will discourage the free flow of information from operators to management to regulators, to the detriment of aviation safety."

Voss further noted that the Flight Safety Foundation, which has been active in such cases around the world, will be watching developments in this case with great interest and will speak out forcefully when necessary.

In October 2006, the Flight Safety Foundation, the Royal Aeronautical Society, l'Academie Nationale de l'Air et de l'Espace, and the Civil Air Navigation Services Organization jointly signed the Criminalization Resolution decrying the criminalization of aviation accident investigation. A copy of the resolution can be found on the FSF home page, www.flightsafety.org

(News release reprinted with permission from Flight Safety Foundation)

Activity 3-4 – Reading Safety Documents

1. List five challenging vocabulary words from this article and write out their definitions.

_____

_____

_____

_____

_____

2. News articles can be reporting facts or stating an opinion. Name one fact that is stated in this article and state one opinion that was given.

_____

_____

3. Before you can agree or disagree with the opinion, what further information would you need to know?

_____

_____

4. List three different references, which you could research to learn more about this subject.

_____

_____

_____

5. Part of the title of this article has been left intentionally blank. Titles often summarize the main idea of an article. Compose a title for this article, which acts as a summary of the main idea.

_____

6. Assume you are a member of a group of survivors from the Concorde crash and you have written your own news release. Compose its title.

_____

A Computer Connection

Activity 3-5 – Reading Online

1. Google the Transportation Safety Board of Canada.

2. Choose "Air" reports.

3. Scan the list for 2006 and choose the following:
   Aviation Investigation Report
   Collision with Terrain
   Tweedsmuir Air Services Ltd.
   Cessna A185F CF-BUO
   Mount Downton, British Columbia
   07 August 2006
   Report Number A06P0157

4. Read the report, which is approximately two pages long.

5. State what you believe to be the main idea of each of the following paragraphs:
   a. "A video recorder belonging to the passenger…"

   _____

   b. "The pilot was certified and qualified …"

   _____

   c. "The pilot had worked every day …"

   _____

6. In the section entitled "Findings as to Causes and Contributing Factors". The first finding states in part: "…the pilot was manoeuvring close to terrain and struck the ground at slow speed". In your opinion, why was the pilot manoeuvring so close to the ground?

_____

_____

_____

7. What information from the report helped you make that decision?

_____

_____

_____

8. How do the following three facts influence the finding that "The pilot's lack of experience in mountain flying likely caused him to misjudge how close to the terrain he could safely fly."?
   a. What date did the accident occur?

   _____

   b. What date did the pilot begin working for Tweedsmuir Air Services Ltd.?

   _____

   c. Where had the pilot been working before?

   _____

9. In total, how many hours of flight training had the pilot received from his new employer, Tweedsmuir Air Services Ltd.?

_____

_____

_____

10. In your opinion, should the information gathered in parts 8 and 9 have been considered as factors in the findings? Explain your reasoning.

Reading Longer Passages

Remember
Scan to locate specific information.
Skim to determine overall meaning.

Activity 3-6 – Reading Longer Documents

1. **Skim** the article that follows at the end of the workbook, "Unruly Airline Passengers: The Police Response" (Appendix A), to get a sense of the overall meaning of the pamphlet.
   a. Aside from the introduction, how many subheadings are there?

   _____

   b. Which subheading is not noted on either illustration?

   _____

   c. Why did the authors of this article choose to colour some words in the text blue?

   _____

   d. Why do you think that some of the information is presented in bullets instead of in paragraphs?

   _____

   _____

   e. Which three organizations were involved in the creation of this article?

   _____

   _____

   _____

   f. In your own words, predict what this article will be about.

   _____

   _____

   _____

2. Use the headings to **scan** for specific information to answer the following:
   a. Preventing unruly passengers from creating problems in the air is best accomplished before they board. Name three signs that would indicate that a passenger could cause problems.

   _____

   _____

   _____

b. Name one preventative measure that should be done only by a manager or supervisor.

c. Name the two types of offences that the Criminal Code identifies.

d. If an aircrew has to notify police on the ground that an incident is taking place, what are five pieces of information that would help the police respond in an appropriate way.

e. What are the three main factors that determine whether or not the police will lay charges?

f. If teachers wanted multiple copies of this pamphlet, where would they obtain them?

g. There are basically three types of evidence. Which of the three is the best kind?

h. If you had a question about unruly passengers that wasn't answered in this pamphlet, whom would you contact?

The **main ideas** of a passage are those notions that the author wishes to get across to the readers. The main ideas are like the skeleton of the piece, the bare bones. Details and examples are included to "flesh out" the writing so that the reader gets a complete picture.

3. Read the entire article, and in your own words, state the **main idea.**

4. What is the main idea of the section called "Prevention—Keeping Trouble-Makers on the Ground"?

5. In the section called "Police Action", the main idea is about the responsibilities that the police must assume. Name four of these responsibilities.

When readers make **inferences**, they are "reading between the lines". Actually, readers are making an educated guess as to what the author intends, based on the information they have been given, as well as what they already know.

6. What do you **infer** from the fact that Transport Canada asked Peel Regional Police and the Ottawa Police Service to participate in the writing of this pamphlet?

7. In the section on "Personal Safety", some form of the word "reasonable" is used five times in thirteen lines. What can you **infer** from this repetition?

8. In the section on "Personal Safety", the authors have chosen to quote actual sections of the *Criminal Code*? What effect do you think this has on the value of the information on personal safety?

Appendix A

Unruly Airline Passengers (TP 13734E)

The Police Response

- **Dealing with an Incident**
- **Personal Safety**
- **Police Action**
- **The Law**
- **Evidence and Court**

AN INFORMATION GUIDE FOR AIRLINE STAFF IN CANADA

The purpose of this guide is to provide an outline for airline staff in Canada of the role of police and applicable laws and how police and airline staff can better work together to combat the incidence of unruly or violent passengers. The bottom line is that aircrew involved in unruly passenger incidents expect the police to do their part after the aircraft has landed. However, there are certain things that the police need in order to carry out their job as effectively as possible, and the onus is on the aircrew to help with this. This guide will hopefully explain why the police do certain things, how the aircrew can help, and what the aircrew can expect on board their aircraft if the police become involved.

DEALING WITH AN INCIDENT

Obviously the ideal situation is to prevent any on-board incidents in the first place by dealing with rowdy or intoxicated passengers prior to boarding or departure. Unfortunately this is not always the case, and flight crews occasionally find themselves having to deal with incidents while in flight. There's not much the police can do while the aircraft is airborne; therefore, crew members must rely on the resources they have on the aircraft.

Police stress here that the things to think about while the aircraft is still in flight are primarily methods to prevent the situation from escalating. What's the cause of the problem? Is there some way of removing the cause or moving the passenger? Crews should always be aware of the "What ifs" of the situation with regard to the safety of other passengers and crew members. At times, clear, concise direction to the culprit will suffice, while at other times showing calm restraint and composure may be the best method to de-escalate a volatile situation. We will touch on personal safety and the use of force later.

Gathering evidence is vital as many cases have failed in or have been withdrawn from court because of insufficient evidence. Start to gather evidence as soon as any incident begins to unfold. Jot down some notes about what was said, actions by the culprit and others, and who potential witnesses may be. The basic rule is record everything! This helps immensely at the end of a stressful flight when passengers are disembarking and the crew has various other tasks to perform. It's likely that important details may be forgotten when police arrive looking for the particulars if this has not been done. More about evidence later.

The moment the aircrew decides that police action will be required, contact should be made with the arrival airport. This will give airport police time to meet the aircraft with a prepared and measured response. Some of the helpful information includes the following:

- Incident type (assault, smoking, violence)
- Number of persons involved (intoxicated, male/female)
- Weapons involved, if any
- Injuries or damage caused, if any
- Whether the incident has ended or is ongoing
- If possible, location on the aircraft of the culprit(s)
- If possible, name and description of culprit(s)

PERSONAL SAFETY

The safety of the aircraft, its passengers and crew are of primary importance. Most incidents of unruly behaviour are of relatively short duration and can usually be handled with verbal intervention by the crew. What about the situations that are protracted or become violent? What protection does the law provide crew members or other passengers if physical intervention is necessary?

Physical intervention in the confines of an airborne aircraft is obviously a last resort. Experience indicates, however, that it does occasionally happen. Here's what protection the law provides for all persons:

- Reasonable Force may lawfully be used to *stop* a criminal offence that is being committed or to *prevent* an offence from being committed. (Sections 25 & 27, Criminal Code)
- A crew member may arrest/restrain (and use *reasonable force*, if necessary) a person who is *caught* committing a criminal offence. (Section 494, Criminal Code)
- Any person(s) assisting (i.e., passengers) may also use *reasonable force* to arrest or to prevent a breach of the peace. (Sections 27 & 30, Criminal Code)
- Anyone may use as much force as is *reasonably necessary* to protect themselves, or others under their protection, from assault. (Section 34, Criminal Code)

As you can see, the law does allow for crew members or other passengers to use reasonable force (including restraints) to subdue assaultive or violent individuals. Police emphasize this is *recommended only as a very last resort*.

Whenever a passenger appears violent, mentally unstable or threatening, some of the more obvious tips include the following:

- Remove possible weapons from area (knives, bottles, etc.)
- Move vulnerable passengers from area (children, elderly)
- Solicit assistance from suitable voluntary passengers
- Keep the individual under watch at all times

POLICE ACTION

The role of the police in incidents of unruly or violent passengers is two-fold. In the first instance, police will respond to meet the aircraft upon arrival, deal with the culprit(s) and gather all initial information available. Later, police will continue the investigation with follow-up contacts and interview witnesses who were not available upon arrival. When charges are laid, police will prepare the case for court, subpoena witnesses, and keep the parties involved up-to-date on the court process.

Initial police response: Police will probably advise the crew to keep the passengers seated if they have to board the aircraft. It is stressed that passengers will not be held up for long, but if a culprit passenger has to be removed the whole process will ultimately be quicker if passengers remain seated.

Officers will be looking for some basic information from a crew member as soon as the door is opened. This will help police decide whether to allow the culprit(s) to disembark normally or to escort them off the aircraft.

In order to ensure proper identification, officers will request that a crew member take them to the individual rather than having them wander around looking for a seat number. Crew members should also indicate potential witnesses to the officers, bearing in mind that once those passengers leave it is difficult to locate them.

Please be patient! It's understandable that this may be a hard request after a long, tiring flight. Police are sensitive to this, but ultimately a successful prosecution in court requires a methodical collection of information and evidence.

Follow-up: It is the responsibility of the police to lay charges, when appropriate, and prepare a case for court. The investigating officer will keep witnesses apprised of progress through the courts and the dates that witnesses may be required. Always get the name and telephone number of the officer for inquiries.

THE LAW

Canadian law, as it relates to incidents involving unruly airline passengers, is generally clear and comprehensive. Ultimately, the police decide whether to lay charges or make an arrest based on three main factors:

- Jurisdiction: where the offence took place or can be tried in court
- Type of offence: indictable (more serious) or summary (less serious) and
- Evidence: available evidence to support a charge

Jurisdiction: The Criminal Code allows police in Canada to deal with offences on board an aircraft by permitting the courts in any Canadian jurisdiction that the aircraft takes off from, lands at or flies over, to deal with charges laid as a result of offences on that aircraft while in Canadian airspace.

This is fine for domestic flights, but what about flights in international territory? Generally speaking, the Criminal Code allows police and the courts to deal with indictable offences on board an aircraft in international territory if the aircraft lands in any Canadian jurisdiction or takes off from that jurisdiction. For instance, if a flight attendant is assaulted by a passenger over the Atlantic on a Toronto to London flight, the passenger may ultimately be charged by police in Toronto under Canadian law (or in London under UK law).

Police may arrest and charge any person when they have reasonable grounds to believe that person has committed an indictable offence. When it's a summary offence, a charge may still be laid, but unless the officers actually see the offence being committed they cannot make an arrest.

Types of offences: Criminal Code offences are basically broken down into two categories: indictable and summary. Some of the more common offences are listed below:

Indictable (generally speaking, the more serious offences):
- Assault, assault causing injuries, assault with a weapon, aggravated assault
- Uttering threats of death, to cause injury, or to damage property
- Mischief (damaging property or causing a loss of use or enjoyment of property)
- Interfering with transportation facilities
- Possession of offensive weapons
- Endangering the safety of an aircraft

Summary (generally speaking, the less serious offences):
- Causing a disturbance or indecent exhibition
- Smoking on board when prohibited
- Refusing to follow in-flight safety instructions
- Consuming own alcohol on board

Evidence: Before an officer can form the grounds that an offence has taken place, he/she must have detailed information about the incident. This information will initially come from a flight crew member or other victim. If charges are likely, the officers will want to take written statements from most witnesses. If vital witnesses, such as crew members or other potential passenger witnesses, leave the aircraft before police can speak with them, any resulting prosecution may be jeopardized.

EVIDENCE AND COURT

Evidence and court preparation are very important factors for the successful prosecution of criminal charges. It is also important that airline staff are aware of the process after an incident is over and the culprit has been taken away. Here are some of the more common questions regarding the process:

What kind of evidence can I provide as a witness?

Evidence comes in all sorts of shapes and sizes, and all of it has a great effect on how the courts reach their decisions. There are basically three types of evidence:

- Circumstantial evidence: For example, you see a passenger leave a smoke-filled washroom, but you didn't actually see the person smoking.
- Real evidence: For example, you see that passenger throw down a cigarette butt. If kept, this will be real evidence—something the court can actually see.
- Best evidence: You could describe the cigarette butt; however, your testimony will be given more weight if the court actually sees the evidence. That's the best evidence.

When testifying in court, witnesses will state what they personally observed and may be asked to repeat some of what they heard. Rather than relate that "He was rude or abusive," it would be much more helpful if the witness was able to repeat the exact or explicit words used.

Witnesses may be asked to testify some time after the event takes place, so it's important that the original notes made be kept. This will allow the witness to use the notes in court to refresh his/her memory for relevant details.

What will be expected of me once charges are laid?

If you are a victim or relevant witness, the only thing you may be asked to do is testify in court. Police should keep you apprised when charges are laid. Again, take note of the officer's name and contact number for your inquiries.

If I have to appear in court, when and where will it be?

When police lay charges, they are usually dealt with by a court of that same jurisdiction, regardless of where the offence actually occurred. For instance, even if an offence took place over Quebec, if the aircraft landed in Ottawa, the case will be heard in an Ottawa court. Often, cases take over a year to go through the courts; on occasion they are dealt with quickly and without the necessity of a trial.

PREVENTION—KEEPING TROUBLE-MAKERS ON THE GROUND

Clearly identifying and dealing with potential troublesome passengers prior to boarding is the ideal situation. Although this is not always possible since many don't act up until later in the flight, all staff should be alert when dealing with boarding passengers: remember, intervention is much easier on the ground. Here are some tips:

TEAM APPROACH
All staff, whether ground passenger agents, supervisors or aircrew, are vital in identifying and dealing with problem passengers prior to or while boarding the aircraft.

PICKING THEM OUT OF THE CROWD
You can be fairly sure that if a passenger is unruly, threatening or disorderly to ground staff or other passengers at check-in or in the lounge, they are likely going to be a problem for the aircrew once on board; this is the point where intervention is most effective. Some of the obvious warning signs to look for follow:

- Drunkenness
- Unusually loud and boisterous behaviour
- Threatening, violent or disruptive behaviour
- Smoking in no-smoking lounges

When any of these types of behaviour are observed, ground staff should notify a supervisor immediately so that positive preventative action can be taken.

PREVENTATIVE MEASURES
Some preventative intervention measures that could be taken by ground staff include the following:

- Warn the passenger about his/her behaviour (this should be done by a supervisor/manager)
- Deny boarding and travel
- Police intervention, when required
- Always inform the pilot-in-command of the aircraft and the aircrew of any potential problem passenger

NOTE: For general information about unruly passengers, please direct questions or inquiries to your nearest police service.

For information specific to this publication, please contact
Peel Regional Police
7750 Hurontario Street
Brampton ON L6V 3W6
ATTENTION: Airport Division

To obtain copies of this publication please contact Transport Canada
Civil Aviation Communications Centre (AARA)
Place de Ville, Tower C
330 Sparks Street
Ottawa ON K1A 0N8
Tel.: 1-800-305-2059
Fax: (613) 957-7284
Web site: http//www.tc.gc.ca/aviation/index.htm

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