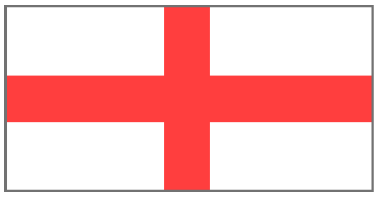
135 Bell-Irving Squadron

Level One Handbook

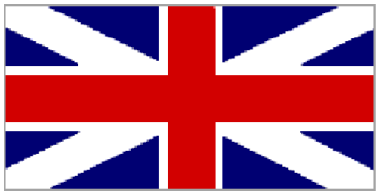
PO 101 – Citizenship

Part 1: National Flag of Canada



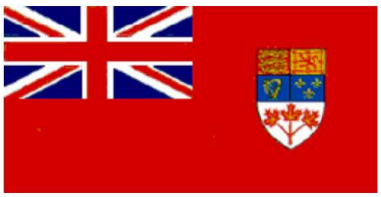
First Canadian Flags
St. George's Cross
The St. George's Cross was an English flag of the 15th century. It was carried by John Cabot and flown over Canadian soil when he reached the east coast of Canada in 1497.

Fleur-de-Lis
When Jacques Cartier landed and claimed the new world for France in 1534, the Fleur-de-Lis was flown as a symbol of French sovereignty in Canada. It was flown until the early 1760s when Canada was surrendered to the United Kingdom.



Royal Union Flag
The two crossed Royal Union Flag was the official British flag in the early 1760s. This flag was flown over Canadian soil until the Act of the Union between Great Britain and Ireland in 1801 when Ireland's diagonal cross of St. Patrick was incorporated. This gave the Royal Union Flag its present day configuration.

Canadian Red Ensign
The Canadian Red Ensign is a red flag with the Royal Union Flag in the corner. It was created in 1707 as the flag of the British Merchant Marine. It replaced the Royal Union flag on government buildings abroad in 1924. Starting in 1945, it was flown on federal buildings in Canada until a new national flag was adopted.



Current National Flag of Canada

The red and white maple leaf flag replaced the Canadian Red Ensign on February 15th, 1965. The maple leaf has been a national emblem of Canada since 1860 and was deemed a suitable symbol for the current national flag. During the crusades, two different colours distinguished the countries of England and France, England by the colour white and France by red. Throughout history, red and white have been the colours of England and France. In 1921, red and white were approved as the official colours of Canada in the proclamation of the Royal Arms.

Part 2: National Anthem

"O Canada" was proclaimed as Canada's national anthem on July 1st, 1980. It was first performed 100 years previous on June 24th, 1880. The music was composed by Calixa Lavallée. The French lyrics were written by Sir Adolphe-Basile Routhier. The official English lyrics were written by Mr. Justice Robert Stanley Weir in 1908. In

1968, a Special Joint Committee of the Senate and the House of Commons made changes to the English lyrics. The French lyrics remain unaltered.

Part 3: Canadian Coat of Arms

His Majesty King George V appointed the Canadian Coat of Arms to Canada in the court of Buckingham Palace on 21 November 1921.

Description of the Coat of Arms

- **The Shield:** The shield represents Canada's origins by depicting the three royal lions of England, the royal lion of Scotland, the royal fleur-de-lis of France, and the royal Irish harp of Tara. All of these nations played an integral roll in the settlement of Canada. At the base of the shield is a sprig of three Canadian maple leaves that represent Canadians of all origins.
- **The Ribbon:** The ribbon was added to the Canadian Coat of Arms on 12 July 1994. It contains the motto of the Order of Canada, which in Latin reads: "Desiderantes Meliorem Patriam." This translates to "They desire a better country" in English.
- **The Crest:** The crest consists of a wreath made of twisted red and white silk. On top of the wreath stands a crowned gold lion holding a red maple leaf in its right paw. The lion is a symbol of valour and courage. The crest is used to mark the sovereignty of Canada.
- **The Supporters:** The supporters are depicted on either side of the shield. A lion is on the shield's right holding a gold pointed silver lance from which flies the Royal Union Flag. A unicorn is on the shield's left holding a lance flying the banner of royalist France. The two banners represent the two principle founding nations that established Canada's laws and customs.
- **The Four Floral Emblems:** The four floral emblems are the English rose, the Scottish thistle, the Irish shamrock, and the French fleur-de-lis. They are located at the base of the Arms and are associated with the Canadian Monarchy.
- **The Imperial Crown:** The imperial crown sits at the top of the Canadian Coat of Arms and indicates the presence of a monarch as Canada's head of state.

Part 4: The Maple Leaf

The maple leaf began to serve as a Canadian symbol as early as 1700. In August 1860, the leaf was adopted as the national emblem of Canada for use as decorations during a visit by the Prince of Wales. During confederation in 1867, Toronto schoolmaster Alexander Muir composed *The Maple Leaf Forever* as Canada's confederation song. Many regiments during both World War I and II adorned uniforms with the maple leaf while overseas. The maple leaf was incorporated into The National Flag of Canada in 1965.

Answer the following questions on a separate piece of paper, using the information above.

1. What was the first flag flown over Canadian soil?
2. On what date was the current National Flag of Canada made official?
3. On what date did the national anthem become official?

4. The shield depicts four nations that played a large roll in the settlement of Canada. Which nations are they?
5. When was the maple leaf first adopted as a Canadian symbol?
6. What is the title of Canada's confederation song?

PO 103 – Leadership

Part 1: Responsibilities of a Follower on a Team

Respect the Leader & Other Team Members. The ability to work with other people in a team is a useful skill. A sincere respect for other people is a great asset. In order to be an effective team member one must respect what the leader is asking the team to do. It is also important to respect the opinion and views of the other members of the team.

Cooperate with Others. In order for the team to effectively and efficiently achieve an objective the members must cooperate. Through cooperation a great deal more can be achieved than by working alone.

Admit Mistakes & Learn from Experience. In a team setting one must be able to admit when they are wrong and learn from the mistake. This will make the team stronger and create a better outcome.

Accept Constructive Criticism. Constructive criticism is observations or thoughts about ways to improve the manner in which a task was completed. Leaders will often provide constructive criticism to members of the team. This criticism is given to assist individuals develop as team member and eventually become leaders. Members must learn to take this criticism and use it in a beneficial way.

Assume Responsibility. Team members should be prepared to assume responsibility when needed. The team leader will often delegate duties to team members and rely on these members to be prepared and willing to take on the responsibility.

Be Honest. Team members must be honest with others in the team. Most people will believe and want to work with someone they trust. Honesty is an important characteristic of a good follower. In order to complete objectives, team members must trust each other and be honest.

Accept Other Team Members for who They Are. It is important to be sensitive to other people's wants and needs and to changes in these wants and needs. Acceptance and understanding of individual differences will allow the group to communicate and cooperate.

Know the Job & Be Prepared. A good follower needs to be knowledgeable about the group's goals. An effective follower should be organized and prepared.

Communicate Clearly with Others. A follower must be able to understand and communicate with the leader and other team members. Communication works in two directions, listening and speaking. The ability to listen to others is essential in receiving correct information and implementing the strategy outlined for the team.

Complete the attached Annex titled "Word Game". Unscramble each word and phrase to uncover a responsibility of a follower.

Part 2: Setting Goals

Self-esteem encompasses how people view themselves. This includes, but is not limited to:
how much individuals like themselves; how valuable they feel they are; and how comfortable they are with themselves.

Self-confidence encompasses how individuals portray themselves. It is a major factor that can influence one's ability to perform within specific situations. By having high self-esteem, a strong level of self-confidence can be developed.

Goal mapping is an activity that allows people to recognize their personal motivations. Setting goals that can be achieved both in the short and long terms are beneficial to both the individual and the team. The more aware people are of others, their habits and desires, the more successful they can be in creating stronger team energy.

Write down 2 short-term goals (to be achieved in 3 months) and 2 long-term goals. Then, list the steps involved to achieve each of these goals.

PO 104 – Healthy Lifestyle

Part 1: Canada's Physical Activity Guide to Healthy Active Living

Read the attached portion of the Physical Activity Guide to Healthy Activity Living. Complete any questions and/or activities found in the attached pages.

Part 2: Activities That Will Help Achieve a Healthy Lifestyle

Activities that help achieve a healthy lifestyle can include:

- **Activities That Raise Your Heart Rate.** This means any activity that gets your heart pumping. This would include walking, running, jumping, skateboarding, skiing, skating, tobogganing, swimming, biking, bowling, playing ball, raking leaves, shovelling snow, carrying groceries, joining a sports league, dancing, fitness classes (yoga, hip hop, aerobics, gymnastics), karate, judo, taking the stairs, etc.
- **Simple, Everyday Activities.** Activities that can be done with little or no planning such as walking, skipping, running, raking leaves, mowing the lawn, gardening, skateboarding, rollerblading, ice skating, cycling, etc.
- **Playing Physical Games.** Playing team games such as baseball, volleyball, soccer, football, hockey, etc. Gather some friends and encourage them to join in for some fun activity.
- **Options That Do Not Cost Money or Require a Gym Membership.** Many of the activities listed above can be done at no cost to you. Being active is easily achievable without having to spend money or a great deal of time organizing an activity.

Answer the following questions on a separate piece of paper, using the information above.

1. If you are active now, what activities do you participate in?
2. How often are you currently active?
3. What physical benefits can be achieved through physical activity?
4. What other benefits can be achieved (social, mental, etc.)?
5. What do you enjoy about being active?
6. What activities can help achieve a healthy lifestyle?

Part 3: Setting Goals

The *Canadian Oxford Dictionary* defines a goal as the object of an ambition or effort, an aim.

Short-Term & Long-Term Goals

- Short-term goals are smaller goals that work towards a long-term goal. For example, if your long-term goal was to run for 3 kilometres (km) in six months, a reasonable short-term goal would be to run for 1 kilometre in two months.

Individual & Team Goals

- An individual goal is an aim or an ambition that one person strives to achieve. An individual goal is designed around the individual's abilities and personal expectations.
- A team goal is an aim or ambition that a group of people work towards together to achieve.

How to Develop Goals
You should set a specific goal to work toward. The acronym SMART is a tool you may find useful.

- "S" of SMART stands for specific: the aim of the goal must be precisely defined.
- "M" stands for measurement: identify a standard with which to assess achievement.
- "A" stands for achievable: ensure needed resources are accessible for accomplishing the goal.
- "R" stands for relevant: ensure the goal is worthwhile.
- "T" is for timing which represents the completion date of the goal.

Ask the following questions to help you create SMART goals:
- **Specific.** What specific activity can you do to help you reach your goal? Your goal should be concise and focused on one specific outcome (your goal cannot be too vague).
- **Measurable.** How will you measure the achievement of the goal? What will you feel when the goal is achieved?
- **Achievable.** What might hinder you as you progress toward the goal? What resources can you call upon?
- **Relevant.** What will you get out of this?
- **Timing.** When will you achieve this goal? What will be your first step?

Answer the following questions on a separate piece of paper, using the information above.
1. What is the difference between short- and long-term goals?
2. Explain individual and team goals.
3. What does "SMART" stand for?

Part 4: Create an Activity Plan

Getting started is the hardest part. Creating an activity plan will help you maintain focus and succeed at achieving set goals. An activity plan should meet the following criteria:

Activities That Will Help Achieve Set Goals. It is important to choose activities that will help you achieve the goal(s) you have set. For instance, if the goal is to improve cardiovascular fitness, an appropriate activity would be one that builds up cardio stamina, e.g. start off running for one minute, then walking for one minute, and try working up to running for 10 minutes.

Moderate Activities and Vigorous Activities. Moderate activities would include activities like brisk walking, skating and biking. Vigorous activities would include running, weight training, basketball or soccer.

Fitting Your Lifestyle. You should participate in activities at least once a week that fit your lifestyle. Activities that do not fit into your lifestyle will be difficult to carry out.

Simple Activities. Choosing simple activities that can be done with little planning will most likely carry the best results. When activities require a great deal of planning, it can become more of a chore than an activity or may become too difficult to follow through with.

Answer the following questions on a separate piece of paper, using the information above.
1. What are the two types of activities to choose from?

2. What things should be considered when creating an activity plan?

Write down 2 goals that you have for becoming more active, using the SMART technique. An example is provided on the next page.

Example: ***Goal:*** *To be able to run for 20 minutes.*

Specific. *I want to be able to run for 20 minutes continuously.*

Measurable. *I will keep track of my running progress every week. When the goal is completed, I will feel great for achieving my goal.*

Achievable. *Possible hindrances – weather, injuries. No resources are needed for this goal because I can run outside.*

Relevant. *I will improve my cardiovascular fitness and endurance.*

Timing. *I will achieve this goal in 11 weeks by continuously walking and running for a total of 20 minutes, until I can run for 20 minutes straight.*

Part 5: Hygiene During Physical Activity

Clothing

- Loose-fitting clothing is best during exercise for freedom of movement. It should be comfortable and help you feel self-assured.
- As exercise generates a great amount of body heat, it is best to wear lighter clothes than what the temperature might actually indicate. In the summer, lighter coloured clothing will reflect the sun's rays and help you keep cool, and darker clothing is warmer in the winter. When the weather is very cold, it is better to wear several layers of light clothing than one or two heavy layers. The extra layers will maintain heat and can easily be shed if it becomes too warm.
- The first layer is called the "core layer". This is the layer next to the skin. It should consist of a synthetic undershirt that is close fitting but not tight. It should be made of a material that will absorb perspiration and move it away from the skin.
- The second layer should be loose fitting, but should keep the blood vessels of the neck and wrists protected and warm. It could consist of a zip-up top with a high neck or a shirt with a collar. Sleeves should be able to be rolled up and cuffs should be able to be buttoned. In hot weather, this layer may be used as an outside layer.
- It is always best to wear something on your head, whether it is hot or cold outside. In the summer, a hat protects the head from the sun and provides shade, while in the winter a hat helps maintain warmth.

Footwear

- Most importantly, properly fitting running shoes with arch support are necessary to ensure feet are not injured. Foot gear such as sandals or dress shoes are not appropriate for sporting activity, as they do not provide grip or support during movement.

Hygiene During Physical Activity

- It is important to wear deodorant when participating in physical activity. Deodorant will help prevent any offensive body odour that may occur due to perspiration.
- Start off any physical activity wearing clean clothing. Wearing dirty clothing may give an offensive odour and bother those around you. Clean clothing will give a fresh start to physical activity.

Hygiene After Physical Activity

- After physical activity, it is important to bathe or shower in order to clean your body. Perspiration causes body odour that can only be cleaned with soap and water.
- If showering is not possible immediately after physical activity, it is important to change damp or wet clothing and reapply deodorant. This will help prevent bacteria growth from perspiration, which causes body odour. It is a good idea to bring along a change of clothing if it is known ahead of time that showering facilities will not be available after a planned activity.
- Clothing absorbs perspiration and odour so it needs to be washed before wearing it again.

Answer the following questions on a separate piece of paper, using the information above.

1. What can be worn to help avoid body odour?
2. What should you start off wearing during physical activity?

PO 107 – General Cadet Knowledge

Part 1 – Air Cadet & Air Officer Ranks

Air Cadet Ranks

Every cadet in the squadron has a rank. Ranks are an indication of the experience and responsibility of each cadet.

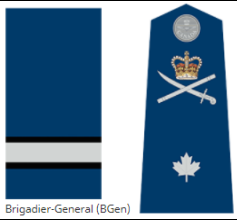
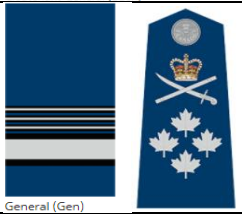
Rank	Promotion	Picture
Air Cadet (AC)	Cadets will start at the rank of Air Cadet upon enrolment. There is no badge for the rank of Air Cadet.	
Leading Air Cadet (LAC)	Cadets will be promoted to the rank of Leading Air Cadet upon completion of six months of training. The Leading Air Cadet badge is a propeller. When worn on the jacket it is worn on the upper sleeves, centred midway between the shoulder seam and the point of the elbow.	
Corporal (Cpl)	Cadets may be promoted to the rank of Corporal after successfully completing proficiency Level One. The Corporal rank badge has two chevrons. When worn on the jacket it is worn on the upper sleeves, centred midway between the shoulder seam and the point of the elbow.	
Flight Corporal	After completing the level two proficiency training, cadets are eligible to be promoted to the rank of flight Corporal. This is recognisable by the crown on top of two chevrons and place on the upper sleeve center between shoulder and elbow.	
Sergeant (Sgt)	The Sergeant rank badge has three chevrons. When worn on the jacket it is worn on the upper sleeves, centred midway between the shoulder seam and the point of the elbow.	
Flight Sergeant (FSgt)	The Flight Sergeant rank badge has three chevrons and a crown. When worn on the jacket it is worn on the upper sleeves, centred midway between the shoulder seam and the point of the elbow.	

Warrant Officer Second Class (WO 2)	The Warrant Officer Second Class badge is a crown encircled by a wreath. When worn on the jacket it is worn on the lower sleeves, centred midway between the bottom of the cuff and the point of the elbow.	
Warrant Officer First Class (WO 1)	Warrant Officer First Class is the highest rank a cadet may achieve. The Warrant Officer First Class badge is the Canadian Coat of Arms. When worn on the jacket it is worn on the lower sleeves, centred midway between the bottom of the cuff and the point of the elbow.	

*Note: All promotions are to the discretion of the CO

Air Officer Ranks

Rank	Description	Picture
SUBORDINATE OFFICERS		
Officer Cadet (OCdt)	The Officer Cadet rank is identified by one thin gold braid.	
JUNIOR OFFICERS Once an officer is promoted to the rank Second Lieutenant they become a commissioned member of the Canadian Forces. Receiving a commission means that a person has been recognized by the monarchy (Queen or King) to serve as an officer.		
Second Lieutenant (2Lt)	The rank of Second Lieutenant is identified by one thick gold braid.	
Lieutenant (Lt)	The rank of Lieutenant is identified by one thick gold braid, with one thin gold braid on top of it.	
Captain (Capt)	The rank of Captain is identified by two thick gold braids.	

SENIOR OFFICERS		
Major (Maj)	The rank of Major is identified by two thick gold braids with one thin gold braid in between.	 Major (Maj)
Lieutenant Colonel (LCol)	The rank of Lieutenant Colonel is identified by three thick gold braids.	 Lieutenant-Colonel (LCol)
Colonel (Col)	The rank of Colonel is identified by four thick gold braids.	 Colonel (Col)
GENERAL OFFICERS General officers are unique in that there are two manners to distinguish their ranks. All four of these ranks will wear one extra thick braid on the sleeve of their dress uniform. To distinguish between the four general ranks, there are differences in their epaulettes. All of the epaulettes will have a crown over a crossed sabre and baton, with the distinguishing feature being the number of maple leafs under the swords.		
Brigadier General (BGen)	The rank of Brigadier General is identified by one maple leaf under the swords.	 Brigadier-General (BGen)
Major General (MGen)	The rank of Major General is identified by two maple leafs under the swords.	 Major-General (MGen)
Lieutenant General (LGen)	The rank of Lieutenant General is identified by three maple leafs in a triangular pattern under the swords.	 Lieutenant-General (LGen)
General (GEN)	The rank of General is identified by four maple leafs in a diamond pattern under the swords.	 General (Gen)

Answer the following questions on a separate piece of paper, using the information above.

1. What is the highest rank a cadet may achieve?
2. To what rank is a cadet promoted to upon completion of six months of training?
3. What is the lowest rank that an Air Officer may hold?
4. Which rank has two thick gold braids?
5. How many braids does a Lieutenant wear?

Part 2 – Rules & Procedures for Paying Compliments

Addressing Cadet NCOs & Subordinate Officers

It is important to pay the correct compliments to the appropriate individuals.

When addressing a cadet NCO or a subordinate officer, the cadet will stand at the position of attention. As cadet NCOs and subordinate officers do not hold a commission from the Queen, they are not saluted. Throughout the conversation, the cadet shall address the NCO or subordinate officer by their rank and surname and remain at the position of attention. When the cadet has completed addressing the NCO or officer, they should dismiss themselves appropriately by turning to the right.

Addressing Commissioned Officers

When addressing commissioned officers, the same procedures are followed as when addressing NCOs and subordinate officers except a salute shall be given.

The cadet shall stand at the position of attention after approaching the commissioned officer. The cadet will then give the appropriate salute. Throughout the conversation the cadet shall address the commissioned officer by their rank and surname and always remain at the position of attention unless otherwise directed by the commissioned officer. When the cadet has completed addressing the officer, they should again salute and dismiss themselves appropriately.

Entering an Office

When entering an office the cadet shall:

1. stand at the position of attention in the doorway;
2. salute if wearing headdress and the office occupant holds a commission; and
3. politely ask permission to enter the office.

Leaving an Office

When leaving an office the cadet shall:

1. stand at the position of attention in the doorway;
2. salute if wearing headdress and the office occupant holds a commission; and
3. depart.

Other Occasions to Pay Compliments

It is appropriate for cadets to salute on different occasions:

- When the Canadian or another foreign national anthem is played.
- When recognizing a commissioned officer who is not in uniform.
- When The National Flag of Canada is being lowered or raised.

- When boarding or disembarking any of Her Majesty's Canadian ships or those of a foreign service, cadets shall pay compliments to the quarterdeck.

Answer the following questions on a separate piece of paper, using the information above.

1. Do cadet NCOs and subordinate officers hold a commission from the Queen?
2. If they do not hold a commission, are they saluted?
3. Are you required to salute commissioned officers? Why?
4. When should the commissioned officer be saluted?
5. Does one salute when recognizing a commissioned officer out of uniform?

Part 3 – Air Cadet Aims & Motto

Vision of the Air Cadet Program

The vision of the Cadet Program is a relevant, credible and proactive youth development organization, offering the program of choice for Canada's youth, preparing them to become the leaders of tomorrow through a set of fun, challenging, well organized and safe activities.

Aims of the Air Cadet Program

1. **Develop in Youth the Attributes of Good Citizenship & Leadership.** The Cadet Program aims to assist in the development of cadets as good citizens and leaders. Through citizenship and community services activities, the cadet develops an appreciation for community membership and involvement within cadet, local, regional, provincial, national, and global communities. Cadets' active involvement will have a positive impact on local communities, which will contribute to community strength and vibrancy. Through leadership activities, cadets develop interpersonal skills and assume responsibility as effective team members, leaders and dynamic coaches. They will develop the ability to conduct themselves in an ethical and socially responsible way.

2. **Promote Physical Fitness.** The Cadet Program aims to promote physical well-being. Cadets develop an understanding of the benefits of fitness and a healthy lifestyle. This understanding, combined with ongoing participation in fitness activities, aids in the development of positive attitudes and behaviours that build resiliency within cadets and enable them to meet challenges.

3. **Stimulate the Interest of Youth in the Air Activities of the Canadian Forces (CF).** The Cadet Program aims to expose youth to the sea, land and air activities of the CF. Cadets develop elemental skills through introduction and interaction with their respective CF communities. The Cadet Program educates and promotes liaison with civilian maritime, adventure and aviation communities. These combined experiences and interactions are essential to the unique identity of the Sea, Army and Air Cadet organizations. Also, they distinguish the Cadet Program as a whole from other youth development programs.

The Motto of the Air Cadet Program

The motto of the Air Cadet Program is: To Learn – To Serve – To Advance.

- To Learn – the cadets learn new things throughout the program from qualified people, from various fields of expertise.

- To Serve – the cadet learns how to serve in the community and within their local squadron.

- To Advance – the cadet is able to advance through the program by gaining knowledge and then passing their knowledge and experience on to other cadets.

Answer the following questions on a separate piece of paper, using the information above.

1. How does the Cadet Program help in developing good citizens and leaders?
2. How does the Cadet Program promote physical fitness?
3. How does the Cadet Program stimulate an interest in the sea, land and air activities of the Canadian Forces?
4. What does "To Learn" mean?
5. What does "To Serve" mean?
6. What does "To Advance" mean?

Part 4 – Wearing the Cadet Uniform

The Wedge

The wedge shall be worn on the right side of the head with the lower point of the front crease in the centre of the forehead and with the front edge of the cap 2.5 cm above the right eyebrow. Two air force buttons must be attached in pre-cut holes at the front.

Short Sleeve Shirt

The short sleeve shirt may be worn with or without the tie. It can also be worn with or without the jacket. It shall be kept clean and pressed. The only crease is to be down the centre of each sleeve starting at the centre of each epaulette. The shirt shall be tucked into the pants and the top button shall remain open when not wearing the tie.


WINDSOR KNOT

Tie

The necktie shall be knotted neatly using a Windsor or four-in-hand knot and shall be kept tight. When the jacket is removed, the tie shall not be tucked into the shirt except for safety reasons.

Tunic & Tunic Belt

The cadet tunic with cloth belt shall be worn fully buttoned with the exception of the top button. Jackets may be removed in buildings and offices when authorized. The jacket shall be kept clean and pressed. The sleeves of the jacket shall be roll pressed with no creases. The jacket belt shall be worn so as the excess of the belt, once attached, is on the left side of the buckle. The buckle shall be adjusted so that the excess of the belt on the left side is not more than 8 cm.

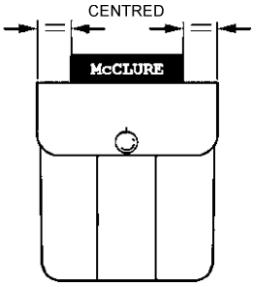
Parka

The parka may be worn year round when weather conditions dictate. The liner and the exterior jacket may be worn separately or as a set. Rank slip-ons shall be worn on both.

Rank Slip-Ons

Rank slip-ons shall be worn on both shoulders with the short-sleeve shirt and the parka.

Name Tag



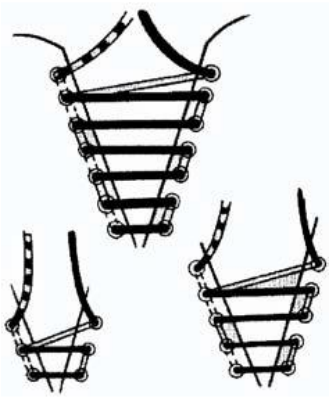
The nametag shall be made of a blue and white laminated plastic plate 6.3 cm in length and 1.2 cm in height. It shall be inscribed with white lettering 0.6 cm high and shall indicate only the surname of the cadet. The nametag is worn over the right breast pocket and should be detachable.

Trousers

The trousers shall be steam pressed without starch so as to have creases down the centre of each leg in the front and the back. Creases shall extend from the top of the leg to the bottom and shall not be sewn or glued.

Black Belt

The black belt shall be worn with the trousers such that the buckle is centred and the ends are “brass on brass”. Brass on brass is when the end of the belt meets the brass buckle, and when the belt is done up, there is no black showing between the two pieces of brass. The belt may need to be adjusted in order for this to occur.



Boots

Black ankle boots are to be laced horizontally from side-to-side. When the boots are tied, the ends of the laces are to be tucked inside the boot. Boots shall not be modified with any type of metal cleats, hobnails or other metal attachments to the heel or sole. No varnish other than shoe polish will be used to shine the boots.

The black ankle boots should be cleaned and polished on a regular basis. General guidelines for polishing the boots include:

1. The welts of the boot are to be cleaned with an old toothbrush and black boot polish.
2. Use a polish cloth wrapped around the index finger.
3. Apply a moderate amount of polish to the cloth.
4. Apply the polish in a circular motion to the area being polished.
5. Start with large circles to cover the area with polish.
6. Use smaller circles as the polish gets worked into the boot.
7. Continue to work in a circular motion until circles formed by the polish are no longer visible.
8. The whole boot is to be polished, not just the toe.

Squadron Shoulder Badges

Squadron shoulder badges are to be worn on both sleeves of the jacket only. The top of the badge is to be 2 cm below the upper shoulder seam.

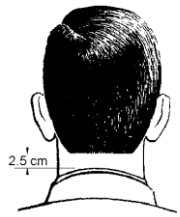
General Appearance

Cadets in uniform shall be well groomed with footwear cleaned and shone. Uniforms shall be clean and properly pressed at all times. In particular, buttons, fasteners and zippers shall be kept closed. Pockets shall not bulge.

Items such as glasses, sunglasses, glasses cases, pens, pencils, key-rings or paper shall not visibly extend or protrude from pockets or be suspended from waist belts or pockets. Headsets from a radio receiver, tape/CD player or other personal entertainment devices shall not be worn.

Hairstyles
Hair shall be neatly groomed and conservatively styled. The length, bulk and style of hair shall not preclude the proper wear of the wedge. Style and colour shall not be bizarre, exaggerated or of unusual appearance. Unusual colours such as green, bright red, orange, purple, etc. are not permitted.

Male Hairstyles
Male cadets' hair shall be taper trimmed at the back, sides, and above the ears to blend with the hairstyle. It shall be no more than 15 cm in length. When the hair is groomed and wedge is removed, no hair shall touch the ears or fall below the top of the eyebrows.



TAPER TRIM HAIRCUT
STRAIGHT BACK APPEARANCE

Sideburns shall not extend below a line horizontally bisecting the ear. They shall be squared off horizontally at the bottom edge and taper trimmed to conform to the overall hairstyle.

Female Hairstyles
Female cadets' hair shall not extend below the lower edge of the shirt collar. Hair may be worn in a bun at the back of the head.


STRAIGHT HAIR STYLE WITH BUN


CURLED HAIR STYLE

Make-up
Female cadets are authorized to wear a minimal amount of make-up. When wearing the uniform, make-up shall be applied conservatively. This precludes the use of false eyelashes, heavy eyeliner, brightly coloured eye shadow or lipstick, coloured nail polish, and excessive facial make-up.

Jewellery
The only jewellery that may be worn in uniform shall be a wristwatch and a medical alert bracelet.

Female cadets in uniform may wear a single pair of plain gold studs, silver stud or white pearl earrings in pierced ears. The single stud earring (worn in the centre of each earlobe) shall be spherical in shape and not exceed 0.6 cm in diameter. Male cadets are not authorized to wear an earring or earrings.

Piercings
Cadets in uniform shall not wear visible body piercing adornments (tongue included). Covering the unauthorized piercing with an adhesive bandage is not acceptable.

Accessories
Civilian pattern backpacks shall be of conservative appearance. They may either be carried in the left hand or worn suspended from both shoulders and square on the back.

Female cadets are permitted to carry a purse. The purse is to be held in the left hand or suspended over the left forearm. When the purse is carried as a shoulder bag, the strap shall be suspended from the left shoulder with the top of the purse not higher than waist level. It shall not be carried as a handbag.

Eyeglasses/Sunglasses
Eyeglasses and sunglasses shall be conservative in design and colour. Sunglasses with photo chromic or mirrored lenses are not authorized for wear. Cadets, who normally wear eyeglasses, may wear either conventionally framed prescription sunglasses or conservatively styled clip-on sunglasses when conditions and circumstances dictate. Other cadets may wear conservatively styled sunglasses, which do not detract from the

overall appearance of the uniform when conditions and circumstances dictate. Sunglasses shall not be worn when parading unless authorized by the CSTC or Squadron CO in special circumstances.

Carrying of Articles
If any article is being carried, such as a briefcase, it is to be carried in the left hand. If an article is being carried while marching, the left arm is not swung.

General Deportment
Chewing gum, slouching, sauntering, placing hands in pockets, smoking, eating on the street, walking hand-in-hand and similar deportment that detracts from a proud and orderly appearance in the eyes of the public is unacceptable for cadets. Physical displays of affection between uniformed cadets shall be avoided.

Answer the following questions on a separate piece of paper, using the information above.

1. Where are the creases in the short sleeve shirt placed?
2. Where are the creases in the trousers placed?
3. How is the buckle on the belt worn?
4. How far down the sleeve is the squadron shoulder flash worn?
5. What jewellery is authorized for wear while in uniform?
6. What hand should articles be held in?

Orders of Dress
There are several types of order of dresses in the squadron. Depending on the occasion, different orders of dresses will be worn. Below is a list of the types of dresses you will see in the squadron. Hair will always be gelled in a bun for females regardless of dress.

Squadron T-Shirt
Worn when you're brand new to the squadron, or you possess uniform parts that no longer fit you. Shirt is tucked in, recommended to wear black dress pants and shoes. Your nametag is to be always worn on the right of your shirt.

C1
Worn on CO's Parades, ACR, Tag Days, and parades such as Battle of Britain and Remembrance Day parades. Medals are worn. Consists of your tunic, tunic belt, dress shirt, tie, belt, pants, wool socks, and boots.

C2's (Winter Dress)
Worn on regular training nights (Thursdays). Identical to C1's but instead of medals, you wear ribbons instead.

Summer Dress
Worn at the beginning of the year until mid-October, and Mid Spring (Mid-April to May) until summer stand down. Ribbons are worn. The tunic and tie are not used in this order of dress.

Uniform Checklist

Before heading out to Bessborough Armouries on a Thursday, make sure you have all your uniform parts. Here is a checklist to make sure you got everything. This will save you a lot of embarrassment!

Winter Dress:

Wedge	
Tunic	
Tunic belt	
Tie	
Dress Shirt	
Pants	
Brass belt	
Wool socks	
Boots	
Name Tag	
Medals/Pins	
Hair gelled (females)	

Summer Dress:

Wedge	
Dress Shirt	
Rank Slip-Ons	
Pants	
Brass belt	
Wool socks	
Boots	
Name Tag	
Ribbons	
Hair gelled (females)	

PO 120 – Canadian Forces Familiarization

Part 1: History of the Canadian Forces (CF)

Inception (Unification 1968)

- In 1964, Defence Minister Paul Hellyer tabled a white paper in Parliament, which concluded that a unified command structure of the Navy, Army, and Air Forces would better serve Canadian interests. Bill C-90 was passed on 7 July and came into force on 1 August 1964.
- In May 1967, Bill C-243 passed, completing the process of reorganizing the National Headquarters and commands. Bill C-243 came into force on 1 August 1968, which marks the inception of today's CF.

Defining the Three Elements

- While the concept of the CF did not evolve until 1968, Canada has a proud history of military tradition through its Army, Navy, and Air Forces.

Air Force

- The Canadian Air Force came into being in the spring of 1918.
- The Royal Canadian Air Force received its official designation on 1 April 1924 by King George the V.
- Currently, the RCAF consists of thirteen wings spread out across Canada.

Army

- With the departure of the British Military in the fall of 1871, Canada took moderate steps in producing its own forces. The country established two field artillery batteries to protect Quebec and Kingston. Thus the regular Army began its formation.
- In 1883, the first Cavalry School Corps (Royal Canadian Dragoons) was established in Quebec City followed by infantry corps (Royal Canadian Regiment) in Fredericton, Saint John and Toronto.

Navy

- The Royal Canadian Navy came into being on 4 May 1910 with the passing of the Navy Bill of 1910.
- Currently the Navy consists of two groups: MARLANT (Maritime Forces Atlantic) and MARPAC (Maritime Forces Pacific).

Mission & Objectives of the CF

1. Protecting Canada.
2. Defending North America in cooperation with the United States.
3. Contributing to peace and international security.

Answer the following questions on a separate piece of paper, using the information above.

1. What are the missions and objectives of the CF.
2. In what year did unification of the CF occur?
3. How many wings does the RCAF currently have?
4. In what year did the Royal Canadian Air Force originate?

Part 2: Role of Each Element

The CF functions in a joint capacity for many of its international commitments; however, each element has a distinct set of responsibilities.

Air Force
- Surveillance and control of Canadian airspace.
- Worldwide airlift of CF personnel and material.
- Support operations of the Army and Navy.
- Support to other government departments.
- Search and rescue.
- Humanitarian operations and emergency response including disaster relief.

Army
- National defence.
- Canada/US defence of North America (NORAD).
- Contribution to peacekeeping missions.
- Civil defence.
- Humanitarian operations including disaster relief.

Navy
- Surveillance and control of Canadian waters.
- Support of Army and Air Force operations.
- Support to other government departments (fisheries, search and rescue, drug enforcement, environment).
- NATO deployments.
- Humanitarian operations including disaster relief (food and medical relief, and personal and technical aid).

Answer the following questions on a separate piece of paper, using the information above.
1. Which role of the Canadian Air Force do you think is most important? Why?
2. Which role of the Canadian Army do you think is most important? Why?
3. Which role of the Canadian Navy do you think is most important? Why?

Part 3: CF/Wing Base Locations

Air Forces Base
- 1 Wing/CFB Kingston (Kingston, Ontario).
- 3 Wing/CFB Bagotville (Alouette, Quebec).
- 4 Wing/CFB Cold Lake (Cold Lake, Alberta).
- 5 Wing/CFB Goose Bay (Happy Valley-Goose Bay, Labrador).
- 8 Wing/CFB Trenton (Trenton, Ontario).
- 9 Wing/CFB Gander (Gander, Newfoundland).
- 12 Wing/CFB Shearwater (Shearwater, Nova Scotia).
- 14 Wing/CFB Greenwood (Greenwood, Nova Scotia).
- 15 Wing/CFB Moose Jaw (Moose Jaw, Saskatchewan).
- 16 Wing/CFB Borden (Borden, Ontario).
- 17 Wing/CFB Winnipeg (Winnipeg, Manitoba).

- 19 Wing/CFB Comox (Lazo, British Columbia).
- 22 Wing/CFB North Bay (North Bay, Ontario).

Land Force Bases
- CFB Borden Training Schools (Borden, Ontario).
- CFB Gagetown (Oromocto, New Brunswick).
- CFB Petawawa (Petawawa, Ontario).
- CFB Valcartier (Valcartier, Quebec).
- CFB Shilo (Shilo, Manitoba).
- CFB Wainwright (Wainwright, Alberta).

Maritime Force Bases
- CFB Halifax/Stadacona (Halifax, Nova Scotia).
- CFB Esquimalt (Victoria, British Columbia).
- CFB Greenwood (Greenwood, Nova Scotia).
- CFB Shearwater (Shearwater, Nova Scotia).

Cadet Summer Training Centres are located at bases, which show how the CF assists the Cadet Program, including:
- 19 Wing/CFB Comox – Regional Gliding School and HMCS Quadra;
- CFB Esquimalt – Albert Head Air Cadet Summer Training Centre;
- 4 Wing/CFB Cold Lake – Cold Lake Air Cadet Summer Training Centre;
- CFB Borden – Blackdown Cadet Summer Training Centre;
- 8 Wing/CFB Trenton – Trenton Air Cadet Summer Training Centre;
- CFB Kingston – HMCS Ontario;
- CFSU (O) Connaught – Connaught Cadet Summer Training Centre;
- CFB Valcartier – CIEC Valcartier;
- 3 Wing/CFB Bagotville – CIEC Bagotville;
- ASU St. Jean – Regional Gliding School;
- CFB Gagetown – Argonaut Army Cadet Summer Training Centre;
- 14 Wing/CFB Greenwood – Greenwood Air Cadet Summer Training Centre; and
- 12 Wing/CFB Shearwater – Regional Sail Centre.

Answer the following questions on a separate piece of paper, using the information above.
1. In what province would you find CFB Borden: Alberta or Ontario?
2. Where is CFB Gagetown located?
3. What base is located in Victoria, British Columbia?

Part 4: Opportunities in the Canadian Forces

Regular Force Careers
The CF is the name of an umbrella organization that covers three elements: the Navy, the Army and the Air Force. Each partner looks after issues that come up in, or on, one of our planet's main environments – the Sea, Land and Air – and some jobs in the forces offer variety. For example, a Navy cook might be employed in an Army unit; or a clerk in the Air Force could sail on a Navy ship.

When a person joins the regular force, they are signing on for several years of service. The CF offers "Terms of Service" of different lengths. The length of service depends on the needs of each occupation and the training time required for that occupation.

Non-Commissioned Members (NCMs) are the backbone of the military. NCMs start out as recruits and are then trained to do specific occupations in the CF. Some are trained as technicians to keep the equipment repaired; some are operators that use specific and complicated electrical and mechanical equipment; and some are users of general equipment. There are 73 NCM occupations available in the CF.

To be eligible to enrol as a NCM, one should have at least completed grade 10 and be a Canadian citizen. More education is better; a high school diploma is preferred.

Officers are trained to be responsible for a group of people, from their first day. They oversee the sailors, soldiers or air personnel in the conduct of their activities – this could be on a base or on board a ship. There are 32 officer careers in the CF.

The educational requirements to be eligible to apply as an officer are higher than those of the NCM. To be eligible to be an officer you must be a Canadian citizen and either possess the required level of university or enrol under the Regular Officer Training Plan.

Part Time/Reserve Force Careers

The reserve force offers part-time employment opportunities in the Navy, Army and Air. As a reservist, one would support Canada's Regular Force while earning extra income and obtaining new skills.

Naval Reserve is a major component of the Canadian Navy. It has a strength of 4000 reservists who serve as partners with the regular force to safeguard Canada's maritime security. There are currently 24 units (called Naval Reserve Divisions [NRD]) across the country.

Coastal operations, naval cooperation and guidance for shipping and mine countermeasures are three fields in which reservists specialize. Practical training is conducted at sea throughout the year, during the weekends and for extended periods, depending on individual availability.

Army Reserve is the part-time component to the Canadian Army and has three roles:

- Existing reserve units are the framework or structure the Army would use to mobilize or expand the Army should the nation ever need to respond to a large crisis in a world war.
- Located in hundreds of communities across Canada, Canadians connect with their Army through the Army Reserve.
- The Army Reserve augments the professional Army by providing soldiers, units or specialists to the Canadian Forces.

Air Reserve is part of the reserve component of the Canadian Forces and an integral part of the total Air Force. Most Air Force wings, squadrons and units are comprised of both regular and reserve force personnel. Air Reserve flights provide administrative support to the ready pool of reserve operational and support personnel who are employed, primarily on a part-time basis, alongside their regular force counterparts.

Civilian Careers

Civilian employees of the Department of National Defence work with the CF through their support of military operations, their contributions to the Department's corporate responsibilities and their work at bases and various regional sites.

The civilian workforce consists of a variety of careers and occupations from scientists, analysts, and managers, to operational trades such as dockyard workers, technicians and mechanics. Civilians at the Department are responsible for not only providing advice on policy issues and budget administration, but also for ensuring that our ships, tanks and armoury as well as our mission critical systems are in top condition.

Answer the following questions on a separate piece of paper, using the information above.

1. How many NCM occupations are available in the CF?
2. What are the education requirements to enrol as an officer in the CF?
3. What grade must you complete to enroll as a NCM?
4. What are three type of careers available in the CF?
5. What are the reserve branches of the CF?
6. When is practical training usually completed for the Naval Reserve?
7. What are some of the civilian careers available in the CF?
8. Are you interested in a career with the CF? If so, which type of career would you be interested in and why? If not, why not?

PO 121 – Aviation Opportunities

Pilots & Flight Instructors
Pilots fly airplanes and helicopters to provide air transportation, training, and surveying services. Flying instructors teach flying techniques and procedures to student and licensed pilots. Pilots and flight instructors are employed by airlines, airfreight companies, flying schools, the Canadian Forces (CF), and other public and private sector aircraft operators.

Topics such as aerodrome operations, aircraft maintenance, radio, theory of flight, navigation, and meteorology will assist cadets in preparing for pilot training. Cadet summer training courses include a three-week introduction to an aviation course, a three-week advanced aviation course and gliding and power flying scholarship courses.

Air Traffic Controllers & Flight Service Specialists
Air traffic controllers use radio communication to direct air traffic within assigned airspace. Also, they control aircraft and vehicle movement on the ground at airports. Flight service specialists provide pilots with flight information essential to aviation safety, such as weather conditions. Air traffic controllers and flight service specialists are employed by NAV Canada and the CF.

Topics such as radio communication, aerodrome operations, and air traffic control will assist cadets in preparing for air traffic control training. Cadet summer training courses include a three-week introduction to an aviation technology course and a six-week advanced aviation technology course – airport operations.

Aircraft Maintenance Engineers (AME)
Aircraft maintenance engineers maintain, repair, overhaul, modify and test aircraft structures and systems. The aircraft systems they work on include mechanical, hydraulic, instrument, electrical, and avionics. Aircraft manufacturing, maintenance, repair companies, airlines, the CF and other aircraft operators employ AMEs.

Topics such as aircraft maintenance will assist cadets in preparing for AME training. Cadet summer training courses include a three-week introduction to an aviation technology course and a six-week advanced aviation technology course – aircraft maintenance.

Air Transport Ramp Attendants
Air transport ramp attendants operate ramp-servicing vehicles and equipment, handle cargo and baggage, and perform other ground support duties. They are employed by airlines, air services companies and the federal government.

Topics such as aerodrome operations and radio will assist cadets in preparing for this groundside career. Cadet summer training courses include a three-week introduction to an aviation technology course and a six-week advanced aviation technology course - aerodrome operations.

Aerodrome Managers
Aerodrome managers plan, organize, direct, control, and evaluate the operations of an aerodrome. Some areas of responsibility may include marketing, budgeting, human resources, and managing the buildings and the land. Aerodrome managers work for airport authorities, local governments, or private airports.

Topics such as aerodrome operations and leadership will assist cadets in preparing for aerodrome management careers. Cadet summer training courses include a three-week introduction to an aviation technology course and a six-week advanced aviation technology course - aerodrome operations.

Aerospace Engineers & Aircraft Assemblers
Aerospace engineers research, design, and develop aerospace vehicles, aerospace systems and their components. They also perform duties related to their testing, evaluation, installation, operation, and maintenance. Aircraft and spacecraft manufacturers, air transport carriers and research institutions employ aerospace engineers.

Aircraft assemblers assemble, fit, and install prefabricated parts to manufacture fixed wing aircraft, rotary wing aircraft, or aircraft components. Aircraft subassembly manufacturers employ aircraft assemblers. Subassembly companies assemble the different sections of aircraft like the landing gear.

Topics such as theory of flight, aircraft maintenance, and aerospace will assist cadets in preparing for design and assembly training. Cadet summer training courses include a three-week introduction to aviation technology course and a six-week advanced aviation technology course – aircraft maintenance.

Complete the attached Career Investigation Sheet for one of the above careers, using the information you have read above.

Answer the following questions on a separate piece of paper.

1. Which career listed above is of most interest to you, and why? (If you are not interested in any of these careers, explain why.)
2. Do you know anyone that works in one of these careers? What does this person do?

PO 129 – Phonetic Alphabet

The phonetic alphabet is used because letters that sound similar might be confused when said over a radio. The phonetic alphabet is as follows:

A – Alpha
B – Bravo
C – Charlie
D – Delta
E – Echo
F – Foxtrot
G – Golf
H – Hotel
I – India
J – Juliet
K – Kilo
L – Lima
M – Mike
N – November
O – Oscar
P – Papa
Q – Quebec
R – Romeo
S – Sierra
T – Tango
U – Uniform
V – Victor
W – Whiskey
X – X-ray
Y – Yankee
Z – Zulu

Phonetic numbers are used to avoid misunderstandings when using radio communication. Numbers are enunciated in the following manner:

0 – Zee-ro
1 – Wun
2 – Too
3 – Tree
4 – Fow-er
5 – Fife
6 – Six
7 – Seven
8 – Ait
9 – Nin-er

Answer the following questions on a separate piece of paper, using the information above.

1. Spell your full name using the phonetic alphabet.
2. Spell the words “air cadet” using the phonetic alphabet.

PO 130 – Aviation

Part 1: Canadian Military Aircraft

Military aircraft are used for a wide variety of tasks. These tasks include training, transport, maritime patrol, defence and search and rescue. Most military aircraft are painted flat grey or camouflage for low visibility. Those high visibility planes used for Search and Rescue (SAR) work are painted bright yellow and red.

CT-114 Tutor
The CT-114 Tutor may be the most well known aircraft flown by the Canadian Forces (CF). It is the plane flown in the Snowbirds air demonstration squadron. The Tutor was used as a training aircraft from 1971 until 2000. It was designed and built in Canada. The Tutor has a single jet engine, low wings and a T-tail.

CC-115 Buffalo
The CC-115 Buffalo is mainly used for SAR operations. It has short take-off and landing (STOL) capability, which is ideal for rough landing strips. It is able to fly in almost any weather. The Buffalo is painted a highly visible yellow. It has two turboprop engines, high wings and a T-tail.

CC-130 Hercules

The CC-130 Hercules is one of the most multi-purpose transport planes. It is used to airlift troops, equipment and cargo. It is also used in SAR operations and in air-to-air refuelling of fighters. With its rear cargo ramp, rugged landing gear, good short-field performance and high ground clearance of engines/propellers, the C-130 is designed to operate from unimproved airstrips in active military areas. The Hercules has four turboprop engines, high wings and a distinctively large tail.

CC-150 A310 Polaris
The CC-150 Polaris is the military version of a popular civilian commercial airliner, the Airbus A310-300. The main role of the Polaris is long-range transport of personnel and equipment. It can transport up to 194 passengers or 32 000 kg of cargo. The CC-150 is a wide-body, two engine turbojet with low wings.

CP-140 Aurora
The CP-140 Aurora is a maritime patrol aircraft. It carries special sensing equipment aboard so it can detect and monitor boats and submarines. The prominent tail boom is the most obvious feature of this aircraft. It has four turboprop engines and low wings.

CF-18 Hornet

The CF-18 Hornet is a high-performance twin-engine jet fighter that can perform air-to-air combat or ground attack roles. The most visible difference of the CF version of this aircraft is a paint scheme incorporating a "spoof" canopy on the underside of the front fuselage. This "spoof" canopy is used to confuse an opponent in the heat of a dogfight as to "which side is up". The distinctive angled twin vertical fins on the tail most easily identify the CF-18.

CH-146 Griffon

The CH-146 Griffon is Canada's Utility Transport Tactical Helicopter (UTTH). It performs a wide variety of roles that include airlift of equipment and personnel, command and liaison flights, surveillance and reconnaissance, casualty evacuation, logistic transport, search and rescue, counter-drug operations and domestic relief operations. The Griffon has a four-blade main rotor and landing skids. It has a camouflage paint scheme.

CH-149 Cormorant

The CH-149 Cormorant is a SAR helicopter. It has three powerful engines that drive a five-bladed rotor. Its ice protection system allows it to operate in continuous icy conditions. It is also able to withstand high winds. These features make it ideal for Canada's demanding geography and climate. The Cormorant has rear-ramp access and a large amount of cabin space. It can carry 12 stretchers or a load of 5000 kg. Unlike the Griffon, the Cormorant has retractable landing gear and is painted bright yellow.

Answer the following questions on a separate piece of paper, using the information above.

1. In what years was the CT-114 Tutor used as a training aircraft?
2. What is the CC-115 Buffalo mainly used for?
3. What features makes the CC-130 Hercules good for operating in active military areas?
4. The CH-146 Griffon performs a wide variety of roles. List 6 of them.

Part 2: Civilian Aircraft

Civilian aircraft are used in a wide variety of roles including recreational, training, and transportation of people and cargo. Civilian aircraft have a wide range of paint schemes and use more colors than military aircraft. These aircraft are seen at civilian aerodromes.

Cessna 172

The Cessna 172 is commonly used for primary flight training and familiarization flying. It is a four seat aircraft that has high wings, tricycle landing gear and a single propeller.

Piper PA-28 Cherokee

Another popular recreational and training aircraft is the Piper PA-28 Cherokee. This aircraft has low wings, tricycle landing gear and a single propeller.

Boeing 737

The Boeing 737 is one of the world's most popular commercial jet transport aircraft. It is a short to medium range airplane. It can carry 85 to 189 passengers, depending on the model. The Boeing 737 is flown by airlines including WestJet. The Boeing 737 has a low-wing configuration and tricycle landing gear, like most commercial transport planes. It has two turbofan jet engines mounted under the wings.

Airbus A320

The Airbus A320 is a very popular commercial jet transport aircraft. It can carry 100 to 220 passengers, depending on the model. The Airbus 320 also has a low-wing configuration, nose gear, and two turbofan jet engines mounted under the wings. The biggest difference between the Airbus and the Boeing 737 is the technology in the cockpit. Airbus uses computer technology to a greater extent than Boeing. Air Canada flies the Airbus A320, and several other Airbus models.

Answer the following questions on a separate piece of paper, using the information above.

1. How many passengers can the Airbus A320 carry?
2. What type of engine does the Boeing 737 have?

Part 3: Cadet Aircraft

Cadet aircraft are used for training and familiarization flying. They are usually painted bright yellow and blue. (The term "cadet aircraft" is intended to mean aircraft currently owned by the Cadet Program and does not include other aircraft cadets may use on Power Flying Scholarships (Cessnas, Katanas, etc.).

SGS 233A Glider

The Schweitzer SGS 233A is the glider used by the Air Cadet Program for training and familiarization flying. It is a sturdy, two-place glider, with high wings. It can be launched by auto-tow, winch or tow-plane.

Bellanca Scout

The Bellanca Scout is one of the types of tow-planes used in the Air Cadet Gliding Program. It is a two-place tandem (front and back seating, instead of side by side), high wing, tail-dragger aircraft.

L19 Bird Dog

The L19 Bird Dog is another tow-plane used in the Air Cadet Gliding Program. Like the Scout, the Bird Dog is a two-place tandem, high wing, tail-dragger aircraft. However, the L19 has a rear window, and more of a bend to the fuselage than the Scout.

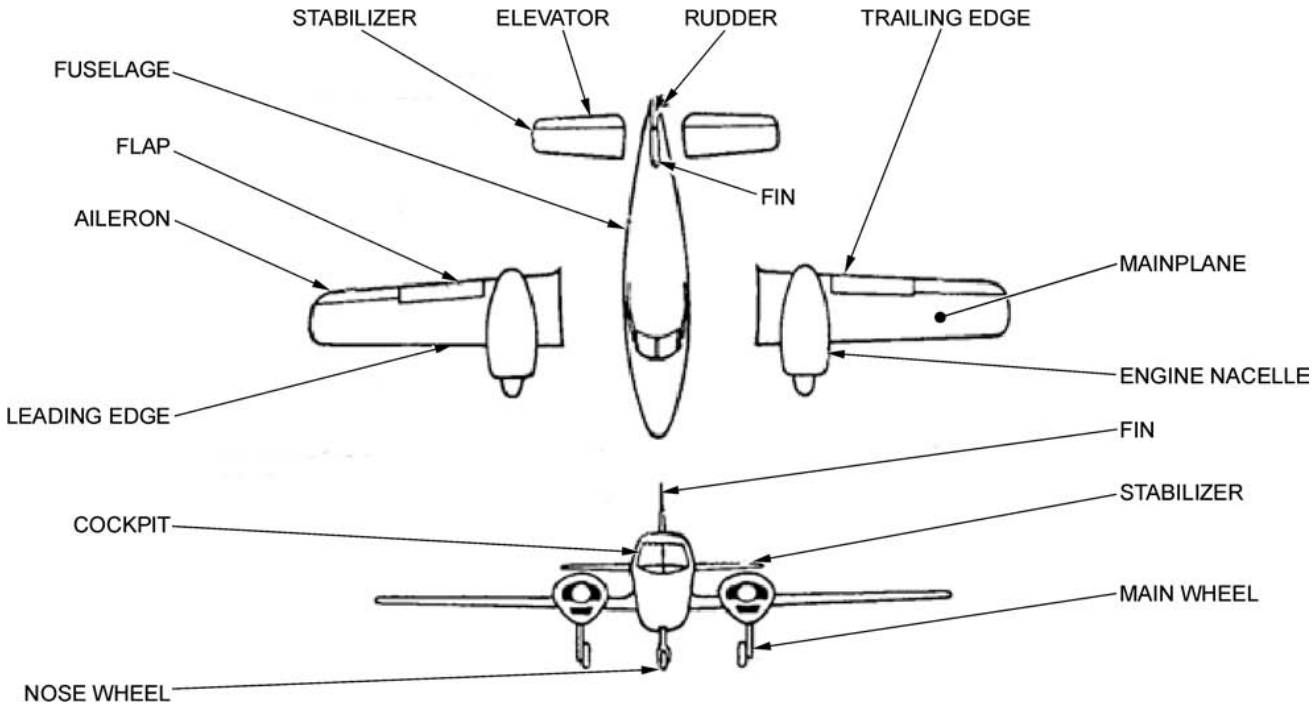
Answer the following questions on a separate piece of paper, using the information above.

1. How can the SGS 233A Glider be launched?
2. What are the two differences between the Bellanca Scout and the L19 Bird Dog?

Part 4: Main Components of an Airplane

An aircraft is a device that is used or intended to be used for flight in the air. Some examples of aircraft are hot air balloons, blimps, gliders, planes, helicopters, and hang gliders. (Electronic code of federal regulations Title 14: Aeronautics and Space, Section 1.1)

An airplane is a power-driven heavier-than-air aircraft deriving its lift in flight from aerodynamic reactions (lift) on surfaces that remain fixed under given conditions of flight (wings). (*From the Ground Up: Millennium Edition,* p. 9)



Fuselage

The fuselage is the body of the aircraft, designed to accommodate the crew, passengers and cargo. The cockpit or crew flight deck is the part of the fuselage where the pilot and flight crew operate the aircraft. The fuselage is the structural body to which the wings, the tail section, landing gear and (in most small aircraft) the engine are attached.

Wings

The fuselage is fitted with a wing on both sides. The primary purpose of the wings is to support the aircraft in flight by producing lift.

The wing root is where the wing meets the fuselage. The wing tip is the part farthest from the fuselage.

The leading edge is the front edge of the wing running from wing root to wing tip. The trailing edge is the back edge of the wing running from wing root to wing tip.

Ailerons are moveable surfaces that are hinged to the trailing edge of each wing, close to the wingtip. The ailerons control roll. Roll is the banking of the aircraft to the left and the right. The ailerons move in opposite directions to each other.

Flaps are moveable surfaces that are hinged to the trailing edge of each wing, closer to the wing root than the ailerons. They can be used during landing and take-off to provide more controlled flight at slower airspeeds. Flaps are operated with a lever or hand wheel in the cockpit.

Empennage
The empennage refers to the whole tail section of a plane. It includes the horizontal stabilizer, elevator, vertical stabilizer, and rudder.

The horizontal stabilizer is at the back of the aircraft, and helps keep the aircraft stable as it flies through the air. The horizontal stabilizer does not move.

The elevator is hinged to the horizontal stabilizer and is operated by moving the control column forward and backward. The elevator controls pitch. Pitch is the up and down movement of the aircraft's nose.

The vertical stabilizer, also called the fin, is an upright surface on the empennage. It helps keep the aircraft stable as it flies through the air. The vertical stabilizer does not move.

The rudder is hinged to the fin and is operated by the rudder pedals in the cockpit. The rudder controls yaw. Yaw is the side-to-side movement of the aircraft.

Landing Gear
Landing gear on an airplane is like the tires on a car. The landing gear supports the aircraft when it is on the ground and absorbs the shock of landing. All aircraft have their landing gear under the main part of the fuselage or wings. Landing gear can be fixed or retractable. Fixed gear is attached to the airplane in a permanent position. Retractable gear can fold-up into the wings or the fuselage.

There are two main landing gear configurations. Both configurations have the main wheels or main gear toward the middle of the aircraft. In a nose wheel configuration (also called tricycle) there is another wheel or gear under the nose. In a tail wheel configuration (also called conventional or tail dragger) there is another wheel or gear under the tail.

Propulsion System
Power is produced by an internal combustion engine (the same as a car) with a two or three blade propeller or a gas turbine (jet) engine. A jet can be used to power a propeller – this is called a turboprop engine.

The cowling (also called the nacelle) is like the hood of a car. It encloses the engine and streamlines the airplane to reduce drag. The cowling provides cooling of the engine by ducting cool air around the engine.

Answer the following questions on a separate piece of paper, using the information above.

1. What is an airplane?
2. What are ailerons and what do they do?
3. What can flaps be used for?
4. What is yaw?
5. What are the two main landing gear configurations?
6. What is the cowling and what does it do?

PO 140 – Aerospace

Part 1: Important Events in Space History

The First Rockets
Prior to 1900, rockets were mainly used as weapons or fireworks. In 1898 a Russian school teacher proposed the idea of space exploration through the use of rockets. On 4 October 1957, the Soviet Union launched the satellite Sputnik I, the first successful use of a space-going rocket. The United States followed in January of 1958, launching their satellite with the use of a rocket.

Manned Space Missions
The United States became the first and only country to land on the moon when Neil Armstrong set foot on the moon in 1969. Marc Garneau was the first Canadian astronaut, sent to space in 1984. In 1992, Canada sent its first woman into space, Roberta Bondar.

Further Space Exploration
Manned space missions continue today, focusing on both orbital missions as well as missions to the International Space Station. Satellites continue to be used for space exploration, but have also found a role in a number of other areas, including radio and television, as well as Earth observation through weather monitoring.

Navigation systems have also improved from satellites such as global positioning systems. Landers have also been used in recent history, most notable the recent Mars Exploration Rover Missions in 2003. Commercial space travel has also gained interest in the last few years, with civilians paying substantial amounts of money for an opportunity to travel into both sub-orbit and orbit. All of these aspects of space exploration depend on rocket technologies in order for them to be successful.

Answer the following questions on a separate piece of paper, using the information above.

1. What was the name of the satellite launched by the first successful space-going rocket? When was it launched?
2. Who was the first Canadian astronaut in space?
3. What are some uses for satellites?

Part 2: Closer Look at a Canadian Astronaut

Read the attached Annex with the biography of Chris Hadfield. Answer the following questions on a separate piece of paper, using the information from the Annex.

1. What education does Chris Hadfield have?
2. Name three awards Chris Hadfield has received.
3. What Canadian Air Force rank did Chris Hadfield retire with and in what year?
4. How many types of aircraft has Chris Hadfield flown?
5. What space missions has Chris Hadfield been on? What were the highlights of the mission(s)?

PO 160 – Aerodrome Operations

Part 1: Major Aerodrome Components

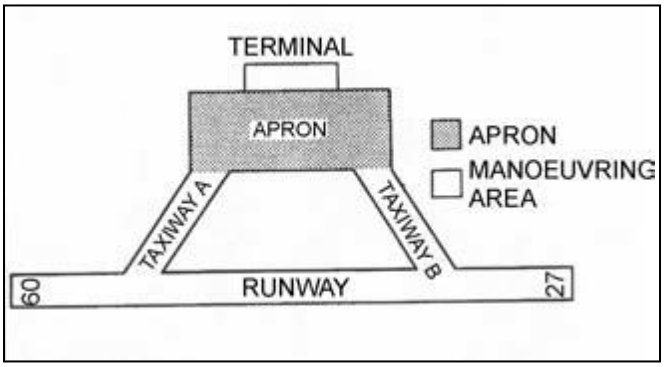
Aerodrome vs Airport
An **aerodrome** is any area of land or water designed for the arrival, departure and movement of aircraft. (*From the Ground Up: Millennium Edition, 2000, p. 91)*.

An **airport** is a licensed aerodrome, which possesses a certificate stating it has met all airport safety standards (*From the Ground Up: Millennium Edition, 2000, p. 91)*.

Parts of an Aerodrome
The **runway** is the area where aircraft take-off and land. A runway may be made of pavement, grass, gravel, dirt or snow among other materials. Runways are identified by numbers and by the white lights that run along each side.

The **taxiway** is the area used by an aircraft to manoeuvre around the aerodrome between aprons and runways. Letters normally designate taxiways. At aerodromes with lighting, taxiways are defined by blue lights along each side.

The **apron**, also known as the tarmac or ramp area, is the part of an aerodrome intended to accommodate the loading and unloading of passengers and cargo. It is also the area used for refuelling, servicing and parking of aircraft.



The **hangar** is an aerodrome building that is used for storage, protection and maintenance of aircraft.

Some aerodromes have the service of a **control tower** to ensure the safe and efficient movement of aircraft. The air traffic controllers in the tower are responsible for a number of procedures. These include take-off/landing procedures, circuit procedures and ground manoeuvring of aircraft.

Terminal buildings are used for passengers arriving and departing. They are also used for baggage and cargo handling. Terminal buildings are normally located on the apron.

The **windsock** is used by pilots to determine wind direction and speed. The approximate wind speed is indicated by the amount the windsock is extended. They are found on the airfield, normally beside the runway.

Flying schools are used as training facilities for current pilots and those that wish to pursue such a career.

Answer the following questions on a separate piece of paper, using the information above.

1. What makes an airport different from an aerodrome?
2. What is the purpose of a taxiway?
3. What is the purpose of a hangar?
4. What does a windsock indicate?

Part 2: Features of a Runway

Runway Lights

Runways are lined down both sides by white lights. These lights are used to define the overall area of the runway on each side.

Runways also contain red/green lights at the ends. These lights are double sided with red on one side and green on the other. The red side of the lights faces toward the runway and indicates the end of the runway. The green side faces away from the runway and shows the beginning of the runway to aircraft that are landing.

Runway Numbering

The runway number is always indicated in large print as a two-digit number at the end of the runway. Runways are numbered according to their magnetic direction and are rounded off to the nearest ten degrees. Once rounded, the hundreds and tens digits are used to number the runway.

For example, a runway that points in the direction of 266 degrees magnetic would be numbered 27. Therefore, the highest runway number possible is 36 (360 degrees).

Runway Markings

Runways have other distinct markings:

- **Centerline Markings.** The centerline markings, which are white dashed lines, designate the center of the runway. Pilots use these markings to line-up the aircraft to the middle of the runway during landing.

- **Landing Zone Markings.** Landing zone markings give the pilot a general area where it is desirable to touch down.

- **Threshold Markings.** Threshold markings indicate the beginning and the end of the runway. They are indicated by white lines at the threshold.

- **Aerodrome Danger Markings.** These are areas that may be dangerous or unserviceable. These areas are signified by large white Xs on the unserviceable runways or taxiways.

Other Runway Lights

Obstruction lights are present to identify possible structures that may obstruct a plane while attempting to takeoff and/or land. Also, windsocks are lit so pilots can use them at night.

Answer the following questions on a separate piece of paper, using the information above.

1. What colour lights define the runway on each side?
2. If a runway points in the direction of 176 degrees magnetic, how would it be numbered?
3. What does a large white X signify on a runway or a taxiway?
4. What are obstruction lights used for?

Part 3: Modeling an Aerodrome

Draw and label a picture of an aerodrome. You must include the following:

- ***Runway (with centerline markings and all the appropriate lighting)***
- ***2 Taxiways***
- ***Apron***
- ***Hangar***
- ***Control Tower***
- ***Terminal Building***
- ***Wind Sock***