



Royal Canadian Air Cadets



Level Three TRAINING WORKBOOK

*Come fly
with us*



PO 401

DRILL

GETTING STARTED

Read Chapter 1 in the Level 3 Handbook, Sections 1 to 6. It is a good idea to read the chapter once as an introduction to the material and then a second time to better absorb the information.

ACTIVITY ONE – This activity builds on your experience with personal drill, by beginning to deal with drill as a flight. Answer the following questions.

1. What is the difference between a flight and a squad?

2. The following statements deal with Ordering a Flight on parade. Place them in order from 1 to 5, using the space provided.

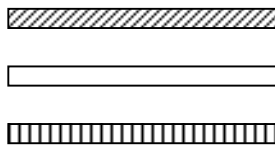
- | | |
|-------|--|
| _____ | The flight sergeant calls the flight to attention. |
| _____ | After the flight has fallen in, the flight sergeant may call the roll, size the flight, etc. |
| _____ | The flight commander marches forward two paces and takes up the flight sergeant's former position. |
| _____ | The flight commander halts two paces in front of the flight sergeant who then reports the flight. |
| _____ | Upon being ordered to fall in, the flight sergeant turns right and proceeds by a series of wheels around the right flank to take up position three paces centered and to the rear of the flight. |

3. Explain what the Directing Flank is. Why is it important to know the Directing Flank when conducting Flight Drill?

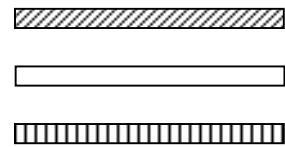
4. Below you will find a diagram each for a Flight in Line, a Flight in Column of Threes and a Flight in Column of Route. Draw in the correct parade position symbols, the number of paces required for proper dressing, as well as an arrow depicting the orientation of each flight.



(Flight in Line)



(Column of Threes)



(Column of Route)

ACTIVITY TWO – This activity deals with Words of Command, and the Cadet inspection procedure.

1. When giving drill commands to a formation on the march, each command is called on either the right or the left foot. Using the list below, identify which foot each command is called on.

<i>Words of Command</i>	<i>Foot</i>
Halt	
Mark Time	
Forward (from the mark time)	
About Turn	
Right Turn, Right Incline, Right Form or On the Right, Form Squad	

Left Turn, Left Incline, Left Form or On the Left Form Squad	
Change Step	
To the Front (Right or Left) Salute	
Eyes Right (Front)	
Change to Quick, Slow or Double Time	

2. *Fill in the blanks as required.*

Drill commands are divided into two parts. The first part is a warning, and is called the _____ . The second part precedes the execution of the movement and is called the _____ .

3. *Fill in the blanks or circle the correct word, as required.*

- a) When a flight is inspected, it will be at the *OPEN* / *CLOSE* order. Upon completion of the inspection, it may be returned to the _____ .
- b) A unit will be given a _____ after the open order and may be given a right dress after the _____ .
- c) Normally, the person inspecting will work from the _____ to the _____ of each rank, starting from the _____ flank of the _____ rank, and proceeding in a _____ direction around each rank in turn.
- d) Each rank is inspected at the position of _____ . Ranks not under inspection may be ordered to _____ .

PO 402

DRILL INSTRUCTION

GETTING STARTED

Read Chapter 2 in the Level 3 Handbook, Sections 1 to 3. It is a good idea to read the chapter once as an introduction to the material and then a second time to better absorb the information. You will be doing some practical drill instruction as part of this PO.

ACTIVITY ONE

1. Think about a Drill Instructor in your squadron. Name three important traits that help make the Drill Instructor effective in that role.

Sqn Drill Instructor: _____

1) _____

2) _____

3) _____

2. What you learn in PO 409 Instructional Techniques, is also applicable for a Drill Instructor. What are the four main headings that must be considered, both for a drill lesson and a classroom lesson?

1) _____

2) _____

3) _____

4) _____

3. What are the four preliminary duties a Drill Instructor is responsible for performing prior to a drill lesson?

1) _____

2) _____

3) _____

4) _____

4. Think about all your previous drill instruction experiences, if any. Make a list of all the things that helped make you an effective Drill Instructor, and a list of things that need to be improved. (If you do not have any previous experience to draw on, think of a Drill Instructor in your squadron.)

Effective Traits	To Be Improved
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

5. Fill in the following acronym:

D _____

E _____

E _____

R _____

ACTIVITY TWO

1. Stage 1 of the drill lesson involves a demonstration of the movement by the Drill Instructor, as well as practice of the movement in its component movements. How is Stage 2 different? Explain, using the space provided.

2. Regarding Stage 2 of the lesson, explain who calls the time and why this is important.

3. Draw a line to match up the correct number of Cadets with the correct drill formation.

- Single file
- Semi Circle
- Hollow Square
- 6 to 9 Cadets
- 10+ Cadets
- 1 to 5 Cadets

4. Indicate whether the following techniques are true or false:

	TRUE	FALSE
Because you are in charge, your appearance does not matter.	_____	_____
Excessive demonstration ensures your Cadets will understand.	_____	_____
Faults should be corrected immediately.	_____	_____
Long explanations to suggest the degree of smartness required works best.	_____	_____
Rest periods are for wimps.	_____	_____
Forceful physical contact to correct a Cadet is never appropriate.	_____	_____
If the cadets are not listening to you, shouting is a good tool to use.	_____	_____
Only large improvements deserve recognition.	_____	_____

5. List the four mechanical aids to drill. Explain when you would use two of the four.

- 1) _____
- 2) _____
- 3) _____
- 4) _____

ACTIVITY THREE

PO 403

GENERAL CADET KNOWLEDGE

GETTING STARTED

Read Chapter 3 in the Level 3 Handbook, Sections 1 to 3. It is a good idea to read the chapter once as an introduction to the material and then a second time to better absorb the information.

ACTIVITY ONE – Level 3 Training begins to build on previous LHQ and summer training, with an emphasis placed on instructional techniques and leadership.

1. What two things are required to be eligible for promotion to the rank of Cadet Flight Sergeant in the Air Cadet Programme?

2. There are 13 subjects covered in Proficiency Level 3. Of these, list the five that you are most interested in.

- 1) _____
- 2) _____
- 3) _____
- 4) _____
- 5) _____

3. There are a number of Summer Camps you will be eligible to attend after successfully completing Level 3 training. Name the three that you are most interested in.

- 1) _____
- 2) _____
- 3) _____

ACTIVITY TWO – One of the most rewarding aspects of the Air Cadet Programme is Summer Camp. Answering the following questions will give you a better understanding of the opportunities which are available to you.

1. Using the three summer camp courses you identified in Activity One, complete the following chart.

Summer Camp Name	Duration (weeks)	Graduate Qualifications. (ie. what can I expect to be able to do if I finish this camp?)

2. What are the four trade disciplines of the Technical Training Course?

- 1) _____
- 2) _____
- 3) _____
- 4) _____

3. There are two Summer Camp Categories – what are they?

- 1) _____
- 2) _____

ACTIVITY THREE – One of the key organizational principles of any Air Cadet Squadron is the Chain of Command. Please answer the following questions.

1. What is the Chain of Command and why is it so important to use it?

2. What happens to your responsibilities as you move higher up the Chain of Command?

3. Produce an Organizational Chain of Command for your squadron, from AC to your cadet Squadron Commander.

4. What is your position in the chain of command? Who are you responsible to?

5. Chain of Command is not limited to cadets alone. Do some research on your squadron, and reproduce the chain of command for your officers, from Commanding Officer down. (If you need assistance with this, talk to the person you identified in question 4, above.)

PO 404

CITIZENSHIP

GETTING STARTED

Read Chapter 4 in the Level 3 Handbook. It is a good idea to read the chapter once as an introduction to the material and then a second time to better absorb the information. In this PO you will be guided to deliver a 15-minute speech on a community group in your area.

ACTIVITY ONE – You can start your project by identifying some possible community groups to focus on, and then choose one in particular.

1. Name 5 community groups in your area:

- 1) _____
- 2) _____
- 3) _____
- 4) _____
- 5) _____

2. From your list in question 1, circle the group you wish to focus on. Research this group and outline the goals or aim that the group strives to achieve.

3. What year was this group founded?

4. What are the membership requirements of this group? Do you know any members?

5. How is this group involved in the community?

6. Is this group involved with any charitable activities? List them using the space provided.

7. What type of social activities does this group conduct in the community?

8. What could your squadron do to help support this group?

ACTIVITY TWO - From the above research information develop a 15-minute speech on the community group you have chosen. The skills you learned in Level 2 Effective Speaking (PO 410) should help you. This speech will be presented to your classmates.

PO 405

PHYSICAL FITNESS

GETTING STARTED

Read Chapter 5 in the Level 3 Handbook, Sections 1 to 4. It is a good idea to read the chapter once as an introduction to the material and then a second time to better absorb the information.

ACTIVITY ONE - Participate in a discussion on the cadet sports programme. Answer the following questions.

1. In your opinion, why is fitness an important part of the Cadet Programme?

2. Why is stretching an important start to a Physical Training Session?

3. List the three benefits of the warm up:

- 1) _____
- 2) _____
- 3) _____

4. List six guidelines to follow to achieve the benefits of the warm up.

- 1) _____
- 2) _____
- 3) _____
- 4) _____
- 5) _____
- 6) _____

5. Why do you think physical fitness is one of the aims of the cadet program?

6. Which team sport would you like to organize for your unit and why?

ACTIVITY TWO - This activity will help you understand the Air Cadet Fitness Test, as well as outline your personal goals.

1. What was your level of achievement on the Air Cadet Fitness Test last year? What is your personal achievement goal for this year's Air Cadet Fitness Test?

2. According to the Level 3 Handbook, how many of the testing items must be at your chosen level or higher, in order to qualify for an Achievement Crest? Are there any testing items which must meet your goal to qualify?

3. Complete the following chart for your sex and age group, according to the goal you identified in Question 1.

Name:	Sex:
Goal:	Age:

Exercise	Required Standard
<i>Push-Ups</i>	
<i>Shuttle Run</i>	
<i>Partial Curl-Ups</i>	
<i>Standing Long Jump</i>	
<i>50 m Run</i>	
<i>Endurance Run</i>	

PO 406

SENSIBLE LIVING

GETTING STARTED

Read Chapter 5 in the Level 3 Handbook, Sections 1 to 4. It is a good idea to read the chapter once as an introduction to the material and then a second time to better absorb the information.

ACTIVITY ONE – This activity will draw upon your knowledge of the Canada Food Guide and healthy eating habits by planning a menu for your squadron to use on an upcoming weekend field exercise. Answer the following questions.

1. Think about a typical field exercise. What sorts of activities take place during these exercises? Are they high or low intensity? List them with their intensity levels.

2. Based on your responses to Question 1 above, how will this have an impact on the types and/or amounts of food that should be available to cadets?

3. How will your answers to the above questions change if your field exercise were to take place in summer conditions? What about a winter exercise? What are some unique considerations for each season?

ACTIVITY TWO - Based on your past experience and the answers to your questions in Activity One above, design a suitable menu for a weekend survival exercise. Consult the Canada Food Guide at the end of this section, and answer the following questions.

1. Below you will find space to write menu ideas for your weekend field exercise. Use the column on the left for a summer exercise, and the column on the right for a winter exercise, and write in suitable meals, taking into account your answers from Activity One.

Day One: Friday Night – Light Snack

<i>Summer Exercise</i>	<i>Winter Exercise</i>

Day Two: Saturday Morning - Breakfast

<i>Summer Exercise</i>	<i>Winter Exercise</i>

Day Two: Saturday Afternoon - Lunch

<i>Summer Exercise</i>	<i>Winter Exercise</i>

Day Two: Saturday – Snacks (all day)

<i>Summer Exercise</i>	<i>Winter Exercise</i>

Day Two: Saturday Night - Supper

<i>Summer Exercise</i>	<i>Winter Exercise</i>

Day Three: Sunday Morning - Breakfast

<i>Summer Exercise</i>	<i>Winter Exercise</i>

Day Three: Sunday Afternoon - Lunch

<i>Summer Exercise</i>	<i>Winter Exercise</i>

Day Three: Sunday – Snacks (all day)

<i>Summer Exercise</i>	<i>Winter Exercise</i>

CANADA'S
Food Guide
 TO HEALTHY EATING
 FOR PEOPLE FOUR YEARS AND OVER

Different People Need Different Amounts of Food

The amount of food you need every day from the 4 food groups and other foods depends on your age, body size, activity level, whether you are male or female and if you are pregnant or breast-feeding. That's why the Food Guide gives a lower and higher number of servings for each food group. For example, young children can choose the lower number of servings, while male teenagers can go to the higher number. Most other people can choose servings somewhere in between.

Grain Products 5-12 SERVINGS PER DAY	1 Serving 	2 Servings
	1 Slice Cold Cereal 30 g Hot Cereal 175 mL 3/4 cup	1 Bagel, Pita or Bun Pasta or Rice 250 mL 1 cup

Vegetables & Fruit 5-10 SERVINGS PER DAY	1 Serving		
		Fresh, Frozen or Canned Vegetables or Fruit 	Salad

Milk Products SERVINGS PER DAY Children 4-9 years: 2-3 Youth 10-16 years: 3-4 Adults: 2-4 Pregnant & Breast-feeding Women: 3-4	1 Serving		
		Cheese 	

Other Foods

Taste and enjoyment can also come from other foods and beverages that are not part of the 4 food groups. Some of these foods are higher in fat or Calories, so use these foods in moderation.

Meat & Alternatives 2-3 SERVINGS PER DAY	1 Serving		
		Fish 	Beans



Enjoy eating well, being active and feeling good about yourself. That's **VITALIT**

ACTIVITY THREE – While on the topic of weekend field exercises, turn your attention towards fire safety and answer the following questions.

1. The list below contains some guidelines for fire safety from the General Safety and Operating Manual for Cadets. Each of these guidelines will fall into one of two categories:

- A. *Immediate Action Items*; or
- B. *Fire Prevention Strategies*.

Using the space provided, write an ‘A’ or ‘B’ beside each guideline to identify it.

- _____ Any oil or gas operated lamps or stoves shall be filled in properly marked areas designated for this purpose;
- _____ Smoking shall only be permitted in those areas designated as smoking areas;
- _____ Fire extinguishers, to include pump tanks and pails of sand, shall be placed throughout the tented or bivouac area;
- _____ Long grass, weeds and brush in close proximity to tents shall be cut short and the cuttings removed;
- _____ All other personnel not engaged in fighting the fire shall form up under their respective officers and NCOs;
- _____ Lamps and stoves shall always be lighted outside and once inside the tent shall be secured to prevent up-set;
- _____ Lamps, stoves or candles when lit shall never be left unattended or permitted to remain lit when people are resting.
- _____ upon discovering a fire, “**FIRE, FIRE, FIRE!**” shall be shouted throughout the tented or bivouac area;
- _____ Empty bottles or broken glass which can start fires by focusing the sun’s rays shall be safely disposed of;
- _____ Upon hearing the ‘**FIRE, FIRE, FIRE!**’ alarm, personnel in the vicinity of the fire shall use whatever means available to them to fight the fire;
- _____ Fire will only be permitted in properly prepared fire pits and will never be left unattended;
- _____ POL points shall be selected with due consideration for safety, will be properly marked with mine tape, and posted with a NO SMOKING SIGN;
- _____ Smoking [by staff officers only] shall be strictly forbidden in or around living accommodations;
- _____ Depending on the severity of the fire, the nearest Fire Department shall be notified if one is available;

_____ All cigarette butts shall be field stripped (field stripping is rendering the butt into small pieces including filter); and

_____ Should a fire occur, all living accommodations and nearby tents shall be struck immediately.

2. In your opinion, is fire safety more or less important in the field than at your LHQ on weekly parade nights? Why or why not?

3. What aspect of field operations requires the most vigilance on the part of the staff and cadets when it comes to fire safety during winter operations?

4. How would your answer to Question 3 change if your activity was in the summer?

5. Based on your experience on field operations, what in your opinion are the most important tools a cadet sqn can have in preventing fire related accidents?

PO 408

LEADERSHIP

GETTING STARTED

Read Chapter 7 in the Level 3 Handbook, Sections 1 to 9. It is a good idea to read the chapter once as an introduction to the material and then a second time to better absorb the information.

ACTIVITY ONE - This activity deals with the wants of a follower, incentives to performance and different styles of leadership.

1. Using the list below, identify and circle the correct wants of a follower.

Money

Freedom to wear Civilian clothes

Promotion

Recognition of Good Performance

Good Leadership

Social Activity

Fair Treatment

Minimum Responsibility

Treatment with Dignity

Stating what is expected of them

A Laptop

Explanation for Changes

Challenging Work

Wishes to be Continuously Supervised

A Leader that will provide
a cover up for mistakes

Advancement Opportunity

Freedom from Over-Supervision

High Contribution Opportunity

Constant Discipline

Unrestricted access to supplies and
equipment

2. In your opinion, of all the things you circled in Question 1, which three are the most important, and why?

- 1) _____

- 2) _____

- 3) _____

3. What 3 incentives to performance motivate you the most? What is it about these incentives in particular that appeal to you?

- 1) _____

- 2) _____

- 3) _____

4. Using a line, match the following definitions with their appropriate Leadership style.

Autocratic	This technique involves group participation in determining which procedures will be followed. The leader becomes a facilitator whose role is to encourage group involvement. The leader uses ideas and suggestions obtained through group discussion and consultation.
Democratic	This method is used only in certain situations. The leader becomes essentially a source of information at the service of the members of the group. The leader exerts only minimum control over the group members and relies on their sense of initiative to successfully carry out the mission.
Free-Reign	This technique is used by leaders who want to ensure, above all, the obedience of their group. They establish the procedures to be followed and consider it their exclusive right to make the decisions.

5. Using the definitions from Question 2 above, match each type of person with the most appropriate leadership style.

Dependent Persons _____

The Individualist _____

Persons with Team Spirit _____

Hostile Person _____

The Loner _____

Cooperative Persons _____

ACTIVITY TWO – This activity deals with the Order-Giving Process. Answer the following questions.

1. Define or describe the following types of orders, and give an example of each.

- Direct:

Example: _____

- Request:

Example: _____

- Implied:

Example: _____

- Call For Volunteers:

Example: _____

2. Put the following steps of the Order-Giving Process in order from one to six.

- Delivery _____
- Planning _____
- Follow-Up _____
- Preparation _____
- Evaluation _____
- Confirmation _____

3. Place the appropriate order (written or verbal) with the most appropriate situation.

- In a local emergency _____
- It is necessary to hold someone responsible _____
- In routine matters _____
- For minor details locally _____
- Transmitting instructions to another location _____
- To clarify a written order _____
- Precise figures or complex details are involved _____
- Sequence is important and strict adherence is necessary _____

ACTIVITY THREE – This activity deals with the four qualities of a leader, incentives to perform and the principles of supervision. Answer the following questions.

1. Think of somebody who is a leader in your squadron, community, church, school, etc., whom you feel fulfills the qualities of INTEGRITY, PROFESSIONAL COMPETENCE, PERSONAL DISCIPLINE, and a SENSE OF RESPONSIBILITY. Using the chart below, identify these qualities and describe them as they pertain to the leader you have chosen.

	Name:
INTEGRITY	
PROFESSIONAL COMPETENCE	
SENSE OF RESPONSIBILITY	
PERSONAL DISCIPLINE	

2. Place the following in order from lowest to highest, on the Table of Needs (see Level Three Handbook, Fig 7-1).

- Safety Needs _____
- Self-Realization Needs _____
- Self-Esteem Needs _____
- Basic Physiological Needs _____
- Social Needs _____

3. Circle the best choices that describe the purpose of supervision

- to demonstrate to the cadets that the job is important
- to maintain tight control of subordinates in all situations
- to show the cadets that you don't trust them to complete the task
- to permit the leader to encourage and motivate
- to keep your subordinates on razor's edge of peak efficiency
- to allow the leader to detect and correct errors immediately

ACTIVITY FOUR – This activity will familiarize you with some of the principles of supervision.

1. Supervision is one of the most important aspects of leadership. When thinking about supervision, four main points should come to mind. *How, When, Who* and *What* do I supervise? Using your own words, write out a short explanation for each of these four aspects of supervision.

a. How to Supervise: _____

b. When to Supervise: _____

c. Who to Supervise: _____

d. What to Supervise: _____

ACTIVITY FIVE – This activity deals with the Case Studies included in Chapter 7 of the Level 3 Handbook.

1. Read Case Studies 2 to 4.
2. Using your knowledge of the Wants of a Follower, Incentives to Performance, Qualities of a Leader, Motivation, Supervision and Leadership Approaches, answer the questions at the end of one of the Case Studies. Include your answers on a separate piece of paper.

PO 409

INSTRUCTIONAL TECHNIQUES

GETTING STARTED

Read Chapter 8 in the Level 3 Handbook, Sections 1 to 8. It is a good idea to read the chapter once as an introduction to the material and then a second time to better absorb the information. You will be required to prepare a lesson plan for this PO.

ACTIVITY ONE – This activity will get you thinking about instructional techniques you have already experienced in your school and cadet lives. Answer the following questions.

1. To get yourself started, think of some of the instructors that you have had in the past, both good and bad. Using the space provided below, make a list of some of the techniques you have seen which have had both a positive and a negative impact on your instruction.

<i>Good Techniques</i>	<i>Poor Techniques</i>

ACTIVITY TWO – This activity deals with the Principles of Instruction. To learn more about this aspect of Instructional Techniques, answer the following question.

1. The following list contains the six Principles of Instruction. Place them in order from one to six, using the space provided. Also give an example on how you could put each principle to good use in a classroom environment.

- Interest
- Comprehension
- Emphasizing Key Points
- Confirmation
- Success
- Participation

1) _____

2) _____

3) _____

4) _____

5) _____

6) _____

ACTIVITY THREE – Verbal Support is another very important aspect to being a good instructor. To learn more, complete the following activity.

1. What are verbal supports? Why do we use these tools as instructors?

2. Section 4 in the Level Three Handbook deals with Verbal Support. You can use an Acronym to help you remember the five categories of verbal supports. Write it down in the space provided.
-

3. Draw a line to match each type of verbal support to its description.

- | | |
|-------------|--|
| Comparisons | • Usually numerical in origin, and presented in the form of graphs, diagrams or samples. |
| Reasons | • A word bridge linking the known and the unknown used to clarify or simplify an idea. |
| Examples | • Assertions that support facts or convictions. Answers the question “why?” |
| Statistics | • Summarizing or quoting the ideas of a recognized authority on your subject matter. |
| Testimony | • A sample, situation or model which is similar to the notion being explained. |

ACTIVITY THREE – One of the most important things that you will do as an instructor will be to confirm that your cadets understand what you are teaching. This is done primarily through good questioning by the instructor. To learn more about the different types of questions, and when to use them, complete the following activity.

1. What are two of the goals of any question?

1) _____

2) _____

2. The following lists the five types of questions. Using the space provided, explain when you would use each type of question, and give an example question for each.

a) Lead-off:

b) Follow-up:

c) Overhead:

d) Direct:

e) Reverse and Relay:

3. In your opinion, what are some characteristics of a good question?

4. How do we go about asking questions? The following is a scrambled list of the ideal questioning method. Put them in order from one to five.

_____ Indicate which cadet should answer.

_____ Pause.

_____ Always confirm the correct answer.

_____ Ask the question.

_____ Listen to the answer.

ACTIVITY FOUR – This activity deals with preparing for a lesson plan. This is one of the most important tools that an instructor has. To learn more, complete the following questions.

1. One document which is of particular importance to any Air Cadet Instructor is the Course Training Plan, or CTP. Based on your readings, explain what a CTP is in your own words.

2. All classes in the Air Cadet Training Programme have certain objectives. In your own words, explain the difference between a Performance Objective (PO) and an Enabling Objective (EO).

3. One of the parts of the CTP is the Lesson Specification, which provides a great deal of information. Using the CTP given on page 8-15, find the following information.

- a. How long is this period?

- b. Which books would serve as reference material for this lesson?

- c. What method will be used to teach this lesson?

- d. Is there a written test at the end of the lesson?

e. List the main teaching point(s) of the lesson.

f. Why do cadets need to learn this information?

ACTIVITY FIVE – This activity deals with a very important aspect of good instruction: the instructional aids. To learn more about instructional aids, complete the following questions.

1. This question deals with the different types of instructional aids. Fill in the blanks as required with words from the word box, below.

Actual Equipment	Human Beings
Simulators	Visual Material
Mock Ups	Electronic Material

- a) _____ cover a wide range and include such aids as the scale model aircraft or the sand table used to reproduce a survival site.
- b) Movie projectors, slides and overhead projectors are examples of _____ which may be available for use, for those who know how.
- c) No instructional aid can be more effective than _____.
_____. Examples include rifles, airplanes or maps.
- d) _____ are an often forgotten resource. Think of your first aid or drill training.

- e) _____ reproduce the operations of actual material relatively faithfully. One area these types of aids are used is in flight training.
- f) Often easy to obtain or to produce, examples of _____ are diagrams, charts, photographs or overheads

ACTIVITY SIX – Based on what you have learned so far, you are ready to try to prepare a lesson plan of your own. For this activity, consult with your Level Officer or Training Officer for a suitable Level One lesson. Once you have identified a lesson, prepare your own lesson plan on separate sheets of paper and submit it to your Level or Training Officer for feedback. Included in the back of this section is an Air Cadet Lesson Plan format, which will help you complete this activity.

ACTIVITY SEVEN – Using the lesson plan that you prepared for Activity Five, think of three types of instructional aids which you could use for your lesson. List them below, along with how you would use them in your lesson.

Lesson: _____

- 1) _____

- 2) _____

- 3) _____



ROYAL CANADIAN AIR CADETS

LESSON PLAN



PROFICIENCY LEVEL

PO:

PO/EO:

ENABLING OBJECTIVE:

REVIEW

PO/EO:

ENABLING OBJECTIVE:

INTRODUCTION

WHAT:

WHY:

WHERE:

TIME	BODY	NOTES
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TIME	BODY	NOTES

MINs

PERFORMANCE CHECK

MINs

CONCLUSION

SUMMARY:

RE-MOTIVATION:

PO 416

PROPULSION

GETTING STARTED

Read Chapter 9 in the Level 3 Handbook, Sections 1 to 7. It is a good idea to read the chapter once as an introduction to the material and then a second time to better absorb the information.

ACTIVITY ONE – This activity deals with the different types of propellers. To learn more about propellers, complete the following exercises.

1. The purpose of a propeller is to convert _____ into _____.
2. The propeller moves through the air in a _____ fashion.
3. Label the following diagram of a fixed pitch propeller.



4. Which will provide greater forward motion per revolution? _____
5. Which will provide greater thrust per revolution? _____
6. Use a line and connect the four propeller types with the appropriate description of how pitch can be changed.

Constant Speed Propeller

Pitch changes automatically in flight

Controllable Pitch Propeller

Pitch adjusted on the ground only

Adjustable Pitch Propeller

Pitch can change between two settings in flight

Fixed Pitch Propeller

Pitch not adjustable at all

7. Choosing from the above list, which propeller is the simplest, and which will provide the best performance? Why?

a. *Simplest:*

b. *Best Performance:*

ACTIVITY TWO – This activity deals with aircraft instrumentation and the Fuel System. Answer the following questions.

1. Joe Bloggins is looking for an airplane. However, because he likes having a ‘bad attitude’, he wants to use it for inverted flight. Which of the two fuel systems could he safely use in his airplane? If one (or both) of them would not work, explain why.

2. Joe’s friend Sarah Smedley is out flying one day. She has leaned her mixture to save fuel, but her engine starts to run very rough. She is in level flight and has used the correct type of fuel. What problem do you think she is experiencing and what should she do to fix it?

3. For each gauge shown below, match the correct description from the list and give the indicated reading.



Description: _____

Reading: _____ RPM



Description: _____

Reading: _____ °C



Description: _____

Reading: _____ psi



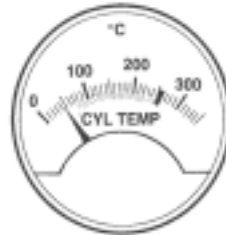
Description: _____

Reading: _____ °F



Description: _____

Reading: _____ "Hg



Description: _____

Reading: _____ °C

GAUGE DESCRIPTIONS:

- A. indicates the speed of the engine crankshaft
- B. indicates the fuel/air mixture pressure between the carburetor and the cylinders
- C. gives an indication of engine cooling effectiveness
- D. gives an indication of engine oil viscosity
- E. helps warn of icing conditions
- F. indicates how well the oil pump is functioning

PO 417

NAVIGATION

GETTING STARTED

Read Chapter 10 in the Level 3 Handbook, Sections 1 to 6. It is a good idea to read the chapter once as an introduction to the material and then a second time to better absorb the information.

ACTIVITY ONE – This activity deals with some of the different types of Navigation.

1. Using a line, match the type of navigation to the correct definition:

- | | |
|-------------------------|--|
| A. Pilotage | Navigation by use of predetermined vectors of wind and true airspeed and pre-calculated heading, ground speed and estimated time of arrival. |
| B. Dead Reckoning | |
| C. Radio Navigation | Navigation by means of radio aids
Navigation by self-contained airborne gyroscopic equipment |
| D. Celestial Navigation | Navigation by reference to landmarks and limited by visibility and familiarity with the area |
| E. Inertial Navigation | Navigation by measuring angles to heavenly bodies (sun, moon, stars) |

ACTIVITY TWO – This activity deals with pre-flight planning.

1. You are going to fly your Piper 235 from Edmonton to Ft. McMurray. Being the seasoned pilot that you are, you do thorough pre-flight planning. Pre-flight planning consists of the following steps. Number them in the correct order.

- | | |
|--------------------------------------|-----------------------------------|
| _____ Analysis of weather | _____ Filling of flight plan |
| _____ Review of NOTAMs | _____ Selection of a route |
| _____ Preparation of maps and charts | _____ Preparation of a flight log |
| _____ Route Study | |

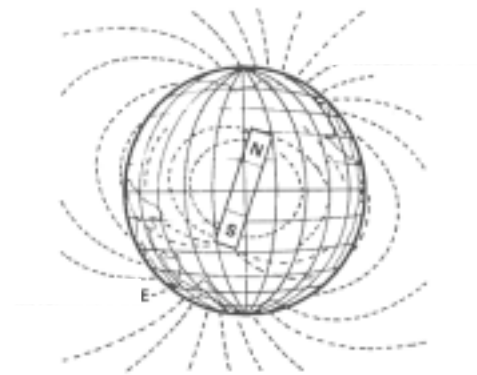
2. What is the reason for filling a flight plan? _____

3. What is the most important thing a pilot must do after the flight? _____

ACTIVITY THREE – Answer the following questions to learn more about magnetism.

1. On the diagrams below show the following:

- a. True and Magnetic Poles
- b. Rotation of the Earth (which direction does it turn?)
- c. Spin Axis
- d. The magnetic field of the Earth



2. What is Variation and why is it important that we take it into account?

3. What is the difference between an isogonic and an agonic line?

ACTIVITY FOUR – The following questions deal with the Earth’s Grid System, and how we use this system to help us navigate. Fill in the blanks, or circle the correct response, as appropriate.

1. Meridians of longitude are lines that join the _____.
Longitude is measured from _____ degrees to _____ degrees. Longitude is measured _____ and _____ of the Prime Meridian. The Prime Meridian is the meridian that passes through _____ and is numbered _____ degrees. The meridian on the opposite side of the earth is called the _____
_____ and is numbered _____ degrees.
2. Parallels of Latitude are lines _____ to the equator. Latitude is measured from _____ degrees to _____ north or south of the equator. The equator is at _____ degrees.
3. The most common method used in navigation to identify ones position is _____ and _____.
4. The line in which the airplanes nose is pointing, measured clockwise is the airplane’s *True* or *Magnetic* heading. (circle the correct choice)
5. True direction must be derived from _____ direction.

PO 418

RADIO COMMUNICATION

GETTING STARTED

Read Chapter 11 in the Level 3 Handbook, Sections 1 to 5. It is a good idea to read the chapter once as an introduction to the material and then a second time to better absorb the information.

ACTIVITY ONE – This activity builds on your previous Radio experience, by expanding your Radio phraseology. Answer the following questions.

1. What speech techniques should you keep in mind when operating a radio?

2. Match the time on the left with the correct expression on the right.

A. 12:45 a.m.	_____	1200
B. 12:00 noon	_____	0000
C. 1:30 p.m	_____	1330
D. Midnight	_____	1900
E. 5:30 a.m.	_____	1245
F. 7:00 p.m.	_____	0530

3. Give the correct word or meaning for the following:

a. Affirmative: _____

b. _____ indicates the separation between portions of the message (to be used when there is no clear distinction between the text and other portions of the message).

c. Confirm: _____

- d. Consider this transmission as not sent. _____
- e. Mayday: _____

- f. _____ is the spoken word for urgency communications.
- g. _____ indicates that a transmission is ended and a response is expected from you.
- h. Wilco: _____

ACTIVITY TWO – This exercise deals with more advanced techniques relating to the sending and receipt of radio messages.

1. Identify the four steps involved in handling radio messages.

- 1) _____
- 2) _____
- 3) _____
- 4) _____

2. You are flying in a Cessna 172 C-GFVT, and Air Traffic Control has just called you to see if you are ready to accept a clearance. How would you reply to let them know that you have received their transmission, and are ready to receive further clearances? Write out a sample reply using proper radio procedure.

3. In your own words, please give the definition of distress communications.

4. How many times is a proper distress signal repeated? _____

5. Imagine you are in C-172 C-GFVT with two other cadets, and you have had an engine failure 20 miles north of Rocky Mountain House. You are currently at six thousand feet, and plan to carry out a forced landing in a farmer's field. No one on board the aircraft is injured. How would you make a distress call in this situation? Be sure to include any pertinent information in your call.

PO 419

AIRCREW SURVIVAL

GETTING STARTED

Read Chapter 11 in the Level 3 Handbook, Sections 1 to 5. It is a good idea to read the chapter once as an introduction to the material and then a second time to better absorb the information. You will be required to actively participate in a mandatory survival training weekend as part of this PO.

ACTIVITY ONE – Types of Maps.

1. Match each Map with the correct definition.

- A. These maps show, in as much detail as their scale allows, the physical features of the ground – rivers, streams, hills, valleys, woods, etc. Their purpose is to present a complete and accurate picture of the ground as it exists.
- B. These maps are useful for people trying to navigate highways and cities in their cars. They show the names of streets and major landmarks around cities.
- C. This map is contoured and textured to show different elevations and ground features. It is useful if you need a small scale of the area you are going to and want to actually see how the land is shaped. Model train layouts are like this.
- D. A picture of the land taken from the air. It gives exact detail of the ground and looks just like a photograph. It can be used when you want very precise details of the area but is not used for navigation.
- E. These are maps, which indicate the general plan of the country. It shows main cities and natural features like rivers, lakes and mountains. These are used to show very large areas such as countries or continents.
- F. These maps show distribution of population and other things like water distribution. They provide city planners and engineers with the information they need to construct buildings in cities or where to lay down sewer lines.
- G. The between distance on the map and on the ground. A 1:50 000 map means that one unit of measure on the map is equal to 50 000 of the same units on the ground.

_____ Street and Road Maps _____ Relief Maps _____ Topographical Maps

_____ Statistical Maps _____ Outline Maps _____ Map Scale _____ Air Photo

2. Map Folding – For this activity, remove this page from your workbook. Fold the page as you would correctly fold a map. Assume that this side is the face of the map. If at the end you see the word “CORRECT” on both sides of the folded map you have successfully completed the mission.

CORRECT

CORRECT

MAP

ACTIVITY 2 – Use the map provided at the middle of the workbook for the following exercises.

1. Using the information in the margins around the map, answer the following questions:

a. What is the Scale of this map?

b. 1 cm on the map represents what distance on the ground?

c. Elevation is expressed in Meters above what reference?

d. Contour Lines are always the same distance apart. What is this distance?

2. Label each diagram below with its corresponding Conventional Sign.

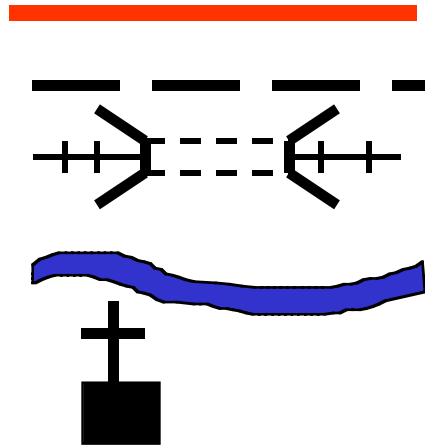
a. _____

b. _____

c. _____

d. _____

e. _____



ACTIVITY 3 – Use the map provided at the middle of the workbook for the following exercises.

1. Give the four-figure grid reference for the following locations on the map.

a. Iron Mountain _____

b. Western tip of Crescent Island _____

c. Mobile Home Park on Hatzic Island _____

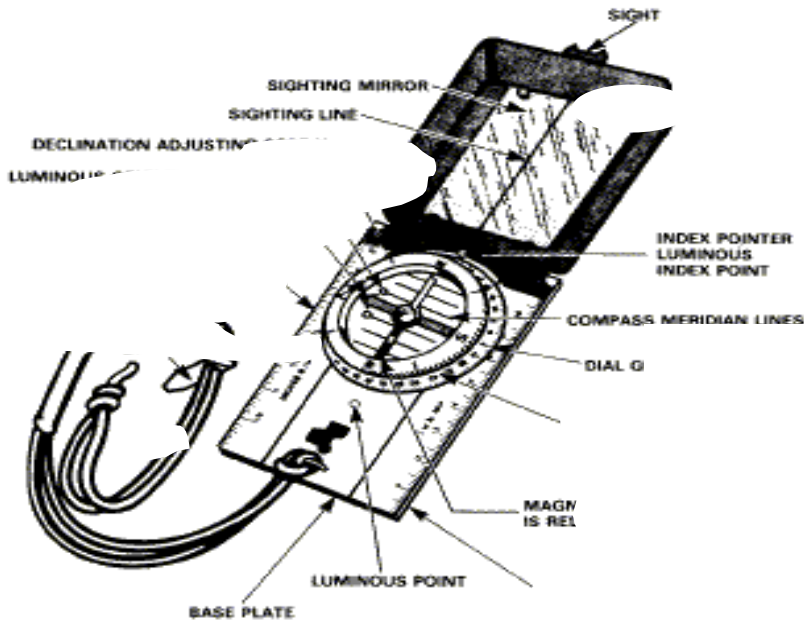
d. Centre of Whonnock Lake _____

2. Give a description of the location found on the map, from the following six figure grid references.

- a. Grid 494 499 _____
- b. Grid 441 522 _____
- c. Grid 493 531 _____
- d. Grid 395 469 _____

ACTIVITY 4 – Identify the components of a Silva compass.

1. Label the following diagram of a Silva Compass:

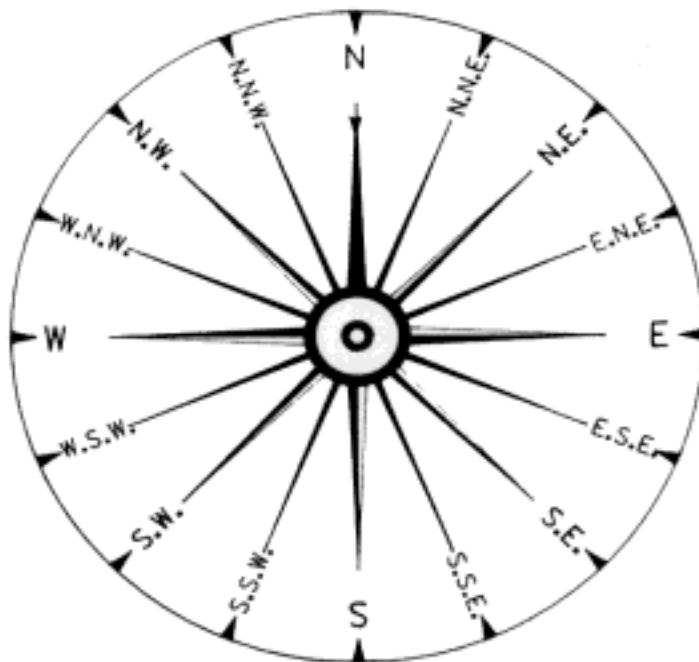


2. Briefly describe proper care for a compass.

3. In your own words briefly describe how weather conditions affect a compass.

ACTIVITY 5 – Identify the points of a compass.

1. Below you will find a compass diagram showing the Cardinal and Intermediate Points. To the right is a list of corresponding headings in degrees. Place these headings on the compass, where appropriate.



- 360°
- 180°
- 045°
- 270°
- 090°
- 225°
- 000°
- 315°

2. What is the difference between Magnetic and True North? Why do you think this difference exists?

ACTIVITY 6 - This activity will be conducted outside on a compass course, and will involve taking bearings to landmarks using a Silva Compass. Contact your Level or Training Officer for more information.

ACTIVITY 7 – This activity deals with Search and Rescue operations.

1. Match the type of search with the correct definition.
- a. One or more cadets who will search along a given trail or track may carry out this type of search.
 - b. This type of sweep employs a group of cadets, who are spread out in a particular formation at specified distances apart, for one sweep of an area.
 - c. This type of search is the most commonly used and is the same as the parallel sweep type except that the searches continue in formation until a specified area is thoroughly searched.
 - d. This type of search is used to search steep slopes that cannot be covered by traveling in a straight line.

Creeping Line Sweep _____ *Contour Sweep* _____
Track Sweep _____ *Parallel Sweep* _____

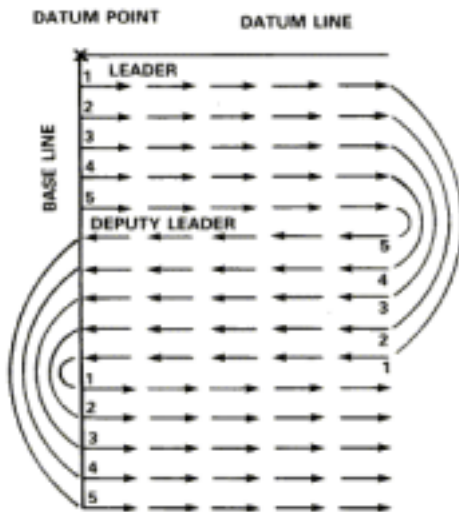
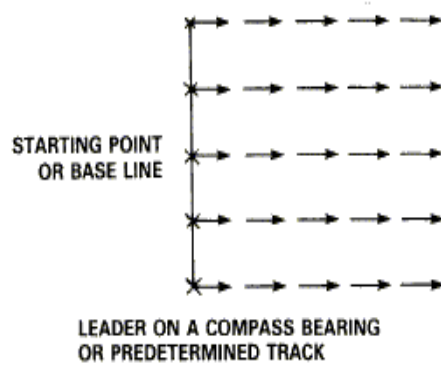
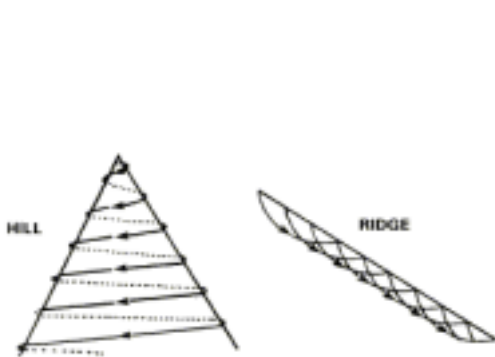
2. List three types of formations and briefly describe them.

1) _____

2) _____

3) _____

3. Draw a line connecting the different search patterns to their proper names..



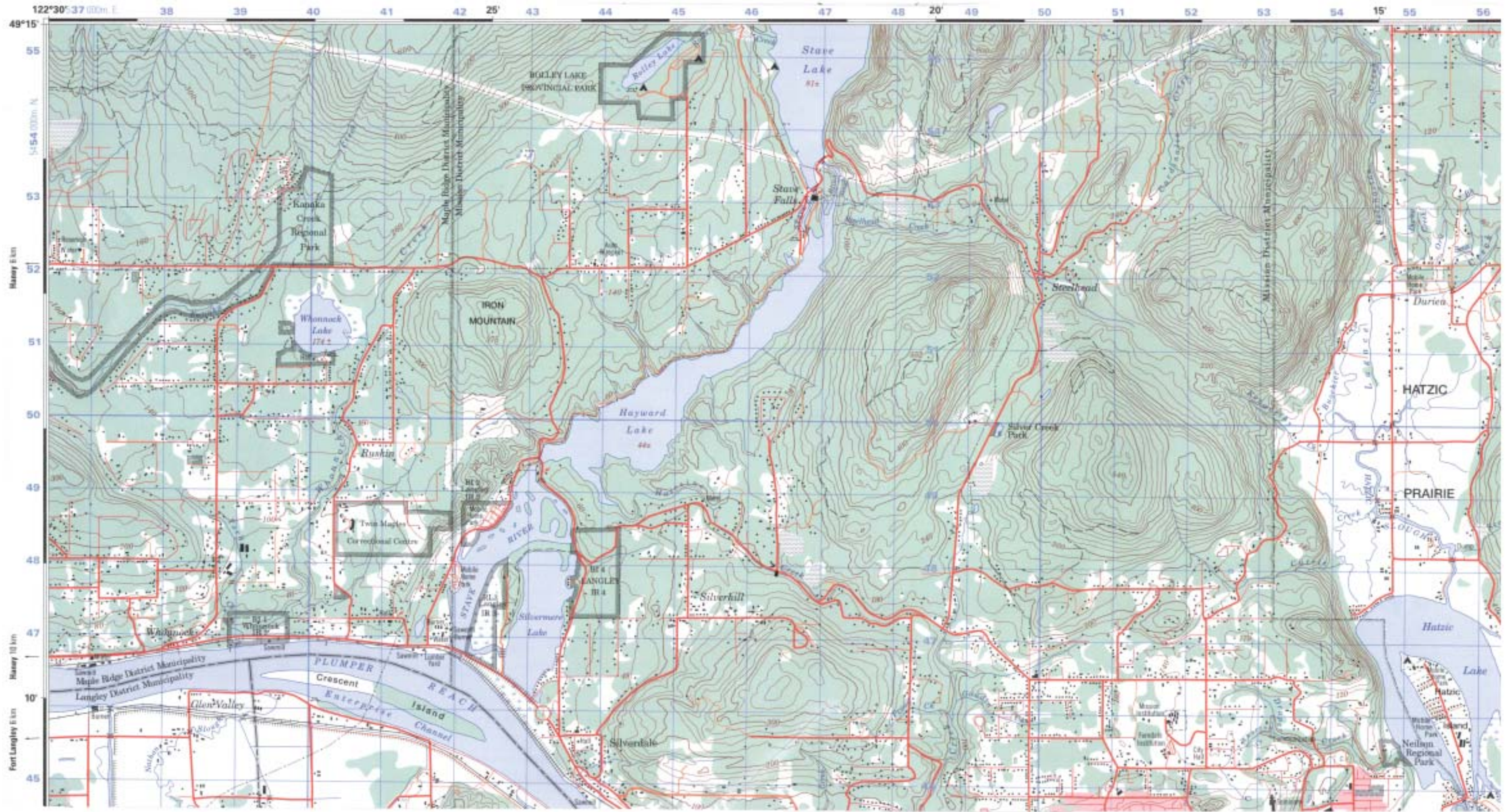
- Parallel Sweep
- Creeping Line Ahead
- Contour Search

4. Identify the following sound signals used on ground searches.

a. One Whistle Blast: _____

b. Two Whistle Blast: _____

c. Three Whistle Blast: _____



1/50 000

Kilometres 1 0 1 2 3 4 Kilomètres

Miles 1 0 1 2 3 Miles

1 centimetre on the map represents 500 metres on the ground
 1 centimètre sur la carte représente 500 mètres au sol

Contour Interval: 20 Metres
 Équidistance des courbes : 20 mètres

Elevations in Metres above Mean Sea Level
 Altitudes en mètres au-dessus du niveau moyen de la mer

