Burnaby Lake “Hoods-Up Flyers” Wings Program (Fixed Wing Aircraft)

Introduction

Welcome to the Burnaby Lake Flyers Association/Model Aeronautics Association of Canada training program. This program will teach you the basic of flying radio controlled model aircraft and is MAAC's best effort to assist you in the process.

There is nothing in this program that guarantees that you will become a successful R/C pilot. Nor, are there any expectations on how long it will take to complete this program. Like everything else, your success will all depend on your willingness to spend the time and practice.

This program is a series of lessons designed to build upon previous lessons to develop the skill and confidence, which will allow you to thoroughly enjoy your new hobby.

Upon completion of these lessons, you will be ready to take your
"A Wings" test. This test is designed such that you can demonstrate to the club's satisfaction that you are able to control your plane safely. After passing this test, you will be allowed to fly without an instructor present.

Hopefully, the completion of your "A Wings" is only the beginning of your learning and will serve as an incentive to get out and fly. Where you go from here is up to you. Good Luck!

Reminder:

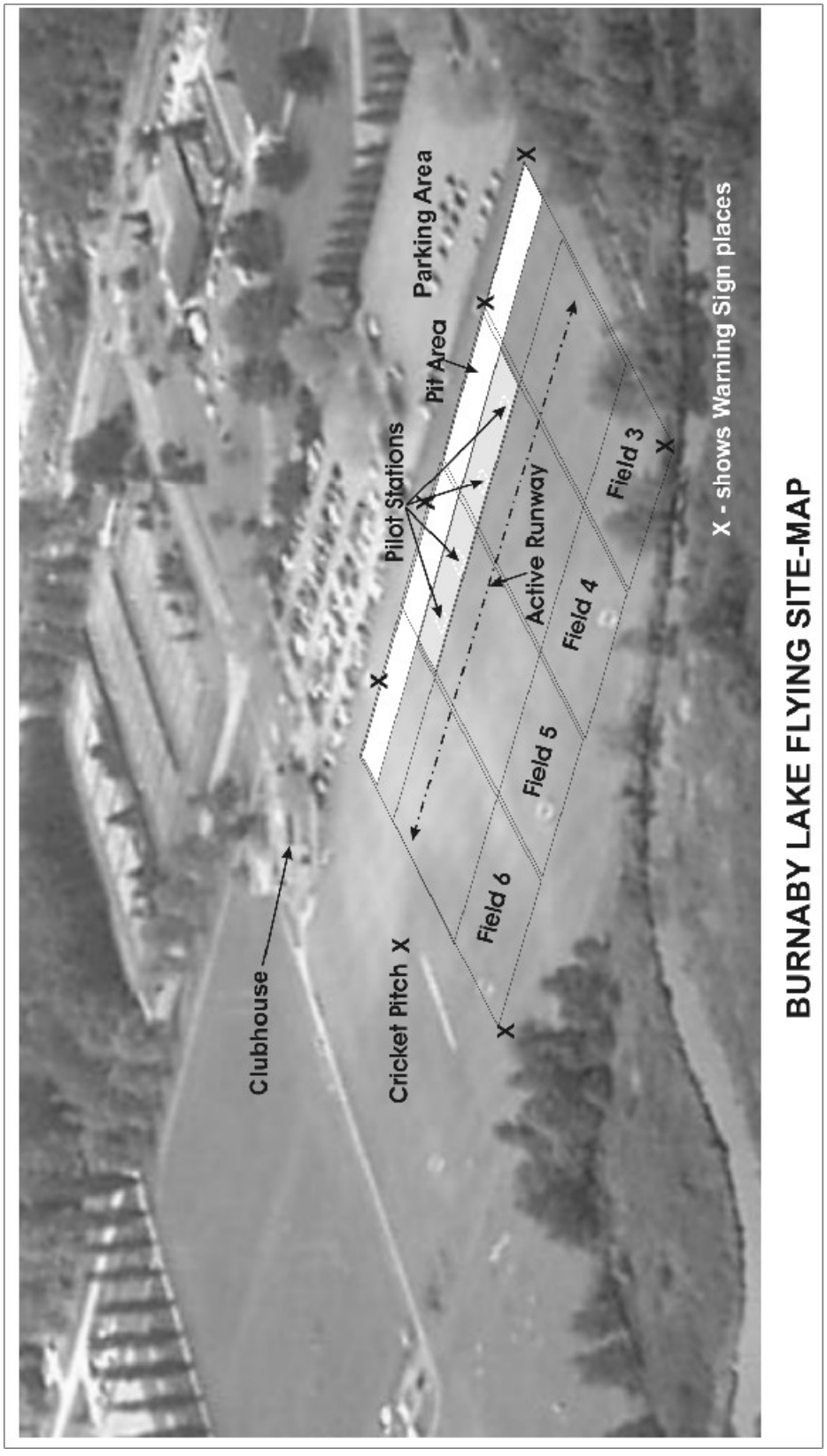
You must learn to crawl before walking and walk before running. For this reason, MAAC strongly recommends that you start your flight instruction on a trainer and then evolve to more advanced planes.

A trainer will enable you to learn easier and it will simplify your instructor's roles. Your plane will last you longer with less chance of a serious crash.

Remember, even the jet fighter pilots learn to fly in trainers before advancing to jets. So leave the scale planes until after you have learned to fly.

REMEMBER- SAFETY FIRST, FUN SECOND

BURNABY LAKE FLYING SITE LAYOUT



Student Responsibilities

You are about to embark upon the Primary Flight Training Course of the Burnaby Lake Flyers in conjunction with Model Aeronautics Association of Canada. This program will enable you to achieve your MAAC “Wings” certificate through the club.

Although your may seek instruction from any club instructor your primary instructor is:

Name:_____

Phone:_____E-Mail_____

He will work with you and monitor your progress.

Your instructor has met the qualifications of MAAC. He has accepted the responsibility to teach you to become a responsible and safe pilot who can be proud of his flying abilities and an enjoyable fellow club member. If the instructor ignores his responsibility, you may be a pilot who is a hazard to yourself and other persons wherever you fly. You may seek training assistance from any other club instructor. However you should look to your designated instructor as your primary source of assistance.

You may not take your "A" Wings test until your instructor, or the Chief Instructor has signed below indicating that you have completed the elements of your primary training program and you are ready for your "A" Level Wings test.. Your must pass your "A" Wings test before you are allowed to fly at the club field without supervision.

As a student, you have shown the diligence to build your first trainer, seek out the Local Club and join this training program. It is your responsibility to apply yourself diligently to learn and apply the material presented in this course. By doing so, you will learn the minimum amount of information and skills to allow you to safely enjoy radio controlled flight.

Each section of this course deals with a different aspect of flying a radio controlled model aircraft. Your instructor will explain and demonstrate each element of each lesson. Where applicable he will demonstrate the element in the air, using your aircraft. You will have opportunities to perform each element and receive an evaluation from your instructor. In each lesson there is a space for a club instructor to "initial" that the material has been reviewed with you. It is important that you keep your training program with you at all times and ensure that instructors initial elements after they have been covered. Other club instructors will use the initials and notes to assist you when your instructor is absent.

I recommend that_____ _____take the MAAC "A" Wings test

_____

Instructor Date

Lesson 1: Aircraft Familiarization

Purpose:

To teach the student how to property pre-flight his model.

Objective:

At the completion of the lesson the student should be able to inspect his model and identify any deficiencies that could cause a malfunction or safety hazard. He will be able to start and adjust the engine properly.

Elements:

- ☐ Inspection of aircraft structure, center of gravity and longitudinal balance.
- ☐ Inspection of radio installation.
- ☐ Instruction regarding placing the frequency pin on the frequency board prior to operating any of the model's moving parts
- ☐ Inspection of all linkages and control surfaces including controls for proper throw, direction and freedom of movement
- ☐ Discussion and explanation of batteries and safety
- ☐ Instructor's demonstration of safe motor and battery handling
- ☐ Student arms and tests motor

Evaluation:

Student should be able to perform lesson objectives.

THIS LESSON SHOULD BE REVIEWED AS NECESSARY AT THE START OF ALL LESSONS IN THE PRIMARY TRAINING COURSE.

Notes

Lesson 2: Radio and Field Procedures

Purpose:

To familiarize the student with all safety aspects associated with model aircraft both on the ground and in the air.

Objective;

At the completion of the lesson the student will be aware of all MAAC and MMC safety rules and field procedures. The student shall also be able to perform a pre-flying session and pre-flight check list.

Elements:

MAAC SAFETY AND FIELD RULES

- □ Current MAAC membership card must be shown prior to flying. MAAC insurance is mandatory to fly.
- □ Student must have his/her "A" Wings qualification before solo flying.
- □ No taxiing in the pit area. Motors disarmed when clear of runway after landing.
- □ There will be absolutely **NO FLYING:**
  a) Over any general area where field workers or equipment are active.
  b) Behind the flight line no matter how far away from the runway.
  c) No flying over the pits, car parking.
  d) No flying over other Sports user groups on the field at any time

Note: The presence of active field workers could easily require that no flying take place at all.

- □ Maximum of five aircraft flying at a time.
- □ Pin possession time is limited to 15 minutes per flight.
- □ All Aircraft shall be flown in a safe manner with consideration to others at the field
- □ Unaccompanied spectators (any observer who is not a club member unless invited) and animals must stay out of the pit area.
- □ No transmitter shall be switched on without the frequency pin (with pilot name and channel number) first being attached to the frequency board. When the transmitter is turned off, the pin is to be removed from the frequency board by the pilot and the transmitter. Currently 2.4 Ghz radio pins will reside in the 50 Mhz area of the board.
- □ No flying on un-allotted (unscheduled) days if other users are present on the field
- □ Pilots shall announce their intention to land or take off. Landing aircraft shall have the "right of way".
- □ When in the pit area, aircraft shall be placed between the pilot and the runway to enhance awareness of the potential hazards posed by already flying aircraft.
- □ Aircraft will all circle in either a clockwise or counter-clockwise direction. This is called “flying the circuit”. The direction is determined by the prevailing wind direction or the consensus of the pilots.
- □ Taxiing towards the pit area is strictly prohibited.
- □ Safety signs must in place before flying.
- □ When more than 3 pilots are flying then spotters are required.

- ☐ Turning on a radio in the parking lot is not permitted.
- ☐ Pilots must fly from the pilots station (flags).

CHECK LIST

Before each flying session:

a) Radio range check.

b) Field workers.

Before each flight:

- ☐ Frequency Board - Peg In Place
- ☐ Receiver Battery (if applicable) - Voltage Check
- ☐ Radio Antenna (if applicable) - Out
- ☐ Radio Transmitter - On and Checked for Interference
- ☐ Radio Receiver - On
- ☐ Aircraft Controls - Transmitter Operation Check

Start

- ☐ If possible arm the aircraft at the flight station or better yet plug in the flight battery at the flight station.
- ☐ It is recommended aircraft utilizing 6 or more LIPO cells (6S) have an externally mounted arming shunt.

Pre-Takeoff

- ☐ Motor - Full Power Performance OK
- ☐ Controls - Free and Correct
- ☐ Rate Switches - Set
- ☐ Trims - Set for Take-off (if applicable)
- ☐ Timer-On
- ☐ Field Workers - Checked
- ☐ Wind Sock - Checked
- ☐ Runway - Clear
- ☐ Announce intention to take off to other pilots on flight line.

Evaluation: Student should be able to perform lesson objectives.

THIS LESSON SHOULD BE REVIEWED AS NECESSARY AT THE START OF ALL LESSONS IN THE PRIMARY TRAINING COURSE.

Notes

Lesson 3: Flight Familiarization

Purpose:

To introduce the student to controlling the model in flight.

Objective

To allow the student to become familiar with the model's controls and their use in flight.

Elements

- ☐ On the ground, instructors familiarize the student with the controls (pitch, yaw and power) and what kind of affect they will have on the aircraft in flight.

  The procedures used by the instructor to give the transmitter to the student and take it from him during the flight will be explained.

  Note: As each Instructor has different preferences concerning the process of exchanging the transmitter the student should ensure that he/she has reviewed and understands this procedure with new instructors.

- ☐ Instructor flies and lands the student's model to evaluate its performance and airworthiness. This flight determines any changes necessary for control throws and trims. If the instructor can trim the aircraft without landing the aircraft, the transmitter will be passed to the student or the use of a buddy box is strongly recommended.

- ☐ With the assistance and direction of the instructor, the student will start the process of becoming familiar with the controls.

- ☐ The student will strive to keep the model in level flight and follow turning instructions given by the instructor.

- ☐ When the student becomes tired or disoriented, pass the transmitter back to the instructor or ask the instructor to take the controls from the buddy box.

Note: It is the student's responsibility to pass the transmitter back to his/her instructor in time for the instructor to take corrective action to prevent a crash. Concentrate on flying within your ability. If you become disoriented or confused, pass the transmitter back to the instructor.

Evaluation:

The lesson is complete when the instructor has determined that the student is able to determine and execute proper control inputs to achieve a desired change in the model's attitude. Proficiency and accurate control are not critical at this point.

Notes:_____

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Lesson 4: Flight Maneuvers

Purpose:

To acquaint the student with the basic flight maneuvers,

Objective:

To teach the student to properly control the model during basic maneuvering.

Elements:

- ☐ Level flight (Aileron and elevator).
- ☐ Banked turns (30 degrees).
- ☐ Straight climbs (add power).
- ☐ Climbing turns.
- ☐ Gliding, (idle power)
- ☐ Disorientation. (silhouette and R+L reversal with inbound aircraft).

NOTE: An explanation of disorientation and the use of trim should precede this lesson. The five maneuvers should be taught in the order listed, if possible.

Evaluation:

The lesson is complete when the student can perform the maneuvers without assistance from the instructor. Each maneuver should be done with a reasonable degree of accuracy.

Example: Turns should be fairly smooth and altitude maintained fairly well.

Notes:_____

Lesson 5: Accuracy of Maneuvers

Purpose:

To teach the student to perform the five basic maneuvers to a standard that will develop proficiency in their executions.

Objective:

To develop the skill and ability of the student to control the model in a specific manner.

Elements:

- ☐ Level flight, maintaining heading and attitude.
- ☐ Level flight at reduced power, maintaining heading, altitude and trim.
- ☐ Left and right turns to specific headings.
- ☐ Climbing turns to specific headings.
- ☐ Use of rudder for turns and maintaining straight flight at slower speeds.
- ☐ Power off (idle) glides that require the student to maneuver the model to a specific area and approximate altitude. Example: Have the student close the throttle over the south end of the field at 200 ft and glide to the north end at an altitude of about 100 ft.

NOTE: Keep in mind that the object is to develop skill and ability, AND an awareness of the model's position relative to directions and altitude. Don't insist on mechanical precision. Review disorientation with the student if necessary,

Evaluation:

The lesson is complete when the student can maneuver the model at the instructor's directions and can demonstrate an ability to control the model in an accurate manner.

Notes:_____

Lesson 6: Orientation Maneuvers

Purpose:

To develop the judgment, skill and ability necessary for the student to make his first landing.

Objective:

To teach the student to control the model regardless of its heading or direction relative to himself.

Elements:

- □ Horizontal Figure 8 - the student must fly a figure 8 pattern consisting of two 360 degree turns, one left and one right. The student must place the maneuver in front of himself at a safe distance and altitude.
- □ The student must fly a rectangular pattern at a safe altitude, with the upwind leg crossing the landing area.

NOTE: The instructor will designate the size, altitude, and distance of both maneuvers.

Evaluation:

The lesson is complete when the student can fly the Figure 8 without experiencing disorientation and can fly both right and left rectangular patterns consistently and accurately.

Notes:_____

Lesson 7: Stalls

Purpose:

To develop the student understands of stalls, their cause and avoidance.

Objectives:

To teach the student to recognize and recover from stalls.

Elements:

- □ Pre-flight discussion of stalls. What causes them and how to recover.
- □ Practice of stalls by the student with power and without power.
- □ Stalls in turns, (take-off, departure stalls)

NOTE: Take-off and departure stalls are almost impossible to set up with most trainers, but do occur in more advanced models. Therefore, it is recommended that power be reduced to about 1/3 throttle, and a steep climbing turn entered. The stall entry will look similar to a spin entry with the model rolling towards the high wing. During this lesson it should be emphasized to the student that a stall can occur at any airspeed and is a function of angle of attack.

Evaluation:

The lesson is complete when the student understands the cause of stalls and has demonstrated the lesson elements and proper recovery.

Notes:

Lesson 8: Take-off

Purpose:

To teach the student how to make a normal take-off.

Objective:

To teach the student how to control the model during take-off.

Elements:

- ☐ Discussion of the effects of torque during take-off and initial climb.
- ☐ Use of rudder.
- ☐ Use of throttle.
- ☐ Use of elevator.
- ☐ Student makes a normal take-off INTO wind.

Evaluation:

The lesson is complete when the student has successfully taken off and established a normal climb with adequate airspeed. He must also demonstrate adequate directional control during take-off.

Notes:

Lesson 9: Approaches to Landing

Purpose:

To prepare the student for his first landing.

Objective:

To develop the student's ability to visualize and perform a stable and controlled approach and landing.

Elements:

- ☐ Review of Lesson 5. (Slow Flight and Gliding)
- ☐ Discussion of proper landing techniques.
- ☐ Student flies a rectangular pattern as in Lesson 6, but reduces power and establishes an appropriate glide on the base leg and continues the approach until over the end of the runway, at which point he is to add power and go around. The minimum altitude at the end of the maneuver should be no less than 20 ft.
- ☐ As the student becomes comfortable with the maneuver, the altitude should be lowered until the instructor is confident that the model can glide to the runway with the power off (idle).
- ☐ Landing. At this point the instructor will tell the student to continue the approach and land.

NOTE: The chances of a successful landing will be increased if the instructor reminds the student to keep the power at idle. It may be necessary to talk the student through the flare and touchdown.

Evaluation:

The lesson is complete and the student can advance to supervised solo flight after the student has successfully landed the model several times and is comfortable with the maneuver.

Notes:

Lesson 10: Solo Flight

Purpose:

Confidence building exercise.

Objective:

The student is to perform a solo flight demonstrating the knowledge and skill objectives of the previous nine lessons to the instructor.

Elements:

- ☐ Pre-flight discussion to answer questions and resolve any problems that concern the student about the lesson.
- ☐ Student performs a flight, under the instructor's supervision, starting with a thorough pre-flight and ending with the transmitter back in the impound.
- ☐ Instructor monitors student's performance, but assists only when necessary.

Evaluation:

The lesson is complete and the student signed off for solo flight ONLY after he has demonstrated a practical knowledge of all course objectives AND has observed all safety and field operating rules, and has successfully flown his model unassisted.

Notes:

Lesson 11: Emergency Procedures

Purpose:

To prepare the student for the unexpected.

Objective:

To acquaint the student with safe procedures to be used in emergencies.

Elements:

- ☐ Discussion of possible in-flight problems and how to deal with them.
- ☐ Unusual attitude training (optional): a) loops; b) rolls.
- ☐ Student performs dead stick landing.
- ☐ Cross wind take-off and landings (optional).

Evaluation:

The elements of this lesson are only suggestions and there is no minimum performance requirement. The objective is to provide the student with insights that will assist him in safely dealing with the unexpected. Experience will teach him the rest.

"IF THE STUDENT DOESN'T LEARN, THE INSTRUCTOR HASN'T TAUGHT."

Notes:

Lesson 12: Wings Program

Purpose:

To allow the student to achieve and demonstrate flight proficiency.

Objective:

At the completion of the lesson the student the Wings program and be able to practice the "A" level wings maneuvers in preparation for the "A" level wings flight proficiency tests.

Elements:

- □ General discussion of Wings program and the different levels (A through D).
- □ Discussion of A wings maneuvers. Take off, straight flight, flat figure eight, 360 degree landing circuit, landing under power, and maneuver downgrades.
- □ Supervised flight in which student practices and demonstrates "A" Wings maneuvers.
- □ Review and critique.

Evaluation:

The student should understand how to perform each of the "A" wing maneuvers.

Notes:

WINGS TEST

Check off the correct answer to the following True or False questions.

No.		T	F
1	The Frequency Board, is only used when more than 3 flyers are present.		
2	Taxiing towards the pits is permitted for aircraft exceeding 7 Kg.		
3	Flying is not permitted over the pits except on final landing approach.		
4	Pilots shall announce their intent to land or take off.		
5	The only time aircraft are allowed to by flown over the pits is during fun flies.		
6	In other than calm conditions, the takeoff must always be into the wind		
7	Taxing into the pits is not permitted.		
8	Always check the level of your transmitter battery before each flight.		
9	MAAC insurance is absolutely necessary when flying at our field		
10	Sometimes it is OK to turn on your radio without checking the frequency board first.		
11	The correct procedure is to power the plane first, the turn on the transmitter.		
12	The correct procedure is to de-power the plane, then turn off the transmitter.		
13	Uninvited guests and dogs are permitted in the pits area.		

"A" Wings – Basic Control
Name: _____ Date: _____

Examiner: _____

Maneuver	1st	2nd
1. Take Off		
2. Straight Flight Out		
3. Flat Figure Eight		
4. Rectangular Approach		
5. Land Under Power		
Subtotal:		
Less General Downgrades		
Total		

Pass / Fail

Examiner's Signature:_____

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