



**PG2 - PARAGLIDER PILOT  
TRAINING WORKBOOK**

Ver: 20190913

**TRAINEE PILOT DETAILS**

Name:.....

Home

Address:.....

.....

Telephone:.....

Instructor/s:.....

.....

## Introduction

This workbook outlines the training requirements to be completed prior to issue of a SAFA PG2 Paragliding Pilot Certificate. All phases of this workbook must be completed by the student in conjunction with an SAFA qualified Paragliding Instructor.

This training program is divided into two parts - theory and practical. The theory phases must be completed by the student, primarily in conjunction with the Instructor, though some phases may be completed as home study. In either instance, the Instructor is required to check the notes taken by the student for accuracy and discuss each theory question to ensure that the student gains a full understanding of all theory aspects of the program.

On completion of the Theory Phases of the Workbook, the Student Pilot is required to sit (and pass to the required standard) the SAFA PG2 Pilot Certificate Theory Examination.

Each practical phase must be completed by the Student and each day's flying logged by the student. The Instructor is to countersign each day's Log and complete the Student Skill Assessment column.

Once the Instructor is satisfied that all theory and practical requirements for Certificate issue have been completed, the PG2 Certificate Application Form and Instructor Declaration (last page) are to be completed, detached from the Workbook, and forwarded to the SAFA Head Office.

**Theory References:** *The Art of Paragliding 2<sup>nd</sup> ed.*-Dennis Pagen, SAFA operations manual.

**This Workbook must be retained by the Student Pilot for future reference and must be provided to the SAFA Operations Manager on request. Failure to provide a completed workbook may lead to Pilot Certificate suspension until an appropriately completed workbook can be provided.**

## PILOT TRAINING COURSE OVERVIEW

### Theory Phases

Basic Aeronautical Knowledge

Aerodynamics

Meteorology

Flight controls and Inflight incidents

Flight rules and procedures

Flight Planning, landing approaches

Consolidation of Flight Preparation and contingency planning

Stalls and Incident Recovery, Speed to Fly

Soaring Flight Theory

Advanced Launch Techniques and Soaring Strategies

Theory Consolidation and Examination

Human Factors

### Practical Phases

Aircraft Assembly and Familiarization

Low glides

Controlling Airspeed and Flight Path

Airspeed control and Shallow Turns

Landing Approach & Techniques

Medium Glides and Condition Assessment

Flight preparation and contingency planning

High Glide and Landing Approach

Stall, spin and tuck recovery

Advanced launch techniques and soaring strategy

Basic Soaring Skills Demonstration

Soaring Flight

Unassisted soaring.

## **INTRODUCTION**

Unit 1 – Phase 0 Introductory Training Flight

### **Unit 2 INTRODUCTION & GROUND HANDLING**

Unit 2 - Phase 1 Sport Awareness

Unit 2 - Phase 2 Aircraft Assembly and Familiarisation

### **Unit 3 BASIC AERONAUTICAL KNOWLEDGE & LOW GLIDES**

Unit 3 - Phase 3 Basic Aerodynamics & Meteorology

Unit 3 - Phase 4 Low Glides

Unit 3 - Phase 5 Controlling Airspeed and Flight Path

Unit 3 - Phase 6 Flight Controls and Inflight Incidents

Unit 3 - Phase 7 Airspeed Control and Shallow Turns

### **Unit 4 FLIGHT PLANNING, HIGH GLIDES & BASIC SOARING TECHNIQUES**

Unit 4 - Phase 8 Flight Planning and Landing Approaches

Unit 4 - Phase 9 Medium Level Glides

Unit 4 - Phase 10 Consolidation of Flight Preparation & Contingency Planning

Unit 4 - Phase 11 High Glide and Landing Approaches

Unit 4 - Phase 12 Stalls and Incident Recovery, Speed to Fly

Unit 4 - Phase 13 Stall, Spin and Tuck Recovery

### **Unit 5 HIGH GLIDE CONSOLIDATION, SOARING TECHNIQUES & THEORY EXAMINATION**

Unit 5 - Phase 14 Advanced Launch Techniques & Soaring Strategies

Unit 5 - Phase 15 Basic Soaring Skills Demonstration

Unit 5 - Phase 16 Theory Consolidation and Trial Exam

### **Unit 6 SOARING SKILLS, ADVANCED FLIGHT TECHNIQUES, THEORY EXAM & INTRODUCTION TO THE FLYING FRATERNITY**

Unit 6 - Phase 17 Soaring Flight

Unit 6 - Phase 18 Unassisted Soaring Flight

Unit 6 - Phase 19 Assessment

Unit 6 - Phase 20 Introduction to the SAFA club and pilot support system

Unit 6 - Phase 21 Soaring in Differing Conditions and Environments

Unit 6 – Phase 22 Introduction to Human Factors

## Unit 1 – Phase 0 **INTRODUCTORY TRAINING FLIGHT**

### AIMS:

To introduce a potential student to the sport of paragliding;

To motivate the potential student to undertake a pilot training course by instilling confidence in the aircraft, associated equipment and the SAFA Pilot Training System; and

To lay the foundations of good “airmanship” by establishing at the outset an attitude of respect for the weather conditions; a care and attention to detail with equipment; and an expectation that only the highest standards of safety are acceptable.

**Objectives:** To have the prospective student:

Observe the basic operation of a hang glider or paraglider and the environment in which it operates; ([Pagen Chapter 1](#))

Gain a basic understanding of the aircraft components, controls and pre-flight checking procedures; ([Pagen Chapter 3](#)) and

Take part in a well-controlled flight.

---

<b>Lesson Type</b>	:	Theory / practical
<b>Venue</b>	:	SAFA approved training site
<b>Lesson Duration</b>	:	Approx. 1 hour
<b>Equipment</b>	:	Certified training aircraft
<b>Other materials</b>	:	Harnesses, helmets and warm clothing

---

### **Briefing (may be conducted on site)**

- Risks and dangers of the sport and safety provisions
- Australian sport aviation and the role of SAFA: including Pilot Training, Certificates and Endorsements
- Acceptance of all risk and signing of waiver
- Health and fitness
- How a wing flies ([pg 72-85](#))
- Aircraft stability - pendular and aerofoil stability ([pg 312](#))

**Unit 1 continued****Pre-flight briefing**

- Lift considerations and soaring techniques (pg326)
- Launch and landing procedures, including harness entry and exit procedures(pg46)
- In-flight procedures, including relaxation, horizon and visual reference datum
- Aircraft controls - input requirements and effects, (pg33)
- Flight plan and flight limitations
- Pre-flight checks (pg51)

**Introductory Training Flight**

- Take-off and flight path stabilisation
- Harness entry
- Student relaxation
- Flight path control and lookout considerations
- Turns, flat and moderate bank, including visual references
- Hand-over of controls (if flight conditions allow – not during landing circuit)
- Control feel and effects of control input
- Landing circuit and landing
- Post-flight procedures and de-brief
- Provision of on-going pilot certificate training contacts

**STUDENT NOTES**


---



---



---



---



---



---



---



---



---



---



---

*All parties signing below, do so to indicate satisfaction with the education supplied and the knowledge gained:*

<i>Date Completed</i>	<i>Instructors Signature</i>	<i>Student Signature</i>	<i>Supervising or Assessing CFI</i>
<i>/ / 2</i>			

## Unit 2 - Phase 1 Sport Awareness

*Objectives: To provide the student with an awareness of the current state of development of the sport with regard to equipment design and standards, pilot training and licensing and general flight potential and limitations.*

To outline the sports regulatory and administrative relationships.

To provide the student pilot with complete details of the course being offered and the normal steps of progression toward Basic Pilot Certificate and Restricted Pilot Certificate.

To present a realistic picture of the risks as well as the conditions and contractual arrangements under which the course is being offered.

---

Venue/lesson type	:	Classroom / Theory and video presentation
Lesson duration	:	Approx 1 hour
Equipment	:	SAFA Training video, lecture-discussion, other videos
Other materials	:	SAFA and school brochures, waivers, SAFA membership applications, course programs etc.

---

- Introduction of Instructor/s and outline objectives of session
  - Brief history of sport (pg69)
  - Aerodynamics - How a wing works (pg23), controlling the aircraft (pg33), current equipment design standards, stability and performance of modern gliders
  - Safe operating and training conditions
  - The SAFA, pilot certificate system, pilot development plan
  - The SAFA-CASA relationship and basic regulations
    - Height and air space restrictions
    - VMC conditions
    - Pilot in command requirements
  - SAFA training system...
    - Questions, discussion and explanation of points raised in video
  - Outline of training program
  - The legal situation, SAFA membership, Public Liability Insurance
  - The waiver and what it means
  - The risks and dangers of sport aviation
  - The SAFA Pilot Training Workbook and Flight Log requirements
- Other motivational video





## Unit 2 - Phase 2 Aircraft Assembly and Familiarisation

Objectives: To familiarise the student with the aircraft components and assembly as well as pre-flight checking procedures.

The student will establish a routine for pre-flight checking, harness attachment and harness entry.

The student / instructor will discuss in detail the reason for each of the checks.

To introduce the student to ground handling techniques.

To provide the student with a well-controlled flight or simulated flight experience.

---

Venue/lesson type	:	Tandem site or ab initio training site
Lesson duration	:	1 hour explanation and demonstrations and appropriate flight or simulator session
Equipment	:	gliders, harnesses etc (Full training kit)

---

- Site rules (no smoking, designated set-up or landing areas) (pg264)
- Wind and weather conditions awareness
- Assembly procedure and safe parking / lay-out (pg37)
- Explanation of the glider component parts and materials (pg6) (pg18-22)
- Speedbar and rear riser trimmers
- Harness attachment (pg50)
- Pre-flight checks and drills: (pg51, pg141)
  - Canopy;
  - Risers, lines, brakes;
  - Karabiners, harness connectors
- "Touch to check it" in a routine system
- Inclusion of harness in pre-flight
- Glider inspection requirements following hard landing
- Helmet and other protective clothing
  
- Ground handling and wind orientation
- Harness checks/ helmet checks
  
- Familiarisation flights
  
- Glider de-rig and pack-up (pg43)
- Defect/damage observation
- Transporting the glider
  
- Personal flight log book and Progress Report



## Unit 3 - Phase 3 Basic Aerodynamics & Meteorology

Objectives: The student will be able to describe fundamental aerodynamics and how they relate to a paraglider wing.

The student will be familiar with the basic laws of meteorology and to understand the concept of micrometeorology.

The student will be able to explain the relationship between air movement and glider/wing behaviour and performance

---

Venue/lesson type	:	Classroom theory presentation
Lesson duration	:	Approx. 2 hours presented in two sessions
Equipment	:	SAFA Training video, lecture-discussion
Other materials	:	Bureau of Meteorology handouts, Atmosphere, Clouds, model of wing or wall charts

---

### Aerodynamics

- How a wing works, aerofoils - camber, span, chord (pg23-32, pg302)
- Forces of lift, drag and weight / gravity on the wing (pg32)
- Wing loading (pg307)
- Angle of Attack - relative airflow - airspeed - stall (pg80-83)
- Centre of Pressure, Centre of Gravity and Pendular Stability (pg32, pg313)
- Roll, Pitch and Yaw (pg84)
- Weight shift control/ Use of brakes and back risers (pg213)
- The relationship in production of lift and drag of, A of A, angle of bank and surface area, wing profile and shape (Pagen chapter 12)
- A of A relative to brake position and pressures at trim speed (pg31-33)

### Meteorology (Chapter 6)

- Understanding forecasts
- Wind strength and direction observations and judgement (pg112)
- Wind strength and turbulence (pg114)
- Other causes of turbulence (pg116)
- General weather observations (clouds, fronts, squalls, storms, etc) (pg123-137)
- Other terrain influences on airflow (pg347)

### Meteorology as applied to safe gliding operations

- The relationships of airspeed, wind strength and ground speed (pg24-25)
- Glide angles at varying airspeed and penetration (pg 25,202,221)
- Wind strength and airflow effects on take-off run and pitch control (pg 145-160)
- Wind strength effects on landing, bleed-off and flare (pg167)

Wind gradient and landing considerations (pg167)

### 3.3 Basic Aeronautical knowledge (U3P3)

3.3.1 How does a wing work? (pg23-32, pg302)

.....

.....

.....

3.3.2 What is airspeed? (pg23-32)

.....

.....

3.3.3 What is ground speed? (pg23-32)

.....

.....

3.3.4 What is wind speed? (pg23-32)

.....

.....

3.3.5 What is the relationship between airspeed and groundspeed? (pg23-32)

.....

.....

3.3.6 Glide angle and effects of flying at various airspeeds. (pg25,202,221)

Complete the following table (using approximate figures).

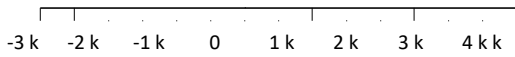
Glider Speed	Sink Rate (feet per minute)	Speed (kph)	Time to Land (from 1000' agl)
Minimum Sink			
Best Glide (best L/D)			
Maximum Safe Speed			

3.3.7 Complete the following diagrams by drawing lines to represent the various flight paths of the glider at the **above three speeds** in the nominated wind direction and stable air. Note glider height is 1000' agl.

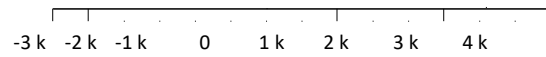
**Nil wind**



1000'



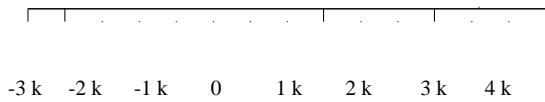
**Headwind 20 kph**



**35 kph Headwind**



1000'

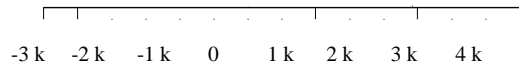


Flying AoA

**20 kph Tailwind**



1000'



Stalling AoA

**Aerodynamics** (pg23-32, pg302)

3.3.8 Define the following:

- a) angle of attack (pg31).....  
.....
- b) lift .....  
.....
- c) parasitic drag (pg 306).....  
.....
- d) induced drag (pg 306).....  
.....
- e) relative airflow .....  
.....
- f) camber (pg302).....  
.....
- g) crossport venting (pg14).....  
.....
- h) pendular stability (pg313) .....  
.....

3.3.9 What happens to lift, total drag and airflow over the wing as the angle of attack increases?

.....  
.....  
.....  
.....

3.3.10 Draw lines to show airflow over the two wings illustrated to demonstrate this:



3.3.11 What is a stall? (pg34)

.....

.....

.....

3.3.12 What are the 3 forces acting on an airfoil in gliding flight? (p32)

.....

.....

3.3.13 Define Roll, Pitch and Yaw. (Pg312)

.....

.....

3.3.14 Which paraglider control(s) do you use to turn.? (p35)

.....

.....

3.3.15 Which paraglider control(s) do you use to slow down? (Pg33)

.....

.....

3.3.16 Which paraglider control do you use to go faster than trim speed?(pg203)

.....

.....

3.3.17 What can you use for directional control if your brake line is gone? (p80)

.....

.....

3.3.18 What is wake turbulence? When would you experience it?

.....

.....

## Meteorology

3.3.18 How do we judge wind strength and direction? (pg 113)

In flight: .....

.....

.....

On the ground: .....

.....

.....

3.3.19 What is wind gradient? (Pg167)

.....

.....

3.3.20 When does wind gradient affect us? (Pg167)

.....

.....

3.3.21 How do we allow for wind gradient? (Pg167)

.....

.....

3.3.22 What is the primary cause of wind shadow effect and when would you expect it to be most pronounced? (pg168)

.....

.....

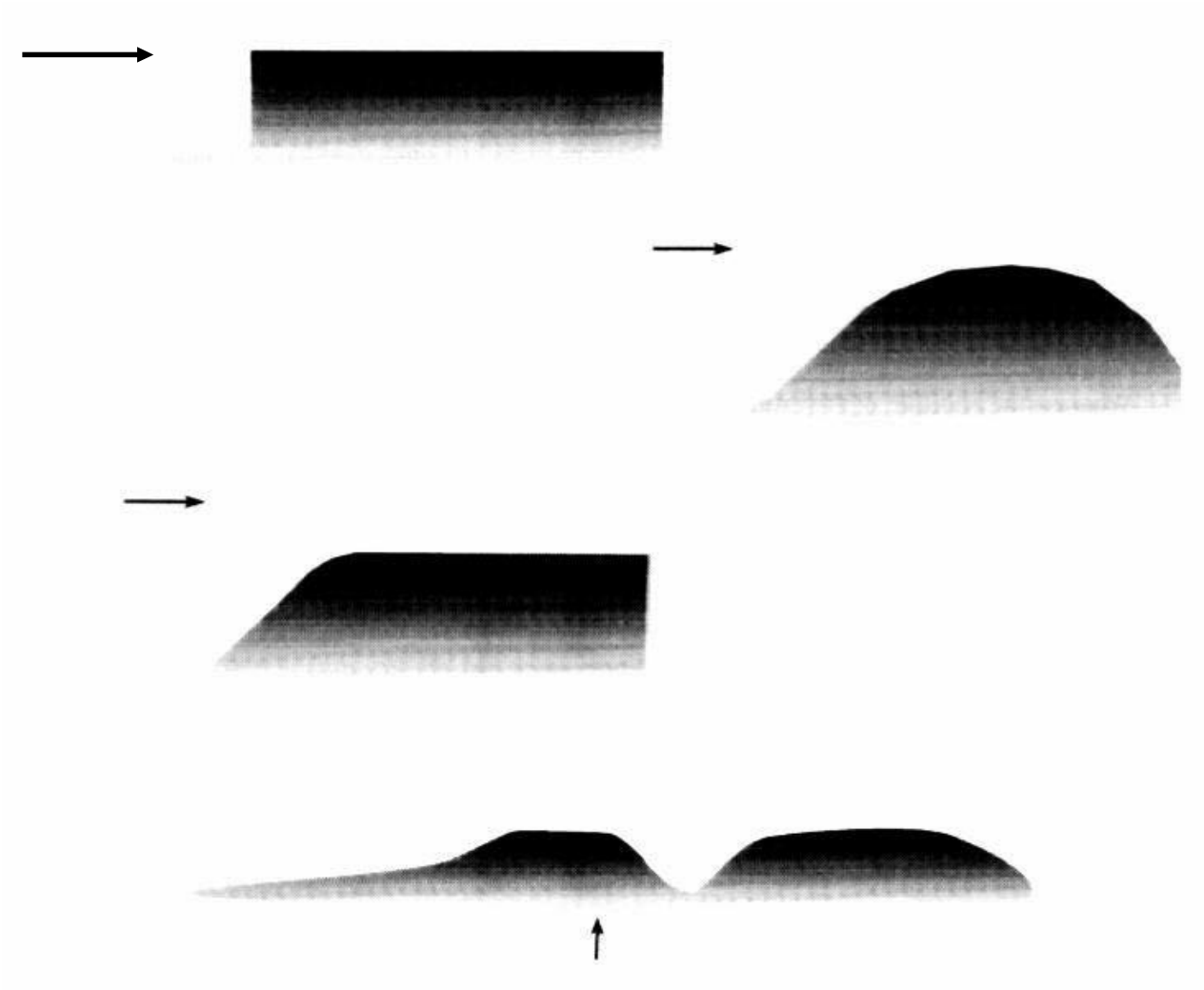
3.3.23 During summer or on a calm day, what is the predominant wind flow on the coast, both day and night? (pg 111) \*

.....

.....



3.3.24 Complete the following diagrams of various shaped hills and ridges by denoting areas of lift; areas of sink and areas where turbulence would be present. Also draw lines to demonstrate wind flow. Arrows denote wind direction. (pg117)



3.3.25 Under what circumstances would take-off and landing wind directions be different? (pg109)

.....  
.....

3.3.26 What is turbulence? List some likely causes.

.....  
.....

3.3.27 How is the force of the wind related to its velocity? (pg112)

.....  
.....

3.3.28 What factors contribute to terrain induced turbulence? (pg117)

.....  
.....

3.3.29 Under what circumstances does terrain induced turbulence affect us? (pg117)

.....  
.....

3.3.30 What effect would the approach of a squall or storm have on conditions whilst flying? (pg349)

.....  
.....

3.3.31 What are the main safety issues when flying near or in cloud? (pg350)

.....  
.....



## Unit 3 - Phase 4 Low Glides

Objectives: The student will be able to perform appropriate take off technique in light to moderate breeze (3-15knts).

The student will be able to perform consistent stand up landings in light to moderate breeze (3-15knts).

---

Venue/lesson type	:	Approved training site or flat ground
Lesson duration	:	3-6 hours in two sessions (dependent on number of students) Explanation, demonstrations and student flight practice (or in conjunction with simulator session)
Equipment	:	Full training kit

---

- Site rules ([pg264](#))
- Assembly procedure and pre-flight checks ([pg37-44](#))
- Harness attachment and checks ([pg46-54](#))

### Launch phase

- Ground handling and wind orientation ([pg55,75](#))
- Assessing conditions and pre take-off checks
- Building a wall, lofting the canopy, forward and reverse techniques ([pg59-80](#))
- Smooth acceleration ([pg87-90](#))
- Control of pitch and roll throughout take-off run ([pg87-90](#))
- Smooth transition to flight ([pg90](#))

### Flight phase

- Control of pitch, altitude and airspeed ([pg90-95](#))
- Relaxed and subtle inputs ([pg98](#))
- Holding a stable course ([pg100](#))
- Course correction ([pg100](#))

### Landing Phase ([pg 161-164](#))

- Wing level on final approach
- Airspeed on approach
- Body and hand positions
- Flare timing
- Run out of remaining ground speed
- Adjustment of flare to prevailing wind conditions
- Post landing glider control
- Glider de-rig and pack-up
- Defect/damage observation
- Personal flight log book and Progress Report



## Unit 3 - Phase 5 Controlling Airspeed and Flight Path

Objectives: The student will be able to perform simple flight sequences demonstrating an ability to fly at trim speed, and be able to recognise when flying faster or slower.

The student will also demonstrate an ability to hold a straight and steady course by making required corrections to stay on course into the wind.

---

Venue/lesson type	:	Approved training site or tandem flight
Lesson duration	:	2-4 hours in two sessions (dependent on number of students) Explanation, demonstrations and student flight practice (or in conjunction with simulator session or tandem flight)
Equipment	:	Full training kit.

---

- Assembly, harness attachment and pre-flight checks (pg37)
- Assessing conditions (pg84) and pre take-off checks (pg86)
- Smooth transition to flight (pg88)
- Flight at trim speed / little or pressure on controls (pg91)
- Flying faster and slower then returning to trim speed (pg92)
- Holding trim speed through slight turbulence (pg98)
- Relaxed and subtle pitch / brake inputs ( pg98)
- Body / arm position awareness (pg93)
- Holding a stable heading (pg100)
- Holding central body position / equal brake pressures
- Looking toward landing point / not looking down (pg167)
- Seeing windsock and aware of wind direction
- Effective corrections for drift off course
- Wings level through final approach phase (pg161-164)
- Airspeed on approach
- Consolidation of take-off skills and fault correction (chapter 7)
- Light cross wind take-offs (pg147)
- Continued development of landing skills (pg161-169)
- Adapting landing to varied conditions
- Flare accuracy development
- Personal flight log book and Progress Report



## Unit 3 - Phase 6 Flight Controls and Inflight Incidents

Objectives: The student will be able to demonstrate the primary controls and how they should be used.

The student will be able to analyse specific skill techniques and flight sequences.

The student will discuss the effects of poor skill / manoeuvre performance and the resultant glider reactions and any emergency responses required of the pilot.

---

Venue/lesson type	:	Classroom theory presentation
Lesson duration	:	Approx 2 hours presented in two sessions
Equipment	:	SAFA Training video, lecture-discussion
Other materials	:	White board, reference books, small model wing

---

- Review of basic aerodynamics ([pg301-308](#))
- Review of take-off techniques including cross and nil wind situations
- The effect of wind direction change during take-off run
- Adjusting take-off run for a change in wind condition ([pg145](#))
- Correcting for wing lift / tip tuck during launch
- Correcting for turbulence induced yaw and roll
- Dangers of flying too slow or fast, especially near ground and correction for these errors
- Coping with too slow or fast approach
- Coping with high flare
- Cross wind landings
- Uncontrolled landings (PLF)



## Questions

3.6.1 What speed is maintained on landing approach? Why?

.....  
.....

3.6.2 During take off run you wing pulls you off to the right? What do you do?

.....  
.....

3.6.3 During a takeoff run - your wing-tip tucks? What do you do?

.....  
.....

3.6.4 When flaring for landing, you find that you are a little too high (2metres) What do you do?

.....  
.....

3.6.5 Your landing has gone completely wrong and you are about to land heavily. What do you do?

.....  
.....

3.6.6 If the wind is strong do you have to run faster or slower during takeoff?

.....  
.....

3.6.7 When launching should you help the wing by jumping into the air?

.....  
.....

**STUDENT NOTES**

[Lined area for student notes]

*All parties signing below, do so to indicate satisfaction with the education supplied and the knowledge gained:*

<i>Date Completed</i>	<i>Instructors Signature</i>	<i>Student Signature</i>	<i>Supervising or Assessing CFI</i>
<i> / /2</i>			

## Unit 3 - Phase 7    **Airspeed Control and Shallow Turns**

Objectives:    The student will be able to perform simple flight sequences demonstrating an ability to fly at chosen airspeeds.

The student will also demonstrate efficient and coordinated shallow banked turns, to be stable on new heading, and to land into wind.

---

Venue/lesson type	:	Approved training site or tandem flight
Lesson duration	:	2-4 hours in two sessions (dependent on number of students)
		Explanation, demonstrations and student flight practice (or in conjunction with tandem flight)
Equipment	:	Full training kit.

---

- Assembly, harness attachment and pre-flight checks ([pg37](#))
- Assessing conditions ([pg84](#)) and pre take-off checks ([pg86](#))
- Smooth transition to flight ([pg88](#))
- Flights at variety of nominated airspeeds - trim, min sink, L/D, and faster dependent on available safe altitude ([pg92,200](#))
- Flying faster and slower then returning to trim speed ([pg92,201](#))
- Holding nominated speed and course through slight turbulence([pg98](#))
- Shallow banked turns (R & L) to achieve course changes of up to 90 degrees off wind (ie cross wind) and return to land into wind ([pg210-214](#))
- Demonstration of stability on new headings
- Holding course in cross winds - no drift ([pg222](#))
- Accuracy and consistency of bank angles
- Air speed control throughout turns and course changes
- Continued development of landing skills ([pg161-169](#))
- Adapting landing to varied conditions
- Flare accuracy development
- Personal flight log book and Progress Report

Questions

3.7.1 In which situations would you:

a) fly at close to maximum airspeed? .....

.....  
.....

b) fly at an airspeed which gives you minimum sink rate? .....

.....  
.....

c) fly at an airspeed which gives best L/D?

.....  
.....

3.7.2 What should a pilot do when entering wind shadow?

.....  
.....

3.7.3 What meteorological conditions must be considered before deciding to fly?

.....  
.....

3.7.4 How would you land in strong winds and how would you prevent from being dragged backwards?

.....  
.....

3.7.5 Why is it unsafe to turn/bank sharply when close to the ground?

.....  
.....



## Unit 4 FLIGHT PLANNING, HIGH GLIDES & BASIC SOARING TECHNIQUES

### AIMS:

To provide the theoretical support and knowledge to plan and attempt high glides.

To ensure an understanding of flight planning and landing approach options.

To gradually introduce the student to flight from higher launches.

To broaden the students experience of conditions and sites to include near soarable conditions and nil/very light wind situations

To emphasise the risks associated with new sites and conditions as well as increased altitude and glide range.

To establish the students' complete understanding of airspeed, especially stall recognition, glider behaviour when stalled and demonstration of correct recovery procedures.

To introduce steeper bank turns including 360 degree turns.

To introduce techniques for efficient and coordinated turns as well as descending turns

## Unit 4 - Phase 8 Flight Planning and Landing Approaches

Objectives: To review all stages of the landing flight sequence.

The student will be able to describe a variety of landing approaches and planning factors.

The pilot will identify the effects of poor technique, the resultant glider reactions and the emergency responses required.

---

Venue/lesson type	:	Classroom theory presentation
Lesson duration	:	60 minutes
Equipment	:	SAFA Training video, lecture-discussion
Other materials	:	White board, reference books, small model wing

---

- Review of the standard landing sequence for light to moderate breezes
- Landing sequence for nil wind
- Slope of ground considerations
- Landing considerations and sequence for moderate/gusty conditions

Review of

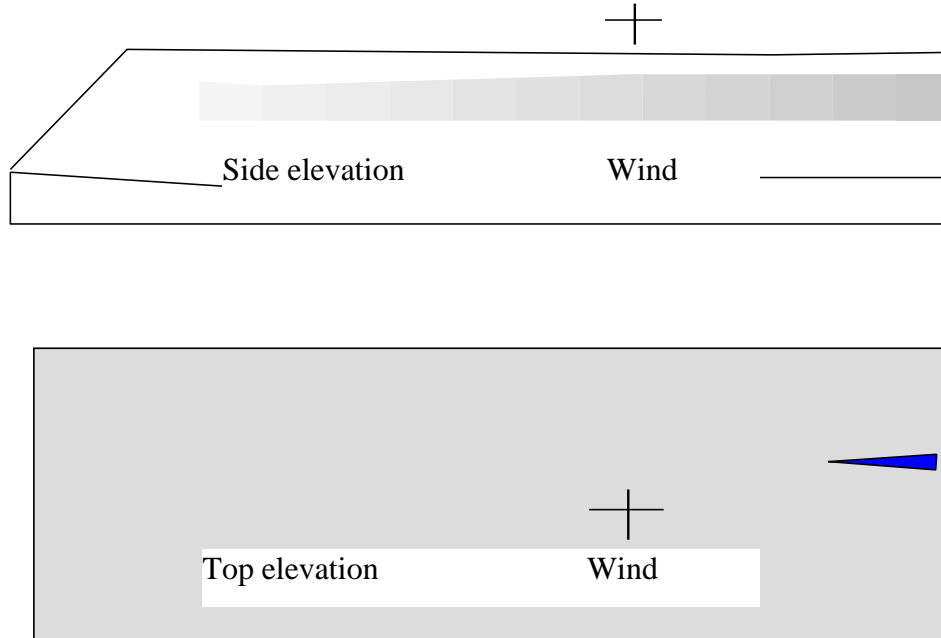
- Coping with high flare ([pg165](#))
- Uncontrolled landings (PLF)
- Landing approach speeds, wind gradient
- Adjusting flare technique for varying situations
- The importance of *sensing airspeed* during bleed off and timing for flare

Landing approach planning ([pg169-186](#))

- Pre-flight inspection of LZ and approach area
  - The standard landing approach
  - Focus on the touch down point
  - Always turn toward touch down point
  - Wind direction judgement from air
  - Arrival height for safe LZ inspection
  - Downwind leg, base leg and final
  - Air speed through turns on approach
  - Minimum altitude for straight and level on final
  - The figure eight pattern and 'S' turns
  - Need to stay upwind of LZ or major obstacles
- 
- Obstacles around landing area
  - Flying the perimeter
  - Other gliders on approach
  - Alternate fields, overshoot & undershot and final glide judgement

### Questions

4.8.1 The two most common landing approaches used in paragliding are the standard aircraft landing approach and the figure-eight approach. Complete the following diagram by drawing lines to represent the two different approach paths.



4.8.2 When would you use each approach? What are the advantages and disadvantages of each?

.....

.....

.....

.....

4.8.3 Why should the landing field be inspected prior to first flying from a site?

.....

.....

.....

4.8.4 What steps can you take to ensure that you will be able to reach the landing field?

.....

.....

.....

.....



4.8.5 What factors must be considered and what techniques must be adopted when choosing a landing area from the air?

.....  
.....  
.....  
.....

4.8.6 What should you do if you realize you will not clear an obstacle to reach your preferred landing field?

.....  
.....

4.8.7 What should you do if you realize you may not clear a power line to reach your preferred landing field?

.....  
.....

4.8.8 How would you pick the wind direction and strength inland when planning your landing approach?

.....  
.....

4.8.9 How would you pick the wind direction and strength at the coast?

.....  
.....

4.8.10 What is the most suitable direction for landing on a moderately sloping field of limited size in light wind? Upslope, cross-slope or into wind?

.....  
.....



## Unit 4 - Phase 9                      Medium Level Glides

Objectives:     The student will be able to plan and execute basic landing approach patterns.

To introduce the student to gradually increased launch or release altitudes.

---

Venue/lesson type	:	Approved training and high glide sites
Lesson duration	:	2-6 flights (dependent on number of students and fatigue levels)
Equipment	:	Full training kit plus radios and LZ assistant

---

- Site rules (red streamers)(pg264)
- Conditions assessment
- Landing area inspection and approach planning from LZ perspective
- Obstacles and ground slope noted
- Wind indicator placement
  
- Landing planning from take off
- Other plans and options for changing conditions
- Flight and approach demonstration
- Orientation and terrain/landmark awareness
- Depth perception and parallax error

### Pre-flight briefing

- Review of flight plan and conditions assessment before each flight
- Emergency procedures (radio failure)
- Reinforcement of airspeed as key to complete control

### During flight (Pagen chapter 8)

- Each phase of flight at a time  
     Take-off requires 100% concentration.....then concentrate on flight control / following the flight plan accurately.....which will allow complete attention to the landing phase.
- Focus of attention
- Clearing turns
- Height judgement
- Coping with changes of lift, sink and need to adjust flight plan
- Speed through turns on approach, timing the level-out and bleed-off
- Harness / glider exit, ground handling and clearing the LZ

### Post flight de-brief / feedback

- Pilots own analysis
- De-rig and care of equipment (radios etc)
- Flight log entries and Progress Report



## Unit 4 - Phase 10 Consolidation of Flight Preparation & Contingency Planning

Objectives: To emphasise the need for complete flight planning.

To further develop landing approach and planning skills.

The pilot and instructor will discuss specific emergency procedures for common problem situations.

---

Venue/lesson type	:	Classroom theory presentation
Lesson duration	:	approx 90 minutes
Equipment	:	Lecture-discussion
Other materials	:	White board, reference books, wall charts and photos of sites

---

- The flight begins at home (all gear checked/packed)
- Forecasts and actual conditions
- Observation and interpretation of conditions
- Site familiarity

The Fundamental Flight Plan (safe T/O and safe landing) ([pg241](#))

- Minimum altitude and glide to landing
- Launch point selection (assistance required / seeking advice)
- Landing Approach planning
- Pre-flight inspection of LZ and approach area
- Wind indicators and wind gradient
- Altitudes for downwind leg, base leg and final and focus touch down point
- Other approach options

Extended Flight Plan

- Continual conditions assessment & observing other gliders in air
- Areas of lift or sink (and turbulence)
- Height loss manoeuvres
- Turn markers and flight area limits
- Soaring strategies and height gain considerations

Emergency Procedures and Options

- Alternate landing areas, range, size, slope, approach
- Unexpected sink or increased headwind considerations
- Unexpected obstacles in landing area (people, stock, etc)
- Wind shift problems
- Overshoot / undershoot landing approach adjustment
- Emergency landing on coast, cannot make regular LZ
- Tree, hillside, downwind landings (PLF)
- Injured pilot procedures

## Questions

4.10.1 What do you do in the following situations?

a) You are about to overshoot the beach and may land in the surf (pg259).....

.....  
.....

b) You are about to land in trees (pg256).....

.....  
.....

4.10.2 You are about to land heavily, how might you minimize the likelihood of personal injury?(pg95)

.....  
.....  
.....

4.10.3 What is the safest speed to fly in turbulence? Why?

.....  
.....  
.....

4.10.4 The priorities of first aid are? What is DRSABCD ? [<http://www.stjohnnsw.com.au/drsabcd-action-plan/>]

.....  
.....  
.....



## Unit 4 - Phase 11 High Glide and Landing Approaches

Objectives: To practise complete flight planning on site.

The student will demonstrate landing approach and approach planning skills.

The student will demonstrate ability to follow exact designated flight plan.

---

Venue/lesson type	:	Approved high flight site
Lesson duration	:	2 - 4 flights > 250' descent
Equipment	:	Full training kit (or tandem)

---

- Site and conditions assessment
- Specific flight plan considerations
- Flight plan confirmation & landing approach planning
  
- Pre-flight briefing
- Flight performance
- Post flight de-brief
  
- Performance evaluation
- Flight plan amendment
- Pre-flight briefing
- Flight performance
- Post flight de-brief
  
- Pilot log book entries
- Progress Report





## Unit 4 - Phase 12 Stalls and Incident Recovery, Speed to Fly

Objectives: The student will be able to describe the cause, dynamics, and recovery procedures for stalls in a variety of situations.

The student will describe how to adjust flying speed to changing conditions with in order to optimise flight or extend/diminish glide.

---

Venue/lesson type	:	Classroom theory presentation
Lesson duration	:	45 minutes
Equipment	:	Lecture-discussion
Other materials	:	White board, reference books

---

### Stalls (pg205-210)

- Relationships of lift, drag and airspeed throughout stall
- Stall recognition
- Effects on glider control
- Effects of stall on glider pitch
- Severity of stalls / types of stalls
- Stall recovery
- Stall recovery procedure collapse / "surge" control
- Downwind stall
- Spins

### Speed to Fly

- Relationship of airspeed to glide angle
- Lift/Drag relationship
- Induced and parasitic drag
- Glide degradation in increasing headwinds
- Glide variation in increasing tailwind
- Lift and sink and speeds to fly
- Turbulence and speed to fly
- Min sink speed, trim speed, best glide speed
- "Mushing" and its dangers
- Speeds to fly in turns (forces acting on wing)
- Maximum speed and dangers

### Speed System (Speedbar) (pg 202-204)

- How it works
- How to install and adjust to proper length
- Speed system use
- Speed system application and recovery

### Big Ears (pg 192, 233)

- Considerations
- Application
- Recovery

### Rear riser steering (pg 79)

- Considerations

Questions

4.12.1 What is the danger of a wing tip tuck?

.....  
.....  
.....

4.12.2 What indicates a parachutal stall?

.....  
.....

4.12.3 When is a tuck most likely to occur?

.....  
.....  
.....

4.12.4 What happens when the brakes are pulled down progressively in flight?

.....

4.12.5 How do you recover from:

a) a parachutal stall? .....

.....  
.....

b) an impending stall? .....

.....  
.....

c) a frontal tuck (frontal collapse)?.....

.....  
.....  
.....

d) a full stall? .....

.....  
.....  
.....  
e) a wing tip tuck? .....

.....  
.....  
.....  
4.12.6 When is a spin most likely to occur?

.....  
.....  
.....  
4.12.7 How do you recover from a stall whilst in a turn??

.....  
.....  
.....  
4.12.8 What is the danger of a large asymmetric collapse?



## Unit 4 - Phase 13 Stall, Spin and Tuck recovery

Aims: To raise awareness of paraglider incidents in flight (stall, spin, tuck)  
To demonstrate SIV type incidents while ground handling (stall, spin, tuck)

Objectives: The student will simulate correct recovery from stalls  
  
The student will simulate correct recovery from asymmetric and symmetric tucks  
  
The student will demonstrate rear riser steering.

---

Venue/lesson type	:	Approved low flight site
Lesson duration	:	1 hour
Equipment	:	Full training kit

---

- Site and conditions assessment
- Use SIV videos to demonstrate stall, spin, tuck in flight
  
- Demonstration
- Flight performance 3 ft. AGL
- Post flight de-brief
  
- Performance evaluation
- Post flight de-brief
  
- Pilot log book entries and Progress Report



**Unit 5**

**HIGH GLIDE CONSOLIDATION, SOARING TECHNIQUES & THEORY EXAMINATION**

**AIMS:**

To demonstrate the need to adapt basic skills and techniques for various sites and situations.

To demonstrate an understanding of the basic principles of soaring flight.

To review in detail, the rules and regulations that govern hang gliding and paragliding.

To reinforce the need for vigilance and self-discipline through discussion and detailed explanation of the Rules of the Air.

To demonstrate the factors that influence soaring flight and adopt strategies that will extend the flight and increase flight options.

To ensure that student decisions and judgements are made with awareness of his/her abilities and glider performance. To test the student pilots Basic Aeronautical Knowledge, and his/her understanding of the concepts and principles of soaring flight.

To ensure that the student pilot is aware of the Rules & Regulations and his/her responsibility to operate within those rules in the interest of both personal safety and the safety of other aviators.



## Unit 5 - Phase 14 Advanced Launch Techniques & Soaring Strategies

Objectives: The student will consider the changes in launch technique required for a variety of site situations and soarable conditions.

The student will relate his/her understanding of soaring flight skills and strategies.

---

Venue/lesson type	:	Classroom theory presentation
Lesson duration	:	60 minutes
Equipment	:	Lecture-discussion
Other materials	:	White board, reference books, site maps & diagrams

---

### Complex launch considerations ([pg145-160](#))

- Assisted launches and commands
- Steep slope launches (light & moderate wind)
- Shallow slope launches (light & moderate wind)
- Clearing or slot in trees (light/mod and cross wind)
  - Take off above tree line (light/mod wind)
  - Cliff launches (light/mod and cross winds)
  - Changing slope

### Soaring strategies

- Pre-launch checks and precautions
- Being ready and "focussed"
- Conditions assessment
- Launch timing-when all gliders are going up
- Glider performance and sink rate relative to available lift
- The "parcel of air" concept
- The lift band and soaring envelope
- Presence of thermals (extra lift & extra sink)
- Downwind vs upwind passes along ridge
- Turning in strongest lift-never in sink
- The first turn and first pass
- Below take off then head to bomb out rule

### Airmanship

- Traffic considerations and Rules of the Air
- Fitting into a soaring pattern
- See and be seen (heads up)
- Flying predicably
- Student/glider performance and what others are doing
- Land or fly to clear air if not comfortable with crowding or conditions

Questions

Rules of the Air (pg266-271)

5.14.1 What are the rules of the air in the following circumstances:

a) When two gliders approach head-on in clear air? .....

.....

b) When two gliders approach head-on along a ridge? .....

.....

c) When a glider overtakes another? .....

.....

d) When joining a thermal? .....

.....

e) When flying amongst traffic? .....

.....

f) When two gliders approach at different heights? .....

.....

g) When entering a thermal belowSailplane?.....

.....

h) When two gliders approach at right angles? .....

.....

5.14.2 What are a pilot's responsibilities in regard to right of way? .....

.....

5.14.3 What are a pilot's responsibilities in regard to collision avoidance? .....

.....

5.14.4 Which rule of paragliding differs from those for sailplanes? .....

.....

Soaring

5.14.5 What meteorological conditions are needed for early soaring flights? Why?

.....

.....

.....

.....

5.14.6 In relation to the ridge, in which direction should all turns be made when first attempting ridge soaring? What important check must be made before initiating a turn?

.....

.....

.....

.....

5.14.7 How does the degree of bank angle affect glider sink rate?

.....

.....

.....

5.14.8 What should be considered before attempting a 360° turn in front of a hill?

.....

.....

.....

.....

5.14.9 What problems are associated with hang gliders and paragliders flying together?

.....

.....

5.14.10 You have been ridge soaring for a short while when the wind strength drops to a point where you begin to sink below launch height. What should you do?

.....  
.....

5.14.11 You have been ridge soaring for a short while when the wind strength increases to a point where you have very little ground speed. What should you do?

.....  
.....  
.....

5.14.12 What would you do if the wind strength increases while you are soaring and you are being blown behind the ridge?

.....  
.....  
.....  
.....  
.....

5.14.13 Which important safety items should be carried when coastal soaring?

.....  
.....

5.14.14 Which important safety items should be carried when inland soaring?

.....  
.....

## Advanced Launch techniques

5.14.15 What factors must be considered and what techniques must be adopted when:

a) Launching from a limited length run to a steep drop in light wind?.....

.....  
.....  
.....

b) Launching from a passage cut out of a treed ridge in a light crosswind? .....

.....  
.....  
.....

c) Launching from a cleared run above a treed ridge in strong wind? .....

.....  
.....

d) Launching from a high altitude site on a very hot and humid day? .....

.....  
.....



## Unit 5 - Phase 15 Basic Soaring Skills Demonstration

Objectives: The student will demonstrate basic soaring skills, appropriate to conditions and site, with radio assistance from instructor.

---

Venue/lesson type	:	Approved soaring site and conditions
Lesson duration	:	10 flights > 250' agl over several days if required
Equipment	:	Full training kit

---

- Glider assembly and pre-flight / streamer attachment
- Site and conditions assessment
- Specific flight plan considerations
- Pre-flight briefing
  
- Demonstrate use of Speedbar / (height considerations for demonstration)
- Demonstrate use of Big Ears / (height considerations for demonstration )
- Demonstrate use of Rear-riser Steering (height considerations for demonstration )
  
- Minimum of 10 flights of at least 5 minutes duration
- Post flight de-brief
  
- Pilot log entries and Progress Report

5.15.1 Whilst flying, how would you notice and what would be the effect of the following change in conditions:

a) increasing wind strength .....

.....  
.....

b) reducing wind strength .....

.....  
.....

c) change in wind direction .....

.....  
.....  
.....

d) approach of squall or storm.....

.....  
.....





## Unit 5 - Phase 16 Theory Consolidation and Trial Exam

Objectives: The student will review the Rules of the Air.

The student will study the regulations governing hang gliding.

The student will study the SAFA Operations Manual and specific Local Site Rules.

To assess the pilot's knowledge of basic gliding/soaring theory.

---

Venue/lesson type	:	Classroom theory presentation
Lesson duration	:	60 minutes
Equipment	:	Lecture-discussion / Examination papers
Other materials	:	Reference books, manuals and instructor answer overlay

---

### CASA Regulations

- The CASA - SAFA chain of responsibility
- The altimeter for flights above 300' agl
- VMC
- Controlled airspace and height restrictions

### SAFA Regulations

- The SAFA Operations Manual
- Basic Certificate privileges and responsibilities
- The Red Streamer
- Club and Site rules
- Obtaining information
- Flight rules and procedures

### Airmanship

- Traffic considerations and Rules of the Air ([pg266](#))
- Fitting into a soaring pattern
- See and be seen (heads up)
- Flying predicably
- Student/glider performance and what others are doing
- Glider maintenance
- Parachute repack

### Trial Exam

- The multiple choice theory examination will be conducted under normal examination conditions.
- No prompting or reference material is to be used.
- After marking of first attempt the instructor is to revise subject areas incorrectly answered and retest the section of the exam not passed to the standard required.

Questions

Operational regulations

5.16.1 When may a person act as pilot-in-command of a paraglider? (Refer: Ops Man. 3.5 & 6.1.1)

.....  
.....

5.16.2 Where would you find the Civil Aviation Order which applies to paragliding? (Refer: Ops Man. )

.....

5.16.3 What is the SAFA accident or incident reporting procedure? (Refer: Ops Man. 3.2)

.....  
.....

5.16.4 What is the purpose of the SAFA Operations Manual? What does it contain? (Refer: Ops Man. 1.2)

.....  
.....

5.16.5 Define the following terms: ( Ops Man. 1.2.2 & 1.2.3)

a) The abbreviation CAO .....

.....

b) The abbreviation CAR .....

.....

c) The altimetry term QNH .....

.....

d) The abbreviation CTAF .....

e) Controlled airspace.....

.....

f) Class "G" airspace.....

.....

5.16.6 Define the following abbreviations: ( Ops Man. 1.2.1 & 1.2.3 and Instructor )

- a) VMC .....
- b) AMSL .....
- c) AGL .....
- d) CTA.....
- e) OCTA .....
- f) kn .....
- g) NM .....

5.16.16 What are the VMC criteria below 10 000' amsl?

.....

.....

.....

.....

5.16.7 What additional equipment is mandatory when flying above 300' agl (Refer: Ops Man. 4.1.b)

.....

.....

.....

5.16.8 How would you set an altimeter to QNH? (Refer: Instructor)

.....

.....

5.16.9 What are the height limits and legal requirements when operating a paraglider:

a) Inside CTA? (Refer: Ops Man. 5.1.6)

.....  
.....

b) Outside CTA (OCTA or Class "G" airspace)? (Refer: Ops Man. 5.1.8).....

.....  
.....

c) In the vicinity of airports? (Refer: Ops Man. 5.3.4.1) .....

.....  
.....

e) Over any city, town or populous area? (Refer: CAO 95.08).....

.....  
.....

f) In the vicinity of spectators? (Refer: Ops Man5.1.4.1).....

.....  
.....

5.16.10 What is the SAFA recommended time between parachute repacks?

(Refer: Ops Man. 9.52)

.....  
.....

5.16.11 What are the responsibilities of a PG2 Supervised Pilot in regard to flight restrictions, advice, supervision and identification? Why? (Refer: Ops Man. 6.3.3.2 & Instructor)

.....  
.....

5.16.12 What causes the most deterioration of paraglider cloth?

.....  
.....

5.16.13 Where can you get a paraglider checked or repaired?

.....  
.....

5.16.14 You extract your paraglider out of the bag and find the lines are hopelessly tangled. What do you do?

.....  
.....

5.16.15 When examining your paraglider's airworthiness and condition - what do you inspect?

.....  
.....  
.....  
.....

5.16.16 What function do rear riser trimmers and speed bars have?

.....  
.....

5.16.17 What qualities should your first paraglider have?

.....  
.....

5.16.18 If a paraglider wing's fabric becomes highly porous - what would be the consequences?

.....  
.....

5.16.19 what does a RED streamer attached to a pilot's harness mean? A Yellow streamer?

.....  
.....

5.16.20 What is a non-controlled (CAAP 166) aerodrome? Can I fly a paraglider there?

.....  
.....



**Unit 6                      SOARING SKILLS, ADVANCED FLIGHT TECHNIQUES, THEORY                      EXAMINATION &  
INTRODUCTION TO THE FLYING FRATERNITY**

**AIMS:**

To assess the student pilots flight skills, judgement and decision making abilities.

To ensure that the student pilot is fully aware of the environment in which soaring takes place as well as the potential risks and dangers.

To consolidate soaring skills and achieve soaring airtime under instructor supervision, then will minimal supervision.

To provide extra formal training/practical experience in conditions and sites not experienced during the basic training program.

To test the student pilots Basic Aeronautical Knowledge, and his/her understanding of the concepts and principles of soaring flight.

To ensure that the student pilot is aware of the Rules & Regulations and his/her responsibility to operate within those rules for the sake of the sport and for his/her and other aviators safety.

To provide the pilot with the information and contacts for safe supervised flying outside of the training situation.

To make the pilot aware of the limitations of the training operation in terms of sites and conditions experienced as well as foot launch versus towing skills achieved, so that the pilot can more realistically gauge what sort of flying is suitable to be attempted.

To ensure that the pilot has sufficient skill and knowledge to access recognised sites suitable for Restricted Certificate pilots.



## Unit 6 - Phase 17 Soaring Flight

Objectives: The student will demonstrate competent soaring skills, appropriate to conditions and site.

The student will demonstrate ability to enter and exit harness without any control loss.

---

Venue/lesson type	:	Approved soaring site and conditions
Lesson duration	:	1 - 2 flights > 250' agl
Equipment	:	Full training kit

---

- Glider assembly and pre-flight/streamer attachment
- Site and conditions assessment
- Specific flight plan and soaring considerations
- Pre-flight briefing
- Soaring flight of greater than 15 minutes.
- Demonstrating linked 180 degree turns; 360 degree turns and correct airspeed selection for maximising flight and safety.
- Efficient turn coordination
- Setting up harness on wing
- Potential dangers of entry/exit and overall orientation
- Take-off and harness entry
- Landing approach and harness exit/landing preparations
- Height/time considerations of harness exit/entry
- "Aviate, Navigate, then think about harness."
- Post flight de-brief
- Pilot log entries and Progress Report
- Discussion of sea breezes, valley winds, anabatic & katabatic
- Fronts, squalls, storms and use of thermals as appropriate to situations likely to be encountered

## Questions

### Soaring flight

6.1.1 What is the danger in drifting in a thermal when ridge soaring?

.....  
.....  
.....

6.1.2 While thermalling in wind you lose the core. In which direction would you first look to find it again? Why?

.....  
.....  
.....

6.1.3 Draw a diagram of a typical thermal with arrows indicating lift and sink.

6.1.4 Why is there often turbulence around a thermal?

.....  
.....  
.....

6.1.5 What instrument is used to assist in determining glider sink rate?

.....



## Unit 6 - Phase 18 Unassisted Soaring Flight

Objectives: The student pilot will demonstrate an unassisted soaring flight displaying all necessary skills and judgement with minimal supervision.

---

Venue/lesson type	:	Approved soaring site and conditions
Lesson duration	:	1 flight > 250' agl
Equipment	:	Full training kit

---

- The pilot will demonstrate all skills necessary for safe soaring operations relying on a pre-flight briefing only.
- The demonstration will show the pilots ability to handle straightforward sites in easy soaring conditions.
- The student will demonstrate appropriate harness entry and exit techniques without any loss of control or awareness of course, glider attitude and traffic.
- The student will have a red streamer on the glider
- The flight will be in excess of 15 minutes duration.



## Unit 6 - Phase 19 Assessment

- Objectives:
- To assess the pilot's knowledge of gliding / soaring theory.
  - To ensure that the pilot is aware of the current rules and regulations controlling the sport.
  - To ensure the pilot is has enough understanding and knowledge to operate safely with minimal supervision.

---

Venue/lesson type	:	Classroom theory examination
Lesson duration	:	60 minutes
Equipment	:	Pilot Training Workbook, Examination papers
Other materials	:	Instructor answer masters

---

- The instructor will ensure that all sections of the Pilot Training Workbook have been correctly completed.
- The multiple choice theory examination will be conducted under normal examination conditions. No prompting or reference material is to be used.
- After marking of first attempt the instructor is to revise subject areas incorrectly answered and retest the section of the exam not passed to the standard required.



## Unit 6 - Phase 20 Introduction to the SAFA club and pilot support system

Objectives: To re-emphasise the need for supervision and the seeking of advice prior to flying each day.

To introduce the pilot to the local club and local safety officers.

To ensure the pilot is has enough understanding and knowledge to operate safely with minimal supervision.

---

Venue/lesson type	:	Classroom theory presentation / Club meeting
Lesson duration	:	1 hr
Advisory material	:	Club Lists and handouts, Skysailor

---

- A detailed review of the pilots log and training record
- Listing of suitable sites and conditions for the pilot
- A contact list for those sites and suitable supervisors
- Introduction to local Club and safety officers etc
- A description of the on-site procedures for the new Restricted Certificate pilot
- Specific warnings about what sites, conditions and types of operation are not suitable without further training
- Discussion of the types, models and size of equipment suitable to each individual pilot
- Advice on contacts if travelling outside of local flying community





## Unit 6 - Phase 21 Soaring in Differing Conditions and Environments

Objectives: To demonstrate more complex flight planning incorporating ridge/slope soaring flight skills and sequences.

To broaden the students experience of conditions and sites to include thermal lift conditions and moderate wind situations.

To re-emphasise the risks associated with new sites and conditions as well as the problems of moderate crosswind drift, laminar airflow, mechanical turbulence and restricted beach landings.

The student will experience flying in moderately crowded conditions including mixed operations together with other hang gliders and paragliders.

The student will display correct turn technique in narrow lift band.

The student will perform efficient as well as descending turns.

---

Venue/lesson type	:	Approved soaring site/s
Lesson duration	:	Several flights as required
Equipment	:	All flight gear

---

- Glider assembly and pre-flight/streamer attachment
- Site and conditions assessment
- Specific flight plan and soaring considerations
- Specific skills as required by individual students
- Specific coastal and / or inland considerations
- Utilising thermal left
- Pre-flight briefing
- Soaring flights
- Demonstrating linked 180 and 360 degree turns, correct airspeed selection for maximising flight and safety.
- Efficient turn coordination
- Crosswind/crabbing flight
- Judging glide in variable lift and sink conditions
- Specific landing approaches for site(s)
- Light and moderate wind landing techniques
- Post flight de-briefs
- Pilot log entries (and Progress Report if required)



## Unit 6 - Phase 22 Introduction to Human factors

### Objectives:

The student will study the effects of his/her performance and limitations to determine their state of mind and body required to pilot an aircraft.

The student will be introduced to Human Factors in aviation concepts.

---

Venue/lesson type	:	Classroom theory presentation / Club meeting
Lesson duration	:	1 hr
Advisory material	:	Human Factors learning materials

---

### Human factors topics

#### **Managing fatigue**

Identifying symptoms of fatigue

Recognising effects of fatigue

Implementing fatigue-coping strategies

#### **Managing stress**

Identifying symptoms of stress

Recognising effects of stress

Implementing stress-coping strategies

#### **Alcohol and other drugs (AOD)**

Recognising the effects of AOD use

Identifying risk factors and symptoms of AOD use

Implementing strategies to maintain fitness for Pilot in Command duty

Awareness of AOD testing

#### **Decision-making**

Defining the problem

Considering options

Selecting and implementing options

Reviewing the outcome

#### **Situational awareness**

Gathering information

Interpreting information

Anticipating future states

Human Factors

**Air (the environment)- Man (I'm safe)- Ship (the Aircraft)**

# I AM SAFE ?

## Illness?

Do I have an illness or any symptoms of an illness or disorder?



## Medication and other drugs?

Have I been taking or mixing prescription, over-the-counter or recreational drugs?



## Stress?

Am I under psychological pressure from my job or personal circumstances?

Am I worried about financial matters, health problems or family matters?



## Alcohol?

Have I been consuming alcohol within the previous 8 hours? Is my blood alcohol level less than 0.02?  
Would my average alcohol consumption be greater than 'very low risk'?



## Fatigue?

Am I tired or inadequately rested?



## Eating and Drinking?

Am I adequately nourished and hydrated?



## Questions

1. What do you think is meant by the term Human Factors?

.....

.....

.....

2. Have you experienced any Human Factors issues whilst learning to fly your aircraft?  
If so, list a few below and tell how you dealt with them:

.....

.....

.....

.....

3. As pilots, we need to consider diet and life style choices, such as smoking, heavy drinking and drug use (both recreational and prescription). List some possible problems of poor diet or excessive drug use.

.....

.....

.....

.....

4. How long do the residual effects of alcohol affect your flying ability?

.....

.....

5. How long do the residual effects of Marijuana affect your flying ability?

.....

.....

6. Which of the following symptoms indicate fatigue: -

- a. feelings of Euphoria, slurred speech, blue fingertips.
- b. blocked sinus, itchy eyes, irritated skin.
- c. burning sensation when urinating.
- d. lack of awareness, diminished motor skills, slow reactions, poor memory, poor concentration.

7. What are the recognised symptoms of fatigue?

.....  
.....  
.....  
.....

8. Can a minor ailment such as the common cold be problematic for a pilot, if so, how?

.....  
.....  
.....

9. Can 'Motion Sickness' be a problem for pilots? If so, what steps can we take to reduce the chance of being affected by it?

.....  
.....  
.....  
.....

10. List four coronary risk factors:

- 1. ....
- 2. ....
- 3. ....
- 4. ....

11. What are hypoxia and hypothermia and how would you recognize the symptoms?

.....  
.....  
.....

12. If an aircraft appears stationary in your field of vision, is there a risk of collision?

.....  
.....

13. Whilst scanning for other aircraft, why do we deliberately focus out to a distant point before scanning?

.....  
.....

14. A pilot has arrives at the airfield and feels unfit to fly should she: -

- a. Use her oxygen system for a hit of pure oxygen - it clears the head!
- b. Have a strong coffee and something to eat.
- c. Have a "hair of the dog" drink.
- d. Evaluate her fitness to fly and decide not to fly if there is any doubt.

15. How would you define Risk?

.....

.....

.....

16. How would you define 'Judgement'?

.....

.....

.....

17. What is 'Destination Obsession'?

.....

.....

.....

18. What is good 'Airmanship'?

.....

.....

.....

.....

19. The correct sequence to effective decision making is?

.....

.....



20. Your flying friends are planning a flight at dawn to make use of the smooth air, but your non flying friends having invited you out to midnight release of a new movie at the cinema. Do you :-

- a. do both activities.
- b. decide that you would like to fly tomorrow at dawn and make apologies to your movie going friends.
- c. take a few truckie no-doz pills and go to both.
- d. decide to nap in the movie theatre.

21. How would you define good aeronautical decision-making?

.....  
.....  
.....

22. What would you check to ensure your Aircraft is fit to fly?

.....  
.....  
.....  
.....

23. What environmental factors would you check to ensure it is safe to fly?

.....  
.....  
.....  
.....

24. What are symptoms of stress?

.....  
.....  
.....  
.....

25. Which of the following are the effects of stress?

- a. Appetite, visual acuity, sense of touch, ringing in the ears.
- b. Eroded judgement, Inattention, degraded flight skills.
- c. Agreeableness, tact, people skills.
- d. Memory, bravado, flatulence.

26. List the various effective stress coping strategies.

.....  
.....

27. What are the after effects of alcohol consumption?

- a. Nervousness, sweatiness, anxiety, nausea
- b. Fatigue, nausea, disorientation and headache
- c. Weakness, dizziness, sweating, rash.
- d. pregnancy

28. Even though his/her blood alcohol consumption readings may be 0%, what risk does this pose to a pilot flying next day?

- a. He could be breath tested on the way to the airfield by police or even on the airfield by CASA.
- b. He may offend his passengers who may no drink alcohol.
- c. He may still have degraded flight skills and reaction times from alcohol consumption.
- d. He may throw up during the flight.

29. Human Factors Account is a contributing factor in what percentage of aircraft accidents?

- a. 0 - 50%
- b. 50 - 70%
- c. 70 - 80%
- d. 80 - 100%

DATE		AIRCRAFT		LANDINGS	
WEATHER			LAUNCH AIRFIELD		
FLIGHT DETAILS					
PILOT SIGNATURE			INSTRUCTOR SIGNATURE		
FLIGHT DURATION	SOLO		TOTAL AIRTIME	SOLO	
	DUAL			DUAL	

**DEMONSTRATED SKILL LEVEL** (Instructor to Complete)

LAUNCH	%	FLIGHT	%	LANDING	%
COMMENTS					

DATE		AIRCRAFT		LANDINGS	
WEATHER			LAUNCH AIRFIELD		
FLIGHT DETAILS					
PILOT SIGNATURE			INSTRUCTOR SIGNATURE		
FLIGHT DURATION	SOLO		TOTAL AIRTIME	SOLO	
	DUAL			DUAL	

**DEMONSTRATED SKILL LEVEL** (Instructor to Complete)

LAUNCH	%	FLIGHT	%	LANDING	%
COMMENTS					

Add additional log pages as required.