

APPENDIX 5:

THE ADVENTURE SKILLS

How To Use the Competency Statements and Supporting Information

These competency statements and supporting information are designed to help you navigate exactly what you need to know to achieve any level of the Adventure Skills. How you go about learning this is entirely up to you! There will be a bank of further resources on Mahi Tahī, or you might want to ask someone with expertise to come along and teach you.

Remember to **Plan**, **Do**, and **Review** all activities you undertake while completing your Adventure Skills!

Assessment

Assessment of competencies can be done by a number of people:

- A youth member who has achieved the skill at least two more levels above you
- An adult who has relevant skills or qualifications in the area

Most Kaiārahi should be able to assess the earlier levels of most skills, however at some of the higher levels you may need to talk to an outside assessor with a formal qualification.



Kaitiakitanga

Kaitiakitanga is the understanding that we are a part of the natural world, not separate from it, and it is our responsibility to act as guardians of our environment.

As Scouts, it is important that we always act as conscientious Kaitiaki of our land, air, and water. All activities that we undertake should always consider their environmental impact, and adhere to the principles of Leave No Trace (leavenotrace.org.nz).

Risk Management and Health and Safety

When participating in adventurous activities it is vital that all appropriate safety measures are taken into account.

Before completing an adventurous activity you must ensure:

- The appropriate documentation has been completed and sent to the appropriate people by the correct time
- The activity is within the capacity of all participants (physical, mental, social, skills, etc.)
- All participants are aware of and have been age appropriately involved in the development of any safety measures
- The person in charge is appropriately competent and current in the material they will be teaching or leading
- All gear and safety equipment is serviceable and fit for purpose

Accessibility

All Scouts are different and have different needs and abilities, which is why this skill is designed to be as accessible as possible to all members of Scouting. If you are worried that a skill is outside of your abilities, whether that be physical, mental, or financial, talk to your assessor about how you might be able to adapt it to suit your needs.

Cross-Crediting Between Adventure Skills

Several of the Adventure Skills competencies are important for more than one skill. When working towards competency in one skill, it is worth checking if you are also gaining competency in another skill. To help with this, competencies that are the same or similar across multiple skills are marked with the corresponding skills and competency statements.

Air Activities



Level 1

- 1.1 I can stay safe while around and inside aircraft**
Scout shows an awareness of the dangers of an airfield and aircraft
Scout is aware that they should follow instructions carefully and be aware of their surroundings at all times
- 1.2 I can identify the features of an airport from a model or picture**
Scout can discuss the main features of an airport with reference to a picture or map
Scout can point out the runway, terminal, control tower, etc.
- 1.3 I can name a range of things that can fly**
Scout can discuss what they know about things that fly
This should include both living and non-living things
This could be presented using drawings or other media
- 1.4 I can talk about pictures of different flying machines**
Scout can show pictures of different flying machines and talk about what makes each one different
- 1.5 I can make a paper aeroplane and demonstrate how it flies**
Scout can build a paper plane and fly it
Scout can make changes to the design of their plane and talk about how this affects its flight path
- 1.6 I know where my closest airport is and have visited it**
Scout has taken a trip to visit an airport or airfield



Level 2

- 2.1 I can act safely around an airfield or airport**
Scout understands the difference between restricted areas of an airfield or airport and safe public areas
Scout can recognise the signs and markings which indicate the boundaries between these areas
- 2.2 I can identify ways different flying machines can fly**
Scout can identify a variety of flying machines and talk about their different flying mechanisms
- 2.3 I can point out the 5 main parts of an aircraft**
Scout can point out the cabin, wing, tail, wheels, and engine of a plane from a diagram, picture, or real aeroplane
- 2.4 I can make a small parachute out of light material, a weight or toy, and string**
Scout can make a small parachute and drop it from a height to see how it falls
Scout can experiment with different parachutes to see which one falls slowest and fastest and talk about why they think this might be
- 2.5 I know where it would be safe to fly a kite**
Scout can identify places that could be suitable for kite flying
Scout can explain what features might make an area safe or unsafe for kite flying
- 2.6 I can build a kite and fly it**
Scout can show a kite that they have made and demonstrate how it flies
Scout can talk about the different parts of their kite and why they were made out of the materials chosen



Level 3

3.1 I know the main principles of Leave No Trace and why they are important to aviation



Scout understands the importance of caring for their environment and can explain why waste is particularly dangerous around an airfield
Scout can identify that rubbish could get sucked into engines, block air intakes, damage moving parts like a propeller or rotor, or otherwise damage aircraft
Scout has an awareness that food waste might attract birds, and can explain why this might be dangerous

3.2 I know the difference between airside and landside

Scout can explain how a modern airport is laid out
Scout understands the difference between airside and landside and the necessary precautions and procedures that are required in each area

3.3 I know what the different areas of an airport do and can point them out on a model or picture

Scout can explain the role of the different areas of an airport, including terminal, runway, taxiway, control tower, and holding points
Scout can identify these features on a model or picture

3.4 I understand the principles of lift, drag, thrust, and weight

Scout can explain the four main forces that act on an in-flight aeroplane and describe the effects they have

3.5 I know how hot air balloons work and how they are controlled

Scout can identify the key components of a hot air balloon and explain how they work
This can be done by the use of a model

3.6 I can discuss why communication is important to aircraft

Scout can explain why communication is important in aviation

Scout is aware that Air Traffic Control, pilot position reports, and flight plans are used to help in the safety of aircraft on the ground and in the air

3.7 I know what a callsign is, and know New Zealand's nationality marking

Scout is aware that all aircraft have individual callsigns and can identify the prefix that all New Zealand aircraft will have (ZK- for civil, NZ- for military)

3.8 I know where and when to get a weather forecast

Scout can access information from the appropriate weather forecasters in their area
Scout can explain how and when it is best to access this information

3.9 I can help others learn about aviation

Scout has helped a less experienced person learn about an aspect of their Air Activities skill and shows a willingness to share their expertise with others



Level 4

4.1 I know the safety rules around airfields

Scout understands the importance of safety around an airfield and can explain the importance of the following:

- Entering airside areas only with permission
- Always keeping a good lookout
- Knowing the safe routes for getting around the airfield
- Knowing how to recognise live or operating aircraft
- Understanding the dangers of propellers, rotors, and jet engines, and the danger areas associated with each

4.2 I know the safety, legal, and privacy related regulations for flying drones in my area

Scout can explain reasons why they might not be able to fly drones in certain areas, including areas where it might be dangerous to fly, culturally inappropriate, or a breach of privacy. Scout is familiar with the current regulations on drones in their area and can discuss why these regulations are important. Scout is familiar with airshare.co.nz and CAA drone regulations, including Part 101.

4.3 I understand the effects my air activities can have on the environment

Scout can discuss the effects of air activities on carbon emissions and environmental concerns. Scout can identify ways to reduce these effects.

4.4 I can build a model hot air balloon

Scout has participated in the building of a flyable model hot air balloon. Scout can explain the materials used in the construction process and how it is inflated for flight. Scout can ensure that environmental considerations are accounted for in the creation and launching of model hot air balloons.

4.5 I understand what an aerofoil is and how it produces lift

Scout can explain the basic principles behind the production of lift from an aerofoil.

4.6 I know the control surfaces of an aircraft

Scout can identify the control surfaces (ailerons, elevator, rudder) on a diagram and describe how they move to control the path of flight of the aircraft.

4.7 Using a model, I can explain how an aeroplane climbs, descends, and turns

Scout can use a model of any kind to demonstrate their understanding of how an

aeroplane manoeuvres while in flight.

4.8 I know what stalling is and why it occurs

Scout can explain what stalling is and the causes of it. Scout can refer to their knowledge of airspeed, angle of attack, and lift while explaining this, and explain how an aeroplane recovers from a stall.

4.9 I know the phonetic alphabet

Scout can explain why the phonetic alphabet is used in aviation communication and is able to recite, and use it to spell relevant words.

4.10 I know what Air Traffic Control is and understand the differences between controlled and uncontrolled airspace

Scout can explain the role that air traffic control plays in keeping aviation safe. Scout can discuss the differences between controlled and uncontrolled airspace.

4.11 I am familiar with basic aircraft navigation

Scout is familiar with basic airspace maps and symbols and can explain how to use these with a compass to navigate while in the air.



Level 5

5.1 I understand what FOD is, and why it is dangerous

Scout can explain what FOD stands for (Foreign Object Damage or Debris) and how it applies to aircraft. Scout can give examples such as debris on the runway, tyre rubber, and birds in flight. Scout can identify hazards that might occur at airfields that are near water and hazards that might occur from aircraft parts becoming dislodged inside and outside the aircraft. Scout can discuss ways to reduce these hazards, what to do if they occur, and how to report them.

5.2 I know what a pre-flight check is, and some of the important things to look for during one

Scout can explain the importance of checking an aircraft before every flight
Scout can discuss some of the important things to look for while carrying out a pre-flight check

5.3 I can identify different aircraft types from their features

Scout is familiar with a range of at least 15 commercial aviation or training aircraft and is able to identify them

5.4 I can identify some of the main aircraft instruments

Scout can identify the key aircraft instruments and avionic and electrical systems and explain what they are used for
This should include the following instruments: airspeed indicator, artificial horizon, altitude indicator, vertical speed indicator, compass, turn and bank indicator, and engine RPM
Avionic and electrical systems should include: alternator, battery switch, magneto switch(es), starter switch, transponder, and radios

5.5 I can identify the main components of at least 2 of the following: piston engine, gas turbine engine, jet engine, rocket

Scout has a basic understanding of how the various engines work and is able to identify their key components

5.6 I can identify the main components of a drone

Scout is familiar with the key components of a drone and explain their functions
This should include the frame, power system, control system, and propulsion method

5.7 I have built and launched a water rocket

Scout has participated in the building and launch of a water rocket with a team
Scout can discuss the key components of the

rocket, how they work, and safety considerations

5.8 I understand how the weather affects air activities

Scout can discuss the effects of wind speed, cloud formations—including towering cumulus (TCUs) and cumulonimbus (CBs), icy conditions, turbulence, and thunder and lightning on flying activities
Scout can identify some of the safety measures that should be taken in various weather situations

5.9 I understand how wind affects navigation

Scout can explain the effects of wind on track and groundspeed and how to compensate for this

5.10 I have visited an airfield, control tower, or other aviation space and talked to someone who works there about their job

Scout has spoken to a professional about an aspect of the aviation industry to further their understanding



Level 6

6.1 I know how and when to complete the appropriate safety assessments for aviation activities, and who I need to share them with



Scout understands the importance of communicating their plans to others and assessing the risk of any activities they undertake

Scout has an understanding of any qualifications that must be present during their activities

Scout is familiar with the appropriate paperwork required to complete an aviation activity, and is able to complete and communicate these within the appropriate time frame

6.2 I know what human factors are, and can explain the I'M SAFE model

Scout can explain why human error is a key factor to monitor in aviation safety and what to look for when accounting for this
Scout can explain the key principles of the I'M SAFE model; illness, medication, stress, alcohol, fatigue, eating

6.3 I know how aircraft pressure instruments (such as altimeters and air speed indicators) work

Scout can explain how aircraft pressure instruments work and factors that could influence their reliability

6.4 I can discuss basic aerodynamic principles and how they affect lift

Scout understands the terms angle of attack, cord, lift, drag, weight, and centre of pressure and can discuss how they affect lift

6.5 I know the difference between ground and air speed

Scout can explain the relationship between ground and air speed, and how they relate to navigation when wind velocity is taken into account

6.6 I know how wind is used during take-off and landing

Scout can discuss how a plane takes off and lands, and how airspeed over the wings provide lift

6.7 I know some of the basic radio protocols used in Air Traffic Control

Scout is familiar with basic ATC terms/phrases e.g. "Wilco", "Affirm"
Scout understands aviation radio protocol and can carry out a simulated conversation using a script

6.8 I can obtain a local forecast for an air activity

Scout knows how to get appropriate weather forecasts for flying and discuss the key points of a forecast that need to be noted and observed

6.9 I can discuss the ways different types of clouds are formed and can name the dangers of flying into clouds

Scout can discuss the formation of clouds and their relation to geographical features
Scout can identify a variety of different clouds, and is able to explain their significance
Scout can name the key dangers of clouds and explain how to identify their warning signs

6.10 I can discuss aircraft navigation

Scout can discuss how a pilot navigates while flying
Scout has a basic understanding of compass direction, air to ground observation, airspeed versus ground speed, drift, and dead reckoning navigation compensating for wind velocity

6.11 I can read a Visual Navigation Chart (VNC) and an Aerodrome Chart (from AIPNZ)

Scout is able to identify various types of charts and the signs and symbols used on each
Scout can discuss the differences between air charts and land based maps such as a topographical Topo-50 map



Level 7

7.1 I am familiar with the Scouts Aotearoa Management Procedures for flying activities

Scout knows where to find current management procedures for flying activities, and understands why they are necessary

7.2 I know where to find resources on safety information for my air activities

Scout is familiar with where to find safety resources and information, such as GAPs books

- 7.3 I know what an Emergency Locator Transmitter (ELT) is and how it operates**
Scout can discuss the purpose and function of an ELT
Scout knows the importance of checking that the ELT is not operating after completion of each flight
- 7.4 I know the basic principles of a piston engine, including the four-stroke cycle**
Scout understands how a piston engine works and is able to describe the operation of the four-stroke cycle (intake, compression, power, exhaust)
- 7.5 I know how a jet engine works**
Scout can explain the basic principles of how a jet engine produces thrust
- 7.6 I understand the electrical systems of an aircraft and their functions**
Scout can explain the key components of an aircraft electrical system and what they do
This should include discussion of magnetos, spark plugs, the master switch, battery, alternator, and ammeter
- 7.7 I can discuss the function of fuel and oil systems**
Scout can explain the fuel system of a plane, including discussing the differences between fuel pumps and gravity feeds, usable fuel, fuel cocks, fuel types, and fuel consumption
Scout can explain the oil system of a plane, including discussion of oil pressure, and the purpose of oil (cooling, cleaning, lubrication)
- 7.8 I am familiar with aircraft documentation, including the aircraft flight manual, pilot's operating manual, airworthiness certificate, and aircraft technical log**
Scout understands the importance of correct aircraft documentation and knows how to check it is in order
- 7.9 I can complete fuel and oil checks, and understand why it is important to check for water in fuel**
Scout knows what to look for in a fuel and oil check
Scout can explain the dangers of water in fuel and how to recognise it
- 7.10 I can interpret meteorological reports including METAR, TAF, and ATIS**
Scout can interpret a METAR, TAF, and ATIS and understands the impact of this information on their flight plans
- 7.11 I have a basic understanding of the airspace around my local aerodrome**
Scout is familiar with their local airspace and can discuss its main features
This should include knowledge of the circuit directions and altitudes, runways, types of airspace (controlled, uncontrolled, special use), regular operators, and adjacent aerodromes
- 7.12 Using a VNC, I can identify local landmarks and use them to remain oriented to the airfield**
Scout can recognise local landmarks from the air and use these to help orientate themselves
- 7.13 I have been for a familiarisation flight in a small aircraft or glider**
Scout has taken a familiarisation flight with an instructor



Level 8

- 8.1 I can carry out a full pre-flight inspection**
Scout can demonstrate a full pre-flight inspection of an aircraft
- 8.2 I am familiar with the pre-flight checks necessary for my chosen aircraft**
Scout is able to complete the pre-flight checks for their aircraft, and can explain what they should be looking for with each check

This should include before engine start, taxi, engine run up, pre-takeoff, line up checks, and takeoff checks

8.3 I am familiar with the ground procedures at my local airfield and can safely taxi

Scout is able to describe the ground procedures at their local airfield and is able to taxi an aircraft in a safe way

8.4 I can takeoff under normal conditions

Scout can demonstrate a takeoff procedure under the guidance of a flight instructor

8.5 I can climb, descend, turn, and fly at straight and level in an aircraft

Scout can demonstrate how to climb, descend, turn, and fly at straight and level under the guidance of a flight instructor
Scout can discuss the principles of flight behind these manoeuvres

8.6 I can park and picket an aircraft

Scout can demonstrate the correct procedures for parking and picketing their aircraft
Scout can explain dangers of incorrect parking and picketing, especially in windy conditions

8.7 I can correctly log flights in a pilot's logbook

Scout is able to correctly record their flight progress in a pilot's logbook

8.8 I can interpret aircraft marshalling signals

Scout is familiar with basic marshalling signals and is able to appropriately and safely follow them

8.9 I am familiar with an Air Traffic Control (ATC) or Flight Information Service (FIS) tower's operations

Scout has visited their local ATC or FIS tower (or remote tower) and has discussed the principles of Air Traffic Control including strip

usage, radio calls, and local operating procedures with the staff there

8.10 I am familiar with light signals and can explain when they might be used

Scout can give examples of light signals and their meanings in different situations in the air and on the ground
Scout knows when and where to look for light signals

8.11 I can effectively communicate using the correct protocols with my local tower and other aircraft

Scout can demonstrate correct radio usage and communication procedures

8.12 I understand what a flight plan is, and the different types of flight plans

Scout can explain the importance of a flight plan and is able to complete one
Scout can explain the difference between a VFR/IFR flight plan, SAR plan, VFR flight notification (online using IFIS), and local (informal) flight plan



Level 9

9.1 I know the procedures for common emergencies that may occur while flying in the circuit

Scout is familiar with the common emergencies that might occur while flying in the circuit and is able to demonstrate appropriate responses to these in a simulated environment
This should include: engine failure after takeoff, glide landing, and flapless landing

9.2 I understand how stalling occurs, and how to recognise and recover from it

Scout can explain the principles behind stalling an aircraft and demonstrate a stall recovery under the guidance of a flight instructor

9.3 I know when and how to complete a go round

Scout can explain reasons a go-round might be necessary (runway obstruction, unsuitable approach, etc)
Scout can demonstrate a go-round procedure

9.4 I am familiar with all the normal checks for my chosen aircraft

Scout is familiar with all of the normal checks for their chosen aircraft and is able to explain what they are looking for with each one

9.5 I can safely land an aircraft

Scout is able to land a light aircraft safely
Scout can discuss factors that might affect their landing length, such as surface type, airspeed, use of flaps, slope, and wind velocity
Scout can discuss the principles of wind velocity and descent angle in landing, and explain why flaps are used

9.6 I know the procedure for flying circuits at my local airfield

Scout is familiar with the circuit at their local airfield and is able to demonstrate their flying skills in a circuit

9.7 I have a sound understanding of meteorology and its application in aviation

Scout can discuss meteorology and its effects on aviation activities
This should include an understanding of atmosphere, weather maps, wind, turbulence, cloud types, and meteorological reports

9.8 I have achieved a solo, or simulated solo flight

Scout has completed a solo flight with the authorisation of their flight instructor