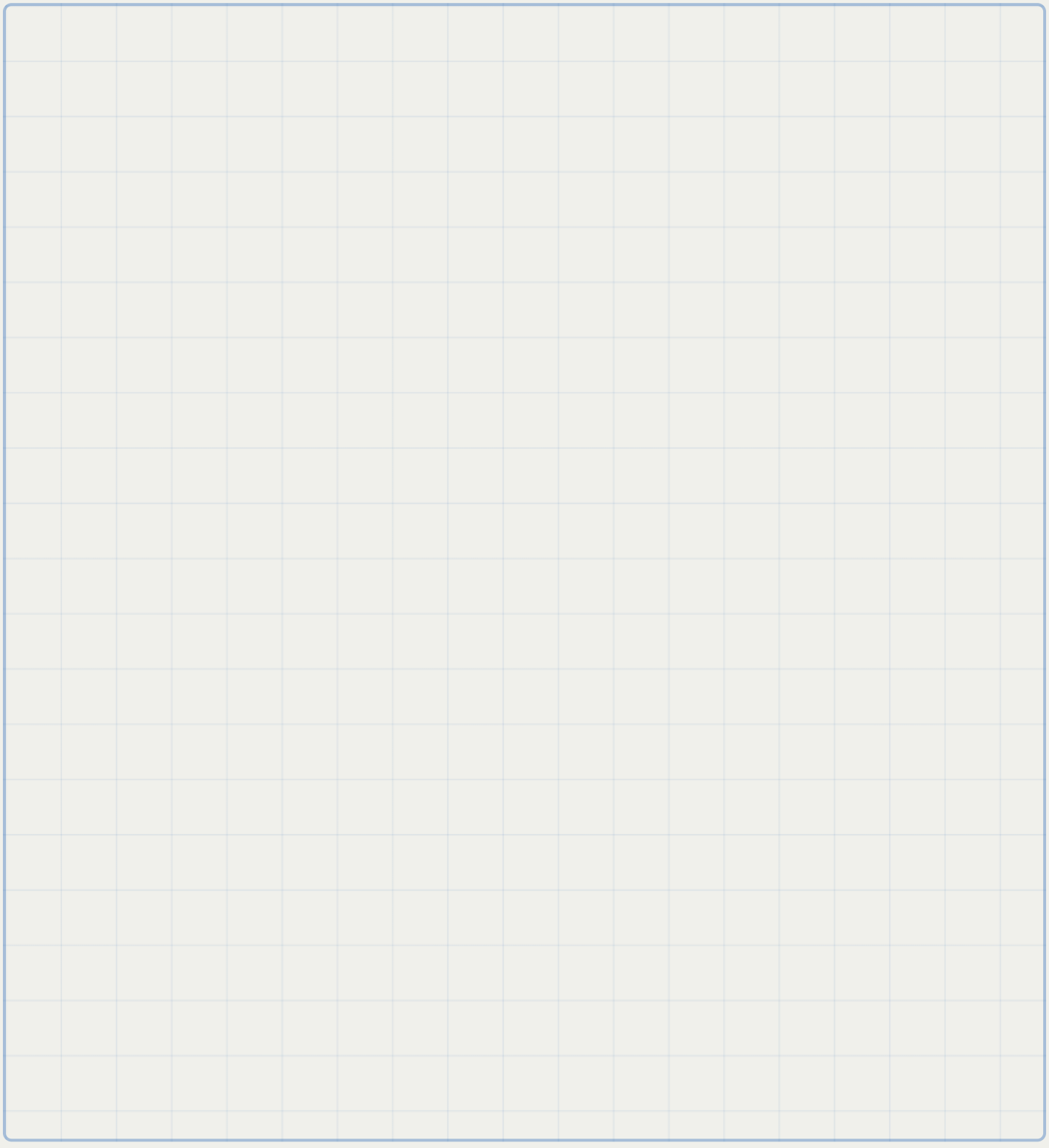
Short Field Take-off and Landing

CASA Recreational Pilot License (Aeroplane) — Lesson 22, Pre-flight Briefing Notes

These notes help you plan and run an interactive **whiteboard briefing** immediately before the flight — they are components to draw from, not a script to read.

My whiteboard and running order

Before the lesson, read the sections that follow, then come back here: note *your* running order and approximate timings, and sketch the whiteboard you'll draw — your aerodrome, the strip and its obstacles, today's weather and wind, and the numbers you've worked. For inspiration, see the NZ CAA Flight Instructor Guide whiteboard for Short-field take-off and landing.



Using these notes

By this lesson the student plans much of the flight themselves. The pre-flight brief is where the **performance numbers** they calculated get checked and the **threats of a marginal strip** get named — keep it to about **10 minutes**, at the whiteboard, working interactively: **ask, draw, and listen** rather than present.

The components (choose your own order on the planning page):

Component	~ time
The aim of the flight	1 min
Today's numbers — performance check	3 min
Today's flight — whiteboard walk-through	2 min
Threats and how we'll manage them	2 min
Airmanship emphasis — the go/no-go decision	1–2 min
Questions, then fly	1 min

The aim of the flight

Ask — "From the theory: what are we trying to achieve today?"

Expect — in the student's own words, something close to:

- **take off** in the minimum distance and **climb at best angle** to clear an obstacle
- **land** at a nominated point at the minimum safe speed and **stop** in the minimum distance
- **calculate** and **respect** the take-off and landing performance for the conditions

Write the aim briefly on the board — it anchors the numbers and the technique you'll draw.

Today's numbers — performance check

This lesson lives or dies on the numbers. Do this part with the student's **own charts and today's forecast** in front of you.

Ask — "Walk me through your take-off and landing distance for today. What did you correct for, and in what order?"

Expect — pressure altitude / temperature → weight → wind component → surface / slope → safety factor. Listen for the *distance to 50 ft*, not just the ground run.

Draw — fill in today's figures:

- Pressure altitude: _____ Temp: _____ Density altitude effect: _____
- Take-off weight: _____ Take-off distance (50 ft): _____
- Landing weight: _____ Landing distance (50 ft): _____
- Runway available (TODA / LDA): _____ Margin remaining: _____

Ask — "Wind is _____ — what are the head and crosswind components?" (clock rule: 30° → ½, 45° → ¾, 60°+ → full)

Expect — a quick, confident split, and a check that the crosswind is within limits and the margin is sensible if the wind drops or swings.

Today's flight — whiteboard walk-through

Draw — the flight as a path: taxi → short-field take-off → circuit → short-field landing → repeat. Fill in your local details:

- Runway: _____ Circuit direction: _____
- Obstacle to clear / assumed obstacle: _____
- Best-angle climb speed V_X: _____ Best-rate V_Y: _____
- Short-field approach speed: _____ Aim point: _____
- CTAF / frequencies: _____

Draw — the **take-off** as a profile: all runway → full power on brakes → lift off → V_X **to the obstacle** → flap up → accelerate to V_Y.

Draw — the **landing** as a profile: stable full-flap approach → minimum speed at the boundary → minimal float → touchdown at the aim point → **maximum braking**.

Ask — "What's the sequence for raising flap after take-off, and why not earlier?" and "What touches down first, and where are your eyes in the flare?"

Expect — flap up only after the obstacle and at a safe speed; eyes well ahead (≈ 50–100 m) for the flare. If these don't come back readily, revisit them now.

Threats and how we'll manage them

I'M SAFE and PAVE are standing checks before **every** flight — the student should walk through them, not be taught them.

Ask — "Run me through your I'M SAFE — any flags today?"

Expect — Illness, Medication, Stress, Alcohol, Fatigue, Eating — honest self-assessment done before driving in.

Ask — "Apply PAVE to today's short-field work." Listen especially for **enVironment** (density altitude, wind, surface) and **External pressures** — the temptation to operate from a strip that's "probably fine".

Draw — list the genuine threats for *this* flight:

- _____
- _____

Ask — apply **TEAM** to each: **Transfer · Eliminate · Accept · Mitigate**.

For a marginal strip, the honest answer is often **Eliminate** — choose a longer runway, a cooler time of day, or a lighter load. Model that the safest short-field technique is sometimes *not operating from the short field*.

Airmanship emphasis — the go/no-go decision

This lesson's emphasis: the performance numbers are a **decision you make on the ground**, not a hope you fly.

Ask — "What's our committal point on the take-off — the spot by which we must be airborne, or we stop?"

Expect — a nominated point along the runway (and the decision to reject and stop if it's not made). Draw it on the strip.

Ask — "On the landing, what would make you go around — and how late can you decide?"

Expect — too fast / too high at the boundary, a balloon or bounce, any doubt about stopping. The go-around can be flown right down to the ground; reinforce **early and unhesitating**.

Rehearse the recovery — say it out loud now: engine failure on the best-angle climb → **nose down immediately**, glide attitude, land ahead. The slow, steep climb is close to the stall, so the reaction must be faster than from a normal climb.

> *The first time the steep climb or the low, slow approach feels unusual is normal — flying the **target speed precisely** is what keeps the margin.*

Questions, then fly

Ask — "Any questions before we head out?"

Quick recap as you pack up the whiteboard:

- The numbers say **go / no-go** — we decided on the ground
- All runway · full power · V_X to the obstacle · flap up after
- Minimum safe speed at the boundary · aim point · **max braking** · go around early
- Engine failure on climb-out → **nose down first**

Confirm who handles the taxi and the radio, and go flying.