DA-20-C1 Eclipse Private Pilot Flight Training Tips

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Here are some tips to help assist you in the demonstration of knowledge and skills related to Takeoffs and Landings to the FAA Designated Pilot Examiner. A Diamond DA-20-C1 Eclipse is used for these discussions.

What's covered in this document?

There are three (3) different types of takeoffs on the Private Pilot Practical Test.

There are four (4) different types of landings on the Private Pilot Practical Test.

These tips are based on several references, including:

FAR 61.43 Practical tests: General procedures
FAA Private Pilot Airplane Practical Test Standards (FAA-S-8081-14B)
FAA Airplane Flying Handbook (FAA-H-8083-3A)
DA-20-C1 Pilot Operating Handbook/Airplane Flight Manual *(Revision 27)*
If there are other changes in a newer revision to the DA-20-C1 POH/AFM, the latest revision to that POH/AFM is the controlling document.

The Practical Test Standards and FAR 61.43 (General Procedures) say the following about the maneuvers that you will perform on the Practical Test:

"Demonstrate mastery of the aircraft with the successful outcome of each TASK performed never seriously in doubt"

"Demonstrate satisfactory proficiency and competency within the approved standards"

"Demonstrate sound judgment"

Disclaimer

The tips contained in this document are not complete advice on how to perform takeoffs and landings, nor are these tips complete advice on how to fly an aircraft.

These tips are meant to point out some of the areas of piloting skills that can possibly use some improvement for the purposes of passing an FAA Private Pilot Airplane Single-engine Land Practical Test.

You can't go wrong by reading the Airplane Flying Handbook, the POH for the airplane and the Practical Test Standards.

Takeoffs

Normal and Crosswind Takeoff

FAA Private Pilot Practical Test Standards states that the references for a Normal Takeoff are: The Airplane Flying Handbook (FAA-H-8083-3A) and the DA-20-C1 POH/AFM.

For this discussion, the 2 relevant elements in the PTS regarding the Normal Takeoff are:

Rotates and Lifts off at the recommended airspeed and accelerates to VY. *Establishes a pitch attitude that will maintain VY +10/-5 knots.*

It is important to understand the meanings and differences between "Rotate" and "Lift-Off":

The DA-20-C1 POH/AFM (page 4-21):

4.4.7. Take-off

(a) Fuel Prime	check OFF
(b) Fuel Pump	check ON
(c) Mixture check	check FULL RICH
(d) GEN/BAT Master Switch	check ON
(e) Ignition Switch	check BOTH
(f) Wing Flaps	check T/O
(g) Trim	NEUTRAL
(h) Throttle	FULL
Check RPM	min 2000 RPM
(i) Elevator - **at beginning of rolling**	NEUTRAL
(j) Directional Control	maintain with rudder

NOTE

In crosswind conditions, directional control can be enhanced by using the single wheel brakes. Note that using the brakes for directional control increases the take-off roll distance.

(k) **Rotate**	**44 KIAS**
(l) Climb Speed to clear 50 ft. obstacle	58 KIAS

CAUTION

For the shortest possible take-off distance to clear a 15 m (50 ft) obstacle:

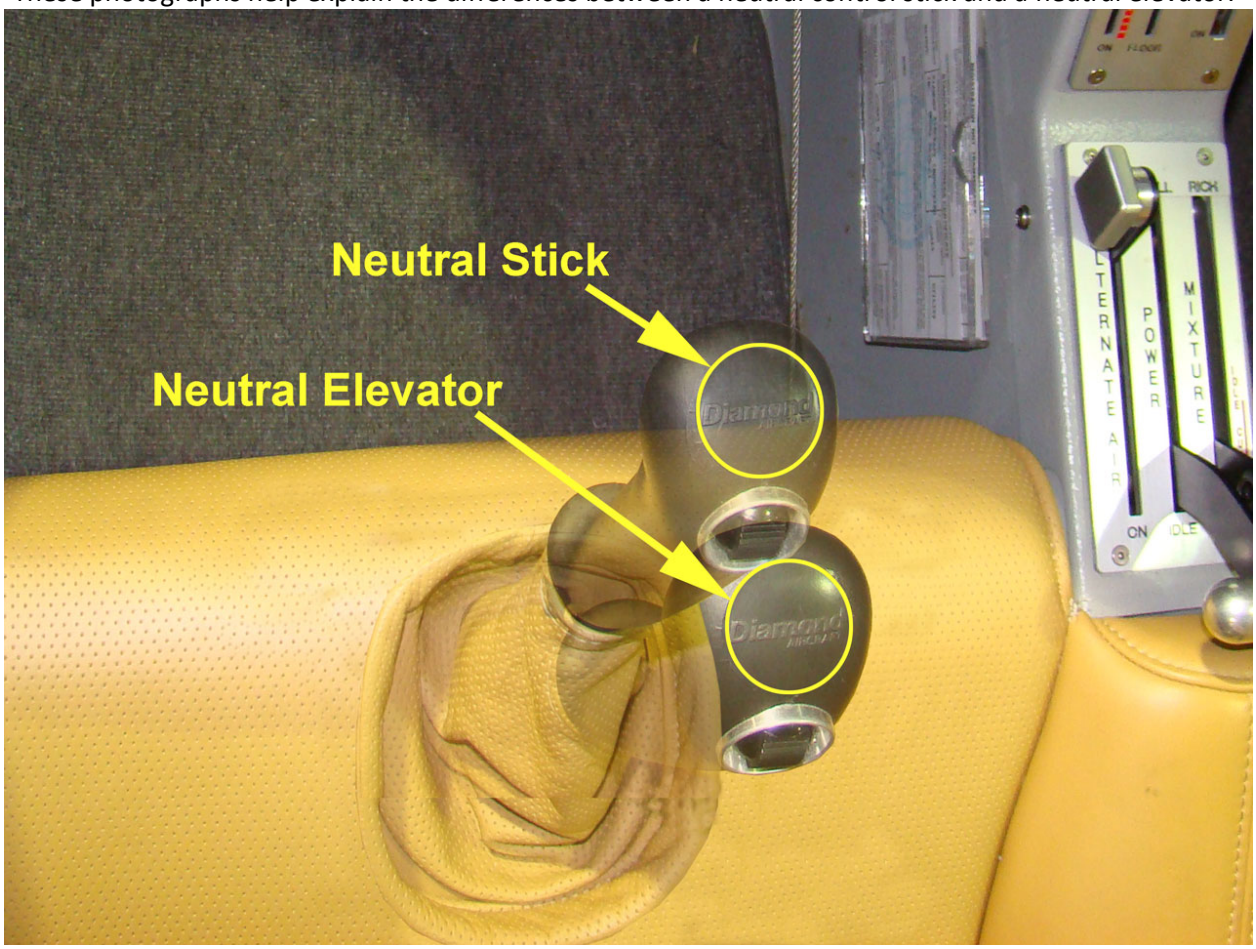
Lift-off Speed	52 KIAS
Climb Speed to clear 50 ft. obstacle	58 KIAS

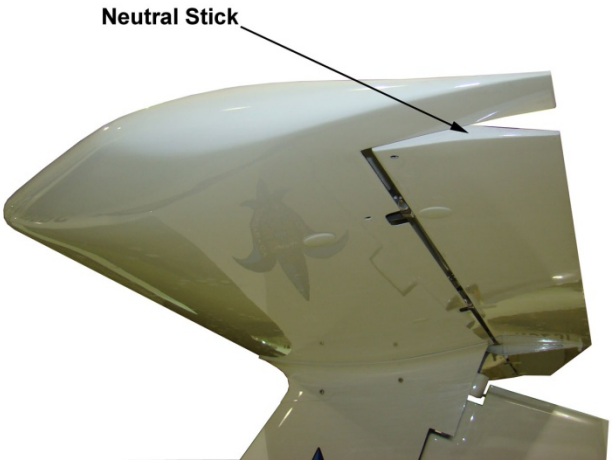
What does this all mean? For a normal takeoff, you should begin the takeoff roll with a NEUTRAL ELEVATOR. That's the E-L-E-V-A-T-O-R they are talking about, not a neutral CONTROL STICK. In order to have the elevator NEUTRAL, the control stick will need to be pulled aft by approximately 2 inches from the Control Stick neutral position. The elevator should be positioned to be flush with the Horizontal Stabilizer. As you accelerate down the runway, you will continue to move the control stick farther aft. This will allow you to begin to feel for the right time to lift the nose wheel enough so that the airplane will Lift-Off when it is ready. Remember, this is supposed to be a smooth movement of the controls.

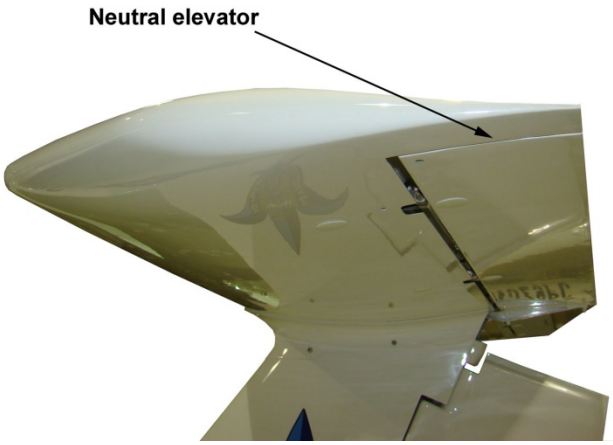
Normal and Crosswind Takeoff, continued:

For a Normal Takeoff in the DA-20-C1 this also means that there is no exact Lift-off speed. The airplane lifts off because the nose is up and it is ready to fly! These techniques will enable you to be ahead to the airplane and therefore you will avoid any overshoot of the desired airspeed.

These photographs help explain the differences between a neutral control stick and a neutral elevator.







Normal and Crosswind Takeoff, continued:

What does the Airplane Flying Handbook (FAA-H-8083-3A) say about this?

Page 5-3: *"The student pilot should be required to feel lightly for resistance and accomplish the desired results by applying pressure against it. This practice will enable the student pilot, as experience is gained, to achieve a sense of the point when sufficient speed has been acquired for the takeoff, instead of merely guessing, fixating on the airspeed indicator, or trying to force performance from the airplane."*

and:

*"When all the flight controls become effective during the takeoff roll in a nosewheel-type airplane, back-elevator pressure should be **gradually** applied to raise the nosewheel slightly off the runway, thus establishing the takeoff or lift-off attitude. This is often referred to as "rotating." At this point, the position of the nose in relation to the horizon should be noted, then back-elevator pressure applied as necessary to hold this attitude. The wings must be kept level by applying aileron pressure as necessary. The airplane is allowed to fly off the ground while in the normal takeoff attitude. Forcing it into the air by applying excessive back-elevator pressure would only result in an excessively high pitch attitude and may delay the takeoff. As discussed earlier, excessive and rapid changes in pitch attitude result in proportionate changes in the effects of torque, thus making the airplane more difficult to control."*

Summary: The DA-20-C1 is flown off the ground during a normal takeoff by the feel of the controls, not a speed depicted on the airspeed indicator. This can only be accomplished by applying backpressure during the takeoff roll, lifting the nose up at 44 KIAS and setting the pitch attitude that allows the airplane to Lift-Off when it is ready.

Common Errors:
Failure to set elevator neutral at beginning of takeoff roll. (prevents pilot from sensing control surface effectiveness);
Waiting till 44 KIAS to pull back any further (from neutral) on control stick. (results in excessive airspeed) and;
Waiting till 52 KIAS to pull back any further (from neutral) on control stick. (results in even more excessive airspeed)

Short Field Takeoff

A short field takeoff is somewhat different from a normal takeoff. The objective is to takeoff in the shortest distance possible (and possibly the need to clear a 50 foot obstacle).

FAA Private Pilot Practical Test Standards states that the references for a Short Field Takeoff are: The Airplane Flying Handbook (FAA-H-8083-3A) and the DA-20-C1 POH/AFM.

For this discussion, the 2 relevant elements in the PTS regarding the Short Field Takeoff are:

Rotates and Lifts off at the recommended airspeed, and accelerates to the recommended obstacle clearance airspeed or VX.
Establishes a pitch attitude that will maintain the recommended obstacle clearance airspeed, or VX, +10/-5 knots, until the obstacle is cleared, or until the airplane is 50 feet (20 meters) above the surface.

The DA-20-C1 POH/AFM (page 4-21):

4.4.7. Take-off

(a) Fuel Prime	check OFF
(b) Fuel Pump	check ON
(c) Mixture check	check FULL RICH
(d) GEN/BAT Master Switch	check ON
(e) Ignition Switch	check BOTH
(f) Wing Flaps	check T/O
(g) Trim	NEUTRAL
(h) Throttle	FULL
Check RPM	min 2000 RPM
(i) Elevator - **at beginning of rolling**	NEUTRAL
(j) Directional Control	maintain with rudder

NOTE

In crosswind conditions, directional control can be enhanced by using the single wheel brakes. Note that using the brakes for directional control increases the take-off roll distance.

(k) **Rotate**	**44 KIAS**
(l) Climb Speed to clear 50 ft. obstacle	58 KIAS

CAUTION

For the shortest possible take-off distance to clear a 15 m (50 ft) obstacle:

Lift-off Speed	52 KIAS
Climb Speed to clear 50 ft. obstacle	58 KIAS

The POH/AFM gives additional guidance for the Short Field Takeoff. Here the POH/AFM is providing an actual Lift-Off speed of 52 KIAS. With practice you should be able to judge the amount of back-pressure required to achieve a smooth rotation followed by Lift-Off using these numbers.

Short Field Takeoff, continued:

Page 5-8 of the Airplane Flying Handbook (FAA-H-8083-3A) advises us that:

> *"The achieved result should be consistent with the performance section of the FAA-approved Airplane Flight Manual and/or Pilot's Operating Handbook (AFM/POH). In all cases, the power setting, flap setting, airspeed, and procedures prescribed by the airplane's manufacturer should be followed."*

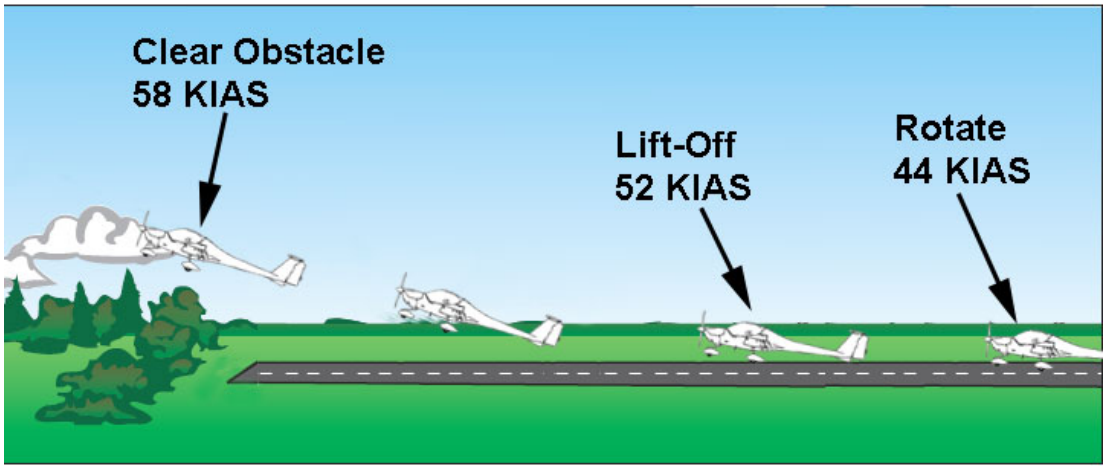
Page 5-9 of the Airplane Flying Handbook discusses the initial takeoff roll:

> *"The airplane should be allowed to roll with its full weight on the main wheels and accelerated to the lift-off speed. As the takeoff roll progresses, the airplane's pitch attitude and angle of attack should be adjusted to that which results in the minimum amount of drag and the quickest acceleration."*

"Full weight of the main wheels" means the nose wheel isn't carrying any of the weight of the aircraft. That means the nose wheel needs to be unloaded. That requires back pressure on the control stick during the takeoff roll.

Page 5-9 also discusses Lift-Off:

> "Approaching best angle-of-climb speed (VX), the airplane should be smoothly and firmly lifted off, or rotated, by applying back-elevator pressure to an attitude that will result in the best angle-of-climb airspeed (VX). Since the airplane will accelerate more rapidly after lift-off, additional back-elevator pressure becomes necessary to hold a constant airspeed. After becoming airborne, a wings level climb should be maintained at VX until obstacles have been cleared or, if no obstacles are involved, until an altitude of at least 50 feet above the takeoff surface is attained."



From the point of Lift-Off to 50 feet AGL, this maneuver is over before most Private Pilot Applicants realize it. Since the airplane is going to pick up speed after it leaves the ground, you must know the pitch attitude required to achieve 58 KIAS at the 50 foot altitude. If the rotation and lift-off speeds are too high, the airplane will exceed the recommended 58 KIAS at the 50 foot altitude. Learning to judge the correct pitch attitude at lift-off that results in 58 KIAS at 50 AGL requires practice. You cannot react to airspeeds. You have to anticipate the airspeeds and rotate/lift-off based upon pitch attitudes in order to avoid overshooting 58 KIAS.

Short Field Takeoff, continued:

In summary, the differences between a normal takeoff and a short field takeoff with regard to rotation and Lift-Off speeds it that there is no set Lift-Off speed for a normal takeoff (only a rotation speed of 44 KIAS) and during a Short Field takeoff there is an actual specified Lift-Off speed published on the POH/AFM.

Common Errors:
Failure to set elevator neutral at beginning of takeoff roll. (prevents pilot from sensing onset of control surface effectiveness);
Waiting till 44 KIAS to pull back any further (from neutral) on control stick. (results in excessive airspeed) and;
Waiting till 52 KIAS to pull back any further (from neutral) on control stick. (results in even more excessive airspeed)

Soft Field Takeoff

A soft field takeoff is somewhat different from a normal takeoff. Since the ground is soft and/or the grass is causing drag, the objective is to get the airplane off the ground and into ground effect as soon as possible, then accelerate to a normal climb speed.

FAA Private Pilot Practical Test Standards states that the references for a Soft Field Takeoff are: The Airplane Flying Handbook (FAA-H-8083-3A) and the DA-20-C1 POH/AFM.

For this discussion, the 2 relevant elements in the PTS regarding the Soft Field Takeoff are:

Establishes and maintains a pitch attitude that will transfer the weight of the airplane from the wheels to the wings as rapidly as possible.
Rotates and Lifts off at the lowest possible airspeed and remains in ground effect while accelerating to VX or VY, as appropriate.

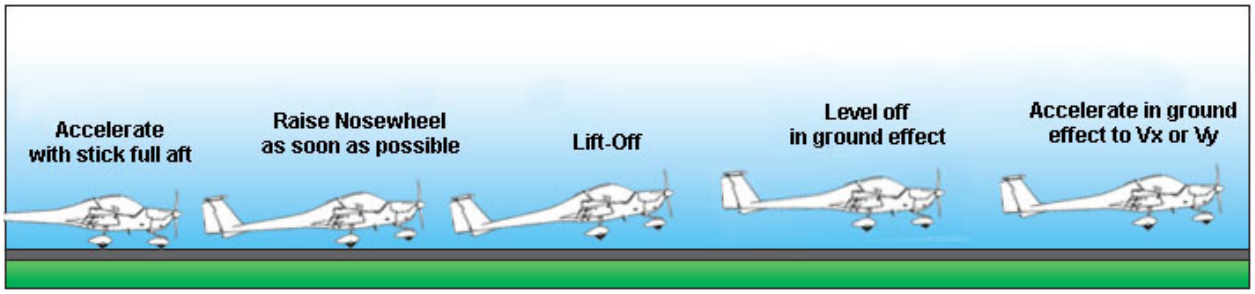
The POH/AFM of the DA-20-C1 is silent on the issue of Soft Field Take-Offs!

The only guidance is the FAA Private Pilot Airplane Practical Test Standards (FAA-S-8081-14B) and the FAA Airplane Flying Handbook (FAA-H-8083-3A). Page 5-10 of the Airplane Flying Handbook offers this guidance:

"As the airplane is aligned with the takeoff path, takeoff power is applied smoothly and as rapidly as the powerplant will accept it without faltering. As the airplane accelerates, enough back-elevator pressure should be applied to establish a positive angle of attack and to reduce the weight supported by the nosewheel. When the airplane is held at a nose-high attitude throughout the takeoff run, the wings will, as speed increases and lift develops, progressively relieve the wheels of more and more of the airplane's weight, thereby minimizing the drag caused by surface irregularities or adhesion. If this attitude is accurately maintained, the airplane will virtually fly itself off the ground, becoming airborne at airspeed slower than a safe climb speed because of ground effect."

Soft Field Takeoff, continued:

When combining the Private Pilot Practical Test Standards Soft Field Takeoff elements with the Airplane Flying Handbook recommendations, the Control Stick will be fully aft at the beginning of the takeoff roll and as the nose of the aircraft rises the pitch attitude will need to be quickly and smoothly adjusted to maintain the nose high attitude so the aircraft will leave the runway at the lowest possible airspeed. This will require paying particular attention to the pitch attitude relative to the runway, and since the engine cowling is going to block the view of the runway, the pilot's peripheral vision is going to be important in order to maintain directional control in addition to pitch control. Practice is required to achieve the highest possible pitch angle keeping in mind that the tail skid of the aircraft should never touch the runway. If you are doing it right the stall horn should be on during the takeoff roll and initial lift-off. After Lift-Off, the pitch angle only needs to be set to the normal climb attitude. Excessive pitch down will cause the airplane to contact the runway.



Common Errors:
Failure to set elevator full aft at beginning of takeoff roll. (prevents pilot from sensing control surface effectiveness);
Insufficient pitch attitude during takeoff roll. (results in excessive ground roll);
Excessive pitch attitude during takeoff roll. (results in a tail strike and possibly a stall) and;
Excessive pitch-down after liftoff. (results in settling back on runway)

Landings

Normal and Crosswind Landing

FAA Practical Test Standards for Private Pilot states that the references for a Normal Landing are: The Airplane Flying Handbook (FAA-H-8083-3A) and the DA-20-C1 POH/AFM.

For this discussion, the relevant elements in the PTS regarding the Normal Landing are:

Establishes the recommended approach and landing configuration and airspeed, and adjusts pitch attitude and power as required.
Maintains a stabilized approach and recommended airspeed, or in its absence, not more than 1.3 VSO, +10/-5 knots, with wind gust factor applied.
Makes smooth, timely, and correct control application during the roundout and touchdown.
Touches down smoothly at approximate stalling speed (ASEL).
Touches down at or within 400 feet (120 meters) beyond a specified point, with no drift, and with the airplane's longitudinal axis aligned with and over the runway center/landing path.
Maintains crosswind correction and directional control throughout the approach and landing sequence.

Normal and Crosswind Landing, continued:

The DA-20-C1 POH/AFM (page 4-24):

4.4.11. Landing Approach

(a)	Seat Belts	fastened
(b)	Lights	as required
(c)	GEN/BAT Master Switch	check ON
(d)	Ignition Switch	check BOTH
(e)	Fuel Pump	check ON
(f)	Mixture	FULL RICH
(g)	Throttle	as required
(h)	Airspeed	max. 78 KIAS
(i)	Wing Flaps	T/O
(j)	Trim	as required
(k)	**Wing Flaps**	**LDG**
(l)	**Approach Speed**	**55 KIAS**

CAUTION

For strong headwind, crosswind, danger of wind-shear or turbulence, a higher approach speed should be selected.

Page 8-3 in the Airplane Flying Handbook offers this guidance:

"The objective of a good final approach is to descend at an angle and airspeed that will permit the airplane to reach the desired touchdown point at an airspeed which will result in minimum floating just before touchdown; in essence, a semi-stalled condition. To accomplish this, it is essential that both the descent angle and the airspeed be accurately controlled."

Page 8-6:

"The touchdown is the gentle settling of the airplane onto the landing surface. The roundout and touchdown should be made with the engine idling, and the airplane at minimum controllable airspeed, so that the airplane will touch down on the main gear at approximately stalling speed. As the airplane settles, the proper landing attitude is attained by application of whateverback-elevator pressure is necessary. Some pilots may try to force or fly the airplane onto the ground without establishing the proper landing attitude. The airplane should never be flown on the runway with excessive speed."

Summary: Airspeed on final with full flaps should be 55 KIAS. Excessive airspeed on final will result in excessive float. The PTS requires the landing be made beyond and within 400 feet of intended point of touchdown. Touchdown is at stalling speed. The stall horn should be on at touchdown.

Short Field Landing

FAA Private Pilot Practical Test Standards states that the references for a Short Field Landing are: The Airplane Flying Handbook (FAA-H-8083-3A) and the DA-20-C1 POH/AFM.

The DA-20-C1 POH/AFM guidance on Short Field Landings is limited to the performance chart for Landing distances in section 5. The main guidance for the Short Field Landing is the FAA Private Pilot Airplane Practical Test Standards and the FAA Airplane Flying Handbook.

The FAA Private Pilot PTS contains the following relevant elements:

Establishes the recommended approach and landing configuration and airspeed; adjusts pitch attitude and power as required.
Maintains a stabilized approach and recommended approach airspeed, or in its absence not more than 1.3 VSO, +10/-5 knots, with wind gust factor applied.
Makes smooth, timely, and correct control application during the roundout and touchdown.
Touches down smoothly at minimum control airspeed (ASEL).
Touches down at or within 200 feet (60 meters) beyond a specified point, with no side drift, minimum float and with the airplane's longitudinal axis aligned with and over the runway center/landing path.

The DA-20-C1 POH/AFM (page 5-17):

5.3.12. Landing Distance

Conditions: - Throttle at Idle
- Maximum T/O Weight
- Approach Speed 55 KIAS
- Level Runway, paved
- Wing Flaps in Landing position (LDG)
- Standard Setting, MSL

Landing distance over a 50 ft (15 m) obstacle: ..... approx. 1360 ft (414m)
Landing roll distance: ..... approx. 661 ft (201m)

Table 4 of distances not shown here…..
followed by:

NOTE
Poor maintenance condition of the airplane, deviation from the given procedures as well as unfavorable outside conditions (i. e. high temperature, rain, unfavorable wind conditions, slippery runway) could increase the landing distance considerably.

NOTE
Aircraft with ground idle speed set to 1000 RPM, landing distance increased approx. 5% and ground roll increased approx. 7%.

Page 8-17 in the Airplane Flying Handbook:

"This low-speed type of power-on approach is closely related to the performance of flight at minimum controllable airspeeds."

Page 8-19 in the Airplane Flying Handbook has a lot of good advice on how to judge your performance:

"The short-field approach and landing is in reality an accuracy approach to a spot landing."

"Because the final approach over obstacles is made at a relatively steep approach angle and close to the airplane's stalling speed, the initiation of the roundout or flare must be judged accurately to avoid flying into the ground, or stalling prematurely and sinking rapidly. A lack of floating during the flare, with sufficient control to touch down properly, is one verification that the approach speed was correct."

The Airplane Flying Handbook continues:

"Touchdown should occur at the minimum controllable airspeed with the airplane in approximately the pitch attitude that will result in a power-off stall when the throttle is closed. Care must be exercised to avoid closing the throttle too rapidly before the pilot is ready for touchdown, as closing the throttle may result in an immediate increase in the rate of descent and a hard landing."

"Upon touchdown, the airplane should be held in this positive pitch attitude as long as the elevators remain effective. This will provide aerodynamic braking to assist in deceleration."

"Immediately upon touchdown, and closing the throttle, appropriate braking should be applied to minimize the after-landing roll. The airplane should be stopped within the shortest possible distance consistent with safety and controllability. If the proper approach speed has been maintained, resulting in minimum float during the roundout, and the touchdown made at minimum control speed, minimum braking will be required."

Summary: The airplane should be flown on final approach with full flaps at 55 KIAS; power is adjusted to control descent. Touchdown at minimum controllable airspeed means the stall horn is on. At touchdown the elevator should be nearly full nose up and be adjusted to keep the nose wheel up as long as there is elevator control to keep it up. When the brakes are applied, you will be able to use higher than normal pressures but the tires won't skid because the weight of the plane will be on the wheels not the wings.

Common Errors:

If you are coming in too steep, the power will be at idle just to make the proper clearance over the 50 foot tall obstacle, which means you are doing the approach too steep.
If the airspeed it too fast, the float will be excessive. You are supposed to touchdown beyond and within 200 feet of the touchdown point. If you hypothetically calculated a 1,200 foot total distance over a 50 foot obstacle, you can't make the airplane stop in that distance if you are too fast or too high over the obstacle.

Failure to allow for fast engine ground idle speed (1000 RPM) when calculating landing distances. (7% overall and 5% ground roll increases over the tables in the POH/AFM)

If you touchdown too fast the wings will still be helping to support the plane and you will skid the tires while trying to stop in the shortest distance possible.

Soft Field Landing

FAA Private Pilot Practical Test Standards states that the references for Soft Field Landings are: The Airplane Flying Handbook (FAA-H-8083-3A) and the DA-20-C1 POH/AFM.

The DA-20-C1 POH/AFM guidance on Soft Field landings is non-existent! The appropriate references are the FAA Private Pilot PTS and the FAA Airplane Flying Handbook.

For this discussion, the 3 relevant elements in the PTS regarding the Soft Field Landing are:

Maintains a stabilized approach and recommended airspeed, or in its absence not more than 1.3 VSO, +10/-5 knots, with wind gust factor applied.
Makes smooth, timely, and correct control application during the roundout and touchdown.
Touches down softly with no drift, and with the airplane's longitudinal axis aligned with the runway/landing path.

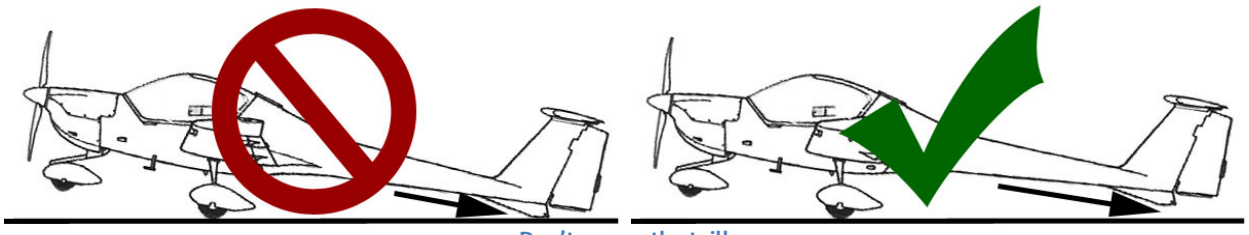
From pages 8-19 and 20 of the Airplane Flying Handbook:

"The approach for the soft-field landing is similar to the normal approach used for operating into long, firm landing areas. The major difference between the two is that, during the soft-field landing, the airplane is held 1 to 2 feet off the surface in ground effect as long as possible."

"Power can be used throughout the level-off and touchdown to ensure touchdown at the slowest possible airspeed, and the airplane should be flown onto the ground with the weight fully supported by ***the wings****."*

"Touchdown on a soft or rough field should be made at the lowest possible airspeed with the airplane in a nose-high pitch attitude. In nosewheel-type airplanes, after the main wheels touch the surface, the pilot should hold sufficient back-elevator pressure to keep the nosewheel off the surface. Using back-elevator pressure and engine power, the pilot can control the rate at which the weight of the airplane is transferred from the wings to the wheels."

Summary: For those who have experienced actual soft field takeoffs and landings, this all makes perfect sense. For those who have not, remember that it's important to avoid excess airspeed. The PTS does not specify a distance that you must land beyond and within like it does for other landings, but you want to touch down in a reasonable distance. I have not experienced many soft fields that weren't also short. Some power at touchdown is correct but it's just enough power to allow for elevator control to keep the nose wheel up until you are ready for it to come down. Practicing soft field touch and goes where the nose wheel never touches will allow you to gain confidence, coordination and experience in this type of landing. If you are doing it right the stall horn should be on during the touchdown and roll-out.



Don't scrape the tail!

Forward Slip To A Landing

FAA Private Pilot Practical Test Standards states that the references for a Forward Slip To A Landing are: The Airplane Flying Handbook (FAA-H-8083-3A) and the DA-20-C1 POH/AFM.

The DA-20-C1 POH/AFM guidance on Forward Slip to a Landing is non-existent. The appropriate references are the FAA Private Pilot PTS and the FAA Airplane Flying Handbook.

For this discussion, the relevant elements in the PTS regarding the Forward Slip to a Landing are:

Establishes the slipping attitude at the point from which a landing can be made using the recommended approach and landing configuration and airspeed; adjusts pitch attitude and power as required.
Maintains a ground track aligned with the runway center/landing path and an airspeed, which results in minimum float during the roundout.
Makes smooth, timely, and correct control application during the recovery from the slip, the roundout, and the touchdown.
Touches down smoothly at the approximate stalling speed, at or within 400 feet (120 meters) beyond a specified point, with no side drift, and with the airplane's longitudinal axis aligned with and over the runway center/landing path.

Page 8-10 in the Airplane Flying Handbook offers some reasons for intentionally placing the aircraft in a Slip:

"Intentional slips, however, are used to dissipate altitude without increasing airspeed, and/or to adjust airplane ground track during a crosswind."

Page 8-11 contains some information that helps explain the Forward Slip:

"In a forward slip, the amount of slip, and therefore the sink rate, is determined by the bank angle. The steeper the bank— the steeper the descent."

"In most light airplanes, the steepness of a slip is limited by the amount of rudder travel available. In both sideslips and forward slips, the point may be reached where full rudder is required to maintain heading even though the ailerons are capable of further steepening the bank angle. This is the practical slip limit, because any additional bank would cause the airplane to turn even though full opposite rudder is being applied. If there is a need to descend more rapidly even though the practical slip limit has been reached, lowering the nose will not only increase the sink rate but will also increase airspeed. The increase in airspeed increases rudder effectiveness permitting a steeper slip. Conversely, when the nose is raised, rudder effectiveness decreases and the bank angle must be reduced."

Summary: The scenario seems to be that you are too high and need to dissipate altitude in order to land. It makes no sense to just lower the nose of the plane to get down to the runway; that will cause an increase in airspeed. The skill you are trying to demonstrate is that you can dissipate the altitude without increasing airspeed above that required to land. Remember, the PTS says "minimum float". The aircraft should be:

1. Placed in a position on final where it is too high, then a forward slip is entered.
2. Power at idle.
3. Ailerons into the wind with full opposite rudder; maintaining ground track with aileron.
4. Maintain a normal approach speed. (the DA-20-C1 handles just fine in a slip at normal approach to landing speeds)
5. Maintain configuration until in a position to roundout and flare. (after coming over the threshold.)