LEVEL 1 RIDING MATERIAL
BEGINNER TO INTERMEDIATE RIDERS

The information below is written for a real student to learn from. This gives the “Instructor in Training” a useful insight into how much a real student may or may not know and what it might seem like to be at their level of riding and knowledge.

1. GEARS & BRAKING - GEARS: BEGINNER

Most modern Mountain Bikes have two sets of gears, commonly known as the front and rear gears. The front gears, comprised of usually 2 or 3, are the larger cogs attached to the right-side crank arm, whilst the rear gears, either 7,8 or 9, are the collection of cogs on the rear wheel (see pic.1.1). Therefore, a bike with three front gears and 9 rear gears has a total number of (3×9) 27 gears. As your riding progresses, you will learn that you will actually never use all of the 27 gears if you are shifting correctly, and that it’s more a representation of the ratio of gears available to you rather than the total number of gears. The rear gears represent the main selection of gears with small changes between them – this is the opposite for the front gears.

PICTURE 1.1: DRIVETRAIN

As a beginner rider you will learn to use the rear gears only. It keeps it simple having only one group of gears to think about whilst the speed and terrain will not be challenging to the point where you will need to use the Front Gears anyway. Too many people skip forward and try to learn both front and rear gears together which often results in a lot of confusion, a slower learning curve as well as poor gear selection and technique. But don’t worry – the first stage as a Novice rider is not far away, during which you will then learn to use the front gears.

It’s best to think of gears in terms of easy or hard, or slow and fast because these words relate directly to what the rider feels on the bike. Terms like high and low or using numbers like first or fifth gear can be confusing to a newcomer. To the un-initiated, a high or ‘first’ gear could be either an easy or hard gear. When you want to climb or go slower you’ll need an easier gear and conversely if you want to go down a hill, or faster, you’ll need a harder gear – simple and logical. Most gear systems use the left gear shifter to change the front gears and the right gear shifter to change the rear gears. “RIGHT-REAR” is a good phrase to help you remember just that. The largest cog on the rear gears and smallest on the front will give you the easiest gear and vice versa. A simple way to think of it is the closer the chain is to the wheel, front or back, the easier the gear.

However, different bikes are equipped with different types of gear shifters to help you select the appropriate gear for your strength, speed and terrain. Naturally, each design is different and thus requires a different operation to work them. It is therefore very important to study the operation manuals for the bike and gear system that you have to ensure you are operating the gears on your bike correctly. If you do not have the operation/user manuals you should be able to get them online at www.shimano.com or www.sram.com. If not, take your bike to a good, local bike shop to determine the exact model of gear system you have to obtain the correct user manuals.

PICTURE 1.1A: GEAR RATIOS - THE CHAIN ON THIS BIKE IS PLACED ON THE HARDEST GEARS FRONT AND BACK.

Once you are familiar with the basic operation of how to select harder and easier gears on your bike, you are then ready to explore the concepts of when to change gear, how to select the appropriate gear, pedaling speed or "cadence" - rpm's, and even how quickly you can change gear - all of this is in the next section, so read on…

GEAR OPERATION

"CAROUSEL" Gear Changing Exercise - This following exercise has been used for years in the coaching of many different level of riders from beginners right up to advanced and works very well at showing riders how to use their gears correctly with efficiency and simplicity.

GOAL: TO LEARN HOW TO QUICKLY SELECT THE APPROPRIATE GEAR FOR ANY RIDER, TERRAIN OR SPEED

part 1 – This part of the exercise helps a beginner rider find out what it feels like in terms of pedaling force and speed, when you are in the correct and incorrect gear. It will also teach them how to select easy and hard gears.

PREPARATION:

- Find a large flat area for this exercise – a grass field is ideal
- Then make sure the chain is on the middle chainring on the front gears before you get started
- Use the Basic Start to get going then pedal smoothly in a large circle around the field – big enough so you don't get dizzy!

EXERCISE:

1. With just the rear shifter, change into the easiest gear and then spin the pedals as fast as you can without falling off. Take care to keep your feet on the pedals as it can hurt if they slip off and get knocked!

    - Make a mental note of what this feels like – this is what it is like when the gear you are in is too easy.

2. Now change into the hardest gear and then turn the pedals slowly. If you find yourself picking up speed, try applying a very small amount of rear brake with only one finger – just enough to cause a bit of drag or resistance, but not enough to slow you down.

    - Make a mental note of what this feels like - this is what it is like when the gear you are in is too hard.

3. Release the rear brake and now find the gear you're most comfy with and could cruise in all day long – this is imaginatively called your "Cruise-Mode" gear or CM gear.

This will change with different terrain, may be different for everyone and should be between 60-90rpm (revolutions, or "turns", per minute): not too fast, not too slow, just right for you and you only. Your legs should not be doing anything or feeling like they did in A or B! Spend some time in your CM gear and note what it feels like then repeat 3 all this times!

Part 2 – Here a rider finds out how quickly they can select and move through the gears to therefore find their "cruise-mode"

EXERCISE:

1. First get into your CM gear then change into the easiest gear and back to CM as quickly as possible

    - meaning change gears quickly – not ride/pedal as quickly as you can, instead just keep pedaling smoothly at a normal speed)
    - Repeat this 3 times.

2. Once in your CM gear again, change into the hardest gear and back to CM as quick as you can.

    - Repeat 3 times.

Get to know your equipment and see how many gears you can change in one go. For example, with the Shimano Rapidfire gears you can get up to four clicks/gear changes if you keep pushing the thumb-lever. Repeat whole or parts of this exercise to make sure you've really got to know how quickly you can change gear, how you select easy or hard gears and until you are happy with what the CM gear feels like in terms of pedaling force and speed - that is, how quickly you should be spinning the pedals. Finally, have a look at the following questions and try to answer them - thinking about new information like this will help you to remember it.

I. How do you use the right- hand shifters to obtain easier or harder gears?

If you're having troubles remembering whilst you're, you could mark, say the shifter that selects easier gears, with a green sticker - anything that will help you avoid any confusion.

II. What does it feel like to pedal if the gear is too easy or too hard?

Car analogies work well here. If the gear is too easy then it feels like your legs are spinning like crazy but the bike's not getting anywhere - like a car stuck in first gear; the engine is at full throttle (your legs) but the car is still going slow. If the gear is too hard then it's very difficult to move the pedals to keep the bike going, so riders slow down and often stop. If a car is in too high a gear it has no power, so finds it hard to cruise, is easily stopped or stalled and has no power at all to accelerate or climb.

III. What does it feel like to pedal in the cruise-mode?

Efficiency! In the cruise-mode, the rider will be in the correct gear for his/her particular fitness, speed and the type of terrain. You learn how fast your legs should spin and how easy it should feel to turn the pedals when you're in the correct gear. Your cruise-mode can be the easiest gear you have on an uphill or the hardest gear you have on a downhill, or anything in between depending on your strength, speed and type of terrain you are riding on.

IV. How quickly and often can you change gear?

By changing gears from cruise-mode to the easiest and back, you learn how quickly you can move through and select the appropriate gear. Mountain biking involves changing gear constantly and quickly (as speed and terrain changes) so this is where you learn how quickly and often you can do that. The quicker you can grasp this concept the easier it will be for you to stay in cruise-mode (the correct gear!) throughout the ride so the more your riding will really start to progress!

Here's some more questions - answers are at the bottom of the Timing & Coordination section:

- If you're riding up a hill and you find it too hard, what should you do?
- What could you therefore do before you get to a hill?
- If you're going down a hill, you go to pedal and the pedals spin really quickly without engaging with the rear wheel (as if the gear was far too easy), what should you do?
- Just before you stop, what could you do to help get going again?

GEARS: NOVICE TO INTERMEDIATE

GEAR OPERATION

As a Novice rider who's beginning to search for more demanding terrain, you'll definitely need to start using the Front Gears and in particular, the "Granny-Ring". But before we move onto to telling you about how to use the Front Gears, we're going to talk a little about chainline.

The chainline is the path the chain takes from the chainset to the cassette and is thus directly affected by which gears are selected.

As you can see, a good chainline is where the chain remains straight and parallel to the rear wheel. This is good because the chain can sit neatly on the cogs, making for a smoother, quieter action. More importantly however, having a straight chainline means the forces pulling on the chain (the chainset and cassette) are doing so along its own axis, resulting in far less wear and a much more efficient drive-train. A bad chainline is caused when the rider has selected an inappropriate gear, causing the chain to be twisted diagonally making for an inefficient and much weaker drive-train.

At the beginner-novice stage, the chain should typically stay on the middle chainring, allowing the chain to move onto any gear at the back without adversely affecting the chainline too much. However, once a rider starts moving the chain with the Front Gears the chainline becomes much more of an issue. Ideally, the chainline should stay as straight and parallel to the rear wheel as possible, to keep the drivetrain efficient and strong. Within this in mind, will shall now discuss the correct operation of the front gears.

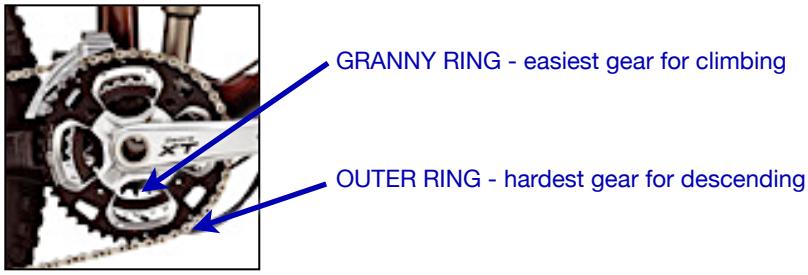
FRONT GEAR USE

Learning to use the Front Gears effectively with the Rear Gears can be a complicated affair, but one that is certainly not too difficult. To keep it simple at this stage, you will first learn how to start using the Front Gears by viewing them as a "Turbo-Boost" to your rear gears. As you are riding around and finding those more challenging trails, you will sooner or later become stuck as you run out of easy rear gears, if the hill is too steep and/or long. In comes the "Turbo-Boost" to help you out.

EASIER GEAR:

Scenario: When climbing a hill you have already selected the easiest gear with the right-hand shifter but you are still finding it too difficult to pedal so you stall and start walking.

Solution: As soon as you run out of easy rear gears and decide you need more, quickly pull the LEFT finger/trigger shifter to get that Turbo-Boost. The chain will then move onto the inner chainring called the "Granny-Ring" – a super easy gear that will enable you to pedal up just about anything. As soon as you have passed the steeper/difficult



section and you no longer require the Turbo, turn it off (thereby putting the chain back onto the middle chainring, maintaining a good chainline) by pushing the LEFT thumb-shifter until you here its 'click' and the chain is running smooth and silently. Continue using the rear gears as normal.

SUMMARY

- Turn the Turbo ON before it becomes too difficult to pedal smoothly
- Turn the Turbo OFF as soon as you no longer need it to maintain a good chainline
- Only use the Front Gears when you do not have any Rear Gears left to select

HARDER GEAR:

As for using the outer chainring, it's exactly the same just the other way around.
Typically, the speed required to be able to select the outer chainring will not be reached by a Novice rider off-road, but the technique is simple so it makes sense to introduce it now whilst we're on the subject of Front Gears.

Scenario: Whilst riding quite fast along the flat or down a hill, after selecting the hardest gear with the right shifter in an attempt to stay in Cruise-Mode, your legs begin to spin too quickly as the bike gets faster and faster.

Solution: To avoid this "spinning out" of your pedals because the gear is too easy for your speed, push the left thumb-shifter all the way until the chain sits neatly on the outer chainring and you feel the definite gear change. (You may now find the gear too hard, in which case, select an easier gear with the RIGHT shifter – two or three clicks will usually give you the correct gear ratio). Once you begin to slow down and no longer need to be in this "Turbo-Fast" gear, then click the left trigger shifter to take the chain back to the middle chainring, turning off the Turbo. Continue using the rear gears as normal.

"CAROUSEL" Gear Changing Exercise - This following exercise has been used for years in the coaching of many different level of riders from beginners right up to advanced and works very well at showing riders how to use their gears correctly with efficiency and simplicity.

GOAL: TO LEARN HOW TO USE THE FRONT GEARS CORRECTLY IN CONJUNCTION WITH THE REAR GEARS IN ORDER TO MAINTAIN A CORRECT CHAINLINE

PREPARATION:

- Find a large flat area for this exercise – a grass field is ideal
- Then make sure the chain is on the middle chainring on the front gears before you get started
- Use the Basic Start to get going then pedal smoothly in a large circle around the field – big enough so you don't get dizzy!
- Try to not look down at the gears whilst practicing; instead, learn to feel and listen to them so you can focus on where you are going

part 1 - CLIMBING EXERCISE:

1. Ride around in a big enough circle so you don't become dizzy.
2. Select the easiest gear with the right shifter
3. Now turn the "Turbo-Climb" on by pulling the LEFT triggershifter. You will notice how easy the gear is now – it will almost certainly be too easy.
4. Imagine you are climbing a hill, have come to the top and no longer need the Turbo
5. Turn the Turbo OFF by pushing the LEFT thumb-shifter until it clicks and you feel the gear change and the drivetrain is smooth and silent.

As mentioned before, the Front Gears are not always as reliable as the Rear Gears, in which case take a note of the following:

- After turning the Turbo OFF, if the drivetrain is making a noise, look down (taking care to avoid hitting something and/or losing control) to see if the chain has indeed shifted back to the middle chainring.
- If it has NOT, gently push the left thumb-shifter again just a little bit (before it clicks again) to help "nudge" the chain onto its respective chainring.
- Alternatively you may have over shifted by pushing the left thumb-shifter two clicks instead of just one, causing the chain to rub or shift onto the outer chainring – click the left triggershifter once.

part 2 - DESCENDING EXERCISE:

1. Ride around in a big enough circle so you don't become dizzy.
2. Gather some speed and select the hardest gear with the right shifter
3. Keep momentum and keep pedaling!
4. Once you have some speed, turn the "Turbo-Fast" on by pushing the LEFT thumb-shifter. You will now find it hard to pedal as the gear will most likely be too difficult.
5. Imagine you are going downhill, have now reached the bottom and are slowing down
6. Keep pedaling and now turn the Turbo off by clicking the left trigger shifter.

Practice each drill until you really get the hang of turning the Turbo on for both climbing and descending and turning it off to get the chain back to the middle chainring so you keep a good chainline. Remember the following points to ensure a quick learning curve and good use of the gears while maintaining a decent chain-line.

I. Climbing (steep/long) ...
II. Descending (fast) ...
III. Only use the front gears when you've ran out of rear gears
IV. Change back into the middle ring as soon as you no longer need the "Turbo Boost"

GENERAL GEAR TIPS

As you start to ride further, over more challenging terrain and especially as you are now beginning to use all the gears of the bike, it will become more important to learn and put to use the following tips whilst changing gear. These will help you make better gear changes and maintain the life or your bikes' components.

1. EASE OFF THE PEDALS AS YOU CHANGE GEAR.

This will take some strain off the chain making it easier to be moved around from cog to cog, giving faster, smoother and more accurate gear shifting. When there is a lot of the force on the pedals there will also be the same on the chain - making it more difficult for the chain to shift between cogs. This can cause the chain to "crunch" between gears or, worse case scenario, snap completely.

- Just as you change gears, momentarily ease off the pedals (pedal with less force) as you keep pedaling – you need to pedal to change gear, just more lightly!
- If you are climbing you can always put in some stronger pedal strokes to gain momentum before you ease off to change gear – helping to avoid stalling the bike as you climb and change gear.

This, although is very simple, takes a little practice as you try to find the correct timing for changing gear and easing off the pedals. If your drivetrain makes a "crunching/rough" noise as you change gear – you are pedaling too hard. If the gear change is smooth and fairly silent – good work! Once you get the hang of it, your gear changes will be a lot smoother and quicker, especially on your climbs, not to mention your chain will be much the happier for it.

2. PREPARE FOR THE NEXT GEAR CHANGE

Looking ahead down the trail and preparing yourself for what lies ahead will drastically help your riding – especially when it comes to staying in the correct gear; the Cruise-Mode. For example, if you see a climb ahead, you will know that you will need an easier gear soon. If it's particularly steep, you can decide to get into an easy gear before the hill so you don't get caught out, or you can get ready to change into an easier gear should the climb look less severe.

- Look ahead and predict what gears you will be needing down the trail
- Either change gear before you get caught out of be ready to change gear at a certain point

Again, it will take time to be able to read the terrain accurately so you select the appropriate gear. For instance, you may not choose an easy enough gear for a certain climb, or conversely, you may select one that is too easy. Practice will teach you what gears you will need for different gradients, riding conditions and even for how fit/fat you're feeling that day!

BRAKING - *HOW* TO BRAKE: BEGINNERS - NOVICE

The best way to brake is by using both brakes simultaneously. However, there are many situations in Mountain Biking that also require independent use of the brakes. Consequently… the best way to learn how to use each brake (either independently or together) is one at a time.

As a Beginner rider you will first learn to use the rear brake by itself. Assuming you keep the riding speed and terrain difficulty low, using just one brake at this stage is generally sufficient. However, should your riding speed increase drastically, you will obviously need to use both brakes, moving onto Novice Braking where you'll learn how to use the front brake and then both brakes simultaneously. As soon as you feel ready, move onto this stage in Novice riding. I've taught many riders from Beginner to Intermediate how to brake properly with just the rear brake and still do for one reason – it promotes excellent brake control; too much brake, the rear wheel skids - not enough, they don't slow down enough. Simple and relatively easy to control with minimum consequences providing you stay at a controlled speed! However, with the front brake, too much braking means flying over the handlebars - hence, why a Beginner learns the rear brake first. So let's get into it, explaining how and why we brake using the "GCF" principles: Gradual-Consistent-Feathered.

Gradual: LEARNING THAT A BRAKE IS BEST APPLIED GRADUALLY. The brakes must be applied progressively – lightly first then gradually harder until you slow down to the desired speed or stop; teaching you to not grab the brake lever and causing the wheel to lock up.

Consistent: LEARNING TO SLOW DOWN BY PUTTING YOUR BRAKES ON AND LEAVING THEM ON, UNTIL YOU SLOW TO THE DESIRED SPEED OR STOP. Many beginner riders will tend to grab the brakes, skid, release them and grab them again and so on. This is ineffective for both slowing down and maintaining control. Brakes, generally, need to be applied and left on until the rider has slowed down to the desired speed, or stopped.

Feathered: LEARNING HOW TO "FEATHER" THE BRAKE BETWEEN SKIDDING AND NOT SLOWING DOWN ENOUGH. Here you learn how to balance the brake between too much (skidding) and too little (not slowing down) braking. Using brakes correctly can enable the rider to stop very quickly with maximum control and little effort. By 'feathering' the brake, you smoothly add or remove small amounts of power from the brake, learning how to get the balance between too much power and not enough, whilst applying as much stopping power as possible. Concentrating on this allows you to learn how to avoid skidding and what it can feel like just when the wheel begins to skid. Skidding a wheel is bad: it doesn't slow you down, can cause you to lose control and it's not good for the environment - so let's learn to avoid it!

PICTURE 1.1C: BRAKING FINGER POSITION (RIGHT BRAKE IS THE REAR FOR THIS BIKE)

"NO SKIDS" Rear Braking Exercise - by practicing the GCF principles, this exercise is great at improving the braking control, power and safety of, again, many different levels of riders.

GOAL: LEARN how to use the rear brake using the GCF principles - SO YOU CAN STOP IN CONTROL WITHOUT SKIDDING

PREPARATION:

- SAFETY IS KEY WHEN LEARNING THIS EXERCISE! Choose a safe area to practice and follow these instructions carefully to keep you in control.
- Establish which brake lever, right or left, controls the rear brake.
- To make sure you are only using the rear brake, place two fingers over the lever and hold the other handlebar grip with all your fingers (see pic 1.1c). Maintaining these hand positions during this exercise will ensure effective use of the rear brake only, whilst providing the appropriate grip strength on the bars.
- Find a wide trail with a very slight down gradient and smooth surface (no loose rocks; you are learning to brake so make sure the surface is free from loose rocks or anything that may cause you to skid easily and/or lose control. As you will be stopping, also make sure you will not be getting in the way of any other trail users.
- Stay seated for this beginner braking exercise – this will keep your weight over the rear wheel, giving it more grip, making it harder to skid and keeping the bike balanced preventing you from losing control.

EXERCISE:

1. Once you have chosen a safe practice area, find a fallen stick/branch and place it on the trail – this will be your mark to start braking.
2. With a little speed, approach the mark and as soon as the front wheel passes it, apply the rear brake and slow down to a stop.
3. At this point your goal is to slow down with no skidding of the rear wheel.
4. With your next go, approach the mark at the same speed but try to stop in a slightly shorter distance, again avoiding any skidding.
5. Once you have mastered braking for this approach speed, increase the approach speed a little and begin the exercise again.

The great thing about this exercise is its simplicity, so you can really make it your own according to what you want to learn. For example, instead of making the stopping distance shorter, keep it the same and increase your approach speed a little each time. Just make sure you keep within your riding abilities and choose a safe area to practice in – and no skidding!

REPEAT WITH THE FRONT, THEN BOTH BRAKES

Repeat the *GCF Braking Exercise* from the beginner-novice section, but this time **with the front brake** and if ready, with both brakes. Just make sure when using the front brake, you take things carefully and push back a little against the handlebars as you brake, to avoid your body weight being thrown forward.

When slowing down more quickly, because your body mass is so much heavier than the bike, your body will naturally want to carry on going - as it does in a car when the brakes are slammed on. This can cause your weight to move forward, over the front of the bike, making the rear wheel light (therefore easy to skid), the bike difficult to control and possibly causing you to go over the handlebars.

However, be careful not to lean too far back as the front wheel will then be un-weighted, causing it to skid instead; having your eyes just behind the stem is a good point of reference for the correct body position, though how far you move back will ultimately depend on how hard you are braking (especially if you are using the front brake), the pitch of terrain and even the type of terrain surface.

These are all things you can discover and begin to feel by practicing the above exercise in different places, with different brake combinations… something that can happen naturally simply by going on a ride! Just remember the *GCF principles* and take it one step at a time.

A Novice rider can also learn to do this **standing up** on the pedals, whilst pushing back on the bars according to the braking force that is sending them forward… only pushing back as much as they feel their body weight is being pushed forward as they apply the brakes.

WHEN BRAKING HARDER AND/OR USING THE FRONT BRAKE, KEEP YOUR WEIGHT SLIGHTLY BACK TO AID BALANCE, CONTROL AND TIRE GRIP

WHEN TO BRAKE: SELECTIVE BRAKING - INTERMEDIATE

Learning how to operate the brakes as effectively as possible, for all the different riding situations possible is an ongoing process right up to the advanced stage of riding. For this stage however, we can further progress things and introduce the idea of when to brake, as opposed to how to brake. The principle of *Selective Braking* is very simple; to maximize grip and control a rider can...

TRY TO MINIMIZE OR ELIMINATE BRAKING IN BUMPY SECTIONS AND/OR CORNERS

Braking reduces the traction of the wheels and also inhibits the ability of the wheels (and suspension, if on the bike) to move over bumps. In rough sections and corners, we obviously need as much grip and as smooth a ride as possible, so it makes sense to try and reduce braking in these parts of a trail. Instead, we try and maximize the use of the straight sections (before corners) and/or smoother sections to control our speed there.

IN THIS EXAMPLE, THE RIDER IS GOING DOWNHILL AND CONTROLLING HIS SPEED BY BRAKING (RED). AS HE APPROACHES A ROUGH, STEEPER SECTION HE SLOW S DOWN BEFOREHAND, EASES THE BRAKES OFF (GREEN) TO AVOID SKIDDING AND FOR A SMOOTHER RIDE DOWN THE ROUGH SECTION AND THEN RE-APPLIES THE BRAKES AT THE BOTTOM, TO MAINTAIN CONTROL FOR THE REST OF THE DESCENT.

Its important to note here though that whatever section of trail you are riding, controlling your speed is the priority. so if you do have to brake in corners or in rough terrain to control your speed, then do so!

2. RIDING BODY POSITION & BALANCE - BEGINNER

The first riding position you should learn for mountain biking is the Basic Body Position, or BBP. The BBP is crucial in helping a rider stay comfortable, balanced and in control of the bike, whilst sitting down and riding off-road. What keeps a bike balanced and therefore easy to control, is whether the front and rear wheels are evenly weighted: thus, if our body weight is near the middle of the bike. If one wheel is significantly more or less weighted than the other, the bike can become very hard to control, for two reasons:

- Our base of support (the distance between the contact points of the two tires on the ground) is effectively reduced
- Weight = grip! If one wheel is more weighted than the other due to our body position on the bike, the lighter wheel will have less grip: for maximum control, we typically need both wheels to have roughly the same level of grip.

As such, any of the different body positions we use whilst mountain biking are designed primarily to maximize our balance on and control of the bike, by helping to keep our weight centered between the two wheels. The BBP however, involves us sitting down so naturally our weight is going to be more towards the rear wheel than the front. In order to minimize this and keep more centered on the bike, we can follow these four main criteria of the BBP:

PICTURE 1.2: BASIC BODY POSITION

i. note correct leg extension, curved spine, and bent arms

ii. note elbows out and head up

1. **ARMS RELAXED AND SLIGHTLY BENT:** This will help keep your upper body more towards the front of the bike, keeping your weight more centered for bike control and front wheel grip. Relaxed, bent arms are also great for absorbing the knocks and bumps from the trail - they are your suspension for the handlebars! Straight arms can tend to “lock” riders into a rigid position that makes them very stiff, unable to absorb bumps and keeps their weight away from the front wheel. Try to keep your elbows slightly out to the side to prevent this.

2. **HEAD UP!** THIS IS A SUPER IMPORTANT SKILL – KEEPING YOUR HEAD UP AND SCANNING THE TRAIL AHEAD IS ONE OF THE FIRST SKILLS A RIDER SHOULD MASTER. IT IS CRUCIAL NO MATTER WHAT TYPE OF RIDING YOU ARE DOING and will help for two main reasons. Firstly, it will make you look ahead and scan the trail for upcoming obstacles so you can always be prepared. Secondly, keeping your head horizontal will do wonders for a riders balance. The faster you are riding the further ahead you need to look, as you will be approaching objects quickly and so will have less time to prepare and act accordingly – if you are not looking ahead far enough things will appear to “come out of nowhere” and everything seems rushed.

3. **BODY AND MIND RELAXED** – BREATH! Whilst in the BBP it’s important for your body, particularly your legs, torso and hips, to stay relaxed as you can. A relaxed body should typically result in a curved spine (not slouched) – as if you are in a ‘ready position’. Also, when learning something new people can often feel out of their ‘comfort-zone’, tensing up and not breathing properly. By consciously relaxing your breathing (and remembering to do it!) you’ll find it much easier to keep your muscles, body and mind relaxed. Your ability to balance and react will be greatly increased; you will ride and absorb the trail better, be more controlled and have more fun. Your muscles will be less fatigued, less knocked around and your head will hopefully feel a lot more refreshed than when you started. So learn to chill out when you’re riding!

4. **HANDS – THUMBS UNDER THE BARS** and fingers covering the brakes: Many beginner riders will adopt the lazier riding position of arms locked out, resting their palms on top of the handlebars and not gripping them properly. This is bad technique because you cannot grip the bars properly if your thumb is on top. It then also becomes very easy for your hand to slip or be knocked off - very dangerous! However, do not strangle the handlebars by gripping them too tightly. This will definitely cause hand and arm fatigue and stiffens your arms (your suspension) making it harder to absorb shocks. Conversely, too loose and your hands may slip off anyway; slightly firm yet relaxed, but not tight. Also, cover the brakes with one or two fingers as this will give you instant speed control. Most modern brakes are powerful enough to use just one or two fingers so keep it to that – anymore and you’ll compromise your grip strength on the handlebars.

BBP SUMMARY

Head up
Arms bent & relaxed for a more centered position
Body relaxed – curved back
Thumbs under bars & fingers over brakes

EXTRA TIPS...

COASTING: When you are not pedaling and the bike is still rolling along, this is called coasting. If you are coasting make sure your pedals are level - horizontal. This will give you better ground clearance with your pedals and is the pre-cursor for standing up on the pedals at Level 2 when you learn the Downhill Body Position.

PICTURE 1.2E – PEDALS LEVEL WHEN COASTING

FOOT PLACEMENT: On regular, flat pedals keeping the meaty part of your foot (behind your toes) will provide the best combination of pedaling efficiency and grip - left picture. Placing the arch of your foot on the pedal may provide extra grip, but is poor for pedaling efficiency - right picture.

PICTURE 1.2F - FOOT POSITIONS

RIDING POSITION & BALANCE - NOVICE TO INTERMEDIATE

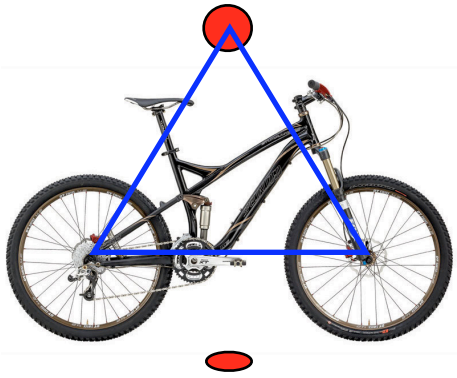
Time to start talking about some real technique with some bio-mechanical skills; how we move our body using our muscles to change the behavior of the bike. As with many sports, anybody that masters the basics, will always progress to be a much better rider for it. As simple as some of these skills may seem, they are incredibly important at any level of riding, for any rider. This particular skill of riding position & balance can be seen as the fundamental bio-mechanical skill of a rider; the foundation on which to build all the other skills from. Expert knowledge and application of this simple skill is what typically differentiates a new rider from an expert rider.

Moving your body-weight over the bike in different directions can drastically alter the way the bike behaves and therefore remains in control, as you move over varying terrain. Let's see how we can move to help control the bike better when we climb and descend...

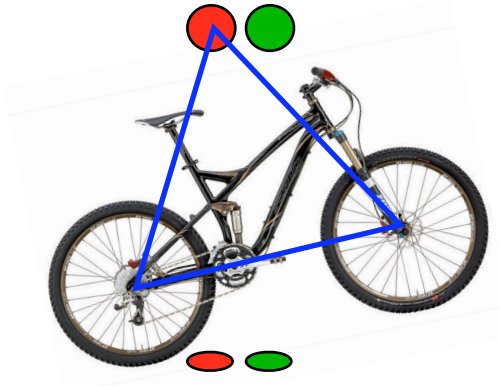
CLIMBING POSITION

Whilst in the BBP, as we begin to climb up a gradient, the first thing to happen with our body weight is for it to naturally be pushed to the back of the bike, as the front wheel becomes higher than the rear wheel. Assuming we remain in the BBP and don't change position, the front of the bike will then become light whilst the rear heavy. As we discussed in Level 1, we must keep our **weight centered** between the front and rear wheels for **maximum grip and control**. To counter-act this backwards movement of our body weight as we climb, we must therefore **move our weight forward**, over the bike to keep both wheels evenly weighted.

A) In the BBP on level ground, our body weight (red circle) remains centered over the bike - both front and rear wheels are evenly weighted.



B) If we remain in this same position (relative to the bike) as we climb, we can see our weight is now biased towards the rear - we must therefore move forward to a new position (green) to keep our weighted centered over the bike and therefore maintain control.



CLIMBING Body Position - CBP: A good reference point for the correct position is to try and get your chin in front or over the handlebars - the steeper the climb, the more forward you should move

1. **HEAD UP AND LOOK AT THE TOP:** Climbing inherently involves slower speeds, so often riders will stop looking ahead as they slow down and start climbing. It is just as important, if not more so, to look ahead whilst climbing. Slower speeds dictate that the bike is not only less stable but also less willing to roll over any obstacles such as roots. Looking ahead will help balance and allow you to pick a smoother line. Focusing past the top of the climb will also help riders not only reach the top but to go past it as well (instead of just reaching the top and stopping which many people do!)

2. **SIT FORWARD ON SADDLE:** This keeps your weight forward over the bike helping to keep the front wheel weighted, therefore making the bike easier to control, steer and balance. Staying seated also keeps the rear wheel weighted, preventing the rear wheel from losing grip, “skidding out” and the bike slowing down or stopping.

3. **CHEST LOW AND FORWARD:** To achieve this, keep your wrists low and elbows in - in this position you can then pull back on the bars to get your weight forward without lifting the front wheel (which can happen if yours wrists are higher than the bars) or jerking the handlebars (which often happens if your elbows are out). Keeping the chest low and forward gives a more stable, lower centre of gravity, and again keeps the front wheel weighted and under control.

more STEEP the trail = more FORWARD & LOW over the bike

CROUCH CLIMBING - STANDING UP

When riding up bumpy climbs or particularly short and steep climbs, like a bank, sitting down on the seat will not provide the best possible riding position. In this case, the bike needs to be un-weighted by moving off the seat or the rider needs the extra power (gained from being able to pedal standing up) to climb over the bumps and/or steeper terrain. When climbing very steep terrain the bike is typically moving slowly, making it much more difficult to roll over any bumps. Similarly, steep terrain is often attacked with a short “spurt” of speed and the best way to pick up speed quickly is to stand up to pedal. This why we use a Crouch Climb in these situations.

CROUCH BODY POSITION - CRBP: Although standing up, the rider is still low, over the bike to help balance

Even though you are standing off the seat you must still keep low, with your chest forward to stabilize the front wheel and bum over the seat to aid rear wheel grip as you pedal. As with the regular Climbing Position, when you use the Crouch Position, it is very much a balance act between having your weight too far forward or too far back. Keeping low (have your bum just a few inches off the seat) will help distribute your weight over the entire bike so both wheels are adequately weighted most of the time.

DOWNHILL - READY POSTION

We've talked about how we move our body forward over the bike when you climb to keep our weight centered between the two wheels - so you may think the same is true, but in reverse, for going downhill. Wrong!!! Though still simple, it's not as simple as just putting your weight backwards every time you point the bike downhill - there's more going on here. Let us explain how and why we move into different positions depending on what you are doing as you descend... it **all depends if and how much you are braking**; which in turn, is affected by a number of factors such as skill, confidence, terrain pitch (steepness) and so on.

THE PHYSICS: As we already know, for a bike to behave normally and therefore maintain control, we must keep the front and rear wheels and thus the whole bike, evenly weighted from the center. As soon as we point a bike downhill, gravity will instantly "pull" it down the hill, with us on it. Due to the virtually frictionless nature of the bikes' wheels rolling over the terrain, this effect naturally causes the bike to immediately increase in speed... we now have two options:

I. To resist and go against this force of gravity by applying the brakes to dictate *yourself* how fast the bike goes.
II. To go with the force of gravity and let the bike roll as fast as the terrain allows.

Consequently, we now have two different scenarios; one going with gravity, the other against and must therefore adopt a different position for each one to keep the bike balanced and controlled. Thus, the **Ready Position is the first position to move into in preparation for descending** and allows us to move according to which of these scenarios we have chosen.

READY POSITION - note standing up with pedals level, eyes over stem and covering the brakes

These five points of the Ready Position allow a rider to maximize control when going downhill:

1. **STAND UP:** This un-weights the bike by allowing your arms and legs to act as suspension, making it much easier for it to roll over uneven terrain. As a result, your body mass also remains far more calm and still, keeping the rider more balanced and in control of the bike.

2. **PEDALS LEVEL:** This prevents the pedals hitting any roots or rocks that may be on the trail whilst also providing a much more stable and balanced platform to stand on. Vertical crank arms (where one pedal is at 12 o'clock, with the other at 6 o'clock) can result in pedals getting caught on the trail and gives a less stable platform to stand on.

3. **EYES OVER STEM:** This is a great reference point for helping the rider stay centered over the bike, preventing them from being either too far forward or backwards as they stand up on the bike.

4. **LEGS AND ARMS BENT *AND* RELAXED:** There is not point in bending your limbs unless they are loose enough to absorb bumps - it would be like driving a car with shocks that are old and seized; it has suspension but it's not moving! So, riders must bend and relax their limbs for them to work as effective shock absorbers to smooth out the trails and aid control.

5. **COVER THE BRAKES:** Going downhill usually involves more challenging speeds and terrain. As a result, a rider should always be ready to slow down or stop when needed. Covering the brake levers with one or two fingers ensures safe, instant stopping power whilst leaving enough fingers to maintain a good grip on the bars.

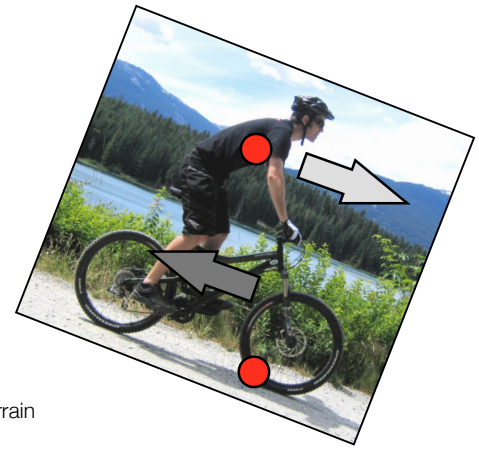
Now we are clear with what it is, why and how we move into the Ready Position, let's have a closer look atteh positions we move into from this, according to whether we apply the brakes going downhill, or not.

I. WHEN THE BRAKES ARE APPLIED....

Here, the force of gravity is pulling your body mass down the hill, whilst the bike is resisting gravity due to its brakes being applied. Because we weigh so much more than the bike, this results in our body mass wanting to "over take" and move forward on the bike. Consequently, the front of the bike becomes heavy, reducing our ability to maintain control. We must therefore resist this force of gravity that's pulling us ahead of the bike, down the hill by pushing slightly back on the bars and moving our weight over the rear wheel. If we don't, we run the risk of going over the handlebars; see pictures 2.2d and e. Let's have a look then at how we move and therefore control our body weight/ mass over the bike to prevent this from happening...

CONTROL OF BODY MASS: Hip movement controls the main mass of your body; that of your torso and upper legs. Should you move your hips in any direction, so too will a majority of your weight move in that direction. Should we want to move our weight backwards, we therefore need to move our hips towards the rear of the bike. This is why we first move into the Ready Position as allows us to do just this, very quickly, by pushing back against the handlebars and/or sticking our bum out, over the rear wheel:

Picture 2.2d: In the READY POSITION on level ground, we see the rider's body weight is centered over the bike. When we rotate the picture, as if he was riding downhill, we now see that the same body position when the BRAKES ARE APPLIED, causes the bike to be front-heavy (right picture).



Rider's center of mass/body weight over the terrain

Body being pulled down the hill by gravity

Bike *resisting* the force of gravity due to the brakes being applied

Picture 2.2e: To counter-act this, the rider now moves his hips over the rear of the bike into the BACK POSITION. In this position, the rider is rear-heavy on the flat ground, but nice and centered when pointing downhill, whilst the BRAKES ARE APPLIED. Even though the rider has moved over the rear wheel, both wheels are evenly weighted (right picture).

How much you move backwards depends on how hard you are braking and how steep the terrain is:

MORE BRAKING and/or STEEPER TERRAIN = move FURTHER BACKWARDS

NO BRAKES - rider's body is over the middle of the bike in the *Ready Position*

SOME BRAKING - riders body is now placed towards the rear of the bike in the *Back Position*

MORE BRAKING - riders body is even further over the rear of the bike due to harder braking and a steeper section of the rock

II. LETTING THE BIKE GO - NO BRAKES!

In this scenario, we have decided to let the bike go and roll down the hill as fast as the terrain and force of gravity dictates. Cool! However, the effects of gravity on the bike, relative to the rider, significantly changes in this instance, allowing us to adopt a very different downhill riding position.

Here, we must **not move backwards** and **stay in the Ready Position to keep the bikes' wheels weighted evenly**. Because we are standing on an object that weighs only a fraction of our body mass and is moving *with* the force of gravity, we must therefore "balance" on top of it to keep it evenly weighted from front to rear - as if we would on flat ground; we do this by placing our body mass in the centre of the object.

In the case of the bike.. our two reference points to keep our body in the middle are the two wheels - if our centre of mass sits between the two evenly, the bike will be weighted front to rear evenly as well - *as long as the brakes are not applied!*

So, if we're riding downhill *without any brakes on*, we have to project our body weight down the hill *with the bike* to keep our body weight centered between the wheels. This will also prevent our body getting "left behind" as the bike accelerates; this causes the front wheel to become un-weighted and therefore lose traction, making it very hard to control the bike.

Picture 2.2f: Staying in the READY POSITION - WITHOUT BRAKES: Moving our body down the hill, *with the bike* allows us to keep the wheels evenly weighted for maximum grip and control - note how the riders eyes are over the stem when going downhill.

Bike *going with* and being "pulled" down the hill by gravity

Picture 2.2g: In the BACK POSITION - NO BRAKES the rear wheel becomes heavily weighted compared to the front - effectively pushing the bike down the hill, ahead of the rider, making it very difficult to control.

Learning when and how much to move over the rear wheel to keep the bike balanced, takes time and experience. At first, most riders tend to bias their weight to the rear (in preference to staying centered in the Ready Position) for fear of going over the handlebars. It's a very natural reaction to want to "move away" from a downhill slope as opposed to letting your body go forward, down the slope. This is often the case with all gravity-driven sports... take skiing or snowboarding for example:

To keep the ski weighted in the middle, the skier must let their body, or chest, fall down the hill and over the skis - otherwise all their weight will end up on the back of the ski; this causes the skis to accelerate down the slope leaving the skier on his or her bum, in the snow! The ski is the same as a bike with no brakes on;

Like the wheels of the bike rolling over the trail, the base of the ski has a virtually frictionless surface on the snow and the skis only weigh a fraction of our body mass.

As such, a skier must keep their weight in the middle of the skis, just as a biker (with no brakes on) going downhill would, by allowing their body to "fall" down the hill with the skis, to maintain control. We can thus summarize what's going on here with this: If you're standing on something that...

I. weighs much less than you
II. is going downhill
III. is not able to resist the pull of gravity

...for you to be able to control it and tell it where to go - you must first move ahead of it and let it follow you; which means allowing your body to go downhill first. If you don't, you'll constantly be trying to "catch it up" as it ends up controlling your direction and not the other way around!

THE LIMITS OF MOVEMENT

Because the terrain in mountain biking is constantly changing, so too should your reactions; if and how much you brake and therefore your body position, to keep the bike under control. What makes a good rider is their ability to always move into the correct position for maximum control and balance, on demand. So how can you learn the boundaries between too far forward and too far back to keep the bike controlled?

TOO FORWARD: You'll notice an increase in pressure on your arms and a feeling of your body wanting to go towards and even over the handlebars - resist this by pushing the bars away and moving your hips back.

TOO FAR BACK: Here you will feel with your fingers that you are stopping your body from falling off the back of the bike by simply holding onto the bars; if you were to let go, the bike would carry on and you would fall off the back - pull on the bars to bring yourself forward and/or apply the brakes to help the bike slow down, allowing you to get back "on top" of it and in the correct position.

JUST RIGHT: When you are in the correct position according to your use of the brakes, speed and terrain pitch, the bike feels easy to control, as you should feel a nice sense of balance and control yourself. You should feel fairly evenly weighted from your feet to your hands with no significant bias towards one or the other.

As we mentioned before, learning these boundaries to maintain a balanced riding position downhill, takes time and experience. Just going riding and practicing different downhill trails will get you improving... however, to speed up this process of learning, we can simply tweak the way you practice to offer some objectivity to it all.

3. LINE SELECTION - BEGINNER

At the beginner-novice stage, students were learning how far to look ahead and how to pick out a Safe Line. For novice-intermediate riders, let's talk about some of the other line choices you have out on the trails and how you can use what we call "trail scanning" to find and stay on these lines; improving the ability to ride more difficult trails.

TRAIL SCANNING

It is what it is – scanning the trail! As you improve, the trails you ride will naturally increase in complexity and difficulty requiring you to be well prepared and more aware of what lies ahead. Looking ahead is the first stage in reading, or scanning a trail. The next stage is to learn to move your eyes further ahead down the trail, then back to just in front of you, back out ahead and so on, so your eyes and head are constantly scanning the trail from just in front of your wheel, right out to as far as you can see down the trail. This will enable the rider to not only know what lies ahead further down the trail, but to also assess the part of trail directly in front of them more accurately. This is key to negotiating trails with many obstacles, such as root and rocks, whilst avoiding being caught out by not knowing what's coming up. The definitions of trail scanning can be described as your "field of vision" which is distinguished by two viewpoints:

VIEWPOINT A: The part of trail that you are about to ride over.

VIEWPOINT B: The furthest ahead you can look down the section of trail you are riding on.

FIELD OF VISION: The section of trail ahead of you between viewpoint A and B at any given time.

Let's have a look at how our speed can affect these two different viewpoints and therefore the size and position, relative to your bike, of your field of vision:

SLOW SPEEDS - Viewpoints A and B are closer to the front wheel yet further apart from each other

The slower you are riding and the more complex the trail, the more you will want to keep your field of vision closer to the front wheel so you can avoid the trail obstacles, such as roots and rocks. A common situation where you will find yourself keeping your eyes on the trail fairly close in front of you is a technical climb. Be careful here though to not forget to scan ahead at all to viewpoint B - you may need to pick up some speed or move to the other side of the trail to make the climb. Without looking ahead you won't realize this until its too late. By not looking ahead every now and then, even though you are going slowly, you make it difficult to link all the sections of trail together to make for fluid, successful trail riding.

FASTER SPEEDS - Viewpoints A and B are further away from the bike, yet closer together.

The faster you are traveling, the more you will want to keep your field of vision away from the front wheel and further ahead, down the trail. Whether the trail is smooth or loaded with obstacles, if you're traveling fast, looking down, right in front of you will only cause you to lose control as you no longer have the ability to react in time for what you're about to ride over - it would be rather like driving a car and looking down at the road right in front of the car! However, this doesn't mean that you don't scan the trail at all - you simply adjust the distances involved; both viewpoints A and B are further from the bike. That way you can still focus on the part of trail you are about to ride through whilst still looking ahead to see what's coming up; like a corner or drop-off that you need to prepare for.

When your speed decreases, such as in a corner, viewpoint A will instantly return closer to the front wheel, whilst viewpoint B will still remain as far ahead down the trail as is necessary.

MORAL OF THE STORY...

Regardless of whether you are riding fast or slow, you should always try to keep scanning the trail; maximizing your field of vision and therefore your ability to read the trail and react accordingly. This is one of those skills that people rarely think about and therefore often under estimate its importance. A riders confidence and ability to ride challenging trails can be increased significantly, simply by teaching them to scan the trail as we have discussed above. So, next time you're out... fast, slow, easy or hard trail, try this scanning technique with the two viewpoints in mind and see how things improve.

VIEWPOINT A: The rider is currently focusing on viewpoint A... looking at the entrance to the corner that he is about to ride into, off the bridge.

VIEWPOINT B: Once the rider is at the blue circle, he will then be able to scan ahead to viewpoint B, noting there is a small uphill so he may have to change gear, or pick up some speed. Without scanning ahead, he won't notice the climb until he is on it!

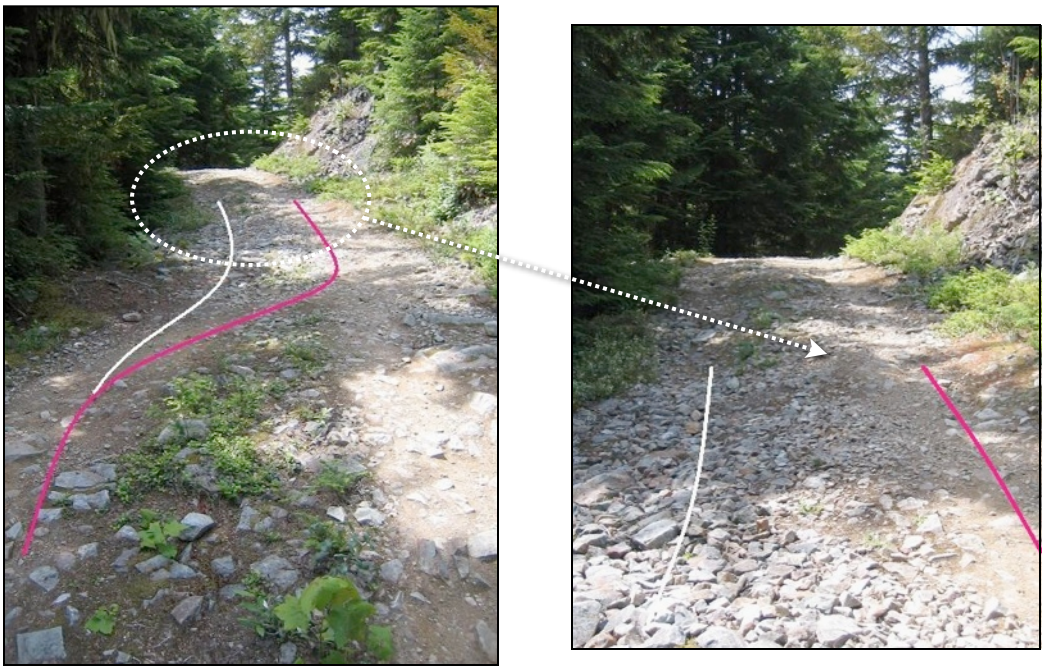
LINE CHOICE

Once you've begun to dial in your trail scanning you should begin to feel much more confident about reading the terrain ahead and being able to react accordingly. The next step now is to use that and learn how to actively choose between the different lines within the same trail; you'll start to realize that by looking for different lines on the same trail, it's like there are a number of different trails all together - like six trails in one! Let's look then and the easiest and simplest line to look for when you are scanning the trail - the safe line.

WHAT IS A SAFE LINE?

It's the easiest or most "hazard free" route, or line, through a trail. Remember, we're taking it easy for now – riding over logs and off rocks will all come later. For now, let's stay in one piece so we can progress, have fun and not get hurt! Some examples of picking a safe line:

PICTURE 1.3A: ROCKS APPEAR IN THE MIDDLE OF THE TRAIL – TRY TO RIDE AROUND THEM (PINK LINE)



PICTURE 1.3B: AS YOU APPROACH A TIGHT CORNER – KEEP TO THE OUTSIDE TO MAKE IT AS BIG AND ROUND AS POSSIBLE

HOW DO WE PICK A SAFE LINE?

Your first aim is to learn to ride with your head up and to look ahead down the trail according to your speed – the faster you are going the further you look ahead. The sooner you can get used to "feeling" the bike underneath you and using your controls (gears/brakes) without eyeballing them, the easier it will be to find your line ahead. Once you are used to looking ahead, next try to actively look at the terrain and start trying to pick out the Safe Line. Sometimes it will be obvious, other times, not so… but start experimenting with it and that's the key here. By looking at the terrain far enough in advance this will give you more time to a) find a safe line and b) react accordingly in plenty of time, so if you need to change direction or speed to get onto the safe line, you can.

SO HOW FAR SHOULD I LOOK AHEAD?

As a general rule of thumb, if you are riding faster than a brisk walk/slow run then you should be looking far enough ahead to not see the front wheel. Keeping your head level (nose up) will be the first step to preventing you from looking not far ahead enough, or too downwards. Also, the faster you go the more you need to look ahead so learn to adjust your projection of vision according to your speed - that is, don't just look in the same place, relative to your bike the whole time. Soon you'll figure out the balance between looking too close (everything happens quickly and you often get caught out) and too far (what happens to the bike is not what you are seeing) and just right (where riding suddenly seems much easier as your control and confidence feels much better).

Another plus with keeping your head level and eyes ahead is that it significantly helps your balance – this is not an opinion but a physiological, scientific fact. Look at these pictures to get an idea of how far you should be looking ahead – note how the riders head is always 'up'.

This rider is constantly looking ahead - increasing this distance with his speed to give himself enough time to react and/or prepare appropriately, according to the demands of the trail.

shows where the rider is looking if its in frame

whistler bike park

CHIN-UP: Looking Ahead Exercise - the first step in learning how far to look ahead is exploring the limits from not far enough to too far away. This exercise helps you do just that.

GOAL: TO EXPERIMENT WITH AND FIND OUT HOW FAR AHEAD TO LOOK ALONG THE TRAIL

PREPARATION:

- Find a trail, or section of trail, you are familiar with and that is quiet and not too fast - it should require you to pedal along it and at a fairly consistent speed.
- Make sure the trail is a little, but not too challenging for your skill and confidence level

EXERCISE:

1. Ride along as normal then after a while drop your chin and look down at the ground right in front of you as you ride - take care not to hit anything or lose control; hence why you need to know this trail!
    - Note what it feels like to ride like this; is it easy, hard, enjoyable?
2. Then lift your chin so your head is horizontal and look at least thirty feet ahead, along the trail.
    - Can you ride over the section of trail you are currently on more easily?
3. Now find a balance somewhere between the two where it doesn't feel like you're looking for the horizon and it doesn't feel like you scared you're about to hit a tree… it's probably a little further ahead than you think.

Once you've found this balance now challenge yourself to keep looking that distant ahead - assuming your speed is fairly consistent. So, we now know how far to look ahead and how to pick and chose a Safe Line. These two things will improve your riding dramatically alone… if you go on a ride and only think about these two things, you're riding and confidence will improve far more than you think. It's like I said, Line Selection is a very important mountain bike skill, so let's practice and get good at it!

LS SUMMARY:

- Keep your head up and use your eyes to look ahead, according to your speed – you need to look further ahead than you think
- Try to lose the habit of looking at your controls or down at the front wheel as soon as you can, allowing your eyes to focus on the real task of looking ahead.
- Learn to "feel" the bike underneath you as you focus ahead down the trail
- SAFE LINE: ride the safest line through the trails avoiding any obstacles/hazards at this stage

4. CORNERING - BEGINNERS

As a newcomer, let's first introduce you to the different parts of a corner. Breaking a corner down in to four sections vastly improves your ability to analyze your techniques and practice them. With each level of Instruction we shall gradually discuss and give you exercises to improve each section of the corner. For a beginner rider, we shall focus on the approach:

APPROACH: Preparing for the corner; e.g. slowing down, selecting the right line, and/or changing gear

ENTRY: Initiating a move into the turn – for a beginner this will involve steering the handlebars into the corner

TURN: Executing the turn – riding through the corner and looking for the…

EXIT: Completing the turn: e.g. re-directing the handlebars for the trail ahead and pedaling away

At this stage in your riding, cornering is a very simple affair. Trail difficulty is generally low so corners are at a level where simple trail scanning ahead will look you for the most part. That said, there is a couple of techniques we can talk about to help get you started into what can really be the most technical and fun part of biking - ripping corners!

HOW A BIKE TURNS

Before we get into the techniques of how to corner, let's first have a quick look at how we actually make a bike turn. The two principles involved with cornering a bike are Steering and Leaning. Steering, at a basic level, involves turning the handlebars toward the direction you want to go and the bike follows - turn them left, the bike goes left. Leaning on the other hand works by using the "cone-like" properties of the tires - by leaning the bike left, it goes left. However, every corner involves both principles - its just some corners will involve more steering than leaning and vice versa. In order for us to improve our cornering, we can thus learn when and how to use these techniques either together or individually, to maximize control.

At slower speeds, cornering is mainly performed through steering, rather than leaning the bike. If you lean a bike over at slow speeds, you'll just fall off. Faster speeds through corners allows us to lean the bike more (steer less) because of what's called a centrifugal force - the force that pushes you to the left when you drive a car around a hard right turn. You can therefore lean the bike against this force to make it turn at speed. Remember, it is the speed itself that creates the centrifugal force when you are in the corner, so without the speed you physically have no force to lean against. Instead, you have to keep the bike more upright (it will always lean a little) and steer with the handlebars more.

SNAKING EXERCISE: Steering vs. Leaning - trying this simple exercise will help you appreciate and feel the difference between the two different principles and will have you realizing when each principle works more than the other and how you almost naturally control it at this stage without really thinking about it!

GOAL: TO INCREASE YOUR AWARENESS AND CONTROL OF HOW WE MAKE A BIKE TURN.

PREPARATION:

- Find a safe, open area such as a field or wide path
- Ride along at a slow (brisk walking) speed

EXERCISE:

- Once set, start weaving the bike from left to right so you leave an "S" shaped trail – like a snake's trail
- Note how much you are using the handlebars (steering) to go left to right – if you are going slow enough you will find you are using them a lot
- Now do the same thing again, but at a slightly faster (gentle run) pace
- You should now feel that you are using the handlebars (steering) less and leaning the bike more.

Like before, experiment with this exercise – you are simply getting to know your bike better, how it works and how you can control it. You should find that:

SLOWER, TIGHTER (ROUNDER) CORNERS - **STEER** MORE.

FASTER, SHALLOW CORNERS - **LEAN** THE BIKE MORE.

SO WHAT CAN I DO IN THE APPROACH TO MAKE THINGS EASIER?

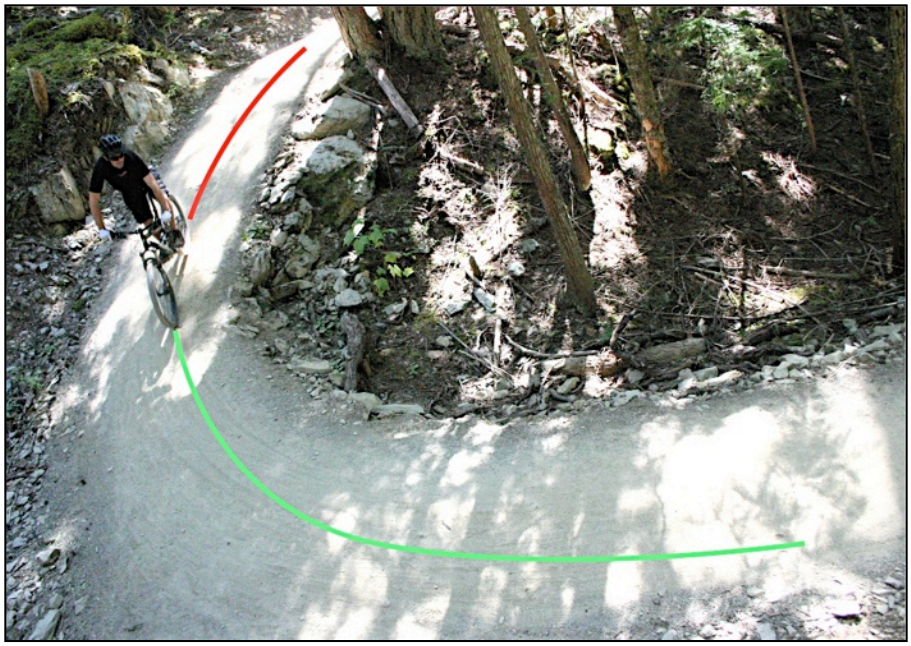
Now that we know the basics behind how a bike corners and how we can control it, lets talk a little bit about the first stage of the corner - the approach - and what we can do during this stage to help your cornering improve. Essentially the approach is where we prepare for the corner, so what we do during this phase is very important towards executing a successful turn. To keep it simple at this stage, the first thing we can learn is to slow down before the corner (in the approach) instead of during the corner itself.

Many new riders pick up the habit of braking into and through a corner instead of braking beforehand. "But why does that matter?", I hear you ask…braking, whilst controlling our speed, also reduces the grip of the tires and actually makes it more difficult to lean and therefore turn a bike (the physics of this are explained in the intermediate manual - you don't need to know it all now!). Grip and lean (even in slow corners the bikes still leans a little) are both very important for good cornering, so if we learn to brake before the corner we will have maximum grip and it will be easier to lean the bike; voila - your cornering is improved!

Although a very basic principle this is one technique that not only helps you as a beginner but is something many experts and pro's are constantly refining so they can get quicker and have more control through the corners - this idea will be with you for as long as you ride a bike!

BE CAREFUL THOUGH... as you begin to practice this concept you must remember that safety comes first - the idea is to eventually minimize or eliminate braking in the corner as an "ideal scenario". But, if you do need to use the brakes in the corner to control your speed then by all means, do so! When you start practicing you'll still end up braking in the corners a lot - only now you know at least what you are aiming for in terms of correct technique.

PICTURE 1.4: BRAKE DURING THE APPROACH (RED) TO MAXIMIZE GRIP AND CONTROL THROUGH THE CORNER WITH MINIMAL TO NO BRAKING (GREEN)



SELF - ANALYSIS:

If you still end up braking in the corner - you're probably not braking enough before hand. Either start slowing down earlier or slow down quicker by applying the brakes a little harder - watch out that you don't lock up the wheels though!

So, you now know how we make a bike turn through the principles of Steering and Leaning and what we can do during the approach to make riding through the corners more easy. Go out and practice cornering - feeling the bike underneath and trying to figure out if/when/how much your are steering compared to leaning and focus on preparing for the corner in plenty of time during the approach. In no time you'll be riding the corners faster, exiting from them quicker, all with more control and confidence.

BASIC CORNER SUMMARY - During the APPROACH

- Most corners involve both steering and leaning, whilst some will use one more than the other
- Slow down before the corner rather than during the corner – improving your control into, through and out of the corner.
- Look ahead to determine approach speed and to see if there are any obvious obstacles, such as a rock, to be avoided
- Keeping a good BBP will help cornering greatly at this stage top

CORNERING - NOVICE TO INTERMEDIATE

At the Level 1 stage we talked about the principles of cornering, steering and leaning, and how these are used to make a bike turn, as well as braking during the approach to provide maximum control and grip throughout the rest of the corner. Let's quickly review:

HOW A BIKE TURNS

The two principles involved with cornering a bike are Steering and Leaning:

Steering, at a basic level, involves turning the handlebars toward the direction you want to go and the bike follows - turn them left, the bike goes left.

Leaning on the other hand works by using the "cone-like" properties of the tires - by leaning the bike left, it goes left.

However, every corner involves both principles - its just some corners will involve more steering than leaning and vice versa. In order for us to improve our cornering, we can thus learn when and how to use these techniques either together or individually, to maximize control. To make it easier and more objective when teaching cornering techniques, we can divide the corner into four different stages:

THE APPROACH – preparing for the corner: e.g. slowing down

THE ENTRY – initiating the move into the corner: e.g. turning the handlebars or leaning

THE TURN – riding through (executing) the corner: the product of the first two steps

THE EXIT – completing the turn: e.g. pedaling out and bringing the bike back to being upright

In Level 1 we talked about the first stage, the approach, and how we can brake in this part of the corner to help control and grip through the rest of the corner. To move on from this for Level 2, we can look at a technique imaginatively called Outside Pedal Down, or OPD. This technique, at this level of riding, is mainly performed during the entry stage of a turn and then remains throughout the rest of the turn to improve your balance, grip and control through many different (but not all - we'll get to this in Level 3) types of corners.

OUTSIDE PEDAL DOWN

An easy technique to pick up and learn, OPD is also a skill that will stay with your riding right up to Expert level – where it becomes an even more important skill. By placing the outside pedal down (at the bottom of the pedal stroke) through a corner this will prevent the inside pedal from hitting the trail and will also enable the rider to place their weight on the outside of the bike. With the rider's weight biased to the outside pedal, this will push the tread of the tires down, into the ground, aiding traction and therefore control through the corner.

When we look a the entry part of a corner, this is where we initiate the move into a turn. By dropping the outside pedal at this point, this instantly helps to make the bike change direction by causing it to lean a little as your weight is transfered over one side of the bike, more so than the other: dropping the right pedal will cause your weight to shift over the right side of the bike. This movement will then naturally cause the bike to lean to the left, causing the bike to begin to turn left. So not only will this OPD technique help you through the corner, it actively helps you start cornering as well!

1. With the outside pedal (right in this case, as he is turning left) down, the rider can move his body weight over the outside of the bike and over the contact point of the tires for better grip and control.

2. The blue arrow represents the rider's weight over the contact point of the tire on the ground.

3. With the inside pedal up, this keeps it away from any rocks or other obstacles on the trail as the rider leans the bike to the left slightly.

From the ENTRY into, then through the rest of the corner, this rider has the outside pedal down whilst sitting: standing up or sitting on the seat - this technique will help lean the bike and maximize grip & control through a corner.

GETTING IT TO FEEL NATURAL

Although a simple enough technique, many riders new to it can often get mixed up when first practicing it out on the trail, particularly when there are a lot of corners in close succession. Use the following exercise to help "feel things out" so it becomes part of your riding skills without thinking about it. However, start by trying this technique sitting down... if you're on a gentle, novice-type trail, chances are you'll be sitting down anyway. You won't need to try it standing unless the trail is rough enough or fast enough that you are in the Ready Position anyway. The key is to take it one step at a time, mastering the basics first!

OPD CORNERING EXERCISE: A safe way of learning the technique, sitting down or standing up, without having to worry about staying on a trail or avoiding trees! Try it sitting down first, then when this feels easy progress to trying it standing up.

- Find an open area – perhaps a slope or wide trail – and imagine there are cones placed in a straight line, every ten meters or so.
- Begin to ride down the trail and weave in between the "cones" so you leave an "S" shaped trail. As you turn past a "cone" on your right, the left, outside pedal should be down.
- Then as you turn and pass a "cone" on your left, the right, and now outside, pedal should be down.

Turn right – left pedal down
Turn left – right pedal down.

- Continue turning the bike from right to left and play with swapping pedal positions between corners by either pedaling forward or back pedaling.
- Practice with different size turns, longer or shorter distances between them and pedaling or coasting (not pedaling) between them. Easy!
- SITTING: Let your bum slide sideways to the outside of the seat a little to help your weight stay over the outside of the bike and therefore the contact point of the tires.
- STANDING: Try to keep your outside leg flexed (see the above pics) so that you can still absorb bumps and stay in control in the corner. Try to avoid simply letting the outside pedal drop, locking the leg out straight and letting your body weight "slump" onto the outside pedal suddenly. It should be a smooth extension of the leg to drop the pedal, and thus a smooth transition of your body weight to the outside of the bike. Any sudden movements of your weight over the bike can, at this stage, make you lose control.

CORNERING SUMMARY

- OPD enables the rider to bias their weight to the outside of the bike enhancing grip and stability
- OPD also prevents the inside pedal from being down and therefore too low in which case it may catch on the trail

5. PRESSURE CONTROL - BEGINNERS

Pressure Control is definitely more of an advanced Mountain Biking skill and doesn't really play a huge role in your riding until the intermediate stage. Again though at this beginner stage we can get started on some basic, yet very important, techniques to begin to understand and practice this skill. Like anything, learning the fundamentals is vital for a better end product - a technically competent, able and confident rider. The skill of pressure control involves feeling and reacting to different forces - or pressures. These forces come in two ways - from the terrain and from the rider. For now we will focus on the first of those:

i) FORCES FROM THE TERRAIN THAT ARE PUT ONTO AND OFF THE BIKE…

Example a: You ride over a log - as the log hits the wheel you will feel an increase in force through the bike. You can then react by keeping your arms and legs loose to absorb the force of the impact.

Example b: You ride off a small ledge with some speed, resulting in the wheels momentarily leaving the ground - you catch some air! As the terrain drops away, any pressure on the tires disappears completely before reappearing suddenly, and with more force, as you land again.

HOW CAN A BEGINNER WORK ON THIS PART OF PRESSURE CONTROL?

As a beginner rider you can start working on this by learning how to minimize the forces that are put onto the bike from the terrain - you're going to learn how to relax so you can absorb the bumps and knocks from the trail. Very simply, as you're riding along in your Basic Body Position, you're going to relax your arms, legs and torso so that you are not rigid or stiff on your bike. Not only will this give you a much smoother and more enjoyable ride, but you will also find it much easier and more controlled to ride over rougher terrain, helping you to progress.

Many new riders adopt the lazier position of slouching their body weight onto the handlebars by locking their arms out - effectively leaning on them. This makes it very difficult to relax the arms and upper body, limiting your ability to absorb any knocks (increases in pressure, or force, on the bike) from the trail. By simply maintaining a good BBP, keeping your elbows out (arms bent)) and your spine curved in a 'ready' position, this bad habit can be avoided.

PICTURE 1.5: WITH STRAIGHT ARMS AND BACK, IT LOOKS AND FEELS VERY STIFF WHEN RIDING.

SAYING “RELAX” IS EASY, BUT HOW CAN I DO IT ON THE BIKE?

We all know its easier to say something than to do it - and relaxing is definitely one of those things! There is however a couple of things you can do to actually help you relax your mind and body.

i) PRACTICE: What helps you to feel relaxed is simply feeling more confident through practicing things. The more you do something with the correct technique, the easier it will become and the more relaxed you will be as your confidence, experience and techniques improve. So don’t give up if at first it all feels a little overwhelming and too difficult at first. Stick with it, take everything one step at a time and believe in yourself. If you tell yourself “you can do it” this is instantly helping you - as soon as you doubt yourself and think you can’t do something, you’ve just made it that bit harder. So be confident and positive as you practice - and if you’re having fun, this will all come a lot more easily!

ii) BREATH! When a lot riders get out of their “comfort zone” as they are trying new things, they often become tense and end up, not knowingly, holding or partly holding their breath! This in turn makes them tense up even more and the viscous circle begins. A great way of keeping your muscles/body relaxed is to make sure you are breathing calmly - particularly you are breathing out… inhale, exhale, inhale, exhale. Breathing is massively important to keeping you relaxed. As you stop or falter your breathing under stress this makes it very hard for your body to get rid of its excess carbon dioxide which in turn will make you feel even more stressed… a little physiology lesson for you there! Calm, controlled breathing is your key to helping you stay relaxed.

PC SUMMARY

- The first and most important P.C. skill a rider can learn is to ride relaxed in the BBP to absorb any shocks for a smooth and controlled ride.
- Keep yours arms relaxed whilst bent and back curved to be centered on the bike.
- Pressure Control does not play a significant roll at this level.

PRESSURE CONTROL continued

For beginner riders it is important to learn how to relax the body, arms and legs as they ride. This is a skill that you will always need to work on no matter how good you are. Being able to keep your body relaxed is directly related to how far out of your Comfort-Zone you feel: the more you are pushing yourself the harder it is to stay relaxed. So regardless of your ability level, beginner or expert, whenever you are ride and push yourself outside of your comfort-zone, no matter how little, you will always have to work on consciously trying to stay relaxed to help maintain control. This fifth skill of biking is thus concerned with how we can relax, minimize the shocks or forces from the trail and even apply or take away forces from the bike to help us ride better over more challenging terrain.

PASSIVE CONTROL involves keeping your arms and legs loose and relaxed to act as “suspension”, absorbing the bumps and forces from the trail. This effectively makes the trail much smoother, making it easier for you to ride and stay in control.

ACTIVE CONTROL is a more advanced principle of this skill and involves actively applying or reducing forces to and from the bike, to help increase control, performance and grip as you ride. By pushing and pulling on the bike in different ways, a rider can obtain a variety of different results: lifting the wheels, greater momentum, make the trail appear smoother, more control, more grip, faster cornering, more or less air when jumping and so on.

PRESSURE CONTROL: RELAXING

As with any skill, we must learn the basics first - in this case, *Pressure Contro*l. Being relaxed and not tense is the first, essential step to controlling the forces that are put onto the bike from the bumps, rocks and holes on the trail. Mountain biking involves continually changing terrain so we must be ready to control the bike at all times. If we are physically relaxed, our body (particularly our arms and legs) acts as suspension, doing the work for us without us even having to think about it. Not only that, it will also help us keep our mind relaxed - a tense body does little to eliminate and control the forces from the trail, making it seem a lot rougher, and more difficult and so reducing your confidence as you ride. A tense body is also difficult to move and therefore balance with. To balance, you must be able to move at all times in any direction or manner - a tense body will only act to inhibit this. The following exercise will help you to develop this skill in your riding and learn why it is important and how it can improve your riding.

PLANK & JELLY EXERCISE: Learning to increase your body awareness so you can tell when you are relaxed or tense, and adapt accordingly for maximum control and riding comfort. The goal is to feel the importance of being relaxed, when you are relaxed enough, too little or too much and how it benefits your riding.

- Find a trail you are comfortable riding that has a fairly bumpy, uneven surface.
- First ride it, or a section of it, with your body, arms and legs stiff; as if they were made from planks of wood. Its best to try this in the Ready Position, but you can try it sitting down too.
- Next ride it super loose - as if your body and limbs were made of jelly (or jello!)
- Repeat a number of times.
- You’ll hopefully notice that being stiff is not good for absorbing the forces from the trail as you ride over the bumps - making your riding uncomfortable, physically tiring, and generally more difficult.
- You also might notice just how relaxed you can be on the bike and that you typically do not ride that relaxed, especially when you begin to push yourself out of your “comfort-zone”.
- Hopefully this leads to you gaining a greater awareness of your body and when it is tense, or relaxed.
- NOTE: Did you notice what it felt like if you were too relaxed? Be careful of this - we need to be relaxed to control the forces from the trail and balance, but if we are too relaxed it can make it difficult to balance correctly over the bike and actively control it.

6. TIMING & CO-ORDINATION

T&C involves putting everything you have previously learnt in this chapter into the right place at the right time whilst you're riding out on the trails: You can change gear for sure, but can you do it at the right time to the correct gear, all the time? As you approach a corner can you slow down enough or at the right time to not need to brake in the corner or without losing momentum? Are you changing how far you look ahead enough according to your changes in speed and trail difficulty? These are the questions we ask ourselves when thinking about timing and coordination at the beginner level.

As you can see, it is a skill that is intrinsically linked to the other skills of biking - although a skill in its own right, at this stage (at a more advanced level of riding, specific T&C drills will be brought in to increase your ability and adaptability as a rider) we will keep things simple by using T&C as a review and tool to help with the mechanical skills of gear and brake operation.

- T&C with GEARS - COMMON PROBLEMS:

I. Not changing gear regularly enough
II. Changing gear too late.

SOLUTION I: Most new riders learn how to use the gears, in terms of selecting easy or hard, quite quickly. However, what makes an accomplished rider with this particular skill is there ability to always keep themselves in "Cruise Mode" through constant changing of the gears - making for much easier and more efficient riding. As a rule of thumb, learn to change gear as soon as the pitch or nature of the terrain or your speed changes - which on any regular mountain bike trail, should be fairly often. With this notion set in your mind, you'll begin changing gears a lot more, realizing just how often you can and need to change gear if you are going to stay in your "Cruise Mode".

SOLUTION II: Changing gear too late is usually a result of simply not looking ahead enough and reacting in time for what is coming up. By co-ordinating your line selection skills of looking ahead properly with your gear changing - you'll no longer get caught out in the wrong gear. The usual suspect is getting to a hill and stalling as you have not selected an easier gear soon enough... this should happen less as you start to plan ahead, experiment with and practice your gears further.

- T&C with BRAKES - COMMON PROBLEMS:

I. Braking too late, causing the rider to panic, grab the brakes and skid
II. Difficulty "feathering" the brakes for fine speed control

SOLUTION I: As with the gears, this goes hand-in-hand with your line selection skill. Looking ahead properly is the first step to being able to brake smoothly and correctly for the trail you are riding. Think of the braking as if you were in a car - you take a long time to slow down in a car by putting the brakes on gently, then leaving them on until the car has slowed down to the desired speed, or stopped. Exaggerate this idea out on the trails - its much easier recover and keep riding from slowing down too soon or too much, than the other way around!

SOLUTION II: Fine speed control will come from experience and practice with braking in different situations. The best thing you can do to speed up this learning process is practice the "No Skids" exercise and get in as much riding as you can. Because it's such a sensory skill of "feathering" the brakes between too much and too little power, whilst the technique is very simple, it can therefore only be mastered through practice.

So now you can see how T&C can relate to the other riding skills; each skill can be broken down into further components for a more detailed and technical analysis of how we ride a mountain bike. In the next stages of riding, particularly at Level 3, you will learn more on how T&C relates to each skill independently, as a group and even how it works on our riding as a skill in its own right.

For now though, go out and ride, have fun, practice the exercises given to you above and let us know how you get on. We would love to hear anything your have to say about this Riding Techniques Manual, praise or criticism, so we can continue to develop the best riding techniques and practices for you and the rest of the worlds' mountain bikers, everywhere.

- ANSWERS TO GEAR EXERCISE QUESTIONS:

Q5. Change into an easier gear – and keep changing into easier gears until you find, or get as close to, the Cruise-Mode as possible.

Q6. If you see a long hill ahead, prepare for it by changing into an easy gear before the hill so you avoid getting"stuck" in a too difficult gear.

Q5. If it's only a short hill, you could try staying in the gear you are in and picking up speed to get you over the hill, instead - meaning you may even change into a harder gear as you "sprint" towards the hill.

Q7. Change into a harder gear. Because the present gear is far too easy, a multiple gear change (perhaps 3 or 4) would be needed.

Q8. Just before you stop, change into an easy gear so that you'll be in an easy gear to get going again. This is especially important if you are riding quite quickly (and therefore in a harder gear) before you stop.

LEVEL 1 MANEUVERS

The following maneuvers are used in mountain biking to help riders maintain control and flow along trails that may have certain obstacles such as logs, drop-offs, jumps or bridges. Whilst each of the maneuvers may incorporate all of the *Six Skills of Riding,* each maneuver tends to utilize two skills more so than the others. Each maneuver has been broken down into a series of steps, or progression, so we can understand how the maneuver is executed and therefore how we can demonstrate and teach it to students.

Should you need to further analyze them and break them down even more, perhaps if the student is a very cautious learner, this is fine as long as you keep to the minimum of three to four "bullet point", or steps, for each maneuver. Any less and the maneuver will become difficult for riders to understand and therefore successfully achieve. Try to keep the progression relevant to the student; not making it too exhaustive and drawn out or not making it too quick and intimidating.

After practicing for a while, providing plenty of practice and feedback time, the final and most important step is to then allow the students to **apply the maneuver in a realistic setting**. That way, they can really feel the benefits and appreciate further how to do it and why the maneuver is important when mountain biking. Here's a "diagram" to help you set out a maneuver-based lesson:

1. **KNOW THE BULLET POINTS** OF THE MANEUVER YOU"RE TEACHING

2. **FIND A FLAT OR EASY AREA TO START WITH** - SMALLER/LOWER/EASIER THE BETTER

3. **EXPLAIN**, DEMO, LET THEM PRACTICE AND OFFER FEEDBACK

4. **PROGRESS TO THE NEXT LEVEL OF DIFFICULTY ON THE SAME DROP/LADDER/STICK** - HAVE THEM RIDE THE SAME DROP OR LADDER SLOWER, OR SET OUT *TWO* STICKS, ONE AFTER EACH OTHER

5. **REPEAT STEP 5** UNTIL THEY HAVE MASTERED IT - SMALL STEPS EACH TIME

6. FIND A **MORE CHALLENGING** FEATURE - BUT ONLY SLIGHTLY

7. **APPLY THE TECHNIQUE** TO A REAL-LIFE SETTING - A TRAIL

BASIC START

Often over looked by people learning to ride off-road, the proper starting technique can really help riders out on the trails. When people are learning, they're probably going to be stopping on the trail with some degree of frequency, so teaching them how to get going again (particularly on climbs) can really help them.

1. Pick which pedal, left or right, they want to push down on to get the bike going – most people will have a preferred side.
2. Sit on the bike and place one foot on the ground for stability and the other on the chosen pedal
3. With both brakes on to steady the bike, spin the pedals backwards until your preferred pedal is at 45° - the 11 or 1 o'clock position, depending on which foot you are using.
4. Count down from 3 (this helps timing and gets you 'ready') – at 'go!' simultaneously push down hard on your chosen pedal whilst releasing the brakes.
5. Keep your head up and get your other foot on the other pedal quickly to start pedaling – away you go

By actually pushing hard, down onto the pedal, this gets the bike moving instantly which is what they need in order to get balanced and ride away. Pushing off the ground with the feet is much harder and slower to get the bike moving, especially on uneven or up-hill terrain.

BASIC START – RIGHT FOOT OR LEFT FOOT TOP

REAR WHEEL LIFT *Skills: Riding Position & Balance, Pressure Control*

1. Start by riding along in the *Ready Position.*

2. Bend your legs to squash down onto the rear of the bike – imagine you are trying to push the rear wheel down into the ground.

3. Push off the pedals as if you were “jumping off the spot” and trying to jump as high as you can – whilst moving your weight slightly forward over the bike.

4. Immediately following this, bring your legs up underneath you by bending the knees to help the rear of the bike lift higher off the ground - dropping your toes to help “scoop” the pedals up with your feet will help this (4)

FRONT WHEEL LIFT - STANDING *Skills: Riding Position & Balance, Pressure Control*

1. Start by riding along in the *Ready Position.*

2. Pre-load the front wheel/forks by pushing down on them with bent arms ("squashing the spring").

3. Push off the handlebars by straightening your arms and do the same with your legs; pushing off the pedals to get your weight up and allow your body to move slightly backwards as you do this (releasing the spring and letting it help 'push' the front wheel into the air).

   (Remember to lift the front wheel by moving your weight up and back and not by pulling with your arms.)

4. Cover the rear brake in case the front wheel becomes too high and you need to avoid falling off the back of the bike by putting on the rear brake.

NOTE: See how this rider has kept the front wheel in the air long enough so that the rear wheel can pass over the stick before the front wheel hits the ground... this is the pre-requisite to drop offs with air.

FRONT WHEEL LIFT - SEATED/WHEELIE *Skills: Gears & Braking, Riding Position & Balance*

- Start by riding along in the *Basic Body Position* at a fairly slow pace, covering the brakes.
- Pre-load the front wheel/forks by pushing down on them with bent arms ("squashing the spring").
- As you push off the handlebars and throw your weight backwards, simultaneously push down hard on the pedal you have at about 11 o'clock, to bring the front wheel in the air. (Remember to lift the front wheel by throwing your weight back with the hard pedal stroke and not by pulling with your arms.)
- If the front wheel becomes too high, apply the rear brake to bring it back down.
- To keep the front wheel in the air whilst riding - to do a wheelie - you will have to balance the front wheel by keeping your weight back and/or pedaling harder to bring it up a little and braking lightly to bring it down a little. If you begin to fall to the left, try steering to the right and vice versa. Wheelies require a huge amount of practice and balance, despite the simple techniques.

DROP-OFF: ROLLING *Skills: Riding Position & Balance, Pressure Control*

1. Start by riding along in the *Ready Position,* approaching the drop at an appropriate speed to roll down and keep the tires on the ground.

2. As the front wheel approaches the drop, gently push back to allow your hips to move back and down over the rear wheel - the steeper the drop, the more you need to move back.

3. Just before the front begins to roll onto the level ground, re-center your weight for control and balance out and away from the drop.

DROP-OFF: AIR *Skills: Riding Position & Balance, Pressure Control*

PRE-REQUISITES - Front Wheel Lift as you ride over a stick, so you can keep the front wheel up over the stick until the rear wheel rolls over it (see above). DO NOT attempt a drop off with air until you can confidently and consistently do this. DO NOT attempt drops no larger than 1 foot bigger than the previous height of drop you have mastered.

1. In the *Ready Position,* approach the drop at an appropriate speed for the size of drop and surrounding terrain. Start on small drops and get the technique dialed before trying anything bigger.

2. About 1ft before the drop (this distance increases as speed increases), push off the handlebars by straightening your arms and do the same with your legs; pushing off the pedals to get your weight *up* and allow your body to move slightly backwards as you do this - releasing the "spring" and letting it help 'push' the front wheel into the air.

   (Remember to lift the front wheel by moving your weight up and back and not by pulling with your arms.)

3. Cover the rear brake in case the front wheel becomes too high and you need to avoid falling off the back of the bike by putting on the rear brake.

4. Re-center your weight before you land to help both wheels land together and absorb the impact by flexing your arms and legs.

LADDERS/RAISED TRAILS *Skills: Line Selection, Riding Position & Balance*

- In the *Ready* or *Basic Position* (as long as your are centered on the bike from left to right and front to rear), AIM FOR AND APPROACH THE LADDER AT THE APPROPRIATE SPEED – too slow and it's easy to lose balance, too fast and corrections from left to right to remain on the ladder become difficult before the bike falls off.
- Ride onto the ladder and RELAX so you can USE THE CENTERED BODY POSITION to enable quick and easy balancing on the ladder as well as a safe and easy exit off the ladder.
- LOOK FORWARD at all times – usually focusing towards the end of the ladder helps the most, but this obviously depends on the length of it.
- APPLY THE REAR BRAKE A LITTLE IF PEDALING - it will help you pedal more smoothly and therefore maintain balance on the ladder.

FOCUS POINT