

Buying a Mountain Bike.

Buying a mountain-bike can be exciting but intimidating (especially your *first* mountain-bike). Before you can decide what bike is right for you, you need to decide what sort of riding you're likely to be using it for (this is sometimes different to what you'd *like* to be riding) and how much money you have to spend (it's not right for you if it's not within your budget). I'll start with fairly generic bike 'styles' and get more specific from there:

Styles of Mountain-Bikes.

Cross Country (XC):



This is what most of us are looking for. It's a bike that isn't too heavy to pedal uphill, it's comfortable to ride on the flat and it handles OK when you point it down. It will have perhaps 3-4 inches (75-100mm) of suspension in the forks at the front and up to 4 inches of suspension in the rear (or none). It's a good all-rounder and a good place to start for your first mountain-bike.

All Mountain (AM):

The AM bike is a relatively new genre of mountain-bike. It evolved from the XC bike as riders wanted more suspension and a bike that was capable of handling rougher terrain. It's likely to be heavier than a true XC bike (because it's stronger) and perhaps a bit more laid-back in terms of body-position (you'll feel a bit more upright). The AM bikes generally have 4 to 6 inches of travel front and rear suspension.



Freeride (FR):

Freeride bikes are an interesting combination of strength and generous amount of suspension without eliminating the ability to pedal uphill (they're not 'fun' to pedal uphill, but certainly more fun than pushing). They're designed for pedalling to the top of a steep technical trail, then bombing down and launching big jumps.



Downhill (DH):

The downhill bikes are built tough – they're heavy and have a lot of suspension (7 to 10 inches in front and back). They're designed purely for riding down steep technical rocky trails and generally don't pedal uphill very well at all.



Dirt-Jump (DJ):

The dirtjump bike is designed for jumping and urban tricks. It's usually significantly heavier than an XC or even AM bike (because it's built stronger) and the frame will have a shorter cockpit, giving a very 'upright' body position, thereby making it uncomfortable to pedal uphill. Almost all DJ bikes are hardtails.



Four-Cross (4X):

The 4X bike is the mountain-bike version of a BMX you had as a kid. It is generally small and light, with 4 to 5 inches of travel in the forks and anything from no rear suspension to 5 or 6 inches. It's designed for competitive racing down a short technical course of jumps and drops.



Hardtail (HT):

The hardtail is perhaps not a genre unto itself, but is more a sub-category of each of the bike-styles mentioned above. A hardtail has no rear suspension, but otherwise can be found within any of the styles of bike already mentioned. XC-Hardtails are often a sensible first-choice as a first mountain-bike because they generally require less maintenance than a full-suspension bike and they're cheaper.

Hybrid:

A hybrid is somewhere between a road-bike and a mountain-bike. It generally has large wheels, thin tyres and it's efficient for commuting around town, but really won't stand up to the rigours of mountain-biking.



All manufacturers have their own take on the 'grey' area between these styles of bike – similar bikes from different manufacturers might be classed as AM by one and XC by the other. Some manufacturers also use XC to mean race-specific XC bikes and bikes that others would call XC bikes, they call Trail bikes. At the end of the day, it really doesn't matter what it's called as long as you end up with a bike you're happy with.

Frames:

Maybe 30-40% of the price of a bike is in the frame and will depend on:

- What the frame is made of:
 - carbon fibre is super-light but is way out of most budgets and is used mainly on top-quality cross-country race-bikes.
 - Steel is cheap, but will (usually) be very heavy and is used commonly on the cheaper 'supermarket' bikes.
 - Aluminium is generally the material of choice for mountain-bike frames for it's compromise between cost, durability and manufacturability (6061 is a common grade of aluminium used on bike frames, but there are many more and all have their place in the biking world)
- How and where it's made – a hand-welded frame from the US is likely to be more expensive (and usually a better quality) than a machine-welded frame mass-produced in a factory. Hand-welded frames are generally particularly expensive and are used on 'boutique' bikes. Most mountain-bikes have a machine-welded frame and will last many many years of happy riding.

Frame Sizing

Frame sizing is somewhat subjective – at the end of the day it's whatever feels right for you and the riding you're doing. However, there are a few guidelines that will help set you on the right track without getting too technical (and involving any mathematical formulas):

- Your riding position on the bike should allow you to *almost* fully extend your leg while you're sitting on the seat and feet on the pedals (with the pedal at the lowest point of its rotation) and your heel lifted slightly so it's higher than your toes.

- When you step forward off the pedals to put both feet flat on the ground on either side of the bike, there should be a couple of inches between you and the top-tube of the bike.

If you can't get full leg extension it'll be inefficient to pedal and if it's too tall to stand astride the frame with your feet on the ground it'll be awkward to manoeuvre the bike and disconcerting when you come to a bumpy stop in the middle of a technical section of trail.

Frame sizes are generally measured from the centre of the bottom bracket (where cranks are bolted to the bike; cranks are the arms that attach the pedals to the bike) to the top of the seat-tube (where the seat-post slides in and out of the bike, *not* the top of the seat-post itself) and for some reason are often still expressed in inches. A 'medium' size bike is usually around 18 inches from bottom-bracket to the top of the seat-tube and will generally suit a rider 170-175cm tall.

Cockpit Length

Cockpit length is the distance from the seat to the handle-bars and will vary with the size of the frame, but also with the 'style' of bike – XC race bikes will be comparatively long from seat-tube to handlebars, which makes them efficient and responsive for pedalling uphill and along the flats, but feel 'twitchy' on rocky descents. There will also be a lot of weight through your arms and hands which may be fatiguing until you become accustomed to it. Conversely, bikes with a shorter cockpit (like a freeride bike) will result in a more 'upright' rider position and the rider's centre of gravity more towards the rear wheel. It will be more tiring to pedal uphill because it's more difficult to get power down through the pedals from that rearward riding position and the front wheel might feel difficult to control and steer effectively on the uphill trails (or even to keep on the ground) because there's less weight through it. The advantage when that style of bike is pointed downhill is that the rider will feel more in control and won't be as readily thrown over the handlebars. Remember though the cockpit layout is of secondary importance to the size of the frame – to a certain extent the cockpit can be adjusted by swapping parts and adjusting components on the bike.

Beware also that manufacturers have their own interpretation of frame sizing and appropriate cockpit lengths – the same bottom-bracket to seat-tube dimension from one manufacturer might be labelled a 'Medium' whereas the next manufacturer might label that same size as 'Small'. Different manufacturers will also have a slightly different opinion on what cockpit length is appropriate for a given size frame. The best plan is to try as many different bikes as you can throw a leg over to see what feels comfortable for you.

Components:

After the frame, the remainder of the cost of a bike will be in the components: the seat, handlebars, forks, rear-suspension, drivetrain, wheels, etc. It's actually quite common for bike manufacturers to market the same frame with a different component-set to achieve a certain price. In some cases, this can be a good thing, because it enables most of us to buy a cheaper version of an expensive bike and to upgrade the parts as we can afford.

Brakes:

Brakes are important – it's what stops the bike and you'll have better confidence riding a bike with brakes you know you can trust. There are a variety of mechanisms for braking mountain-bikes. Rim-brakes have been the most common style of brake for many years – they work by pushing pads onto the rim of the wheel (the flat metal part of the wheel just inside the tyre). Cable-actuated rim brakes have been justifiably popular for many years – they work well and are relatively inexpensive. Cable-actuated V-brakes are the most common brake on entry-level to mid-level mountain-bikes. The predecessor to the V-brakes were the 'cantilever' brakes which are now less common, although will still exist on older bikes that might be available second-hand (bikes with cantilever brakes cannot always be upgraded to V-brakes). Cantilever brakes should be avoided if

possible as the V-brakes are more a more powerful alternative.

Disc brakes are becoming more common on mid-level bikes at more reasonable prices. Rather than working on the rim of the wheel, disc brakes work by gripping a thin perforated metal *rotor* that is mounted on the hub of the wheel. Apart from being more powerful (flex in the rear triangle of the frame reduces the efficiency of v-brakes), disc brakes have the advantage of working much more effectively in wet or muddy conditions – the rotor will likely stay dry and clean when the rim is covered in mud and grit. Disc brakes also don't rely on a rim that runs 'true' (straight), whereas v-brakes will be compromised by rim that has a bit of a 'wobble'. V-brakes will (eventually) wear through the wheel rim where the pads make contact – the rotor is much cheaper to replace than a rim (and it's often cheaper to replace an entire wheel than to replace just the rim). Once they're set up properly, disc brakes require less routine maintenance than v-brakes.

Rim-brakes and disc-brakes are both available in cable-actuated (often called 'mechanical') and hydraulic versions. Cable-actuated (the V-Brakes mentioned above) are the most common of the rim-brakes. Hydraulic rim-brakes had a brief time in the spotlight, but were heavy, still relied on the rim being true and needed a strong (heavy) rim.

Cable-actuated disc brakes are a good choice for a bike that you'd like to buy now and maybe upgrade later. The wheels and rotors are identical whether you're using cable-actuated or hydraulic discs. Hydraulic disc brakes are more expensive, but are significantly more powerful, allowing the rider to brake with two (or maybe even one) finger, while the other fingers are able to more securely grip the handlebars and control the bike with more confidence.

Drivetrain:

The drivetrain includes all the components that 'drive' the bike forwards as you pedal, including the front and rear derailleurs, the cranks (the arm to which the pedals attach), the cogs on the back wheel (the rear 'cluster') and the cogs at the front (the front 'chainrings'). There are two main brands of 'quality' drivetrain components: Sram and Shimano. Both brands have (often very devoted) followers, but are very similar in terms of value across their ranges. Shimano and Sram both have a variety of 'groupsets' that offer different quality at different price-points.

Sram groupsets (from most expensive to least expensive):

- X0
- X9
- X7
- X5
- X4
- 3.0

Shimano groupsets (from most expensive to least expensive):

- XTR (for XC) or Saint (for FR/DH)
- XT
- LX
- Deore
- Alivio

You'll generally get what you pay for – the more expensive groupsets will either last longer or be lighter (or both) than their less-expensive counterparts. The Shimano Alivio and SRAM 3.0 (and perhaps the the X.4) are OK for recreational use, but you'll get better value from more expensive groupsets if you intend to ride regularly off-road.

Forks:

The fork is the part of the bike that connects the front wheel to the bike and is arguably the most critical part of the bike after the frame. The variety of forks are loosely grouped into the same categories by which we grouped frames (XC, AM, DH, etc.). The XC forks are lighter with less travel (the amount by which the fork can compress) than DH forks and AM forks lie somewhere in the middle.

Forks suitable for extended use for mountain biking are available in two types of operation: coil/oil and air. To be even more confusing, they're sometimes available with coil/oil in one leg and air in the other. A third type is the 'elastomer' fork, but has been relegated to low-end bikes as the price of coil/oil and air forks makes them more available. It's visually difficult to tell the difference between any of the fork types.

- Coil/oil forks use springs and configurations of holes to control the flow of oil between chambers within the fork thereby controlling the actions of compression and extension. It's possible to fine-tune the fork by using softer/harder springs and there are often knobs and dials to adjust how fast the fork rebounds (how fast it extends again after being compressed) and how fast it compresses. Higher-end forks might have a 'lockout' which stops the fork from working, which is sometimes useful for riding uphill or long flat trails (and with a flick of a lever, you turn it off again for the run back down). The top-end forks often have a 'platform' or some type of 'blow off' function, where the fork will remain 'locked' until it hits a bump with a force that exceeds the 'platform' at which time the fork will compress.
- Air forks use chambers of air pressure to mimic the actions of the coil/oil forks, are significantly lighter than their coil/oil counterparts and have come a long way in recent years. The primary action of the fork is fine-tuned by adjusting the air-pressure in one or two chambers within the fork leg and (on higher-end forks) by knobs to adjust features like rebound, compression, lockout and platform. The early air shocks were plagued by air leaking from the primary chambers, resulting in a loss of primary function (be wary of second-hand air forks more than a few years old). The manufacturers have really improved the air forks in recent years although the lifetime of an air-fork is not as long as an equivalent coil/oil fork.
- Elastomer forks use a combination of springs and rubber bumpers in the forks to absorb the bumps. They're generally not particularly adjustable (compared to the coil/oil and air forks) and tend to lose their effectiveness after a relatively short time.



*Dual-Crown
Fork*

'Dual Crown' forks are designed for heavy-duty use on long-travel freeride or downhill bikes and are usually too heavy for use on a cross-country mountain-bike.

Rear Shock:



Air Shock

The way a rear shock affects the rear end of the bike is much the same as the forks on the front end allow the bike to absorb and extend over rough terrain. This keeps the wheels in contact with the ground, allowing the bike to pedal and brake more efficiently over bumpy sections of track. A rear shock makes riding a bike more comfortable, but at the expense of weight and pedalling efficiency on smooth trails (or on bike paths or on the road). Most riders will enjoy mountain-biking more on a dual-suspension bike for the extra comfort and control it provides.

Dual suspension bikes may also require more care to keep the extra moving parts in good condition (and periodic replacement of bearings), but the benefits for the recreational rider who expects to spend a lot of time on single-track in the bush far outweigh the disadvantages.

Bikes with a rear shock are often called full-suspension or dual-suspension bikes (or 'duallies') as opposed to 'hardtails' which have no rear suspension (although likely have suspension forks).



Coil Shock

The Bottom Line

So that has been a brief introduction to mountain-bikes... or maybe you read the first paragraph or two and skipped the rest to read this bit. Either way, hopefully it's given you somewhere to start and enough confidence to walk into a bike shop... even if you choose to walk out with a bike because it goes well with your favourite cycling top.

Remember:

- Be honest with yourself: with how much riding you'll do, with the style of riding you'll be doing and with how much you can afford.
- Size *does* matter – make sure it fits. Don't be swayed by a cheap price – it's not a bargain if you don't enjoy riding it.
- Ride as many bikes as you can get your hands on – if you're serious, most bike shops will let you ride up and down the street (they might even have a bike similar to what you're looking at that they'll let you take on the trails). Don't be scared to ask for a ride on someone else's bike, or at least their thoughts on the bike they ride.
- Don't rule out a second hand bike... but be very wary (especially of dual-suspension bikes because there's just so much more that can go wrong). Get it looked at by someone who really knows bikes (or your might convince your local bike shop might to look over it for you).
- Don't rush into it – shop around for the right bike at the right price. Don't be scared to ask bike shops for a good deal on ex-demo bikes or old models (sometimes it's only the colour that's changed).

If that has all been too much, here's a final bit of advice: take a deep breath, spend whatever you can comfortably justify on a second-hand dual-suspension bike with 3-4 inches of front and rear travel, be sure get it checked out by someone who knows mountain-bikes, get out there and see what MTB'ing is all about.