

196 MTB Buyer's Guide:

How do I select the right bike for my student athlete or myself as a ride leader?

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Mountain biking is both a skill-based and equipment-based sport. While having the right equipment is essential for safety, comfort, and performance, skill and technique are equally important factors in enjoying and excelling in the sport. This guide covers some equipment-based topics to consider that will help you maximize your experience to make your dollars go as far as possible.

Equipment-based aspects:

- **Bike selection:** Choosing the right mountain bike for your riding style, terrain, and preferences is crucial. Different types of mountain bikes (e.g., cross-country, trail, enduro, downhill) have specific features and geometry optimized for their intended use.
- **Suspension components:** Front and rear suspension systems (fork and shock) help absorb impacts from rough terrain, providing a smoother and more controlled ride. Selecting the right suspension components and setting them up correctly can greatly enhance comfort and performance.
- **Wheels and tires:** Choosing the right tires and wheels for the terrain you'll be riding on can significantly affect traction, rolling resistance, and handling. Tubeless tires, wider rims, and appropriate tire tread patterns can improve grip and control.
- **Drivetrain, brakes, and pedals:** High-quality brakes and drivetrain components are essential for reliable stopping power and efficient pedaling. Hydraulic disc brakes, wide-range gear ratios, and clutch-equipped derailleurs are common features found on modern mountain bikes.

Additionally, examples of bikes that riders use at practice and races are provided, including their description and features.

Bike selection

Mountain bike types

Mountain biking encompasses various disciplines, each with its own unique characteristics, terrain, and riding styles. Here are some of the different types of mountain biking:

- **Cross-country (XC):**
 - Cross-country mountain biking involves riding on a variety of terrain, including singletrack trails, gravel paths, and forest roads.
 - Courses typically emphasize endurance and speed, with riders covering long distances and climbing significant elevation.
 - XC bikes are lightweight and efficient, with features optimized for climbing and pedaling efficiency.
- **Trail riding:**

- Trail riding is one of the most popular forms of mountain biking, featuring a mix of climbs, descents, technical sections, and flowing singletrack trails.
- Riders tackle a variety of terrain and obstacles, including rocks, roots, drops, and berms.
- Trail bikes are versatile and well-rounded, with suspension travel ranging from around 120mm to 150mm, suitable for a wide range of trail conditions.
- **Enduro:**
 - Enduro mountain biking combines elements of XC racing and downhill riding, featuring timed downhill stages linked by non-timed uphill and transfer sections.
 - Riders compete against the clock on challenging descents, which may include steep, technical terrain, jumps, drops, and rock gardens.
 - Enduro bikes typically have longer travel suspension (150mm to 180mm) and aggressive geometry to handle demanding descents while still being capable of climbing efficiently.
- **Downhill (DH):**
 - Downhill mountain biking focuses on riding downhill-specific trails and courses with steep gradients, technical features, and high-speed descents.
 - Riders often use chairlifts or shuttles to access downhill trails, which can feature large jumps, drops, rock gardens, and berms.
 - Downhill bikes have long-travel suspension (180mm to 200mm) with slack geometry for stability at speed and aggressive handling.

196 MTB: All riding for the team will be cross-country oriented and therefore should be the focus of the bike you're selecting. Some riders choose to purchase a trail bike to increase the versatility enabling them to ride more rough terrain outside of the 196 MTB team structure. Buying a bike with too much travel (enduro or downhill) will only slow your rider down and make their experience less enjoyable

Mountain bike frame size

Choosing the right size mountain bike frame is crucial for comfort, control, and overall performance. Here are steps to help you select the appropriate size:

- **Consider the bike type and riding style:** Different types of mountain bikes are designed for specific purposes, such as cross-country, trail riding, enduro, or downhill. Your riding style and intended terrain will influence the frame geometry and size you should choose.
- **Refer to manufacturer sizing charts:** Most bike manufacturers provide sizing charts based on rider height and inseam length. These charts offer general guidelines for selecting the right frame size for your body measurements. Refer to the manufacturer's website or contact them directly for specific sizing recommendations.
- **Test ride bikes:** Whenever possible, test ride different mountain bikes to get a feel for their fit and handling. Pay attention to how comfortable you feel on the bike and whether you can easily reach the handlebars, pedals, and brakes. If you're between sizes, consider factors such as your riding preferences and flexibility to determine the best fit.

- **Check standover height:** Standover height refers to the distance between the top tube of the bike frame and your inseam when straddling the bike with both feet flat on the ground. You should have a few inches of clearance between your inseam and the top tube to ensure you can dismount safely and comfortably.
- **Consider reach and stack:** Reach and stack measurements determine the horizontal and vertical distance from the bottom bracket to the top of the head tube, respectively. These measurements affect your riding position and comfort on the bike. Some riders may prefer a more upright position, while others may prefer a more aggressive or stretched-out posture.
- **Consult with a bike shop professional:** If you're unsure about sizing or need personalized assistance, visit a reputable bike shop and consult with a knowledgeable staff member. They can help you assess your fit, make adjustments, and recommend the right size and type of mountain bike frame for your needs.
- **Factor in frame geometry:** Pay attention to the specific frame geometry of the mountain bike you're considering. Different frames may have varying top tube lengths, seat tube angles, and head tube angles, which can affect how the bike fits and handles.
- **My rider is going to grow:** If you believe your rider is going to grow significantly during the ownership of the bike you're going to purchase and you're not looking to buy a new bike every year, it may make sense to size up the rider to the next size bike, especially if they're between sizes. There are some potential drawbacks to this when they first use the bike it will be slightly too big for them. This means they may struggle a bit with the fit, handling and riding characteristics of the bike. As they grow they will get more comfortable with the bike which will give them more confidence as they ride. One benefit of a slightly larger bike then spec is it will provide more stability and track straighter on more rough terrain. It is possible to make some adjustments to get a bike that's slightly too big or small to fit a rider. Some examples of easy adjustments to make a bike that's too big fit a smaller rider would be simple changes like adjusting the seat height, stack height (number of spacers above or below the stem), cutting the handlebar width down or moving the seat forward on the seat rails. Other changes that can be purchased would be a different stem to adjust the reach or a crankset to change the crank arm length.

General mountain bike sizing chart

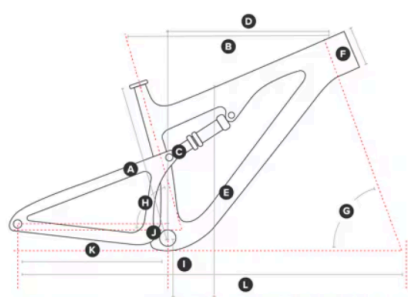
Mountain Bike Size Guide Recommended size chart for most Trail, XC and Enduro mountain bikes by manufacturer						
Size	XS	S	M	L	XL	XXL
Devinci		5'3" – 5'6"	5'6" – 5'9"	5'8" – 6'1"	6'1" – 6'5"	
Evil		5'3" – 5'8"	5'8" – 6'0"	6'0" – 6'4"	6'4" +	
Ibis		5'0" – 5'4"	5'3" – 5'8"	5'7" – 6'1"	6'0" – 6'5"	
Juliana	4'8" – 5'1"	5'1" – 5'5"	5'5" – 5'9"			
Niner	5'0" – 5'5"	5'3" – 5'9"	5'8" – 6'0"	5'11" – 6'3"	6'3" – 6'7"	
Pivot	4'11" – 5'4"	5'4" – 5'8"	5'8" – 5'11"	5'11" – 6'3"	6'2" +	
Santa Cruz	4'8" – 5'1"	5'1" – 5'5"	5'5" – 5'9"	5'9" – 6'1"	6'1" – 6'5"	6'4" – 6'7"
Yeti	4'11" – 5'3"	5'1" – 5'7"	5'5" – 5'11"	5'10" – 6'3"	6'1" – 6'7"	6'5" – 6'11"
Norco	4'9" – 5'1"	5'1" – 5'5"	5'5" – 5'9"	5'8" – 6'0"	5'11" – 6'3"	6'3" – 6'7"
S-Size <i>Specialized Only</i>	S1	S2	S3	S4	S5	S6
Specialized	4'11" – 5'3"	5'2" – 5'8"	5'5" – 5'11"	5'8" – 6'2"	5'10" – 6'4"	6'2" – 6'8"

Terms

Frame geometry terms you may hear or see referenced in this buyer's guide:

SIZE

A technical line drawing of a bicycle frame, viewed from the side and slightly from behind. The frame is shown in a light gray color. Various points on the frame are labeled with letters A through S, indicating specific dimensions. A dashed red line outlines the frame's geometry. A horizontal dashed line represents the ground level. A vertical dashed line represents the seat tube's vertical axis. A curved dashed line represents the head tube's angle. A horizontal dashed line represents the top tube's horizontal length. A vertical dashed line represents the seatpost's vertical length. A horizontal dashed line represents the fork's horizontal length. A vertical dashed line represents the fork's vertical length. A horizontal dashed line represents the chainstay's horizontal length. A vertical dashed line represents the chainstay's vertical length. A horizontal dashed line represents the wheelbase's horizontal length. A vertical dashed line represents the wheelbase's vertical length. 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Summary

By following these steps and considering factors such as your body measurements, riding style, and fit preferences, you can choose a mountain bike frame size that provides a comfortable and enjoyable riding experience.

Frame material

Mountain bike frames can be made from various materials, each offering its own set of advantages and characteristics. The most common materials used for mountain bike frames include:

- **Aluminum:** Aluminum frames are popular due to their affordability, durability, and relatively lightweight. They offer good strength-to-weight ratio and are often chosen for entry-level to mid-range mountain bikes.
- **Carbon fiber:** Carbon fiber frames are lightweight, stiff, and strong. They offer excellent shock absorption, which can enhance comfort and performance on rough terrain. Carbon fiber frames are often found on high-end mountain bikes due to their costliness.
- **Steel:** Steel frames provide a smooth and comfortable ride due to their inherent flex. They are durable and can absorb a lot of impact, making them suitable for aggressive riding styles. However, steel frames tend to be heavier compared to aluminum and carbon fiber.
- **Titanium:** Titanium frames offer a balance of strength, durability, and lightweight properties. They provide a smooth ride similar to steel frames but with less weight. Titanium frames are highly resistant to corrosion and can last a long time with proper care, but they tend to be expensive.

- **Chromoly (Chromium-Molybdenum Alloy):** Chromoly frames are made from a steel alloy that contains chromium and molybdenum. They are strong, durable, and relatively lightweight. Chromoly frames offer a smooth ride and are often used in high-quality mountain bikes.

Summary

Each material has its own characteristics and performance attributes, so the choice often depends on factors such as budget, riding style, terrain, and personal preference. It's most common to have an aluminum or carbon mountain bike and most likely this will be what you should be looking for. If you're buying a used bike inspect it carefully for cracks in the carbon or aluminum. Any cracks could lead to a catastrophic failure of the frame which could lead to a serious injury.

Suspension components

Front suspension

When considering front suspension for a mountain bike, commonly referred to as a "fork," there are several important factors to keep in mind:

- **Travel:** This refers to the distance the fork can compress and rebound. Forks typically range from around 80mm to 200mm of travel, with shorter travel forks being suitable for cross-country riding and longer travel forks being designed for more aggressive downhill or enduro riding. Choose a fork with an appropriate amount of travel based on your riding style and the type of terrain you'll be tackling. For the trails that are used in the 196 MTB season there's no need for travel greater than 130mm. Ideally the front travel will range from 100mm to 120mm.
- **Type of suspension:** Front suspension forks can be categorized into different types of suspension systems, such as:
 - **Coil springs:** Provide a consistent and linear feel but can be heavier and may require more maintenance. They are also typically found on less expensive bikes due to their lack of adjustability.



- **Air springs:** Offer adjustable spring rates and are typically lighter than coil springs. They can be adjusted to suit different rider weights and preferences.



- **Hybrid springs:** Some forks combine both coil and air springs to offer a balance of performance characteristics.
- **Damping:** Damping controls the rate at which the fork compresses and rebounds. Most forks feature damping systems that help to control the fork's movement and improve ride quality. Common damping systems include:
 - **Rebound damping:** Controls how quickly the fork returns to its extended position after compressing.
 - **Compression damping:** Controls how quickly the fork compresses when hitting bumps, providing stability and control.
 - **Adjustable damping:** Some forks offer adjustments for both rebound and compression damping, allowing riders to fine-tune their suspension performance based on terrain and riding preferences.
- **Stiffness:** A fork's stiffness affects how it responds to impacts and steering inputs. Look for forks with features such as through-axle designs and tapered steerer tubes, which can improve stiffness and steering precision.
- **Weight:** Consider the weight of the fork, as lighter forks can improve overall bike handling and climbing performance. However, lighter forks often come at a higher cost and may sacrifice some durability.
- **Maintenance:** Suspension forks require regular maintenance to ensure optimal performance and longevity. Consider factors such as ease of servicing, availability of replacement parts, and manufacturer support when choosing a fork.

Summary

Forks vary widely in price, so consider your budget and prioritize features that are most important to you within that range. If you're spending less than \$500 on a mountain bike it will likely have a non-adjustable coil spring. This is not ideal but works. If you're spending over \$500 on a mountain bike you should be trying to find something with an air spring that's in good working order.

Rear suspension

When looking into rear suspension for a mountain bike, commonly referred to as a "rear shock," there are several key factors to consider:

- **Travel:** Similar to front suspension forks, rear shocks also have travel, which refers to the distance the shock can compress and rebound. Rear shocks typically range from around 100mm to 200mm of travel, with shorter travel shocks being suitable for cross-country riding and longer travel shocks designed for more aggressive downhill or

enduro riding. For the trails that are used in the 196 MTB season there's no need for travel greater than 120mm. Ideally the front travel will range from 100mm to 120mm.

- **Type of suspension system:** Rear shocks can utilize different types of suspension systems, including:
 - **Air suspension:** Offers adjustable spring rates and can be tuned to match rider weight and preferences. Air shocks are generally lighter than coil shocks.



- **Coil suspension:** Provides a consistent and linear feel but may be heavier than air shocks. Coil shocks are often preferred for their plush and predictable performance.
 - **Hybrid suspension:** Some rear shocks combine elements of both air and coil suspension to offer a balance of characteristics.
- **Damping:** Damping controls the rate at which the shock compresses and rebounds. Most rear shocks feature damping adjustments to fine-tune their performance. Key damping adjustments include:
 - **Rebound damping:** Controls how quickly the shock returns to its extended position after compressing.
 - **Compression damping:** Controls how quickly the shock compresses when hitting bumps, providing stability and control.
 - **Adjustable damping:** Some shocks offer separate adjustments for rebound and compression damping, allowing riders to tailor the suspension feel to different trail conditions and riding styles.
- **Mounting system:** Consider the mounting system of the rear shock, as different bikes may use various mounting configurations such as eye-to-eye or trunnion mounts. Ensure compatibility with your bike's frame and suspension design.
- **Stiffness and tunability:** Look for rear shocks that offer stiffness and tunability to match your riding style and preferences. Features such as piggyback reservoirs, volume reducers, and adjustable air or coil spring rates can enhance performance and customization options.

- **Maintenance:** Like front suspension forks, rear shocks require regular maintenance to ensure optimal performance and longevity. Consider factors such as ease of servicing, availability of replacement parts, and manufacturer support when choosing a rear shock.

Summary

Bikes with rear shocks vary in price, so consider your budget and prioritize features that are most important to you within that range. If you're spending less than \$1,000 on a mountain bike you should probably not consider a bike with rear suspension. Purchasing a bike with a budget of more than \$1,000 rear suspension will start to become more available to you and you should make sure it's in good working order if you go this direction. It should also be an air shock. Coil or hybrid shocks do not make for ideal setups for the type of riding your rider will experience while on the 196 MTB team.

Seatposts

Mountain bikes can be equipped with various types of seatposts, each offering unique features and benefits to suit different riding styles and preferences. Here are the two most common types of seatposts used on mountain bikes:

- **Rigid seatpost:** A rigid seatpost is a standard straight or slightly curved post without any suspension or damping features. Rigid seatposts are lightweight, simple, and cost-effective. They are commonly found on XC and trail bikes where riders prioritize efficiency and weight savings.
- **Adjustable seatpost (dropper post):** An adjustable seatpost, also known as a dropper post, allows riders to quickly and easily adjust the saddle height while riding. This feature is particularly useful for transitioning between climbing and descending sections of the trail, allowing riders to lower the saddle for improved maneuverability and control on technical descents and raise it back up for efficient pedaling on climbs. Dropper posts typically have hydraulic or mechanical mechanisms activated by a handlebar-mounted lever.



Summary

When choosing a seatpost for your mountain bike, consider factors such as riding style, terrain, comfort preferences, and budget to determine the most suitable option for your needs. Riders competing at a high-level often prefer a rigid seatpost to minimize the weight of their bike although it's becoming more common for even high-level racers to select a dropper post because they enable increased confidence while descending hills. If you're spending less than \$750 on a mountain bike it will likely come with a rigid seatpost. If you are buying a used bike that comes with a dropper post it's important to ensure the functionality of the post such that it's working as intended.

Wheels and tires

Wheel size

The three main wheel sizes commonly used for mountain bikes are 26-inch, 27.5-inch (also known as 650b), and 29-inch (also known as 29er). Here's a guide to help you choose the right mountain bike wheel size:

- **26-inch wheels:**
 - Historically the standard size for mountain bikes.
 - Provides nimble handling and quick acceleration, making it well-suited for technical trails with tight turns and obstacles.
 - Generally lighter and more maneuverable compared to larger wheel sizes.
 - Offers less stability and rollover capability compared to larger wheels, especially on rough terrain. For some middle school riders, a 26-inch wheel may be a good option on a small bike
- **27.5-inch (650b) wheels:**
 - Offers a balance between the agility of 26-inch wheels and the rollover capability of 29-inch wheels.
 - Provides improved traction, stability, and rollover capability compared to 26-inch wheels, especially on rough terrain.
 - Suitable for a wide range of riding styles and terrain types, from cross-country to trail and all-mountain riding.
 - Can offer a good compromise for riders who want a versatile wheel size without extreme trade-offs in handling or stability.
- **29-inch (29er) wheels:**
 - Provides enhanced rollover capability, momentum, and stability, making it ideal for rolling over obstacles and maintaining speed on rough terrain.
 - Offers improved traction and smoother ride quality compared to smaller wheel sizes, especially on rocky and technical trails.
 - Can be less maneuverable and agile compared to smaller wheels, especially in tight and twisty terrain.
 - Well-suited for cross-country, marathon, and endurance riding, as well as trail and all-mountain riding where stability and efficiency are prioritized.

Summary

29-inch wheels are the benchmark for XC riding and should be considered as your first choice when looking for a bike. In some cases, bikes in frame sizes small or extra small may come standard with 27.5-inch wheels in order to be compatible with the frame and overall bike design for its intended use.

Tire selection

Tires are a critical and often one of the most overlooked parts of your bike. Selecting the right tires for cross-country (XC) mountain bike racing is crucial for achieving optimal performance and efficiency on a variety of terrain. Your tires are the only part of your bike that touches the ground and could be argued as the most influential part of your bike's performance. Here are some factors to consider when choosing XC mountain bike tires:

- **Tread pattern:** XC tires typically feature low-profile tread patterns with closely spaced knobs. This design minimizes rolling resistance, allowing for faster acceleration and efficient pedaling on smoother surfaces. Look for tires with shallow, ramped knobs in the center for speed, and slightly larger knobs on the edges for cornering traction.



- **Tire width:** XC tires typically range from 1.9 to 2.3 inches in width. Narrower tires (1.9 to 2.1 inches) are lighter and offer lower rolling resistance, making them well-suited for hard-packed or smooth trails. Wider tires (2.1 to 2.3 inches) provide more traction and stability on rougher terrain, such as loose gravel or rocky trails.
- **Casing and sidewall construction:** Consider the casing and sidewall construction of the tires, as this can affect durability, puncture resistance, and ride quality. XC tires often feature lightweight casings with thinner sidewalls to reduce weight and rolling resistance. However, opt for tires with reinforced casings or sidewalls if you frequently encounter sharp rocks or rough terrain to prevent punctures and sidewall cuts.

- **Tubeless compatibility:** Tubeless tires have become increasingly popular in XC racing due to their ability to run lower tire pressures for improved traction and control without the risk of pinch flats. Look for tubeless-ready tires that can be used with sealant to seal punctures and maintain air pressure.
- **Compound:** Tire compounds can vary in hardness and tackiness, affecting grip and rolling resistance. XC tires often use harder rubber compounds to minimize rolling resistance and improve durability. Look for tires with high-quality rubber compounds that strike a balance between grip and durability for your racing conditions.
- **Weight:** Weight is a critical consideration in XC racing, as lighter tires can improve acceleration and climbing performance. Look for lightweight XC tires without sacrificing durability and puncture resistance.
- **Terrain and conditions:** Consider the terrain and weather conditions you'll be racing in when selecting tires. Choose tires with appropriate tread patterns and features for the specific types of trails and surfaces you'll encounter, such as hardpack, loose gravel, mud, or wet roots.
- **Brand and model:** There are many reputable tire manufacturers offering a wide range of XC-specific tire options. Research and test different brands and models to find tires that suit your racing style, preferences, and the conditions you'll be racing in.

Summary

Ultimately, the best XC mountain bike tires for racing will depend on a combination of factors, including the terrain, conditions, rider preferences, and racing goals. Experimenting with different tire setups and configurations can help you find the optimal combination for your racing performance.

Drivetrain, brakes, and pedals

Drivetrain

Mountain bike drivetrains encompass various components that work together to transfer power from the rider's legs to the wheels. The drivetrain consists of the chain, crankset (chainrings and crank arms), cassette (rear sprockets), derailleurs (front and rear), shifters, and chainrings. Different types of mountain bike drivetrains are distinguished by their configuration, number of gears, and gear ratios. Here are the main types:

- **1x (one-by) drivetrain:**
 - 1x drivetrains have a single front chainring paired with a wide-range cassette at the rear.
 - The absence of a front derailleur simplifies shifting and reduces weight.
 - 1x drivetrains are popular for their simplicity, efficiency, and versatility across various terrain types.
 - They are commonly found on modern mountain bikes, ranging from cross-country to enduro and trail bikes.
- **2x (two-by) drivetrain:**
 - 2x drivetrains have two front chainrings paired with a cassette at the rear.
 - The front derailleur allows for a wider range of gear ratios compared to 1x drivetrains, providing both higher and lower gearing options.
 - 2x drivetrains offer increased gear range, making them suitable for riders who encounter a wide variety of terrain, including steep climbs and fast descents.

- 2x drivetrains are most common on older mountain bikes or cheaper mountain bikes.



- **Cassette:** A mountain bike cassette refers to the cluster of sprockets (gears) that attach to the rear wheel hub and work in conjunction with the chain and chainrings to provide a range of gear ratios for pedaling. Cassettes are a critical component of the bike's drivetrain and play a key role in determining the available gear range and shifting performance. Here are some key aspects of mountain bike cassettes:
 - **Number of speeds:** Mountain bike cassettes are available in various configurations based on the number of speeds (gears) they accommodate. Common options include 7-speed, 8-speed, 9-speed, 10-speed, 11-speed, and 12-speed cassettes. The number of speeds refers to the total number of sprockets on the cassette.



- **Gear range:** The gear range of a cassette refers to the difference in tooth count between the smallest and largest sprockets. A wider gear range provides more versatility for climbing steep inclines and descending fast descents. Higher-end cassettes often offer a wider gear range by incorporating larger sprockets with more teeth and smaller sprockets with fewer teeth.
- **Compatibility:** When choosing a cassette for your mountain bike, it's essential to ensure compatibility with your bike's drivetrain components, including the rear derailleur, chain, and shifter. Cassettes are designed to work with specific types of drivetrains based on the number of speeds and the spacing between sprockets. Additionally, some cassettes may require a specific type of freehub body on the rear wheel hub for proper installation.
- **Upgradability:** Depending on your riding needs and preferences, you may have the option to upgrade your cassette to a different configuration with a wider gear range or higher number of speeds. Upgrading your cassette can provide improved performance and versatility for tackling various terrain types and riding conditions.

Summary

196 MTB riders should target a 1x drivetrain. More gears are not better. 2x drivetrains require more maintenance, are less reliable and 1x drivetrains have developed over the years to provide similar range to 2x drivetrain setups.

Brakes

Mountain bike brakes play a crucial role in controlling speed and maintaining safety on the trails. There are several types of brakes commonly used on mountain bikes, each offering different characteristics and performance attributes. Here are the main types of mountain bike brakes:

- **Rim brakes:**
 - Rim brakes use calipers to squeeze brake pads against the rim of the wheel, generating friction and slowing the bike down.
 - Common types of rim brakes include:
 - **V-brakes (linear pull brakes):** These are common on entry-level mountain bikes. They use a pair of arms to pull the brake pads against the rim.



- **Cantilever brakes:** These use a similar mechanism to V-brakes but with a different arm configuration. They are less common on modern mountain bikes.



- Rim brakes are lightweight, simple, and cost-effective but can suffer from reduced braking performance in wet or muddy conditions and can wear down the rims over time.
- **Mechanical disc brakes:**
 - Mechanical disc brakes use cables to actuate the calipers, which then squeeze brake pads against a rotor attached to the wheel hub.



- They offer better braking performance compared to rim brakes, especially in wet or muddy conditions, and are less affected by rim wear.
- Mechanical disc brakes are more affordable and easier to maintain than hydraulic disc brakes but may require more frequent adjustments to keep them functioning optimally.
- **Hydraulic disc brakes:**
 - Hydraulic disc brakes use hydraulic fluid to transfer force from the brake lever to the calipers, which then press the brake pads against the rotor.



- They offer superior braking performance, modulation, and consistency compared to rim brakes and mechanical disc brakes.
- Hydraulic disc brakes provide better heat dissipation, which reduces brake fade on long descents.
- They require less hand effort to operate and offer more precise control over braking power.
- Hydraulic disc brakes are more expensive and may require specialized tools and knowledge for maintenance and repair.

Summary

When choosing mountain bike brakes, consider factors such as braking performance, modulation, durability, maintenance requirements, and compatibility with your bike's frame and components. Experimenting with different brake types and setups can help you find the right combination for your riding style and preferences.

Pedals

Pedals are often a topic that comes up frequently. Mountain bike pedals come in various types, each offering different features, benefits, and riding characteristics. Here are the main types of mountain bike pedals:

- **Flat pedals:**
 - Flat pedals feature a simple platform design with no clips or bindings.
 - They provide a large, flat surface for the rider's feet, allowing for easy entry and exit and offering a secure grip with flat-soled shoes or grippy pedal pins.
 - Flat pedals are popular for riders who prioritize maneuverability, foot freedom, and the ability to quickly put a foot down when needed.
- **Clipless pedals:**
 - Clipless pedals use a cleat-and-binding system to securely attach the rider's shoes to the pedals.
 - The term "clipless" can be misleading, as clipless pedals actually clip in the rider's shoes, providing a secure connection and efficient power transfer.
 - Clipless pedals offer enhanced pedaling efficiency, control, and stability, allowing riders to generate power throughout the pedal stroke and maintain foot placement on technical terrain.
 - They are popular among cross-country, endurance, and trail riders who prioritize performance, efficiency, and long-distance comfort.
 - Even top enduro and downhill racers prefer clipless pedals
 - Some manufacturers like Shimano offer a clipless pedal solution that enables riders to adjust the force required to clip in and clip out offering a nice transition into the type of pedal.
 - Clipless pedals require compatible cycling shoes with cleats that attach to the pedal mechanism.



Summary

You will be faster on clipless pedals. Having said that, they take time to adjust to. You undoubtedly will tip over and have some crashes as you get used to these pedals. Flats are a good choice for casual riding but as you increase your bike skills increase it will make sense to migrate to this pedal type.

To buy new or used?

Choosing between a new and a used mountain bike depends on several factors, including your budget, preferences, and specific needs. Here are some considerations to help you make an informed decision.

Buying a new mountain bike

- **Warranty and support:** New bikes typically come with manufacturer warranties, providing coverage for potential defects or issues. Additionally, you'll have access to customer support and assistance from the bike shop or manufacturer.
- **Latest technology and features:** New bikes often incorporate the latest technology, materials, and design advancements, offering improved performance, durability, and features compared to older models.
- **Customization options:** When buying new, you have the option to customize your bike by choosing components, colors, and accessories to suit your preferences and riding style.
- **Peace of mind:** Buying a new bike provides peace of mind, knowing that it hasn't been subjected to wear and tear or potential damage from previous use.
- **Availability:** New bikes are readily available from bike shops and online retailers, offering a wide selection of models, sizes, and configurations to choose from. Additionally, there are currently many sales on new bikes as new bike inventory in the market has outpaced demand leading to good deals on new bikes.
- **Where to buy:**
 - **Local bike shops**
 - [Freewheel Bikes](#) – Trek, Orbea, Santa Cruz, Juliana (Women's)
 - [Erik's Bike and Ski](#) – Specialized, BMC, Norco, Rocky Mountain
 - [Valley Bike and Ski](#) – Giant, Liv (Women's), Santa Cruz, Juliana (Women's), Norco
 - **Online retailers**
 - [Competitive Cyclist](#)
 - [Jenson USA](#)
- **Other discounts:** As a rider or ride leader on the team there are member benefits with the MCA. This link provides an overview and process to secure these additional discounts: [MCA Member Benefits](#)

Buying a used mountain bike

- **Cost savings:** Used bikes cost less than their new counterparts, allowing you to get more bike for your budget or allocate funds for upgrades and accessories. In many cases you can purchase a used bike for around 50% of the original purchase price if you're a patient shopper.
- **Value retention:** Mountain bikes depreciate in value over time, so buying used can offer better value for money compared to purchasing new. You may find a higher-end model at a lower price point.
- **Pre-owned upgrades:** Some used bikes may come with aftermarket upgrades or components installed by the previous owner, providing added value and performance enhancements.
- **Condition:** Ask about service records for suspension, dropper post and drivetrain. Ensure the bike is working properly. This includes checking the brakes, suspension, shifting, spinning the wheels to ensure the rims are straight and ride it at least around the parking lot.
- **Negotiation flexibility:** When buying used, there may be room for negotiation on the price, especially if the bike requires maintenance or repairs.
- **Where to buy:**
 - Facebook Marketplace
 - Facebook groups:
 - [Twin Cities Bicycle Trading Post](#)
 - [Twin Cities/MN Bicycle Marketplace](#)
 - [Pinkbike](#)
 - [The Pro's Closet](#)

Considerations for both options

- **Condition:** Whether buying new or used, assess the condition of the bike carefully. Look for signs of wear, damage, or mechanical issues that may affect performance or safety.
- **Fit and size:** Ensure that the bike fits you properly and is suitable for your height, riding style, and preferences. Test ride bikes whenever possible to evaluate comfort and handling.
- **Research and inspection:** Research the make, model, and year of the bike to understand its specifications, reputation, and potential issues. Inspect used bikes in person or have them checked by a professional mechanic before purchasing.
- **Seller reputation:** When buying used, consider the reputation and credibility of the seller. Purchase from reputable sources such as bike shops, online marketplaces with buyer protection, or private sellers with positive reviews and feedback.

Summary

Ultimately, the decision between a new and a used mountain bike depends on your individual circumstances and priorities. Evaluate your budget, preferences, and specific needs to determine which option offers the best value and satisfaction for your mountain biking endeavors.

Examples of bikes riders use

These examples are meant to be representative of some bikes you will see riders using both at practices and during races. There are many other bikes available on the market that are well suited for use on our team. Note this is the list price (MSRP) from the manufacturer's website and they are subject to change.

Note: Looking for the bikes below or similar bikes that are used will typically provide substantial reduction on your initial cost as discussed in the new/used section of this guide.

Rocky Mountain Fusion 30 Hardtail - \$900



All-around bike, great for learning the sport with a low standover height and more relaxed geometry but still race worthy for beginner and intermediate riders. This bike uses reliable, common component standards making the bike upgradeable over time is desired.

Features:

- Aluminum frame
- 29" wheels
- 100 mm front suspension, air spring fork
- 1x drivetrain with 10 speeds
- Rigid seatpost
- Hydraulic disc brakes

Specialized Rockhopper Comp Hardtail - \$950



Slightly more XC oriented, the Rockhopper is great for learning the sport with a low standover height and race worthy geometry for beginner and intermediate riders. This bike uses more common component brands that are reliable with common component standards making the bike upgradeable over time is desired.

Features:

- Aluminum frame
- 29" wheels
- 100 mm front suspension, air spring fork
- 1x drivetrain with 12 speeds
- Rigid seatpost
- Hydraulic disc brakes

Trek Marlin 8 Gen 2 Hardtail - \$1,000



Slightly more XC oriented, the Marlin is great for learning the sport with a low standover height and race worthy geometry for beginner and intermediate riders. This bike uses more common component brands that are reliable with common component standards making the bike upgradeable over time is desired.

Features:

- Aluminum frame
- 29" wheels
- 100 mm front suspension, air spring fork
- 1x drivetrain with 12 speeds
- Rigid seatpost
- Hydraulic disc brakes

Trek Marlin 7 Gen 3 Hardtail - \$1,300



All-around bike, great for learning the sport with a low standover height and more relaxed geometry but still race worthy for beginner and intermediate riders. This bike uses more common component brands that are reliable with common component standards making the bike upgradeable over time is desired.

Features:

- Lightweight, aluminum frame
- 29" wheels with XC race tires
- 100 mm front suspension, air spring fork with remote lockout (control suspension from handlebars)
- 1x drivetrain with 12 speeds
- Dropper seatpost

Giant XtC SLR 29 - \$1,450



XC oriented, lightweight aluminum hardtail designed for speed and efficiency. The Xtc is great for intermediate riders looking to improve their race results on a budget. This bike uses more common component brands that are reliable with common component standards making the bike upgradeable over time is desired.

Features:

- Lightweight, aluminum frame
- 29" wheels with XC race tires
- 100 mm front suspension, air spring fork with remote lockout (control suspension from handlebars)
- 1x drivetrain with 12 speeds
- Rigid seatpost
- Hydraulic disc brakes

Trek Procaliber Hardtail - \$2,500 (starting at)



XC race bike, lightweight carbon hardtail designed for speed and efficiency. The Procaliber Hardtail is great for intermediate riders developing into advanced riders or advanced riders looking to improve their race results. This bike is not ideal for technical trails. This bike is for riders who do not spend much time on technical trails, or they will have a more capable bike suited for technical trails. This bike uses mid/high-end component brands that are reliable with common component standards making the bike upgradeable over time is desired.

Features:

- Lightweight, carbon frame
- 29" wheels with XC race tires
- Rock Shox Judy SL fork, 100 mm front suspension, air spring
- 1x drivetrain with 12 speeds
- Rigid seatpost
- Hydraulic disc brakes

Niner Air RDO Hardtail - \$2,550 (starting at)



XC race bike, lightweight carbon hardtail designed for speed and efficiency. The Air RDO Hardtail is great for intermediate riders developing into advanced riders or advanced riders looking to improve their race results. This bike is not ideal for technical trails. This bike is for riders who do not spend much time on technical trails, or they will have a more capable bike suited for technical trails. This bike uses mid/high-end component brands that are reliable with common component standards making the bike upgradeable over time is desired.

Features:

- Lightweight, carbon frame
- 29" wheels with XC race tires
- FOX 32 FLOAT fork, 100 mm front suspension, air spring
- 1x drivetrain with 12 speeds
- Rigid seatpost
- Hydraulic disc brakes

Trek Top Fuel 5 - \$2,700 (starting at)



The Top Fuel is a full suspension mountain bike that is great for XC but also offers more capability for more aggressive trail riding. This bike is great for riders who want to have fun on the trail and be comfortable but also for riders who want to race competitively and still be able to ride more technical trails and only have one bike. This bike uses mid/high-end component brands that are reliable with common component standards making the bike upgradeable over time is desired.

Features:

- Lightweight, aluminum frame
- 29" wheels with XC race tires
- Rock Shox Recon fork, 120 mm front suspension, air spring

- X-Fusion Pro 2 rear shock with 120 mm of travel
- 1x drivetrain with 12 speeds
- Dropper seatpost
- Hydraulic disc brakes

Santa Cruz Highball Hardtail - \$3,300 (starting at)



XC race bike, lightweight carbon hardtail designed for speed and efficiency. The Highball Hardtail is great for intermediate riders developing into advanced riders or advanced riders looking to improve their race results. This bike is not ideal for technical trails. This bike is for riders who do not spend much time on technical trails, or they will have a more capable bike suited for technical trails. This bike uses mid/high-end component brands that are reliable with common component standards making the bike upgradeable over time is desired.

Features:

- Lightweight, carbon frame
- 29" wheels with XC race tires
- Rock Shox SID SL fork, 100 mm front suspension, air spring with remote lockout
- 1x drivetrain with 12 speeds
- Rigid seatpost
- Hydraulic disc brakes

Specialized Epic Comp Hardtail - \$3,600 (starting at)



XC race bike, lightweight carbon hardtail designed for speed and efficiency. The Epic Hardtail is great for intermediate riders developing into advanced riders or advanced riders looking to improve their race results. This bike is not ideal for technical trails. This bike is for riders who do not spend much time on technical trails, or they will have a more capable bike suited for technical trails. This bike uses mid/high-end component brands that are reliable with common component standards making the bike upgradeable over time is desired.

Features:

- Lightweight, carbon frame
- 29" wheels with XC race tires
- Rock Shox SID SL fork, 100 mm front suspension, air spring
- 1x drivetrain with 12 speeds
- Rigid seatpost
- Hydraulic disc brakes

Santa Cruz Blur TR - \$4,500 (starting at)



The Blur is a full suspension mountain bike that is great for XC but also offers more capability for more aggressive trail riding. This bike is great for riders who want to have fun on the trail and be comfortable but also for riders who want to race competitively and still be able to ride more technical trails and only have one bike. This bike uses mid/high-end component brands that are reliable with common component standards making the bike upgradeable over time is desired.

Features:

- Lightweight, carbon frame
- 29" wheels with XC race tires
- Rock Shox SID RL fork, 120 mm front suspension, air spring
- FOX FLOAT Performance rear shock with 115 mm of travel
- 1x drivetrain with 12 speeds
- Dropper seatpost
- Hydraulic disc brakes

Pivot Mach 4 SL - \$6,200 (starting at)



The Mach is a full suspension mountain bike that is great for XC but also offers more capability for more aggressive trail riding. This bike is great for riders who want to have fun on the trail and be comfortable but also for riders who want to race competitively and still be able to ride more technical trails and only have one bike. This bike uses high-end component brands that are reliable with common component standards making the bike upgradeable over time is desired.

Features:

- Lightweight, carbon frame
- 29" wheels with XC race tires
- FOX Performance Stepcast 34, 120 mm front suspension, air spring

- FOX FLOAT Performance rear shock with 115 mm of travel
- 1x drivetrain with 12 speeds
- Dropper seatpost
- Hydraulic disc brakes

Other places to get more educated

- YouTube bike reviews and selection videos
- Google bike reviews