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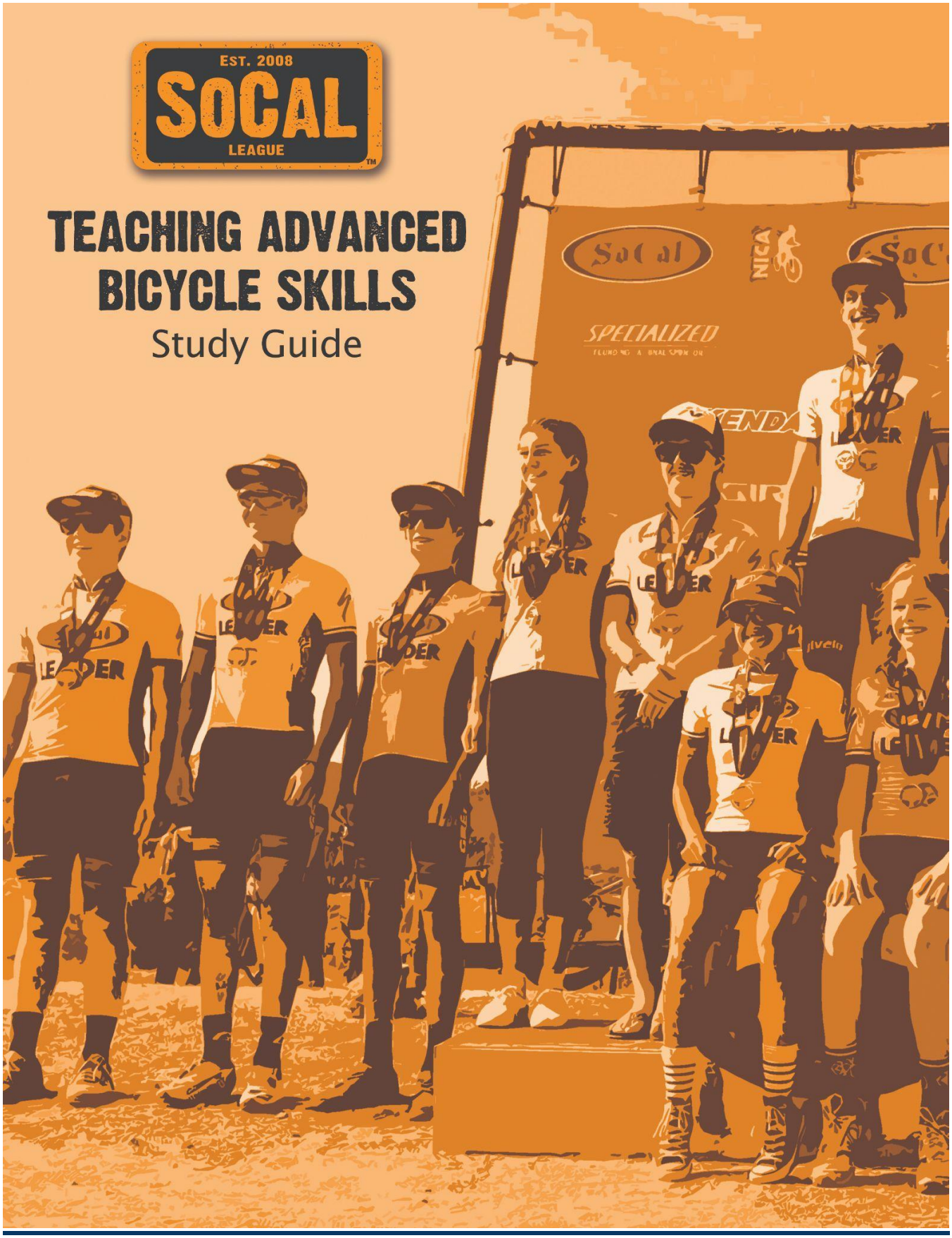
SoCAL
LEAGUE

TEACHING ADVANCED BICYCLE SKILLS

Study Guide



Introduction

Welcome to the advanced skills study guide. Here you will find the most advanced progressions of previous skills plus numerous new skills. These advanced skills tend to focus on race preparedness, although they can be used beyond the racecourse.

Coaches are encouraged to have a thorough understanding of the Essential and Intermediate skills and the ability to perform them easily before moving on to these Advanced skills. These next skills involve an additional level of speed, risk, and consequence.

These advanced skills should be reserved for those high-performing student-athletes with adequate skill, physical literacy, and maturation. Additional attention should be applied to ensure student-athletes know how these skills are to be applied but also when they create elevated and unnecessary risks to themselves and others around them.

Strategies for Teaching Skills

Below are common strategies and principles for teaching skills, assessing rider competency, and preparedness to ride on trails.

Method for teaching each skill

- **Name the skill to be instructed.**
- **Describe when, where, and why the skill is used.**
- **Provide teaching points along with a static demonstration.**
- **Demonstrate the skill.**
- **Prompt for any questions.**
- **Allow for practice and progressions.**
- **Review the lesson.**

Error Observation, Detection, and Correction

A coach's ability to observe and identify rider errors is a practiced skill. How we deliver feedback to student-athletes can create a lasting impression, both good and bad. Do not announce what they are doing wrong. Instead, lead with empathy and encourage them with tips to help them succeed. They may not remember what you do or say. They will remember how you made them feel. Leave them feeling empowered and energized to continue learning and practicing.

Develop a personal method of observation that helps you to identify errors. Become familiar with keywords, body movements, common errors, and corrections for each skill. This will aid in your ability to identify errors quickly and respond with appropriate and effective feedback.

Note that student-athletes will improve simply with repeated practice attempts. Immediate criticism or feedback is not always best. Focus instead on the improvement process. Encourage them to continue trying as you determine how best to help. They often figure it out on their own and will enjoy the challenge and accomplishment. Although we may want to immediately step in and fix things, pause and allow them to problem solve and learn. Then, celebrate with them as they improve.

Ten Fundamental Elements

The ten fundamentals are the foundation of all mountain bike skills. They provide guidance as you observe, identify rider errors, and provide feedback. Knowing how these elements are interrelated when performing skills will help you to guide your student-athletes to a higher level of success on the bike.

- **Neutral & Ready Position**
  These dynamic standing positions are critical to maintaining balance and control over varied or challenging terrain
- **Bike / Body Separation**
  Bike / Body Separation allows the bike to move as the terrain dictates while the rider remains balanced and in control.
- **Pedal Position**
  Level Pedals, when not pedaling, allow the rider to stay balanced on both feet. Pedal position is also involved when the rider is poised with a pedal in the power position during the approach to a challenge that requires a quick pedal stroke. Each foot should be positioned properly on the pedal: On the ball of the foot when clipped in. Slightly forward of the ball of the foot when using flat pedals.
- **Eye Movement**
  The rider's head should be up with eyes always scanning ahead. Scanning further ahead as speed increases. Identify obstacles to be avoided and focus on a path to success.
- **Braking**
  Braking is used to control speed and/or come to a stop. Braking cannot be overstated as it provides confidence and control as riders progress.
- **Steering**

Steering is the turning of the handlebars and front wheel. When used with bike/body separation, the rider can maintain balance and stability while changing direction. At slow speeds, a lot of steering is required. At higher speeds, leaning the bike changes direction while minimal steering is involved.

- **Speed**
  Many skills require the rider to travel at an appropriate speed. At slow speeds, it may be difficult to maintain stability, balance, and control. Excessive speeds reduce reaction time and create higher levels of risk and consequence.
- **Gearing & Cadence**
  Gear selection must be appropriate for the terrain, the skill, and the rider's speed. For skills requiring pedal strokes, gear selection may be critical.
- **Timing & Coordination**
  Small errors in timing can have disastrous consequences. Timing errors are easy to correct with repeated practice. Coordination errors may be more difficult to correct. However, you should never progress a skill when there are errors in timing and coordination.
- **Pressure Control**
  Pressure control is pushing down or unweighting the bike through the hands and feet. Pushing down may be used to increase traction when braking or cornering. Pushing down quickly and forcefully is an early step in many wheel lifts. Conversely, the rider can unweight the bike as they are about to hit an obstacle, such as a root or rock, to minimize the impact. Pressure control is the key to success in many skills but is often overlooked.

Advanced Skills

Ready Position & Bike / Body Separation - Progression

Pumping

Pumping is the dynamic weighting and unweighting of the bicycle to create forward momentum. The word is synonymous with a bicycle pump track where riders are encouraged to ride without pedaling. A pump track consists of peaks and valleys (pumps) and banked (berm) turns. Both elements allow for pumping and can be great fun as riders improve their skill.

- **Tall Ready Position**
- **Bend and extend**
- **Press with hands**
- **Press with feet**

Advanced Cornering

Cornering is the most commonly used skill in mountain biking. It is also one of the most difficult to master, as every turn is unique. Although cornering technique varies between cycling disciplines, we are going to focus on cornering in a cross-country MTB setting.

Essentials

- Low
- Look
- Lean

Intermediate

- Twist
- Counter-balance

Advanced

- **Speed control (brake before the turn)**
- **Choose the appropriate path (outside-inside-outside)**
- **Crank rotation (to maintain level pedals)**
- **Pressure control or Pumping**

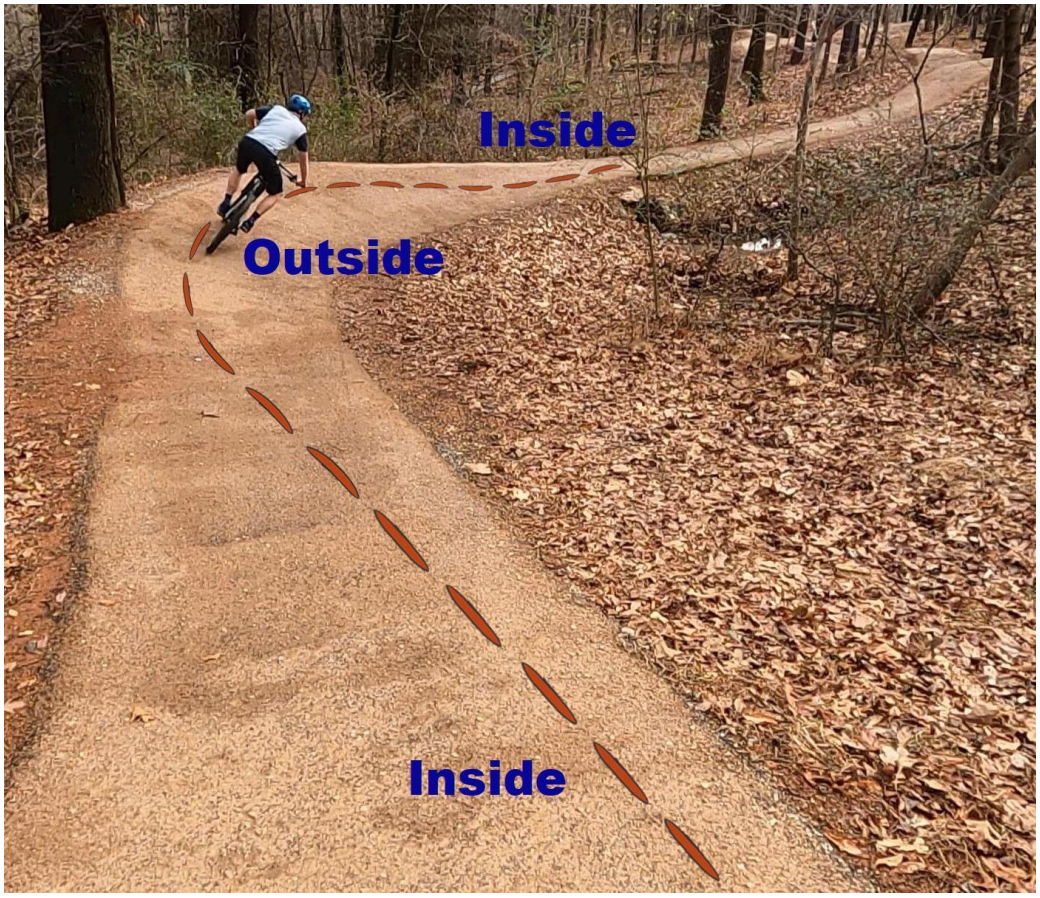
Berm Cornering

"In mountain biking, a berm is a banked turn formed by soil, commonly dug from the track, being deposited on the outer rim of the turn." - Wikipedia

Previously reserved for gravity parks and BMX tracks, berms are becoming increasingly common on cross-country mountain bike trails. This is a welcome sight as it allows riders to corner with higher speeds and confidence. As berms create a new and unique riding experience, many riders are unaware of how to use them properly.

Although nearly all of our cornering elements can be applied, there is one thing we change dramatically to utilize a berm better. We change our entry angle and intended path. This altered path creates a greater force pushing the rider into the berm. Allowing the rider to maximize traction, confidence, and speed. Be certain that riders have sound cornering skills, as additional bike lean and counterbalance are required to utilize this altered path.

- Apply all other appropriate cornering elements
- **Change the path to utilize the berm (inside-outside-inside)**



Sprinting

Sprinting is used to accelerate or create an increase in speed. This is often required at the start of a race, while passing other riders, or at any time faster speed is beneficial.

- **Forward Ready Position**
- **Powerful Pedal Strokes**
- **Pull with hands to rock the bike**

Proximity & Bumping

Many riders become accustomed to riding single-file on trails. Therefore, passing only happens when the trail is wide enough, when a rider is forced to stop, or as riders rearrange during stops.

A competitive atmosphere creates significant differences. The start of a race forces many riders into tight spaces as they anxiously try to gain an advantage and get ahead of others. These circumstances may repeat as riders pass one another throughout a race. Inexperience or a moment of poor judgment can create an unsafe situation and possibly lead to a crash.

To ensure student-athletes have a positive racing experience, coaches should prepare them for these scenarios with drills and mock races during practice.

- **Elbows out as bumpers**
- **Use Bike / Body Separation side to side to protect handlebars**
- **Counter-balance as required**

Rolling Dismount

Racers are often forced to dismount due to traffic or a significant challenge. Those that can get off their bike safely before coming to a stop will be able to continue their forward momentum to avoid wasting time and energy. This skill is widely used in cyclocross racing, where racers must dismount and raise their bike over barriers on the course. Those that master this Rolling Dismount and the following Rolling Mount have a significant advantage.

- **Swing Right Leg over**
- **Place hip against the saddle**
- **Simultaneously:**
  - **Left foot forward**
  - **Right foot to the ground**

Rolling Mount

Getting back on the bike while continuing to move forward is just as crucial to maintaining that forward moment. It often takes a little more time to master. Performing enough repetitions in practice is essential to create muscle memory to do this skill with confidence. Getting it wrong can lead to an embarrassing or painful entanglement with the bike.

- **Walk/Run on the left side**
- **Stride forward while lifting the right leg over the saddle**
- **Continue forward with the right leg to a seated position**
- **Find pedals**

Manual Front Wheel Lift

The Manual is another front wheel lift used at high speed to lift the front wheel up and over low obstacles or across depressions. Small valleys, ditches, and puddles represent good opportunities to use the Manual Front Wheel Lift. This skill is also often used when going off drops or ledges.

- **Load**
- **Lunge handlebars forward**
- **Length arms**
- **Press heels down and forward**

Pedaling Front Wheel Lift

A Pedaling Front Wheel Lift is the last of our wheel lifts and is used at slow speed to get the front wheel up and onto obstacles or ledges while promoting and maintaining forward momentum. Commonly used while climbing as the rider's speed tends to be lower, and pedaling is required to continue forward.

- **Tall Ready Position**
- **Pedal in the power position**
- **Powerful pedal stroke & pull handlebars**
- **Bend elbows as handlebars come up**

Drops

Drops are often found on descents, and every situation is different. Always ride smart and “Pre-ride, Re-Ride, Free-Ride.” Be sure to stop and look at any features where the landing is out of sight as you approach.

Below are the skill variables to be considered when riding drops. These are different from the keywords offered for the previous skills.

- **Speed**
  What is the typical speed when approaching the drop? Is there a benefit to increasing or decreasing speed?

- **Lunge**
  Does the height require a lunge? How much lunge is required? What is the angle of the landing? The goal is to land with both wheels at the same time.

- **Absorb**
  Can the rider get low and push down on a small drop to get to the ground more quickly?

- **Preload & Body Wedge**
  Is preload & body wedge required to clear a gap or threat in the landing area?

  The majority of drops can be safely ridden using only speed and lunge.

Appendix A - Risk Management Concerns

It is always best to teach and practice skills in a controlled environment before progressing to the trail.

Advanced Cornering

Do not let riders progress to a higher speed until they use the proper Intro and Intermediate techniques.

Berm Cornering

Berms require exaggerated cornering skills such as lean, twist, and counterbalance. Progress slowly as speed will influence their path in the berm. Slow speed keeps you low. Faster speed brings the rider higher in the berm. If progressing to a higher speed too soon, riders may go over the top of the berm and crash.

Proximity & Bumping

Progress slowly with this skill. Arms and handlebars may get tangled and lead to a crash. Do not allow riders to exaggerate beyond their ability or that of their partner. Limit horseplay and remind student-athletes that is never to be used as an aggressive maneuver or to gain an advantage.

Rolling Dismount and Mount

Always begin progressions at a walking speed. Don't allow speed to increase until riders are displaying adequate proper technique. Riders may become tangled in the bike or lose balance and crash.

Manual Front Wheel Lift

Riders must always have a finger on the brakes when attempting a Manual Front Wheel Lift. If they go too far back, using the rear brake will bring the front wheel back down. Failure to do so will cause the rider to lose balance, come off the bike, or crash. Promote practice on a soft surface and while using flat pedals.

Pedaling Front Wheel Lift

The rider should bend the elbow and lift the handlebars towards the chest when doing a Pedaling Front Wheel Lift. If they move their body too far back, using the rear brake will bring the front wheel back down. Failure to do so will cause the rider to lose balance and crash. Teaching the Pedaling Front Wheel Lift to student-athletes often leads to them doing Wheelies (continuously pedaling). Highlight that Pedaling Front Wheel Lifts are used on the trail to get over obstacles. Wheelies are used to show off!

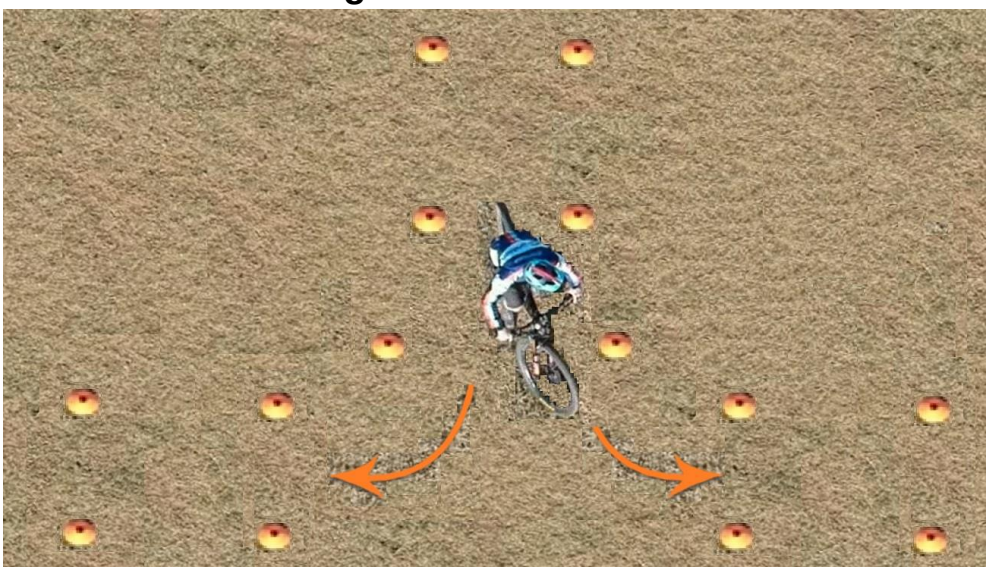
Drops

Always revisit the Roll Down (Intermediate skill) before beginning to teach Drops. The height of the drop during your practice session does not need to be higher than 12 inches. Coaches may prefer to stop progressing after teaching Speed and Lunge. Speed and Lunge are most commonly used, while the remaining teaching points require a higher skill level and increase risk. Newer or smaller riders tend to develop a habit of preloading to assist with the Lunge. Help them to improve their lunge and only use Preload when required. Preload is used to extend the time in the air and increases consequences.

Appendix B - Standard Cone Layouts

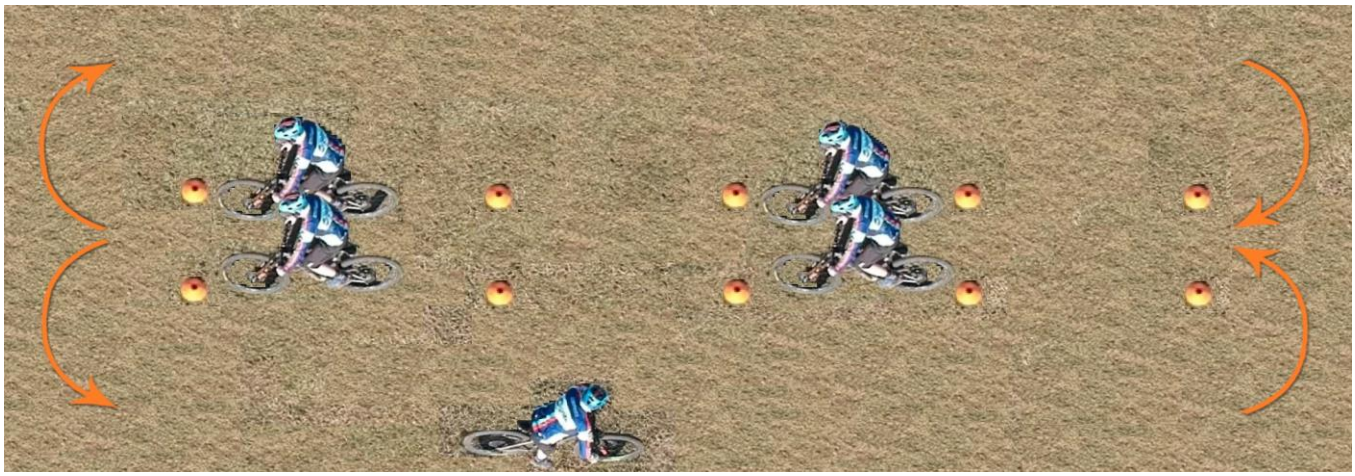
Pumping

Advanced Cornering



Sprinting, Rolling Dismount, Rolling Mount, all wheel lifts

Proximity & Bumping



Drops

Appendix C - Portable Skills Features

Use	Description	Lowe's Item #	Home Depot SKU #	Price (Approx.)
Risers	Wood Sawhorse 21-in W x 29-in H (cut legs to 15" high)	194254	378739	$29.98 each
Ramp/Platform	Plywood 23/32-in x 4-ft x 8-ft (cut into quarters)	12235	166057	$65.98 (4' x 8')
L Bracket	Simpson Strong-Tie 12-Gauge Steel Angle	63532	590007	$3.48 each
Bolt	Zinc-Plated Coarse Thread Hex Bolt 3/8-in x 1-1/2-in	63324	661880	$0.25 each
Washer	Fender Washer Zinc 3/8 x 1-1/2	68884	590720	$0.26 each
Lock washer	3/8-in Standard Split Lock Washer	63410	517402	$0.22 each
Nut	3/8-in Zinc-Plated Lock Nut	63405	154375	$0.19 each