



# SKILL-BASED ACTIVITY

## Bicycle Fit

### Timeframe

**Beginner:** 20 minutes  
**Intermediate:** 15 minutes  
**Advanced:** 15 minutes

### Objectives

At the conclusion of the activity, the student will be able to:

1. Demonstrate exceptional or reliable bicycle fit, as measured by the bicycle fit rubric. (Psychomotor)
2. Demonstrate exceptional or reliable social behavior as measured by the social behavior rubric. (Affective)

**National Standards** Standard 2  
Standard 4

### Equipment

- Bicycles
- Allen wrench, if needed for seat height adjustment
- Pencils
- *Bicycle Fit* worksheet

**Teacher Overview** This activity teaches students how to properly fit a bicycle to the rider. This is an important activity to help ensure the safety and comfort of the bicyclist.

### Preparation

1. Label bicycles with numbers from the smallest to the largest bicycle.
2. Determine the mechanism on the bicycle to adjust the seat height. Bicycles that have seat quick releases will enable the seat height to be easily adjusted without the use of any tools. If the bicycle does not have a seat quick release, an Allen wrench will be needed to make these adjustments and will require more classroom time.
3. Make appropriate number of copies of *Bicycle Fit* worksheet.

### Directions

1. Introduce this activity using the following prompt:  
*Today, we will be learning how a properly fit a bicycle to a rider. There are some easy steps to take to make sure a bicycle fits. These should be done every time you are getting on a new bicycle or a bicycle that has been adjusted for another rider. Making sure a bicycle fits the rider will be safer for the rider as well as making it more comfortable to ride.*
2. Use the following sample questions to prompt students' thinking about the content in this activity.

**Q: Have you ever ridden a bike that was too big?**

**A:** All responses are acceptable

**Q: What did that feel like?**

**A:** All responses are acceptable

**Q: Did your legs hurt?**

**A:** All responses are acceptable

**Q: What advantages would there be to a properly fitted bicycle?**

**A:** Any of the following:

- Safety
- Comfort
- Other responses may be accepted

3. Demonstrate what is requested of students before allowing students to complete the activity.
4. Instruct students to straddle the bicycle with feet flat on the ground and to squat over the top tube.
  - Each student should be able to squat about three inches for mountain bikes - from a standing position with feet flat on the ground to sitting on the top tube. If there is too much or not enough clearance, then assist students in finding a bike that is a better fit.
  - The fit may vary depending on the type of bike.
5. Explain the relationship of seat height to comfort and safety.
  - Seat heights that are too high or too low will result in uncomfortable and inefficient riding.
  - Riders will often complain that their legs are tired or “burning” if seat height is too low.
  - If a seat height is too high, the bicycle may be difficult to control.
6. Divide students in groups of three (3) to complete the *Bicycle Fit worksheet for each student*. One person is the cyclist, one assesses and one holds the bike steady.

The down stroke leg should be almost fully extended, with a slight bend at the knee.

**Proper Positioning.** If the down stroke leg is too straight or too bent, adjust the seat height up or down to achieve the correct position.



7. Instruct peers to assess each other by asking the questions on the peer assessment, checking all aspects of bicycle fit and placing a checkmark in the most appropriate box on the worksheet.

- Instruct the cyclist to sit on the saddle and place the ball of one foot on the pedal in the down stroke or 6 o'clock position.
- If the down stroke leg is too straight or too bent, the seat height can be adjusted up or down to achieve the correct position.

- Open the quick release lever on the seat tube. The correct way to use the seat quick release is to swing the lever from the fully closed position to the fully open position. Most levers will have the word "open" and "closed" on each side.
  - To loosen or tighten the quick release, use the knob to adjust the clamping force.
  - Not securing the quick release tightly enough can result in the seat height moving during riding.
  - Securing the quick release too tightly can damage the seat tube.
- Slide the seat post up or down. Ensure the seat post is inserted beyond the minimum insertion (or maximum extension) point of the post.
- To close the quick release, swing the lever from full open to full closed; you should just start to feel some resistance when the lever is perpendicular to the seat post. If you do not feel resistance at this point, tighten the clamping force. If you feel resistance before this point, loosen the clamping force. Not securing the quick release tight enough can result in the seat height moving during riding. Securing the quick release too tightly can damage the seat tube.
- Ensure the lever is tight and the seat cannot be moved before sitting on it.

8. Rotate positions so each student takes a turn fitting, assessing and holding.

## Assessment

1. Assess bicycle fit of each student using the following rubric:

### PERFORMANCE RUBRIC: BIKE FIT

Exceptional	Reliable	Inconsistent	Struggling/ Survival
<p>Student is able to fit a bike correctly on her own, demonstrating the following characteristics of the bike fit (all must be correct):</p> <p>Student can straddle the bike with 3" of clearance between the rider and the top tube;</p> <p>Student can adjust the saddle height so that her knee has a slight bend when the foot/pedal is at the 6 o'clock position;</p> <p>Student's knees are not bent so much that pedaling is inefficient;</p> <p>Student does not rock side to side when pedaling;</p> <p>Seat post has at least 3" (7.6cm) in the seat tube or is not higher than the mark on the post;</p> <p>Nose of saddle is lined up with top tube;</p> <p>Saddle is level or the nose is slightly higher;</p> <p>Quick release on seat post is closed and tight.</p>	<p>Student is able to fit a bike correctly, possibly with a little help from a teacher/aide, demonstrating the following characteristics of the bike fit (all are correct):</p> <p>Student can straddle the bike with 3" of clearance;</p> <p>Student can adjust the saddle height such that her knee has a slight bend when the foot/pedal is at the 6 o'clock position;</p> <p>Student's knees are not bent too much so that pedaling is inefficient;</p> <p>Student does not rock side to side when pedaling;</p> <p>Seat post has at least 3" (7.6cm) in the seat tube or is not higher than the mark on the post;</p> <p>Nose of saddle is lined up with top tube.</p> <p>Saddle is level or the nose is slightly higher;</p> <p>Quick release on seat post is closed and tight.</p>	<p>Student has difficulty fitting bike correctly, requiring help from a teacher/aide, and the majority of the following is not completed correctly:</p> <p>Student can straddle the bike with 3" of clearance;</p> <p>Student can adjust the saddle height so that her knee has a slight bend when the foot/pedal is at the 6 o'clock position;</p> <p>Student's knees are not bent so much that pedaling is inefficient;</p> <p>Student does not rock side to side when pedaling;</p> <p>Seat post has at least 3" (7.6cm) in the seat tube or is not higher than the mark on the post;</p> <p>Nose of saddle is lined up with top tube;</p> <p>Saddle is level or the nose is slightly higher;</p> <p>Quick release on seat post is closed and tight.</p>	<p>Student has difficulty fitting bike correctly, needing a significant amount of help in the process;</p> <p>The student fails to understand the process of fitting a bike.</p> <p>Assess the performance of social behavior for each student using the following rubric.</p>

## PERFORMANCE RUBRIC: SOCIAL BEHAVIOR

Exceptional	Reliable	Inconsistent	Struggling/ Survival
<p>Student is respectful toward classmates, teacher, and equipment;</p> <p>Student receives and uses feedback from teacher and peers in a courteous manner;</p> <p>Student participates fully, without teacher prompting or supervision;</p> <p>Student is able to work cooperatively and productively with classmates, including during peer assessments;</p> <p>Student perseveres, even through difficult skills/activities, and maintains a positive attitude;</p> <p>Student is committed to learning;</p> <p>Student is committed to engaging in cycling in a safe manner, and keeping all classmates safe during the cycling unit.</p>	<p>Student is respectful toward classmates, teacher, and equipment;</p> <p>Student receives and uses feedback from teacher and peers in a courteous manner;</p> <p>Student participates fully, but needs some teacher prompting and/or supervision;</p> <p>Participates in most class activities at an appropriate and productive level;</p> <p>Student is most often able to work cooperatively and productively with classmates, including during peer assessments;</p> <p>Student is able to work hard and not get frustrated with setbacks;</p> <p>Student is committed to learning;</p> <p>Student is committed to engaging in cycling in a safe manner, and keeping all classmates safe during the cycling unit.</p>	<p>Student may not always be respectful toward classmates, teacher, and equipment;</p> <p>Student may listen to feedback from teacher or peers, but may not attempt and/or have difficulty applying it;</p> <p>Student requires some teacher supervision, but does exhibit some self-control at times;</p> <p>Student demonstrates the ability to work cooperatively and productively with classmates, but may need teacher direction or supervision;</p> <p>Student participates in most class activities;</p> <p>Student is willing to try, but may get frustrated with setbacks, and pout and/or verbalize frustration;</p> <p>Student may fluctuate between riding safely and unsafely at times.</p>	<p>Student may struggle with being respectful toward classmates, teacher, and equipment and/or show anger and/or blame others for cycling mishaps;</p> <p>Student does not listen to feedback from teacher or peers, and does not attempt to apply it;</p> <p>Student requires ongoing supervision and does not ride safely;</p> <p>Student may be unprepared and show very little interest in learning or the activity;</p> <p>Student becomes frustrated easily and may quit participating.</p>

## Safety

1. Ensure all seat posts are inserted beyond the minimum insertion (or maximum extension) point of the post.

### Minimum Insertion Line



## Differentiating Instruction

### Adapted and Beginner

- Set up less skilled students with both feet flat on the ground, while seated on the saddle, until skill level advances.
- Use adult tricycles, bicycles with training wheels, etc. for students that may be uncomfortable.

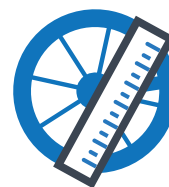
### Intermediate and Advanced

- Discuss the different types of bicycle and fit needed for different types of bicycles (see parent handout)
- Road bikes should have about 1-2 inches of clearance between the rider and the top tube.
- Mountain bikes should have about 3-4 inches of clearance between the rider and the top tube since these bicycles are typically used to ride on bumpy terrain trails the rider will move up and down more.

## Best Practices

1. Assign students a numbered bicycle, once proper fit is determined. This will be the bicycle that the student will ride in every class. This number should be logged on the student roll.
2. Use a bicycle that is too small, rather than one that is too big, if there are not enough properly sized bicycles for all students.

# BICYCLE FIT WORKSHEET



Student \_\_\_\_\_ Date \_\_\_\_\_

## Directions

1. Complete the bicycle fit in groups of three. One person is the cyclist, one assesses and one holds the bicycle steady. Each student takes a turn fitting, assessing and holding.
2. Assess the peers in your group by asking the questions on the peer assessment, checking all aspects of bicycle fit and placing a checkmark in the most appropriate box.
3. Do not proceed to riding without successfully completing the bicycle fit.

	Date:		Date:		Date:	
	Observation 1		Observation 2		Observation 3	
Activity	YES	NO	YES	NO	YES	NO
Can the bicyclist straddle the top tube and have about 3" of clearance? <i>Make sure the cyclist is standing on flat feet, not on toes.</i>						
When seated, is the bicyclist starting with one foot at 12 o'clock and the other at 6 o'clock? <i>Check to make sure the foot at the 6 o'clock position is at the very bottom of the pedal stroke, not slightly forward or backward.</i>						
With one foot at 6 o'clock, does the knee have a slight bend?						
When the seat height has been determined, is there at least 3" of seat post in the tube or is the line on the seat post <b>not</b> visible? <i>There must be 3" of seat post in the tube for safety reasons.</i>						
Is the nose of the saddle lined up with the top tube? <i>The nose and top tube should be aligned for comfort.</i>						
Is the saddle level or the nose of the saddle slightly higher? <i>The saddle should be level, to keep rider from sliding off the saddle.</i>						
Is the quick release lever of the saddle closed tightly?						

Explain all "NO" responses.

