

# STRANDS AND STANDARDS

## BICYCLE REPAIR TRAINING



### Course Description

This course prepares students to understand and demonstrate proper bicycle repairs, including steering systems, braking systems, drive/shifting systems, and suspension systems. Students will also understand and demonstrate proper safety procedures and gain an understanding of bicycle anatomy and the appropriate tools necessary to maintain them.

<b>Intended Grade Level</b>	9-12
Units of Credit	1.0
Core Code	40.11.00.00.010
Concurrent Enrollment Core Code	N/A
Prerequisite	N/A
Skill Certification Test Number	N/A
Test Weight	N/A
<b>License Area of Concentration</b>	CTE and/or Secondary Education 6-12
<b>Required Endorsement(s)</b>	
Endorsement 1	Bicycle Repair Training
Endorsement 2	N/A
Endorsement 3	N/A

## **STRAND 1**

**Students will understand and demonstrate safe practices.**

### **Standard 1**

Pass relevant safety tests with 100% proficiency.

### **Standard 2**

Demonstrate shop cleanliness, safety, and appropriate use of PPE.

## **STRAND 2**

**Students will understand and use appropriate tools and concepts for bicycle building, tune-up, and repairs.**

### **Standard 1**

Identify various shop tools and equipment related to bicycle repair.

- Spoke nipple wrench
- Chain breaker
- Pin spanner
- Truing stand
- Common thread

### **Standard 2**

Measure using appropriate units.

- Newton meters
- Foot pounds
- Thread pitch

### **Performance Skills**

- Be able to use a torque wrench, chain breaker, pin spanner, and truing stand.
- Tap and re-tap threads.

## **STRAND 3**

**Students will recognize the parts and make adjustments of wheel systems.**

### **Standard 1**

Identify the parts of a wheel system

- Hub
- Brake Rotor
- Spokes
- Rim
- Tubes
- Presta / Schrader Valves
- Tire

### **Standard 2**

Compare different valve stems and installation methods

- Tubeless road and mountain tires

### **Performance Skills**

- Replace/repair tubes and tires:
- Locate tube punctures
- Patch site prep and installation
- Check tire for wear and sharp objects
- True a wheel laterally.

## **STRAND 4**

**Students will identify the parts and make adjustments of the steering system.**

### **Standard 1**

Identify parts of a steering system and their functions.

- Handlebars
- Stem
- Headset
- Fork

### **Standard 2**

Compare various handlebar styles and service needs.

- Carbon fiber
- Aluminum
- Titanium

### **Performance Skills**

- Properly adjust stem height.
- Properly align the handlebar to the front fork.

## **STRAND 5**

**Students will identify the parts and make adjustments of the braking system.**

### **Standard 1**

Identify types of bicycle braking

- Rim
- Caliper
- Cantilever
- “V”
- Disc
- Drum
- Coaster
- Fixed Gear

### **Standard 2**

Identify the basic parts of a rim braking system

- Brake lever
- Adjusting barrel/nut
- Cable
- Arms
- Block/Pad

### **Performance Skills**

- Adjust brakes to stop the bicycle with appropriate pressure on the levers.
- Lever bleed a hydraulic brake.

## **STRAND 6**

**Students will identify the parts and make adjustments of the drive/shifting system.**

### **Standard 1**

Identify types of bicycle drives.

- Fixed
- Coaster
- Geared

### **Standard 2**

Identify the parts of a traditional geared drive system.

- Pedal
- Crank
- Chainrings
- Bottom bracket
- Chain
- Rear cassette

### **Standard 3**

Identify the parts of the shifting system.

- Front/rear shift levers
- Cables
- Front/rear derailleurs

### **Performance Skills**

- Adjust derailleurs to shift smoothly between each gear or chainring.

## **STRAND 7**

**Students will identify the parts and make adjustments of suspension systems.**

### **Standard 1**

Identify common suspension systems:

- Front (fork)
- Rear (frame)

### **Standard 2**

Understand suspension terminology.

- Travel
- Sag
- Lockout
- Compression Damping
- Rebound Damping

### **Standard 3**

Describe how to perform a 30-hour suspension service.

### **Performance Skills**

Set proper suspension sag

## **STRAND 8**

**Students will understand the proper assembly and fitting of a bicycle.**

### **Standard 1**

Identify optimal rider positions for different types of bicycles

- Road
- Mountain
- Hybrid

### **Standard 2**

Identify the basic anatomy of bicycle systems and their interactions.

- Frame
- Wheels
- Steering
- Brakes
- Drive/Shifting
- Suspension

### **Performance Skills**

- Properly assemble and fit a bicycle.
- Size a seat and bar height for a rider.

## **STRAND 9**

**Students will describe proper care and service cycles for a bicycle.**

### **Standard 1**

Describe proper care and service cycles for a bicycle.

- Lubrication
- Chain
- Cables
- Tire pressure
- Cleaning and Inspection
- Maintenance

### **Performance Skills**

- Translate industry vocabulary to non-technical language understandable by customers
- Conflict resolution
- Teamwork
- Customer Service
- Follow repair service instructions

## Skill Certification Test Points by Strand

Test Name	Test #	Number of Test Points by Strand										Total Points	Total Questions
		1	2	3	4	5	6	7	8	9	10		