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2023 4-Part Mechanics Series, Week 1
Intros, Anatomy, Fix a Flat, ABCs

Overall Goals:

1. Purpose
    a. Increase confidence in using bikes and using tools (with skills/pathways to learn more)
        i. Everyone has fun experiences, “wins” and successful repairs
    b. Culture change: Mechanics class/space that emphasizes feminist teaching - learning and sharing skills, hands on, exploration
    c. Stronger connection to Bikes Together and our offerings (become volunteers, come to appointments, buy parts and bikes and accessories, spread the word about the shop and classes, GEM night, donate)
2. Outcomes
    a. Participants understand an overview of the “systems of the bike”; how it all works together, where and how to keep learning and getting answers and trying repairs

This class covers (120 mins)

- **Welcome and Intros** (25 min)
- **Anatomy** (20 min)
- **Fix a Flat Demo** (25 min)
- **Fix a Flat Practice** (25 min)
- **ABC Quick Check Basics** (20 min)
- **Closing** (5 min)

Materials List:

- Class Roster (link), including names, pronouns, accessibility needs
- Chairs in a circle
    - Circles to encourage collaboration and connection instead of “everyone facing one instructor”
- Nametags & Markers
- Aprons & Gloves (optional for students)
- Two double stands
- Demo Bikes:
    - 2 bikes that meet these needs:
        - One with a flat tire (rear is best)
        - One with stretched chain
        - One with good chain
        - One with all parts for anatomy (one “road” and one “mountain”)
- Table/space for Anatomy Parts
- Tools/Supplies:

- Anatomy Demo
    - Miscellaneous components - range of sizes and styles - laid out on a table, enough that 10 students can each “pick” 2 items (1 they know and 1 they don’t)
    - Examples
        - 2-3 brake calipers
        - 2-3 derailleurs
        - Chainring
        - Chain
        - Brake pads
        - V-brake “Noodle”
        - Springs from cantilever brakes
        - Freewheel
        - Pedal
        - Handlebar grip
        - 2 Stems (threaded + threadless)
        - Shifter
        - Derailleur Hanger
        - Kickstand
        - Piece of housing
        - Ball bearing systems (axle w/ bearings and cones; bb spindle w/ bearings and cups)
- Fix A Flat
    - Tire Levers (5 sets)
    - Working gauge (digital is fun, schrader and presta)
    - Working pumps w/ working gauges (2-3)
    - Goathead Display (examples and pics)
    - Punctured tubes- or use tubes on bikes
    - Replacement tubes, various sizes and valves
    - 4 wheels to practice on- pull off bikes
- ABC Quick Check
    - Allen Multi-Tools
    - Box Wrenches (as necessary)
    - Chain Checker (optional)
    - Simple Green, degreaser, rubbing alcohol
    - Lube (of various types)
    - Clean rags

FULL AGENDA

Welcome and Introductions (25 mins - __:__ - __:__)

- Welcome and Intro to Bikes Together
    - Introduce self

    - Name, pronouns, why are you teaching this class, one reason you love teaching this class
- Orient to space (bathroom, where to put their stuff, etc.)
- Bikes Together Overview
    - Mission: “Bikes Together uses recycled bicycles as a vehicle for equitable social change; collective and individual wellness; education and empowerment; and connection.”
    - We have a shop that’s open to the public 5 days a week at 1060 Osage St. in Denver.
    - We recycle bikes, sell used bikes, sell used and new parts and accessories, teach classes, train volunteers, and create a welcoming and empowering environment.
    - Please come visit and say hi; we hope you will bring the skills and curiosities you gain from this class to the shop, and bring your friends and fam.

- Introduce the class content and structure
    - Overview of today’s agenda & 4-part series
    - Take care of yourself and your bodies; move around, stand up/sit down, drink water

- Go through class expectations/ policies
    - Questions or needs, email _____
    - The more questions you ask, the better the class will be!
    - Learners will set the pace; if you’ve done something already, let your classmates practice and be their assistant
    - Bring snacks if you like!
    - Stay home if sick, email Molly for class make-up, instructor too (we have subs)

- Do a round of introductions
    - make a nametag if they haven't already, keep for the 4 weeks then will need back, keep at shop ideally
    - Ask students to say their name, pronouns, what they hope to get out of the class, and a “Bicycle Love Story”
      TIP: Highlight that people often feel intimidated or excluded by bicycle culture, shops and mechanics. This is widespread! Making bicycle shops & mechanics more welcoming & empowering is part of the work of achieving the Bikes Together mission of getting people on bikes and keeping them there.

Anatomy (20 mins __:__ - __:__)

- Explain and demonstrate how the stand works
- Put demo bike in stand
- Go over Anatomy: Focus on “systems” (cables, springs, bearings, drivetrain, wheels)
    - Instruct students choose 2 parts from the table: 1 that they know and 1 they don’t

know or aren't sure.
    - Return to the circle. Go around the circle and have students do a "show and tell" with their 2 parts by identifying the location on the demo bike. Crowdsource the names and locations of the "unknown" parts
        - Encourage students to experiment and guess! Make lots of space for not knowing and using deductive reasoning.
    - Be thorough but don't get too detailed (i.e. name front and rear derailleur but don't name limit screws, jockey wheels - those types of things will be covered in future classes. Pedal the cranks to show how the chain moves across the chainrings, through the derailleurs, pulls on the teeth of the cogs, spins the wheel. Run hands along cables to show that they exist!)

Tubes and Tires/Fix a Flat Demo (25 mins - __:__ - __:__)

- Demonstration
    - Remove rear wheel
    - Remove tire & tube
    - Inflate tube, find hole(s) (mention patching, but replace entire tube - explain how to find compatible tube)
    - Inspect tire and rim strip, remove any debris from tire
    - Install tube and tire
    - Install rear wheel
- Don't forget
    - Discussion of tire size (26 and 700c)
    - Introduce both valve types (presta/schrader)
    - QR safety (part of ABC check later)
    - Tire pressure, seating tire correctly to not pinch tube, inflation safety
    - Discussion of flat prevention options
        - Tire pressure
        - Tire wear - how to tell if tire needs to be replaced
        - Goat Head Display!
            - Tire liners
            - Puncture resistant tires and tubes (thorn resistant tubes)
            - Sealant?

Tubes and Tires/Fix a Flat Student Practice (25 mins - __:__ - __:__)

- Pair up students & assign them a bike
    - TIP: Encourage students to cooperate. "If you have done this a bunch before, take the supportive role/let your teammate take the lead on the repair, or if at equal levels of experience, take turns with the steps"
- Have them put bikes in stands
- Have them practice the procedure
    - 2 students per one rear wheel

ABC Quick Check (15 mins - __:__ - __:__)

Air: 3 takeaways

1) Can't tell pressure just by feeling (use a gauge!)
2) Tire pressure is printed on side of tire
3) Inflate tires every 2 weeks

Guessing game: Have students feel tires and find printed tire pressure, guess what the PSI is, instructor checks with digital gauge to compare guesses to gauge.

Brakes: takeaways

1. Brakes are the MOST important part of your bike; you have 2 for a reason
2. Test before you get to a busy intersection by pulling both levers and making sure they engage.
3. Your wheels are part of your braking system (the brakes clamp down on the wheel; make sure wheels are in straight and tight)
4. We will go over all of this in more detail NEXT class

Put a complete bike on the ground, pull both levers and push the bike forward to demonstrate the wheels should NOT be rolling.

Chain: takeaways

1. The chain is a wearable part on the bike just like rubber tires and brake pads
2. Lube/oil every two weeks or as needed. (Listen for heard of mice chasing you while you pedal)
3. Chain maintenance is climate- and weather-dependant
4. Wiping OFF the oil is most important part of oiling it (especially in dry climate like Denver)
5. We will go over all of this in detail in Class #3

Demonstrate cleaning and lubing the chain.
Ask for a volunteer to demonstrate. Encourage questions!

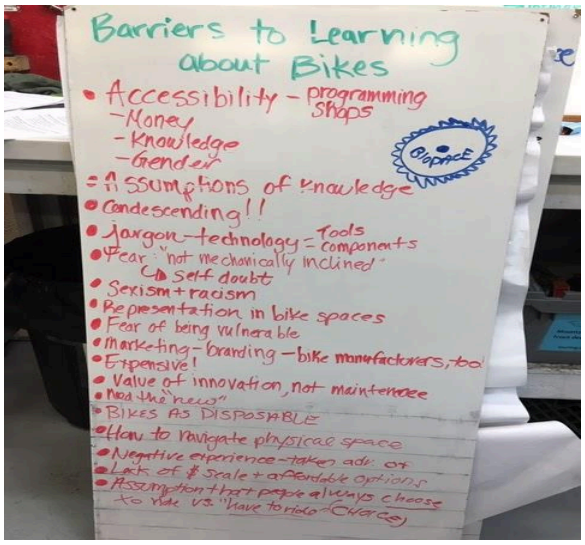
Closing (5 mins - __:__ - __:__)

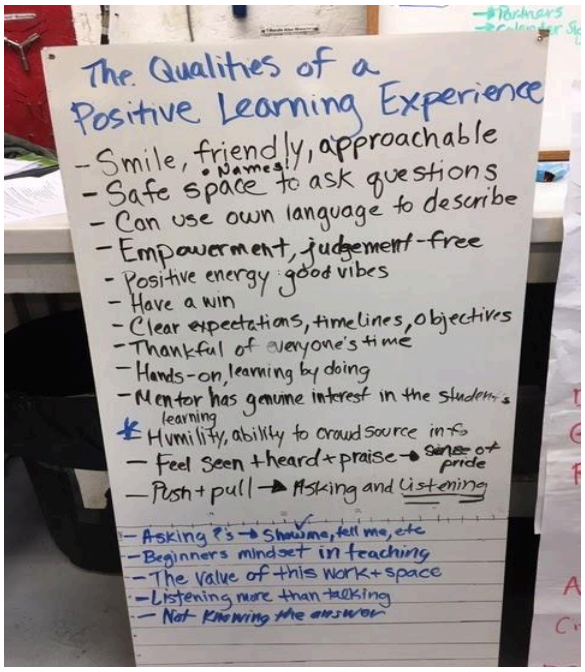
- Yay! Thank you!
- Next Class: Cables and Brakes
- Homework: Take a picture of the brakes on YOUR bike to bring next time (or google search)
- Upcoming Organizational Events and Invites
    - Ex: Business Hours, GEM Night, Learn + Repair Appointments, Spring Fundraiser, etc

Teaching Tips for Welcoming & Collaborative Experience

- People engage with 1) their own bike and 2) the shop as much as possible
- Use the Classroom area of the shop
- Hands-on; less lecture
- Let the participants guide the class with their questions and interests
- Use a white board or images if you like
- Co-teaching is best!
- People remember the experience of feeling **empowered (in/with their own power)** and **welcome** more than the procedure for how to make a repair. Choose a positive experience over sharing technical/mechanical knowledge
- Trust your experience as a cyclist! Share your tips and tricks (using “I” statements).
- Telling vs talking (more asking and less telling; listen more than talk)
- Don’t take tools out of someone’s hands; consent
- How to talk about bike fit and helmet fit while respecting personal space, consent
- Avoid jargon and brands names
- Know where to find answers; lead with humility; refer ppl back to Bikes Together

While teaching, repetition is key! You’ll learn new things each time and think of things you want to do differently every time. And that’s GOOD.


Barriers to Learning about Bikes
Accessibility - programming shops
-Money
-Knowledge
-Gender
BIOSPACE
Assumptions of knowledge
Condescending!!
Jargon - technology = Tools components
Fear "not mechanically inclined"
self doubt
Sexism + racism
Representation in bike spaces
Fear of being vulnerable
Marketing - branding - bike manufacturers, too
Expensive!
Value of innovation, not maintenance
Need the "new"
Bikes As DISPOSABLE
How to navigate physical space
Negative experience - taken adv. of
Lack of $ scale + affordable options
Assumption that people always choose to ride vs. "have to ride" (Choice)


The Qualities of a Positive Learning Experience
- Smile, friendly, approachable
• Names!
- Safe space to ask questions
- Can use own language to describe
- Empowerment, judgement-free
- Positive energy: good vibes
- Have a win
- Clear expectations, timelines, objectives
- Thankful of everyone's time
- Hands-on, learning by doing
- Mentor has genuine interest in the students learning
* Humility, ability to crowd source info
- Feel Seen + heard + praise → sense of pride
- Push + pull → Asking and Listening
- Asking ?'s → Show me, tell me, etc
- Beginners mindset in teaching
- The value of this work + space
- Listening more than talking
- Not knowing the answer