Welcome to The Carpentries Etherpad!

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Use of this service is restricted to members of The Carpentries community; this is not for general purpose use (for that, try https://etherpad.wikimedia.org).

Users are expected to follow our code of conduct: https://docs.carpentries.org/topic_folders/policies/code-of-conduct.html

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Please fill out the pre-training survey at
https://www.surveymonkey.com/r/instructor_training_pre_survey?workshop_id=instructor-training

Schedule:

~~Day One~~
- 9:00 - Welcome (A)
- 9:30 - Building Skills with Practice (A)
- 10:30 - Break (10 min)
- 10:40 - Expertise and Instruction (A)
- 11:30 - Break (10 min)
- 11:40 - Memory and Cognitive Load (T)
- 12:25 - Building Skills with Feedback (T)

~~Day Two~~
- 9:00 - Motivation and Demotivation (A)
- 10:15 - Break (10 min)
- 10:25 - Mindset (A)
- 11:00 - Teaching is a Skill (T)
- ? - Break (10 min)
- 12:20 - Wrap up and prep (T)

~~Day Three~~
- 9:00 - Live coding is a skill (A)
- 10:20 - Break (10 min)
- 10:30 - Preparing to Teach (A)
- 11:20 - Break (10 min)
- 11:30 - More practice live coding (T)
- 12:15 - Managing a diverse classroom (T)

Day Four
- 9:00 - The Carpentries, how we operate (A)
- 10:00 - The Instructor Checkout Process (A)

- 10:30 - Break (10 min)
- 10:40 - Workshop introductions (T)
- 11:20 - Break (10 min)
- 11:30 - Putting it together (T)
- 11:45 - Wrapping up (T)

Day Four

Day four sign-in:

- Ray Pun
- Celia Emmelhainz
- Elisa Rodrigues
- Lisa Ngo
- Debbie Huey
- Emily Chan
- Christine Ivison
- Lisa Bartle
- Zach Vowell
    - Andrew Carlos
- Wasila Dahdul
- Chris Kyauk
- Kelly Maldonado
- Charlie Macquarie

9:00 - The Carpentries: How We Operate (60 min) - Ariel
https://carpentries.github.io/instructor-training/21-carpentries/index.html

Brief History

Similarities and Differences Between The Carpentries Lesson Programs

The Carpentry Community

How a Workshop Works

- Materials
- Using the Names and Logos
- What is the Core Curriculum?
- Who Can Teach What
- Setting Up

The Carpentries handbook: https://docs.carpentries.org/

- Teaching and hosting: https://docs.carpentries.org/topic_folders/hosts_instructors/index.html

Carpentries Membership: https://carpentries.org/membership/

New England Software Carpentry Library Consortium: https://nesclic.github.io/

Question and Answer (10 min)
What questions do you have about running and teaching at a workshop? Take a couple minutes to enter your questions below.

- Andrew - you may have covered this already, and i vaguely recall you mentioning it, but how strict are the requirements before you can call it a carpentries workshop? I remmeber you had said something about it, but I wanna make sure its solid in my mind
- Celia - Can we shadow other workshops, or are there good ways to learn content completely new to you as an instructor? I've had people email me to ask if they can join or help and I usually let them in. I never say no to more helpers :)
- Charlie - How can folks go about finding people to help teach workshops or find workshops to be helpers on when they don't have any people in their immediate community teaching them? (that they know of).(related - can we start a list of everyones contact information here?) ~~Why does Harvard need to be part of a consortium to pay their memership?~~ (sorry, snarky) lol I'm curious about the culture of curriculum maintenence in:re suggested changes -- i.e., I've found some of the Library Carpentry examples to be not super well-suited to "library work", but I also worry that if I suggest different examples they may just be more suited to what I think is a good library example, and not actually general enough. I guess I'm asking, should I go ahead and suggest it, or will people be annoyed? slack:
- Slack https://swc-slack-invite.herokuapp.com
- , #california-libraries, each lesson has a CONTRIBUTING.md file in the github repo that describes how to contribute. Flagging issues are always welcome to suggest changes or modifcations.
- Chris - Are there any recommendations for teaching workshops to staff who are not very tech savvy? I can see a good number of my staff having significant issues even trying to do a "live coding" training. -ooh I'd like to know the answer to this as well. For example, example exercises that are more "easy library focused" -- for those more interested in just teaching skills.
- Christine just really basic and I hope I didn't miss your explanation: why call this group Carpentries (it's confusing to people when I say the name)? So when I talk about it, I'd like to have more background. By looking at the logo, I can get an idea .....
- Debbie: i also may be interested in becoming a helper, and would like to know how to find workshops to help out at.
- Elisa I don't feel comfortable yet going for the instructor certification; how can I be a helper until I feel more comfortable to take the instructor certification? And does certification need to be done within a certain amount of time after this insctuctor course? 90 days, but can ask for more time with checkout@carpentries.org
- Emily- I am thinking about the wide range of users that you may find in a workshop. Do you intentionally market it for beginners? I'd love for us to be able to offer workshops for graduate students and faculty, but I'm sure that it may be unnerving to have faculty members as your audience when you're talking about manipulating ***their*** data. How long does it take to build a good team of individuals who could offer training, and what other resources are required?
- Kelly- Can I use these open lessons to teach it to the public, like teens and college students? Is it very hard to get certified? I read through the process, but actually going through the checkout, is it hard?Can I set up a workshop so that my colleauges can learn these skills? Or one for teens?
- Lisa B
- Lisa N - (okay you all have totally just answered my question - thank you!) are there suggestions or best practices for adapting these workshops and teaching the content outside of carpentries

(though I know they're kinda optimized already and meant to be taught as is)?
- Raymond- the topics are all still very niche for me so i dont know if im able to actually commit to this work. I'd like to though.
- Veronica
- Wasila - How do you handle technical issues when they crop up? For example, someone has trouble running software on their computer, I wouldn't know how to help them. Also, is there set up time built into the schedule?
- Zach: do the fees that orgs pay for centrally-organized workshops cover the cost of instructor travel? Is there a standard way to cite Carpentries lesson curriculum if it's being re-used/remixed?

Participating in the Carpentries: What's Your Role? (10 min)

Take a moment to review member community roles on the Carpentries' communitiy website (http://static.carpentries.org/community/). Working on your own, match up the roles with the descriptions on this worksheet: https://carpentries.github.io/instructor-training/files/handouts/Carpentries_roles_worksheet_v4.pdf When you are done, think about the question at the bottom of the worksheet about what roles you might play, and enter your thoughts below:

- Andrew - I am hoping to become an instructor, and maybe an instructor developer/trainer/mentor at some point. Would be cool to be a maintainer down the line, once I'm more comfortable with the materials
- Celia - interested in being an occasional instructor, and maybe also a maintainer for new/upcoming library carpentry modules.
- Charlie - Instructor, Helper (I still think Helper is such a fulfilling role, so I'd always want to keep doing that),Lesson Maintainer, Lesson Developer (carpentries pedagogy is so great! But I see the carpentries lesson content in humanities and arts areas as very thin -- I'd like to help add more to that)
- Chris - Interested in being an instructor and/or maintainer
- Christine host or helper down the line. If ever helper, I would need more training and/or workshops. I will definitely promote Carpentries
- Debbie: Not sure that I'll ever gain the level of expertise to become an instructor, but I really did enjoy this class. So being a helper could be a possibility to still be involved in the Carpentries, to both learn and help other learners.
- Elisa I could help being a curriculum advisor, assessment, champion, and/or regional coordinator and an occassional instructor once I feel more comfortable. I def would be interested in working with public libraries.
- Emily - Probably Champion after sitting in on a couple of workshops to see how people are engaging with the content and how they're benefiting
- Kelly- I would love to become an instructor at one point. I would like to start as a helper then eventually help instruct and cooridinate workshops for the public.
- Lisa B - Won't be involved at the present.
- Lisa N - Comfortable being a Helper at the moment - it's been a great experience everytime I've done it. Also looking through the Incubator lessons and would be interested in sharing lessons that we adapt there. Do you have to be a certified instructor to contribute lessons there?
- Raymond - probably helper first for like a while and then maybe instructor later. regional coordinator is ok too.
- Veronica

- Wasila- I'm interested in being an instructor but will start as helper, and maybe lesson maintainer as I gain more experience
- Zach: I think initially I see myself acting as a sort of lesson maintainer, through testing lesson material in unofficial workshops, and bringing back feedback. I'm open to the possibility of becoming instructor in the future, but I don't think I will have the capacity for it in the near future.

Get Connected (5 min)
Take a couple of minutes to sign up for the Carpentries discussion channels you want to stay involved with.

There are many ways to get connected with the Carpentries community:

- Our websites are:
    - Software Carpentry https://software-carpentry.org
    - Data Carpentry http://www.datacarpentry.org
    - Library Carpentry https://librarycarpentry.org
    - The Carpentries http://carpentries.org/
        - Blog http://carpentries.org/blog
        - Get involved (community overview) https://carpentries.org/community/
- Our lessons are hosted on GitHub; contributions to them and discussion of changes happens via GitHub pull requests and issues, and the lessons are published using GitHub Pages. More details are given below:
    - Data Carpentry on GitHub https://github.com/datacarpentry
    - Software Carpentry on GitHub https://github.com/swcarpentry
    - Library Carpentry on GitHub https://github.com/LibraryCarpentry
- The Carpentries share public discussion lists that host everything from lively discussion on teaching practices to job postings and general announcements:
    - https://carpentries.topicbox.com
- We publish a joint newsletter. https://carpentries.org/newsletter/
- Host monthly community calls and weekly instructor discussion sessions:
    - Check out our community calendar https://carpentries.org/community/#community-events
- You can also find us on
    - Twitter:
        - Software Carpentry on Twitter https://twitter.com/swcarpentry
        - Data Carpentry on Twitter https://twitter.com/datacarpentry
        - Library Carpentry on Twitter https://twitter.com/LibCarpentry
        - Carpentries on Twitter https://twitter.com/thecarpentries
    - Slack https://swc-slack-invite.herokuapp.com
        - **We have a slack channel in the Carpentries slack just for California librarians! Come chat with us at #california-libraries**
    - Facebook https://www.facebook.com/carpentries/

Take a Workshop: https://carpentries.org/upcoming_workshops/
Host a Workshop: https://carpentries.org/workshops/

Key Points

- Carpentry materials are all openly licensed, but Software and Data Carpentry names and logos are

trademarked.
- Carpentry workshops must cover core concepts, have at least one certified instructor, use our pre- and post-workshop surveys, and report attendance information.

10am - Checkout Process (30 min) - Ariel

https://carpentries.github.io/instructor-training/20-checkout/index.html

Application Form: https://amy.carpentries.org/forms/request_training/ (select pre-approved registration)

- **Instructor Checkout:** https://carpentries.github.io/instructor-training/checkout/

Checking Out Review with Questions & Answers (10 min)
In breakout rooms, read and discuss one of the three checkout procedures. What questions do you still have about the checkout process? Add them to the etherpad below:

- Andrew - i'm really curious about the online discussion sessions. Like, what goes on in them? it kind of seems daunting....
- Celia - it looks like there's only one teaching demo lesson option for OpenRefine? (https://carpentries.github.io/instructor-training/demo_lessons/index.html#lc)
- Charlie - who moderates/coordinates the Online Discussion Sessions? How many people are usually at the sessions?
- Chris
- Christine
- Debbie
- Elisa
- Emily - Not really a question, but comment. While a little daunting, I like the fact that instructors engage in the feedback process on lessons. It helps with promoting a sense of ownership in the content that's being delivered.
- Kelly- the section about teaching says that the section of the lesson is chosen for you, how long is the short lesson supposed to be?
- Lisa B
- Lisa N - part 1 - lesson contributions - can be to any lesson listed on the site (e.g. https://librarycarpentry.org//lessons/) even conceptual curriculum?
- Raymond
- Veronica
- Wasila: During the demo session, should we attempt to interact with the trainers assessing us (for example, doing a checkin at certain points)? Or just present the material without demonstrating an interaction with the learners?
- Zach: I don't think I have any questions, the process seems thoroughly laid out

Schedule a Discussion and/or a Demo (5 min)
Teaching discussions and demos book up pretty far in advance. Why not schedule yours now?
- Community discussion: https://pad.carpentries.org/community-discussions
- Teaching demo: https://pad.carpentries.org/teaching-demos - check back on Sept 8

Key Points

- To certify, you must contribute to a lesson, take part in a discussion, and do a teaching demo within 90 days of your training event.

10:41 - Break (10 min)

10:51 - Workshop Introductions (40 min) - Tim

https://carpentries.github.io/instructor-training/23-introductions/index.html

Setting the Workshop Environment

Your Academic Past (3 min)
Think back to courses or workshops you really liked or didn't like.

- How did those courses start on the first day?
- Were you confident in the instructors abilities?
- Did you feel like they were enthusiastic about the course and invested in you?
- Was it clear what you were going to be learning?
- Were you excited about the material?
- Did you leave that first day thinking the instructor was uninterested, that you weren't the students they wanted to be teaching or you had no idea what the course was supposed to be about?

What's in an Introduction? (10 min, 5 in breakout, 5 in larger group)
Get into small groups (3-4 people) and discuss the questions below for 5 minutes. Take notes on your answers and add to the etherpad by group below:

- What do you hope to accomplish in a workshop introduction?
- What information do you need to include in an introduction to accomplish these goals?

Breakout group 1

- What do we hope to accomplish?
    - Welcome the students and set the tone of the class
    - Establish your credentials and background, let them know what to call you
    - state objectives and the plan for meeting the objectives
    - Round robin introduction
- What information do you need to include?
    - Syllabus or lesson plan
    - Links to workshop materials
    - overview of set up

Breakout group 2

- What do you hope to accomplish in a workshop introduction? - who I am, what my role is, and availability for questions/discussion outside of workhsop. What are the learning objectives, logistics, how to ask questions/interrupt, Assume absolute lowest level learner present - making

sure they feel welcome from the beginning. (Will this turn folks off?)
- What information do you need to include in an introduction to accomplish these goals? - outline for the workshop (how to build community online?) - icebreakers

Breakout group 3

- What do you hope to accomplish in a workshop introduction? - understanding the goal of and what the day will be like - what needs to be covered, and be engaged - very approachable and making workshop seem not challenging or they may feel comfortable in sharing feedback - community norms/conduct -
- What information do you need to include in an introduction to accomplish these goals? - community agreements to the norms/conduct- ice breaker or getting to know each other component- answering a question, etherpad - introduce ourselves/interest. no jargon usage, same standing - and establishing credentials from the instructor

Breakout group 4

- Emily/Christine - Pressures from having to assist with technical set-up can affect how this introduction is conducted; presentation is important, including visuals; not too many logistics, as this can impact the workshop's pacing; never set up a code of conduct, assessment (done separately),
- Provide context about expertise, agenda,objectives -- recap at the end to make sure that we covered everything
- provide outlines, dress up a little, give ways for learners to contact us afterwards; Emily's phrase was: this class is just the beginning of my relationship with you; provide ways to ask questions that doesn't involve raising hand

Breakout group 5

- Goals: Information about what will be covered, personal introduction, instructor background with topic, what you might share in common with the learners, disclosures about not being an expert, project a sense of enthusiasm about the topic; Information needed: learning objectives, basic info about the learners (interests, etc.)

After 5 minutes, we'll come back and discuss as a large group.
Compare your ideas with the list of topics below.

- Did we miss anything?
- Did we come up with something that’s not listed below under **Components of the Introduction**?

Goals For the Introduction

Components of the Introduction
More details: <https://carpentries.github.io/instructor-training/23-introductions/index.html#components-of-the-introduction>
1. Orchestrate Positive First Impressions
2. Introduce Yourself Effectively

- *What characteristics do you want to convey about yourself?*
- *What will you need to say to convey those characteristics?*
- *Why are you teaching a Software or Data Carpentry workshop?*
- *What should you be careful not to say?*

3. Clarify Learning Objectives and Your Expectations

- Describe the prerequisites
- Highlight main aspects of the schedule.
- Communicate the workshop structure
- Explain your expectations
- Share some advice for success

4. Help Students Learn About Each Other
5. Set the Tone for the Workshop
6. Collect Baseline Data on Students' Knowledge and Motivation
7. Whet Students' Appetites for Workshop Content
8. Inform Students of Logistics - especially online!

Practice Your Introduction (10-15 min)
Imagine you have completed instructor training and you are about to teach a full lesson around the material you have been practicing teaching today.

1. Write out some notes, covering some of the topics described above (3 min):
    - Introduce yourself effectively
    - Clarify learning objectives and expectations
    - Set the tone for the workshop
2. Back in your breakout rooms give 2 minutes of your introduction.
3. After each introduction, provide 1-2 minutes of feedback.

Introductions aren't included in the lessons.

Key Points

- A planned introduction is a helpful tool in setting the workshop environment.
- Introductions should include both practical information and start building relationships.

11:34 - Break (10 min)

11: 40 - Putting It Together (15 min) - Tim

https://carpentries.github.io/instructor-training/24-practices/index.html
Here is a non-exhaustive list of topics:
novice, competent practitioner, expert
mental model
formative assessment
expert awareness gap
short-term and long-term memory
cognitive load
motivation
demotivation
error-framing
life-long learning
feedback

lesson study
Code of Conduct
concept maps
Multiple Choice Question (MCQ)
peer instruction
going slowly
“just”
accessibility
sticky notes
one-up, one-down
pre- and post-workshop surveys
participatory live coding
introductions

Organize Your Knowledge (10 min)
Now, individually put the pieces together by creating a visual organization of information.
We suggest doing this in two ways:

1. If you are comfortable with / like **concept maps**, trying integrating all the topics above into a single concept map.

2. Or use one of the the provided handouts to organize topics. Here are two examples:

    - Handout One (https://carpentries.github.io/instructor-training/files/handouts/Wrap-Up-doc.pdf, with example content: https://carpentries.github.io/instructor-training/files/handouts/Wrap-Up-doc-example.pdf)
    - Handout Two (https://carpentries.github.io/instructor-training/files/handouts/Carpentries_teaching_practices.pdf)

Work on this on your own. There’s no **“right answer”** – this is about you building up a mental model, moving from “novice” to “competent practitioner”.

Add "done" below when you are done:
Andrew - done
Celia - Done
Charlie - Done
Chris- Done
Christine done
DebbieDone
Elisa done
Emily - done enough (feel free to move on)
Kelly done
Lisa B - Done.
Lisa N -done
Raymond - Done
Wasila-done
Zach - done

Parting Thoughts
If you didn’t think about these issues when organizing your topics in the previous exercise, now consider:

- What is your mental model of teaching?
- Can you identify why each topic above applies to teaching for the Carpentries?

Key Points

- Having a plan makes it easier for you to remember to implement the important teaching practices you've learned.

12:05 - Wrapping Up (15 min) - Tim

https://carpentries.github.io/instructor-training/25-wrap-up/index.html

One Up, One Down (5 min)
Provide one up (positive), one down (constructive) feedback on the entire two-day course, without repeating anything that has already been said. Just as in our regular workshops, we collect post-instructor-training-workshop feedback. Your participation will help us evaluate the efficacy of this training and improve the content and delivery of the lesson materials.

- Up: Breakout groups - small group discussions
- Down: some activities didn't have enough guidance - needed more info in breakouts
- Up: Liked the teaching exercises a lot!
- Down: Lots of different into to juggle in different windows/tabs
- Up: just click the zoom link! etherpad has everything and it's in the top of the chat, first thing. That was the point. Thanks!
- Down: four half days is still a big committment
- Up: content was well paced over the four days
- Down: More preparation needed for teaching activities
- Up: Sticky notes!
- Down: Wanted to spend more time on managing a diverse classroom
- Up: Liked learning more about the cognitive science of pedagogy
- Down: more time for teaching activities
- Up: instructors and participants are awesome!
- Down: need better/clearer description of the training so folks know what they are getting in to and what the time committment is

Minute Cards (5 min)
In addition to giving one up, one down feedback. Please also fill out your sticky notes to give your instructors anonymous feedback.
Day four feedback form: https://forms.gle/RELB3G2E71haMNkd6

Post Workshop Surveys (5 min)
Assessment is very important to us! Please complete this five-minute post-workshop survey. (https://www.surveymonkey.com/r/post-instructor-training)

Key Points

- Feedback applies to all kinds of learning, including learning how to teach

Reminder of next steps for official Carpentries instructor certification:

- Send in your application form: https://amy.carpentries.org/forms/request_training/
- Make (and send us a link to) a contribution to a lesson's content, exercises, or instructor's guide. (https://carpentries.github.io/instructor-training/checkout/#lesson-change)
- Take part in an online community discussion session. (https://carpentries.github.io/instructor-training/checkout/#discussion-session)
- Teach a short demonstration lesson online. (https://carpentries.github.io/instructor-training/checkout/#demo-lesson)

Day Three

Day Three Sign-in:

- Debbie Huey
- Celia Emmelhainz
- Elisa Rodrigues
- Christine Ivison
- Lisa Ngo
- Ray Pun
- Andrew Carlos
- Wasila Dahdul
- Zach Vowell
- Emily Chan (was only around for like 10-15 minutes before I lost electricity)
- Kelly Maldonado
- Lisa Bartle
- Chris Kyauk

9:00 - Live Coding is a Skill (70 min) - Ariel
https://carpentries.github.io/instructor-training/14-live/index.html

Why Participatory Live Coding?

Up and Down (10 min)
List some advantages and challenges of participatory live coding from both a learner's and an instructor's point of view.

Advantages:

- Pacing of introducing material is more natural and might be easier to follow for the learners
- students can follow along and see examples done as you practice alongside professor
- allows class to see mistakes by instructor and it helps to slow instructor down
- Learning in real time
- real experience and real time, so you can ask questions as they come up
- reinforces learning by trying, failing, and getting feedback
- gives learners a sense of accomplishment as the lesson progresses
- Learners have a guide moving through the steps. Learners also witness real-life practices, including typos, errors, and mistakes, and so are less likely to be frustrated by those things

themselves.
- mistakes happen even with 'experts'
- Able to identify learner gaps in knowledge in real time, can identify roadblocks not typically covered by curriculum (like SDE being installed, dependencies)

Disadvantages:

- split students' attention and may be hard for instructor
- Students may get lost if they missed a step, they can't refer to any instructions
- something happpens that is unexpected and that the instructor does not know how to resolve
- technology glitches, internet not working, computer not working properly
- If students are at different levels of experience, then it potentially can be difficult for someone at a lower level, trying to keep up with others
- if a learner falls behind, it could be challening for them to pay attention in the moment
- people start leaving early due to difficulty
- easy to lose your place and fall behind or go too fast for the rest of the class (if reading Carpentries website)
- When learners expeirence a technology glitch, it might sideline them and they'll get lose.
- For the instructor, might be harder to stay on track with the lesson
- You can easil
- Difficult to split attention between your screen and the instructors screen on the projector. Even more difficult when it's all online and both of those screens are on your screen!
- Need helpers and assistants because 1 instructor may not be able to handle each mistake
- Students will have a hard time pausing to look things up if needed

Compare and Contrast (15 min)
Watch the two live coding videos individually and then summarize your feedback on both in the Etherpad. Use the 2x2 rubric for feedback we discussed yesterday. After 10 minutes we will have a group discussion

In the videos, the bash shell *for* loop is taught, and it is assumed learners are familiar with how to use a variable, the *head* command and the content of the basilisk.dat unicorn.dat files. Note, if you are not familiar with these concepts, don't worry! Focus on the teaching approach.

poor live coding: https://www.youtube.com/watch?v=bXxBeNkKmJE&feature=youtu.be (2 min)
Content +

- Zach: starts off explaning where they are in the file system, and the files they're supposed to be looking (though, doesn't explain the commands he used to do this); states what the exercise is meant to do (use a for loop to show the first 4 lines of a file)
- kelly-expert in carpentries
- Does at least feature an error, though it is unexplained.
- Demonstrates how to do something.

Content -

- No explanation of what we're looking at with the files. No explanation of what the commands are

doing while running them. Lack or clarity around reasons for naming things.
- Types out commands silently and doesn't explain what they are
- Doesn't describe the terms and variables being used
- Kelly - uses jargon, and doesnt explain as he is typing commands
- Highly technical language
- Doesn't explain errors as he goes

Presentation +

- Kelly- speaks clearly, has a large terminal screen with large text
- seems knowledgable, technology working?
- seems to know what he's doing
- Has stuff on screen
- Acknowledges mistake - but doens't explain what the error is.Good pace in speaking, not too fast
- Debbie - doesn't speak too quickly.
- Has clear screen setup.
- Good room setup, text on screen is somewhat legible

Presentation -

- Zach: doesn't voice the the command he's writing; doesn't explain what the carrot characters mean; doesn't ask for feedback; didn't turn off his notifications; shell doesn't take up the whole screen, distracting image in the background
- kelly- Doesn't pause, types too fast, doesn't explain as he is typing, talks too quickly, no eye contact, sitting entire time
- Debbie - hard to read screen; types without explaining, someone's cell phone is not on silent; does not check on learners to see if they're understanding
- Doesnt describe their process. Have distracting things on their desktop.
- No eye contact with audience, would help to check in with them
- image in back of terminal is distracting
- No explanation of what terms are being used; phone is left on (distracting to students), signifcant background noise
- too small screen, not enough talking? speaks low or like not enough direction?
- no eye contact, not explaining, sitting down, can hear cell phone sounds so not controlling class thru any rules, when he does speak, he speaks fast
- Hard to read display, instructor speaks in monotone and looks down at screen. Types a lot without explaining fully what he's doing. Doesn't review what he just did afterwards.
- No contact with audience. May be moving too quickly without a check in. White text on black background not as easy for viewing. Lost in a sea of text.
- No walk through of what's happening! No explanation of what is being typed or what's being run.

good live coding: https://www.youtube.com/watch?v=SkPmwe_WjeY&feature=youtu.be (3:20)
Content +

- tells us what we're learning at the beginning of presentation; deals with and explains his error; explains what he is doing as he types;
- kelly- Expert, explains each portion of the shell and commands, points to each symbol and command to expain further
- Carefully explains what he's doing and why
- Explaing the differnet terms/functions being used. GIves learners options/explanations
- points to specific commands/output and explains it directly; verbally describes what he types
- Explains what we will be learning first; made a mistake and explained the mistake

- Zach: clearly explains the commands and what they are doing, at each step in the command; demonstrates how the variable name can be interchangeable;
- Gets an error and explains it! (doesn't just gloss over)

Content -

- kelly- doesn't check on students understanding or for feeback
- Bringing up the loop on one line (from history) seemed really quick and confusing for me -- unless the learners had already been acquainted with that I think that would have been a bit confounding.
- Doesn't explain what the commands do, such as head. Perhaps there is an assumption of understanding.

Presentation +

- explainging whats going on in the presentation. Gives an overview of the presentation. Standing up rather than sitting down. No distracting thigns going on .
- Points things out on screen, more actively engaged with audience
- Kelly-explains each command and runs through examples lowly, points out each command and its ouput, makes eye contact, large terminal with large text, goes slowly as he explains
- Large font makes it easier to see commands; standing and eye contact helps in addressing the audience; takes his time to explain the commands and the output directly
- Eye contact with students, standing up, pointing out specific things on the screen. Gives specific examples. Points out where he did a typo and the result. Larger font on screen
- standing, acknowledges learner issue right away, white background for demo; gets his head out of his personal screen and is more interactive
- Much better energy, eye contact. Black text on white background easier to read. Text is bigger. He gestures to what he has typed, pointing it out.
- Debbie - acknowledges learners, text on screen is easier to see, reads what he types out loud for better accessibilty; points to screen to reiterate work; standing and walking around, makes the presentation more dynamic
- Zach: used the mistake to explain the error message and how to correct it.
- Explanation of what's being typed, and saying what is being typed as it's being typed.

Presentation -

- hasn't asked if folks have questions
- Predicts failure in learners "You can do this but..."

Top Ten Tips for Participatory Live Coding in a Workshop

1. Stand up and move around
2. Go slowly
3. Mirror your learners environment
4. Use your screen wisely
5. Use illustrations
6. turn off notifications
7. Stick to the lesson material
8. Leave no learner behind
9. Embrace mistakes
10. Have fun!

Sticky Notes

Practice Teaching (25 min) - groups of 3 in breakout rooms

Teach 3 minutes of your chosen lesson episode using live coding to one or two fellow trainees, (make sure to share your screen) then swap and watch while the other person(s) live codes for you. Explain in advance to your fellow trainee(s) what you will be teaching and what the learners you teach it to are expected to be familiar with. Give each other feedback using the 2x2 rubric we discussed previously and enter the feedback you received in the below.

- Chris
    - Content+
    - Had content on the side so easy to follow along;
    - Content -
    - A little bit of jargon
    - Presentation +
    - Good speed on presentation and very approchable; i liked that you typed out words even if they weren't commands (like ls --> lists), made it easier to understand
    - Presentation -
    - Background color of the terminal - change to higher contrast
- Ray Content + whittled his ideas down to the basics,demonstrated the entire time, used sample that was very clear for the learner, explained messy dates as data; content, negative- maybe reiterate why this is an important exercise in spreadsheets;
- Ray Presentation + good interaction with learner (me), very personable, not nervous at all, spoke slowly enough, enjoyable teaching style; any negatives: nothing, sorry, you were good
- Celia
    - Content +
        - Presentation includes some slides with clear information
        - Knowledgeable
    - Content -
        - chunk of content required that we all make it through the whole thing, so easy to get lost f you missed a step.
    - Presentation +
        - really appreciating the explanations while moving around the screen.
        - Good introduction, enlarged screen
    - Presentation -
        - Very quick! (though not really a choice about that with this time limit)
        - Maybe use a highlighter for the cursor so we know where to look.
- Zach
    - Content +
        - explains commands slowly as he is typing into shell
        - explaining folders, part, terminology; using metaphor/similarities to file explorer, which was a good for me to understand; good background before doing lesson
    - Content
        - -mouse can be larger to point out items and lines in shel
    - Presentation +
        - clear volume when explaining, explains at a good pace, explained each command, large enough screen, color coded for each output.
        - code was clear to see; speaking what you're typing; asked learners first, making sure learners were on the same page; spoke clearly
    - Presentation -

        - technical difficulties (sound was choppy) +1
- Lisa B
    - Content +
        - Defines terms, shows data, and walks learner through a variety of SQL queries.
        - Clear term definition, and great way to make uniform formatting by using Word to present
    - Content -
        - Would love you to explain what a query is and what it does.
        - Would like to see what is being returned when the query is run
    - Presentation +
        - Can view on her screen. Good pacing.
        - Clear presentation format, and great matching of pace to content in initial slides.
    - Presentation -
        - Would be nice to see instructor's face. Doesn't actually demonstrate running a query and seeing a result.
        - As presentation moved along, things got faster and became a bit too fast for me -- liked the pace at the beginning.
- Kelly
    - Content +
        - Good use of clear command to start fresh
        - Explained well each command Kelly used, and what they would do
        - Good background of what we're learning
        - reiterating important points ("don't forget the space!")
    - Content -
    - Presentation +
        - Good pacing
        - Good with checking in with learners
        - Seeing your extra slide seemed like it would've been beneficial for extra visuals
        - Cursor was huge! very visible for accessibility
    - Presentatin -
        - Text started out too small (but Kelly fixed it!)+1
        - Speaking a tad quickly at first(but then again she had less than 3 min)
- Andrew
    - Content +
    - context to previous lesson
    - pointed out different mac vs windows/pc termology
    - helpful descriptions of commands and output
    - Content -
    - Presentation +
        - helpful reminders about previous commands
        - nice flowing descriptions about the actions
    - Presentation -
    - seeing desktop is distracting
    - a bit fast
        - desktop distracting, also second window with notes
- Wasila
    - Content +

        - Provides context by refering to previous lessons. Explains terms as they go
    - Content -
    - Presentation +
        - Makes text more legible in the terminal
    - Presentation -
        - a little slow in pace
        - a bit too fast in pace!
- Emily
- Veronica
- Charlie
    - Content +
        - Can see live coding in process. Sequences his typing, explaining what he's choosing to type and why. Prints out strings so people following on can check if they're doing it correctly. Worked us through an error.
    - Content -
        - I didn't catch explanation of what for-loops are for, or a reminder of what the word "string" means.
    - Presentation +
        - Clear , articluate speech, and not too fast. Made error, but discussed error. Large display.
        - Gives quick review of where we were, before explainng what we'll do next. Doesn't jump into typing before explaining. Gives personal explanation of why he's typing things out and what we can expect. Is slow enough we can easily follow along.
    - Presentation -
        - Could briefly pause to define technical terms (for loop, string) again, in case learners are still adjusting to them.
- Debbie
    - Content +
    - expert in iphone functions
    - explained slowly and thouroughly
        - Clearly explain the steps that she's going through
    - Content -
        - for 3 minutes, might consider focusing on either the magnifier function or how to add it (might be too much content to address both in that short of time)
    - Presentation +
    - good presentation skills, clear, slow examples to ensure learners understood
    - was able to transition when technical difficulties arised, screen was large enough
        - Pivoted well from relying on the screen share to showing the phone to the camera
    - Presentation -small technical difficulties with slow screen sharing but not presenter's fault.
- Lisa N
    - Content +
    - Clear goal, content easily visible, most terms expressed clearly
    - Content -
    - Some background jargon, such as JSON files - maybe focus on just the file types we were going to work with
    - Presentation +
    - Presentation was good, mouse was used to show what to do
    - Presentation _
    - Could have backup slides in case of technical difficulty

- Christine
    - Content + - very knowledgable, explains it thoroughly start with objective
    - Content - - talks a bit fast at times
    - Presentation + acknowledges mistakes and error, good way to show backup
    - Presentation -
- Elisa
    - Content +
        - good introduction, using mouse to track sections of website text as speaking, helped in setting up the lesson and centering the audience
    - Content -
    - Presentation +
    - Giving context about the lesson
    - Presentation -

Key Points

- Live coding forces the instructor to slow down.
- Coding-along gives learners continuous practice and feedback.
- Mistakes made during participatory live coding are valuable learning opportunities.

10:30 - Break (10 min)

10:42 - Preparing to Teach (50 min) - Ariel

https://carpentries.github.io/instructor-training/15-lesson-study/index.html

Learner Profiles

Learner Profiles (10 min)
Read Software Carpentry's learner profiles (https://software-carpentry.org/audience/). Note that these example profiles contain more information than you will ever know about a learner; this is a creative exercise in imagining (and empathizing with) the whole people behind the faces. Now, sketch out a profile of someone you might expect to attend your first workshop. Who are they, what problems do they face, and how might this training help them? Be as specific as possible.
Enter your learner profile below.

- Chris - Louie Littlehouse is a junior high school student. He wants to be the first person in his family to go to college. They are very comfortable with navigating computers and the internet. He enjoys spending every moment of every day on social media. If it's a social network, he's on it. He is particularly proud of his 131 followers on Twitter and must have something to post every half hour. He is interested in Carpentry workshops as something to put on his college applcations. He won't have any difficulty with the technical elements of the classes, but will have difficulty paying attention to the lessons and activities.
- Ray - Leslie is an academic librarian who has no experience with coding or programming and has to do a lot of work in spreadsheet for data (work-related) but doesn't know all the tricks and rationale. Using spreadsheet programs for data organization lesson may help Leslie understand the components of using spreadsheet programs and tricks with data organization under spreadsheet

programs.

- Celia - Casey got their MLS seven years ago and has been a technical services librarian for five years. They have taken a database course in library school, and audited a programming class, but do most of their regular work in Excel and a library content management system. They regularly work with spreadsheets of data extracted from their library catalog, which can be messy and hard to summarize given that imported records are not always formatted the same as original cataloging records. This Library Carpentry / OpenRefine lesson will show Casey how to standardize wording and format of their catalog records, before starting on further analysis in Excel pivot tables or Tableau. Casey will also learn about the limits of OpenRefine and when other text analysis strategies might be more effective.
- Zach - Alex is a first year computer science student. He is the first person in his family to attend college, and the high school that he attended did not offer many of the extra-curricular programs around computer programming that other schools might offer. Nevertheless, he taught himself some programming tasks in Python, and did very well in math, so that he could qualify for the computer science degree program. One thing he didn't pursue in his self-study was the bash shell, and his professors are expecting that he will be comfortable with it by the end of the first 3 weeks of class.
- Lisa B -- Renee is an upper division undergrad who works hard, reading chapters of textbooks 3 times before a test, but still only manages a B. She doesn't understand how people read boring texts and remember for the test. She is attending the "How to Read a Textbook" workshop hoping to learn a technique that will increase her retention of the information.
- Kelly - Pam Programmer is a recent undergrad with no programming experience, taking this course to learn some basic coding skills to gain new skills for potential job openeings. This workshop will teach Pam some of those skills she is interested in learning, such as using a command line interface, learning unix shell, and possibly picking up a little Python. She has a basic knowledge of computers and how files are organized etc, but no knowledge of coding languages.
- Andrew - Felix Faculty. Felix is a first year tenure track faculty member in the AGES department (Anthroplogy, Geography, Environmental Studies). As part of their doctoral program, they were introduced to ArcGIS, but only learned how to make basic maps. They are interested in using freely available shapefiles as part of their research on water conversation policies, but they're arent sure how to properly work with them. Data Carpentry will teach Felix how to work with these files to create maps, as well as to work with data to visually display these maps.
- Wasila - Rodrigo is a first year student in a professional Master's degree program in conservation biology. He took an undergraduate class in statistics using R. He will be completing a capstone project in his program, in which he will collaborate with classmates on a shared dataset, analyze the results, and publish a paper. He needs to know how to effectively manage a shared dataset with his collaborators, how to document statistical analyses in R, and how to archive the data. The training I offer will cover the basics of data management - file formats, versioning, documentation/readme files, Rmarkdown for reproducible research, and choosing a repository.
- Emily
- Veronica
- Charlie - Queen of the Castro: Queen is a glittering goddess of immaculate drag, and has recently become interested in learning to analyze, preserve, and just attend to the history of her community using computers. She's discovered that trans people are not represented at all in much of the historic documentation of gender variation, and she'd like to try to better map out where these folks are present in the history, even when they weren't identified as trans at the time. Queen thinks that digital text analysis around this work could be worthwhile because she's heard about it, but she's never programmed or written computer code of any kind. She knows a lot about archives

but has never attempted to "extract text" (a term she wouldn't use) from digital historical documents. She's interested in learning how to make some maps and how to start to visualize where trans people appear, but has no idea where to even start.

- Debbie: Popo Judy: Judy is a mother of 4 children and grandmother of 6 grandchildren. Since the pandemic has started, she is forced into using technology that she has been somewhat resistant against, only because she is intimidated by technology. She gets flustered easily, and that makes her grown children impatient whenever she asks for help on using her tablet or laptop. She really wants to see her grandchildren and knows that she has to use video conferencing tools in order to see them (some live far away, some live close by, but...COVID-19 😒) She is desparate to learn new technologies that will help her through this pandemic (e-Books! streaming movies! seeing her children! buying groceries!) but is very scared to break things. She is also afraid of change, especially when there's a new software update that makes her screen looks different.
- Lisa N
- Christine - For most of my classes, Helen is typically retired and wants to learn to use software in more detail. She wants a program to work for her, such as Excel for budgeting, Google Photos for saving and sharing photos from her phone, and Mail Merge for Christmas letter and labels. She has lots of devices but not a lot of detailed knowledge. She must sit near the front of the class, may not want to attach her device to the library's public wi-fi due to safety concerns, and she wants handouts. If I were to do a Carpentries workshop, I believe the more senior librarians would attend and would have no background in managing spreadsheets, let alone coding, etc. and I am not sure how movitated they would truly be
- Elisa Lyle Librarian is an academic librarian who has been teaching for awhile, but is interested in learning more about data analysis and how to show library value with numbers. They are getting familiar with the library ILS, but isn't sure how to get that information out or present it to library leadership in a meaningful way. They would like to learn programming, because that seems like the current trend in library tech, but doesn't have time to dedicate in addition creating new online content with course going remote. They are fairly computer literate and can navigate their way fairly well through Microsoft Office. Software carpentries would help them understand databases and basic SQL querying.

Reverse Instructional Design (and Preparation!)

Working With Learning Objectives

Evaluate Carpentries Learning Objectives (10 min)
Select one learning objective from one of the lessons linked to below and then complete the following steps to evaluate it.

- The Unix Shell (Library Carpentry): https://librarycarpentry.org/lc-shell/
- Regular Expressions (Library Carpentry): https://librarycarpentry.org/lc-data-intro/
- Open Refine (Library Carpentry): https://librarycarpentry.org/lc-open-refine/
- Data Organization in Spreadsheets for Social Scientists (Data Carpentry): https://datacarpentry.org/spreadsheets-socialsci/
- R for Reproducble Research (Software Carpentry): http://swcarpentry.github.io/r-novice-gapminder/

- Identify the learning objective verb. How specifically does this verb describe the desired learner outcome?
- Where does this verb fit on Bloom’s taxonomy? Do you think this is an appropriate level for your learners?

- In your opinion, does the lesson do an effective job of meeting the stated objective?
- What would the next level on Bloom's taxonomy look like for your learners? How might you be able to help them think ahead to the next level without attempting to get them there during your workshop?

- Chris - for "Introduction to Regular Expressions" the verbs are "introduce" and "use". This fits on Bloom's taxonomy on the "remember" and "understand" levels of the taxonomy. I believe the lesson does do an effective job of meeting the staetd objective. I would think on getting students to apply regular expressions by giving them an assignment to write down a possible application of regular expressions to their job or life.
- Ray - explain to understand for unix shell- yes, appropriate. yes, effectively but maybe a bit wordy, could break into pieces? and apply - so "Demonstratehow to Apply Command Line Effectively?" I might have an exercise for them to demonstrate...or give an example?
- Celia in OpenRefine's faceting and filtering lesson: "Answer questions about the content of a dataset using Facets." The verb 'answer' implies that the learner can use this lesson to find potential insights into their dataset, which falls at Bloom's "understand" level. You could nudge them to think about OpenRefine in a more complex way by having them take notes on what this means for their core questions and how they could use the insights. Maybe moving them along to "analyze" and "evaluate" their data.
- Zach for "Automating the tedious with loops", the verbs are "build" and "implement". The verbs are fairly specific, though the first is conceptual, and the second is practical. "build" would fall under Understand, and "implement" would fall under Apply in Bloom's taxonomy. The lesson seems to do a good job of starting with the concept of the loop and then providing a couple of exercises that would implement the concept.
- Lisa B - *Introduce* the basic mechanic in the OpenRefine software. Understand level in Bloom's? Or both remember and understand. Apply might mean to provide new data to work with in the environment.
- Kelly - the learning objective verb is Explain, e.g., "Explain the basics of the Unix shell, Explain why and how to use the command line."

- It describes that the learner has to remember and understand the content to explain what the unix shell is and why they would use it.
- This verb fits in the bottom of the Bloom Taxonomy pyramid, among the Remember and Understand portions. I believe this is an appropiate level for learners as it explains the basics and background knowledge needed to begin using the Unix shell.
- I read through the lesson before beginning this webinar and practiced the commands after this epsiode, so I believe the lesson does an effective job of meeting the stated objective.
- The next level in Bloom's taxonomu is Apply. I would tell my learners during the exercises how they can use these comands in the future to apply them to tasks, but not necessarily show them how to apply it yet. Just telling should prepare them for the next portion in the Bloom's taxonomy.

- Andrew - in the Formatting Data tables in Spreadsheets episode, the verbs are "recognise" - remember, "resolve" - apply, "describe" - remember, "identify" - understand. I think overall the lesson does a good job of teaching the skills that would allow the learned to achieve these objectives - the content is definitely there, there are activites to get your to practice some of these skills. The next level of blooms would have to be the Analyze level - since Resolve appears to fall within the Apply level. So the learner would have to connect the dots between ideas/lessons and see how the skills they have learned could help them solve problems that they may not be thinking about yet. DEFINITELY a higher order of skill.

- Wasila - Learning objective verb = create ("create a directory heirarchy in unix ..."). In Bloom's taxonomy, this is the Apply level, which I think is the appropriate level for learning for this lesson because the basic concepts have been introduced and discussed already. Yes, the lesson does an effective job of meeting that objective. The next level would be Analyze, and I could help learners perpare for the next level by having them start to mentally compare/contrast the commands they already know, and maybe try some brief hands-on explorations with options and effects on different directories
- Emily
- Veronica
- Charlie
    - Learning objective verbs: "Use". This sounds a little vague to me, but it may make sense when people have completed earlier episodes.
    - This sounds mid-level, in the "apply" seciton of the pyramid.
    - Lesson does a pretty good job of meeting the stated learning objective.
    - The next level on the taxonomy would be to evaluate a regular expression or analyze its quality, and finally to write your own from scratch. I think this lesson is on its way to bringing students to these upper levels already, by teaching folks to recognize patterns in text strings, and understanding how regular expressions match. them.
- Debbie: OpenRefine-"Explain" is the learning objective. Falls under "understand" on Bloom's Taxonomy. I think it's appropriate on the level of Bloom's Taxonomy because it's a beginner course, meant for foundational work. The lesson gives good real world examples of what OpenRefine can do, which helps reinforce the concepts of what it can do. Next level would be to take some of those real world examples and apply OpenRefine to sort out the needed data.
- Lisa N
- Christine regarding Open Refine: verbs are understand and use; I think the first verb, understand, is at the basic level and the second verb, use, falls under "apply", These are appropriate levels since this lesson starts with basic introduction to Open Refine. The next level to achieve is analyze; you can get them interested by showing them an example of what may be possible as a next step with practice and with learning additional tools. Or you can show them videos links or simply give them a list of good online videos that they can watch in their own time
- Elisa In Working with files and directories within the UNIX Shell lesson, the learning objective is apply. The verbs are 'work', 'use', 'look', and 'copy'. Since this is the third episode, I think it is appropriate, given in the previous episodes, they are remembering and understanding. The next step would be analyze and I think making sure the previous episodes are well established and support is obvious and welcoming, the transition might be easier when we actually get there without being at that point yet.

Using Formative Assessments

Where are your checkpoints? (10 min)

Have a look at your lesson again. Choose a learning objective, and identify where in the lesson that objective should reasonably be achieved. How will you know that that objective has been met for all learners? Will this be clear to them?

Make a plan for where in your lesson you will use different types of formative assessment to help everyone in the room monitor their progress. Keep in mind that formative assessment can can take many forms, including multiple choice questions, faded examples, spontaneous questions and calls for sticky notes.

Write some notes or thoughts about this process below for discussion.

- Chris - Understand - the objective could reasonably be achieved in the midpoint of the lesson. The objective being met can be seen when learners are able to answer the example regex (What does the example match?) and possibly try that out in an ILS search (Sierra Create List, for example) that supports regex. The remember part is tricky, maybe more examples for each type of regex metacharacters.
- Ray - In this episode (unix) Remember/Understand - the episode aims to show the participants how why/how to do X function. But with apply, i can ask questions to demonstrate -- formatively: asking questions for them to respond, to reflect, to fill in?
- Celia - in the lesson on importing data into OpenRefine, an objective is to "successfully import data into OpenRefine." This could be checked fist when they select a file to preview (has everyone done it?) and later to see that they all finished importing a file into their system. Stickies or thumbs up in Zoom could be used to show that they're able to complete this import process.
- Zach - there would definitely be a checkpoint after the introduction of the loop concept. this can be a difficult concept to grasp, and it would be good to check where everyone is at. Then after the first example, you can check both 1) if the output matches, and 2) if the intended files have appeared (#2 isn't in the lesson). Another check-in would be after the "For loop exercise" section, where the lesson provides a solution. But do the students understand the solution?
- Lisa B -- This is all introduction, so I'd check in every couple of bullets. If you lose someone at the beginning, you may never get them back.
- Kelly - explain the unix shell is the objective. The objective has been met if students can explain that the Unix shell is a command line interface (CLI) that does similar tasks they would accomplish using a graphic user interface (GUI), such as file explorer or finder. When explaing this I might asks students to name some things they might do in file explorer, when they respond I'd explain that those same tasks can be accomplished with simple commands in the Unix Shell. I'd then ask for sticky notes to see if everyone grasped this concept. IF not everyone has I might demonstrate how we move through a GUI and then how we would move through a CLI.
- Andrew - The episode has exercise to complete and looking at them they address some of the objectives - not all. The first exercise has the learner identifying issues with the structure/formatting of the spreasheet and coming up with ways to resovle the issues and the last exercise has the learner identifying metadata that is missing. There is no activity to describe the importance of metadata - which might be a thing you just do and not necessarily need an exercise for.
- Wasila - The episode on working with files and directories in Unix has distinct checkpoints but the first objective doesn't totally match the lesson description. The first objective is creating a directory that matches a giving diagram, but there isn't a diagram described below. As the instructor, I would make sure to draw a diagram on the whiteboard or on a slide showing the heirarchy we are making using unix shell. Then, the checkpoint would be to use the ls command to view the list of files in a directory and verify the heirarchy.
- Emily
- Veronica
- Charlie - My episode is entirely challenges! I think they're also well-designed, they step up and measure slightly more advanced concepts everytime. One detriment of entirely challenges though, is that there's no guidance if a student can't get past one -- presumably the instructor would demonstrate the solution and the way they worked the challenge out, but since it's all challenges it seems like it could actually lose a bit of the formative assessment quality because the assessment is all globbed together into one, so it's difficult to pick out where students have learned or not learned something, or where people may feel totally lost.

- Debbie-OpenRefine: checkpoint could be asking learners of another example of messy data that OpenRefine can be a useful tool for.
- Lisa N openrefine checkpoint - importing data. ask for sticky note if they were able to successfully import the provided spreadsheet.
- Christine for OpenRefine, ask people to write on a note what format of files they used (Excel, CSV, Google sheets, etc) to import their data. This will let me know in a round-about way if what they tried did actually work. Those using the same starting programs in the class can get together for a few minutes and compare notes of what was hard and how their results look..
- Elisa Each example could be checkpoints and see how comfortable people feel.

Key Points

- To teach effectively, you have to know *who* you are teaching.
- Good learning objectives communicate the intended effect of a lesson on its learners.
- A good exercise provides useful guidance to instructors about next steps needed in teaching.

11:30 - Break (10 min)

11:40 - More Practice Live Coding (45 min) - Tim

https://carpentries.github.io/instructor-training/17-performance/index.html

Round Two (25 min)
First, have a look at the rubric that is given to trainers as a suggested framework for evaluating the online teaching demonstration sessions that are part of instructor checkout: https://carpentries.github.io/instructor-training/demos_rubric/. Does this rubric make sense? Take a moment to think about things you'd like to do differently with your next live coding practice. **This is also a good time to ask questions about teaching demonstration.**

Next, get back into the same groups you did your live coding with. Take turns re-teaching your chosen live coding session, making sure to incorporate changes based on the feedback you received and any new ideas based on reading the rubric. Give feedback to each other using the rubric this time.

When you are finished, add some thoughts on this process to the Etherpad: **What did you change? Did it work better or worse with the change? How might you do it if you were to teach it again?**

Andrew - i tried to conciously speak slower and i made my cursor bigger so it was easier to follow. It helped address the critiques on my previous presentation.
Celia I tried to enlarge my cursor, slow down, and ask for questions/feedback with green and red arrows. Learners did say they felt more included with the addition of questions to check their engagement, and with slowing down to explain more about how the software can be used.
Charlie - I tried to slow down, and take more time to explain terms and double-check that I had explained everything learners wanted to know about (or at least that was typed up on the screen). That definitely helped clarify what I was teaching. Moving forward, slowing down will always be my goal! I also realized that my lesson was relatively well-suited to the carpentries assessment rubric (it is a carpentries lesson afterall), but that this isn't always the case for everyone.
Chris - I changed the size of the font and colors of my terminal to make it easier to see. I ended up running out of time again, so I should have cut my lesson down some more.

Christine I think I stuck to the Carpentries lesson pretty well, I didn't go over the allotted time too much this time because I simplified my demonstration and focused on one column only; I am still presenting too fast and perhaps need to add a formative assessment in the middle instead of the end.
Debbie - I reduced the amount of info I taught so that I can fit in one concept well, without rushing through. Also, avoided using the technology that seemed to have technical difficulties, and pivoted to a different strategy of showing the demo.
Elisa I didn't feel comfortable teaching again, but we discussed how I could feel more comfortable and creating the content.
Emily
Kelly- I changed the size of the text ahead of time and checked with the other presenters to make sure they were ok with the size. I also changed my speed of speech to go slower
Lisa B -- I'm not sure that it mapped well for a mere 3-minute teaching session. Which is not to say there aren't things to work on and pointers to address.
Lisa N
Raymond - it was great to think about formative assessment and to guage if learners got it. I wanted them to apply but within 3 mins, it went by so fast. I def slowed down and there was a timer
Veronica
Wasila - I screenshared my terminal application so that it filled the entire zoom screen and used larger font. Also tried to be more intentional about my cursor and highlighting text as I went along
Zach: I tried to make my cursor and mouse pointer bigger, but apparently it didn't show up for the viewers; I did incorporate one checkpoint, to make sure everyone was at the right place in the file system;

Key Points

- (Reflective) Practice makes perfect.

12:25 - Managing a Diverse Classroom (30 min) - Tim

https://carpentries.github.io/instructor-training/18-management/index.html

What Are the Challenges? (5 min)
What are some of the challenges you might expect when teaching learners with a broad range of expertise? Discuss with a partner and put your thoughts in the Etherpad.

Code of Conduct Violations
https://docs.carpentries.org/topic_folders/policies/index_coc.html
Incident report form:
https://docs.google.com/forms/d/e/1FAIpQLSdi0wbplgdydl_6rkVtBIVWbb9YNOHQP_XaANDClmVNu0zs-w/viewform

Never Teach Alone: How to Be a Co-Instructor

Teaching Together - Nuts and Bolts
With a partner, imagine that you are planning a workshop together and answer the following questions:

- How would you prepare to teach a workshop together?
- During the workshop, what are some things the assisting instructor can do (or shouldn’t do!) to

support the main instructor?

As an entire group, discuss what you came up with and then compare to the recommendations below.

Carpentries online teaching recommendations: https://carpentries.org/online-workshop-recommendations/

Minute Cards Revisited (5 min)
Use your sticky notes to write minute cards as discussed yesterday.

Key Points

- Working with a broad range of learners can be challenging, but there are many ways to keep a classroom happy and motivated.
- Response to a Code-of-Conduct violation at a workshop is subject to instructor discretion, but all violations should be reported to the Carpentries for follow-up.

Prep for tomorrow:

1. Look through these checklists to learn what hosts and instructors need to do to prepare for a workshop (https://docs.carpentries.org/topic_folders/hosts_instructors/hosts_instructors_checklist.html), and read over the difference between a centrally-organized and self organized workshop at the bottom of this page (https://carpentries.org/workshops/).

Carpentries online teaching recommendations: https://carpentries.org/online-workshop-recommendations/

Day three feedback form: https://forms.gle/RELB3G2E71haMNkd6

Day Two

Day two sign in:

- Andrew Carlos
- Zach Vowell
- Celia Emmelhainz
- Elisa Rodrigues
- Wasila Dahdul
- Ray Pun
- Lisa Bartle
- Christine Ivison
- Charlie Macquarie
- Lisa Ngo
- Debbie Huey
- Kelly Maldonado
- Chris Kyauk

9am - Motivation and Demotivation (75 min) - Ariel
https://carpentries.github.io/instructor-training/08-motivation/index.html

Creating A Positive Learning Environment

- Presenting the instructor as a learner.
- Establishing norms for interaction.
- Encouraging students to learn from each other.
- Acknowledging when students are confused.

Teach Most Useful First
https://carpentries.github.io/instructor-training/fig/what-to-teach.png

Authentic Tasks: Think, Pair, Share (15 min)
3 min - Think about some task you did this week that uses one or more of the skills you teach, (e.g. wrote a function, bulk downloaded data, built a plot in R, forked a repo, updated a spreadsheet, cleaned data in openrefine) and explain how you would use it (or a simplified version of it) as an exercise or example in class. Write in the Etherpad below
7 min - Pair up in a breakout room and decide where this exercise fits on a graph of "short/long time to master"
and "low/high usefulness".
5 min - Share as a group

- Andrew - I'm having a hard time remembering anything useful i've done that I can teach - other than putting out fires for our reopening plans....
- Wasila -using Excel, combine two datasets, transform/clean relevant columns, and create a pivot table to with summary statistics (counts, means, etc..) for the variables
- Ray- organize data in a spreadsheet about new students, former students and incoming students
- Celia - cleaned citation data (standardized names, dates) in OpenRefine -- could use as an example of how data cleaning can be done quickly on large datasets relevant to librarians or scholars.
- Zach - logged onto a server through an ssh connection, to modify a configuration file in the digital repository I manage
- Elisa exporting database data into excel
- Kelly - created a digital library card account to be able to show teachers for a school district this friday. Navigate Overdrive on a daily basis for patron assistance, also will teach this this friday.
- Emily
- Veronica
- Charlie - imported a python library into a script to split a set of multi-page .pdf files into single page.pdf files.
- Debbie-I drew on my iPad...I usually use my drawing skills and my method of doodling to spark some imagination in a prospective doodler
- Lisa N- updated git repository, made changes to files, sent pull request
- Christine - I took an online Excel class through another organization's database. I could tell students about this and other online classes on the subject and teach them how to gain access. I can also use some content of this class in an Excel class.
- Chris - 3D Printed an exhaust extender for a laser cutter - tell students how to find, download, and import a 3D file
- Lisa B - Composing a query in a database using truncation, Boolean OR, parentheses, subject headings, and database interface.

Other Motivational Strategies

Strategies for Motivating Learners (5 min)
How Learning Works by Susan Ambrose, et al, contains this list of evidence-based methods to motivate learners.
Pick two of these points and describe in one sentence below how can we apply these strategies in our workshops.

- Strategies to Establish Value
    - Connect the material to students' interests.
        - Kelly-When learning how to use carpentries for research these skills can help them conduct research, personal and academic, much faster.
        - Christine: Excel - budget your money better using this spreadsheet program; or for work - become more proficient in organizing and analyzing data
        - Lisa N. - if possible, before the workshop (like at registration) try to gather some information about students that can help you plan relevant content
    - Provide authentic, real-world tasks.
        - Debbie- when teaching smartphone classes, I tend to show off specific examples of the cool stuff they can do with their smartphones first (i.e. using your voice to set a timer for your laundry or cooking), and then teach them how to do it.
        - Charlie - I really struggle with this one! (esp. for Library carpentry). I tend to give examples that fit a lot for Archivists (i.e. move all these tiles, create a log while doing it that lists what you changed about the file), and I'm not sure they translate to lots of librarian work.
    - Show relevance to students' current academic lives.
        - Lisa Bartle - Connect database and article finding to assignment
    - Demonstrate the relevance of higher-level skills to students' future professional lives.
        - Wasila: Show examples of analyses or visualizations created using the tools you are teaching from the published literature
    - Identify and reward what you value.
    - Show your own passion and enthusiasm for the discipline.
        - Zach: expressing enthusiasm for and wonder at the longevity of command line tools
        - Lisa Bartle - Simply having attitude of energy and excitement for what you are teaching.
        - Kelly- I was amazed at some of the things I accomplished when practicing the excerises, this excitement can be conveyed when showing each task.
- Strategies to Build Positive Expectations
    - Ensure alignment of objectives, assessments, and instructional strategies.
        - Lisa N. - in building your lesson plan, explicitly label which learning objectives each exercise or assessment is addressing. share this with your students.
    - Identify an appropriate level of challenge.
    - Create assignments that provide an appropriate level of challenge.
    - Provide early success opportunities.
        - Andrew - using the strategy of high usefulness/lowtime commitment to teach students something simple and have them answer a question fast. SImilar in vein to how so many programming courses first teach you to output Hello World - its a simple task, but makes you feel a little accomplished.
    - Articulate your expectations.
        - Zach: state that the workshop will only provide the very basic introduction to the

topic, but that with the skills learned here and the resources provided here, a learner can progress quickly on their own
        - Chris - Show how the foundational pieces can lead to a complex creation, like for a vinyl sticker can eventually become a laser cut design.
    - Provide rubrics.
        - Celia: Provide clear frameworks of goals, and examples, so people can judge how they're doing on a quick assigned task.
    - Provide targeted feedback.
    - Be fair.
    - Educate students about the ways we explain success and failure.
    - Describe effective study strategies.
- Strategies for Self-Efficacy
    - Provide students with options and the ability to make choices.
        - Elisa: Have students pick their own graph type and ask them what drew them to the graph type they chose
        - Celia: Let students pick a subject, item, or one of several examples to work with, so they can work on the most motivating example.
    - Give students an opportunity to reflect.
- Ray - the instructor gave students a chance to vent on what was challenging, what felt unfair and how the instructor can improve the course during the semester to adjust

Brainstorming Motivational Strategies (5 min)

Think back to a computational (or other) course you took in the past, and identify one thing the instructor did that motivated you. *Share* the motivational story below:

- Andrew - Providing increasingly challenging tasks so that you are encouraged to keep learning new things/techniques
- Wasila - in a hands-on carpentries-style workshop, the instructor led the class through a complicated example by breaking it down, and each small step was motivating to complete while not getting overhelmed by the overall task
- Ray- In a class of 35 students, one instructor asked for everyone's name and interests on the first day and repeated everyone's name and interests without writing it down. It was amazing and felt engaged and strong impression. also in another class, alsoa chance to experiment and try and fail and do new things
- Celia - when I've taken courses on data documentation, they gave us example forms and sheets to fill out with our own data. Being able to apply the concepts, in a simplified way, to a relevant personal project was more motivating.
- Zach instructor said we'll work through some examples that might not seem relevant, but "trust me: they are"
- Elisa Made content relatable to our current work and addressed the different types of outreach we could do to supplement that current work rather than creating a new project
- Kelly - the instructor encouraged us to use topics/ items we liked in projects.
- Emily
- Veronica
- Charlie - In programming courses, I've always felt motivated by challenges that were possible, but that had multiple ways to be solved. I especially tend to find myself motivated when the challenge is also an opportunity to bring up a new issue or new question about how a program or line of code "works" exactly, that the instructor doesn't know the answer to and takes the time to talk

through and learn together.

- Debbie-in Raspberry Pi class, being shown different examples of what the Raspberry Pi could do was inspiring. Still intimidating and difficult to wrap my head around, but it was nice to think about what I could work myself up to.
- Lisa N - In a Data science class, instructors were SO clearly passionate about the subject and in making sure students were successful with the material. It was also really motivational whenever I got a problem set right! I didn't realize it until we learned about it yesterday, but the class used a lot of faded examples.
- Christine- In my undergrad. calculus class, we had over 200 people. By the 2nd week, instructor knew everyone's names, was a great teacher, and had the best office hours and was always accessible. I did very well in his classes and enjoyed it with no trepidation but just a lot of focused work.
- Chris - Clear scaffolding starting with simple tasks / commands and then leading them to more complex applications
- Lisa B - Clear passion. Story telling to create interest.
-

How Not to Demotivate Your Learners

Brainstorming Demotivational Experiences (10 min)

1 min- *Think* back to a time when you were demotivated as a student (or when you demotivated a student).

5 min - *Pair* up in breakout rooms and discuss what could have been done differently in the situation to make it not demotivating.

4 min -*Share* your story in the Etherpad.

- Andrew- whenever an instructor is overly critical and provides feedback that isn't helpul or constructive. Its like, how am I supposed to learn if you wont tell me why the thing I did was not right? or at least provide me with a hint towards the correct answer.
- Wasila - the instructor in a recent hands-on class I took didn't give the class enough time to keep up with the lesson, and eventually everyone just watched her screen
- Ray- An instructor said that to me: It's so easy even my grandmother knows how to do this. This was about some hardware thing a while ago.
- Celia - the instructor used so much jargon that I couldn't follow along, and seemed to have a superior attitude.
- Zach I have definitely said things like "now it should be easy to [task]", knowing that not everyone was on the same page. I may have even thought that was a way to encourage people along!
- Elisa Having the instructor talk down to me; if I knew how to do it I wouldn't be in the class
- Kelly when speaking with a patron and they asked how to navigate our e-library database, I used demotivating language, "oh that's easy." She quickly told me , " don't say that, it may be easy for you but not me." I felt terrible but said," you're right let me see how we can make it easy for you too."
- Emily
- Veronica
- Charlie - I get really demotivated when I am sharing in reponse to a prompt or question (from instructors or otherwise) and I am interrupted to be told that some minute aspect of what I was talking about is incorrect or is somehow different way that I talked about it.
    - Debbie-Sometimes I might get impatient if a learner is not "getting it" and I end up solving

the problem for them instead of being able to teach them.

- Lisa N- I am guilty of using "you just do xx" all the time... definitely need to be more mindful of saying it. As a student, I tend to get demotivated if I can't work through a problem and fall behind
- Christine I was in a class that I was excited about. The first day, I was unimpressed with the instructor who also made it clear that their was going to be a ton of memorization for the class. I lost my excitement quickly and switched to pass/fail. I can't think of how I've demotivatede students -- I hope I don't. But I think I have to be clearer with my class descriptions
- Chris - I take over people's keyboards (or ask to show them how to do something) a little too quickly when doing technical training.
- Lisa B - Way back in elementary school, the teacher wanted to make sure we dotted out I. I got 100% on a spelling quiz, but she deducted a point because I forgot to dot an I. I learned the objective, but had points deducted for another objective. I stopped trying to get 100% on spelling tests after that. Yes, a 45-year-old grudge.

Psychological Demotivators

- Stereotype Threat
- Impostor Syndrome
- Accessibility Issues
- Lack of Inclusivity

Learning About Accessibility (5 min)

The UK Home Office has put together a set of posters (https://github.com/UKHomeOffice/posters/blob/master/accessibility/dos-donts/posters_en-UK/accessibility-posters-set.pdf) of dos and don’ts for making visual and web-based materials more accessible for different populations. Take a look at one of these posters and put one thing you’ve learned below:

Barriers in the Virtual Classroom (5 min)

What are some systemic barriers that might impact our learners ability to participate in the virtual classroom? What can we do to mitigate this?

- Andrew - network connectivity issues, not having the appropriate physical space (too loud, too many other family members), low technology fluency, bad graphic design making things more difficult to understand
- Wasila - difficulty keeping up with multiple windows when you don't have an external monitor;
- Ray- text in presentation are too small, technical issues
- Celia - hard to follow along, can't both see and hear (disability issues), it's hard for us to check in with them and see if they're stuck on a given screen, distractions of family or other things going on at home, Zoom fatigue/headaches, trying to multitask and learn at the same time.
- Zach unannotated images
- Elisa microagressions, poor connectivity, stress from worldly issues
- Kelly making your cursor larger can help those who have issues following where you might be directing them to click. Slow or bad internet connection
- Emily
- Veronica
- Charlie - no transcription/description of what's being typed or demonstrated on the zoom screen!
- Debbie-Not having an internet connection, not too much knowledge in using Zoom (or whatever platform instructor is using), not too much knowledge in technology in general! Someone who is

impaired in sight or hearing might have trouble.
- Lisa N - being in a completely different timezone and having to attend a class in the middle of the night. lackof transcription
- Christine Poor internet connection, poor ergonomics at home, no air conditioner in 95 degree weather in August, sharing computer with others at home, some thrive with in-person classes not online
- Chris - No closed captioning / poor or difficulty hearing. Difficulty seeing physical cues, especially for learners on the spectrum.
- Lisa Bartle - Change in teaching due to software limitations. Example: I use Zoom. But Zoom is clumsy switching from application to application. In a 25-minute session, I don't want to loose interest because of repeated down time. So I embedded visuals in PPT. Not the best solution, but pro v. con, I made that choice to use poor teaching technique to balance the technology limitations.

Online workshop recommendations: https://carpentries.org/online-workshop-recommendations/

Key Points

- A positive learning environment helps people concentrate on learning.
- People learn best when they see the utility in what they're learning, so teach what's most immediately useful first.
- Imposter syndrome is a powerful force, but can be overcome.
- Accessibility benefits everyone.

10:15 - Break (10 min)

10:25 - Mindset (35 min) - Ariel

https://carpentries.github.io/instructor-training/09-mindset/index.html

The Importance of Mindset

Does Mindset matter? (10 min)
Think: What kind of mindset do you have about different areas? Is there anything you believe you are "not naturally talented" at? Mindset often varies in different areas – someone might have a fixed mindset with respect to artistic ability, but a growth mindset with respect to computing skill. Then, think about your learners. How might a learner's mindset about computational skill influence their learning in a workshop setting?
Pair: In breakout rooms, discuss your thoughts about the influence of mindset in a workshop. Try to come up with a few different ways or situations in which mindset might be relevant.
Share: A few thoughts in the etherpad

- Andrew - I think I have growth mindset in personal development - I'm always learning about ways to develop myself and others - either at work or personally. I also have a growth mindset for technical things in genera I think. I'm constantly reading and trying to pick up new tips and tricks about programming languages, technical things, etc. I feel like I have a fixed mindset around art and creating art.

- Wasila - I have a growth mindset for learning programming; I have a fixed mindset about to the outreach components of my job (building networks with collaborators)
- Ray- growth mindset teaching copyright issues (tied to my day to day work now) and fixed with computing
- Celia growth mindset when it comes to qualitative software, a bit of a fixed mindset with computing/coding
- Zach I have a growth mindset about reading, and a fixed mindset about cooking
- Elisa I think I have too much of a growth mindset that exhausts me and I need to focus rather than
- Kelly i have a growth mindset when it comes to learning coding, I have a fixed mindset when it comes to musical instruments
- Emily
- Veronica
- Charlie - Growth mindset in computer programming and computing. Fixed mindset in auto-repair. (also maybe a fixed mindset in learning languages? Looking at Lisa's points and being jealous...)
- Debbie- Growth mindset in basic programming. Fixed mindset in more advanced programming. I'm not sure I have the brain capacity for it.
- Lisa N- growth mindset with learning spoken languages; fixed mindset in learning programming languages (even though they're sort of the same thing!)
- ChristineGrowth - I'm pretty confident that if I have enough time and practice, I can learn or at least get better at most things. Fixed - I do have some mental blocks about hardware of computers
- Chris - Growth mindset in most computing. Fixed - mechanical aspects (gears, motors, etc.)
- Lisa B - Growth in database programming and management. I do do what I want and need, but feel I could learn more if given time. Same with video production. Capable but not expert, so room to grow. Fixed is math. All math. Can't do it, don't like it, don't want to try.

Praise Influences Mindset

Choosing our Praises (5 min)

Since we're so used to being praised for our performance, it can be challenging to change the way we praise our learners.

Which of these are examples of performance-based, effort-based, or improvement-based praise? Write your answer below each prompt

- I like the way you tried a couple of different strategies to solve that problem.
    - Ray- effort based
    - Debbie-effort-based
    - Lisa B. - effort
    - Chris - Effort-based
    - Wasila - Effort based
    - Kelly-Effort Based
- You're getting really good at that. Keep up the hard work!
    - Andrew - Improvement based (+1 Ray)
    - Lisa B - improvement
    - kelly- Effort based
    - Debbie-improvement based
    - Chris - Effort based
    - Wasila - improvement based
    - Charlie - improvement based

- You’re really talented.
    - Christine - performance
    - Zach: performance
    - Lisa B - Performance
    - Kelly-Performance
    - Debbie- Performance
    - Chris - Performance
    - Wasila- performance
- That was a hard problem. You didn’t get the right answer, but look at how much you learned trying to solve it!
    - Christine - improvement based
    - Lisa B - I agree with Charlie. Seems like both.
    - Kelly-Improvement Based
    - Charlie - effort based? Ce: (a bit of both, right?) Right
    - Debbie: Improvement based and Effort
    - Chris - Effort based?

Errors are Essential to Learning

Helping Learners Learn From Mistakes (5 min)
A learner at your workshop asks for your help with an exercise and shows you their attempt at solving it. You see they’ve made an error that shows they misunderstand something fundamental about the lesson (for example, in the shell lesson, they forgot to put a space between ls and the name of the directory they are looking at). What would you say to the learner?
In the space below, describe the error your learner has made and how you would respond.

- Andrew - acknowledging where the error is, reminding the learner about the syntax of ls so that they can recall it, and then having them try it again with you watching. If it comes out correct, then give praise. if the error still occurs, maybe repeat an example for everyone in the class?
- Wasila - I would acknowledge the error to let them know why it occurred, and then say let's back up and review the previous material, then have them try it again
- Ray- Communicating with the learner to ask questions to see what they would like to correct, encourage them to double check their work? Framing the error as common issue -
- Celia If they're not understanding, I would acknowledge what they've done, ask what they were hoping to do, and see if they can see that they didn't the needed result. Depending on time/how small the group is, you could ask what else they might try, and offer suggestions or an example to lead them in the right direction.
- Zach with command line exercises, a common error is not noticing the . [period character] that's hiding in a command sequence. I might respond by saying "you have all the elements in place to get the command to run, but there's this one character that basically everyone misses at first, and it's this period hiding out here"
- Elisa Follow the steps again and see if they catch where the mistake was made and if they don't, pause and point out the step they missed not as a mistake, but that it was missed and assure them that 'mistakes are normal. we're all learning'
- Kelly - "I see what went wrong for you, it's a mistake everyone learning these skills makes. Try to remember to include spaces in between the ls and the names of files or directories to avoid future mishaps."
- Emily

- Veronica
- Charlie - I tell them, "ok I think I see what's going on here. This is really confusing, I used to make this error all the time. Let's type it out again and walk through the steps. Ok first the .... and then the.... ok here's where there needed to be a space."
- Debbie-in smartphone class, if a learner is frustrated and can't find the, say, magnifying glass, while all the other people in the class have, I would say, "it's ok. Let's look for it together" (if time allows)
- Lisa N- with the shell example, I would ask them to talk through what they think each piece of the command is asking the computer to do, and pointing out that the space is an important piece that the computer recognizes and reads
- Christine --basics of how to check their device settings when they aren't able to go forward with a task, showing them, explaining security and public networks so they can decide if they want to connect. Sometimes I print out instructions for someone so they can refer to it the next time he/she needs help
- Chris - "Oh, this is an easy mistake to make - I've made this mistake myself (I usually have) - let's search up a solution..." - I'll usually also explain where the mistake is really easy, like how the attachment icon being a paperclip made a lot more sense back when everything was paper...
- Lisa B

Perseverance Predicts Success

Habits of Lifelong Learners

Key Points

- Growth mindset and grit promote learning by making effort a positive thing.
- Presenting errors as essential to the learning process helps learners learn from their mistakes.
- Successful lifelong learners aren’t embarrassed to ask for help.

11:00 - Teaching is a Skill (70 min + 10 min break) - Tim

https://carpentries.github.io/instructor-training/11-practice-teaching/index.html

Lesson Study: Applying a Growth Mindset to Teaching

Giving Feedback (10 min)
We’ll start by observing some examples of Carpentries-style workshop teaching and providing some feedback.
Watch this example teaching video (https://www.youtube.com/watch?v=-ApVt04rB4U) as a group and then give feedback on it. Put your feedback in the Etherpad. Organize your feedback along two axes: positive vs. negative and content (what was said) vs. presentation (how it was said).

Andrew
Content +

- Live coding, narrating the process - could be useful

Content -

- Started presentation almost instantly, no context. Content seems overly technical

Presentation +

- Acknowledges mistakes - but doesn't explain what the mistake is

Presentation -

- Not a welcoming environment (calling out he person who hasn't sat down yet). Lots of language that is demotivating, not helpful. LIghting makes it hard to see the screen

Celia

- Content +
- Goes over what people need to learn???
- Content -
- Very hard to see and follow along. Mathematical content in jumps and starts.

Presentation +

- The process is displayed on a screen and narrated.

Presentation -

- Talking fast; can't see the screen, negative comments (Sit down, Jeez!); Assumes people know things: "It works like you expect, if you haven't seen this before, don't worry about it. Trust me!"

Charlie

Content +

- There was a lot of it?

Content -

- So much jargon! So much assumed knowledge. So much glossing over things and demotivating language around not knowing those things.

Presentation +

- His demeanor was so ridiculous that it sort of grabs your attention as a performance.

Presentation -

- Can't read the screen -- it's tiny! Also very unwelcoming environment.

Chris

Content +

- Subject expertise was there, so it is possible to learn - as opposed to completely unrelated tangents

Content -

- Single format, difficult to see. High use of jargon

Presentation +

- Instructor was in frame, able to (kind of) see screen content.

Presentation -

- Difficult to see, demotivating language and unwelcoming environment

Christine

Content +

- this would all be new to me so I might learn something

Content -

- this would all be new to me so I don't know much about the content. I don't know my objective for his demonstration

Presentation +

- demonstrating on large screen; made mistakes -- good for learners

Presentation -seems unfriendly and unapproachable; keeps using "simple"; moves too fast; turn off phone

-

Debbie

Content +

-

Content -

- I just wasn't following any of the content...got too distracted with the poor presentation!

Presentation +

- Screen was bright and on ;)

Presentation -

- started with an insult "jeez" under his breath
- can't see screen. text too small
- Demotivating language: "this is simple stuff"
- speaks really quickly

Elisa

Content +

- knowledgable

Content -

- lots of jargon with no context, too much content and very fast

Presentation +

- large screen, made mistakes

Presentation -

- text is very small on screen, repeating this is simple/anyone can do this, answers phone but rude to late student, dismisses personal mistakes without explaining mistakes

Emily

Content +

- Seems knowledgeable?

Content -

- Too jargony

Presentation +

- Could he have been using a shared document? That's always helpful in reinforcing what people are seeing in front of them and on a screen

Presentation -

- Small text; not explaining what he was doing; used his phone; spoke to individuals as if they were children

Kelly

Content +

- expert in the field

Content -

- Too much information at once and fast

Presentation +

- Good volume when speaking, loud and clear.

Presentation -

- Demotivating language, jargon, projector display too bright and font is contrasted and too small.

Lisa B

Content +

-

Content -

-

Presentation +

-

Presentation -

-

Lisa N

Content + seems like he was mostly focusing on one topic (functions?)

-

Content - including lots of other concepts (unclear if they were covered earlier)

-

Presentation + saying out loud what he's typing (sometimes)

-

Presentation - so much jargon. talking too fast. screen is small. doesn't seem like he wants to be there.

-

Raymond

Content + content was focused a bit

-

Content - deft keyboard? deep vocabulary, moving concepts around, unclear, mistakes

-

Presentation + the technology worked?

-

Presentation -unwelcoming (sit down), talking fast "simple stuff?" moving too fast, unprepared? too small screen, not asking for questions?

-

Veronica

Content +

-

Content -

-

Presentation +

-

Presentation -

-

Wasila

Content +

- He seems to be an expert

Content -

- lots of terminology without defining it

Presentation +

- Live coding

Presentation -

- demotivating language (lets do something simple, easy like Excel...),
- too fast and jumps around in content
- text too small on screen

Zach

Content +

-

Content -

- Glossed over "flexible binding"
- "This is what you'd expect, if you know anything about functions"
- Too much information in a short amount of time

Presentation +

-

Presentation -

- Getting frustrated at learners not being seated
- Not explaing what mistake he made as he was correcting it
- Turned his back to the audience to gesture at the screen
- No opportunity for learner feedback

Feedback on Yourself (25 min)

1. In breakout rooms of 3
2. Individually, spend 5 minutes preparing to teach a 90-second segment of the lesson episode you chose before the start of the training course. You will not be live coding; you can use the annotation feature in Zoom or slides (but this is not required!). We recommend using this 90 second teaching moment to introduce the topic of your lesson.
3. Get together with your group and have each person teach their segment to the group Keep a strict time limit of 90 seconds per person (one person should be responsible for the timekeeping).
4. After the first person finishes, **the others should give feedback and add that to the Etherpad under the presenter's name**. Use the +/- Content/Presentation feedback structure we used in the last exercise.
5. Rotate who is teaching to the next person and repeat. Everyone in your group should have the opportunity to teach.
6. After everyone has given feedback on all of the videos, return to the main group and review everyone's feedback about you in the Etherpad.

Andrew

Content +

- Great intro, setting expectations
- Like the comparison between find/replace
- sets learning outcomes, uses examples, works through problems to show how to achieve what is being taught

Content -

- maybe a little background information on some terms

Presentation +

- uses visuals and examples

Presentation -

-

Celia

Content +

- nice introduction
- goal described clearly
- gave a quick example at the beginning

Content -

-

Presentation +

- example was well presented and you guided the viewer visually by using the pointer to draw their attention

Presentation -

- Starting with an introductory slide, or no slide, rather than the view of openrefine, will make it easier to follow at the beginning

Charlie

Content +

- Good explanation of why we should learn material and how it pertains to this field of archival
- Well paced slides, liked that there was an activity built into the slides

Content -

- example of data or define data for archiving

Presentation +

- Great job tying presentation to subject audience, clear pacing
- funny, approachable, personalized lesson, engaging

Presentation -

- can't think of anything; more color or graphics in slides when you have more time

Chris

Content +

- explained well that this would help you do t your job better
- Had an example we could follow

Content -

- I wasn't sure what we were going to learn in the course
- I missed the overall goal

Presentation +

- Really good tailoring of examples to the experience of learners
- had slides that were simple

Presentation -

- There were a few talking points that were quick enough that I had a hard time following -- such as when we were figuring out what about call numbers we were searching, I got bogged down in what exactly we were searching (which was discussed quickly) and had a hard time getting to how we were going to search it.

not enough time in this exercise, not Chris's fault

Christine

Content +

- Good explanation of overall goal, had clear examples
- Great clear learning objectives and structure around them

Content -

- A lot of information on one slide
- The slide with good data practice was really tough for me to follow -- so many different point on there (plus the time limit doesn't help)

Presentation +

- Really great practice of mentioning terms we didn't know yet, but explicity saying "We'll define those in a minute, you don't need to know those yet"
- Good clear slides, easy to read

Presentation -

- Also largely due to time limit -- can be tough to understand some of the concepts which were talked over really quickly, like on the "cardinal rules" slide.
- Some amount of graphics would have helped express the complex graphics

Debbie

Content +

- useful information, visuals really helped to emphasized the differences, plain language

Content -

-

Presentation +

- images, good context (+1)

Presentation -

-

Elisa

Content +

- knowledgeable spoke clearly

Content -

- would've liked an explanation of the tool, context for using this tool (when is it helpful?)

Presentation +

- great visual representation of the messy data...shows the importance of cleaning it up and how regular expressions can help

Presentation -

-

Emily

Content +

- explains tool
- clear explanation, spoke clearly

Content -

-

Presentation +

- great representation of messy data (overwhelming!) and so I clearly saw the use of the tool

Presentation -

-

Kelly

Content +

- Mostly clear, plain language
- Good at describing the material

Content -

- There might have been 1 or 2 words (like directories) that might be unfamiliar to a total novice

Presentation +

- Pretty good pace - speaking not too fast or too slowl

Presentation -

-

Lisa B
Content +

-

Content -

-

Presentation +

-

Presentation -

-

Lisa N
Content + gave great examples, and explained what learners should focus on, application

-

Content - the jargons were there, but for context this is a class connected to a previous one so if you didn't attend the first session it could feel a bit confusing

-

Presentation + very welcoming, a good reminder/intro connection, brief and focused

-

Presentation -

-

Raymond
Content + outlined objectives and framed the lesson, included good explanations and examples of how content is relevant in everyday work

-

Content -

-

Presentation + very welcoming,

-

Presentation - a little fast (though probably because of the false time constraints!)

-

Veronica

Content +

-

Content -

-

Presentation +

-

Presentation -

-

Wasila

Content +

- Clear about the objectives of the class, and sequencing through a written lesson plan that is shown.

Content -

- Jumped quickly into detailing an example that's hard to see or follow along with.

Presentation +

- Great concrete visual examples of what the problem is that we'll be handling. Good auditory pacing and eye contact.

Presentation -

- Hard to follow along when someone is scrolling through a web page *and* pay attention to what they're saying at the same time.

Zach

Content +

- Providing good context/background about topic
- clear and informative

Content -

- Maybe some definitions could be incorporated
- alot of information to take in, but necessary

Presentation +

- Good pace in presentation
- overall good presentation skills, good volume and ability to engage readers

Presentation -

-

Break (10 min) - After the above exercise

Feedback Is Hard

Using Feedback (5 min)
Look back at the feedback you received on your teaching in an earlier exercise. How do you feel about this feedback? Is it fair and reasonable? Do you agree with it?
Identify at least one specific change you will make to your teaching based on this feedback. Describe your change in the Etherpad.

- Christine: Fair and reasonable feedback, thanks. I had too much information on one slide. I should break up the info. on that slide. Okay to have funny language or more graphics.
- Wasila: yes, fair and reasonable feedback. Next time I'll start the introduction without projecting the lesson/episode page, or I can project a simple slide with an outline
-
-

Key Points

- Like all other skills, good teaching requires practice and feedback.
- Lesson study is essential to transferring skills among teachers.
- Feedback is most effective when those involved share ground rules and expectations.

12:20 - Wrap-Up and Prep for Tomorrow (20 min) - Tim

https://carpentries.github.io/instructor-training/12-homework/index.html

1. Prepare for the live coding exercises https://carpentries.github.io/instructor-training/14-live/
    1. Reflect on the feedback that you got from your teaching today!
2. . If you haven't already, pick an episode from an existing Software, Data or Library Carpentry lesson and read through it carefully. Tomorrow, you will use this to practice live coding for 3 minutes in groups of three. Your group members will comment on the delivery and content. Recommended episodes are listed here:\

Data Carpentry

Faceting and Clustering in OpenRefine http://datacarpentry.org/OpenRefine-ecology-lesson/01-working-with-openrefine
Basic Queries in SQL http://datacarpentry.org/sql-ecology-lesson/01-sql-basic-queries/
Starting with Data in R http://datacarpentry.org/R-ecology-lesson/02-starting-with-data.html
Starting with Data in Python http://datacarpentry.org/python-ecology-lesson/02-starting-with-data/

Library Carpentry

Working with Files and Directories in the Unix Shell https://librarycarpentry.github.io/lc-shell/03-

working-with-files-and-folders/index.html
Faceting and filtering in Open Refine https://librarycarpentry.github.io/lc-open-refine/04-faceting-and-filtering/index.html
Importing data into Open Refine https://librarycarpentry.org/lc-open-refine/02-importing-data/index.html
For loops in Python https://librarycarpentry.github.io/lc-python-intro/12-for-loops/index.html
Dates as Data (Spreadsheet) https://librarycarpentry.org/lc-spreadsheets/03-dates-as-data/index.html
Basic quality assurance (Spreadsheet)
https://librarycarpentry.org/lc-spreadsheets/04-quality-control/index.html
Getting started with git: https://librarycarpentry.org/lc-git/02-getting-started/index.html

Software Carpentry
Working with Files and Directories in the Unix Shell https://swcarpentry.github.io/shell-novice/03-create/
Tracking Changes in Git https://swcarpentry.github.io/git-novice/04-changes/
Selecting Data in SQL https://swcarpentry.github.io/sql-novice-survey/01-select/
Repeating Actions with Loops in Python https://swcarpentry.github.io/python-novice-inflammation/04-loop/
Exploring Data Frames in R https://swcarpentry.github.io/r-novice-gapminder/05-data-structures-part2/

Feedback (5 min)
The Trainer(s) will ask for feedback on the day in some form.

Day two feedback form: https://forms.gle/RELB3G2E71haMNkd6

Reflecting on the Day (5 min)
Before we wrap up for the day, take 5 minutes to think over everything we covered today. On a piece of paper, write down something that captures what you want to remember about the day. The Trainers won't look at this - it's just for you.
If you don't know where to start, consider the following list for a starting point:

- draw a concept map, connecting the material
- draw pictures or a comic depicting one of the day's concepts
- write an outline of the topics we covered
- write a paragraph or "journal" entry about your experience of the training today
- write down one thing that struck you the most

Day One

9am - Welcome (30 min) - Ariel

Code of Conduct:
https://docs.carpentries.org/topic_folders/policies/code-of-conduct.html

Introductions

Learner Introductions: Name (Pronouns), Role, Institution, Email + What is your goal for this training?

Please sign in so we can record your attendance. Then we will share as a group!

- Andrew Carlos (He/Him), Web Services Librarian, Cal State East Bay, andrew.carlos@csueastbay.edu - become comfortable with teaching more technical materials to folks.
- Wasila Dahdul (She/her), Data Curation Librarian, UC Irvine, wdahdul@uci.edu - further develop my teaching skills and be more intentional in creating lessons/instruction sessions
- Raymond Pun (he/him), Instruction/Research Librarian, Alder Graduate School of Education, raypun101@gmail.com - enhance ability to teach technical skills/topics for in-person/online
- Celia Emmelhainz (She/her), Anthropology & Qualitative Research Librarian, UC Berkeley, emmelhainz@berkeley.edu - develop teaching skills.
- Zach Vowell (he/him), Digital Archivist, California Polytechnic State University, San Luis Obispo, zvowell@calpoly.edu, improve my instruction skills related to bash shell and other novice computing topics
- Elisa Rodrigues (She/her) Library Systems Assistant, University of San Francisco, erodrigues2@usfca.edu - keep on top my tech skills by teaching, even when I don't get to use them in my daily work
- Kelly Maldonado (She/Her/Hers) Reference Librarian I, Whittier Public Library, CA Kmaldonado@whittierlibrary.org- Interested in becoming a certified instructor in carpentries.
- Emily Chan (She/her/hers), Associate Dean, Research & Scholarship, San Jose State University, emily.chan@sjsu.edu - maintain my awareness of what's available to support faculty research and scholarship and how to best present that information
- Veronica Casanova (She/her/hers), Librarian IV, Tulare County Library System, Veronica.Casanova@tularecountylibrary.org, Adding to my "tool belt" of knowledge
- Charlie Macquarie (he/him/his), Digital Archivist, UC San Francisco. Charles.Macquarie@ucsf.edu. Develop my teaching skills and learn where pedagogy could or should be different when informed by cognitive/education research!
- Debbie Huey (she/her/hers), Community Technology Specialist, San Mateo County LIbraries. huey@smcl.org. I teach basic computer classes to mostly our senior patrons, and I have no prior teaching experience. Hoping to gain more skills, and to expand to teaching our younger patrons.
- Lisa Ngo (she/her/hers), Engineering LIbrarian, UC Berkeley, lngo@berkeley.edu + develop skills for teaching technical topics, and general instructional principles refresher
- Christine Ivison, Computer Coach Coordinator at Huntington Beach Public Library - I teach/taught monthly classes to patrons on various technology subjects and sometimes brought in outside speakers. I also supervise a large group of volunteers.
- Chris Kyauk (he / him), Coordinator of Innovation and Cultivation at Alameda County Library (Librarian IV) - Responsible for coordinating & teaching making / design thinking to the public and staff. Want to be a better teacher.
- Lisa Bartle. Reference Librarian, CSU San Bernardino. Learn new things about teaching and learning.

Instructor Training Workshop Overview

- How learning works
- Building teaching skill
- Creating a positive learning environment
- Carpentry history and culture

A Brief Overview of the Carpentries
https://carpentries.org/workshops/

Key Points:

- The Carpentries are communities of practice. We strive to provide a welcoming environment for all learners and take our Code of Conduct seriously.
- This episode sets the stage for the entire workshop. The introductions and exercises help everyone begin to develop a relationship and trust.
- This workshop will cover general teaching pedagogy and how it applies specifically to the Carpentries.
- Learner motivation and prior knowledge vary widely, but can be assessed with a quick multiple choice question.

9:30 - Building Skills with Practice (60 min) - Ariel

https://carpentries.github.io/instructor-training/02-practice-learning/index.html

The Carpentries Pedagogical Model

Acquisition of Skill
https://carpentries.github.io/instructor-training/fig/skill-level.svg

- Novice
- Competent practitioner
- Expert

The Importance of Going Slowly
https://carpentries.github.io/instructor-training/fig/mental_models.svg

Self-Reflection (10 min)
What is a topic/area where you are a novice? How about a competent practioner? An expert? Share your thoughts below:

- Christine: Novice - Coding, Makerspace, etc.; Competent: Library databases, Office (but not Access) and Google Free Apps; Expert: helping people overall

- Kelly Maldonado -Novice- Python, coding; Competant Practioner- YA Collection Development; Expert- Outreach and engagement, customer service, library science
- Veronica - Novice-Coding/Computer Programming, Competent practioner-Faciliating library workshops, Expert-Managing Grants
- Debbie: Novice-programming, computational thinking; Competent-Excel, Makerspace tools; Expert- Digital art tools, helping seniors learn basic technology skills
- Ray - Novice: coding and programing, AI. Competent practitoner: resource sharing/copyright. Expert: poker
- Wasila Dahdul: Novice: Python, Competent Practitioner: Excel, Expert: ontologies/controlled

vocabularies

- Chris: Novice: Data science, coding, sewing; Competent: Desktop Support / Systems Administration / Making (3D Printing, Laser Cutting, etc.) ; Expert: Technobabble: making up an answer when I don't actually know the answer, information analysis, design thinking
- Emily - Novice - coding; Competent - Excel; Expert - talking and yet saying nothing
- Lisa: Novice: Python, competent practitioner: LaTeX, Expert: Zotero
- Zach: novice in coding, competent practitioner in command line interfaces, expert in digital asset management
- Andrew - Novice - ScholComm, Competent - coding/instructional design, Expert - Tetris
- Charlie. Novice at auto repair. Competent practitioner for Python and Unix command-line digital preservation stuff. Expert at Archival practice, bicycle repair.
- Elisa - Novice: writing code, competent: troubleshooting code, Expert: troubleshooting excel/office
- Celia: Novice: quant text analysis, competent: genealogy, expert: writing.
- Lisa: Novice: Digital Art software; Competent: PHP, CSS; Expert: Zotero, library databases

Identifying and Correcting Misconceptions
Formative assessment
Summative assessment

Formative Assessments Come in Many Forms

What kinds of Formative Assessment techniques do you know? (10 min)

- Christine - Just ask if there are any questions; if student has laptop ask them to follow along and let me know if they're having problems. I've wanted students to go to a small computer lab after class and practice or do homework, and they don't usually go for it.
- Chris: Competency tests, checking in with students, evaluative surveys, evaluation projects
- Ray: 1 minute reflection and questions on an index card, etc or exit ticketing quiz
- Kelly- checking in with students after each new concept to ensure everyone understands before moving on, asking questions about content just learned to see if it was absorbed.
- Debbie - asking students if they have questions, asking students a question (pop quiz!) to assess knowledge
- Wasila - Asking for questions after covering chunks of new material; on zoom, asking students to use the yes/no icons in chat window for understanding
- Celia: Quick polls for online engagement; in person, walk around and see how they're doing.
- Emily - Post-its, 1-minute papers, Everywhere polls, Google Docs/Sheets that ask students to openly reflect on their experiences
- Elisa: following up at a later time (if they have questions that they've thought of since the class/training), having a second trainer to check in/observing on learners
- andrew - 1 minute papers, muddiest point, exit tickets, 1 sentence summaries
- Zach: asking if anyone has questions as I move through the instruction; going around the computer lab and visually checking if learners are on the same page with an activity
- Charlie - calling on students, challenges within instruction and asking learners to explain how they solved them, just asking what questions learners have, using "annotate" feature of zoom to ask people to label things or point to things.
- Lisa Bartle - I've been using PlayPosit recently, taking videos and adding formative assessment.

Simple questions after a couple of minutes to make sure they didn't zone out. As a librarain, I don't do summative assessment. Though mid-term exams, final exams and essays, I would think fall into that.

Lisa N. - pre/post surveys, polls, colored sticky notes if doing coding/hands on exercises, partner discussion + report out
Veronica - Visual and Facial cues for general understanding, after giving instructions I ask if the topic is understood.

Everywhere poll: https://www.polleverywhere.com
Mentimeter: https://www.mentimeter.com

Identify the Misconceptions (5 min)
Choose one of the wrong answers to the question below and write in the Etherpad what the misconception is associated with that wrong answer.
Q: what is 27 + 15 ?
a) 42
b) 32
c) 312
d) 33

- Christine: B: person doesn't know how to carry the "1": D: person doesn't really know how to add numbers except for small numbers
- Chris: b- Not knowing what to do with powers of ten, what to do with it
- Kelly- c the person may not understand some basic arithmetic and how to format this problem to give the correct answer.
- Andrew - 312 - adding each term separtely - doens't understand powers of ten?
- Elisa : B: 32 - person doesn't understand carrying the '1'
- Debbie: for C, someone might be thinking to add each of the first numbers together and then the second numbers, then smashing the answers together.
- Wasila - For D, 33, the person add the numbers in each column completely without carrying over to the next column
- Emily - c) someone may not know that the 1 should be added to the 3 (in the tens place)
- Zach - b) not adding the 1 to the tens place
- Lisa Bartle -- I'm at a lost. I'll read other answers.
- Charlie - B) neglecting the tens in 7 + 5.
- Veronica - 32, person adding it quickly and did not carry the "1"
- Ray - c 312 because the person thinks + is multiplying instead

Handling Outcomes (10 min)

Formative assessments allow us as instructors to adapt our instruction to our audience. What should we do as instructors if the class votes for:

1. mostly one of the wrong answers?
2. mostly the right answer?
3. an even spread among options?

In breakout rooms, discuss what you would do for each of the scenarios above and write your answers below:

- Chris / Zach / Wasila: 1. Try a different approach, specifically give more attention to the misconception, get at the root cause of the misconception; 2. More than one instructor in the room; other instructor can focus on the other people who got it wrong (either student assistant / volunteer) ; check in with neighbor. Have people who got it right explain why it's right. ; 3. Ask all people who chose options to explain their thought options
- Emily/Celia/Charlie: mostly wrong, then pause and explain/correct what wasn't conveyed well (try explaining differently); mostly right, try leveling it to a slightly harder question (or just move on!); even spread: have them explain to each other how they arrived at their choice, so that the answer hopefully becomes clear to all.
- Debbie/Kelly/ Tim - mostly wrong: go over content again; mostly right: continue but include right answer and offer learners opportunities to work with instructor after class; even spread: same as mostly wrong and go over content again, review concepts again quickly and ask someone next to them who understands, or meet with learner after
- Lisa N, Lisa B, Elisa, Veronica: 1. mostly wrong: review concept again and include extra practice/exercise if time to reinforce. 2. mostly right: check in with students who got it wrong (if not too many); group students together to help each other solve the problem. 3. even spread: again, try to group students together to work together. Concerns about making sure students who understand still have opportunities to learn new material.
- **Andrew/Ray/Christine -** 1. Back to basics - review concepts again. Have someone who got it correct explain to the class. 2. Back to Basics regarding concepts, but also maybe think about pushing problems that are a bit more complex to push their thinking. 3. Think pair share - match up folks with others and have them explain their thought process. Remidn everyone of basic arithmetic. (all of this depends on the size of the group though!)

Modeling Novice Mental Models (10-15 min)

Take 10 minutes to create a multiple choice question related to a topic you intend to teach. Type it below and explain the diagnostic power of each its distractors, i.e., what misconception is each distractor meant to identify?

-

Formative Assessments Should be Frequent

Key Points:

- Our goal when teaching novices is to help them construct useful mental models.
- This requires practice and feedback.
- Formative assessments provide practice for learners and feedback to learners and instructors.

10:30 - Break (10 min)

10:40 - Expertise and Instruction (50 min) - Ariel

https://carpentries.github.io/instructor-training/03-expertise/index.html

What Makes an Expert?

Think about your experience as an Expert (5 min)
What is something that you're an expert in (you can scroll back to the last lesson if you forgot what you said)? How does your experience when you're acting as an expert differ from when you're not an expert?

- Christine: When I'm a novice, I have a background fear of not knowing enough or being asked a question that I don't know the answer or may not know how to find the answer. When I feel competent/expert, that fear is gone. I'm much more confident, a better and more personable teacher, and even if I don't know an answer, I know I can find it for someone.I'm always a better teacher on any topic or technology that I use regularly for work or personal.
- Kelly- I am an expert in outreach and engagement for public libraries. My experience when acting as an expert can differ when faced with topics I am a novice in, such as coding. I am less confident about my skills as a coder and would hesitate to say my library offers coding instruction because of this.
- Elisa - Excel/office: I probably have more confidence and more willing to shut down people who try to take over my class, which happens. Otherwise, I always feel like there is more for me to know and parts I'm unfamiliar with and willing to learn and share.
- Debbie- I'm probably not a true expert, but in the view of the student, I might be purely because I know enough for them. So when I say I'm an expert in digital art tools, I'm probably an expert to most library patrons. But when I talk to my art friends, I'm no longer an expert! When I'm an "expert" I'm able to teach quicker.
- Emily - I am an expert at talking but not saying anything, particularly right now with COVID-19 concerns. I am highly aware of what I can and cannot say, so I choose my words carefully. People get vagueness and ambiguity from our discussions. If I didn't know what I could/could not say, I think I'd be more apt to speculate.
- Wasila: When I'm an expert (for example, with controlled vocabularies), I know the common pitfalls or issues that might come up, and I know how to avoid them. As a novice, I'm not sure what problems might creep up, and I have to proceed slowly and check my work as I go more carefully
- Zach: as an expert, I'm quick to identify the task(s) that need to be completed to reach a certain

goal, and once the tasks are identified, I can prioritize and possibly even delegate
- Ray: poker - mindset, thinking not about just about winning or surviving but maximizing the win strategically, having contingency plans (know when to quit, call or raise) and reading opponents' body language, EQ.. if you are not an expert, you would just play to win & no strategy, not reading the other participants' feeling.

Andrew - Tetris - Usually i'm in a flow and don't think about it. However, when i'm teaching/talking about it to other people, I make sure to talk about the basics and encourage them to try differente approaches to solving the puzzles they are presented with in tetris. Most people don't think about tips and tricks with tetris (like t-spins), so don't start there cause its complicated! start with the basics then build on the basics as they get better
Lisa Bartle: I'm certainly cockier. When teaching, I need to make an effort to step back and not know the material, so I can teach it better. The need to take complexity and simplify it. When I'm an expert learner, I'm seeking complexity beyond my expert knowledge.
Veronica: As an expert, I know what I am doing and am excited to do it. I almost have a "system". As a novice, I am apprehensive.
Lisa N. : I do a lot more googling when I'm not an expert! With Zotero, where I sort of feel like I'm an expert, I have a better understanding of what might be going wrong based on how the system is acting so I'm more likely to fiddle with the system myself first before going to google.
Celia: When I'm an expert I tend to do a lot of things without fully thinking about them in sequence, because I just sort of "know" the process and correct order. If I'm competent or novice, there's a lot more deliberate thinking (and looking stuff up or asking other people) that goes into the process.

Charlie. Acting as an expert I tend to take a lot of shortcuts or use a lot of shorthand to move between topics or ideas or tools or practices. I also tend to really embrace the use of highly-technical (but also jargoney) words. With bike repair this is often through brand names and abbreviations for those brand names.
Chris: I can just talk about it on the fly, just using what I have in my memory. Whether or not that information is right or not; I just think it's right...

Fluid Representations (5 min)
Give at least one example of a fluid representation that you might use in a workshop or lesson that you teach.

- Andrew - I feel like this is something that comes up alot in our infolit sessions - definitely using common langauge, rather than library jargon. or even in signage - when you tell someone to go to the Circulation Desk, they might not know what you mean. but that also requires a lot more words to desribe the location.
- Chris - input / output OR mouse / screen OR touchscreen / phone screen OR a VR controller / headset OR punch cards / printer...describing just what a computer uses to take in and put out infromation.
- Zach: operating system, Mac, Windows, PC, Linux; second Charlie's arguments, flags, and options
- Kelly- tablet, ipad; e-resources, e-book; opac, catalog;
- Debbie- in my technology classes, I make sure to not use too much computer jargon. I'll also use a lot of metaphors to explain more complicated concepts (i.e. "the cloud").
- Christine: Cloud computing is a scary and confusing topic to some folks. If in an Excel class, I can get people with advanced knowledge or beginners. They may not even know what a cell is so you have to do a lot of on-screen demonstration to show where everything is, whereas with the more advanced person, they have definitely come to the wrong class.

- Veronica - The word "MakerSpace" and "Creative Space" in my rural community throws people off. I feel like people are REALLY nervous about these terms, even though they already create and learn from each other.
- Elisa - I try to avoid jargon and depends on the audience, 'browser', 'app', 'application', 'program' is something that I find hard to explain to people since it is used so interchangable
- Charlie - with Unix this is so common for me because there are so many different terms for things, I especially find this with "arguments", "flags", and "options" which can either mean different things or the same things and will often use them interchangably without clarifying either that they mean the same thing or that they are technically different depending on the situation.
- Emily - Search terms -- keywords vs natural language vs thesaurus vs subject terms vs author-supplied key terms, etc.
- Wasila - terms and how they can be constructed in different ways in controlled vocabularies; this can get confusing to users, but an expert would know that the end result is the same
- Celia: CAQDAS, qualitative analysis software, qualitative software, [specific software name]; research data management vs. data curation;
- Ray - teaching algorithmic biases in search engines (google vs databases) and as keywords in searches - different databases, etc as Emily said +1

Lisa N. : in engineering, just using the wod "library"/"libraries" means something so different to students

Expert Awareness Gap (10 min)

1. Is there anything you're learning how to do right now? Can you identify something that you still need to think about, but your teacher can do without thinking about it?
2. Think about the area of expertise you identified earlier. What could a potential **Expert Awareness Gap** be?

Take 3 minutes to write in the etherpad below and then we will discuss in breakout rooms

- Andrew - 1. novice in ScholComm. Others who are experts are quick to refer to copyright issues, or to other court decisions or even just technology/best practices that I'm not aware of. 2) Theres definitely an expert awareness gap in Tetris - lots of high level techniques that people wont just stumble upon on their own - they have to be purposeful in finding that information.
- Kelly -Novice in Coding. Others that are experts have command libraries/ language memorized, whereas I am still learning.
- Christine: 1) novice - Makerspace - I'd like to get better at 3D printers but working in lab is not an option for me right now and teacher is doing online workshops but I really want hands-on 2) I get so many novices in my classes but I also always assume patrons know how to click (left and right), highlight, save but they don't
- Debbie: 1) programming, computational language-just that general way of thinking to write code...it's not automatic for me. 2) digital art tools...probably just some basic art concepts and jargon
- Zach: 1) I've always had trouble, and still do, really understanding loops in coding. 2) for digital asset management, the importance of consistently assigning identifiers
- Wasila - 1) novice at Unix, still working at remembering the functions for single keys; 2) troubleshooting why datasets don't load into my project's database
- Chris - CAD Modeling; others who are experts will refer to tools or principles that I don't really grasp yet like overhang principles.
- Emily - Novice - coding, remembering the terms and their definitions; expert awareness gap - again terminology and language
- Ray - Novice - AI - throwing commonly understood concepts, applications or studies that I am not

aware of. Others who are experts know exactly the most updated info/trend in the field

- Charlie - Novice in autorepair. I need to be told what the name of a part or component is and what it does, I don't know enough to just Search it up!. When I'm an expert (i.e. bikerepair) I take a lot of terminology for granted, this feels especially applicable with names of tools.
- Lisa N.: Novice with Python - takes me forever to write commands properly and have to refer to documentation

Dismissive Language

Changing Your Language (5 min)

What other words or phrases can have the effect of demotivating learners? What alternatives can we use to express this meaning in a positive and motivational way? Make a list of demotivating words/phrases and alternatives.

- Christine: instead of saying "go here __ or click here" I find it much better to show. Also, students love handouts but they get so immersed sometimes in reading that they don't watch. Sometimes I just show over and over again. I probably should demonstrate more but should make more of an effort to avoid talking about something that is slightly different than what I am demonstrating
- Andrew: instead of saying "don't do this", what about something like "lets try this approach". I use a lot of We and Lets, so its not like pointing out one specific person
- Zach: "now you'll cd into this directory" (even after going over what "cd" and "directory" mean). Possible alternative: "now you'll move from your current folder into this folder, and we'll be using the command cd to move around"
- Debbie: instead of "just do this" i can try to say, "we can do this"
- Kelly- it's easy; an alternative to beginning an example with "it's easy," is, "you will need to do...", "Take things slow," "refer to any instructions, if you get stuck." "try out this, if you get it wrong, continue to practice."
- Wasila: "last time we met, I showed you how to do that..."/"recall from last time..."; instead of that phrase, just go ahead and explain the answer
- Emily - "What did you do?" (puts the blame on the user) --> "Let's see if this will work..."; "What error page are you getting?" could be another way to approach the problem
- Ray- instead of saying "everyone else has gotten it...." - say something else but that- +1Chris response
- Chris - "Oh, that's simple to do" => "Let's work through how to do this..." // I've been thinking lately a little about gendered commands. Like man page, which is really just "manual page", but...
- Charlie - "Just" or "Quickly" or "does that make sense?" (I guess the latter might not be inherently demotivating but I struggle with how to effectively make space for someone to say "NO! IT DOESN'T MAKE SENSE!"). One thing I often do is say "I went through that really fast, so let's do it again"
- Celia - "It shouldn't be too hard, you just..."

The Importance of Practice (Again)

Key Points:

- Experts face challenges when teaching novices due to expert awareness gap

- Expert awareness gap: knowing something so well that it seems easy when it’s not.
- With practice, we can learn to overcome our expert awareness gap

11:30 - Break (10min)

11:40 - Memory and Cognitive Load (45 min) - Tim

https://carpentries.github.io/instructor-training/05-memory/index.html

Types of Memory

Test Your Working Memory (5 min)
This website https://miku.g
ithub.io/activememory/ implements a short test of working memory. In this test, you will see about twenty words, each for a short amount of time. Try to memorize as many as you can.

What was your score? Write your answer below.

- 9 of 20
- 6 of 20
- Wasila 5 of 20
- Ariel - 8/20
- Debbie: 6
- Zach: 7/20
- Elisa 5/20
- Ray 6/20
- Christine 5
- Emily - 3/20 hahahah (my husband is talking in the backgroud)
- Kelly- first time 3/20, 2nd time 6/20
- Charlie: 4/20, then 5/20
- Chris - 7/20 then 6/20

Strategies For Memory Management

Improving Short-term Memory with Chunking (5 min)
Repeat the memory exercise you did earlier, but this time, try to form short stories or phrases from the words you see.
Write the number of words you remembered in the Etherpad. How does this compare with your first attempt?

- Celia: 8/20, about the same, as even stories were hard to string along/come up with quickly
- Ray - 5/20 i became a bit more focused in telling a story but still only recalled the last words...
- Kelly- 7/20 this time
- 7/20 - the word luckily flowed into a semi story about consumer beds and economic crisis haha :)
- Emily - 6/20 - better, I tried to create a story before using the words, but it was hard to concentrate with my noise levels (he just got off his call, so now I can concentrate). For me, the words flash

too quickly to create a coherent mind map to remember the words. - i was too distracted coming up with a story!
- Debbie: 7. Better this time!
- Ariel - 6/20, worse this time! My story was better the first time :P
- Charlie I got 7 this time! Still stuck at 5 for the first two times though.
- Zach: 4/20 this time, had a hard time creating a story
- Christine: I tried a story but I need more time! still 5/20; when I memorize words I do better;
- Wasila: 7/20 , last time 5/20

Active Learning Through Formative Assessment

Concept Maps as Instructional Planning Tools

Example concept maps:
https://carpentries.github.io/instructor-training/fig/array-math.png
https://carpentries.github.io/instructor-training/fig/conditionals.png
https://carpentries.github.io/instructor-training/fig/create-destroy.png
https://carpentries.github.io/instructor-training/fig/dict-set.png
https://carpentries.github.io/instructor-training/fig/io.png
https://carpentries.github.io/instructor-training/fig/git_concept_map.png
https://carpentries.github.io/instructor-training/fig/lists-loops.png

Concept Mapping (10 min)
Create a hand-drawn concept map for a part of a lesson you would teach in five minutes (ie. the amount of material you would teach before doing a formative assessment). You can use the same subject about which you created a multiple choice question, or a different subject. Trade with a partner, and critique each other's maps. Are there any concepts missing in your partner's map that you would include? Are there more than a handful of concepts in your map? If so, how would you re-divide those concepts to avoid overwhelming your learners' working memory?
Take 10 minutes to draw the concept maps and share with your neighbor. Write "*done*" in the chat once you have finished.

Write done below:
Andrew - Done
Christine - Done
Celia - Done
Emily - Done
Zach - Done
Chris - Done
Debbie - Done
Ray - Done
Charlie - Done
`

Other Uses of Concept Maps

Why Guided-Practice is Important

Faded Examples

```
# total_length(["red", "green", "blue"]) => 12
def total_length(words):
    total = 0
    for word in words:
        total += len(word)
    return total

# word_lengths(["red", "green", "blue"]) => [3, 5, 4]
def word_lengths(words):
    lengths = ____
    for word in words:
        lengths ____
    return lengths

# concatenate_all(["red", "green", "blue"]) => "redgreenblue"
def concatenate_all(words):
    result = ____
    for ____ in ____:
        ____
    return result

# acronymize(["red", "green", "blue"]) => "RGB"
def acronymize(words):
    ____
```

Create a Faded Example from a Lesson (10 min)
The following exercise should be done in groups of 2-3.

1. Pick a block of code from an existing Carpentries lesson, or from another lesson you have taught recently.
2. Replace 2-3 pieces of the code with a blank.
3. Write a question to test the student's ability to correctly fill in that blank.
4. Paste your faded example in the Etherpad.

Summary

Key Points

- Most adults can store only a few items in short-term memory for a few seconds before they lose them again.
- Things seen together are remembered (or mis-remembered) in chunks.
- Teaching consists of loading short-term memory and reinforcing it long enough for items to be transferred to long-term memory.
- Use formative assessments to avoid overloading short-term memory.

12:25 - Building Skill with Feedback (20 min) - Tim

https://carpentries.github.io/instructor-training/06-feedback/index.html

Surveys
For links to our surveys see: https://carpentries.github.io/instructor-training/06-feedback/#surveys

Minute Cards

One-Up, One-Down

Give Us Feedback (5 minutes)
Day one feedback form: https://forms.gle/RELB3G2E71haMNkd6

Key Points

- Give your learners time to fill out the post-workshop survey at the end of your workshop.
- Take the time to respond to your learners' feedback.