Welcome to The Carpentries Etherpad!

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

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https://smithsonianworkshops.github.io/2020-04-27-ttt-smithsonian/

https://carpentries.github.io/instructor-training/

https://datascience.si.edu/carpentries

Sign in: Name, SI Unit, Email, Twitter (optional)
Please sign in so we can record your attendance.

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Please fill out the pre-training survey at https://www.surveymonkey.com/r/instructor_training_pre_survey?workshop_id=2020-04-27-ttt-smithsonian

You can keep track of the time in your current timezone at https://timeanddate.com/worldclock.

I. Welcome

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

Introductions

Information for Today's Learners

1. Add your name to the Etherpad above
2. Introduce yourselves! In your introduction, (a) explain your work in 3 words and (b) say something you are proud of (not necessarily related to research or teaching).

Jim Muirhead - Modelling Biological Invasions. Been a lindy hopper for 11 years.

Omar Laurino - Astronomical Data Analysis. Fostering more modern approaches in a 25 years old project!
Bruno de Medeiros - Insect, plant evolution. Found a pidgeon parasite yesterday while in quarantine.
Michael Lonneman - Marine data management - Figured out how to embed a google captcha in a shiny app after many frustrating hours yesterday
Corey DIPietro -- Data Management; Cleanup; Collab. Nomenclature insert into XG/AAT schema
Rayvn Manuel - exciting,innovation,cross-cultural,figured out an objective way to set boundaries for committments in which I invest my time.

Our First Exercise (2 min)
In the Etherpad, write down your name, the best class you ever took (or one class from your top ten, if you can't decide), and what made it so great.
Jim Muirhead - Aquatic Invertebrates of Alberta (undergrad). Class notes written on the chalkboard were highly organized in a hierarchical manner and easy to follow.
Rayvn Manuel - Geometry - the teacher was able to explain how to use proofs in a way that helped me excel in the course
Bruno de Medeiros - Probability. I took this in my first year as PhD student to strengthen statistical skills. As an undergrad, I took courses on the topic but clearly didn't stick. This one had a great instructor and exercises that really worked for long term.
Omar Laurino - Analytical Mechanics back in College - Teacher was great at bringing even the most boring equations to life by recounting his own anecdotes about the people involved.
Michael Lonneman - Seminar on socio-ecological systems, was able to bring together ecologists and anthropologists, introduce concepts related to both fields, and get both groups to collaborate and learn effectively together
Corey DiPietro - instructor was mentor and used lots of practical applications

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

Instructor Training Workshop Overview

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

Assessing Trainee Motivation and Prior Knowledge

Background (3 min)
Have you ever participated in a Software, Data or Library Carpentry Workshop?

- Yes, I have taken a workshop. ++
- Yes, I have been a workshop helper. +
- Yes, I organized a workshop.
- No, but I am familiar with what is taught at a workshop. +++
- No, and I am not familiar with what is taught at a workshop. +

Which of these most accurately describes your teaching experience?

- I have been a graduate or undergraduate teaching assistant for a university/college course. +++

- I have not had any teaching experience in the past.
- I have taught a seminar, workshop, or other short or informal course.+++
- I have been the instructor-of-record for my own university/college course.+
- I have taught at the primary education level. +
- I have taught informally through outreach programs, hackathons, laboratory demonstrations, and similar activities. ++++

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.

II. Building Skill with Practice
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

Cognitive Development and Mental Models (5 min)
In the Etherpad, write your primary research domain or area of expertise and some aspects of the mental model you use to frame and understand your work. What concepts/facts are included? What types of relationships are included?

- Jim Muirhead - Biological invasions. Have to think about species biology, dispersal across different temporal and spatial scales, statistics, computer science. Draw connections from other fields that use similar frameworks. Ex. epidemiology, network theory, landscape ecology.
- Omar Laurino - As a Software Developer, every time you start a new project you are kind of a novice of that problem, and you have to use your expertise to build the solution from the ground up. I try to be an expert in testing. How to use test doubles, how to use Test Driven Development. Then, like a novice, build simple connections that make the tests pass. Then use my expertise to refine the code in such a way that is maintainable, efficient, and generally meets the requirements. When to use functions rather than classes, when to use dictionaries rather than complex data structures, how to separate code into effective layers, etc. Use effective architectures for different problem sets.
- Bruno de Medeiros - Insect-plant coevolution. Facts: insects and plants are some o the most diverse organisms on earth, most insect species feed on or otherwise interact with plants, plants have many defenses against harmful insects and means of attracting beneficial ones. Concepts: New species arise by some form of reproductive isolation, reproductive isolation can be a result of natural selection or mate choice, species interactions generate pressure for evolutionary change in other species; these pressures may have feedbacks, generating what we call coevolution .

Connections: when insects and plants interact, their traits can generate reproductive isolation on the other species; evolutionary changes in their traits generate new changes; new changes generate chances for new species.
- Michael Lonneman - Biological and ecological near-shore marine data management - Draw on both sound data management practices and ecological relationships across spatial and temporal scales. Consider how to both manage data to make sure it maintains integrity while also being analysis-friendly for scientists.
- Corey DIPietro Collections Information Management = Relational database models/local model or schema; Museum Workflows (Spectrum); Museum best practices + long term usability
- Rayvn Manuel : Software Engineer/Interactive Developer => hardware and network requirements; educational goals; accessibility compliance goals; technology stack & programming language; data storagage needs and schema; stakholder requirements; location of interactive in the gallery space; access to application - web-based/on-premise or both;

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

How "Knowledge" Gets in the Way

Misconceptions

- Factual errors
- Broken models
- Fundamental beliefs

Identifying and Correcting Misconceptions
Formative assessment
Summative assessment

Repetition vs.Reflective practice

Formative Assessments Come in Many Forms

Identify the Misconceptions (10 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

- Jim Muirhead b) 32 - They know it's larger than 27, but unsure of how much. Also just added the ones position and forgot about the 10's.
- Omar Laurino - 32. Did not carry the 1 from 7+5?
- Bruno de Medeiros - 32, summed up 5+7 and forgot to carry over (not sure if correct term in English!)
- Michael Lonneman - 312 - wrote out addition on paper and did not carry the digit correctly to the next space
- Corey DIPietro 32 -- person added the 5 and 7 but forgot to add 10?
- Rayvn Manuel 312 - by adding the 5+ 7 and 1+2 and not understanding the decimal system - or familiarity with another system of math

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?

For one of the above, enter your answer below:

- Jim Muirhead
- Omar Laurino
- Bruno de Medeiros
- Michael Lonneman
- Corey DIPietro
- Rayvn Manuel

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 into the Etherpad and explain the diagnostic power of each its distractors, i.e., what misconception is each distractor meant to identify?

- Jim Muirhead
- Omar Laurino
- Bruno de Medeiros
- Michael Lonneman
- Corey DIPietro
- Rayvn Manuel

Formative Assessments Should be Frequent

How Many? (5 min)
The Carpentries use formative assessments often. How many have we done since the start of this workshop? Put your guess in the Etherpad along with one example and the purpose that assessment served.

    - Jim Muirhead - 4: The cognitive assessment was designed to see whether we understood that concept by drawing from examples in our own experience.
- Omar Laurino - 4, not including this one ;) This assessment probes whether we understand what an assessment is and if we can recognize one?
- Bruno de Medeiros - 2: identify misconceptions - asses wheter we understand how to formulate a questions that clearly identifies a misconsception
- Michael Lonneman - 3: Favorite class: Answer may reflect learner's mental model of teaching and how their favorite class connected those concepts to create a positive learning experience
- Corey DIPietro 4 -- MCQ -- predictively thinking about why misconceptions may occur
- Rayvn Manuel 2: Mental Model - expert reflections - to understand all the components which leads to how we understand our knowledge domain.

Confronting the Contradiction (Optional)
Describe a misconception you have encountered in your own learning or teaching and how to get learners to confront it.

- Jim Muirhead
- Omar Laurino
- Bruno de Medeiros
- Michael Lonneman
- Corey DIPietro
- Rayvn Manuel

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.

III. Expertise and Instruction
https://carpentries.github.io/instructor-training/03-expertise/index.html

What Makes an Expert?

What Is an Expert? (5 min)
Name someone that you think is an expert (doesn't matter what they're an expert in). As an expert, what makes them special or different from other people?

- Jim Muirhead Mark Lewis - They are able to explain complex problems using relatively simple language.
- Omar Laurino Uncle Bob Martin. Decades of experience, ability to come with innovative architectures based on experience.
- Bruno de Medeiros John Wakeley (biologist). Was taling about him yesterday, understands deeply his (complicated) field and is able to break it down to others and explain how it works at different levels of expertise.
- Michael Lonneman - Related to my area of interest: Hadley wickham - Writes both commonly used packages in R and is a great author of books explaining beginner to advanced topics in R
- Corey DIPietro -- Ken Aung: Experience/Knowlege with Oracle/SQL
- Rayvn Manuel : Bob Ross - the painter - not only knowing how to apply the technical aspects of painting but also how to compensate for errors along with tips, tricks and short-cuts to achieve specific outcomes

What is something that you're an expert in? How does your experience when you're acting as an expert differ from when you're not an expert?

- Jim Muirhead : R. I can understand how to approach a problem in multiple ways whereas I may know of only one approach in a different programming language, for example.
- Omar Laurino Software Development. Draw from experience and tackle problem from different angles. Draw from a large number of known concepts and techniques to select the ones that best fit the problem. Know I don't know everything and always be on the lookout for new information. When not an expert: I do trial and error, buy a book.
- Bruno de Medeiros R.When trying to do something, I first conceptualize how to get there and can think of a few different approaches, and choose the one that seems more appropriate. If I don't know how to do something, I often know how to figure out.
- Michael Lonneman R. Comes back to concept of a novice. When I'm talking about R I can understand connections between topics even if I haven't done that particular activity in R before but in non-expert fields I don't have an understanding of those connections. I also try to relate

other programming topics back to my R knowledge to try to understand
- Corey DIPietro I'm guessing this is a trick question. Is anyone ever an "expert"? At least self-proclaimed? Isn't there always something more we can learn? Ok fine (hah) museum workflows/spectrum. As an expert, ableto see issues from a broader/more global level. When I'm not an expert, need to know more details about specifics and detailed issues before I can zoom out and see the larger processes and relationships and interactions.
- Rayvn Manuel : Web-based software development. As an expert I am able to compensate for unknowns, teach others and answer most questions without much preparation. When I'm not an expert - I have very limited knowledge and rely heavily on guidance from an expert or resources.

Connections and Mental Models

Limitations of Expertise

Fluid Representations (5 min)
Give at least one example of a fluid representation that you use in your own work. If you can, also give an example of a fluid representation that might occur in a Carpentry lesson.

- Jim Muirhead In network theory, changing terminology of cluster vs. components to describe a group of connected nodes.
- Omar Laurino In Python duck typing uses fluid representations as a programming technique. "If it quacks like a duck, it's a duck!". You can use this with functions, methods, callable objects. Or any iterable, whether it's a tuple, a list, or a pandas series. In the Python episode, strings are used as iterables to set up a for loop over their characters.
- Bruno de Medeiros
- Michael Lonneman Different ways of referring to tables: spreadsheets, tables, CSV, etc. They aren't exactly the same thing (different levels of specificity perhaps) but I often use them interchangably when talking to people
- Corey DIPietro Running a sql update via a loop vs written line by line by line by line... same result, different scipt process
- Rayvn Manuel : [Information Technology terms] difference between client and server relationship. Client === Browser or Client === users hardware or Client === user-facing application for desktop applications. I am not sure in carpentries.

Diagnosis (5 min)
What is an error message that you encounter frequently in your work? (These are often syntax errors.) Take a few minutes to plan out how you would explain that error message to your learners. Write the error and your explaination below.

- Jim Muirhead - R: Memory Limit exceeded. Because R stores and evaluates all objects in RAM, sometimes there is insufficient RAM to run the entire script.
- Omar Laurino Python IndentationError (and related ones). In Python indentations are part of the programming language. You should make sure you do not mix tabs and spaces, and follow style guides (e.g. use four spaces for indentation).
- Bruno de Medeiros Can't remember teh specific error message now, but some index error in R when trying to index something with characters but actually using a factor. Factors are actually labelled integers, not characters.
- Michael Lonneman
- Corey DIPietro table or view does not exist -- sql cannot find the table that you're referencing. this is usually a typo, e.g. acquistion.ref_number instead of acquistionS.ref_number
- Rayvn Manuel : 404 Not Found - this means that whatever web page you requested when you entered the url address in the browser - is not in that file directory.

Blind Spots (5 min)
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?

- Jim Muirhead - Teaching myself Python. Thinking about different ways to slice a vector.
- Omar Laurino
- Bruno de Medeiros - (intermintently) taking a deep learning online course. When it seems appropriate to use the different functions in a neural network
- Michael Lonneman use SSH and command line to update files on server - basically have to think about everything except the most basic commands
- Corey DIPietro learnign NoSQL/MongoDB schema and design -- having spent so much time using SQL db, it's difficult to move to a JSON style doc store arrangement, in a conceptual/mental way
- Rayvn Manuel Patternlab is a templating framework that allows developers to 'brand' web applications in a consistent way. Once patternlab is installed, the developer uses template references which 'activates' the styles. The workshop I attended applied patternlab to Drupal - and I need to transfer the knowledge to non-drupal application - which the design pattern should be able to do.

Think about the area of expertise you identified earlier. What could a potential blind spot be?

- Jim Muirhead Assuming that the students are familiar with current packages and software addons.
- Omar Laurino Software Development. With experience and knowledge you tend to forget how hard it was to learn a lot of minute tips and tricks, and how to go from the big picture to the implementation details and back.
- Bruno de Medeiros Evolutionary biology. When mentoring an undergrad recently, I noticed that some concepts that we use very commonly (e. g. heterozygosity) are actually quite poorly defined and the definition seems to vary in different software and sources
- Michael Lonneman Something I've encountered with interns is assuming they have experience with OS file systems - many only work with cloud interfaces in school (often Google) and haven't used Windows file explorer, for instance. Creates problems when trying to teach how to read and write objects.
- Corey DIPietro Better understaind where users are coming from. Not all people see data in terms of structure. google searches allow users to search for anything, but this can result in a lack of care in terms of having to field/standardize data in structured systems.
- Rayvn Manuel : At time I may miss a step that is ancillary and learned via a gotcha.

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? In the Etherpad, make a list of demotivating words/phrases and alternatives.

- Jim Muirhead - "Simple", "Straightforward". Alternatives: "Let's step back", "Let's break it down"
- Omar Laurino
- Bruno de Medeiros
- Michael Lonneman "Obviously, ...", Alternative: Don't use it!
- Corey DIPietro "easy"
- Rayvn Manuel "simply", "Let's try this"

https://perma.cc/LE2H-VWXG?type=image

You Are Not Your Learners

The Importance of Practice (Again)

Key Points:

- Experts face challenges when teaching novices due to expert blind spot.
- Expert blind spot: knowing something so well that it seems easy when it's not.
- With practice, we can learn to overcome our expert blind spot.

https://forms.gle/3nJK5ucmypGWqfZY6

IV. Memory and Cognitive Load
https://carpentries.github.io/instructor-training/05-memory/index.html

Types of Memory

Test Your Working Memory (5 min)
This website https://miku.github.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.

- Jim Muirhead 6/20
- Omar Laurino 6/20
- Bruno de Medeiros 5/20
- Michael Lonneman 6/20
- Corey DIPietro 5/20
- Rayvn Manuel 6/20 - i need more lattes!

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?

- Jim Muirhead 6/20. Same
- Omar Laurino (Need one in Italian, my brain can't come up with a story and pay attention to the words at the same time. I did apply chunking in the previous exercise to beging with ;)
- Bruno de Medeiros 6/20 one more
- Michael Lonneman 5/20... it was a very bad story
- Corey DIPietro Chunking would be easier if the terms weren't flashcards as well. It's easier to chunk and group via the analog test listed, vs the timed terms. +1
- Rayvn Manuel 8/20 - chunking in short bunches worked best & depends how long the word was

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 Carpentries 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 Etherpad chat once you have finished.

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.

- Jim Muirhead : https://datacarpentry.org/R-ecology-lesson/04-visualization-ggplot2.html
- Original: ggplot(data = surveys_complete, mapping = aes(x = weight, y = hindfoot_length)) +
- geom_point(alpha = 0.1)

- How do we map variables to aesthetics in ggplot2?

- ggplot(data = surveys_complete, mapping =___(x = weight, y = hindfoot_length)) +
- geom_point(alpha = 0.1)
- ggplot(___ = surveys_complete, ___ = aes(x = weight, y = hindfoot_length)) +
- geom_point(alpha = 0.1, aes(color = species_id))
- Omar Laurino
- Bruno de Medeiros

from http://swcarpentry.github.io/shell-novice/03-create/index.html
Make a new folder and move the file proteins.dat to that folder. After doing that, copy this file from the current location to the parent directory

```
$ mkdir ______
$ mv proteins.dat ______
$ cp ______/proteins.dat ______
```

- Michael Lonneman

```
surveys %>%
  filter(!is.na(weight)) %>%
  group_by(sex, species_id) %>%
  summarize(mean_weight = mean(weight))

surveys %>%
  filter(!is.na()) %>%
  group_by(, ) %>%
  summarize(mean_weight = mean())

surveys %>%
  filter() %>%
  group_by() %>%
  summarize()

surveys %>%
  () %>%
  () %>%
  ()
```

- Corey DIPietro

Querying the title, author, ISSN, and year from the articles table:

SELECT Title, Authors, ISSNs, Year

FROM articles;

Faded example:

_____ title, authors, ISSNs, Year
_____ articles;

- Rayvn Manuel

from Unix shell course - Creating Shell script

```
# Calculate stats for data files.
for datafile in "$@"
do
echo $datafile
bash goostats $datafile stats-$datafile
done
```

faded example:

```
# Calculate stats for data files.
for datafile in "$@"
do
echo $datafile
bash goostats $______ stats-$datafile
done
```

```
# Calculate stats for data files.
for ______ in "$@"
do
echo $________
bash goostats $_______ stats-$________
done
```

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.

V. Building Skill with Feedback
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)
Write one thing you learned this morning that you found useful on one of your sticky notes, and one question you have about the material on the other. Do *not* put your name on the notes: this is meant to be

anonymous feedback. Add your notes to the pile by the door as you leave for lunch.

Google "Sticky Note" Form:
https://docs.google.com/forms/d/e/1FAIpQLSfqanG5jYtm2YtlN6u-keQ0R51bLqnKkKY5krtc8aGTY1IXEg/viewform?usp=sf_link

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.

Glossary: https://carpentries.github.io/instructor-training/glossary/index.html

VI. Motivation and Demotivation
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 (10 min)
Think about some task you did this week that uses one or more of the skills we teach,
(e.g. wrote a function, bulk downloaded data, built a plot in R, forked a repo) and explain how you would use it (or a simplified version of it) as an exercise or example in class.
Pair up with your neighbor and decide where this exercise fits on a graph of "short/long time to master" and "low/high usefulness".
In the class Etherpad, **Share** the task and where it fits on the graph.
As a group, we will discuss how these relate back to our "teach most immediately useful first" approach.

- Jim Muirhead - In R, pulling data down from a database. Usefulness= High. Time to master = Moderate
- Omar Laurino - I languages that support assertions, `assert` may be a command that takes very little time to master and also be very useful.
- Bruno de Medeiros - In R, there are several ways to apply a function to an array of numbers. For loops are less optimized but are more similar to concepts that students might have from other languages. For loop syntax therefore is very useful and quick to master. "Apply" functions are harder to master and have a similar purpose
- Corey DIPietro In SQL: select command as a basis for both teaching basic syntax, as well as forming "set" of items user is working with -- usefullness = high; time to master = low
- Group 3:
- From R lesson: dplyr - using tidyverse for basic data curation (filter, mutate, summarize) | hi use /low time to master
    - Michael Lonneman
    - Rayvn Manuel

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.
In groups of two or three, pick three of these points and describe in one sentence in the Etherpad how can we apply these strategies in our workshops.

- Strategies to Establish Value
    - Connect the material to students' interests.
    - Provide authentic, real-world tasks.
    - Show relevance to students' current academic lives.
    - Demonstrate the relevance of higher-level skills to students' future professional lives.
    - Identify and reward what you value.
    - Show your own passion and enthusiasm for the discipline.
- Strategies to Build Positive Expectations
    - Ensure alignment of objectives, assessments, and instructional strategies.
    - Identify an appropriate level of challenge.
    - Create assignments that provide an appropriate level of challenge.
    - Provide early success opportunities.
    - Articulate your expectations.
    - Provide rubrics.
    - 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.
    - Give students an opportunity to reflect.

Group1

- Jim Muirhead - Identify and reward what you value= "That was a very creative solution!"
- Bruno de Medeiros - Provide targeted feedback: Descriptive, not prescriptive - let the learners know what you saw

- - Provide learners with options and the ability to make choices: give the option to use their own data in a homework (for example, when plotting graphs)

- Group 2
    - Michael Lonneman
    - Omar Laurino
    - Using faded examples to create easy challenges and advance to harder challenges by adding more complexity in subsequent examples (Identify an appropriate level of challenge and create assignments that provide an approriate level of challenge).
    - Be fair - not providing too complex of an example or trying to trick students with examples

- Group 3
    - Corey DIPietro - Auth Real World Task - Using OpenRefine to cluster and clean up name/ attribution data
    - Rayvn Manuel - Setting expectation - creating an overall roadmap of the entire course; agenda for daily coursework; and waypoints within the class session to show where learners are "now" in the experience
    - Reflection - speak about what was taught and how well the lesson was taught

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. *Pair*up with your neighbor and discuss what motivated you. *Share* the motivational story in the Etherpad.

- Jim Muirhead - Advanced topics in GIS in grad school. The instructor was just as enthusiatic about my major term project as I was.++
- Omar Laurino I participated to a program where people who were more active in the community would get access to a follow up course which would have been free rather than paid. I am including it kind of as an interesting example of an unfair practice that can indeed motivate people. I would not recommend it but it was interesting to experience. [As a more positive example, I am motivated by building final projects].
- Bruno de Medeiros: I started a while ago an online course on deep learning that I found much better than past attempts. One of the key differences was that the course started at a really high level with code that works and does something, even if all the details were not completely worked out at that moment. Details that allow fine-tuning of the code or to better understand what is going on were the subject of later lessons. Having something that works on day 1 was highly motivating.
- Michael Lonneman I participated in an agent-based modeling short course that brought together students from a range of disciplines. The instructure used multiple strategies to demonstrate value by creating sub-groups and activities that allowed everyone to contribute to a group project in a way that maximized their interests and skills. This was partly done ahead of time (considering how different backgrounds/skills would fit together) and also by offering flexible projects for groups to create.
- Corey DIPietro Openrefine webinar circa 2018. I do best when there are practical applications, so learning about reconciliation in openrefine was useful b/c it directly applies to something I can use in my job.
- Rayvn Manuel :[Undergrad Senior Project] - group project that required the team to 'find' a client who needed a web application/site designed and implemented. This was motivational because it presented a real-world business problem in which a stakeholder could introduce feedback that was not trivial or had a simple book solution.

Why Do You Teach? (5 min)
We all have a different motivation for teaching, and that is a really good thing! We want instructors with diverse backgrounds because you each bring something unique to our community.
What motivates you to teach? Write a short explanation of what motivates you to teach. Save this as part of your teaching philosophy for future reference.

- Jim Muirhead
- Omar Laurino
- Bruno de Medeiros
- Michael Lonneman
- Corey DIPietro
- Rayvn Manuel

How Not to Demotivate Your Learners

Brainstorming Demotivational Experiences (5 min)
Think back to a time when you were demotivated as a student (or when you demotivated a student). *Pair* up with your neighbor and discuss what could have been done differently in the situation to make it not demotivating. *Share* your story in the Etherpad.

- Jim Muirhead
- Omar Laurino
- Bruno de Medeiros
- Michael Lonneman

- Corey DIPietro
- Rayvn Manuel

Psychological Demotivators

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

Overcoming Imposter Syndrome (Optional, 5 min)
Think of a time when learning something was difficult for you, or you made a mistake that seemed silly or embarrassing. Is that task still hard for you? In the Etherpad, describe how you might you use this as a motivational story to help your learners overcome their own imposter syndrome.

- Jim Muirhead
- Omar Laurino
- Bruno de Medeiros
- Michael Lonneman
- Corey DIPietro
- Rayvn Manuel

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 in the Etherpad.

- Jim Muirhead
- Omar Laurino
- Bruno de Medeiros
- Michael Lonneman
- Corey DIPietro
- Rayvn Manuel

What Happens When Accessibility is an Issue? (Optional, 5 min)
Think of a time when you've been affected by, or noticed someone else being affected by issues with accessibility. This may have been at a conference you attended where the elevator was out of service, or maybe a class you were taking relied on audio delivery of content. Describe what happened, how it impacted your (or someone else's) ability to be involved and what could have been done to provide better accessibility in this case

- Jim Muirhead
- Omar Laurino
- Bruno de Medeiros
- Michael Lonneman
- Corey DIPietro
- Rayvn Manuel

Inclusivity

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.

VII. Mindset

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

The Importance of Mindset

Does Mindset matter? (5 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: 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 (or go around the room and discuss)

- Jim Muirhead
- Omar Laurino
- Bruno de Medeiros
- Michael Lonneman
- Corey DIPietro
- Rayvn Manuel

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?

- I like the way you tried a couple of different strategies to solve that problem.eeeeee
- You're getting really good at that. Keep up the hard work!iiiii
- You're really talented.ppppp
- That was a hard problem. You didn't get the right answer, but look at how much you learned trying to solve it!iiipii

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 Etherpad, describe the error your learner has made and how you would respond.

- Jim Muirhead
- Omar Laurino
- Bruno de Medeiros
- Michael Lonneman
- Corey DIPietro
- Rayvn Manuel

Perseverance Predicts Success

How Are You Gritty? (Optional, 5 min)
A previous exercise asked you to think of a time when learning something was difficult for you, or you made a mistake that seemed silly or embarrassing.
How did you motivate yourself to continue learning? How did it feel to persist in the face of challenge? How do you feel now about your capabilities in this area?
In the Etherpad, describe how you could use this story to illustrate the importance of grit for your learners.

- Jim Muirhead
- Omar Laurino
- Bruno de Medeiros
- Michael Lonneman
- Corey DIPietro
- Rayvn Manuel

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.

RETURN at 3:5 PM

VIII. Teaching is a Skill
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-nocookie.com/embed/-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).

- Jim Muirhead
    - Content + Prompt for questions at end of segment
        -
    - Content - Inserts lots of jargon, lots of tangential info. Not really clear what the objective

was.

Presentation + Acknowledges own mistakes

- Presentation - Treat learners like children at beginning of segment.

- Omar Laurino
  - Content +The lesson covers some of the basics
  - Content -What is the goal of the lesson and how could we improve making sure people actually can learn the key skills. Maybe we could avoid introducing functions as parameters.
  - Presentation + I like the live coding model.
  - Presentation -Delivery could be slower to allow people with different skills to follow what is happening. Jargon could be avoided to reduce cognitive burden.
- Bruno de Medeiros
  - Content + I did not understand most of the content, hard to give positive feedback
  - Content - The goal of the lesson is not clear, making it hard to follow.
  - Presentation +
  - Presentation - Going too fast, using "just", "simple", "even excel users" etc
- Michael Lonneman
  - Content +
  - Content - Not clear presentation of material - doesn't start from a simple description of problem (or goal) and add complexity.
  - Presentation +
  - Presentation - "really simple", even excel users can do this, telling people to sit down, very

fast presentation, small font, doesn't explain error

        -

- Corey DIPietro
    - Content +
        -
    - Content -
    - Jargon
    - Presentation +
        -
    - Presentation -
    - "Simple"
    - "Even excel users"
    - Disorganized
    - Can't see text on overhead
        -
- Rayvn Manuel
    - Content +
        - Error recognition - although he was dismissive and did not explain what the issue was & why the students didn't need to 'worry about it'
    - Content -
        - Complex content no opportunity for students to process
    - Presentation +
        - No distracting graphics or animations
    - Presentation -
        - Accessibility; Text too small
        - He phyically had his back to students -> should have used pointer or mouse

Feedback on Yourself (25 min)

1. Split into groups of three.
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.
3. Get together with your group and have each person teach their segment to the group, ~~while one person records this (video and audio) using a cell phone or some other handheld device~~. Use a whiteboard or other visual aids if available (Note: Do not live code you lesson. There will be a chance to live code later.) Keep a strict time limit of 90 seconds per person (one person should be responsible for the timekeeping).
4. After the first person finishes, rotate roles (~~they become the videographer~~, the audience becomes

the instructor, the person who was recording becomes the audience) and then rotate roles again.
5. After everyone in the group of three has finished teaching, watch the videos as a group. Everyone gives feedback on all three videos, i.e., people give feedback on themselves as well as on others.
6. After everyone has given feedback on all of the videos, return to the main group and put everyone's feedback about you into the Etherpad.

- Feedback for Jim Muirhead
    - Content + explained important concepts - what is a facet
        - +Outlined what he will be covering
    - Content -
    - Presentation + started by explaining goal, then basic concepts
        - +Defined terms/elements and what they mean
    - Presentation -
        -
- Feedback for Omar Laurino
    - Content + Lesson contained relevant and basic information that was well communicated
        - Well defined as it stuck with the curriculum
    - Content - Needs live coding :) +1
    - Presentation + Clear speech, good pace
        - Easy to follow and content easy to read
    - Presentation - Try not to highlight text as you cover it
        - Went slightly over time
- Feedback for Bruno de Medeiros
    - Content +Outlined material and what was to be covered
        - Objectives were clearly defined
    - Content - I was unsure what was meant by "label"
    - Presentation + Good pacing, and volume. Welcoming class at beginning to get everyone's attention.
        -
    - Presentation -"As you can see here" = accessibility?
        -
- Feedback for Michael Lonneman

- Content +
    - Slides had good amount of content and were not distractive
    - Well-prepared
- Content -
    - Could be useful to use a pointer ;)
- Presentation +
    - Clear presentation
    - Additional material with visual aids
- Presentation -
    - Slides in presentation mode versus slide mode for readability

- Feedback for Corey DIPietro
    - Content + explained the key concept of lesson: what is clustering. Gave a definition of a term followed by an example immediately after.
        -
    - Content -
    - Presentation + started by telling the goal of the lesson and then showing results of the clustering operation.
    - Good use of screensharing for non-coding application. Good flow in speech, good pacing.
        -
    - Presentation - - I found it tricky sometimes to follow the cursor when jumping to different pulldown boxes. This is true, to be honest I wasn't trying to follow the cursor, but thinking now I do not believe I would be able to repeat the operation.
        -
- Feedback for Rayvn Manuel
    - Content + Good discussion of how shells will differ between OS and what to expect
        - Nice work presenting the different options for different users and OSes
    - Content -
        - Given the time constraints, could have been nice to see an actual command ;) +1
    - Presentation + Good practice making sure learners can see window/text+1
        - Took time to acknolwedge audience and create a positive environment
    - Presentation - Probably could have taken longer to explain some of these content but 90 seconds isn't much time!
        - 90 seconds are not enough ;)

Feedback Is Hard

Feedback on Feedback (Optional, 15 min)
Watch either this video(https://vimeo.com/139316669) (8:40) or this one (https://vimeo.com/139181120) (11:42). For each, give feedback following the 2x2 model. Put your feedback in the Etherpad.

- Jim Muirhead
    - Content +
        -
    - Content -
    - Presentation +
        -
    - Presentation -
        -
- Omar Laurino
    - Content +
    - Content -
    - Presentation +
    - Presentation -
- Bruno de Medeiros
    - Content +
        -
    - Content -
    - Presentation +
        -
    - Presentation -
        -
- Michael Lonneman
    - Content +
        -
    - Content -

        - Presentation +
            -
        - Presentation -
            -
- Corey DIPietro
    - Content +
        -
    - Content -
    - Presentation +
        -
    - Presentation -
        -
- Rayvn Manuel
    - Content +
        -
    - Content -
    - Presentation +
        -
    - Presentation -
        -

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.

- Jim Muirhead
- Omar Laurino
- Bruno de Medeiros
- Michael Lonneman
- Corey DIPietro
- Rayvn Manuel

Skill Acquisition: What level are your teaching skills? (Optional)
As with computational skills, people have a tendency to think of teaching as something you are “just good at” or not. However, teaching is a skill, and expertise develops with attentive practice. Examine the descriptions of “novice,” “competent practitioner,” and “expert.” Where do you think you fall with regard

to teaching? What have you learned about teaching? What are you aware of that you still need to learn? Discuss with a partner and then write some thoughts below.

- Jim Muirhead
- Omar Laurino
- Bruno de Medeiros
- Michael Lonneman
- Corey DIPietro
- Rayvn Manuel

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.

IX. Wrap-Up and Homework for Tomorrow
https://carpentries.github.io/instructor-training/12-homework/index.html

To prepare for tomorrow, please:

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 differnce between a centrally-organized and self organized workshop at the bottom of this page (https://carpentries.org/workshops/).
2. Prepare for the live coding exercises. 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: https://carpentries.github.io/instructor-training/12-homework/.

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

Google "Sticky Note" Form:
https://docs.google.com/forms/d/e/1FAIpQLSfqanG5jYtm2YtlN6u-keQ0R51bLqnKkKY5krtc8aGTY1IXEg/viewform?usp=sf_link

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

X. Welcome Back
https://carpentries.github.io/instructor-training/13-second-welcome/index.html

Questions (5-10 min)
Yesterday we asked you to read some resources about the logistics of teaching and running Carpentries workshops. Please add your questions about logistics and preparation to the Etherpad. We will answer these questions in the etherpad during your work time and will return to this list later today.

Questions:

1. If I'm organizating a self-organized workshop within the SI, who would I contact to arrange for an interpreter for attendees who indicate that they are hearing-impaired?
2. If one were to work on setting up a session within SI, is there a carpentries email list or a forum/listserv? I know there's a list of instructors on the SI carpentries website. What's the best way to start gathering instructors at SI?
3. Who is usually the audience for the carpentry workshops? As academic curriculums shift over time, has there been a change in the skills audiences usually bring to the workshops?
4. How many instructors are recommended for each workshop? It seems like 2 is the default. Can you host a workshop with only one instructor?
5. Do self organized workshops at SI ever charge a fee?
6. Related to above, there are billing guidelines. Can you explain fees more generally? When they are charged or not?

7. Question re: Content from day 1. Most of the lessons in the ecology curriculum are geared towards novices. For developing lessons with a target audience of competent practioners, how would the lessons change to reflect increased connectivity among higher-level concepts.+1+1

Key Points

- Instructors guide learners to construct the proper big picture (accurate mental model) of the topic rather than focus on details.
- Instructors rely on frequent feedback from learners to monitor their own presentation of the material.
- Instructors introduce a few concepts at a time to avoid cognitive overload.
- The best way to motivate learners? Show them how to do something they can immediately put to use and be enthusiastic about it.
- Teaching is a learned skill.

XI. Live Coding is a Skill
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.

- Jim Muirhead Advantage for learner: Forces presenter to go at a speed which reduces expert blind spots. Disadvantage for learner: They may get bored if it goes too slowly. Disadvantage for instructor: Requires more preparation and practice and depends on good typing skills.
- Omar Laurino + Need to go slower and with a subjective experience rather than "just" rushing over slide contents. - Complex equipment/demo effect/Need large font and small terminal. Accessibility?
- Bruno de Medeiros + practice coding skills at the same time one learns about it, instead of having it at different moments, so it is easier to give meaning to what is being taught. - students might forget about the big picture while focusing on details. If goes too fast, students might just get lost.

- Michael Lonneman + Working through code in real time may reduce the "fear" of coding for learners who have never coded before. It seems like it would also help control your pace of teaching because you have to code at a similar pace as your learners. Having to confront and explain errors in real time would be very helpful for learners.

- - May be stressful to have to code in front of so many people. Similar to Bruno's point, instructors will need to effectively convey purpose and the big picture verbally or with other resources along with code (telling them why they are doing something, not just how).

- Corey DIPietro +Live demo = lets students work along with instr; - = hard to refer back as a reference unless the whole live demo is recorded
- Rayvn Manuel
    - +Helps engage the learner and allows them to 'code-along' if they choose to do so
    - +Allows the learner to ask questions which may be critical to linking concepts to each other
    - +May highlight "expert gap" do to an ancillary gotcha
    - -Even well-prepared and tested code snippets may throw errors and troubleshooting may eat into classroom time which takes time away from students

Compare and Contrast (15 min)
Watch the two live coding videos as a group and then summarize your feedback on both in the Etherpad. Use the 2x2 rubric for feedback we discussed earlier.
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.
poor live coding: https://www.youtube.com/watch?v=bXxBeNkKmJE&feature=youtu.be
good live coding: https://www.youtube.com/watch?v=SkPmwe_WjeY&feature=youtu.be

poor live coding: https://www.youtube.com/watch?v=bXxBeNkKmJE&feature=youtu.be

- Jim Muirhead
    - Content + Provides multiple examples to illustrate concept, which is likely to reinforce learning the concept rather than the details of the examples.
        -
    - Content - Too much material covered too quickly, and shallowly.
    - Presentation + Acknowledges their error when coding. Talks about result.
        -
    - Presentation - No clear break when switching concepts, or between examples.
- Omar Laurino
    - Content +
        - A good number of examples to show how the name of the variable is arbitrary
    - Content -

        - Could provide better illustration of the parts of the bash for loop, which can hide several "gotchas" for novices.

    - Presentation +

        - I could clearly see what the instructor was typing.

    - Presentation -

        - Could disable notifications to reduce distractions.
        - Could be more effective to stand up and acknolwedge the presence of an audience to gauge feedback.
        - [I noticed the red sticky but I am not sure whether that should have been acknowledged during the session]
- Bruno de Medeiros

    - Content +

        - shows that variable name is arbitrary (novices might think a specific variable name is required otherwise)

    - Content -

        - error in second attempt is not explained

    - Presentation +

        - pace seems to be fine. Types all commands

    - Presentation -

        - does not look at students, does not check whether they are following. Only explains the structure of the for loop after typing 4 lines of code, making it hard to associate the explanation to specific commands.
        - demotivating language: "you can see that"
- Michael Lonneman

    - Content + I like how the instructor shows what part of the for loop can be varied without altering the output

        -

    - Content - Content may not be thorough enough in explaining all parts of for loop. Unsure if learners can save scripts of command line code for future review.

    - Presentation + Sensible progression moving through material

        -

    - Presentation - Talking while coding, notifications pop up, talks very quickly when explaining output, not stopping for red sticky, doesn't explain error

        -
- Corey DIPietro

    - Content +

        - $ explaination to indicate not done typing command = explaining output
    - Content -
        - Moving ahead while student is stuck w/ red sticky
    - Presentation +
        - The live coding is up on the screen and visible?
    - Presentation -
        - News web page in background, phone alarm, email notifications
        - No eye contact
        - "You can see..."
        - Talking fast
        - Pausing for questions?
- Rayvn Manuel
    - Content
    - +Accessibility: text is large enough for learners to see
    - +Accessibility: contrast background/text makes it easy for learners to read
    - Content -
    - - Content is flowing towards the bottom of the screen and he should scroll up so that those at the back can see the content
    - Presentation +
    - +He's not reading from slides or other materials
    - +He is fluid in presenting the information which means he's well-versed with the materail
    - Presentation -
    - -No explanation given while typing and does not explain until he reaches the end
    - -Does not look up to guage whether or not the learners are following along or understand
    - -Sitting down => should be standing up simply to keep the class awake (this could be right after lunch)
    - -there's a distracting image behind the terminal window. Unless its there to demonstrate the effect of a code change - it should not be there

good live coding: https://www.youtube.com/watch?v=SkPmwe_WjeY&feature=youtu.be

- Jim Muirhead
    - Content + Goes through and explains errors
        -
    - Content -
    - Presentation + Narrates while coding, which makes it much easier to understand. Uses large font. Builds rapport by indicating that instructor is fallable. Addresses Red sticky at beginning of session.
        -
    - Presentation -

-
- Omar Laurino
    - Content +
        - A good number of examples to show how the name of the variable is arbitrary
    - Content -
        - Could probably cover more of the differences between the "interactive" for loop and the one liner.
    - Presentation +
        - Good job breaking down the parts of the loop and slowing down to actually show what is happening in detail.
        - Properly explained the error and why the error message was shown twice.
    - Presentation -
- Bruno de Medeiros
    - Content +
        - included a review of "arrow up" for history when error encountered
        - error message is explained
    - Content -
    - Presentation +
        - paying attention to students and sticky cards
        - Uses the body, not only voice, to point out commands and interact with code
        - Says commands out loud while they are being typed
        - Explains each line of code as they are being typed
    - Presentation -
        - Takes twice as long as the other video - has to consider how much can be covered when time is limited
- Michael Lonneman
    - Content + Clear example and progression through concept of for loop
        -
    - Content -
    - Presentation + Excellent pace both explaining code and the output. Very engaged with audience. Uses error as opportunity to show additional way to enter code
        -
    - Presentation - May want to verify that learners are able to follow along
        -

- Corey DIPietro
    - Content +
        - Talks while typing out code
        - Code is typed slowly
        - $ explained again
        - Explains error message
    - Content -
        - Still seems fast, but I don't actually know the content myself so it's hard to judge
    - Presentation +
        - Ackn red sticky
        - White background screen
    - Presentation -
        - Prob could make screen larger but it's better than before
        - Sticking hands and face in front of screen, laser pointer or cursor might be better
        - Didn't ask "what questions do you have" at end?
- Rayvn Manuel - LOVE this one way better. I don't feel as anxious!
    - Content +
    - +Uses interesting variable names to keep the course lively
    - +Accessibility: font is even BIGGER and much easier to see - although i prefer black backgrounds as all other programmers.... but i guess white backgrounds work too :-)
    - +Content is rendering higher on the screen so those in the back can see
    - Content -
    - -I'm not sure if there is a significance in the UPPERCASE terms - if so - he should explain them
    - Presentation +
    - +Engages the learner by asking question, pointing and his body language indicates he's engaged
    - +Standing up - which means his voice is projecting to the back of the class
    - Presentation -
    - -he should probably add breakpoints in order to check-in to confirm if "there are questions"

Top Ten Tips for Participatory Live Coding in a Workshop

Sticky Notes

Practice Teaching (25 min)
Teach 3 minutes of your chosen lesson episode using live coding to one or two fellow trainees, 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. **Don’t record the live coding sessions.** Give each other feedback, and feedback on yourself, using the 2x2 rubric we discussed previously and enter the feedback you received in the below.

- Feedback for Jim Muirhead
    - Content +

        - Prov overview of what topics will be covered + re-vistited
        - Ref what learned in last lesson
        - Showed link to lesson and all topics to be covered

    - Content -

        - Would auto complete already be covered?
        - Would the term "bind"/cbind already be definied in what it means in R?

    - Presentation +

        - Narrated while typing code
        - Good pace

    - Presentation -

        - Felt that there was not enough of a pause between switching concepts.

- Feedback for Omar Laurino

    - Content + I really liked showing an example of something that would be better of a loop before introducing a loop
    - +Very easy to follow and interesting content
    - +Content was relevant and helpful to understand the concept

    - Content -If indices were not introduced, that would be important to know
    - -letters !== characters - caused some confusion for learner later in the lecture

    - Presentation + You talked very clearly and with a good pace
    - +Omar was relaxed and it was clear he was well-versed with the content
    - Presentation - Near the beginning of the lesson you discussed concepts while typing code
    - - computer mouse pointer was hovering over screen content

- Feedback for Bruno de Medeiros

    - Content +

        - Explained errors as they showed up

    - Covered objectives with reasons why it was important covered.
    - Good overview of what will be covered
    - Content -

        - Did not show where class files were

    - Presentation +

        - Conscious about explaining commands as typed (not sure if came through)

    - Good visibility with font and light background

        - Got caught up a bit with initial setup, this would emphasize pre-set up prior to presentation
            - Good recovery from intial setup
            - good explaination of what was doing while typing
        - Presentation -
            - Assumed a variable was already in memory and was caught off-guard with an error, slow to deal with that
- Feedback for Michael Lonneman
    - Content +
    - +reminded students of output of the code before
    - +code was easy review
    - Content -
        - -not sure if I was supposed to know how to clear the IDE so when he cleared the screen I was confused.
    - Presentation +
        - +Good pace, clear presentation
        - +pace was slow enough to follow yet not too slow for boredom
    - Presentation -
        - - Side windows were mildly distracting, but maybe necessary in the environment?
        - -minimize some of the IDE panes that are not needed for that specific content

- Feedback for Corey DIPietro
    - Content +Good explanation of concept, and how it is useful
        - Outlined what the clustering feature means and what it does
        - Explained what is clustering and what it is used for
    - Content - No link for students to follow themselves on material for self-pacing learners.
    - Felt like I was running out of time at end, maybe not enough explaination of merge and recluster
    - Did not show where the data came from (maybe obvious considering the previous lesson?)
    - Presentation + Good pacing for menu selection using GUI. Welcoming learners.
    - Very good pacing, moving cursor to the regions that was mentioning (similarly to pointing out in a live classroom)
        -
    - Presentation - Overtime a bit
        - Hard to keep from saying "see" when working with a GUI
        - Went about 10 sec over time
        - Hopefully I didn't go too fast again, but it's an easy tempation -- goal is to ensure that students can repeat the process
        - There seemed to be an error in clustering, one instance of ALLEGORICAL SCENE still there, could have explained why (but happened in the last 15 seconds, so little time)
- Feedback for Rayvn Manuel
    - Content +

        - good discussion of case and the UNIX code
    - Content -
        - Some of discussion of directories vs. folders could use an illustration
    - Presentation +
        - Glad you checked to make sure everyone could read window
    - Presentation -
        - Pace was a little fast for discussing non-coding bits.
        - could try not anticipating best practices before actually illustrating code and introducing contents.

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.

XII. Preparing to Teach
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.

- Jim Muirhead
- Omar Laurino
- Bruno de Medeiros
- Michael Lonneman
- Corey DIPietro
- Rayvn Manuel

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.
https://swcarpentry.github.io/python-novice-inflammation/04-loop/index.html

******[INSERT links here]******

- https://librarycarpentry.org/lessons/
- https://datacarpentry.org/lessons/
- https://software-carpentry.org/lessons/

- 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?

- Jim Muirhead http://swcarpentry.github.io/r-novice-gapminder/10-functions/index.html 2. Define <- Remember level; Test <- apply level; Set <- apply level; Explain <- Understanding level. Levels are appropriate level for learners (Novice/Compentent). Most of the next steps would fall under Analysis. To get them to the next step, have extra challenge questions showing similar code for 2 functions, for example, and have MCQ on what learners would predict to occur.
- Omar Laurino
    - https://swcarpentry.github.io/python-novice-inflammation/04-loop/index.html
    - learning objective verbs: explain, write, trace. Learners will learn how to understand loops and employ them, also avoiding common "gotchas" specific to the Python language.
    - Write -> Create, Explain -> Understand, Trace -> Analyze
    - The lesson does a good job in meeting the objective, and the next step would be to Apply the learned skill to a different task/contex. The lesson is introducing loops so they can be applied to the data analysis of biological/medical data, so that is also part of the bigger picture, as learners will apply the new skill to complete a meaningful task.
- Bruno de Medeiros
    - https://datacarpentry.org/shell-genomics/04-redirection/index.html
    - verbs: employ, print, construct
        - employ -> apply, print -> apply, construct -> create
        - The lesson does a good job, but also goes beyond and goes over for loops, which is not stated in the objective section
        - Ii seems to try to achieve the "create" level by providing several examples
        - To achieve the next level using grep commands, maybe we could try using different inputs and reading grep documentation (which the lesson already does)
- Michael Lonneman https://datacarpentry.org/R-ecology-lesson/03-dplyr.html
    - Verbs: describe, select, select, link, add
    - Describe: Requires learners to both remember information from previous lesson and understand concepts just presented.
    - Select: Apply concepts and functions directly to a data object.
    - Link: Not just applying, but also connecting different concepts together to accomplish something new. "Analyze" step on taxonomy.
    - In my opinion, these learning objectives are very effective. They build very logically on each other.
    - There are additional learning objectives in the lesson (~12 total) that continue to build up the pyramid, culminating in using the concepts to solve a novel problem using the previous lessons from teh learning objectives (create). The next lesson could build on this to extend these concepts to a new domain (for instance, from general curation to graphing).

- Corey DIPietro https://librarycarpentry.org/lc-open-refine/05-clustering/index.html
    - Verbs = explain; use; identify; fix; replace
    - Outcome would be to understand, then to use to id what can be fixed, then replaced
    - These terms would fit on the "understand" and "apply" sections of the pyramid
    - Yes, this is an appropriate level, clustering as a function comes after data import and orientation on the layout of the gui
    - The objective is met in the lesson
    - Analysis would come in letting the users work with different types of data via clustering -- some data types (numbers; dates) are not so suited to clustering -- having this understanding would allow users to analyze their data and know where clustering is useful and helpful, and when it is not.
- Rayvn Manuel
    - http://swcarpentry.github.io/git-novice/03-create/index.html
    - The learner should end the lesson with an initialized directory (**create**). They should have an understanding of the purpose of the repository (**understand**), the tactical knowledge of exactly how to do it (**apply**), be able to discern when a directory has been initialized and contains a repository (**evaluate**) as well as know when (**remember**) and where a respository is needed (**analyze**).

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.

- Jim Muirhead
- Omar Laurino
- Bruno de Medeiros
- Michael Lonneman
- Corey DIPietro
- Rayvn Manuel

Feedback on Your Challenges (Optional, 15 min)
With these goals in mind, pair up with a partner to discuss the MCQ and faded example problems that you wrote yesterday. Give each other specific, actionable feedback that follows our 2x2 framework. Use that feedback to make at least one modification to your exercise(s). Discuss in the Etherpad the change you made and how it will help you get more useful information about your learners.

- Jim Muirhead
- Omar Laurino
- Bruno de Medeiros
- Michael Lonneman
- Corey DIPietro
- Rayvn Manuel

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.

XIII. More Practice Live Coding
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?

- Feedback for Jim Muirhead
    - Content + followed carpentries content and explained well what is a data.frame and why it is important
        -
    - Content -
    - Presentation +
        - Good use of error as troubleshooting teaching moment
        - Used a clean Rstudio screen, with good font size+
        - Good pacing +
        - Clearly spoke out commands while typing+
    - Presentation -
        - When error persisted, could have narrated what was trying out for debugging in the second attempt (first attempt was perfectly narrated)
- Feedback for Omar Laurino
    - Content
        - Generating error was very effective at showing why for loops are soeffective
        - +Explained typing appropriately
        -
    - Content -
    - Presentation +
        - Very good pace moving through code

        - +Awesome pace which created more time to ask questions

    - Presentation -
        - Potentially could have spent more time explaining error output

- Feedback for Bruno de Medeiros
    - Content + Good explanation of data.frame importance in R. Clear explanation of objectives. Stayed with Carpentries curriculum 100%+
        -
    - Content -
    - Presentation + Improved explanation of what he was typing from previous exercise. +
        - Narration was at an appropriate pace
    - Presentation - Used custom terminal settings which may confuse some learners on why their setup doesn't look like that.
        -
- Feedback for Michael Lonneman
    - Content +Great use of comments to introduce concepts in code
    - +Incorporated feedback from first time which greatly enhanced the 2nd time around
    - +very easy to read screen and follow along with content
    - +used opportunity to use faded feedback
    - Content -
    - Presentation +
    - +Did not use panels
    - +Uses curriculum with only minor deviations
    - +explained relevant cues while typing
    - +reminded learners where in the lesson was started
    - Presentation -
        -
- Feedback for Corey DIPietro
    - Content + Good linking with previous concepts. Clear definition of clustering and why it is important.
        -
    - Content -
    - Presentation + Good pacing, Good error recovery when demonstration stalled.

        - Good use of errors and of cursor to point out where the correct menu was
    - Presentation -
        - Of course, I had forgotten and left outlook open after the break...(monitor real estate)
        - "As you can see" language
- Feedback for Rayvn Manuel
    - Content +
        - great job introducing several concepts in the limit time
    - Content -
        - May assume learners know basic shell commands+1
    - Presentation +
        - Good interaction with audience and transitions between points
    - Presentation -
        - Desktop might be distracting, so could make desktop appear and disappear just to show the folder was created.
        - It wasn't exactly clear to me what the "-a" on ls meant and why .git showed up that time but not the previous "ls" command

Key Points

- (Reflective) Practice makes perfect.

XIV. Managing a Diverse Classroom
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.

- Jim Muirhead
    - Some advanced learners may ask questions related to, but not directly part of the session's curriculum.
    - The rate at which a concept "clicks" will vary across learners so some learners may not finish a section. As a result, the instructor may have to move on and leave part of the class behind.
- Omar Laurino
    - Especially during live coding sessions, some learners might be bored, some may be overwhelmed.
    - There may be modules or topics that rely on a broader range of prerequities (e.g. git requires a shell). A learner might be not well versed in more than one topic and that makes for more cognitive load.
- Bruno de Medeiros

        - Hard to keep more advanced students focused if going too slow for them, or more novice students if goes too fast.
        - Questions from expert students might be off-topic and cause cognitive overload on others if answered in length
        - Not only the background might be diverse, but also learning styles and time required for each activity
- Michael Lonneman
    - Even among novices, learners will have a range of experiences picking up the material. There may be a very small subset of learners that are unable to keep up the pace, and you don't want to slow down the lessons for everyone or have a helper only helping that group
- Corey DIPietro Keeping beginner participants engaged without boring the more advanced users; beginner participants may fall far enough behind that they require addit assistance while instructor still needs to keep class on track/schedule
- Rayvn Manuel

    - - highly knowledgeable learners tend to want to ask more complex questions,
        - monopolize class time and throw off the course discussion
    - - novice learners do not know what they don't know
        - look towards the 'experts' to guide their learning even if it's not the instructor
        - can become easily distracted or give up because they feel completely lost
    - - not all learners understand their learning style and therefore cannot provide the instructor with feedback on how to tweak delivery to make it work for them

Code of Conduct Violations
https://docs.carpentries.org/topic_folders/policies/index_coc.html

Carpentries Code of Conduct Transparency Reports:
https://github.com/carpentries/executive-council-info/tree/master/code-of-conduct-transparency-reports

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.

- Jim Muirhead
- Omar Laurino
- Bruno de Medeiros
- Michael Lonneman
- Corey DIPietro
- Rayvn Manuel

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.

Morning Feedback - Google "Sticky Note" Form:
https://docs.google.com/forms/d/e/1FAIpQLSfqanG5jYtm2YtlN6u-keQ0R51bLqnKkKY5krtc8aGTY1IXEg/viewform?usp=sf_link

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

~~**Application Form**~~ (already did this as part of SI Carpentries Application)

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

April 28, 2020 + 90 days = July 27, 2020

Checking Out Review with Questions & Answers (5 min)
In small groups, read and discuss one of the three checkout procedures. Make notes in the etherpad and when you're done, report back to the full group about the requirements for that stage of the process. What questions do you still have about the checkout process?

Schedule a Discussion or Demo (5 min)
Visit the discussion Etherpad (https://pad.carpentries.org/community-discussions) to sign up for a session. If the session you would like to attend is full, contact the discussion host and co-host to ask if you can attend.

If you'd prefer to do your teaching demonstration before your discussion, visit the demo Etherpad (https://pad.carpentries.org/teaching-demos)and sign up there.

Lesson Contribution

What's in a Badge?

Check Out the Discussion (Optional)
As an instructor, your voice is important! We want you to be actively involved in discussions about the lesson materials (and other aspects of the Carpentries community). Go to the GitHub page for the lesson you worked with over the past two days and click on the "Issues" tab. Read through some of the discussions and, if you have anything to add, please add it to the conversation! If you wish to make a pull request, be sure to examine the contribution guidelines for the repository you are working in. If you do make a significant contribution to the discussion, send a link to the issue to checkout@carpentries.org. Congratulations! You've just completed one of the three remaining steps in becoming a Carpentries instructor.

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.

XVI. The Carpentries: How We Operate
https://carpentries.github.io/instructor-training/21-carpentries/index.html

Brief History

Similarities and Differences Between The Carpentries Lesson Programs

The Carpentry Community

Participating in the Carpentries: What's Your Role?
If you are at an in-person training, your instructor will hand out paper copies of a worksheet. If you are at an online training, you can get a digital copy at https://carpentries.github.io/instructor-training/files/handouts/Carpentries_roles_worksheet_v4.pdf.

Instructors , Mentors , Trainers , Lesson developers , Curriculum advisors , Lesson maintainers , Lesson Infrastructure Team , Assessment Network , Champions , Infrastructure Team , Regional Coordinators , Code of Conduct Committee

A. Help to coordinate workshops in their geographical areas - Regional Coordinators
B. Provide high-level guidance on the overall structure of a particular curriculum curriculum advisors
C. Organize and teach Carpentries workshops -- Instructors
D. Experienced instructors who inspire and prepare our new instructors - Trainers
E. Support instructors as they build their teaching and technical skills - Mentors
F. Make sure lessons stay accurate, up-to-date, functional, and cohesive - Lesson maintainers
G. Keep our community friendly, welcoming, and respectful Code of Conduct Committee
H. Work to support our infrastructure infrastructure team
I. Support lesson building and styling lesson infrasctructure
J. Create new lessons - Lesson developers
K. Community for those working on assessment to share resources and discuss best practices - Assessment Network
L. Work to support existing local communities and attract new communities - Champions?

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. When you are done, think about the question at the bottom of the worksheet about what roles you might play, and enter your thoughts in the etherpad.

Get Connected (3 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
        - Blog https://software-carpentry.org/blog/
    - Data Carpentry http://www.datacarpentry.org
        - Blog http://www.datacarpentry.org/blog/
    - Library Carpentry https://librarycarpentry.org
        - Blog https://librarycarpentry.org/blog/
    - 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
    - https://carpentries.org/blog/2020/04/channels-to-join-topicbox/
- **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
    - Gitter https://gitter.im/LibraryCarpentry/Lobby (Library Carpentry)
    - Facebook https://www.facebook.com/carpentries/

Smithsonian Carpentries Handbook: https://github.com/SmithsonianWorkshops/si-carpentries-handbook

Smithsonian Slack: https://smithsonian.slack.com/signup We have an instructor channel on there, but you first have to register.

Next Monthly SI Carpentries Instructors Meeting: May 6 at 10:00

https://datascience.si.edu/carpentries

How a Workshop Works

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

Practice With Carpentries Infrastructure (25 min)
Go to the workshop template repository (https://github.com/carpentries/workshop-template) and follow the directions to create a workshop website using your local location and today's date. Put the link for your workshop website below.
Note: Sometimes web browsers will cache the workshop webpage, so when you make changes in Github, they don't show up on the workshop webpage immediately. Two ways to avoid this are to use a "private" or "incognito" mode in your web browser or by following the instructions at https://en.wikipedia.org/wiki/Wikipedia:Bypass_your_cache to bypass your browser cache.

Question and Answer (10 min)
What questions do you have about running and teaching at a workshop? Talk with a partner and enter your questions below. At this time we will also return to discuss questions remaining from the beginning of the day.

A Culture of Contribution

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.

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

Setting the Workshop Environment

Your Academic Past (5 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)
Get into small groups (3-4 people) and discuss the questions below for 5 minutes. Take notes on your answers.

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

After 5 minutes, come together, and combine ideas as a large group.
Compare your ideas with the list of topics below.

- Did you miss anything?
- Did you come up with something that's not listed below?

Optional question: what did you (the leader) do or not do in your introduction to the session?

Goals For the Introduction

Components of the Introduction

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:
    1. Introduce yourself effectively
    2. Clarify learning objectives and expectations
    3. Set the tone for the workshop
2. Return to your groups of 2 or 3 and each give 2 minutes of your introduction.
3. After each introduction, provide 2-3 minutes of feedback.

Key Points

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

XVIII. Putting It Together

https://carpentries.github.io/instructor-training/24-practices/index.html

Picking up the Pieces (optional)

In small groups or on your own, make a list of all the concepts you've encountered in this training. Your list can include everything from educational/teaching theories to specific in-classroom practices.

Organize Your Knowledge

Let's 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. Use the provided handout 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".

Once you've organized your thoughts, move to the next exercise.

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.

XIX. Wrapping Up

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

One Up, One Down (5 min)

Provide one up, one down feedback on the entire two-day course.
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.

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.

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.