- Welcome to The Carpentries Etherpad!
- This pad is synchronized as you type, so that everyone viewing this page sees the same text. This allows you to collaborate seamlessly on documents.
- Use of this service is restricted to members of The Carpentries community; this is not for general purpose use (for that, try etherpad.wikimedia.org).
- Users are expected to follow our code of conduct: https://docs.carpentries.org/policies/coc/
-

Welcome to The Carpentries Instructor Training!

Sign in: Name (Pronouns), Institution, Email & Socials (optional)

Please sign in so we can record your attendance.

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If you have a moment before we begin and have not yet done so, please fill out the pre-training survey at https://carpentries.typeform.com/to/QVOarK#slug=TRAINER_PASTE_WORKSHOP_ID_HERE <****REPLACE with the slug for your event**** (also note there is a post-survey link at the bottom that can be updated with the same slug) >

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

Break times (approximate):

Use the schedule to predetermine your break time and share with the trainees. Note: Breaks may not match the schedule exactly. You can discuss with your co-Trainer when you would like the breaks to take place based on the teaching schedule
https://carpentries.github.io/instructor-training/instructor/index.html

Welcome

https://carpentries.github.io/instructor-training/01-welcome
Questions:

- What is The Carpentries and how do we approach teaching?
- What should you expect from this workshop?

Objectives:

- Identify common ground with some of your fellow workshop participants.
- Understand a general structure and core goals of The Carpentries.
- Predict what will and will not be covered in this workshop.
- Know where to find The Carpentries Code of Conduct and how to report an incident.

Code of Conduct:

To make clear what is expected, everyone participating in The Carpentries activities is required to abide by our Code of Conduct.
https://docs.carpentries.org/policies/coc/
Any form of behaviour to exclude, intimidate, or cause discomfort is a violation of the Code of Conduct. In order to foster a positive and professional learning environment we encourage you to:

- Use welcoming and inclusive language
- Be respectful of different viewpoints and experiences
- Gracefully accept constructive criticism
- Focus on what is best for the community
- Show courtesy and respect towards other community members

If you believe someone is violating the Code of Conduct, we ask that you report it to The Carpentries Code of Conduct Committee by completing this form: https://goo.gl/forms/KoUfO53Za3apOuOK2

Exercise: Getting to know each other

- If the Trainer has chosen an icebreaker question, participate by writing your answers in the Etherpad.

Introductions

Your Trainers

Workshop schedule and break times

-- -- *Exercise: Reviewing The Carpentries Experience and Goals* -- --
For the multiple choice questions below, please place an "X" next to the response(s) that best apply to you. Then find yourself a spot in the Etherpad below to write a short response to the last question.

1) Have you ever participated in a Software Carpentry, Data Carpentry, 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.

2) 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 or secondary education level.
- I have taught informally through outreach programs, hackathons, libraries, laboratory demonstrations, and similar activities.

3) Why are you taking this course? What goals do you have for today and tomorrow?

This exercise should take about 5 minutes for responses, with an optional 10 for additional discussion as time permits.

A Brief Overview of the Carpentries

Image: Action figures in a workshop with Instructor, Co-Instructor, Helper, and Sticky Notes labeled https://carpentries.github.io/instructor-training/fig/Scene_1_blue_stickies_labeled.jpeg

- Software Carpentry focuses on helping researchers develop foundational computational skills
- Data Carpentry focuses on helping researchers work effectively with their data through its lifecycle
- Library Carpentry focuses on teaching data skills to people working in library- and information-related roles.

Instructor Training Overview

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

What We Leave Out

- workshop content & technical skills
- how to develop new lessons

What Questions Do You Have?

Keypoints:

- The Carpentries is a community 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 evidence-based teaching practices and how they apply specifically to The Carpentries.
- Learner motivation and prior knowledge vary widely, and can be quickly assessed with a multiple choice question.

Building Skill With Practice

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

- How do people learn?
- Who is a typical Carpentries learner?
- How can we help novices become competent practitioners?

Objectives:

- Compare and contrast the three stages of skill acquisition.
- Identify a mental model and an analogy that can help to explain it.
- Apply a concept map to explore a simple mental model.
- Understand the limitations of knowledge in the absence of a functional mental model.

The Carpentries Pedagogical Model

Acquisition of Skill

https://carpentries.github.io/instructor-training/fig/skill-level.svg *Image: Three people, labeled from left to right as "Novice", "Competent Practitioner", and "Expert". Underneath, an arrow labelled "Experience level" points from left to right. The "Novice" is quoted, "I am not sure what questions to ask." The Competent Practitioner is quoted, "I am pretty confident, but I still look stuff up a lot!" The Expert is quoted "I have been doing this on a daily basis for years!"*

- Novice
- Competent practitioner
- Expert

Mental Models

"All models are wrong, but some are useful."

The power (and limitations) of analogies

-- -- *Exercise: Analogy Brainstorm* -- --
1) Think of an analogy to explore. Perhaps you have a favorite that relates to your area of professional interest, or a hobby. If you prefer to work with an example, consider this common analogy from education: “teaching is like gardening.”
2) Share your analogy with a partner or group. (If you have not yet done so, be sure to take a moment to introduce yourself, first!) What does your analogy convey about the topic? How is it useful? In what ways is it wrong?
This activity should take about 10 minutes.

Analogies at Work: “Software Carpentry”

https://carpentries.github.io/instructor-training/fig/mental_models.svg *Image: Three collections of six circles. The first collection is labelled "Novice" and has only two arrows connecting some of the circles. The second collection, labelled "Competent Practitioner" has six connecting arrows. The third collection, labelled "Expert", is densly connected, with eight connecting arrows.*

Concept maps
A mental model that a young child might develop after placing a ball in water:
Image: Two words inside rectangles, with labeled arrows connecting them. "Ball" is at the left, with an arrow pointing to "Water", at right, labeled as "Pushes out." https://carpentries.github.io/instructor-

training/fig/ballwater1a.svg

A more complex mental model the child might construct after playing with balls of different sizes:
Image: Four words inside rectangles, with labeled arrows connecting them. "Ball" is at the left, and "Water", at right. "Big Ball" and "Small Ball" are stacked vertically between them. Arrows from "Ball" are labeled "can be MORE" and can be "LESS", and arrows to "water" are labeled as "Pushes out MORE" and "Pushes out "LESS" https://carpentries.github.io/instructor-training/fig/ballwater2a.svg

-- -- *Exercise: Mapping a Mental Model* -- --
1) On a piece of paper, draw a simplified concept map of the same concept you discussed in the last activity, but this time without the analogy. What are 3-4 core concepts involved? How are those concepts related? (Note: if you would like to try out an online tool for this exercise, visit https://excalidraw.com .)
2) In the Etherpad, write some notes on this process. Was it difficult? Do you think it would be a useful exercise prior to teaching about your topic? What challenges might a novice face in creating a concept map of this kind?
This exercise should take about 5 minutes.

Misconceptions

Our child might assume that ball weight and ball size can both be described by the mental model developed by playing with balls of different sizes.
Image: A concept map similar to the previous one except with "Heavy Ball" and "Light Ball" in the middle, and a red "X" over the arrows labeled "Pushes out MORE" and "Pushes out LESS"
https://carpentries.github.io/instructor-training/fig/ballwater3a.svg

It may take a while to adjust, but eventually new understanding will coalesce:
Image: A new concept map. "Ball" remains at left, and "Water", at right. "Size" and "Weight" are stacked vertically between them. Arrows from "Ball" share the label "Can have more or less." One arrow from "size to "water" is labeled "Affects pushing of"
https://carpentries.github.io/instructor-training/fig/ballwater4a.svg

The process of forcing abstract knowledge into a visual format can often reveal connections you may not have been aware of, or illuminate gaps. This can be especially useful when preparing to convey aspects of your mental model to someone else!

Misconceptions:

- Factual errors
- Broken models
- Fundamental beliefs

-- -- *Exercise: Anticipating Misconceptions* -- --
Describe a misconception you have encountered as a teacher or as a learner.
This exercise should take about 5 minutes.

Using Formative Assessment to Identify Misconceptions

How can you prevent hidden misconceptions from interfering with learning? Seek them out with assessment!

Formative vs Summative assessment

-- -- *Exercise: Formative Assessments* -- --
Any instructional tool that generates feedback that is used in a formative way can be described as "formative assessment." Based on your previous educational experience (or even this training so far!) what types of formative assessments do you know about?
Write your answers in the Etherpad; or go around and have each person in the group name one.
This exercise should take about 5 minutes.

This exercise should take about 5 minutes.

-- -- *Exercise: Identify the Misconceptions* -- --
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
This discussion should take about 5 minutes.

Formative assessments are most powerful when:
1) all learners are effectively assessed (not only the most vocal ones!) AND
2) an instructor responds promptly to the results of the assessment

-- -- *Exercise: Handling Outcomes* -- --
Formative assessments allow us as instructors to adapt our instruction to our audience. What options do we have if a majority of the class chooses:

- mostly one of the wrong answers?
- mostly the right answer?
- an even spread among options?

Choose one of the above scenarios and compose a suggested response to it in the Etherpad.

This discussion should take about 5 minutes.

The Importance of Going Slowly
"If someone feels it is too slow, they will be a bit bored. If they feel it is too fast, they will never come back to programming."

Meeting learners where they are

Keypoints:

- Our goal when teaching novices is to help them construct useful mental models.
- Exploring our own mental models can help us prepare to convey them.
- Constructing a useful mental model requires practice and corrective feedback.
- Formative assessments provide practice for learners and feedback to learners and instructors.

BREAK (15 min)

Expertise and Instruction

https://carpentries.github.io/instructor-training/04-expertise

Examining Your Expertise

You may not think of yourself as an "expert" but many advantages -- and pitfalls -- may apply to you.

What Makes an Expert?

-- -- *Exercise: What Is An Expert?* -- --
What is something that you are an expert in? How does your experience when you are acting as an expert differ from when you are not an expert?

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This discussion should take about 5 minutes.

Experts have more connections among pieces of knowledge.

Image: Three collections of six circles. The first collection is labelled "Novice" and has only two arrows connecting some of the circles. The second collection, labelled "Competent Practitioner" has six connecting arrows. The third collection, labelled "Expert", is densly connected, with eight connecting arrows. https://carpentries.github.io/instructor-training/fig/mental_models.svg

Expertise and Teaching

Mind The Gap

-- -- *Exercise: Awareness Gaps* -- --

- Is there anything you are 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?
- Think about the area of expertise you identified for yourself earlier. What could a potential awareness gap be?

This exercise should take about 5 minutes.

Switching Language

-- -- *Exercise: What do you use interchangeably?* -- --
In the Etherpad, share an example of words or notation that you sometimes use to accomplish or refer to the same thing. If possible, try to think of an example that might occur in a Carpentries workshop.

Building awareness of how you can represent the same concept in multiple different ways will help you avoid doing so without explanation while teaching.

This exercise should take about 5 minutes.

What Problem?
Experts sometimes solve problems before even stopping to recognize that they have encountered one.

-- -- *Exercise: Diagnosis* -- --
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 explanation in the Etherpad.

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This discussion should take about 5 minutes. (Optionally, this may be discussed in group breakouts, adding 5 minutes.)

“Just” and Other Dismissive Language

-- -- *Exercise: Changing Your Language* -- --
1) What other words or phrases, besides “just”, can have the same effect of dismissing the experience of

finding a subject difficult or unclear?
2) Propose an alternate phrasing for one of the suggestions above.
Write your examples and alternatives in the Etherpad.

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This exercise should take about 5 minutes.

"Any Questions?"

You Are Not Your Learners

- Primary goals
- Concerns about time investment

The Carpentries Is Not Computer Science

Expert Advantages

The Importance of Practice (Again)

Keypoints:

- Experts face challenges when teaching novices due to expert awareness gaps.
- Things that seem easy to us are often not experienced that way by our learners.
- With practice, we can develop skills to overcome our expert awareness gaps.

Memory and Cognitive Load

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

- What is cognitive load and how does it affect learning?

- How can we design instruction to work with, rather than against, memory constraints?

Objectives:

- Remember the quantitative limit of human memory.
- Distinguish desirable from undesirable cognitive load.
- Evaluate cognitive load associated with a learning task.

Types of Memory

- short-term vs long-term memory
- 7±2

-- -- *Exercise: Test Your Working Memory* -- --
This website implements a short test of working memory.
https://miku.github.io/activememory/
What was your score? If you are comfortable, share your answer in the Etherpad.

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If you are unable to use this activity, ask your Trainer to implement the analog or adapted version of this test.
This exercise should take about 5 minutes.

Most people will have found they only remember 5-7 words. Those who remember less may be experiencing distraction, fatigue, or (as we will learn shortly) “cognitive overload.” Those who remember more are almost invariably deploying a *memory management strategy*.

Strategies For Memory Management

Chunking

Image: A list of words: cat, apple, ball, tree, square, head, house, door, box, car, king, hammer, milk, fish, book, tape, arrow, flower, key, shoe. Underneath, the same words are organized into boxes with related terms e.g. cat fish milk ball and apple flower tree"
https://carpentries.github.io/instructor-training/fig/chunking.svg

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

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This exercise should take about 5 minutes.

Using Formative Assessment to Support Memory Consolidation

Frequency of assessment

Group Work

Opportunities for Reflection

Limit Concepts

Attention is a Limited Resource: Cognitive Load

3 types:

- Things they have to think about in order to *perform a task* (“intrinsic”).
- Mental effort required to *connect the task* to new and old information (“germane”).
- *Distractions* and other mental effort not directly related to performing or learning from the task (“extraneous”).

Is Guided Practice "Hand Holding"?

-- -- *Exercise: Mapping Cognitive Load* -- --
Look in the curriculum that you chose to prepare for this workshop and focus on one step or task that learners will be asked to complete.

- What concepts will learners need to understand and hold in short-term memory in order to complete this task?
- Draw a concept map connecting these concepts. What relationships do learners need to understand to connect them?
- How many of these concepts and relationships have been introduced since the previous step or exercise?

With a partner or in small groups, discuss what you have found. Are your learners at risk of cognitive overload at this point in your workshop? Why or why not?
This exercise should take about 15 minutes.

Attention Management in Your Workshop

Using Formative Assessments for Memory Management

There are many different types of exercises that can focus attention narrowly and help to avoid cognitive overload. Carefully targeted multiple choice questions can play this role. A few more that you may wish to consider are:

- Faded examples: worked examples with targeted details “faded” out – essentially fill-in-the-blank programming blocks
- Parson’s Problems: out-of-order code selection & sorting challenges
- Labelling diagrams or flow charts (may also be organized as a fill-in-the-blank)

What to Display

Keypoints:

- 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.
- Cognitive load should be managed through guided practice to facilitate learning and prevent overload.
- Formative assessments can help to consolidate learning in long-term memory.

Building Skill With Feedback

https://carpentries.github.io/instructor-training/06-feedback
Questions:
How can I get feedback from learners?
How can I use this feedback to improve my teaching?
Objectives:
Describe three feedback mechanisms used in Carpentries workshops.
Give feedback to your instructors.

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

The survey links above are only for you to preview the survey as part of Instructor Training. When you are teaching a workshop, make sure to share the links generated on your workshop website. Doing so will ensure that you will receive all the survey results from your workshop participants.

Image: Screenshot of a workshop website showing location of customized survey links
https://carpentries.github.io/instructor-training/fig/surveyscreenshot3.svg

Timing matters

Minute Cards

Example positive prompts:

- One thing you liked about this section of the workshop
- The most important thing you learned today
- A new skill, command, or technique you are most excited about using

Example constructive prompts:

- One thing you did not like or would change about this section of the workshop
- One thing that is confusing / you would like clarification on.
- One question you have

Be Explicit About Using Feedback

One-Up, One-Down

-- -- *Exercise: Give Us Feedback* -- --
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.

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.

END HALF DAY / LUNCH (1 hour)

Motivation and Demotivation

https://carpentries.github.io/instructor-training/08-motivation
Questions:

- Why is motivation important?
- How can we create a motivating environment for learners?

Objectives:

- Identify authentic tasks and explain why teaching using them is important.
- Develop strategies to avoid demotivating learners.
- Distinguish praise based on the type of mindset it promotes.

Motivation Matters

- Any technique can fall flat when learners are not motivated
- In a short workshop, motivation to continue learning independently is a critical outcome

How Can Content Influence Motivation?

- Believing that something will be too hard to learn often becomes a self-fulfilling prophecy.

Image: A stylized graph with y-axis labeled "usefulness once mastered" and and x-axis labeled "mean time to master". The upper left quadrant says "teach this first" and the lower right quadrant says "do not bother". https://carpentries.github.io/instructor-training/fig/what-to-teach.png

*-- -- **Exercise: Authentic Tasks: Think, Pair, Share** -- --*

1) 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.
2) Pair up with your neighbor and decide where this exercise fits on a graph of “short/long time to master” and “low/high usefulness”.
3) 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.

This exercise should take about 10 minutes.

How Can You Affect Motivation?

-- -- Exercise: Brainstorming Motivational Impacts -- --
Think back to courses you have taken in the past and consider things that an instructor has said or done that you found either motivating or demotivating. Try to think of one example in each case, and share your example under the appropriate heading in the Etherpad.
This exercise should take about 5 minutes.

Motivating experiences

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Demotivating experiences

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Invite Participation

- Establishing norms for interaction
- Encouraging learners to learn from each other
- Acknowledging when learners are confused

Encourage a Growth Mindset

- Positive error framing

-- -- *Exercise: Helping Learners Learn From Mistakes* -- --
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.
This exercise should take about 5 minutes.

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- Presenting the Instructor as a Learner
    - "The typos are the pedagogy"
- Praising effort or improvement, not performance or ability

-- -- *Exercise: Choosing our Praises* -- --
Since we are so used to being praised for our performance, it can be challenging to change the way we praise our learners. Which of these examples of praise do you think are based on performance, effort, or improvement?

- That's exactly how you do it – you haven't gotten it right yet, but you've tried two different strategies to solve that problem. Keep it up!
- You're getting to be really good at that. See how it pays to keep at it?
- Wow, you did that perfectly without any help. Have you thought about taking more computing classes?
- That was a hard problem. You didn't get the right answer, but look at what you learned trying to solve it!
- Look at that - you're a natural!

This exercise should take about 5 minutes.

- Leveraging the power of "yet"

First, Do No Harm!

Things not to do in a workshop:

- Talk contemptuously or with scorn about any tool or practice, or the people who use them.

- Dive into complex or detailed technical discussion with the one or two people in the audience who clearly don’t actually need to be there.
- Pretend to know more than you do.
- Use the J word (“just”) or other demotivating words we talked about in a previous lesson.
- Take over the learner’s keyboard.
- Express surprise at unawareness.

Not Just Learners

- Why does your motivation matter?

-- -- *Exercise: Why Do You Teach?* -- --
We all have a different motivation for teaching, and that is a really good thing! The Carpentries wants 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.

This exercise should take about 5 minutes.

Keypoints:

- A positive learning environment helps people concentrate on learning.
- People learn best when they see the utility in what they're learning and believe it can be accomplished with reasonable effort.
- Encouraging participation and embracing errors helps learners to stay motivated.

Equity, Inclusion, and Accessibility

https://carpentries.github.io/instructor-training/09-eia
Questions:

- Why are equity, inclusion, and accessibility important?
- What can I do enhance equity, inclusion, and accessibility in my workshop?

Objectives:

- Identify instructional strategies that are consistent with universal design.
- Recognize systemic factors that can distract and demotivate learners.
- Understand the role of The Carpentries Code of Conduct in maintaining an explicitly inclusive environment.

A Positive Environment for All

Definitions

- Equity: The proportional distribution of desirable outcomes across groups. Sometimes confused with equality, equity refers to outcomes while equality connotes equal treatment.
- Inclusion: Actively engaging traditionally excluded individuals and/or groups in processes, activities and decisions in a way that shares power. Inclusion promotes broad engagement, shared participation, and advances authentic sense of belonging through safe, positive, and nurturing environments.
- Accessibility: Refers to the intentional design or redesign of technology, policies, products, and services (to name a few) that increase one's ability to use, access, and obtain the respective item. Each person is afforded the opportunity to acquire the same information, engage in the same interactions, and enjoy the same services in an equally effective and equally integrated manner, with substantially equivalent ease of use.

The Carpentries Core Values

-- -- *Exercise: Discuss The Carpentries Core Values* -- --

- Take a moment to read through the Core Values on this page: https://carpentries.org/about-us/#our-values
- Choose one core value that resonates with you. What is a decision you might make in a workshop that could look different if you were actively considering the core value you chose?

This exercise should take about 5 minutes.

Accessibility

-- -- *Exercise: What Happens When Accessibility is an Issue?* -- --
Think of a time when you have been affected by, or noticed someone else being affected by barriers to 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.
This exercise should take about 5 minutes.

From Accomodation to Universal Design

Image: Cartoon showing strollers, suitcases, bicycles, carts, and wheelchairs using curb cuts
https://carpentries.github.io/instructor-training/fig/sketchplanations-the-curb-cut-effect.png

Universal Design in Learning (UDL)
The key to UDL is creating redundancies such that learners have multiple options in how they:
1) receive
2) engage, and
3) share information.

-- -- *Exercise: Activity: Applying Universal Design in Your Teaching* -- --
Consider some of the teaching tools and strategies we have discussed so far in this workshop, or others you have observed in your experience. How do these meet UDL goals of providing multiple options for learners?
Consider multiple ways for learners to:

- receive information
- engage with you, the material, and other learners
- share what they have learned

This exercise should take about 10 minutes.

Every Little Bit Counts

Accessibility Testing

Systemic Exclusion

Stereotypes

- may be explicit (conscious and deliberate) or implicit (unconscious and automatic)
- guide what we notice about people
- guide how we interpret people's behaviors
- can facilitate quick judgements in appropriate situations (e.g. stopping a child from driving a car)
- can lead to systematically negative attitudes and behaviors towards members of certain groups

When Instructors have stereotypes about learners
When learners experience stereotypes about themselves

What can we do about our own stereotypes?

Better Together: Learning with Friends

Equity versus Equality

Inclusive Practices in a Carpentries Workshop

Setting Expectations with the Code of Conduct

Listening with Assessment and Feedback

Examining your Actions

Looking for More? Want to Contribute?

The Carpentries is actively working on improving our content and practices with respect to equity,

inclusion, and accessibility. If you are interested in being involved in the development of this content, please let us know! Contributions to this page may be made on GitHub (click the “edit this page” link at the top), though our #accessibility channel on The Carpentries Slack, or by emailing team@carpentries.org.

Keypoints:

- Inclusivity is a key attribute of a positive learning environment.
- Universal design benefits everyone.

BREAK (15 min)

Teaching is a Skill

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

- How can I improve my teaching?

Objectives:

- Use peer-to-peer lesson practice to transform your instruction.
- Give thoughtful and useful feedback.
- Incorporate feedback into your teaching practices.

Lesson Study: Applying a Growth Mindset to Teaching

Jugyokenkyu or "lesson study": the power of classroom observation

Reading It Is Not Enough

Feedback Is Hard

Image: A three panel comic. In the first panel, a smiling figure is surrounded by speech bubbles with mostly positive feedback. In the second panel, the figure is eating dinner. All of the previous speech bubbles appear faded out, except the one negative bubble. The third panel shows the figure in bed, with an unhappy face, with the one piece of negative feedback lingering after all others have faded.
https://carpentries.github.io/instructor-training/fig/deathbulge-jerk.jpg

- Initiate feedback
- Be specific
- Balance positive and negative feedback
- Provide a clear next step
- Communicate expectations

- Remember that giving feedback is a skill
- Use a feedback translator

Lunar Babboon comic: https://web.archive.org/web/20210513225525/http://www.lunarbaboon.com/comics/feedback.html

-- -- *Exercise: Giving Feedback* -- --
We will start by observing some examples of teaching and providing some feedback.

Watch this example teaching video as a group and then give feedback on it. https://www.youtube.com/watch?v=-ApVt04rB4U Put your feedback in the Etherpad. Organize your feedback along two axes: positive vs. opportunities for growth (sometimes called “negative”) and content (what was said) vs. presentation (how it was said).

Note: there is a version of this video with subtitles in both Spanish and English here: https://www.youtube.com/watch?v=jxgMVwQamO0

This exercise should take about 10 minutes.
Positive
- Content

-
-
-
-
-

- Presentation

-
-
-
-
-

Growth opportunities
- Content

-
-
-
-
-

- Presentation

-
-
-
-

-- -- *Exercise: Sharing Feedback* -- --
The prep time for this exercise is intentionally short – the point is to practice giving and receiving feedback, not to create a perfect presentation. Imperfect presentations will give you more to work with!
Distributed trainings:

- Split into groups of three.
- Individually, spend 5 minutes preparing a 90-second introduction to the topic of the lesson episode you chose before the start of the training course. You will not be live coding.
- Get together with your group and have one person teach their segment to the group. Keep a strict time limit of 90 seconds per person (one person should be responsible for the timekeeping).
- After the first person has finished teaching, share feedback. The person who performed should start by offering feedback on themselves. The timekeeper should help to keep feedback to about 5 minutes per person to ensure everyone has time to perform and discuss.
- Rotate roles and repeat steps 3 & 4
- Return to the main group and briefly summarize the feedback you received in the Etherpad. Your Trainer will split the group into virtual break-out rooms. Follow the instructions above but do not record each other. Instead, give each person feedback immediately after they finish their turn teaching.

Trainings where trainees are co-located:

- Split into groups of three.
- Individually, spend 5 minutes preparing a 90-second introduction to the topic of the lesson episode you chose before the start of the training course. You will not be live coding; you can use a whiteboard or other visual aids if available (but this is not required!).
- 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. Keep a strict time limit of 90 seconds per person (one person should be responsible for the timekeeping).
- 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.
- 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. Keep an eye on the time during feedback, especially if your group has more than 3 people, to be sure to leave time for everyone.
- 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.

This exercise should take about 25 minutes.

-- -- *Exercise: Using Feedback* -- --
Look back at the feedback you received on your teaching. 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.

This exercise should take about 5 minutes.

Keypoints:

- 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.

Wrap-Up and Homework for Tomorrow

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

- What have we learned so far?
- What needs to be done to prepare for the next part of the training?

Objectives:

- Describe overnight homework.
- Produce a paragraph, drawing, or diagram that summarizes what was taught to this point.

-- -- *Exercise: Feedback* -- --
The Trainer(s) will ask for feedback on the day in some form.

This exercise should take 5 minutes.

-- -- *Exercise: Reflection Exercise* -- --
Before we wrap up for the day, take 5 minutes to think over everything we have covered so far. On a piece of paper, write down something that captures what you want to remember about the day. The Trainers will not look at this - it is just for you.

If you do not 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

This exercise should take about 10 minutes.

Keypoints:

- So far we learned about how people learn, how to build a positive classroom environment, and how to give feedback.
- Tomorrow we will cover specifics of Carpentries workshops and teaching practices.

END DAY 1 / 2nd HALF DAY

Welcome Back

https://carpentries.github.io/instructor-training/13-second-welcome
Questions:

- What have we learned so far?
- What will we focus on today?

Objectives:

- Review main points we discussed yesterday.
- Introduce topics we will discuss today.

-- -- *Exercise: Questions* -- --
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.

This activity should take about 5 minutes.

Keypoints:

- 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.

Checkout Process

https://carpentries.github.io/instructor-training/14-checkout
Questions:

- What do I need to do to finish certifying as a Carpentries Instructor?

Objectives:

- Describe the final steps required to qualify as an Instructor.
- Schedule your community discussion session.

Instructor Checkout

-- -- *Exercise: Be The Expert: Checkout Q & A* -- --
In small groups, read and discuss one of the three checkout procedures described on this page: https://carpentries.github.io/instructor-training/checkout Make notes in the Etherpad:

- What points do you think it is most important or helpful for people to remember?
- What questions or points of confusion do you have, or think others might have? When you are done, report back to the full group about that stage of the process.

This exercise should take about 10 minutes.

-- -- *Exercise: Schedule a Welcome Session or Demo* -- --
Schedule a Checkout Step

Take a moment to review your calendar and sign up for one or more sessions to get your checkout process rolling!

- Visit the Welcome Session Etherpad: <https://pad.carpentries.org/welcome-sessions-2025>
- Visit the Teaching Demonstrations Etherpad: <https://pad.carpentries.org/teaching-demos>
- If you would like to attend another community session for your 'Get Involved' step, visit the Community Calendar: <https://carpentries.org/community/events>

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

There are not automatic reminders for any events you sign up for on an Etherpad.
It might also be a good idea to put the event on your calendar and use that to set reminders if you will need them.

This exercise should take 5 minutes.

What does a badge mean?
- teaching
- voting
- sharing

Keypoints:

- 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.

The Carpentries: How We Operate

https://carpentries.github.io/instructor-training/15-carpentries
Questions:

- How is The Carpentries organized and run?
- What is the difference between SWC, DC, and LC workshops?

- How do you run a Carpentries workshop?

Objectives:

- Get connected with The Carpentries community.
- Describe where you can go to get information on running a workshop.

A Brief History

Global & Local Carpentries communities

Image: A very brief history of The Carpentries. A timeline. https://carpentries.github.io/instructor-training/fig/The-Carpentries-History-Timeline.png

Similarities and Differences between The Carpentries Lesson Programs

Similarities between Data Carpentry, Library Carpentry, and Software Carpentry workshops include:

- a focus on technical skills,
- a two-day format taught by volunteer instructors, and
- a focus on filling gaps in current training for learners.

Image: Three intersecting circles labelled Software Carpentry, Data Carpentry, and Library Carpentry. https://carpentries.github.io/instructor-training/fig/carpentries-venn-diagram_20200904.svg

What is a Carpentries Workshop? The Rules.

Using the Names and Logos
https://carpentries.org/workshops/#workshop-core

Recruiting helpers: https://docs.carpentries.org/resources/workshops/checklists.html

Materials
https://carpentries.github.io/instructor-training/LICENSE.html

Reporting a ‘Mix and Match’ Workshop
https://amy.carpentries.org/forms/workshop/

Instructor Certification is Comprehensive

Carpentries Jargon Review
-- -- *Exercise: Test yourself!* -- --
As a class or in groups, see how many of the following terms you can define.

- Lesson

- Episode
- Workshop
- Lesson Program
- Instructor
- (Instructor) Trainer

This should take about 5 minutes.

How to Organise a Carpentries Workshop Locally

https://carpentries.org/workshops/#workshop-organising

The Carpentries Handbook: https://docs.carpentries.org/ includes:

- templates and checklists https://docs.carpentries.org/resources/workshops/checklists.html
- policies https://docs.carpentries.org/index.html (see left navigation menu)
- much more!

Callout: Teaching Opportunities: Local and Global
Instructors mailing list: https://carpentries.topicbox.com/groups/instructors

-- -- *Exercise: Explain to a partner* -- --
With a partner, take turns asking and answering the question: "I want to organize a workshop! What will I need to do?" One partner should ask about a self-organised workshop, and the other can ask about a centrally-organised workshop. If you have a third person, they can help out with follow-up questions or answers as needed.

When you encounter new questions during this process, be sure to write them in the Etherpad.

Leave about 10 minutes for this discussion.

Setting Out On Your Own… Together: Lesson Incubation

https://github.com/carpentries-incubator/proposals/

A Culture of Contribution

-- -- *Exercise: Community Roles* -- --
Select one role from the list below that interests you. Using the the descriptions on The Carpentries community website (https://carpentries.org/community/), write 1) a short definition of the role and 2) a question that you have (or that you imagine someone else might have) about the role. Are there roles you would like to see that are not listed? Note that, too!

- Board of Directors
- Instructor Trainers

- Lesson developers
- Curriculum advisors
- Lesson maintainers
- Code of Conduct Committee

This exercise should take about 5 minutes.

Keeping In Touch

Want to listen?

- Sign up for our newsletter
- Follow us on Twitter, Facebook, or LinkedIn

Want to interact (or listen with options to engage)?

- Join our Slack organisation
- Join our Email lists (start with “Discuss”!)

Want to join meetings (to meet new people or listen in)?

- Sign up for Community Discussions (or just drop in if there is space!) or other events when announced
- Explore taking on one of the Roles identified above

-- -- *Exercise: Get Connected* -- --
Take a couple of minutes to sign up for The Carpentries channels you want to stay involved with on this page: https://carpentries.org/connect/ When you are done, share a channel you find interesting or useful on the Etherpad.
This exercise should take about 5 minutes.

Keypoints:

- The Carpentries materials are all openly licensed, but names and logos are trademarked.
- Carpentries workshops must cover core concepts, have at least one certified Instructor, and use our pre- and post-workshop surveys.
- [Guidance for teaching and hosting workshops] (https://docs.carpentries.org/handbooks/instructors.html#step-by-step-guides is provided in [The Carpentries Handbook](https://docs.carpentries.org).

BREAK (15 min)

Live Coding is a Skill

https://carpentries.github.io/instructor-training/17-live
Questions:

- Why do we teach programming using participatory live coding?

Objectives:

- Explain the advantages and limitations of participatory live coding.
- Summarize the key dos and do nots of participatory live coding.
- Demonstrate participatory live coding.

Why Participatory Live Coding?

Exercise: Up and Down
List some advantages and challenges of participatory live coding from both a learner's and an instructor's point of view in the Etherpad.

This discussion should take about 5 minutes.

-- -- *Exercise: Compare and Contrast* -- --
Watch this first participatory live coding demo video: https://youtu.be/bXxBeNkKmJE and this second demo video: https://youtu.be/SkPmwe_WjeY 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.

Note: Sometime sounds in the room can be poor. Turning on closed captioning by pressing the cc button will improve the accessibility of these videos.

This exercise and discussion should take about 15 minutes.
Content

- Positive

- Constructive

Delivery

- Positive
-
- Constructive
-

Top Ten Tips for Participatory Live Coding in a Workshop

1) Stand up and move around the room if possible. This makes the experience more interactive and less monotonous. Use a microphone if one is available to make it easier for people with hearing difficulties to hear you.
2) Go slowly.
3) Mirror your learner's environment.
4) Use your screen wisely.
5) Use illustrations
6) Turn off notifications
7)Stick to the lesson material.
8) Leave no learner behind.
9) Embrace mistakes.
10) Have fun!

Read more in the paper - https://doi.org/10.1371/journal.pcbi.1008090

-- -- *Exercise: Practice Teaching* -- --

- Split into groups of three.
- Assign roles, which will rotate: presenter, timekeeper, note-taker.
- Have each group member teach 3 minutes of your chosen lesson episode using live coding. For this exercise, your peers will not "code-along." Before you begin, briefly describe what you will be teaching and what has been learned previously. Do not record this exercise.
- After each person finishes, each group member should share feedback (starting with themselves) using the same 2x2 rubric as yesterday. The timekeeper should keep feedback discussion to about 1 minute per person; this may leave some time at the end for general discussion. The note-taker should record feedback in the Etherpad.
- Trade off roles.

This exercise should take about 25 minutes.

Keypoints:

- 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.

Preparing to Teach

https://carpentries.github.io/instructor-training/18-preparation
Questions:

- How should I prepare to teach?

Objectives:

- Critically analyze a learning objective for your workshop.
- Identify checkpoints in a lesson for formative assessment.

Building Teaching Skill

Over-preparing on technical content can be tempting. Don't forget to prepare to teach!

A note on cutting: This episode is a common place for Trainers to plan cuts while preparing to teach. That's not because this is not important – this page is a valuable resource – but we feel this is one of the sections that trainees can use effectively as a resource when actually preparing for a workshop, even without spending a lot of time doing activities on this material during their Instructor Training event.

Anticipate Your Audience

Image: A tree diagram of Carpentries instruction and audience in which Instructor Trainers teach Instructors and Instructors teach Learners https://carpentries.github.io/instructor-training/fig/instructor-training-program.png

-- -- *Exercise: Imagine a Learner* -- --
Take a moment to silently imagine a learner who might attend your workshop. What is their background? What problem do they face? What will they gain from attending your workshop?
This exercise should take about 2 minutes.

You will never know everything about the whole people who come into your classroom.
Thinking deeply about learners as people can help you prepare to bring your best self and provide an inclusive environment for everyone.

Remember Your Pre-Workshop Surveys

Examine Learning Objectives

-- -- *Exercise: Evaluate Learning Objectives* -- --
Select one learning objective from the episode you've used for teaching practice. Copy it into the etherpad then add numbers below your objective to address the following:

- Write your learning objective in the Etherpad.
- Suppose a learner had mastered this objective, and wanted to try something more cognitively challenging on the exact same topic (i.e. not a next step in a workflow). Identify an objective they could work towards next.
- Suppose a learner struggled to meet the specified objective. What might they be missing? Identify one more fundamental thing a learner needs to be able to do in order to be successful in meeting this objective.

This exercise should take about 10 minutes.

Beware the Urge to Complicate

Prepare to Use Formative Assessments

Metacognition: learner awareness of their own process and progress can support continued effort beyond the workshop

-- -- *Exercise: Where are your Checkpoints?* -- --
Have a look at your learning objective again and identify *where* in the lesson that objective should reasonably be achieved.
This exercise should take about 5 minutes.

-- -- *Exercise: Assessment is for Everyone* -- --
How might you apply formative assessment to:
a) verify that that achievement has been met by all and
b) make learners aware of their accomplishment?
Keep in mind that formative assessment can take many forms, including multiple choice questions, other exercises, spontaneous questions and calls for sticky notes. Write some notes or thoughts about this process in the Etherpad for discussion.
This exercise and discussion should take about 10 minutes.

How Frequent?

- Formative assessments of some kind should ideally be used every 5 minutes and at least every 10-15 minutes
- "Do You Understand" is ineffective as formative assesment

Prepare to Cut

- Keep breaks on time
- Watch out for dependencies
- Leave time to wrap up your workshop
- Do not speed up
- Communicate with your team
- Communicate with your learners

Review the Instructor Notes

Review Prior Feedback

- Repetition vs Reflective Practice

Connect With Your Team

-- -- *Exercise: Minute Cards Revisited* -- --
Follow your Trainers' instructions to share feedback your event.

Keypoints:

- To teach effectively, you have to know *who* you are teaching.
- Good learning objectives identify specific events that can be evaluated through formative assessment.
- A good exercise informs Learners and Instructors when an objective is achieved.

LUNCH (1h) / END 3rd HALF DAY

More Practice Live Coding

https://carpentries.github.io/instructor-training/20-performance
Questions:

- How did you change your teaching in response to feedback?

Objectives:

- Use feedback to improve your teaching.

-- -- *Exercise: Round Two* -- --

- Before splitting into groups, read the rubric that is given to Instructor 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.html . (Note: demos are not scored, so this rubric is for advisory purposes only.) What questions do you have?

- Return to your groups and repeat the previous live coding exercise, re-teaching the same content as before. This time, the presenter should incorporate changes based on feedback received, and everyone should try to ‘level up’ their feedback using the rubric for teaching demos.
- 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?

This exercise should take about 10 minutes for rubric discussion, 25 minutes for teaching, and 10 minutes for de-brief.

Keypoints:

- (Reflective) Practice makes perfect.

Working With Your Team

https://carpentries.github.io/instructor-training/21-management
Questions:

- What are the challenges of managing a heterogeneous classroom?
- What should we do if there is a Code of Conduct violation?
- What does it mean to be a co-Instructor?
- How does an instructional team prepare for a workshop?

Objectives:

- Identify potential challenges of teaching learners with very different backgrounds and skill levels.
- Locate resources to direct your response if someone at your workshop violates the Code of Conduct.
- Identify workshop roles and responsibilities for your team.
- Use The Carpentries workshop website template instructions to start creating a website.

Never Teach Alone

The Instructional Team

- A *Host* who organizes the workshop logistics
- Two or more *Instructors* who plan and execute workshop instruction
- *Helpers* who support learners during the workshop

Hosting
https://docs.carpentries.org/resources/workshops/checklists.html#host-checklist

Helpers

- help learners with setup and installation
- answer questions during exercises
- monitor the room to spot people who may need help (indicated by a sticky note or otherwise)
- monitor the shared notes and either answer questions there or remind the Instructor to do so during breaks

https://docs.carpentries.org/resources/workshops/checklists.html#helper-checklist

Carpentries Classroom Practices

- Starting with the Code of Conduct
- Participatory Instruction & Hands-off Help
    - Learners Use Their Own Machines
- Sticky Notes
    - Accessibility of Sticky Notes
- Formative Assessment
- Breaks (ideally with snacks)
- Feedback

Co-Teaching Models

- Team teaching: Both teachers deliver a single stream of content in tandem, taking turns the way that musicians taking solos would.
- Teach and assist: Teacher A teaches while Teacher B moves around the classroom to help learners.

Sticky Situations 1: Learners at Many Levels

-- -- *Exercise: What Are the Challenges?* -- --
What are some of the challenges you might expect when teaching learners with a broad range of expertise? Add your thoughts in the Etherpad.

This discussion should take about 5 minutes.

- workshop advertising
- exercises
- partnering
- managing the conversation
- helper vigilance

Sticky Situations 2: Code of Conduct Violations

A critical function of the Code of Conduct is to ensure that our community does not tolerate or encourage the persistence of harmful behaviors. In order for the code to work well, incidents must be reported. Note that it is not the responsibility of the reporter to determine whether a Code of Conduct violation has occurred; when in doubt, it is best to report an incident and allow the Code of Conduct Committee to make that determination.

-- -- *Exercise: Know Your Resources* -- --
1) Take 5 minutes to read through the Code of Conduct Incident Response Guidelines: https://docs.carpentries.org/policies/coc/incident-response.html

2) Discuss what you have read in small groups. As questions arise, you may wish to refer to our complete Code of Conduct section in The Carpentries Handbook: https://docs.carpentries.org/policies/coc/ or to the Transparency Reports released by The Carpentries Code of Conduct Committee: https://github.com/carpentries/executive-council-info/tree/master/code-of-conduct-transparency-reports

- What kinds of things could your instructional team agree upon in advance of your workshop?
- What questions do you have about CoC enforcement?

3) Write some notes in the Etherpad.

This discussion should take about 10 minutes.

Know your Local Laws and Policies

Planning Together

-- -- *Exercise: Teaching Together - Nuts and Bolts* -- --
With a partner, imagine that you are planning a workshop together. For this exercise, you may assume that your workshop has a separate, designated Host.

- How would you prepare to teach a workshop together?
- How would you coordinate with other members of your instructional team (e.g. Host, Helpers)?
- What kinds of things will you do to support each other during the workshop? What won't you do?

Record some notes, and share your thoughts with the group. This exercise should take about 10 minutes.

Setting up a Workshop Website

-- -- *Exercise: Practice With The Carpentries Infrastructure* -- --
For this activity, your Trainer will put you in groups, but you may choose whether to work together or independently. If you work independently, you can still use your group as a resource to ask questions as they emerge.
Go to the workshop template repository: https://github.com/carpentries/workshop-template

- If you have a GitHub account (or don't mind creating one) and are comfortable doing so, follow the directions to begin creating a workshop website using your local location and today's date.
- Alternatively, have a look at the video tutorial linked on the instructions page. With any time remaining, check out the websites for upcoming Carpentries workshops on our website: https://carpentries.org/upcoming_workshops/
- Add your questions and thoughts on this process to the Etherpad. If you created a workshop website, add the link there as well.

This exercise should take about 15 minutes.

Note: Sometimes web browsers will cache the workshop webpage, so when you make changes in GitHub, they do not 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 these instructions to bypass your browser cache: https://en.wikipedia.org/wiki/Wikipedia:Bypass_your_cache

Setting up an Etherpad

Keypoints:

- Team work takes work, but allows you to share the load and build connections.
- Working with a broad range of learners can be challenging, but there are many ways to keep a classroom happy and motivated.
- The instructional team decides how to respond to Code-of-Conduct incidents during a workshop; all violations should be reported to The Carpentries Code of Conduct committee for follow-up.

BREAK (15 min)

Launches and Landings

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

- How do you actually start a workshop?

Objectives:

- Connect goals of an introduction with options for content and delivery.
- Practice a short introduction.
- Identify worthwhile elements of a workshop conclusion.

Launching your Workshop: The Introduction

"primacy effect": a tendency to remember things presented at the beginning of a list or event

-- -- *Exercise: What is in an Introduction?* -- --
Get into small groups (3-4 people) and discuss the questions below. Take notes on your answers in the Etherpad.

- 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.
Finally, compare your ideas with the list of topics below. Did you miss anything? Did you come up with something that is not listed below?

Learning Objectives For your Introduction

After the introduction learners should:

- be able to predict the type of instruction
- know what will be taught
- understand what will be required of them
- believe that they can learn from the workshop
- be aware of the schedule

The instructional team should:

- know of who is participating in the workshop and what their expectations are
- have an initial impression of how learners respond to participation prompts and what will be needed to encourage them to engage

Setting the Stage

- attire
- physical environment
- time before class
- introducing yourself
    - introductions for everyone
- doubts
- seeding a classroom community
    - icebreakers

Teaching Your Trajectory: Workshop 101

- Describe the prerequisites (if any).
- Share the schedule and logistics
- Communicate the workshop structure
- Communicate your expectations for learners, including:
    - how to follow the Code of Conduct
    - ways to ask for help
    - ways to give feedback to the instructional team
- Collect and share baseline data on learners
- Share some advice for success
- Whet learners’ appetites for workshop content

-- -- *Exercise: Practice Your Introduction* -- --
Imagine you have completed instructor training and you are about to teach a full lesson around the material you have been practicing teaching today.

- Write out some notes, covering a few of the topics described above:
    - Introduce yourself effectively
    - Clarify learning objectives and expectations
    - Set the tone for the workshop
- Return to your groups of 2 or 3 and each give 2 minutes of your introduction. (5-6 min)
- After each introduction, briefly share feedback, reserving extensive discussion for after all have had a turn to present.

This exercise will take about 15 minutes.

The Art of a Smooth Landing

-- -- *Exercise: Brainstorm: Making the Last Moments Count* -- --
You have made it to the end of your workshop! Everyone is exhausted and their brains are full. You could cover more content… or you could use the last few minutes in another way.

In the Etherpad, write down one thing you could do at the end of a workshop. What is the value of spending time on that thing? If you have time after writing down your idea, read through the others in the etherpad. If you have another idea that has not been written down yet, add it to the list.

This exercise will take about 5 minutes.

Keypoints:

- A planned introduction is key to creating a functional workshop environment.
- Conclusions support reflective practice and set the stage for continued learning.

Putting It Together

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

- How are the teaching practices we have learned used in our workshops?

Objectives:

- Organize your knowledge of teaching practices and create a plan for using these practices in a Carpentries workshop.

-- -- *Exercise: Picking up the Pieces* -- --
Based on the content we've discussed throughout this workshop, add at least one item to each category below:

- Concepts/Theories
- Tools/Practices

This exercise can be done as a class and should take about 5 minutes.

-- -- *Exercise: Organize Your Knowledge* -- --
Use a concept map or other visual organiser of your choice to connect some of the concepts above. You don't have to use them all! How are the terms you have chosen to include related to each other?
Work on this on your own. There is no "right answer" – this is about you building up a mental model, moving from "novice" to "competent practitioner".
If you feel you have finished organizing your thoughts, try the next exercise.
This exercise should take about 5 minutes.

-- -- *Exercise: Parting Thoughts (optional)* -- --
If you did not think about these issues when organizing your topics in the previous exercise, now consider:

- How would you describe your mental model of teaching?
- Can you identify why each topic above applies to teaching for the Carpentries?

Keypoints:

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

Wrapping Up

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

- What can we improve in this training?

Objectives:

- Reflect on the course.
- Articulate constructive feedback.

-- -- *Exercise: One Up, One Down* -- --
Provide one up, one down feedback on the entire Instructor Training course. Remember:

- Say only one thing, and try not to duplicate. This gets harder for those who come later!

- Trainers should try not to respond, only record responses (e.g. in the Etherpad). This is also hard, but important!

This exercise should take about 10 minutes.

-- -- *Exercise: Minute Cards (optional alternative)* -- --
Please use your minute cards (sticky notes or virtual) to give your Trainers anonymous feedback directly. This exercise should take 5 minutes.

-- -- *Exercise: Post Workshop Surveys* -- --
Assessment is very important to us! Please take the remaining time to complete this ~5 minute post-workshop survey.

Thank You!

Keypoints:

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

Before You Leave

Please fill out the post-training survey at
https://carpentries.typeform.com/to/cjJ9UP#slug=TRAINER_PASTE_WORKSHOP_ID_HERE <---
<****REPLACE with the slug for your event**** >