THE CARPENTRIES

Toolkit of IDEAS

Contents

Thank You

The Carpentries is an awesome community of smart and generous people. Thank you to all the people who contributed ideas and energy to this toolkit.

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Core Team

Thank you to The Carpentries Core Team for all your contributions. Special thanks to Alycia Crall and Brynn Elliott for the co-working sessions and arranging the community calls.

A special gigantic thank you to Kari L. Jordan for her leadership and enthusiasm. She champions IDEAS! She led this toolkit from ideation through to funding, served as a thought partner, and ensured that organisational support was available at all levels to deliver this.

Funder

Thank you to Chan Zuckerburg Initiative for funding the creation of this toolkit.

Introduction

What is the Toolkit of IDEAS?

The Toolkit of IDEAS (Inclusion, Diversity, Equity and Accessibility Strategies) is a practical resource for Carpentries' Instructors, helpers, and workshop hosts. We know that many people care about inclusion, diversity, equity and accessibility but are not sure how it connects to teaching foundational coding and data science skills. This toolkit aims to bridge this gap. This is version 1, which means it is a starting point and not a fully comprehensive resource. The hope is that the Core Team and community members will continue to update and extend this resource over time.

What was the process for creating this toolkit?

The Toolkit of IDEAS came out of the recommendations from ReadySet, a diversity, equity and inclusion consulting firm that did an organisational assessment of The Carpentries in 2020. Kari L. Jordan, Executive Director of The Carpentries, conceived the idea and obtained funding from the Chan Zuckerberg Initiative to execute it. She then contracted Tara Robertson Consulting Inc. in March 2022 to help lead this project.

Tara Robertson consulted with Carpentries' Team Leads and then worked with Alycia Crall and Brynn Elliott to hold four listening sessions

with the community—two on diversity, equity and inclusion on June 9, 2022, and two on accessibility on June 23, 2022. Forty members from the community attended and nine written submissions were provided through a form. We also contacted leaders in Africa, Latin America, Australia and Aotearoa/New Zealand to get additional input and to ensure the toolkit is not too U.S.-focused (it still might be!) An earlier draft of the toolkit was presented during two sessions at CarpentryCon, The Carpentries biennial event, to provide an opportunity for additional community input. Recommendations made during those sessions were then incorporated to provide this first draft.

How is the toolkit organised?

For each of the four sections in the toolkit you will find:
- A definition of the topic
- How it connects to The Carpentries' values
- Things you can do to support the topic:
  - Before the workshop
  - During the workshop
  - After the workshop

Shared values are the starting point for communities of practice as they identify principles that guide our behaviour. Where applicable, we reference The Carpentries Values throughout this toolkit as they guide how we advocate for inclusion, diversity, equity, and accessibility.

The "before," "during" and "after" sections take a BOTH/AND approach. They include BOTH questions for you to reflect on AND concrete things you can do to promote inclusion, diversity, equity, and accessibility. When considering the questions and tips, consider your role in

supporting a Carpentries workshop (i.e. Instructor, helper, workshop host).

A commitment to inclusion, diversity, equity and accessibility requires a shift in mindset and continuous learning. As we are a global project with Instructors and learners from many different backgrounds, running workshops in different environments, it is impossible to make a checklist that works for all of these scenarios. The questions to consider are intended for reflection and discussion. There are no right answers.

We heard in the community listening sessions that Instructors felt a desire for checklists and tactical advice, which is why we have included lists of things you can do in each section. Inclusion, diversity, equity and accessibility are not checklists, however. You need to be curious to learn, humble when you get it wrong, and take time to reflect on your growth and learning, as well as how you want to do things in the future. It is an ongoing learning process.

Inclusion

Definition

Inclusion is about how people feel. It is creating an atmosphere where learners feel a sense of belonging. Most of us know what it is like to feel included, and most of us have also experienced the feeling of not feeling included, too.

The Carpentries defines inclusion as "the active, intentional, and ongoing engagement of diverse people and communities that increases awareness, content knowledge, and empathic understanding of the ways we interact within (and change) our community." Our goal is to create workshops that are inclusive for everyone.

How does this connect to our [core values?](#)

Inclusion explicitly shows up in the following three core values:

- Value All Contributions: We value all contributions by individuals and entities to our community, code, lessons and broader ecosystem as long as those contributions adhere to The Carpentries Code of Conduct.

- Inclusive of All: We advocate for inclusivity—welcoming and extending empathy and kindness—to leverage contributions from all community members, regardless of their identity or expression.

- People First: We believe that the individuals who make up our community are the most important part of our organisation and our strongest resource. We strive to make decisions that lower barriers for individual participation.

Before a workshop

Questions to consider

- What barriers prevent learners from registering for a Carpentries workshop? How can you ensure your learners feel that a workshop is for them?

- Who are your role models for inclusion and learning? What qualities did they have as teachers? What specific things did they do to create an inclusive learning environment?

- Where and when will you offer a workshop?
    - Who might not be able to attend because of the choices you are making?

- What is one new thing you want to try as an Instructor to make this workshop more inclusive?
    - Set a goal for yourself, write it down and share it with the instructional team before the workshop. Check in at the middle on how you are doing and evaluate how you did at the end.

- How do you want to set up the workshop as an inclusive learning environment for this specific group of learners?

Things you can do

- In the sign-up process, ask learners what they need in order to be successful. Also, see the accessibility recommendations in this toolkit for tips on asking what disability accommodations learners need.

- For in-person workshops, ensure that the physical space is accessible, including the bathrooms. Where is the nearest gender-neutral bathroom? Is there a place for parents to breast or chest feed, or pump milk?

- If you are offering snacks or catering, ask if learners have food restrictions and ensure that there is food available for everyone.

- Provide multiple ways to participate based on individual preferences (e.g. speaking versus adding a comment into the chat).

Note that some of these tips overlap with accessibility.

During a workshop

Questions to consider

- What do you want to share about yourself as an Instructor and a learner?
    - *Optionally* share information about yourself with your learners. By sharing a bit about when you were a novice learning new concepts or tools, or about times that you have made mistakes,

you can contribute to building psychological safety in the workshop and help learners feel they can speak up when they have questions.

- How might the lesson content impact your learners?
    - Consider the dataset(s) you are using in your workshop. Reflect on whether the kinds of data being analysed have the potential to negatively impact your learners.

Things you can do

- Tell learners why The Carpentries' Code of Conduct matters to you. Share a short story about why harassment-free and safe learning environments are important to you.

- Consider learner needs when scheduling breaks, including:
    - Bathroom breaks
    - Breaks that are long enough for parents to breast/chest feed or pump breast milk
    - Snack or meal breaks
    - Breaks to move around and/or stretch
    - Breaks to reflect on what they are learning

- Include your pronouns when you introduce yourself and encourage others to do the same (but do not make it mandatory). If your language does not have gendered pronouns, be conscious about other ways you might misgender someone with language, and aim to avoid doing so.

- Provide multiple options for learners to participate and ask questions.

After a workshop

Questions to consider

- What went well? What are you proud of?

- What would you change next time?

- Evaluate how inclusive you were as an Instructor by scoring yourself out of 10. What could you do next time to increase your score by one point?

Things you can do

- Ask your co-Instructor for feedback on your teaching and how you fostered inclusion in the room. If they only say positive things, invite them to share one area you can grow in.

- Read the post-workshop survey results from the learners to understand whether they felt the environment was inclusive.
    - What is one thing you will do before your next workshop? What do you need in order to create accountability for yourself for this?

Diversity

Definition

Diversity is about who is in the room.

The Carpentries' defines diversity as "individual differences (e.g. personality, language, learning preferences and life experiences) and group-social differences (e.g. race, ethnicity, class, gender, gender identity, sexual orientation, sexual identity, country of origin and ability status, as well as cultural, political, religious or other affiliations) that can be engaged in the service of learning." Our goal is to offer workshops for diverse audiences.

How does this connect to our [core values?](#)

Diversity explicitly shows up in the following core value:
- Strength through Diversity: Appreciating that identities are complex and individual, we believe in empowering a diverse group of people to work with data and code to answer the questions important to them and to address challenges in science and society.

Before a workshop

Questions to consider

- Who is not represented in your workshop?
    - Both in terms of demographics, meaning gender, race, disability and age, and in terms of disciplines, such as digital humanities, microbiology, population health, and so on.

- Who are the Instructors? Who are the helpers? What agreements does the teaching team have to model a respectful learning environment?

- How do we honour different styles of learning and ways of knowing?

- Could the material I plan to teach make a participant feel stereotyped or disempowered?

Things you can do

- Learn about the individuals who contributed to the curriculum being taught in your workshop.

- Incorporate whiteboards, sticky notes, or other multimedia tools to support different learning styles.

- The Carpentries does outreach to specific organisations and communities that are underrepresented. In the U.S., these include:
  - [National Society of Black Engineers (NSBE)](#)
  - [Native BioData Consortium](#)
  - [Society for the Advancement of Chicanos and Native Americans in Science (SACNAS)](#)
  - [Society of Women Engineers (SWE)](#)
  - [The National Association of Multicultural Engineering Program Advocates (NAMEPA)](#)
  - [The National GEM Consortium](#)

- Globally, The Carpentries does outreach to organisations including, but not limited to:
  - [Bioinformatics Hub of Kenya](#)
  - [H3ABioNet](#)
  - [NSBE Ghana](#)
  - [OpenCider](#)
  - [Women of WACREN](#)

For universities offering on-campus workshops, see if these organisations also have branches/chapters at your campus. Building relationships with campus branches/chapters of these organisations is a great way to reach students and recruit Instructors to build a more diverse Instructor pool.

- Where can you promote your workshop to reach people who have not attended before? What campus or community meetings can you speak at to start building new relationships?

During a workshop

Questions to consider

- How can you acknowledge that learners may have what they perceive to be naive or novice questions? What can you do to make it safe to ask these questions in the workshop?

- Who asks questions or speaks up in your workshop, and who does not?

Things you can do

- Get curious about your own biases. For example, affinity bias is a type of unconscious bias where we gravitate towards people who are like us. Learn more about [19 types of unconscious bias](#). Which biases show up for you in a workshop setting?

After a workshop

Questions to consider

- What did you learn about diversity from this workshop? What will you do differently next time?

- What follow-up will you do with learners to build on the relationships you have begun with them? Informal networks of support are important for learners as well as for professional opportunities and career mobility.

Things you can do

- Identify some places where learners can go next on their journey in data skills and coding. What are some strategies they can use when they get stuck?
    - Invite learners to be part of The Carpentries community by introducing them to the [Welcome Tip Sheet](#) and encouraging them to join a monthly welcome session.

    - Identify resources for new coders on your campus or in your geographic area.

    - Research and share information about other mentorship and learning communities in open science, such as [PyLadies](#), [RLadies](#), [Black in Data](#) and other [networking communities for underrepresented data scientists](#)

Equity

Definition

Equity is about fairness and justice. **Equity** must not be confused with **equality**. Equality means individuals are given the same resources or opportunities. Equity recognises that each person has different circumstances and allocates the exact resources and opportunities needed to reach an intended outcome.

The Carpentries' defines equity as "the creation of opportunities for equal access to and participation in programs that are capable of closing participation gaps in our community." Our goal is to offer workshops where everyone can participate and learn.

How does this connect to our [core values](#)?

Equity is implied in the core value People First:
- We believe that the individuals who make up our community are the most important part of our organisation and our strongest resource. We strive to make decisions that lower barriers for individual participation.

Before a workshop

Questions to consider

- How are the workshop fees (if any) equitable?

- Who is organising the logistics for the workshop? This means booking the catering, cleaning up the garbage in the room at the end of the day, booking the room and picking up the keys, and the other necessary administrative tasks. Is the division of this work equitable?

- Some Instructors teach as part of their paid jobs while some Instructors volunteer their teaching services. Think about volunteer vs. paid time for Instructors—what is equitable in your situation?

Things you can do

- Ask your co-Instructor if it would be helpful to write a short email to their supervisor documenting their contributions to the community through teaching this workshop.

- Figure out concrete supports for parents and caregivers. This might include arranging a fund to reimburse childcare costs, partnering with the campus daycare, or scheduling the workshop at a time that does not conflict with school pickup or dropoff.

- If access to a computer or laptop is a barrier for learners, brainstorm solutions. Is there a computer lab or library on campus that you could use? Can you partner with other organisations to borrow or use equipment?

During a workshop

Questions to consider

- What does equitable participation in a Carpentries workshop look like for you?
- How are you ensuring that everyone is invited to participate throughout the workshop?

Things you can do

- Ensure learners are aware that questions can be asked during breaks.

- If using a collaborative notes tool during your workshop, remind learners that their feedback can be shared anonymously.

- Mentally log (or take turns as Instructors actually logging!) who speaks the most during a workshop. Check-in with the quieter folks during breaks, or invite them to respond during question and answer periods.

- Structure the exercises and feedback so that all learners can participate equitably.
    - Do not always call on the loudest, most experienced or fastest learner.
    - Create opportunities for quieter and less experienced learners who need more time to participate.

After a workshop

Questions to consider

- How does teaching Carpentries workshops get recognised in your organisation or career trajectory?

- How can you raise the profile of the work involved in teaching for The Carpentries in your organisation?

Things you can do

- Advocate for Carpentries teaching and instructional pedagogy to be valued in formal recognition and promotion processes.

Accessibility

Definition

[According to the World Bank](#), fifteen percent of the world's population experiences some kind of disability. Accessibility is about providing barrier-free access to learning environments and ensuring the full participation of people with disabilities.

The Carpentries defines accessibility as "the design of products, devices, services, or environments to be usable by people who experience disabilities." Our goal is to host accessible workshops that fully include both Instructors and learners with disabilities.

How does this connect to our [core values](#)?

Accessibility explicitly shows up in the following two core values:

- Access for All: We value accessibility as core, and create multiple avenues for participation where all people can learn and contribute.

- Inclusive of All: We advocate for inclusivity—welcoming and extending empathy and kindness—to leverage contributions from all community members, regardless of their identity or expression.

Before a workshop

Questions to consider

- What funding is available at my institution to support accessibility services? Does my institution offer accessibility services for free?

- What accessibility needs do you have as an Instructor? What is your level of comfort in talking about this with your co-Instructor(s) and learners?

- What will you do to ensure the decisions you are making as an Instructor are not creating access barriers for learners?

- Who can you reach out to in your organisation or region to learn more about accessibility to include learners with disabilities in your workshops?

- How will you give yourself grace and welcome the learning opportunity when you inevitably make a mistake or get something wrong?

- How does your teaching style reflect your learning preferences?

- How can you expand the way you teach to include other learning preferences?

Things you can do

- In the registration process, ask participants if they have any accommodations needs.
    - Here is some sample language for how to ask about accommodations: "We are dedicated to providing a positive and accessible learning environment for all. Please notify the Instructors in advance of the workshop if you require any accommodations or if there is anything we can do to make this workshop more accessible to you."

    - It is not necessary to know about someone's disability or medical condition (and it is insensitive and, in some places, illegal, to ask).
    Instead, ask about their needs as a learner in the workshop. For example, someone who is hard of hearing in an online workshop might need videos to be captioned, automatic captions on Zoom turned on, and for the Instructor to use a microphone so their voice is clearer. Trust that learners know what they need.

- Learn more about [Universal Design for Learning](). This framework can be used to improve and optimise teaching and learning for all people based on scientific insights into how humans learn. By incorporating Universal Design, a more inclusive environment is created, reducing the number of individual accommodations that are necessary.

- Use the [Accessible Presenter Guidelines]() to ensure that your resources and teaching are accessible.

- Share the agenda and workshop materials with learners at least 24 hours before the workshop.

- If creating video content for your learners, ensure these videos have captions.

- Check file formats for keyboard navigation and screen reader accessibility.

- Do not use image-based PDFs—they are inaccessible to screen reader users.

- Join the #accessibility channel on The Carpentries Slack and share your wins and ask questions.

During a workshop

Questions to consider

- What is the right balance between covering the material and moving at a pace that is right for all learners?
- How do we move at a speed that includes everyone?

Things you can do

- Outline workshop content in an introductory slide to give learners the overall context of what will be taught during the workshop.

- Ensure that breaks are built in to help with processing of new information.

- Ask participants if text is readable.
    - Is it big enough?
    - Is there enough colour contrast?
    - If using a whiteboard (in person), make sure that learners in the back of the room can see the writing on it.

- Use plain language; avoid idioms and metaphors.

- Are there any group work instructions? They should be written out and displayed during work time so learners can refer back to them.

- Using a shared note-taking method can be beneficial to participants (such as Google Docs or Etherpad).
    - Note that Etherpad may be visually challenging for live note taking given the various background colours.

If there are CART (Communication Access Realtime Translation) interpreters or sign language interpreters providing communication access for learners, they will often work in pairs and need to switch out. When these changes happen, check that they are ready before continuing on with the workshop.

Recommendations specific to virtual workshops
- For virtual workshops, keep track of the chat and repeat the questions and answers that come up there.
- Utilise automatic closed captioning- either through Zoom or set up an OtterAI account and connect it to Zoom.
- Use a headset with a boom mic or an external mic for higher-quality audio.

After a workshop

Questions to consider

- What improvements would you like to make next time?
- What learnings can you take into other teaching you do?

Things you can do

- Incorporate accessibility questions into your assessment.
- Identify what you need to learn about accessibility before your next workshop and make a plan to learn those things.

Next Steps

How you can get involved

This is version 1 of the Toolkit of IDEAS, which means it is a starting point. It is not fully comprehensive and will change and grow over time. The hope is that the Carpentries Core Team and community members will continue to update and extend this resource over time. In 2023 The Toolkit of IDEAS will become part of The Carpentries Instructor onboarding.

If you are interested in getting involved with the development of this toolkit, contact workshops@carpentries.org.