

Understanding Sustainability

How to improve your understanding of sustainability science

Goals	Indicators	Evaluation Tools
• Build a solid foundation of knowledge to guide practices	• Scores on sustainability knowledge tests	• Suspra Knowledge Test

Learning 101: Prompting AI

How to prompt artificial intelligence (AI) systems to explain sustainability science

Equipment & Materials

- Computer, tablet, or smartphone with Internet access
- Access to an AI chatbot

Steps

1. Choose an AI that has a knowledge cutoff date within the past twelve months; newer models are generally more intelligent and less likely to hallucinate than older models.
2. Ask specific questions about sustainability concepts you want to learn.
3. Request explanations at the level of understanding you want: for example, “Explain planetary boundaries in simple terms a high school student would understand.”
4. Ask for references to scientific journal articles and the names of the scientists who are experts in the subject to improve the quality of the AI responses to your prompts.
5. Request the AI to provide multiple perspectives on complex sustainability issues: for example, “What are the different scientific viewpoints on how quickly we need to achieve net-zero emissions?”
6. Ask the AI how to improve the questions you are asking to get better answers.
7. Prompt for practical applications; for example, “Which everyday practices help keep environmental impacts within Earth's carrying capacity?”
8. Use follow-up questions to explore topics more deeply: for example, “Based on your response about sustainable agriculture, explain more about the beef industry and deforestation.”
9. Verify AI responses against other AI, credible external sources like peer-reviewed articles, established scientific organizations, or this handbook.

Discussion

Use AI as a starting point for understanding sustainability science, then verify important information through other sources such as articles or books. AI chatbots such as ChatGPT, Claude, Copilot, DeepSeek, Gemini, Grok, and Meta can explain complex sustainability science in accessible ways, helping you understand concepts, relationships, and implications. However, AI may present outdated information or “hallucinate” (make up information) with no warning.

AI is particularly useful for:

- Breaking down complex sustainability concepts into understandable pieces

- Explaining scientific terms in everyday language
- Connecting different aspects of sustainability science into a cohesive framework
- Providing personalized explanations based on your background and interests
- Answering follow-up questions as your understanding develops

Definitions

- Artificial intelligence (AI): computer systems that can perform tasks typically requiring human intelligence
- Chatbots: software applications powered by AI that converse with human users through text
- Hallucinate: when an AI generates information that seems factual but is actually false
- Knowledge cutoff date: the point in time when an AI's pre-training stopped, limiting its awareness of recent events
- Pre-training: the initial phase of teaching an AI by exposing it to data from books, articles, websites, and other sources, allowing it to learn language patterns, factual information, and relationships between concepts before the AI is refined for specific uses
- Prompt: input provided to an AI to elicit a response
- Response: information generated by an AI based on a prompt

Troubleshooting

Problem	Solutions
AI provides vague, general information	Ask more specific questions
AI gives contradictory information	Request clarification and ask for scientific sources
Information seems outdated	Check the AI's knowledge cutoff date and verify with current sources
Technical terms are confusing	Ask the AI to “explain like I'm 12” or define specific terms
AI doesn't provide sources	Explicitly request scientific references to verify information

Limitations

- AI have knowledge cutoff dates and may not include recent research
- AI may present incorrect information confidently
- AI may persuasively present false world views
- Complex regional or local sustainability issues might not be accurately represented
- AI cannot replace in-depth study from primary scientific sources

Related Practices

- Learning
- Verifying Knowledge

References and Further Reading

How to use AI

- “How I use LLMs” by Andrej Karpathy <www.youtube.com/watch?v=EWvNQjAaOHw>

AI Chatbots

- ChatGPT AI by OpenAI <chatgpt.com>
- Claude AI by Anthropic <claude.ai>
- Copilot AI by Microsoft <copilot.microsoft.com>
- DeepSeek AI by DeepSeek <chat.deepseek.com>
- Gemini AI by Google <gemini.google.com>
- Grok AI by X <x.com/i/grok>
- Meta AI by Meta <meta.ai>

Learning 102: Reading to Understand Sustainability

How to find and read the best articles and books about sustainability science

Equipment & Materials

- Computer, tablet, or smartphone with Internet access
- Library card or university credentials (for academic database access)
- Note-taking system (digital or paper)
- *E-reader for digital books (optional)*
- *Reference management software (EndNote, Mendeley, Zotero)*
- *Budget for purchasing books or journal access*
- *Highlighters or sticky notes for physical materials*

Steps

1. **Build your sustainability knowledge systematically**
 - Start with foundational texts before specialized literature
 - Create concept maps connecting related ideas across sources
 - Maintain a reading log with summaries and personal reflections
 - Revisit key texts periodically as your understanding deepens
2. **Start with trusted sources**
 - Access peer-reviewed academic journals through libraries or open-access sites
 - Use reputable institutional publications (IPCC, Stockholm Resilience Centre, etc.)
 - Find books by recognized sustainability experts
 - Consult university course reading lists in environmental science
3. **Search effectively**
 - Ask librarians for help
 - Use specific search terms (e.g., “planetary boundaries” rather than “environment”)
 - Check citation counts to identify influential works
 - Use “cited by” features to find newer research building on key papers
4. **Evaluate source quality**
 - Check author credentials and institutional affiliations
 - Verify if sources are peer-reviewed or published by reputable presses
 - Examine publication dates to ensure currency (crucial in rapidly evolving fields)
 - Review methodology sections to assess scientific rigor
 - Consider funding sources that influence judgement

5. **Read strategically**

- Review abstracts, introductions, and conclusions first to determine relevance
- Scan headings and topic sentences for efficient comprehension
- Pay special attention to methods and results in scientific papers
- Take note of key terms, concepts, and cited works
- Create a reading hierarchy: must-read, possibly useful, if time allows

6. **Engage critically with the material**

- Identify the author's perspective and any potential biases
- Distinguish between established facts, emerging consensus, and speculative ideas
- Compare findings across multiple sources to verify consistency
- Note when authors acknowledge limitations or contradicting evidence
- Prompt AI to critique material

7. **Apply and share knowledge**

- Connect theoretical concepts to practical applications
- Discuss readings with others, including AI, to test understanding
- Share credible sources with your community
- Use knowledge to inform your sustainability practices

Discussion

Finding and reading high-quality sustainability literature empowers you to make informed decisions and improve sustainable practices. The sustainability field combines insights from earth sciences, ecology, economics, social sciences, and engineering. The field also has varying perspectives, from technological optimism to degrowth advocacy, making it important to read widely and consult diverse sources.

Sustainability science is rapidly evolving, so recent publications generally offer more relevant information. However, some foundational texts remain valuable despite their age.

Academic journals provide the most current research but may be technical and behind paywalls. Books offer comprehensive overviews but may become outdated quickly in some areas. Institutional reports (like those from the Intergovernmental Panel on Climate Change) synthesize current scientific consensus and are freely available.

For beginners, start with accessible overviews like books by authors such as Paul Hawken, Donella Meadows, or reports from the Stockholm Resilience Centre. As you build understanding, gradually incorporate more technical scientific papers.

Taking structured notes helps integrate knowledge across sources. Consider using methods like the three-column Cornell note-taking system or concept mapping to organize information. When reading scientific papers, pay particular attention to the methods section to evaluate the strength of evidence.

Definitions

- **Citation count:** Number of times a publication has been referenced in other works, often indicating influence

- **Grey literature:** Informally published materials like government reports, white papers, and policy briefs
- **Impact factor:** Measure of how frequently articles in a journal are cited, indicating journal prestige
- **Open access:** Scientific literature that is freely available online without paywalls
- **Peer review:** Evaluation process where experts in the field assess research quality before publication
- **Predatory journals:** Publications that charge fees without providing legitimate peer review or editorial services
- **Primary literature:** Original research articles reporting new data
- **Secondary literature:** Publications that summarize, interpret, or analyze primary research
- **Systematic review:** Comprehensive analysis of all relevant studies on a specific question using transparent methods

Troubleshooting

Problem	Solutions
Can't access paywalled academic articles	Contact article authors directly, check university/public libraries, search for preprints, or try open access repositories like SciHub
Overwhelmed by technical jargon	Start with books or articles aimed at general audiences, use online glossaries of sustainability terms, or read university textbooks which often explain terminology
Too many search results	Narrow your search with more specific terms, use advanced search filters, limit to recent years, or focus on review articles that summarize research
Conflicting information between sources	Check publication dates (newer may incorporate better evidence), compare methodologies, consider author expertise, and look for consensus across multiple sources
Difficulty determining source credibility	Check institutional affiliation, author credentials, funding disclosures, peer-review status, and whether claims are supported by citations

Problem	Solutions
Finding time to read extensively	Start with abstracts and summaries, use text-to-speech for multitasking, schedule dedicated reading time, or join discussion groups to stay motivated

Limitations

- Cutting-edge research is written for academic audiences and is challenging for beginners
- High-quality information may be behind paywalls or require subscriptions
- Scientific discovery takes time, so very recent research may later be revised
- Sustainability is interdisciplinary, making it challenging to master all relevant literature
- Regional differences in sustainability challenges mean global literature may not address local contexts
- Confirmation bias leads readers to favor sources that align with existing beliefs

Related Practices

- Learning 101: Prompting AI
- Verifying Information Sources
- Learning 202: Taking Online Courses About Sustainability Science
- Learning 301: Building a Resource Library for Sustainable Practices
- Learning 302: Attending Workshops to Learn Sustainable Practices
- Verifying Knowledge

References and Further Reading

Reading guidance:

- *How to Read a Book: The Classic Guide to Intelligent Reading* by Mortimer J. Adler and Charles Van Doren
- *How to Read Journal Articles in the Social Sciences* by Phillip Chong Ho Shon
- *Critical Reading and Writing for Postgraduates* by Mike Wallace and Alison Wray

Foundational books:

- *Doughnut Economics: Seven Ways to Think Like a 21st-Century Economist* by Kate Raworth
- *Drawdown: The Most Comprehensive Plan Ever Proposed to Reverse Global Warming* edited by Paul Hawken
- *Our Ecological Footprint* by Mathis Wackernagel and William Rees
- *Thinking in Systems: A Primer* by Donella Meadows

Open access resources:

- Annual Review of Environment and Resources
<www.annualreviews.org/content/journals/energy>
- IPCC Assessment Reports
<www.ipcc.ch/reports>
- Our World in Data
<ourworldindata.org>

- Nature Sustainability (some articles open access)
<www.nature.com/natsustain/>
- Science Advances
<www.science.org/journal/sciadv/>
- Stockholm Resilience Centre publications
<www.stockholmresilience.org/publications>

Reference management software:

- EndNote <endnote.com>
- Mendeley <www.mendeley.com>
- Zotero <www.zotero.org>

Search tools:

- Directory of Open Access Journals <doaj.org>
- Google Scholar <scholar.google.com>
- Research Gate <researchgate.net>
- Scopus (through university libraries)
- Web of Science (through university libraries)

Learning 103: Watching Documentaries

How to find and watch the best nature and technology documentaries about sustainability

Equipment & Materials

- Television, computer, tablet, or smartphone with Internet access
- Note-taking system (digital or paper)
- *Subscription to a streaming platform (optional)*
- *Public library card (for free documentary access)*
- *Smart TV or streaming device*
- *Virtual private network service (to access geo-restricted documentaries)*

Steps

1. **Create a viewing plan**
 - Organize viewing by subject (biodiversity, climate solutions, renewable energy)
 - Balance watching older foundational documentaries with recent productions
 - Schedule dedicated viewing time to avoid distractions
 - Create themed viewing lists (e.g., ocean conservation, sustainable cities)
2. **Select quality documentary sources**
 - Start with established documentary producers (BBC Earth, National Geographic, PBS, NOVA)
 - Explore documentaries on streaming services
 - Check university and educational institution websites for free documentaries
 - Consider film festival selections for cutting-edge sustainability documentaries
3. **Search effectively for sustainability content**
 - Ask a librarian for help
 - Use specific search terms (“regenerative agriculture” rather than just “farming”)
 - Look for series rather than one-off films for deeper exploration of topics

- Check filmmaker and scientific advisor credentials
- Read reviews from reputable sources
- Check documentary release dates to ensure current information
- 4. **Watch actively and critically**
 - Take notes on key concepts, technologies, and practices
 - Research unfamiliar terms or concepts as they arise
 - Pause to reflect on how content relates to your own sustainability practices
 - Note conflicting views between different documentaries
 - Identify potential biases in presentation
- 5. **Extend your learning beyond viewing**
 - Visit documentary websites for additional resources
 - Explore organizations featured in documentaries
 - Follow documentary creators on social media for updates
 - Join online discussion groups about documentary topics
 - Check documentary citations and source materials
- 6. **Apply and share knowledge**
 - Connect documentary concepts to your sustainability practices
 - Organize small viewing groups for discussion
 - Create a documentary recommendation list for your community
 - Compare documentary information with other sustainability resources
 - Follow up on specific actionable ideas presented in documentaries

Discussion

Documentaries provide a visually engaging and accessible entry point into complex sustainability topics. They can bring abstract concepts to life through stunning visuals, expert interviews, and real-world examples. Carefully select nature and technology documentaries to enhance your understanding of sustainability science and practices.

The best sustainability documentaries combine scientific accuracy with compelling storytelling, helping viewers understand both the problems facing our planet and potential solutions. They showcase innovations, traditional practices, and inspiring examples of communities making positive changes.

Nature documentaries explore the intricate systems that sustain life on Earth, from soil microbiomes to ocean currents, and highlight the urgency of protecting biodiversity. Technology-focused documentaries demonstrate innovations in renewable energy, sustainable agriculture, efficient transportation, and other solutions that can help us live within planetary boundaries.

For the most comprehensive understanding, balance your viewing between:

- **Problem-oriented documentaries** that explain environmental challenges
- **Solution-oriented documentaries** that showcase innovations and success stories
- **Systems-thinking documentaries** that explore interconnections between human and natural systems

- **Local and global perspectives** to understand both community-level and planetary-scale sustainability

Remember that while documentaries are powerful educational tools, they're also media products designed to engage and entertain. Even the most scientifically rigorous documentaries make editorial choices about what to include and emphasize. Appreciate the visual storytelling while maintaining awareness of potential limitations, biases, or simplifications.

Definitions

- **Greenwashing:** Misleading claims about environmental practices or benefits sometimes featured or exposed in documentaries
- **Nature documentary:** Film focused on wildlife, ecosystems, natural processes, or environmental issues
- **Production values:** Quality of filming, editing, sound, and other technical aspects of documentary creation
- **Talking head:** Interview segments showing experts speaking directly to camera
- **Technology documentary:** Film focused on innovations, designs, and systems created by humans

Troubleshooting

Problem	Solutions
Overwhelmed by available options	Start with award-winning or critically acclaimed series from established producers. Create a focused viewing list around specific sustainability interests.
Content seems outdated	Check production date. For older documentaries, research current developments on the topic after viewing. Focus on timeless concepts rather than specific statistics.
Limited access to premium content	Use library resources, free trials strategically. Check YouTube for free documentary channels. Explore university and educational institution websites.
Difficult to determine accuracy	Research filmmaker credentials and funding sources. Compare information across multiple documentaries and reference materials. Look for input from recognized scientific authorities.
Content causes eco-anxiety	Balance problem-focused with solution-oriented documentaries. Take breaks between intense topics. Connect with local organizations for support.
Too technical or complex	Look for companion guides or educational resources associated with the documentary. Pause to research unfamiliar concepts. Start with more accessible introductory documentaries.

Problem	Solutions
Finding time to watch thoroughly	Schedule specific viewing sessions. Break longer documentaries into segments. Listen to audio while commuting (for documentaries that work without visuals).

Limitations

- Even the best documentaries simplify complex topics for narrative clarity
- Production schedules mean information may be somewhat outdated by release
- Visual medium naturally emphasizes photogenic aspects of sustainability
- Funding sources influence content and perspective
- Many documentaries focus more on problems than practical solutions
- Regional availability varies due to licensing restrictions
- Scientific understanding may evolve after documentary release
- Limited representation of diverse perspectives and traditional knowledge

Related Practices

- Learning
- Verifying Knowledge

References and Further Reading

Recommended Nature Documentaries:

- *Breaking Boundaries: The Science of Our Planet* (2021)
<www.netflix.com/title/81336476>
- *David Attenborough: A Life on Our Planet* (2020)
<www.netflix.com/title/80216393>
- *Our Planet* (2019)
<www.netflix.com/tudum/our-planet>
- *Planet Earth* (2006), *Planet Earth II* (2016), and *Planet Earth III* (2023)
<www.bbcearth.com/shows/planet-earth-iii>
- *The Blue Planet* (2001) and *Blue Planet II* (2017)
<www.bbcearth.com/shows/blue-planet-ii>
- *The Green Planet* (2022)
<www.bbcearth.com/shows/the-green-planet>

Recommended Technology Documentaries:

- *Current Revolution* (2018)
<www.amresproject.org/current-revolution-series>
- *Kiss the Ground* (2020)
<kissthegroundmovie.com>
- *Plastic Wars* (2020)
<www.pbs.org/wgbh/frontline/documentary/plastic-wars/>
- *Power Trip: The Story of Energy* (2020)
<powertripshow.com>

Documentary Collections:

- BBC Earth <www.bbcearth.com>
- Films For Action <www.filmsforaction.org>
- Happen Films <www.happenfilms.com>
- PBS Nature <www.pbs.org/wnet/nature/>
- PBS Nova <www.pbs.org/wgbh/nova/>
- TED Talks <www.ted.com/topics/sustainability>

Environmental Film Festivals:

- Environmental Film Festival in the Nation's Capital <dceff.org>
- Jackson Wild <jacksonwild.org>
- Planet in Focus International Environmental Film Festival <planetinfocus.org>
- International Wildlife Film Festival <wildlifefilms.org>
- One Earth Film Festival <oneearthfilmfest.org>

Streaming Platforms:

- Amazon <www.amazon.com/gp/video/storefront>
- Apple TV <tv.apple.com>
- Disney Plus <www.disneyplus.com>
- Max <www.max.com>
- Netflix <www.netflix.com>
- Peacock <www.peacocktv.com>
- YouTube <www.youtube.com>
- Vimeo <vimeo.com>

Learning 104: Taking Courses

How to take the best online courses about sustainability science

Equipment & Materials

- Computer, tablet, or smartphone with Internet access
- Headphones or speakers
- Note-taking system (digital or paper)
- *Optional: Calendar or scheduling tool*
- *Budget (for paid courses)*
- *External hard drive or cloud storage for course materials*
- *Second monitor for note-taking during video lectures*

Steps

1. **Determine your learning goals**
 - Identify specific sustainability topics you want to understand
 - Assess your current knowledge level
 - Decide whether you need academic credit or professional certification
 - Set realistic time commitments based on your schedule
 - Consider how the course fits into your broader sustainability journey
2. **Research course options**
 - Explore major platforms (Coursera, edX, FutureLearn, Udemy)
 - Check university websites for free or low-cost sustainability courses

- Review specialized sustainability education platforms (e.g., SDG Academy)
 - Ask sustainability professionals for course recommendations
 - Search for courses by specific topics (climate science, circular economy, etc.)
 - Examine instructor credentials and institutional affiliations
3. **Evaluate course quality**
 - Check course reviews and ratings
 - Review the syllabus for comprehensive, up-to-date content
 - Verify that instructors have relevant expertise and academic credentials
 - Look for courses with clear learning objectives and assessments
 - Consider whether course includes practical applications, not just theory
 - Check if course materials are up-to-date (particularly important for rapidly evolving sustainability topics)
 - Note whether the course offers opportunities for discussion with other students
 4. **Create an effective learning environment**
 - Set up a dedicated study space with minimal distractions
 - Schedule regular study sessions in your calendar
 - Collect required resources before the course begins
 - Test your technical setup (Internet connection, audio, video)
 - Prepare a system for organizing course materials and notes
 5. **Maximize learning during the course**
 - Complete all assignments and assessments
 - Take comprehensive notes using structured methods
 - Participate actively in discussion forums and peer activities
 - Consider forming or joining a study group for the course
 - Connect new information to your existing knowledge
 - Schedule regular reviews of material to enhance retention
 - Reach out to instructors or teaching assistants when needed
 6. **Apply and extend your learning**
 - Save important resources for future reference
 - Connect with fellow students for ongoing discussions
 - Apply course concepts to your own sustainability practices
 - Share key insights with your community

Discussion

Online courses offer a structured approach to build sustainability knowledge and skills. Unlike simply reading or watching documentaries, courses provide a coherent learning path, interactive elements, feedback, and opportunities to connect with instructors and fellow students.

The best sustainability science courses combine scientific fundamentals with practical applications. They help learners understand planetary boundaries, systems thinking, and case studies. Quality courses are taught by recognized experts, include current research, and provide opportunities to apply theoretical concepts to real-world situations.

Online courses range from free introductory offerings to paid professional certificates and formal academic programs. Free courses allow access to all learning materials without payment

(though earning certificates may require a fee). University-sponsored massive open online courses frequently provide high-quality sustainability education at no or low cost.

Begin with courses that explain broad sustainability frameworks and concepts. As your knowledge grows, take specialized courses focusing on specific aspects of sustainability (renewable energy, sustainable agriculture, circular economy, etc.). When possible, tailor assignments to your specific home, workplace, or community context.

The flexibility of online learning allows you to fit education around existing commitments, but this flexibility requires self-discipline. Establish a regular study schedule and create a dedicated learning environment to increase your odds of completing your courses.

Communities are particularly valuable in sustainability education. Actively participate in discussion forums, peer review activities, and group projects to enhance both learning outcomes and professional networking.

Definitions

- **MOOC:** Massive Open Online Course; a course made available over the Internet to a large number of people, typically without charge
- **Synchronous learning:** Learning that happens in real-time, with live instructor interaction
- **Asynchronous learning:** Learning that occurs on your own schedule, without real-time interaction
- **Microcredential:** Certification in a specific skill or area, typically requiring less time than a traditional degree
- **Peer assessment:** Evaluation of assignments by fellow students, common in large online courses

Troubleshooting

Problem	Solutions
Course content too basic or too advanced	Read detailed course descriptions before enrolling. Start with learning platforms that offer a trial period or money-back guarantee.
Difficulty maintaining motivation	Schedule specific study times. Join or create a study group. Set small, achievable goals. Connect course material to your personal sustainability interests.
Limited time to complete coursework	Look for self-paced options. Break assignments into smaller tasks. Focus on the most critical content if time is short. Extend completion deadlines when possible.
Technical difficulties with course platform	Test platform compatibility before enrolling. Contact course technical support. Use different browsers or devices if problems persist. Download materials when possible for offline access.

Problem	Solutions
Uncertainty about course quality	Check instructor credentials. Read reviews. Look for courses from accredited institutions. Take advantage of free trial periods before committing.
Difficulty understanding complex topics	Prompt AI as a personal tutor. Utilize course forums to ask questions. Supplement with introductory materials from other sources. Form study groups with more experienced learners. Reach out to instructors during office hours.

Limitations

- Online courses may lack hands-on laboratory or field experiences crucial for some sustainability topics
- Course selection may be limited for specialized or emerging sustainability subjects
- High-quality courses often have specific start and end dates, reducing flexibility
- Networking opportunities are more limited than in-person educational experiences
- Technical requirements (reliable Internet, compatible devices) create access barriers
- Self-motivated learning can be challenging without external accountability
- Course content may not be tailored to your specific regional or local context
- Rapid evolution of sustainability science means course content can become outdated

Related Practices

- Learning 101: Prompting AI
- Learning 102: Reading the Best
- Learning 103: Watching Documentaries
- Learning 201: Attending Hands-on Workshops
- Learning 301: Building a Resource Library
- Verifying Knowledge

References and Further Reading

Learning Resources:

- *Make It Stick: The Science of Successful Learning* by Peter C. Brown, Henry L. Roediger III, and Mark A. McDaniel
- How to Learn Online (edX)
<www.edx.org/learn/how-to-learn/edx-how-to-learn-online>
- Sustainability Courses and Certifications, Class Central
<www.classcentral.com/subject/sustainability>

Recommended Courses:

- Circular Economy: An Introduction, TU Delft (edX)
<www.edx.org/learn/circular-economy/delft-university-of-technology-circular-economy-an-introduction>
- Climate Change: The Science and Global Impact, Penn State University (SDG Academy)
<sdgacademy.org/course/climate-change-the-science-and-global-impact>

- Introduction to Sustainability, University of Illinois (Coursera)
<www.coursera.org/learn/sustainability>
- Planetary Boundaries, Stockholm Resilience Centre (SDG Academy)
<sdgacademy.org/course/planetary-boundaries>

Course Platforms:

- Coursera <www.coursera.org/courses>
- edX <www.edx.org/search>
- FutureLearn <www.futurelearn.com/subjects/nature-and-environment-courses>
- MIT OpenCourseWare <ocw.mit.edu/search>
- SDG Academy <sdgacademy.org>

Learning 201: Attending Hands-On Workshops

How to find and attend hands-on workshops to learn sustainable practices

Equipment & Materials

- Computer or smartphone with Internet access
- Calendar (digital or paper) for planning
- Notebook and pen for taking notes
- Budget for workshop fees and travel expenses
- *Transportation plan (public transit, carpool, or vehicle)*
- *Appropriate clothing for workshops (work clothes, protective gear)*
- *Reusable water bottle and snacks for all-day workshops*

Steps

- 1. Identify your sustainability learning interests**
 - Select specific skills you want to learn (gardening, solar, home energy efficiency, etc.)
 - Determine your current skill level (beginner, intermediate, advanced)
 - Consider what format works best for your learning style (hands-on, demonstration, collaborative)
- 2. Research local workshop opportunities**
 - Check community centers, cooperative extension offices, and public libraries
 - Visit local sustainability organizations' websites and social media pages
 - Search online platforms like Eventbrite, Meetup, or Facebook Events for workshops that match your specific interest areas
 - Contact local colleges and universities about continuing education programs
 - Ask at garden centers, hardware stores, and tool libraries about upcoming demonstrations
 - Subscribe to newsletters from environmental organizations and community groups
- 3. Evaluate workshop quality before registering**
 - Research instructor credentials and experience
 - Read reviews or testimonials from past attendees
 - Check if the workshop provides tools and materials or requires you to bring your own
 - Determine whether the workshop offers a certificate or other documentation of completion

- Consider the workshop size to ensure adequate hands-on experience
- Verify that the location is accessible to you
- 4. **Register and prepare for the workshop**
 - Register early, as quality workshops often fill quickly
 - Determine what materials or background knowledge you need to prepare
 - Read any pre-workshop materials provided
 - Plan your transportation, considering public transit and carpooling
 - Prepare questions you want to ask the instructor
- 5. **Maximize your workshop experience**
 - Arrive 10-15 minutes early to get oriented and meet other participants
 - Introduce yourself to the instructor and other attendees
 - Take notes and photos (with permission) to remember key points
 - Ask questions when concepts aren't clear
 - Volunteer for demonstrations when possible
 - Exchange contact information with other participants who share your interests
 - Discuss how you plan to apply what you've learned
- 6. **Apply and share knowledge after the workshop**
 - Provide feedback to workshop organizers
 - Schedule time within a week of the workshop to practice your new skills
 - Document your first attempts at applying what you learned
 - Connect with other workshop participants to share progress
 - Consider organizing a follow-up meeting to practice together
 - Share what you learned with friends, family, or community groups

Discussion

Hands-on workshops provide valuable experiential learning beyond what's possible to obtain from books, videos, or apps. They offer direct instruction from experts, immediate feedback, and practical experience with tools and techniques. Additionally, workshops connect you with a community of like-minded individuals who share your sustainability interests.

The most effective sustainability workshops balance theory with hands-on practice. They explain why sustainable practices matter, demonstrate how they work, and then provide supervised opportunities to try them yourself. This approach builds both understanding and practical skills.

Look for workshops that meet specific criteria for quality and sustainability:

- Instructors with real-world experience, not just theoretical knowledge
- Group size below 16 to ensure individual attention
- Materials and methods that align with sustainable principles
- Content that can be directly applied in your local context

Communities often offer free or low-cost workshops funded by local governments or nonprofits. Many workshops focus on practices that save money over time (energy efficiency, food preservation, repair skills), making them both environmentally and economically beneficial. Beyond the direct knowledge gained, workshops help build community resilience by creating networks of people with skills who can support each other practice sustainability.

Definitions

- **Cooperative extension offices:** Local education networks, usually connected to state universities, that provide research-based information and education to agricultural communities and the general public
- **Experiential learning:** Educational approach that focuses on learning through doing and reflecting on the experience
- **Skill-share:** Informal workshop where participants teach each other skills they possess
- **Tool library:** Community resource that loans tools to members, similar to how a book library lends books
- **Continuing education:** Part-time adult education programs that may offer certificates or credentials
- **Master Gardener/Master Composter/Master Recycler:** Educational programs where participants receive extensive training in exchange for community service hours

Troubleshooting

Problem	Solutions
No workshops available locally on your topic of interest	Look for online workshops with mailed materials kits or virtual instruction. Organize a study group with others interested in the same topic. Contact organizations in larger nearby cities about bringing a workshop to your community.
Workshops are too expensive	Search for free alternatives sponsored by libraries, utilities, or community organizations. Ask about scholarship opportunities or volunteer exchange (helping with setup/cleanup in exchange for attendance). Consider pooling resources with friends to bring an instructor to your group.
Schedule conflicts with available workshops	Contact organizers to ask if the workshop will be repeated. Request recordings or materials if available. Find out if private instruction options exist.
Workshop was too basic for your skill level	Speak with the instructor about advanced resources or opportunities. Ask about becoming an assistant at future workshops to build skills further. Look for advanced certification programs in the subject area.
Difficulty implementing skills at home after the workshop	Join or form a regular practice group to maintain skills. Contact the instructor with specific questions. Look for online communities dedicated to the practice for ongoing support.
Workshop wasn't as hands-on as advertised	Provide constructive feedback to organizers. Ask for recommendations for more hands-on alternatives. Arrange additional practice sessions with other attendees to build skills.

Limitations

- Single workshops rarely provide enough practice for mastery; ongoing application is necessary
- Workshop quality varies significantly between instructors and organizations
- Some sustainable practices require specialized tools or spaces that may not be accessible after the workshop
- Local workshops may not be available for all sustainable practices, especially in rural areas
- People with demanding work schedules or caregiving responsibilities cannot attend time-intensive workshops
- Workshops typically focus on individual or household-scale practices rather than community or systems-level change

Related Practices

- Learning 101: Prompting AI
- Learning 102: Reading the Best
- Learning 202: Taking Online Courses About Sustainability Science
- Learning 301: Building a Resource Library for Sustainable Practices
- Learning 302: Organizing Workshops to Teach Sustainable Practices

References and Further Reading

Books

- *Permaculture Teaching Matters* by Rosemary Morrow
- *Teaching Adults: A Practical Guide for New Teachers* by Ralph G. Brockett
- *The Art of Community: Seven Principles for Belonging* by Charles Vogl
- *The Art of Gathering: How We Meet and Why It Matters* by Priya Parker

Websites

- Eventbrite <eventbrite.com>
- Meetup <meetup.com>
- Skill Share <skillshare.com>

Practice mastery programs

- Master Composter <suspra.com/learning/master-composter.html>
- Master Gardener <suspra.com/learning/master-gardener.html>
- Master Recycler <suspra.com/learning/master-recycler.html>

Organizations

- Cooperative Extension Service <extension.org/search_gcse>
- EnergyRight <energyright.com/residential/workshops>
- Permaculture Association Courses <permaculture.org.uk/education/courses>
- The Ecology Center <ecologycenter.org/calendar>
- Transition Training <transitionnetwork.org/do-transition/training>

Learning 202: Earning Certifications

How to earn professional sustainability certifications

Equipment & Materials

- Computer with Internet access
- Budget for certification fees (\$50-2,000 depending on certification)
- Time for study and examination preparation (10-100+ hours)
- Note-taking system (digital or paper)
- *Study guides or textbooks specific to your chosen certification (optional)*
- *Online course subscriptions for preparation*
- *Membership in professional organizations related to your certification*

Steps

- 1. Identify your sustainability goals and interests**
 - Determine your primary sustainability focus area (energy, water, waste, buildings, etc.)
 - Clarify whether you need certification for personal knowledge, career advancement, or community leadership
 - Assess your current knowledge to find appropriate certification level
- 2. Research certification options**
 - Look for certifications with industry recognition and accreditation
 - Verify the certification is current and valued in your region
 - Check certification prerequisites (education, experience, prior certifications)
 - Compare certification costs, time commitments, and renewal requirements
 - Assess the certification's credibility by researching the issuing organization
- 3. Evaluate certification quality using these criteria:**
 - Require demonstration of knowledge through testing or portfolio review
 - Maintained by established organizations with sustainability expertise
 - Include continuing education requirements
 - Require periodic renewal to maintain certification
 - Recognized by employers and professionals in the field
 - Available publicly (not limited to specific companies or private groups)
- 4. Select certifications to obtain**
 - Choose certifications that align with both your interests and practical needs
 - Start with entry-level certifications if you're new to the field
 - Consider stackable certification pathways that build on each other
- 5. Develop a study plan**
 - Review certification requirements, exam content, and recommended preparation
 - Create a realistic study schedule accounting for your other commitments
 - Locate and organize study resources (courses, books, practice exams)
 - Join study groups or online forums related to your certification
 - Block study time on your calendar in regular intervals
- 6. Complete certification requirements**
- 7. Maintain your certification**
 - Track certification renewal dates and requirements
 - Complete continuing education requirements
 - Document professional development activities

- Budget for renewal fees
- Renew on time to maintain certification status

8. **Leverage your certification**

- Share your certification with relevant professional networks
- Apply your new knowledge in sustainability projects
- Consider teaching or mentoring others in your certification area
- Continue building expertise through practice and additional learning

Discussion

Earning professional sustainability certifications demonstrates your commitment to professional knowledge and standards in the field of sustainability. Online courses offer certificates of completion, but professional certifications require rigorous assessment of knowledge and skills, typically through examination or portfolio review.

Professional sustainability certifications serve multiple purposes:

- Validate your expertise to employers, clients, and colleagues
- Provide structured learning paths to master important concepts
- Connect you with a community of similarly certified professionals
- Keep your knowledge current through continuing education requirements
- Demonstrate your commitment to sustainability standards and practices

Some certifications focus on broad sustainability knowledge, while others concentrate on specific domains like green building, energy management, sustainable business practices, or waste management. Entry-level certifications like the International Society of Sustainability Professionals (ISSP) Sustainability Excellence Associate provide a strong foundation. Mid-career professionals may benefit from specialized certifications, such as LEED Green Associate for building professionals or the Association of Energy Engineers Certified Energy Manager for those focused on energy efficiency.

When evaluating certification programs, consider the requirements for maintaining certification. Professional certifications typically require periodic renewal through continuing education, ensuring your knowledge remains current. These requirements, while sometimes demanding, ensure the certification maintains its value over time.

Certification alone doesn't substitute for practical experience. The most successful sustainability practitioners combine relevant certifications with hands-on project experience and continuous learning. Use certification as a chance to deepen both theoretical knowledge and practical skills.

Definitions

- **Accreditation:** Formal recognition that a certification program meets established standards for quality and integrity
- **Certificate:** Documentation of completion of a course or program (different from certification)
- **Certification:** Formal process that validates knowledge, skills, and competencies through assessment

- **Continuing Education Units (CEUs):** Measurements for ongoing professional education requirements to maintain certification
- **Credential:** Official documentation of qualifications, which may include certifications
- **Portfolio review:** Assessment method requiring demonstration of completed work or projects
- **Recertification:** Process of renewing a certification, typically requiring continuing education
- **Stackable credentials:** Certifications designed to build upon each other in a career pathway

Troubleshooting

Problem	Solutions
High certification costs	Look for scholarships, employer training funds, or early registration discounts. Some organizations offer reduced rates for students, government employees, or nonprofit workers.
Failing certification exam	Review exam feedback, identify knowledge gaps, revise your study plan, and consider study groups or exam preparation courses before retaking the exam.
Difficulty finding study time	Break study sessions into smaller chunks (15-30 minutes), use mobile apps for studying during commutes, join a study group for accountability, or schedule early morning or late evening study sessions.
Expired certification	Contact the certifying organization about grace periods or reinstatement options. Complete required continuing education and reapply.
Uncertainty about which certification to choose	Consult with professionals in your desired field, check job listings to see which certifications employers request, or take introductory courses before committing to full certification paths.
Overwhelming amount of study material	Create a structured study plan with specific goals, focus on official study guides first, use practice questions to identify knowledge gaps, and consider finding a mentor who already holds the certification.

Limitations

- Professional certifications require an investment of time and money
- Some certifications have geographic limitations in recognition or applicability
- A certification demonstrates knowledge but doesn't guarantee practical application skills
- The field of sustainability evolves rapidly, sometimes outpacing certification offerings
- Employer recognition of sustainability certifications varies widely by industry and region

- Some certifications emphasize theoretical knowledge over practical implementation
- Most certifications require ongoing fees and time commitment for maintenance
- Very specialized certifications may have limited applicability across different roles

Related Practices

- Learning 101: Prompting AI to Explain Sustainability Science
- Learning 102: Reading the Best Articles and Books
- Learning 104: Taking Online Courses About Sustainability Science
- Learning 201: Attending Hands-On Workshops
- Learning 301: Building a Resource Library for Sustainable Practices
- Verifying 201: Investigating the Credibility of Information Sources

References and Further Reading

General Sustainability Certifications:

- Certified Environmental Professional (CEP)
<www.abcep.org>
- International Society of Sustainability Professionals (ISSP)
<www.sustainabilityprofessionals.org/credentials>
- Professional Ecologist Certification
<esa.org/certification>

Green Building Certifications:

- LEED (Leadership in Energy and Environmental Design)
<www.usgbc.org/credentials>
- Living Future Accreditation
<living-future.org/lfa/>
- WELL Building Standard
<www.wellcertified.com/well-ap/>

Energy Management Certifications:

- Certified Energy Manager (CEM)
<www.aeecenter.org/certified-energy-manager/>
- Renewable Energy Professional (REP)
<www.aeecenter.org/certified-renewable-energy-professional/>

Business & Corporate Sustainability Certifications:

- IFRS Foundation FSA Credential
<www.ifrs.org/products-and-services/sustainability-products-and-services/fsa-credential/>

Waste Management Certifications:

- TRUE Advisor (Zero Waste)
<true.gbci.org/true-advisor>
- US Composting Council (USCC) Certified Composting Professional
<certificationsuscc.org>

Agriculture & Food Systems Certifications:

- Certified Crop Adviser (CCA) Sustainability Specialty
<www.certifiedcropadviser.org/become-certified>

- USDA-accredited Certifier
<www.ams.usda.gov/services/organic-certification/becoming-certifying-agent>

Learning 301: Building a Resource Library

How to build a personal resource library for sustainable practices

Equipment & Materials

- Bookshelf, filing cabinet, or digital storage system
- Notebook or spreadsheet for cataloging resources
- Computer or tablet with Internet access
- Basic office supplies (folders, labels, sticky notes for physical resources)
- *Cloud storage account or external hard drive for digital resources (optional)*
- *Reference management software (Zotero, Mendeley, EndNote)*
- *E-reader for digital books*
- *Smartphone with camera (for documenting practices)*
- *Scanner (for digitizing printed materials)*
- *Budget for purchasing key reference books and subscribing to journals*

Steps

1. Plan your library structure
 - Create a categorization system that aligns with pathways to sustainability (food, energy, water, etc.)
 - Establish a metadata system (author, publication date, topic tags, etc.)
 - Decide on your balance of physical vs. digital resources
2. Collect foundational resources
 - Acquire basic references covering key sustainability principles
 - Include at least one comprehensive sustainability handbook or textbook
 - Gather practical guides relevant to your specific interests and local context
 - Collect local information (regional building codes, native plant guides, etc.)
3. Develop a curation process
 - Evaluate potential resources using criteria such as:
 - Scientific accuracy and currency of information
 - Practical applicability to your context
 - Authors' expertise and credibility
 - Balance of theoretical understanding and practical guidance
 - Regularly audit existing resources to ensure they remain current and relevant
4. Organize your physical resources
 - Arrange books, manuals and printed materials by pathway category
 - Use clearly labeled folders for loose papers and articles
 - Create a dedicated space for physical resources that's easily accessible
 - Consider weather-proofing for resources that might be used outdoors
5. Organize your digital resources
 - Create a logical folder structure that mirrors your physical organization

- Use consistent file naming conventions
- Back up digital resources regularly
- Choose reference management software to track and organize digital materials
- 6. Supplement with dynamic resources
 - Create accounts with reliable websites and forums
 - Bookmark trusted online calculators and assessment tools
 - Subscribe to relevant newsletters and journals
 - Join online communities focused on sustainable practices
- 7. Document your own experiences
 - Keep journals or digital notes of your sustainability projects
 - Take before-and-after photos of implementations
 - Record measurements and outcomes of your practices
 - Note adaptations you've made to standard practices for your specific context
- 8. Make your library accessible
 - Create a catalog or index of your resources
 - Establish a system for lending materials to others if desired
 - Consider digitizing key physical resources for backup and sharing
- 9. Regularly update your library
 - Schedule periodic reviews to remove outdated or superseded materials
 - Add new resources as sustainability science evolves
 - Expand areas of your library as your interests and needs change
- 10. Share and collaborate
 - Document and share the most valuable resources with others
 - Invite others to contribute to and benefit from your library
 - Participate in resource exchanges with like-minded individuals
 - Consider creating a community resource library if appropriate

Discussion

A well-curated resource library transforms sustainability from abstract concepts into achievable practices. Unlike simply collecting random materials, building a thoughtful sustainability library helps you access reliable, context-specific information exactly when you need it.

Your resource library should span the full spectrum from theoretical understanding to practical implementation. Foundational resources explain the “why” behind sustainability efforts, while practice guides and technical manuals address the “how.” Including locally relevant resources ensures that general principles can be adapted to your specific climate, ecosystem, and regulatory environment.

The most valuable sustainability libraries evolve over time. As you implement practices, document your experiences to create a personal knowledge base that reflects what works in your unique context. These records of personal implementation become some of the most valuable resources in your collection.

Digital resources offer searchability and space efficiency, while physical resources can be more practical in field environments and may offer better readability for complex diagrams or technical information. The ideal library usually combines both formats.

Consider creating different access points to your library based on various needs:

- Pathway-based organization for systematic learning
- Problem-based indexing for troubleshooting specific issues
- Seasonal organization for timely practices
- Project-based groupings for implementing multiple related practices

Your resource library is a dynamic tool that supports continuous learning and improvement in sustainable practices. By thoughtfully building, organizing, and maintaining this collection, you transform disparate data into an integrated knowledge system that empowers effective action.

Definitions

- **Curation:** The selection, organization, and maintenance of a collection of resources according to specific criteria
- **Digital repository:** An organized digital system for storing and retrieving electronic resources
- **Metadata:** Information about resources (author, date, topic) that enables storage and retrieval
- **Pathways to sustainability:** Seven key areas for sustainability practices (community, food, water, movement, energy, goods, habitat)
- **Reference management software:** Applications designed to store, organize, and cite bibliographic references
- **Resource audit:** Systematic review of materials to evaluate their current relevance and accuracy

Troubleshooting

Problem	Solutions
Information overload	Focus first on core resources for your most immediate needs. Create a "to read" queue and process materials gradually. Use a rating system to prioritize must-have versus nice-to-have resources.
Contradictory information	Check publication dates to identify the most current information. Verify author credentials and source reliability. Consult multiple sources to establish consensus. Document contradictions for future research.
Outdated resources	Schedule regular audits of your library. Check for newer editions of key texts. Subscribe to newsletters or journals for updates in rapidly changing fields.

Problem	Solutions
Storage limitations	Prioritize digital formats for infrequently used materials. Consider cloud storage solutions. For physical items, rotate seasonal resources to storage during off-seasons.
Difficulty finding specific information	Improve your cataloging system with better keywords and cross-references. Create a searchable digital index even for physical resources. Consider digitizing tables of contents from physical materials.
Resources not applicable to local conditions	Seek out regionally specific publications. Join local sustainability organizations to access context-appropriate resources. Document adaptations you make to general practices for your specific location.
Unused resources taking up space	Periodically review usage patterns. Consider lending or donating unused materials. Convert key information from rarely used sources into more accessible formats like summary sheets.

Limitations

- Building a comprehensive resource library requires significant time investment
- Quality resources may not be free, particularly academic publications
- Information can quickly become outdated
- Technical materials may require specialized knowledge to fully utilize
- Digital resources require electricity and specialized equipment to access
- Copyright restrictions may limit your ability to reproduce and share certain materials
- Local resources may be limited where sustainability practices are not yet widespread

Related Practices

- Learning 101: Prompting AI
- Learning 102: Reading the Best
- Learning 103: Watching Documentaries
- Verifying 102: Investigating Information Sources

References and Further Reading

Reference management software:

- EndNote <endnote.com>
- Mendeley <www.mendeley.com>
- Zotero <www.zotero.org>

Library organization resources:

- Dewey Decimal System
<www.oclc.org/en/dewey.html>
- Library of Congress Classification System
<www.loc.gov/catdir/cpsol/lcco/>

- “Setting up a Library: Small and Home Library” by the American Library Association
<libguides.ala.org/SettingUpalibrary/HomeLibrary>

Learning 302: Researching Practices

How to research sustainable practices in your community

Equipment & Materials

- Smartphone with Internet access
- Notebook or digital note-taking system
- *Library card (optional)*
- *Access to local government archives*
- *Social media accounts*

Steps

1. Define your research goals
 - Determine specific sustainability practices you want to investigate
 - Establish geographic boundaries for your research
 - Create research questions to guide your investigation
 - Set measurable objectives for your research project
2. Identify local knowledge sources
 - Contact your local sustainability office or environmental department
 - Reach out to community organizations focused on sustainability
 - Identify local businesses practicing sustainability innovations
 - Connect with academic institutions studying local sustainability
 - Find long-time community residents with historical knowledge
3. Gather existing documentation
 - Search local newspaper archives for sustainability initiatives
 - Review city council meeting minutes related to sustainability efforts
 - Examine local government sustainability plans and reports
 - Check library collections for local environmental publications
 - Review permits and public records for green building projects
 - Access local utility company reports on resource consumption
4. Conduct field research
 - Visit locations implementing sustainable practices
 - Document sustainability features with photographs and notes
 - Observe patterns of community engagement with sustainable resources
 - Map locations of sustainability initiatives across your community
 - Measure outcomes of local sustainability projects when possible
5. Interview key stakeholders
 - Prepare structured interview questions in advance
 - Record interviews (with permission) or take detailed notes
 - Interview sustainability professionals working in your community
 - Talk with residents participating in sustainability programs
 - Speak with business owners implementing sustainable practices

- Connect with community leaders championing sustainability
- 6. Analyze local policies and incentives
 - Review zoning laws affecting sustainability implementation
 - Identify local incentives for sustainable practices
 - Examine building codes and their impact on green building
 - Assess transportation policies promoting sustainable mobility
 - Review waste management regulations and recycling programs
- 7. Compare practices across similar communities
 - Research communities with similar characteristics to yours
 - Identify sustainability strategies that have worked elsewhere
 - Compare your community's progress with benchmark communities
 - Note innovative approaches that could be adapted locally
- 8. Organize and analyze your findings
 - Create a database of local sustainable practices
 - Categorize findings by sustainability pathways (food, water, energy, etc.)
 - Identify patterns, gaps, and opportunities
 - Map the relationships between different sustainability initiatives
 - Assess the impacts and effectiveness of existing practices
- 9. Document and share your research
 - Compile your findings in a structured format
 - Create visual representations of your data
 - Share results with participants and community stakeholders
 - Present findings to local decision-makers when appropriate
 - Make your research accessible to the wider community

Discussion

Researching sustainable practices in your community provides crucial local context for implementing effective sustainability initiatives. While global and national sustainability resources offer broad guidance, understanding what works in your specific community—considering its unique environmental conditions, cultural factors, economic realities, and existing infrastructure—is essential for successful implementation.

This research process helps you discover existing sustainability efforts that you can support, identify gaps where new initiatives are needed, recognize local experts and changemakers, understand the policies and regulations affecting sustainability in your area, and uncover the history of sustainability work in your community.

Community-based sustainability research is especially powerful because it connects academic knowledge with local wisdom. Long-time residents often possess invaluable knowledge about local environmental conditions, what conservation approaches have been tried in the past, and which community values will support or hinder sustainability initiatives. This “ground truth” perspective helps avoid implementing practices that might work theoretically but fail in your specific community context.

As you conduct your research, maintain respect for community members' time and knowledge. Approach the process with genuine curiosity rather than assumptions about what you'll find. Be prepared to discover unexpected sustainability innovations and challenges unique to your locality.

Your research may reveal surprising sustainability assets in your community: a food recovery network operating quietly at local restaurants, traditional knowledge of native plant cultivation, a business using innovative closed-loop processes, or successful community organizing that achieved environmental protection. These local success stories often provide better models for expansion than imported programs from different contexts.

This research also helps identify community-specific barriers to sustainability, whether they're regulatory obstacles, resource limitations, or social factors. Understanding these barriers is crucial for developing effective strategies that will succeed in your particular community.

Definitions

- **Benchmark communities:** Similar communities used for comparison to assess relative sustainability progress
- **Community assets:** Local resources, knowledge, skills, and institutions that can support sustainability initiatives
- **Field research:** Direct observation and data collection about practices in their real-world context
- **Greenwashing:** Misleading claims about environmental benefits or practices that may appear in research
- **Local knowledge:** Information and understanding possessed by community members based on direct experience and observation
- **Participatory research:** Research approaches that involve community members as active participants rather than passive subjects
- **Policy landscape:** The collection of laws, regulations, incentives, and governance structures affecting sustainability
- **Stakeholders:** Individuals, groups, and organizations with an interest in or influence on local sustainability practices
- **Sustainability mapping:** Geographical representation of sustainability assets, practices, and challenges across a community

Troubleshooting

Problem	Solutions
Limited access to official documents	File public records requests; attend public meetings where documents are discussed; partner with local journalists; check if your library has a government documents section.
Difficulty identifying local experts	Ask each contact for recommendations of others to speak with (snowball method); post requests in community forums; attend

Problem	Solutions
	sustainability-related events; look for authors of local publications on sustainability topics.
Reluctance of stakeholders to share information	Explain how your research will benefit the community; offer to share your findings; be transparent about your goals; consider offering anonymity when appropriate; respect proprietary information.
Overwhelming amount of information	Focus on your specific research questions; develop a consistent organization system; set boundaries on your research scope; consider researching one sustainability pathway at a time.
Conflicting information from different sources	Cross-verify information with multiple sources; note discrepancies in your findings; consider the perspectives and incentives of information providers; follow up to resolve major contradictions.
Discovering practices without clear performance data	When metrics aren't available, document qualitative outcomes; develop simple measurement approaches; ask practitioners about their evaluation methods; note the need for better measurement in your findings.
Limited public awareness of sustainability initiatives	Check less obvious sources like business associations, neighborhood groups, and faith communities; look for sustainability components within projects not explicitly labeled as "green."
Difficulty determining which practices are truly sustainable	Use the Suspra Indicators to evaluate claims; research life-cycle impacts; compare to scientific literature; consult with academic experts when possible.

Limitations

- Research quality depends heavily on the cooperation of community stakeholders
- Many sustainable practices are informal and undocumented
- Recent innovations may not have sufficient data to demonstrate effectiveness
- Technical or proprietary information may be inaccessible
- Your findings represent a snapshot in time and may become outdated as practices evolve
- Determining the impact of practices requires collecting data scientifically
- Biases affect both your research approach and stakeholders' responses
- Time and resource constraints limit research scope and depth

Related Practices

- Learning 301: Building a Resource Library

- Verifying 201: Investigating Credibility
- Verifying 202: Researching Environmental Impacts
- Tracking 301: Calculating a Detailed Suspra Score
- Sharing 302: Publishing Infographics
- Sharing 303: Writing Articles

References and Further Reading

Research methods:

- *Action Research for Sustainability: Social Imagination Between Citizens and Scientists* by Jonas Egmoose
- *Community-Based Participatory Research for Health: Advancing Social and Health Equity* by Nina Wallerstein, Bonnie Duran, John Oetzel, and Meredith Minkler
- *Research Methods for Environmental Studies: A Social Science Approach* by Mark Kanazawa
- *Researching Sustainability: A Guide to Social Science Methods, Practice and Engagement* by Alex Franklin and Paul Blyton

Community assessment resources:

- EPA Greener Living
<www.epa.gov/environmental-topics/greener-living>
- Global Ecovillage Network Community Sustainability Assessment
<iefworld.org/fl/1_Community_Sustainability_Assessment%20.pdf>
- Sustainability Tools for Assessing and Rating Communities (STAR)
<sustainableconsumption.usdn.org/measurement/star-communities-rating-system>

Local research examples:

- Project Drawdown's Neighborhood
<drawdown.org/programs/drawdown-stories/neighborhood>

Learning 303: Earning an Undergraduate Degree

How to earn an undergraduate degree in an environmental field

Equipment & Materials

- Computer with Internet access
- Application fees for colleges/universities (\$50-100 per school)
- Standardized test fees (e.g., SAT, ACT) if required (\$55-70)
- Tuition and educational expenses (\$5,000-\$70,000 per year depending on institution)
- Financial aid application materials (FAFSA in the United States)
- *College guidebooks or digital subscription services (optional)*
- *Test preparation materials*
- *Portfolio materials for programs requiring work samples*
- *Budget for campus visits*

Steps

1. Obtain a high school diploma or General Educational Development (GED)
2. Research environmental degree programs (6-12 months before applying)

- Identify specific environmental fields that interest you
- Research universities and colleges with strong programs in your chosen field
- Consider factors such as program reputation, faculty expertise, research opportunities, internship connections, location, cost, and financial aid availability
- Check accreditation status of institutions and programs
- 3. Prepare for standardized tests if required (4-6 months before application deadlines)
 - Check if your chosen programs have test-optional policies
 - Register for and take required standardized tests (SAT, ACT for undergraduate admission)
 - Consider test preparation courses or materials if needed
 - Schedule tests early enough to retake if necessary
- 4. Connect with admissions representatives and faculty (3-6 months before applying)
 - Attend college fairs and virtual information sessions
 - Schedule campus tours when possible
 - Talk to current students and alumni about their experiences
 - Request information about specific environmental research or fieldwork opportunities
- 5. Prepare application materials (3-4 months before deadlines)
 - Draft personal statements focusing on your environmental interests and goals
 - Request letters of recommendation from teachers, mentors, or supervisors familiar with your environmental interests
 - Compile your academic records and transcripts
 - Create a curriculum vitae highlighting environmental activities, volunteer work, internships, or relevant experiences
- 6. Complete and submit applications (according to deadlines)
 - Complete all application forms before deadlines (typically December for fall admission)
 - Apply for financial aid
 - Apply for environmental scholarships and grants
- 7. Evaluate admission offers (typically March-April for fall admission)
 - Compare financial aid packages and scholarship offers
 - Consider program-specific factors such as environmental research opportunities, field experience, and internship programs
 - Revisit campuses if possible
 - Speak with current students and program faculty before making final decisions
 - Negotiate financial aid if necessary
- 8. Accept an offer and prepare for enrollment
 - Submit deposit to secure your place in the program
 - Apply for housing if attending in-person
 - Register for orientation and first semester courses
 - Research and apply for environmental student organizations on campus
 - Connect with fellow incoming students with similar interests
- 9. Complete degree requirements (typically 2 or 4 years)
 - Seek academic support services when needed

- Build relationships with faculty who can serve as mentors
 - Participate in environmental student organizations
 - Apply for research opportunities, field schools, and internships related to your environmental interests
 - Consider study abroad programs with environmental focuses
 - Create a portfolio of projects, research, and field experiences
10. Gain practical environmental experience
 - Secure internships or summer field experiences
 - Volunteer for local conservation projects
 - Participate in undergraduate research opportunities
 - Attend environmental conferences to build knowledge and network
 11. Prepare for post-graduation (final year)
 - Update your resume with relevant coursework, projects, and experiences
 - Build a professional network in your chosen environmental field
 - Research graduate programs if continuing education is your goal
 - Connect with career services to prepare for environmental sector job searches
 - Consider professional certifications that complement your degree

Discussion

An undergraduate degree program in an environmental field typically combines natural and social sciences with policy, management, and technical skills. While the investment of time and money is significant, a degree positions you for careers in government agencies, non-profit organizations, consulting firms, research institutions, and corporations focused on sustainability.

Some environmental undergraduate programs focus on natural sciences (ecology, conservation biology, atmospheric science), while others emphasize policy, planning, management, or design. Many programs now offer interdisciplinary approaches that combine multiple perspectives—a valuable approach given the complex nature of environmental problems.

When selecting a program, look for curricula that provide fundamental environmental knowledge while allowing specialization in areas that match your career interests. Employers value field experiences, laboratory work, internships, and independent research skills. While knowledge of ecological principles and environmental policy frameworks are essential, employers also seek graduates with technical abilities such as GIS mapping, environmental assessment, data analysis, or policy analysis.

Traditional environmental science and environmental studies degrees have been joined by specialized programs in sustainable business, renewable energy technology, urban sustainability, food systems, climate science, and environmental justice. This diversity allows you to align your education with specific career goals. Beyond formal coursework, the most successful environmental students typically engage in extracurricular activities like environmental clubs, volunteer projects, and internships. These experiences build practical skills, demonstrate commitment, and develop the professional network needed for career advancement after graduation.

Definitions

- **Accreditation:** Process by which colleges and programs are evaluated for quality and adherence to educational standards
- **Curriculum vitae (CV):** A summary of a person's education, qualifications, and experience
- **Environmental science:** Field focused on understanding natural systems and human impacts on them using scientific methods
- **Environmental studies:** Interdisciplinary field examining environmental issues through multiple lenses including policy, economics, ethics, and science
- **Conservation biology:** Science of preserving biodiversity and ecosystem functions
- **Environmental policy:** Study of laws, regulations, and governance structures addressing environmental issues
- **Environmental justice:** Examination of fair treatment and meaningful involvement of all people with respect to environmental benefits and burdens
- **Free Application for Federal Student Aid (FAFSA):** Form used in the United States to determine student eligibility for federal financial aid
- **General Educational Development (GED):** A set of exams that shows you have a high school level of knowledge
- **GIS (Geographic Information Systems):** Technology for capturing, analyzing and displaying data related to positions on Earth's surface
- **Field experience:** Hands-on learning conducted outside the classroom in natural or community settings
- **High school diploma:** a certificate that shows a student has finished all the required courses required to attend many higher education programs
- **Undergraduate degree:** a two-year associate degree or four-year bachelor's degree that is usually the first step in a college education, typically earned after high school

Troubleshooting

Problem	Solutions
Application fees are too expensive	Request application fee waivers based on financial need. Apply to schools offering free applications. Focus on fewer, better-matched schools.
Uncertain which environmental specialization to choose	Take broad introductory courses in your first year. Attend departmental information sessions. Speak with academic advisors and working professionals. Pursue internships in different areas to identify preferences.
Low standardized test scores	Research test-optional schools. Retake tests after further preparation. Highlight environmental experience and passion in other application components.

Problem	Solutions
Limited environmental experience	Volunteer with local conservation groups. Participate in citizen science projects. Take online environmental courses. Join environmental clubs or initiatives at your current school.
Cannot afford tuition	Apply for environmental scholarships and grants. Consider starting at a community college and transferring. Look at public universities with strong environmental programs. Explore schools offering cooperative education options where you alternate studying and paid work.
Difficulty balancing coursework and field components	Develop strong time management skills. Talk to academic advisors about appropriate course load. Use campus academic support resources. Consider summer courses to reduce regular semester workload.
Program lacks desired specialization	Create a personalized concentration through electives. Pursue a minor in a complementary field. Seek independent study opportunities with faculty whose research matches your interests.
Limited internship opportunities	Apply early for competitive positions. Consider remote internships. Create your own internship by approaching organizations directly. Focus on smaller, local environmental organizations with less competition.

Limitations

- Undergraduate environmental degrees require years of study
- Programs can be expensive, particularly at private institutions
- Quality and focus of environmental programs varies widely across institutions
- Environmental science programs may require strong background in mathematics and sciences
- Job markets for environmental graduates fluctuate with economic and political conditions
- Some environmental careers may require graduate education beyond a bachelor's degree
- Field courses and internships are challenging for students with family or work obligations
- Environmental curricula may not keep pace with new sustainability challenges and technologies
- Regional job opportunities after graduation may be limited

Related Practices

- Learning 104: Taking Courses
- Learning 202: Earning Certifications

- Learning 301: Building a Resource Library
- Learning 302: Researching Practices
- Learning 401: Earning an Advanced Degree

References and Further Reading

College guides:

- Association for the Advancement of Sustainability in Higher Education
<www.aashe.org/resources/for-students/>
- *Fiske Guide to Colleges*
- National Center for Education Statistics College Navigator
<nces.ed.gov/collegenavigator>
- *The Princeton Review Guide to Green Colleges*
<www.princetonreview.com/college-rankings/green-guide>

Financial aid:

- Federal Student Aid <studentaid.gov>
- National Oceanic and Atmospheric Administration Scholarships
<<http://noaa.gov/office-education/undergraduate-scholarships>>
- The Garden Club of America Scholarships <gcamerica.org/scholarships>

Career planning:

- Environmental Career Opportunities <ecojobs.com>
- *Great Jobs for Environmental Studies Majors* by Julie DeGalan and Bryon Middlekauff
- North American Association for Environmental Education <jobs.naaee.org>
- *The Complete Guide to Environmental Careers in the 21st Century* by Environmental Careers Organization
- *The Eco Guide to Careers that Make a Difference: Environmental Work for a Sustainable World* by Environmental Careers Organization

Learning 401: Earning an Advanced Degree

How to earn a post-undergraduate degree in an environmental field

Equipment & Materials

- Computer with Internet access
- Application fees for graduate programs (\$50-\$120 per school)
- Standardized test fees (GRE: \$205; GMAT: \$275; subject tests may cost more)
- Official transcript fees from previous institutions (\$10-25 per transcript)
- Budget for application-related expenses (\$1,000-\$3,000)
- Curriculum vitae (CV)
- *Test preparation materials (optional)*
- *Budget for campus visits (\$500-\$2,000)*

Steps

1. Research and select appropriate degree programs (6-12 months before applying)
 - Identify your specific environmental interests and career goals
 - Research degree types (MS, MA, MEng, MEM, MBA, MPH, PhD, JD, etc.)

- Create a list of potential programs based on:
 - Faculty research interests that align with yours
 - Program reputation and accreditation
 - Location, duration, and cost
 - Funding opportunities and graduation outcomes
- Evaluate program requirements (courses, thesis/non-thesis options, internships)
- Contact current students and alumni to gauge program quality and culture
- 2. Prepare for standardized tests (if required, 4-6 months before applications)
 - Determine which tests are required (GRE, GMAT, LSAT, subject tests)
 - Take practice tests to identify knowledge gaps
 - Create a study schedule and use test prep resources
 - Register for and take required tests with enough time for retakes if needed
- 3. Secure strong recommendation letters (3-4 months before applications)
 - Identify three or four professors or professionals who know your work well
 - Meet with potential recommenders to discuss your goals
 - Provide your resume, statement of purpose, and specific reminders of your work
 - Give recommenders ample time (at least four weeks) and follow up professionally
- 4. Craft application materials (two or three months before deadlines)
 - Write a compelling statement of purpose that:
 - Explains your interest in environmental issues
 - Connects past experiences to future goals
 - Demonstrates fit with the specific program
 - Shows knowledge of faculty research and program strengths
 - Develop a professional CV highlighting relevant experience
 - Prepare writing samples or research proposals if required
 - Request official transcripts from all previous institutions
- 5. Apply to programs (follow application deadlines, typically fall/winter for following year)
 - Submit applications before deadlines (typically between November and January)
 - Pay application fees or secure fee waivers if eligible
 - Confirm all materials (test scores, recommendations, transcripts) have been received
 - Apply for departmental funding, fellowships, and assistantships
- 6. Prepare for interviews (if applicable, typically 1-3 months after applications)
 - Research the program and faculty in greater depth
 - Prepare to discuss your research interests and career goals
 - Develop thoughtful questions about the program
 - Practice articulating how you would contribute to the program
- 7. Evaluate offers and make decisions (typically by April for fall admission)
 - Compare programs based on fit, funding, and future opportunities
 - Negotiate funding if possible
 - Make campus visits if you haven't already
 - Accept your chosen offer by the deadline, typically April 15
 - Decline other offers promptly to open spots for other students
- 8. Prepare for graduate study
 - Complete any prerequisite courses if needed

- Secure housing and plan relocation if necessary
- Research and apply for additional funding opportunities
- Connect with future classmates and faculty
- Begin preliminary reading in your field
- 9. Excel in your program
 - Maintain strong academic performance
 - Build relationships with faculty, especially potential advisors
 - Engage actively in research or practical projects
 - Network with professionals in your field
 - Begin planning for post-graduation early
- 10. Complete degree requirements

Discussion

Earning an advanced degree in an environmental field represents a significant commitment of time, energy, and resources, but it can dramatically expand your capacity to create sustainable change through deeper expertise, professional credentials, and expanded networks. Master's programs typically require one to three years to complete, while doctoral programs may require seven or more years. Professional degrees like the Juris Doctor (law) typically take three years.

Each type of degree serves different career paths:

- **Master of Science (MS)** programs emphasize research and technical skills in areas like ecology, environmental chemistry, or climate science.
- **Master of Arts (MA)** programs often focus on policy, communications, or education aspects of environmental issues.
- **Professional master's degrees** (MEM, MPH, MPA, MBA) emphasize practical skills for specific career paths in environmental management, public health, administration, or business.
- **Doctoral (PhD)** programs prepare students for research and academic careers, requiring significant original research.
- **Law degrees (JD)** with environmental specialization prepare students for environmental law and policy.

Funding opportunities vary widely between programs and degree types. PhD programs in the sciences often provide full funding through research and teaching assistantships, while professional master's programs typically offer less financial support. External fellowships, scholarships, and grants can significantly reduce costs.

Choosing the right program requires balancing multiple factors:

- **Fit with faculty research interests** is particularly crucial for research-based programs
- **Program culture and teaching approach** affect your daily experience and success
- **Geographic location** impacts networking opportunities and specific environmental contexts
- **Program reputation and connections** in your desired career field

Applications to competitive programs require careful preparation. Strong letters of recommendation, compelling personal statements, relevant experience, and demonstrated knowledge of the program are crucial differentiators. Working in the field before applying can strengthen your application.

Throughout your graduate education, build skills and relationships that will serve your environmental career goals. Seek opportunities for applied projects, internships, and networking with professionals. Consider interdisciplinary training that combines technical understanding with policy, communication, or business skills, as environmental professionals increasingly need to work across traditional boundaries.

Definitions

- **Assistantship:** A form of financial aid where graduate students receive tuition remission and a stipend in exchange for teaching (TA) or research (RA) work
- **Capstone project:** A culminating project demonstrating mastery of program content, often addressing a real-world environmental problem
- **Comprehensive exam:** An assessment testing broad knowledge of a field, usually taken before advancing to dissertation research
- **Curriculum vitae (CV):** An academic resume that includes educational history, research experience, publications, and presentations
- **Dissertation:** An extensive original research project required for doctoral degrees
- **Fellowship:** Merit-based financial support that typically doesn't require work in return
- **Graduate Record Examination (GRE):** A standardized test often required for graduate school applications
- **Master's thesis:** A research project and resulting document required by some (but not all) master's programs
- **Non-thesis option:** A master's degree path that substitutes additional coursework, a capstone project, or comprehensive exams for a thesis
- **Statement of purpose:** An essay explaining your academic interests, career goals, and fit with a particular graduate program

Troubleshooting

Problem	Solutions
Low undergraduate GPA	Focus on recent academic achievements. Take additional courses to demonstrate current abilities. Highlight relevant professional experience. Address the issue directly in your personal statement. Apply to programs that evaluate applicants holistically.
Limited research experience	Volunteer as a research assistant before applying. Take research methods courses. Develop independent projects under faculty guidance. Highlight relevant professional experience. Consider starting with a master's program before pursuing a PhD.

Problem	Solutions
Unclear career direction	Conduct informational interviews with professionals. Gain work experience in environmental fields. Consider programs with project-based learning and internships. Explore programs that offer breadth before specialization.
Difficulty securing recommendations	Reconnect with past professors through thoughtful emails describing your work and goals. Provide detailed context to help recommenders write strong letters. Consider professional recommendations if academic ones aren't available. Take a class with a potential recommender before applying.
Standardized test anxiety	Start preparation early. Use official practice tests regularly. Consider testing accommodations if eligible. Look for programs that don't require standardized tests or make them optional.
Limited funding options	Apply to multiple funding sources, not just program-specific ones. Consider part-time programs while working. Explore employer tuition benefits. Look for programs with teaching and research assistantships. Apply to public universities with lower tuition rates.
Rejected from top-choice programs	Request feedback on your application. Strengthen weak areas and reapply in the next cycle. Consider alternative programs with similar strengths. Gain relevant work experience before reapplying.
Difficulty balancing work and graduate study	Look for programs designed for working professionals (evening, weekend, or online options). Start with a certificate program before committing to a full degree. Negotiate a flexible work schedule with your employer. Consider part-time enrollment options.

Limitations

- Advanced degrees require years to complete
- Graduate education involves significant financial investment
- Program quality and content vary considerably between institutions
- Some environmental jobs don't require advanced degrees and prioritize practical experience
- Academic programs may lag behind emerging environmental challenges and technologies
- Highly specialized degrees may limit career flexibility compared to interdisciplinary programs
- Geographic relocation may be necessary to attend the best program for your interests
- Research-based degrees may not provide practical skills valued in non-academic settings
- Academic environmental programs are sometimes disconnected from practice communities

Related Practices

- Learning 104: Taking Courses
- Learning 201: Attending Hands-On Workshops
- Learning 202: Earning Certifications
- Learning 301: Building a Resource Library
- Learning 302: Researching Sustainable Practices
- Learning 303: Earning an Undergraduate Degree
- Working 301: Working a Job with an Environmental Mission

References and Further Reading

Books:

- *A PhD Is Not Enough!: A Guide to Survival in Science* by Peter J. Feibelman
- *Getting What You Came For: The Smart Student's Guide to Earning a Master's or a Ph.D.* by Robert Peters
- *The Professor Is In: The Essential Guide to Turning Your Ph.D. into a Job* by Karen Kelsky

Professional organizations:

- American Academy of Environmental Engineers and Scientists <www.aees.org>
- Association for the Advancement of Sustainability in Higher Education (AASHE) <www.aashe.org>
- Association of Environmental Engineering and Science Professors <www.aeesp.org>
- Ecological Society of America <www.esa.org>
- National Association of Environmental Professionals <www.naep.org>
- Society of Environmental Journalists <www.sej.org>

Programs and fellowships:

- <GradSchools.com>
- <ProFellow.com>
- National Science Foundation Graduate Research Fellowship Program <www.nsfgrfp.org>