CraftED
CURRICULUM

CraftED CURRICULUM'S USER GUIDE

How to use this curriculum

Our Foundational Strategies and Lessons are intended to be used as part of an existing curriculum scope and sequence. Our work can be easily embedded into class content because it is aligned to standards, such as Common Core and Next Generation Science Standards. While grades and content areas are suggested, it is at your discretion, as a teacher, to offer additional scaffolds based on your students' skills and needs.

Our strategies are universal tools that can be used across classes and units. Our hope is that you will continue to use them in various contexts over the course of the year. As they are increasingly exposed to these protocols, exercises, and ideas, students will become more familiar with them and ultimately display with confidence the behaviors listed under Hewlett's Deeper Learning Competencies to which each strategy is aligned.[1] Extension options are listed in each Foundational Strategy under a column titled "Go Deeper." These include additional opportunities to collaborate with other teachers or to build the strategies out into larger units or lessons.

Our Deeper Learning Lessons are more robust than our strategies, and lay out step-by-step instructions, reproducible materials, and assessment prompts for an entire unit in one specific content area. Unlike our Foundational Strategies, which can be used multiple times over and in many different contexts, lessons are not intended to be re-used in the same class during the same school year. Many of our lessons incorporate and reference our strategies, in addition to various protocols listed in the glossary below.

About Deeper Learning and Hewlett's Core Competencies

Deeper Learning has varying definitions, but is the term loosely used to describe a progressive approach to teaching and learning. The movement to spread deeper learning practices has been lead by the Hewlett Foundation and several large educational organizations committed to the principles of deeper learning, as outlined by Hewlett's Deeper Learning Competencies (see below).

CraftED Curriculum is the first teaching resource to align strategies and lesson plans to not only Hewlett's Deeper Learning Competencies, but also to Common Core and Next Generation Science Standards. Each Foundational Strategy and Lesson lists the specific Deeper Learning Competencies addressed by that resource, and is designated by the competency title and its subletters, as defined by the Hewlett Foundation and listed below.

1. Master core academic content. Students develop and draw from a baseline understanding of knowledge in an academic discipline and are able to transfer knowledge to other situations.
    a. Students understand key principles and relationships within a content area and organize information in a conceptual framework.
    b. Students learn, remember, and recall facts relevant to a content area.

c. Students have procedural knowledge of a content area and know how content knowledge is produced and how experts solve problems.
d. Students know and are able to use the language specific to a content area.
e. Students extend core knowledge to novel tasks and situations in a variety of academic subjects.
f. Students learn and can apply theories relevant to a content area.
g. Students enjoy and are able to rise to challenges requiring them to apply knowledge in nonroutine ways.
h. Students apply facts, processes, and theories to real world situations.

2. Think critically and solve complex problems. Students apply tools and techniques gleaned from core subjects to formulate and solve problems. These tools include data analysis, statistical reasoning, and scientific inquiry as well as creativity, nonlinear thinking, and persistence.
    a. Students are familiar with and able to use effectively the tools and techniques specific to a content area.
    b. Students formulate problems and generate hypotheses.
    c. Students identify data and information needed to solve a problem.
    d. Students apply tools and techniques specific to a content area to gather necessary data and information.
    e. Students evaluate, integrate, and critically analyze multiple sources of information.
    f. Students monitor and refine the problem-solving process as needed, based on available data.
    g. Students reason and construct justifiable arguments in support of a hypothesis.
    h. Students persist to solve complex problems.

3. Work collaboratively. Students cooperate to identify and create solutions to academic, social, vocational, and personal challenges.
    a. Students collaborate with others to complete tasks and solve problems successfully.
    b. Students work as part of a group to identify group goals.
    c. Students participate in a team to plan problem-solving steps and identify resources necessary to meet group goals.
    d. Students communicate and incorporate multiple points of view to meet group goals.

4. Communicate effectively. Students clearly organize their data, findings, and thoughts.
    a. Students communicate complex concepts to others in both written and oral presentations.
    b. Students structure information and data in meaningful and useful ways.
    c. Students listen to and incorporate feedback and ideas from others.
    d. Students provide constructive and appropriate feedback to their peers.
    e. Students understand that creating a quality final communication requires review and revision of multiple drafts.
    f . Students tailor their message for the intended audience

5. Learn how to learn. Students monitor and direct their own learning.
    a. Students set a goal for each learning task, monitor their progress towards the goal, and adapt their approach as needed to successfully complete a task or solve a problem.
    b. Students know and can apply a variety of study skills and strategies to meet the demands of a task.
    c. Students monitor their comprehension as they learn, recognize when they become confused or encounter obstacles, diagnose barriers to their success, and select appropriate strategies to work through them.
    d. Students work well independently but ask for help when they need it.
    e. Students routinely reflect on their learning experiences and apply insights to subsequent situations.
    f . Students are aware of their strengths and weaknesses, and anticipate needing to work harder in some areas.
    g. Students identify and work towards lifelong learning and academic goals.
    h. Students enjoy and seek out learning on their own and with others.
    i . Students anticipate and are prepared to meet changing expectations in a variety of academic, professional and social environments.
    j . Students delay gratification, refocus after distractions, and maintain momentum until they reach their goal.
    k. Students use failures and setbacks as opportunities for feedback and apply lessons learned to improve future efforts.
    l . Students care about the quality of their work and put in extra effort to do things thoroughly and well.
    m. Students continue looking for new ways to learn challenging material or solve difficult problems.

6. Develop academic mindsets. Students develop positive attitudes and beliefs about themselves as learners that increase their academic perseverance and prompt them to engage in productive academic behaviors. Students are committed to seeing work through to completion, meeting their goals, and doing quality work, and thus search for solutions to overcome obstacles.

I belong in this academic community:

a. Students feel a strong sense of belonging within a community of learners and value intellectual engagement with others.
b. Students understand learning as a social process and actively learn from one another and support each other in pursuit of learning goals.
c. Students readily engage in the construction of meaning and understanding through interaction with peers.

I can succeed at this:

d. Students trust in their own capacity and competence and feel a strong sense of efficacy at a variety of academic tasks.
e. Students see themselves as academic achievers and expect to succeed in their learning pursuits.

My ability and competence grow with my effort:

f . Students believe that hard work will pay off in increased knowledge and skills.
g. Students are motivated to put in the time and effort needed to build a solid knowledge base and to accomplish important goals.

This work has value for me:

h. Students perceive the inherent value of content knowledge and of learning and developing skills.
i . Students see the relevance of school work to their lives and interests.
j . Students understand how work they do now will benefit them in the future.
k. Students know that future learning will build upon what they know and learn today.

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CraftED Curriculum materials at-a-glance

Below is a topical list of all CraftED Curriculum Foundational Strategies and Lessons. Next to each strategy or lesson title is the suggested grade level, in addition to Hewlett's Deeper Learning Competency (DLC) reference, by number and subletter.

Real World Exploration

This set of materials supports students' development as active learners by interacting with the field to collect data and learn from experts.

Foundational Strategies

- Real World Exploration (grades K–12, DLC 1d–h, 3a, 4a,4f)
- Debriefing Real World Exploration (grades 5–12, DLC 6a–c, 6h–k)
- Documenting Real World Exploration: Field Notes (grades 4–10, DLC 1a–f, 3a–d, 4a–b, 5b)
- Interacting with Experts (grades K–3, DLC 1d, 1h, 6c, 6i–j)
- Interviewing Experts (grades 5–10, DLC 1d, 1f, 1g–l, 6i–k)
- Modeling How to Interview an Expert (grades K–4, 1d, 1e–l, 3a, 6i–k)
- Modeling How to Document Real World Exploration (grades K–2, DLC 1d, 1e, 1f, 1g, 1h, 3a, 3b, 4a, 5b, 5e, 5h, 5i, 6a–c)

Lessons

- Collecting Data in the Field, a Science and ELA lesson (grades 6–10, 4a–f, 6a–k)

Additional Resources

- Crafting Fieldwork for More Meaningful Learning, Resource: Connected Graphic Organizer

Reflection

This series of strategies fosters reflection by analyzing experts, establishing expectations for an academic community, and building resilience and ownership over student learning.

Foundational Strategies

- Analyzing Experts as Models (grades 6–10, DLC 1c, 1d, 1g, 6e)
- Unpacking an Expert's Toolbox (grades K–8, DLC 2a, 2d, 5b, 5m, 6h, 6k)
- My Toolkit (grades K–8, DLC 5c–e, 6d)
- Defining our Academic Community (grades 6–9, DLC 5f, 6a–c)
- Getting Unstuck (grades 4–8, DLC 5c–e, 6d)
- Goal Setting (grades 3–10, DLC 5a, 5c, 5e, 5f, 5g, 6d, 6e)

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Collaboration

This series of strategies gives students tools to work together so all learners actively contribute to group work and feel a sense of ownership over the final product—whether it be something the group has created, something a peer helped improve the quality of, or something the class collectively created or defined.

Foundational Strategies

- Point of View Check (grades 9–12, DLC 3a–d, 5a, 5e, 5k, 5m, 6a–c)
- Team Huddle (grades 5–10, DLC 3a–d, 6a–c, 5a–e)
- Problem Solving Protocol (grades 5–10, DLC 3a–d)
- Unbox (grades 9–12, DLC 1g, 2h, 3a, 3d, 6c)
- Co-constructing Deeper Learning Assessments (grades 5–10 DLC 3b, 5l, 6c)
- Friendly Feedback (grades K–4, DLC 3a, 4a, 4d, 4e, 5a, 5e, 5h, 5l, 6a, 6b, 6j)
- My Favorite Fail (grades K–8, DLC 5e, 5i, 5k, 6d, 6f, 6j, 6k)
- Collaborative Feedback (grades K–12, DLC 3a, 5 a, 5e, 5k, 5l, 6 a–c, 6f–g)

Research, inquiry and analysis

These strategies and lessons provide scaffolding for research and analysis skills that are needed for deeper learning.

Foundational Strategies

- Infographic (grades 6–10, DLC 1a, 1d, 3a, 4a, 4b, 4f)
- Research Road Map (grades K–8, DLC 2c–d, 5a, 5b, 5c, 5e, 5g)
- PQH^2 (grades 9–12, DLC 2b, 2c, 2f, 5e, 5m)

Lessons

- Field To Table Project, a Science and ELA lesson (grades 6–10, DLC 1b, 1d, 1e, 1d, 1g, 1h, 2a, 2c–f, 3a, 4a, 5a, 5b, 5l, 5m)
- Why Ask Why? A Science, Social Science, and ELA lesson (grades 7–10, DLC 2b, 4a, 5e, 5h, 5m)
- Putting It Together Like a Pro: Infographic, an ELA and multimedia lesson (grades 6–12, DLC 1a, 1d, 3a, 4b, 4f, 5i)

Dissemination

These strategies provide different outlets for students to share what they have learned—including written, oral, and artistic exhibitions of their work.

Foundational Strategies

- Picture Walk and Talk (grades K–3, DLC 4a, 4e, 6a, 6d, 6e, 6j)
- Peer Feedback for Oral Presentations (grades 4–10, DLC 3a, 4a, 5a, 5e, 5h, 5l, 6a, 6b, 6j)
- A Step Ahead for Oral Presentations (grades 8–12, DLC 1b, 1d, 4a, 4c, 4e, 4f, 6b, 6f, 6g, 6h)
- Ensuring an Engaged Audience (grades 5–10, DLC 4, 6)

Lesson

- Mashup, an ELA lesson (grades 6–8, DLC 1d, 1e, 1f, 1g, 1h, 2e, 2h, 3a)

Design Thinking/Maker Movement

These strategies are designed to facilitate engaging experiences for students to design and prototype their ideas. They can be used to guide students through various phases of the Design Thinking process.

Foundational Strategies

- Unbox (grades 9–12, DLC 1g, 2h, 3a, 3d, 6c)
- My Favorite Fail (grades K–8, DLC 5e, 5i, 5k, 6d, 6f, 6j, 6k)
- Make and Take Challenge (grades K–12, DLC 1h, 1j, 2a, 2f, 2h, 3a, 3b, 5k, 5l, 5m)
- Tinker Time (grades K–12, DLC 5a, 5d, 5m, 6h, 6i)

Resources

- Getting Ready for Tinker Time

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PROTOCOL GLOSSARY: TIPS AND TRICKS FOR YOUR CRAFT

The following are protocols, resources, and tips that are frequently cited in CraftED Curriculum's Foundational Strategies, Lessons, and Resources. They are not owned by CraftED Curriculum, and more information about them can be found online if users would like to learn more.

Artful Thinking Routines	This set of thinking routines uses the arts as a vehicle to make thinking visible. CraftED Curriculum's favorite artful thinking routines are "See, think, wonder" and "I used to think...now I think..." Present these prompts to students when viewing any form of artistic work, from photographs to videos, to help the more deeply engage with what they see. Students can react verbally or in writing. More information can be found at http://pzartfulthinking.org/.
Brain Doodle	Brain doodling is a way to make thinking visible; to get an visual on how someone's brain is processing information. A form of notetaking, brain doodling places emphasis on quick sketches and drawings with minimal shorthand notes. Some research suggests that brain doodling keeps the mind engaged in the task at hand and also allows students to express their thinking in an artistic format, which supports multiple forms of intelligence. To complete a brain doodle, students simply create images for what they are thinking as they take in new information. Some images may feature connected lines between them or directional arrows to show cause and effect; other images may be labeled drawings to further explain what the images represent.
Carousel protocol	This protocol is a way for students to give and receive feedback on a specific idea or piece of work. It can be very helpful during the early stages of brainstorming or when moving to an improved draft of student work. Students should put out a draft of their work or present their idea to a small group. Students in the feedback group should each have their own color marker, pen, or highlighter. The presenting student poses a specific issue or question on which they are seeking feedback from the group. The work and question will then rotate around the group in a circle (like a carousel). Each member of the group then silently responds to the question or offers feedback using their colored pen. Peers who are providing feedback can comment on other peers' feedback, draw connections between other peers' comments, or build off questions and comments to help address the presenters' questions and ultimately improve their work.

Call the coach	Students often need help from a teacher during work time. Because the teacher can't help every student or group at the same time, a mechanism is needed to organize requests for assistance. Call the coach is a form of "teacher on demand" whereby students can list their group's name on the board in the order in which they have requested help. On this list they may also write with what they specifically what they need help. If a peer is available and familiar with the subject or topic, they can offer their help, too. Once a group has received assistance, their name is crossed off and the next person or group on the list gets help.
Celebrations	This is quick protocol to celebrate somebody or something that has happened during an experience or event—during either a class period, a project, or in the field. Students can sit in their seats or in a circle to verbally acknowledge a peer for a particularly useful, helpful, or novel contribution. There is no need to respond to each acknowledgement, and the teacher or class can decide whether to applaud, snap, or knock after a celebration is shared. Students may also simply write down their acknowledgement and post it on a designated space in the room.
Chalk talk	Chalk talks are similar to the Carousel protocol, though a bit less structured. A question is posed or work is presented on a board or wall, to which students respond silently using a marker or chalk. Students can get up at random, when they are "moved," or when a teacher hands them a writing utensil as a nudge to participate. Students may draw lines, respond to peers' comments, or write questions they develop as a result of reading peers' comments.
Class norms	Norms are agreed upon behaviors that are expected by/from students in a particular community. At the beginning of the school year, the teacher can lead students through developing a unique set of norms for the class for that particular school year. "We give kind, specific, and helpful feedback;" "We avoid interrupting others during group conversations;" and "We respect everyone's right to their opinion" are examples of class norms. Norms should be revisited often through discussion and reflection. Responsive Classroom offers a robust curriculum for developing class norms if you are looking for more information on how to facilitate this process.

Community contact database	This is a simple spreadsheet created in Google forms or Excel. Use it to keep track of connections that exist in your community that can be tapped when students need to interview experts, conduct field work, or be visited in the classroom by practicing professionals. Make your spreadsheet publicly accessible and ask fellow teachers to contribute to it. Suggested columns for the spreadsheet are name, company/organization, contact information, area of expertise, connected by (teacher or parent name), participation (when they participated in a school related event, and what they did), and notes (for any additional information).
Consultations (one-on-one and group)	It is important for a teacher to provide individual or group consultations during project or class work. This is a time for the teacher to check in with the individual or group on where they are currently at in their work and provide feedback on what they have done so far. This strategy ensures that students will never continue too far down the wrong path without receiving feedback or redirection. Consultations should take place frequently, about 1–3 times per week.
Critical friends	This term refers to individuals who provide collegial or peer feedback to one another. Critical friends is also a protocol developed by NSRF whereby an individual presents a dilemma, an idea, or a draft of their work to peers who offer feedback using sentence stems such as, “I like…” “I wonder…” and “A next step you could take is…”
Design Thinking	Design Thinking is a five-step process initially created by the D School at Stanford. It is followed when designing or creating a product. The five steps are empathize, define, ideate, prototype, and test. Follow these steps when you want students to identify a problem and design a potential solution for an end user, real or hypothetical.
Draw-label-caption	This is a basic way for students to express an idea, process, event, or person. Students will need to sketch something specific, label its components, write a brief description of the different components they have labeled.

Exit tickets	Exit tickets are a quick way to check for understanding. The teacher provides a basic prompt or question for writing and students respond in one-two minutes. Exit tickets can simply be written on a sticky note and posted near the door on students' way out, written on a notecard and handed to the teacher, or a response in a journal that a teacher stamps prior to students leaving. Visible Thinking Routines (see below) provide a great framework for exit tickets.
Entry tickets	Similar to exit tickets these are a quick format for checking for understanding. These are conducted prior to students entering into a task or project. These ensure that the students have shown mastery of previous content and skills and display the content knowledge or skills necessary to complete the task ahead. Entry tickets may be conducted in the same format as exit tickets.
Fishbowl	A fishbowl is when a small group engages in the protocol while the remainder of the class observes in a large circle surrounding them. The purpose of the inside circle is to model student behavior. The purpose of the outside circle is to observe and analyze student behavior. The teacher participates as a group member on the inside circle to model appropriate behavior. At the end of this exercise, the teacher debriefs with the class, highlights teachable moments, and asks students from the outside circle to share their observations.
Five whys	This is a modified protocol from National School Reform Faculty (NSRF). The process begins with one question being posed and written down. The question is then followed by four additional questions that stem from the first one. All questions must begin with the word "why." The process helps participants understand the root of a problem by seeing that sometimes we need to approach an issue from multiple angles to better understand a problem or context.
Gallery walk	Gallery walks are a way for students to view their peers' work and also to give and receive feedback on their drafts. Student work should be posted around the room where peers can walk around and view it. When a student stops to view a piece of work, they should offer a piece of warm feedback (something that was done well) and a piece of cool feedback (something that could be done better) on a colored sticky note (say, orange for warm and blue for cool) or on a T-chart next to the piece of work.

Graffiti wall	A graffiti wall is a way for students to react nonverbally to a piece of information, an image, or a quote. It is similar to a gallery walk. The teacher should post around the room various types and formats of information for students to view. Next to each thing posted should be a large piece of poster paper. It may be blank or may include some prompts or questions. When a student visits the information, they write their reaction on the poster paper. Similar to a chalk talk, students may draw lines, respond to peers' comments, or write questions.
Learning stations	Learning stations are similar to learning centers in that they feature students rotating through stations. Each station has all the materials and directions needed to complete an assignment. While students explore stations, the teacher provides either direct, small group instruction or roams around providing students with individual support. There are several way to structure how students visit stations. They may be required to attend all stations or just some of the stations (say, half of them). Or, certain students may be required to attend certain stations based on their specific needs. Students may also visit stations at their own pace and in an order of their choosing; attend all stations in numerical order or clockwise; or limit the amount of time they spend at each station via a timer.
Maker Movement	The Maker Movement is inspired by the Do It Yourself (DIY) movement and the Maker Faires that take place across the United States. Proponents of the Maker Movement believe that students should have access to Maker Spaces or Tinker Labs that feature tools and materials to build and explore. High tech Maker Spaces include items such as 3D printers and power tools. Tinker Labs are smaller and include more basic building materials and recyclables for students to play with and prototype items to test.
Quick write	A quick write is a writing assignment that asks students to respond to a prompt without preparation or revision. Quick writes are typically completed in journals and are not usually graded, since they are an informal assignment. Quick writes can be used as a strategy to jump start students on an idea or help them independently process or reflect.

RSA	RSA animate is known by several other names: whiteboard animation, video scribing, fast draw, or sketchboard animation. It is a video that typically provides hand drawn images and key phrases to deliver a particular message.
Student-led conferences (SLCs)	Student-led conferences are a departure from traditional parent-teacher conferences in that students are present and lead the conversation about their learning. The teacher helps students prepare for their SLC by prompting them to reflect on their learning and helping them gather work to show their parents that evidences their growth or goals moving forward. SLCs may take place quarterly, each semester, or once a year.
T-Chart	A T-Chart is a simple graphic organizer that includes a "T" down the middle of a paper, which generates two columns. Each column is labeled and students can categorize their thinking according to the two titles of the columns.
"Three before me"	This is a basic policy in which students must consult with three people or resources prior to asking the teacher. This policy helps foster student independence and ownership over their learning.
Tinkering	Tinkering describes when students are given time and space to explore materials for learning, designing, or building. Tinkering is a hands-on activity geared toward engaging students and peaking their curiosity about how things work. Tinkering is typically an open-ended process and driven by student interests.
Visible Thinking Routines	Visible Thinking Routines are a set of core routines from Harvard Project Zero that help students make their thinking visible in the classroom. All core routines can be found at http://www.visiblethinkingpz.org/. CraftED Curriculum's favorite routines include "Think, pair, share," which is when students process material quietly and independently, then share their thinking aloud to a partner and then with the whole class. Another excellent routine is Circle of Viewpoints, which are thinking and speaking stems for exploring diverse perspectives. Also recommended is Compass Points, which, using the shape of a compass, asks students to reflect upon something specific and new using these prompts: (N/north) Need to knows they may have, (E/east) what Excites them, (S/south) what Stance they would like to take moving forward, and (W/west) something worrisome related to what they have just learned. Students can stand at different locations around the room and verbally share their responses, or simply jot down their answers on a sticky note as an exit ticket.

Webquest	A Webquest is a structured student exploration in which most or all the information with which learners work comes from the web. Webquests are self-directed and self-paced and typically provide students with information for researching a particular topic. They can be created by the teacher using basic programs, or pre-existing ones can be found on the Internet and modified for a specific need.
Workshop model	This teaching method provides instruction to small groups in an interactive and student-centered way. Workshops can be mandatory for all or some students (students not attending a workshop can work on an assignment quietly at their seats). Students can be grouped according to need or interest. Workshops might help students build a skill; practice a process; learn a craft; or expose them to new information in a targeted way. At the end of a workshop students should be asked to apply what they learned.

1. Deeper Learning Defined. Deeper Learning Competencies. Hewlett Foundation, 23 Apr. 2013. Web. 25 Mar. 2016. <http://www.hewlett.org/uploads/documents/Deeper_Learning_Defined_April_2013.pdf>.