Core Connections Handbook

Welcome, reader!

This document is intended to lay out a framework for the Core Connections class as taught at Voyager Academy in the 6th grade. It should serve as both a justification and explanation of the rigor/value of the course, as well as a roadmap for any teacher desiring to teach or duplicate the curriculum.

Mission Statement:

Problems faced in the adult world are generally large, complex, and lacking in any obvious course of action or predefined and easily identifiable solution. The purpose of Core Connections is to prepare students to face such problems, by gradually teaching them to break down the walls that arbitrarily separate academic and creative disciplines, and by instilling in them the habits that lead to the creation of true quality in their work.

Major Goals

To create proficient readers and writers who are as comfortable with text as they are with the spoken word

To create solution oriented thinkers who, when faced with an unfamiliar problem, are capable of asking good questions, seeking their own answers, drawing on all disciplines and areas of competency, and developing their own plans of action

To create critical thinkers who can objectively evaluate their own work, accept and give quality critical feedback, and understand the need for revision and recursion in the pursuit of an excellent product.

What does this look like, in practice? Two things: PROJECTS and PROTOCOLS.

The Core Connections classroom is a place for special projects, from small one-day activities to quarter-long major endeavors. Wherever possible, these projects will be interdisciplinary and/or will tie into and support the work taking place in the four core classrooms, but this is not always the case. Each project can stand alone and will not necessarily connect directly to any other, because what matters in a CC project is the *how*, not the *what*. Of course, over time, certain projects should become permanent because of how they can be built and expanded from year to year, and because of how they connect to and reinforce the work in the other core classes. But any project can be made appropriate if approached in the right way.

That "right way" includes making each project both teach and use the three Core Connections protocols, which will be explained in detail in subsequent sections. These are the pillars of the course, underlying and upholding the value of each day's work:

- The **Planning** protocol, which is a systematic method for breaking down a problem, establishing goals, asking questions, and developing a plan of attack based on the six basic questions (who, what, where, when, why, and how).
- The **Critique** protocol, which is a process for training students in effective evaluation and criticism that is positive, goal-oriented, and actually transformative.
- The **Work Defense** protocol, which is designed to teach students to find the value in their own work and build their ability to articulate it to others.

Both using and going beyond these three protocols, each Core Connections class should help students build and establish the following six Habits of Mind:

- **Persisting** and **Striving for Accuracy and Precision** (*explicitly teaching the skills of revision and rework with the intention of getting things done perfectly, focusing particularly on managing the emotional challenges of starting over or trying again)*
- **Creating, Imagining, and Innovating** and **Thinking Flexibly** *(encouraging students to view a problem from all sides, think laterally, and develop the courage to attempt solutions that may not resemble anything they've seen or done before)*
- **Questioning and Posing Problems** and **Thinking about Thinking** *(becoming proactive problem solvers who use questions as launching platforms rather than crutches and who look closely at a problem and begin seeking solutions immediately)*

A 6th grade Core Connections "graduate" should have taken the first few steps along the path to achieving the following goals by high school:

- Being able to follow written instructions with little or no confusion, and develop "dense, high-return" questions that strike to the core of a problem, issue, or gap in knowledge
- Being able to write clearly about their own thought processes and the methods they used in the course of solving a problem or creating a product, and being able to speak publicly and confidently about them in debate, conversation, or the presentation of facts, opinions, and products (**Work Defense** protocol)
- Being able to create, from scratch, cohesive and well-written reading responses, poems, stories, informative articles, editorials/opinion articles, persuasive essays, and reports.
- Being able to, with minimal support, develop a plan of action for tackling an unfamiliar problem, including identifying the major goal and setting sub-goals, organizing individual or group efforts, evaluating the need for resources, and creating a realistic schedule (**Planning** protocol)
- Being able to comfortably and appropriately utilize online and offline technology in the creation of products of all kinds, with a particular focus on the written word and multimedia (much of this work will be showcased on a student's digital portfolio)
- Being able to look at any piece of work and develop and communicate a clear, justifiable opinion on its quality, strengths, and flaws, as a step toward providing specific and constructive feedback about others' work, or making significant improvements on one's own (**Critique** protocol)

***A note on grading:** In Core Connections, grades are intended to communicate a frank and genuine evaluation of the quality of work and student thinking. Therefore, most grades on major assignments will be fluid - temporary and low (with detailed feedback) at first to provide a student with a sense of "where the bar is," but then brought higher and higher with each revision, improvement, and addition.*

*Grading for major projects will be done according to rubrics, usually developed with student input. However, all major product rubrics will have the additional stipulation that **carrying out all instructions and completing all requirements to the letter results in a maximum grade of a 92**. If a student is merely following directions and not striving to go above and beyond, that student has not earned an "A" grade. Throughout the year, teachers will work with students to develop a sense of what "above and beyond" means and looks like for any given project. Beginning with very small and simple extensions, such as the inclusion of an additional paragraph or a diagram along with an essay, students will gradually learn to expand on teacher-provided opportunities and to take projects in directions that allow them to earn credit for utilizing their own unique strengths and exploring their personal interests.*

A Month of Core Connections

The following is not a month that actually occurred in the 6th grade Core Connections classroom, but rather a "perfectly average" imaginary *month, demonstrating all that Core Connections is and does on daily, weekly, and quarterly bases.*

Short Project: Paper boxes 1 *Introduce project; students begin discussion and design; 5% finish their first attempt*	**Short Project:** Paper boxes 2 *Continue work; some students start second attempt; 75% finish first attempt*	**Short Project:** Paper boxes 3 *Wrap up; 60% crush test today, 20% pass. Assign remainder as homework.*	**Infotext:** Social Studies 4 *Students read current event article online and complete response worksheet.*	**Wrk Defense:** Mathematics 5 *Students create and upload paper slide videos for 5th graders: how to add fractions.*
Support: Science ext. 8 *Students use CC class time to work on soil prsntation; time split btw work and critique.*	**Support:** Science ext. 9 *Students use CC class time to work on soil prsntation; time split btw work and critique.*	**1-Day Proj:** Cryptography 10 *Students are given an encrypted message which they must decode without help.*	**Infotext:** ELA 11 *Students read short opposing editorials; weigh the arguments each author gives.*	**Wrk Defense:** Social Studies 12 *½ class prepares statements on Thu SS work; other ½ prepares questions. Press conferences.*
Mjr Project: Bridges 15 *Bridge project is introduced; groups assigned. Show video; students begin planning.*	**Mjr Project:** Bridges 16 *Students test plan-following ability by beginning to build standard roadway.*	**Mjr Project:** Bridges 17 *Students discuss their plans; embark on path to achieving first goal of the project.*	**Infotext:** Science 18 *Students read article on tension, compression, snapping, and bridge types.*	**Wrk Defense:** ELA 19 *Students write and share reflections on what was easy and hard about the week's ELA work.*
Mjr Project: Bridges 22 *Students complete standard roadway and make a final decision on bridge type.*	**Mjr Project:** Bridges 23 *Groups begin drafting plans for remainder of structure (columns, etc).*	**Mjr Project:** Bridges 24 *Work continues plans. Present a small experiment testing three different designs.*	**Infotext:** Mathematics 25 *Students are given textbook section on next week's topic and decode with minimal help.*	**Wrk Defense:** Core Connect. 26 *Students defend chosen plans to audience in freeform Q&A session.*
Mjr Project: Bridges 29 *Students begin to design small-scale experiment to test some aspect of their planned dsgn*	**Mjr Project:** Bridges 30 *Students clarify experiment and begin to build experimental pieces.*	**1-Day Proj:** Candyconomy 31 *Students learn about supply and demand through trading candy in different amounts.*	**Infotext:** Science 1 *Students research hydroponics online and evaluate quality of various source websites.*	~~**Wrk Defense:**~~ **Support:** Mathematics 2 *Students need extra review of percentages; work in CC classroom.*

It is important to remember that Core Connections exists to support the four core classes! Often, this will happen through the CC teacher's planning of connected and relevant projects, but when the other classes need direct assistance or time, ***the CC teacher should endeavor to be flexible with his or her original plans****.*

One-day Projects/Activities

The purpose of a one-day project or activity in the Core Connections classroom is to challenge students to expand their thinking. One-day projects should spark confusion and frustration, but ultimately lead to chances for sudden creativity, surprising revelation, and growth in critical thinking or cooperation. They are not a major focus of the class, but should be used to fill holes in an awkwardly-scheduled week, or to provide breaks from other, large-scale work.

- Initiatives – These are team-building communications exercises in which students learn and practice the skills of self-organization and positive interaction. These have been a major focus in the last two years, but will be scaled back in the Common Core.
  - *While blindfolded, students must stretch a large rope tied in a loop into the shape of a perfect square.*
  - *Students must flip over a large tarp while standing on top of it – the floor is lava.*
  - *Students must carry a marble from one spot to another without touching it, using only given tools.*
  - *Students must cross a large patch of floor using only two small, movable mats.*
- Building the Arch
  - *With absolutely zero teacher assistance, students must look at a pile of blocks, figure out that the blocks are meant to build something, and then build it.*
- Understanding Balance
  - *Using a large board, a fulcrum, and a scale, students attempt to figure out the relationship between weight and distance from the center in predicting what will balance what. After formalizing the relationship in a mathematical formula, they make a prediction about where to put two unequal weights to balance them.*
- This Is Not A Piece of Paper
  - *Using only a single piece of paper and everyday classroom supplies, each student has a class period to create something of value—a tool, a piece of artwork, a toy, etc.*
- Practicing Precision/Perfection
  - *Students must follow a series of simple drawing or folding instructions (e.g. Draw a line exactly down the center of this sheet of paper), but are not allowed to proceed to the next step until the previous one has been completed to near-perfection ("If you can see that it's wrong, you can fix it!")*
- Candyconomy
  - *Students learn about the economic relationship between supply and demand by trading candies and establishing how their relative values change when some become scarcer.*
- You Are Being Graded
  - *Students enter the room only to be told that they have thirty minutes to get ready—at the end of the period, they will have to demonstrate that they deserve an A for the work they've accomplished. What work? they will ask. Something worth an A, you will reply.*

Short Projects

A short project in Core Connections is one based around a product that can be created and polished in 3-6 class days. The purpose of a short project is usually twofold—the product itself should have academic value, and the process of making and refining it should provide a chance for students to practice perfection and hone their understanding of "quality" and how to make their work embody it.

- Paper Box
  - *Using only six index cards, eight inches of tape, scissors, pencils, and a ruler, students must create a neat-looking paper box that is exactly 3"x3"x¾". Once they have decided how much paper is needed for the exterior, the remainder of their index cards goes into building a paper structure on the inside that will make the box sturdy. A box that holds up 100 pounds of weight will earn a 100.*
- How-To Video
  - *Through discussion, each student settles on a unique skill, ability, or piece of knowledge that he or she possesses that no one else in the room can lay claim to. Over the course of a couple of days,*

students film how-to videos that inspire others to learn the skill and give them a roadmap to doing so. This project can be expanded after sharing to include students' attempts to learn new skills.

- Map of Voyager Academy
  - *Using GPS devices, students will record the exact latitude and longitude of various points on the school buildings and grounds. By entering that data into a program like Excel, they will create a scatterplot that can then be turned into an accurate scale map via connecting the dots.*
- New Alphabet
  - *After a discussion about the sounds we make and the degree to which they correspond with the letters we write down, students are invited to plan out a new alphabet to represent the English language. Each individual or group is responsible for explaining a) the justification behind their choices as to which sounds become letters, b) a logical system behind how those letters are drawn, and c) why their alphabet is superior to the one we currently use.*
- Moral Code Essay
  - *After looking at various moral codes (Seven Virtues, Scout Law, Chivalric Code, examples from fiction), students create their own list of seven crucial virtues, and write a code or an essay explaining and defending the importance of their choices.*

Major Projects

The major Core Connections projects are the ones in which students will really stretch their legs with planning and revision—large-scale products that require significant effort and are worth spending days planning, discussing, altering, and polishing. A project like this should have a strong learning component, usually in research and writing or in STEM, and will often translate well to being a teamwide interdisciplinary PBL project.

- Typography
  - *Students will look at the question "How does form influence meaning?" by creating a live-action typographical presentation. They will write a poem, vignette, or flash essay, and make deliberate choices in animating the words and phrases. They will write out the poem or essay using a wide variety of sizes, shapes, fonts, and colors and break it up into strips of paper. They will then film an "animation" of those strips on a tabletop, using a wide variety of movement, positioning, entry & exit, and strip interaction. After speeding up this footage, they will attach either narration or appropriate music to create a complete presentation.*
- Short Fiction
  - *Focusing on the elements of character, the pieces of an effective plot, and the concept of showing vs. telling, students will write a 2000-5000 word short story. Along the way, they will do extensive planning, discussion, and critique of one another's ideas, and they will revise and edit with more discussion and critique, resulting in a polished final story.*
- Bridge Building
  - *Using only popsicle sticks, hot glue, and cutters, students will work in groups to build a bridge across a two-foot gap. They will do extensive research into various bridge types, conduct small-scale experiments to help them choose between possible building techniques, and use online blueprinting technology to form their plans. Bridges will be stress-tested with weights until the strongest bridge design is found.*
- Colonizing Space
  - *Students will carefully and logically plan what is needed to create an entire, functioning, insular society, such as might be founded on the Moon or Mars. They will learn about the challenges of a specific space environment, study resource consumption, plot a launch angle and a course to get there, and develop rules and norms for governing their new society. In the last two years, this has been developed into a major interdisciplinary PBL project involving all five classes.*

Infotext Thursdays

With the adoption of the new Common Core standards, Core Connections classrooms will take the lead in working with students' skill at reading and writing informational texts. Every Thursday, the Core Connections teacher will teach a lesson that centers around a particular nonfiction text. These lessons will often be standalone, but may sometimes stretch from one week to the next if the text is particularly rich or difficult. There should be a heavy focus on close reading and vocabulary work (tier 2).

Selecting an appropriate text and setting goals for the lesson is a SHARED responsibility. Each core class will be represented on Infotext Thursday roughly once a month, with a rotation determined by the team. This rotation will be flexible at the team's discretion, so that if one teacher or topic needs extra time, he/she/it can get it. On any given Friday or Monday, the Core Connections teacher will remind the core subject teacher that the next upcoming Thursday is her day. Together, the two teachers will agree on a text and develop the rough outline of what should be accomplished. Student work may come in the form of discussion, reflection, completed worksheets, or imitative writing, among other things. Depending on whether the lesson is CC teacher developed or is a "transplant" directly from the other core classroom, grades may be recorded for either class.

Some examples of appropriate informational texts (just scratching the surface):

- **Math**: Workbook sections, mathematics investigations, word problems & EOG review
- **Science**: News articles regarding scientific developments, magazine articles going in-depth on a scientific topic, textbook or encyclopedia entries about a scientific topic
- **Social Studies**: Current event articles, journalistic accounts of foreign lands or cultures, historical essays, chapters from historical texts
- **Language Arts**: Articles or editorials regarding current events, persuasive essays, instructional texts, debate or speech transcripts

Should there be a week where no class has a pressing need to cover a particular topic, the Core Connections teacher will be free to choose any informational text and any method of working with it.

Work Defense Fridays

Imagine the following scene, drawn from a Core Connections teacher's experience while visiting a model PBL classroom at High Tech High:

> *As I entered the classroom, the heads of all the fifth graders turned toward me. Without skipping a beat, the teacher gestured to the two kids closest to me, and continued lecturing. The rest of the class turned back to the front as the two kids, a boy and a girl, sprang from their seats and walked over.*
>
> *"Hi," the first one said. "My name's Emily."*
>
> *"I'm Jeremy," added the second. "Are you a visitor?"*
>
> *"Yeah," I replied. "I'm from North Carolina."*
>
> *"Oh," said Jeremy.*
>
> *"Well, would you like to see what we're doing?" Emily asked. The pair of them walked me back over to their seats, where they quickly explained the activity they were working on, a problem sheet that required dividing rectangles with horizontal and vertical lines. "We're learning about fractions," Emily said, "so once we've cut up the rectangle and colored parts of it, we have to say what fractions are which color."*
>
> *"For this one, I had to draw three vertical lines and three horizontal lines, so I ended up with sixteen sections," Jeremy put in. "That means that my answers are probably going to be out of sixteen – "*
>
> *" – unless they're an even number – "*
>
> *" – which means I'll have to reduce."*

I pointed to a rectangle that had been divided into thirds vertically and fourths horizontally. The top two rows were colored blue, and the left column was red, leaving the top left two sections purple. For a question asking what fraction of the rectangle was left white, Emily had written ¼. "Like that?" I asked.

Emily looked down and nodded. "Yeah, because four out of the twelve sections are still white, so that's four over twelve, which reduces to—" She broke off suddenly, frowning down at the paper.

"You divided wrong," Jeremy said. "Four over twelve, and four goes into twelve—"

"Three times," she cut him off, erasing. "Anyway, it's good practice, because we're making the fractions ourselves and then naming them, instead of just pulling them off the sheet. That's helping, because if I had to cut something into twelve, I might not have thought to do two cuts one way and three another way before we did this sheet."

Meanwhile, the teacher had finished his lecture and was leaning over another table, just like I was. He made a brief comment to a student before coming over to shake my hand. "Any questions?" he asked.

"No," said Jeremy, before I could even open my mouth. I looked down at him and he grinned.

What made this experience special was not so much the quality of the lesson—although the combination of vocabulary like vertical and horizontal, the drawing practice, and the work with fractions was impressive—as the confidence and eloquence of the two fifth graders who were completely unintimidated by the sudden appearance of an unfamiliar adult. One of the goals of Core Connections is to foster the growth of just such students—children and young adults who can, at any time, tell you both *what* they are doing, and *why* that work is valuable.

These skills are worth teaching explicitly for multiple reasons. Firstly, every school hopes to graduate confident public speakers who are ready to face interviews, share ideas within a group, and make effective presentations. Secondly, by "immersing" students in a culture where logical arguments with clear justifications and explanations are both heard and given on a regular basis, we can sharpen their critical thinking skills. Thirdly, doing so fulfills multiple standards in the new Common Core, especially if the work defense is divided between speaking/listening and writing/reading. Fourthly, work defense ties in strongly with the PBL model's emphasis on public sharing during presentation/parent nights. Students who have practiced and received explicit feedback on their public speaking and presentation skills will do far better in front of an audience than those who have not.

Finally, by asking students to defend their own work, we subtly shift the balance for reluctant or struggling learners. Suddenly, instead of a dynamic where a student complains, "Why are we even *doing* this?" and a teacher has to take time to clarify a complex justification, we now have a situation where the teacher can respond "Why *are* you doing this? What are you getting out of it? What makes this worth your time and effort, and what about the way you're doing it makes you deserve a high grade for it?" If done right, this will lead to students who are more aware of what they are doing, more motivated to do it well, and more likely to take assignments in innovative or creative directions, because they are always looking for the *potential value* of what they're being asked to do.

So, how do we get there? High Tech High (and its associated middle and elementary schools) have made a habit out of this "work defense," because their classrooms are constantly bombarded with visitors, and every student knows that he or she may be called upon as an ambassador or representative at any time. That's somewhat less true at Voyager, and so the culture must be teacher-created.

Remember that the key goal is for each student to be able to explain two things: the *what* and the *why*. When crossed with Core Connections' goal of creating students who are as comfortable with reading and writing as they are with speaking and listening, we see that we will want a mix of both verbal and textual fluency. And it's important to note that there was a

high degree of spontaneity in the example from High Tech High. Because we want students who can handle a curious outsider fluidly and "on the spot," it's important that we expose them to a wide variety of situations and modes in their work defense, so that they feel comfortable under any circumstances.

The following are some examples of activities that could be considered good work defense *practice:*

- Verbal
  - Spontaneous summaries of lesson or day's work, possibly referencing text specifically
  - Informal Q&A sessions
  - Student-filmed summary on camera, for an absent student or a younger learner
  - Room-Run-On, where each student adds a sentence about the lesson or the day's work ending with "…and…"
  - Doubting teacher: "So, you're getting a C, right? No? But … why not?"
- Written Only
  - Exit slips, either freeform or in response to teacher prompt
  - Outline or bullet points summarizing lesson or step-by-step guide through activity
  - Blog posts or threaded online discussion with comments and replies
  - Paragraph or short essay
  - Letter to a parent, brother, principal, former teacher, kindergartener, president, etc.
- Verbal-Written Mix
  - Student-prepared mini-speech about the lesson or day's work
  - Student-prepared press release followed by Q&A session with student-written questions
  - Student presentation with Powerpoint or science project board/poster

It is important to note, too, that when expanding this list, a teacher will want to balance large/long-term work defense with small/short-term, so that sometimes a student will be responding with a sentence created on the spot, and other times he or she will have a week to ready a significant argument. This also means that, on some days, every single student will be called upon to defend his or her work, but on other days, only a part of the class will actually speak and/or write.

Within the Core Connections classroom, **Fridays are set aside for work defense**. This is a flexible allocation—as always, the needs of the team come first—but the *great majority* of Fridays should be devoted to whole-period lessons and activities centered around building these skills in the students. The choice of method, pacing, and variety (**in other words, the actual in-practice look of the Work Defense protocol**) belongs to the Core Connections teacher, while the subject of the work defense should rotate between each core class and Core Connections itself on a roughly monthly basis.

It is critical that grades and data be very carefully kept for the work defense aspect of the curriculum. The key goal is growth, and thus there must always be greater and more challenging defenses for those students who are already confident speakers and writers, and there must always be scaffolding and differentiation for all students in any particular areas of weakness.

Critique Protocol

The **Critique** protocol for Core Connections is another adaptation from the PBL model and observations at High Tech High. It is a peer-based protocol used to help students show each other the flaws and the room for improvement in any kind of work. The goal, therefore, is twofold: improvement of the work at hand, and improvement in communication and critical thinking skills. It strongly resembles the "tuning protocol" model, and may be done as a whole

class or in small groups. Once all students are proficient with the model, it may also be done one-on-one, but the format will change from the formal structure to something more freeform.

There are two rules that are crucial to making the critique work, and they must be taught, discussed, and consistently evaluated and reinforced.

- **Hard on Work, Soft on People**
  - Each part of this rule is important. To be a good and useful critic, you *must* be hard on the work … nothing is less helpful than just shrugging your shoulders and saying "It's good." Students should first look for obvious errors, inaccuracies, and flaws, but if they don't find those, they should then look for weaknesses, imperfections, and holes that could be filled. The catchphrase is that bad work can be made decent, decent work can be made good, good work can be made great, and great work can be made perfect … no matter how good the author/artist/creator is, there is *always* room for improvement. However, those places must be pointed out as gently as possible, always in a way that reflects on the work rather than the person, and that focuses on the potential for making things better rather than the current state of it being less-than-great.
- **Specific and Constructive**
  - It's not enough simply to point out a problem or a gap … a good critic must also provide a road map to improvement. Whenever students want to make a comment about a particular aspect of a work, they must be able to point to exactly what is bothering them (the specific sentence, for instance) and to articulate exactly what they don't like about it. Having done so, they must then demonstrate how it can be changed, either with an example ("So, rather than saying 'he said' again, I'd try a word like 'insisted' or 'urged.'") or with very specific and clear guidelines ("You've sort of glossed over this scene. What I think might improve it is if you wrote one sentence for every second that passes during this high-action moment.").

The actual format of the critique may change based upon the type of work being presented, but the basic Critique protocol goes as follows:

- The group or groups settle into circles, with the author/creator as a part of the circle. For a given amount of time (usually three minutes), he or she presents the work. This might be a sharing of ideas, a reading of written work, or a show-and-tell of a piece of artwork or engineering. During these three minutes, the rest of the circle is absolutely silent and listening—no questions or comments.
- Once time has elapsed, the creator physically backs out of the circle and turns around, placing his or her back to the nearest student still in the circle. The circle tightens up, and the group discusses what they have just seen and heard. The creator is eavesdropping, but is not allowed to turn and look or speak. The goal of the group at this point is to develop a sense of where the work needs the most improvement, and to come up with questions or comments that will be useful to the creator (that will highlight problems or guide the author toward a solution). This also goes on for approximately three minutes.
- Once time has elapsed, the creator returns to the circle. He or she may respond uninterrupted at first, addressing confusions or concerns that were overheard while the group discussed. Once more, the group is silent and listening, until the creator is ready for questions and comments, at which point it becomes a discussion.

Wherever possible, this process will be repeated multiple times over the course of a project, allowing the same students to witness the progress of the creator and give progressively more specific and complex advice. It is the teacher's job merely to facilitate, to encourage every student to speak up, and to help the students develop their ability to be specific, constructive, articulate, and insightful.

While this formalized structure is important at first, to set the tone and teach students to allow one another to have their say at the right times, the critique process can easily be opened up to more freeform discussions, or to one-on-one partner feedback, or even to a single critic giving advice to multiple creators in sequence. The key is to always remain focused on the two rules, and to remember that the ultimate *goal* of critique is for the creator to gain valuable feedback that leads him or her to improve the work in question. One of the most important things for improving a class' execution of the critique protocol is to give creators a chance to speak at the end of class, to share what (and what kinds of things) they found helpful and useful, and what kinds of things didn't move them toward a better product.

In the end, **every major project should include multiple critique sessions**, and most short or minor projects should include a critique somewhere, whether formal or informal.

Planning Protocol

There are a range of specific documents and tools that can be used to plan projects of various levels of complexity. However, all of them have in common the same general format:

- Start with the end in mind. **WHAT** is it that the student wishes to create, or accomplish? What elements must be present, and what are the criteria for success? How is an outstanding result differentiated from a moderate or unsatisfactory one?
- Justify the activity. **WHY** is this product or service important? If it is strictly academic, how does it tie into the Standard Course of Study or the Habits of Mind or the goals of the other classes? If it is extracurricular or world-affecting, what need or problem is being addressed, and why is *that* the most pressing need, or the most efficient use of the resources at hand? This is the area where the Core Connections teacher usually needs to provide the most guidance and scaffolding; often it's a matter of helping students to understand and articulate the justification, not of forcing them to think of it themselves.
- Plan the process. **HOW** will the goal be achieved? This usually requires a further breakdown into smaller subquestions:
    - **WHO** will be involved with the project? Is it individual, partner, or group? Is expert input needed, and if so, from whom? What are the roles of each member of the team, and how will those roles be judged? Is there a need to explicitly systematize debate, problem resolution, accountability, etc?
    - **WHAT** are the resources needed? Will supplies need to be purchased, or gathered from school stockpiles? What are the limiting factors, the likely bottlenecks on progress, and what contingency plans can be put into place for dealing with shortfalls?
    - **WHERE** will work take place? Is transportation or coordination an issue? How will space be shared with other students?
    - **WHEN** does the project need to be completed? What are the major milestones? Which elements of the process are most likely to be susceptible to delay? How should time be divided between planning, research, independent work, and check-ins?
- Iterate. Early on in the process (~10% for large projects, ~25% for small ones), set aside time for regroup/reassessment. Evaluate the plan and make necessary changes, and tentatively schedule the next reassessment.

The goal is to help students develop their own ability to plan realistically, foresee pitfalls, self-monitor, and self-regulate. Use of planning protocol should follow the classic "I do it, we do it, you do it" model, with students gradually moving toward a total assumption of responsibility.

Classroom Management Strategies

Obviously, each and every teacher brings his or her own style to the classroom, and no teacher should try to "fake" the discipline or management style of another. However, these are some strategies that have worked well in the 6th grade Core Connections classroom over the past three years. They are by no means perfect or necessary, but could serve as a valuable jumping-off point for a teacher trying to duplicate the Voyager CC curriculum.

Grading

- As mentioned above, in Core Connections, grades are intended to communicate a frank and genuine evaluation of the quality of work and student thinking. Therefore, most grades on major assignments will be fluid - temporary and low (with detailed feedback) at first to provide a student with a sense of "where the bar is," but then brought higher and higher with each revision, improvement, and addition. Grading for major projects will be done according to rubrics, usually developed with student input. However, all major product rubrics will have the additional stipulation that **carrying out all instructions and completing all requirements to the letter results in a maximum grade of a 92**. If a student is merely following directions and not striving to go above and beyond, that student has not earned an "A" grade.

Questions

- The art of asking a good question (and seeking one's own answers) is central to Core Connections. One of the most effective methods for improving the quality of the questions asked in CC class is to limit the *number* of questions a student may ask per period to one, two, or three (depending on the complexity of the work at hand). This not only forces students to prioritize their questions and choose the best one, but also encourages them to share information with one another and pool their curiosity, since a group of five with five questions is better off than an individual with only one. At first, gentle reminders will help guide students ("Is that your one question for today?"), but eventually, the teacher must be strict and precise ("Can you help me?" asks the student. "Yes," says the teacher, and walks away, having accurately and completely answered the low-quality question.)

Consequences

- Rather than treating the act of correcting misbehavior as a punishment (or warden-inmate) relationship, instead treat it as a matter of economics. The expectation is that a student will follow rules, class norms, and teacher instructions. Should a student choose not to, he or she should be treated *as though that were a deliberate choice.* In other words, there is a cost associated with negative actions—perhaps a silent recess, or a note home, whatever—and that cost will be paid, but without the emotional baggage of HOW DARE YOU MISBEHAVE! Instead, it becomes a simple question … "Mr. Smith, was it worth it?" "Huh?" "Talking during announcements costs a silent lunch. Was it worth it?" This empowers the student, because he or she is choosing what costs to pay and what costs aren't worth it, but it also makes discipline more consistent, since costs are *always* paid.

Quiet Signal

- Instead of clapping, flickering lights, or shouting for attention, the Core Connections teacher arranges an audio signal with the class. He sticks out his hand to the side, closes his eyes, and begins to hum. Any student who hears the hum joins in (this has the added benefit of getting mouths closed). As the hum continues for five seconds (it's crucial that it always be the same amount of time), the teacher raises his hand slowly and cuts off at the end like a musical conductor. Silence should fall; the teacher opens his eyes and immediately calls upon any students not silent or not looking at him to pay the appropriate cost.

Draft of Scope & Sequence (Product Based)

The Core Connections teacher is responsible for taking the lead on the informational text requirements of the Common Core, for developing students' ability with Work Defense, for aligning CC projects with the core curriculum wherever possible, for flexibly providing extra time, help, and ideas to teammates on important topics, and for recording the planning, organization, and justification that goes into any large, interdisciplinary PBL project. Because these responsibilities are many and varied, the following product list is fluid and open to modification. But it represents the connections that have been drawn between the 6th, 7th, and 8th grade versions of the CC class, and so changes should come about only after discussion with both one's own team and with the other grades' CC teachers.

Type of Product	6th Grade	7th Grade	8th Grade
Pure written work (The process of writing, what do writers do, writers workshops)	• Space colony essay • Some other essay • Regular assignments associated with work defense/info text • Short story (~2000wds)	• Informative essay • Short fiction • Regular assignments associated with work defense/info text • Persuasive essay	• Editing/Critiquing work from 2 previous yrs CC • Bloom research essay • Regular assignments associated with work defense/info text
Written work performed	• How-to video or other scripted film • Scripted work defense • Discretionary others: play, speech, propaganda commercial, etc. • Presentation of civilization and space projects	• Oral history project • Poetry presentation • Presentation of climate change and Golden Ratio projects • Discretionary others: commercial	• Presentation of legacy and consumption projects • Current event news flashes • Fishbowl, etc. -regular feedback presentations
Multimedia	• How-to video, typography video, or other • Blueprint for bridge • Digital portfolio kept up to date	• Digital portfolio kept up to date • Oral history (possible narrated slideshow) and Golden Ratio	• Digital portfolio kept up to date. • Blogs • Daily use of wiki/online collaboration • Web evaluation
STEM/Hands-on	• Bridge model	• Cereal box (math connection)	• Graphic Models representing consumption data • Legacy memorial • GPS generated map of storm drain inputs into Voyager Pond
Collaboration	• Info Day (subject-based informational text work) • Work defense (weekly)	• Work with informational text • Work defense (regular)	• Participation in active feedback process • Info Day (subject-based informational text work) • Work defense (biweekly)