August 2016

Building Towards Mastery:

Tools and Practices for Supporting Overage and Under-Credited Adolescents in a Mastery-Based Learning Environment

A School Redesign Model based on the work at Bronx Arena High School

NYC Department of Education

An initiative of the
New York City Transfer School Common Core Institute

Mastery-based learning systems prepare students for life after high school by providing targeted learning opportunities that focus on mastering skills and that are responsive to individual student progress. *Building toward Mastery: Tools and Practices for Supporting Overage and Under-Credited Adolescents in a Mastery-Based Learning Environment* provides a set of tips, tools, and practices for educators who are committed to getting the best results for students who have struggled in the past. The approach described here is based on the work of the educators at Bronx Arena High School, a school serving overage, under-credited high school students in the South Bronx. The practices were developed through the New York City Transfer School Common Core Institute, in partnership with reDesign and Eskolta School Research and Design.

Overview of This Monograph

Building toward Mastery: Tools and Practices for Supporting Overage and Under-Credited Adolescents in a Mastery-Based Learning Environment outlines a selection of tools and practices that are at the core of Bronx Arena's mastery-based learning model. The following chapters are intended as a resource for educators that are designing their own mastery-based approaches; they may be adapted to varied school contexts.

Chapter 1 provides a rationale for the implementation of mastery-based learning and describes the core characteristics of an individualized, competency-aligned approach to teaching and learning. The chapter includes notes on the outcomes that Bronx Arena staff attribute to their mastery-based learning model. Chapters 2 through 4 describe three tools and related practices that form the heart of Bronx Arena's mastery-based learning system. Chapter 5 provides further background on conditions that have supported effective implementation of mastery-based learning at Bronx Arena High School. The appendices include blank copies of the tools for adoption or modification by other schools.

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The New York City Transfer School Common Core Institute

The New York City Transfer School Common Core Institute is a unique professional development model. It was launched in 2012 to build the capacity of teachers and schools to help students who have struggled in public schools to master the Common Core standards. From 2012 to 2015, all participating schools exclusively served students who are overage, under-credited and had fallen behind in high school in the past. Schools were selected through a competitive process that involved identifying clear goals, crafting action plans, and creating teacher and administrator teams to support the work.

Once admitted, schools were provided three years of job-embedded coaching and technical assistance by the Department of Education and its professional development partners, reDesign and Eskolta School Research and Design. Together, this team of partners collaborated to simultaneously strengthen instructional practices and transform systems and structures to support these new practices. This occurred through two core components:

- **Job-embedded coaching and capacity-building.** The work launched with site-based strategic planning to support individual schools as they refined their Common Core focus and created a plan for participation in the Institute for the year. Teachers, principals, and instructional teams at each school then worked with partners on their Common Core alignment efforts, collaborating for approximately 20 days, over the course of each year.

- **Communities of practice.** Inter-school collaborative opportunities that enable school teams to learn from one another occurred throughout each year of involvement in the Institute, through a mix of hosted site visits, full-day Saturday Symposiums for cross-school sharing and planning, and Leadership Sessions for school principals.

For more information *on reDesign's support of schools implementing mastery-based learning structures, please see the Competency Adoption Guide (where Bronx Arena is profiled) and other materials at: http://www.redesignu.org/design-lab/mastery-learning/design-guides.*

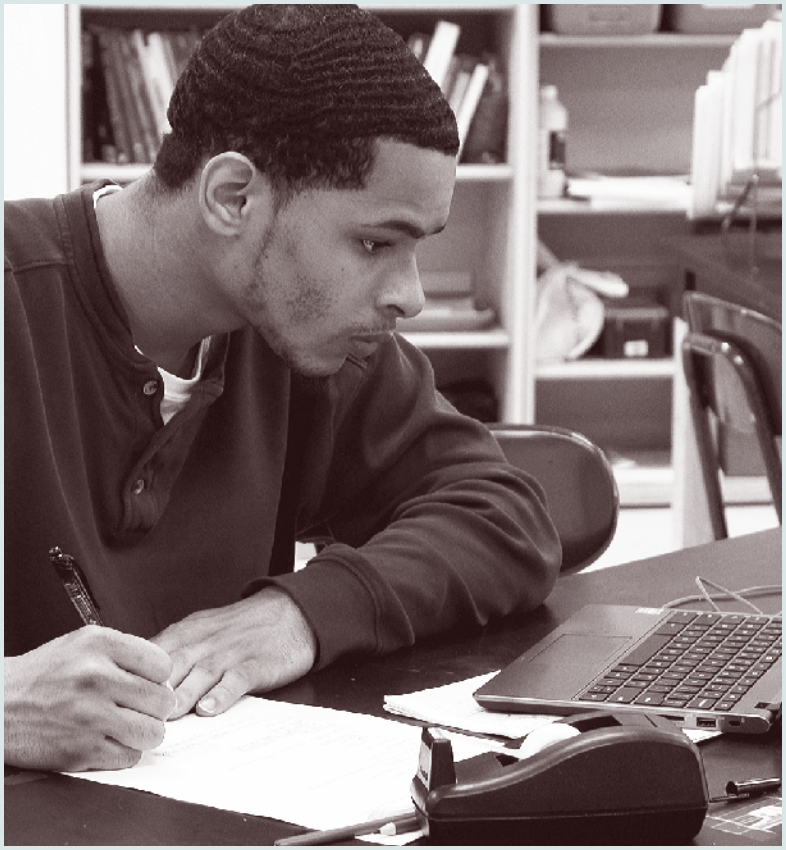
A Customized Approach: Bronx Arena's Focus on Mastery

At the heart of the institute's success is its commitment to customizing and tailoring support to individual school participants through a synergistic approach of transforming educators' practices at the same time as reshaping school structures that form the context within which those practices occur. Each school defines its own goals and pathway, with partners providing targeted support. At the center of this effort at Bronx Arena was the process of defining a rigorous set of competencies and aligning curricular materials and instructional practices that support students in mastering the competencies.

Students entering Bronx Arena High School

typically haven't received many messages about being "college material." They are former high school dropouts and others who had struggled in their previous high schools. Data from across New York City would suggest that these same students will struggle to stay in college. Yet 82 percent of Bronx Arena's first class of college-enrolled graduates persisted beyond freshman year.

Nationally, the average college persistence rate for all students who enroll in college was 68 percent in the same time period. This fourteen-point difference is even more incredible when you consider that Arena's students start much farther behind than average. The school attributes these strong outcomes to its innovative mastery-based learning model. Staff believe that their personalized approach to helping students develop skills and monitor growth has led students to take ownership over their learning—a mindset that permeates the school and serves students well beyond high school.



Bronx Arena High School

Founded in 2011, Bronx Arena is a transfer school that serves students ages 16 to 21 who struggled in traditional high schools. Students transfer to Bronx Arena with varying levels of prior credits. Most are considerably behind where they should be based on their age. Bronx Arena offers a flexible, supportive, student-centered learning environment where every student works toward mastery of rigorous content and skills. Through a partnership with SCO Family of Services, a local multiservice agency, Bronx Arena students receive socio-emotional support, internship opportunities, and college and career counseling.

Bronx Arena has several notable features:

Project-based, competency-aligned courses: All curriculum is designed in-house and made accessible online to provide asynchronous learning opportunities to students with varied pacing needs.

Personalized learning blocks: Students spend the majority of the day in a four-hour "Arena block" in which groups of 25 students engage in self-paced learning facilitated by teachers and counselors.

Blended instruction: Teachers facilitate students' progress through a web-based curriculum with small-group and one-on-one instruction.

Multiple staff roles: Each Arena block has one generalist teacher and one advocate counselor who provide personalized academic planning and support. Content specialist teachers push into the Arena block to co-teach with generalist teachers.

Schoolwide student tracker: An online system tracks students' progress toward mastery and guides teachers as they plan instruction, schedule learning tasks, and confer with students.

In 2013, Bronx Arena used its participation in New York City's Transfer School Common Core Institute (TSCCI) to launch a multiyear effort to develop the school's nascent focus on mastery-based learning into a rigorous system of instruction and assessment coherently designed around mastering a schoolwide set of competencies. TSCCI is a unique professional development model launched in 2012 by the New York City Department of Education's Office of Postsecondary Readiness to help high school students who are farthest behind to reach the high standards of the Common Core.

Since its founding in 2011, Bronx Arena has reshaped how students experience school, developing structures to assess growth in real time and guide each learner toward proficiency. Bronx Arena leadership and staff work to advance four main ideas to achieve their vision for student learning:

- **Identify core skills:** The competencies students must develop in order to graduate must be constantly visible to all. Initially, Bronx Arena derived its competencies from the Common Core standards. Over time, the staff moved beyond the Common Core to name a set of interdisciplinary competencies that were more refined, more varied, and would better prepare students to succeed in college and careers.
- **Get small:** Once the staff had identified a core set of schoolwide competencies, teachers selected one to two competencies per curricular unit and broke these down further into specific knowledge and skills leading toward mastery, asking questions like *What do students need to know in order attain this competency?* and *What do students need to be able to do in order to demonstrate this competency?*
- **Measure incremental growth:** To help students master competencies, teachers need to be able to measure each individual student's progress along a pathway of predetermined skills. A steady flow of learning data enables Bronx Arena teachers and students to communicate about progress and plan concrete next steps in real time.
- **Facilitate mastery:** Students need structured opportunities to attain and demonstrate mastery of learning. Bronx Arena teachers have shaped every course and assessment around these competencies, with a personalized facilitation process that scaffolds each student's progress toward mastery.

Impact of Practices

Students often enter Bronx Arena far behind in academics after unsuccessful experiences in other schools. "Many cannot write a paragraph," the school's founder and co-principal Ty Cesene explains. Over time, they master skills that enable them to pass the Regents and write college-level essays. The school's mastery-based model catalyzes their growth by engaging students in a systematic and personalized process of building skills. Cesene adds:

"Many of our students come to us with a 'you vs. me' attitude to schools and teachers, but when we put clear expectations for learning in front of them plus opportunities to revise their work and make decisions about how they move through courses, we see students shift to take on ownership of their school experience."

This progress is also evidenced by the 100 percent pass rate of students taking the recent Common Core English exam, a feat that school leadership attributes to their mastery-based approaches. "As state exams shift from being tied to content to focusing more on skills, that dovetails nicely with the ways our teachers are able to monitor student skills at a really granular level and intentionally target places for individual growth," says Cesene.

Co-principal Sam Sherwood has seen this translate well to a college setting, when students "need to manage all of the aspects of college life while staying accountable to a course syllabus and high expectations." This has translated to Arena's high level of student retention in college.

Bronx Arena's success is demonstrated not just in its impressive graduation and college retention numbers but also in the individual stories of students, like Ashley, who for her Senior Portfolio project worked with three different teachers to write a budget proposal, create a model, and develop a mock sales pitch for a store she hoped to open after graduating from college.

By making learning structured yet engaging and challenging while empowering, Bronx Arena's mastery-based learning model is helping students engage in deeper learning than they ever had before. "I don't doubt myself when I do my work now. I just do it, I get it graded, and when it needs to be revised, I revise it," relates one Bronx Arena student, "Before I came [to Bronx Arena], I wouldn't do it on my own because I would think it would be wrong, but now, I just do it, and if it is wrong, I change it."

1 Mastery-Based Building Blocks

Why take on mastery-based learning?

In the midst of the everyday work of planning instruction, developing assignments, and grading papers, it can prove difficult for teachers to monitor and support the small steps in learning that each student needs to take for steady progress. Meanwhile, even the most vigilant students can lose sight of what they are supposed to be learning and the progress they have made as they strive to follow teacher instructions, keep up with assignments, and study for tests.

In the face of these challenges, many educators have found value in identifying focal skills around which to design lessons and assessments. Some schools have taken this type of planning to the next level with a schoolwide approach to keeping teachers and students focused on the mastery of key skills. Such *mastery-based learning systems* look different across various school contexts, but many share four attributes:

- **Rigorous expectations** for student learning and clearly defined developmental stages that lead to mastery.
- **Multiple assessment opportunities** aligned to the expectations allowing students to demonstrate where they are on the mastery continuum.
- **Individualized instructional support** and feedback to help students advance toward mastery.
- **Opportunities for students to monitor and reflect** on their own learning and progress.

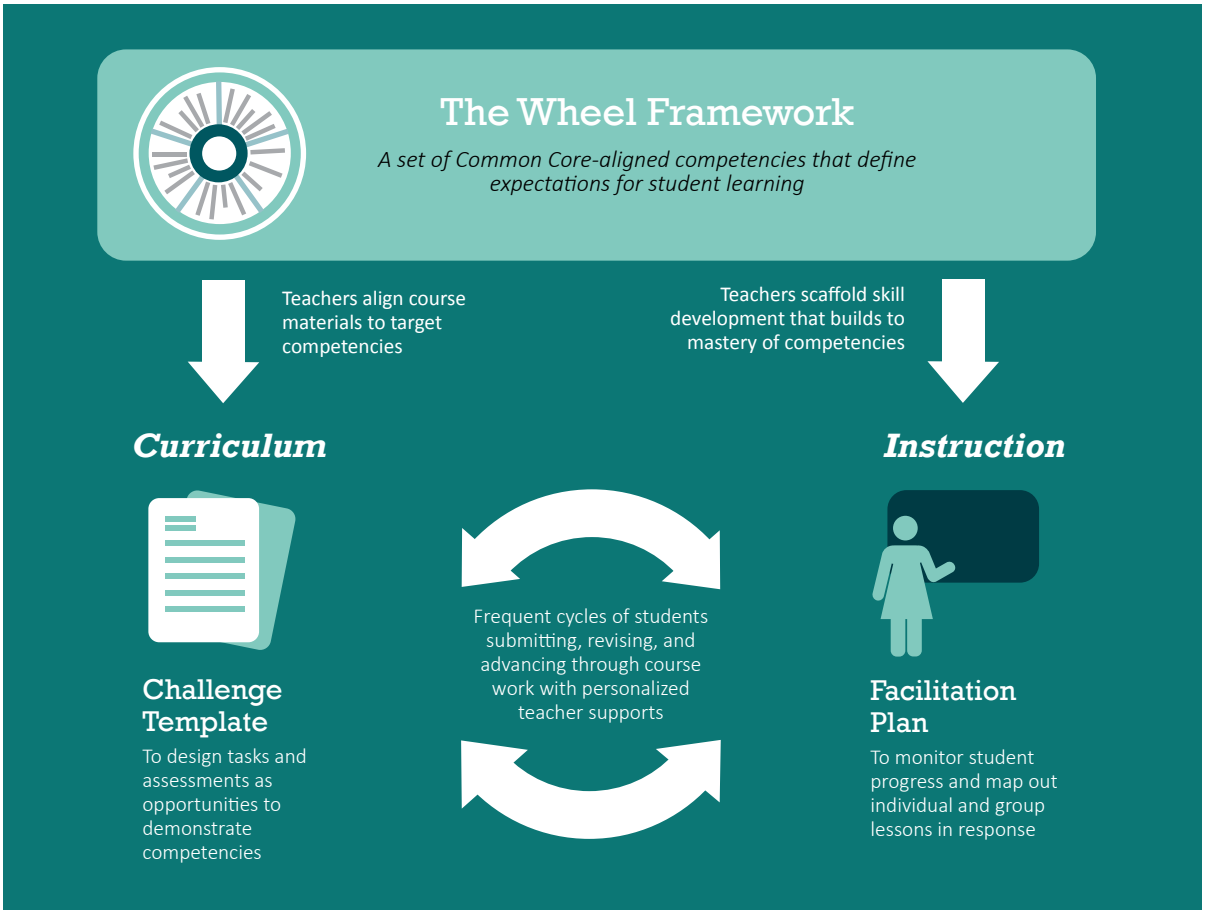
When implemented well, mastery-based approaches produce the type of learning experiences that researchers have long associated with stronger student outcomes. Students participating in a mastery-based model receive feedback that is timely, actionable, and individualized, and they advance through their studies upon demonstrating skills rather than as a default for time spent in school. Instruction is anchored by well-defined goals regarding the skills students should attain (Wiggins 2005) and is structured to deepen analytic thinking over time (Hess 2009). Evaluation of student work shifts from isolated numerical grades to meaningful feedback about skills (O'Connor 2009). A mastery-based learning environment also creates space for reflection and revision, enabling students to experience assessment as a tool for learning, rather than a judgment of them as students; this shift in mindset regarding assessment can put students on a "winning streak" that reinforces further achievement (Stiggins 2007).

Three tools from Bronx Arena help illustrate core elements of a mastery-based approach.

The **Wheel Framework** (Chapter 2) is the foundation of the system, laying out rigorous, high-level expectations so that students and staff alike understand exactly what must be mastered in order to graduate.

The **Challenge Template** (Chapter 3) helps teachers develop sequential learning opportunities and accompanying assessments that build toward mastery of the competencies outlined in the Wheel Framework.

The **Facilitation Plan Template** (Chapter 4) enables teachers to plan individualized instructional steps in response to students' progress or lack thereof.



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2

Defining Competencies: The Wheel Framework

Putting the ***Wheel Framework*** to use

Purpose:	Make the full range of competencies transparent to all staff and students
Who uses it:	School leadership and teachers
When is it used:	Curriculum development and instructional planning

A necessary starting point for any mastery-based learning system is the articulation of what students are expected to master in order to graduate. This provides the foundation on which assessment, instruction, and other school practices are built. At Bronx Arena, the Wheel Framework is used by both leadership and teachers to ensure courses cover the full range of competencies, to align curriculum and instruction to these competencies, and to anchor communication with students about their learning goals.

The Bronx Arena Wheel Framework

Elements of the Schoolwide Competency Framework

Bronx Arena's Wheel Framework has three core elements.

Overarching Learning Areas: These five categories represent the major learning areas the school addresses: *literacy, numeracy, thinking, expression,* and *self and community.*

Domains: Each learning area is subdivided into several domains, which represent core abilities relevant to each area. For instance, expression is subdivided into the domains of *oral presentation, group discussion, writing organization and structure, voice and style,* and *grammar, mechanics,* and *syntax.*

Competencies: A competency describes a specific skill students are expected to demonstrate in their coursework. Each domain consists of a suite of five to ten competencies. Some competencies are domain-specific, others are cross-domain, appearing within the same area, and finally others are inter-disciplinary, appearing in multiple learning areas. For instance, the voice and style domain contains domain-specific competencies, like differentiate *between literal and figurative language and develop personal voice as a writer, attending to task and audience,* as well as competencies that appear in multiple domains, such as *recognize patterns and trends.* (Additional competency language can be found in Appendix A.)

A note on writing effective competencies:

To serve as a strong foundation for course planning, competencies should name an ability that can be demonstrated through an assessment.
All competencies in the Wheel Framework begin with an observable action verb (e.g., *analyze, support, combine*) that suggests what teachers will measure and are designed to demand deeper cognitive engagement (for this, the school draws upon the language and ideas in the Taxonomy of Learning developed by Benjamin Bloom and the continuum of Depths of Knowledge developed by Norman Webb).

Bronx Arena's Wheel Framework can be adopted in its entirety for other school settings, or educators can follow a similar set of steps to create their own framework:

- Formulate competencies as **clear, measureable, skill-based** expectations.
- Narrow the number of competencies to **focus on transferable, research-supported skills** (the Common Core standards provide a strong research base).
- Organize competencies into **manageable groups** (or domains).
- Further categorize the domains into overarching learning areas to illustrate how the competencies address **a full range of meaningful skills.**

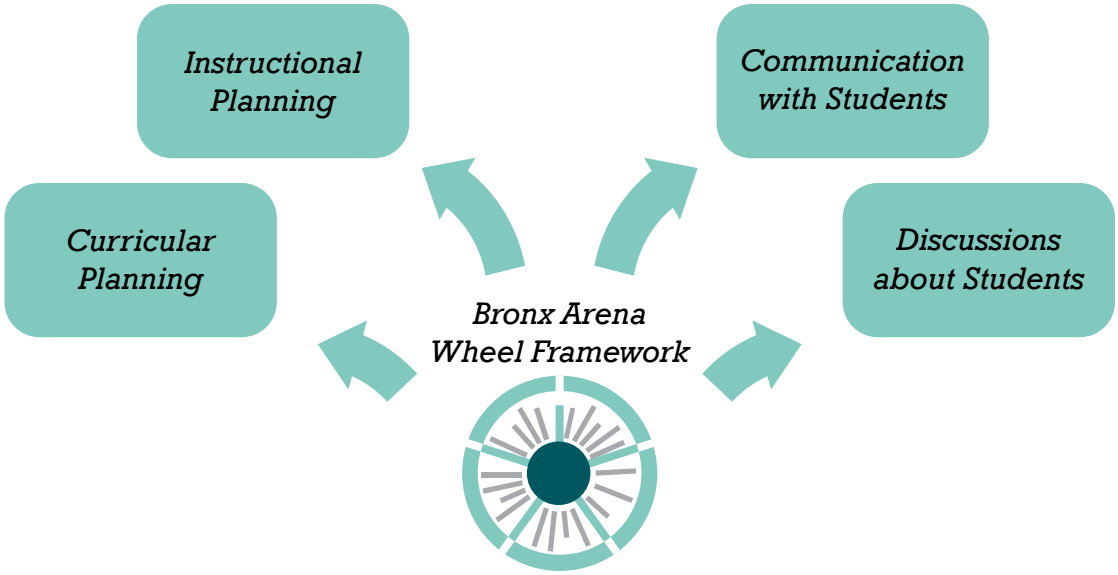
Using the Schoolwide Competency Framework

Developing a comprehensive set of competencies for a school takes time and is worth doing well. Once established, a school's competency framework becomes a foundation for a host of school practices, including decisions about curricular development, ongoing instructional planning, communication with students about their progress, and coordination of student supports.

1 Curricular planning.

School leadership must ensure that course offerings provide students with multiple opportunities to practice and master the full range of competencies established as graduation requirements. Take time at least once each school year to compare current courses against your school's competency framework to review the big picture of how the various competencies, domains, and overarching learning areas are covered. This process surfaces curriculum gaps and places with thin coverage that call for new course development or adjustments to existing curricula (see more about curriculum development in Chapter 3).

In practice: At Bronx Arena, leaders had identified *problem solving* and *creative and divergent thinking* as domains in which students were not demonstrating enough mastery and therefore needed more opportunities to build mastery. That summer, staff worked to design a new course, the Game Class, and chose two competencies in these domains as points of focus: *1) Develop a unique approach that successfully addresses an issue, problem, or challenge* and *2) Break an idea, problem, work, etc., into its parts and analyze how those parts work together.* Those two competencies connected well to the course content while filling an important curricular gap for the school.



2 Instructional planning.

Higher-order competencies often comprise a series of smaller skills that require focused instructional and developmental scaffolds as students work toward mastery. Teachers, therefore, must decompose competencies into smaller skills and translate them into lesson objectives that students can accomplish through specific learning tasks and activities. Teachers must then closely monitor student progress on those smaller skills and plan follow-up support accordingly so each student gets what he or she needs to move toward mastery of the intended competency (see more about instructional planning in Chapter 4).

3 Communication with students.

Mastery-based learning is most powerful when students clearly see how course activities lead them to mastery. Staff use competencies as consistent reference points in conversation with students to remind them of broader expectations, communicate the purpose of curricula, and reflect on their progress. By linking individual tasks to broader competencies, teachers help students understand the value of each step they are taking, which increases their motivation to engage in coursework. Make competencies a focal point of regular conferences with individual students (as well as with groups, where applicable) to maintain ongoing and authentic conversations about their strengths and remaining challenges and the implications for revision and further practice.

4 Discussing students.

When discussing student progress among staff (e.g., in teacher team meetings, conversations with school leadership, and check-ins with counselors), educators reference the competency framework to collaboratively generate strategies and interventions for individual students and groups. Often, these strategies can be applied in multiple learning situations, providing clarity and consistency for students. With shared competencies as a reference point, teachers can look at student progress across different courses, activities, and learning situations, reinforcing one another's support.

> "When I'm talking to a student about a task they are working through and I can connect it to a larger competency, it helps them to understand the why, the purpose of the learning…which is reassuring to them. They see it is worthwhile and has value."
>
> —Bronx Arena Teacher

Caring
Bronx Arena is . . .
Ambitious
Responsible
FUN
Energetic
Honest
Helpful
Silly
Happy
Fair
Respectful
Trustworthy
Follow your
Dream

3 | Curriculum Development: The Challenge Template

Putting the *Challenge Template* to use

Purpose:	Supports teachers in designing assessments and curriculum aligned to specific competencies as described in the Wheel Framework
Who uses it:	Teachers
When is it used:	In the course development process and to guide teaching

Curriculum design is a central element of mastery-based learning. The best curriculum is anchored in a sequence of assessments that allow students multiple opportunities to practice, develop, and eventually demonstrate that they have met rigorous expectations. Teachers map out instructional activities that lead to culminating competency-aligned assessments. Each task and activity helps students develop important subskills that build toward mastery.

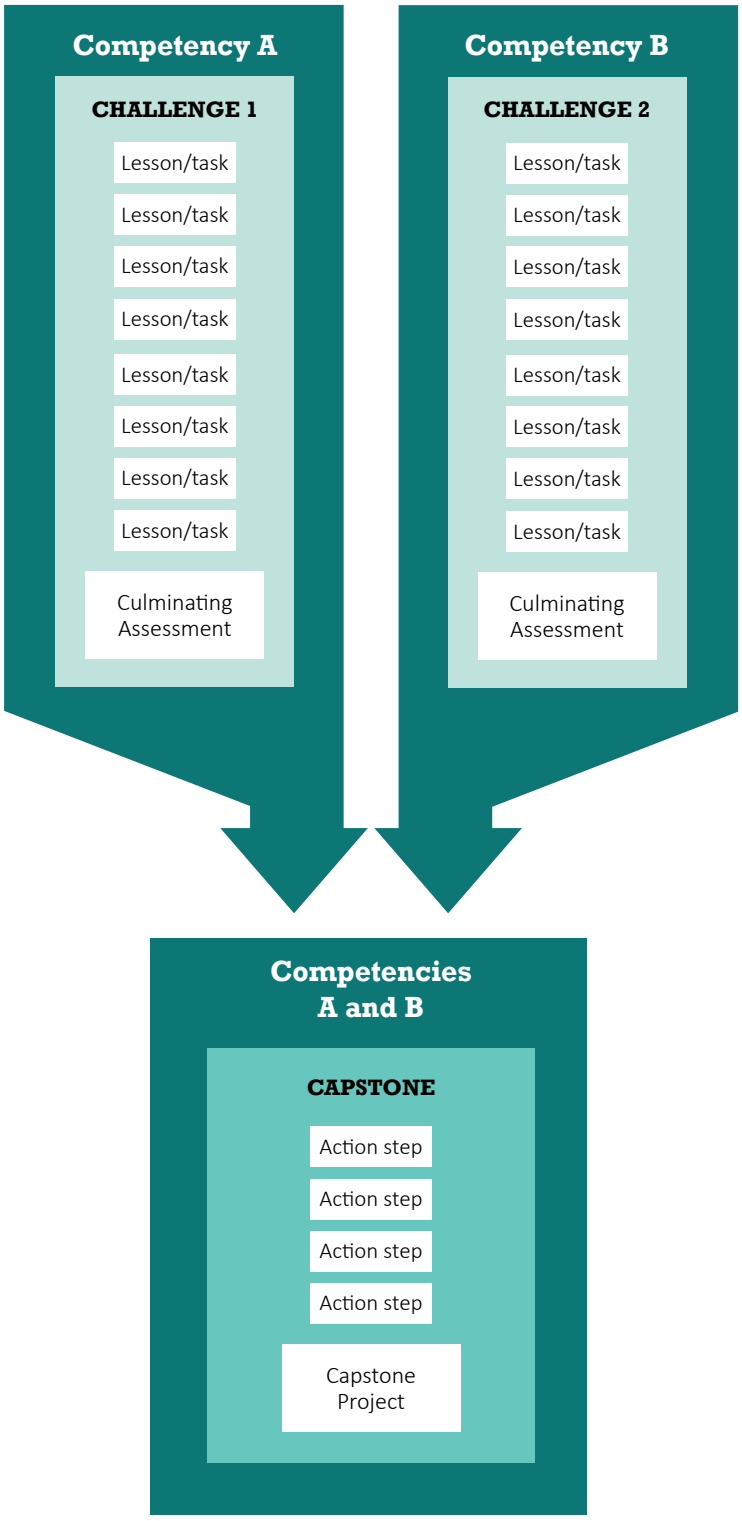
At Bronx Arena, each course focuses on no more than two to four competencies that are addressed through a series of three assessments called challenges:

- **challenge one** asks students to demonstrate mastery of one or two initial competencies after completing a sequence of related tasks
- **challenge two** builds on the first challenge with one or two additional competencies that deepen their studies
- the final **"capstone" challenge** provides an opportunity to demonstrate mastery of the full set of competencies from challenges one and two in a new context.

Teachers may integrate additional assessments throughout a course, but these three challenges act as important markers of progress. The challenges are authentic assessments—meaning that they are often based on a multistep project that requires students to engage with real-world problems or questions—that are built to help students explore a course's central theme. They are designed to be high-interest and written with students, rather than external evaluators, as the primary audience.

In practice: In one challenge at Bronx Arena, students craft a proposal for a school-based hydroponic system in a science class; in another, they create a podcast that tackles issues of conformity in the humanities.

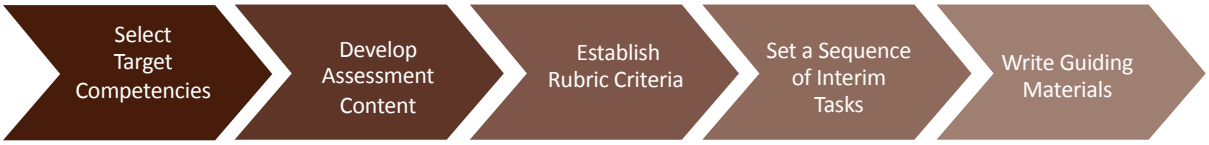
Bronx Arena Course Structure



Bronx Arena staff use the Challenge Template to build each challenge. The template provides a structured process for setting up each assessment, aligning it to target competencies, and developing a sequence of instructional steps and tasks that help students build the requisite skills.

In practice: In an English course that explores the theme of conformity, one challenge assessment asks students to demonstrate that they can: *1) Use evidence to develop a valid argument,* and *2) Write a clear, organized, and well-developed essay to inform or explain a topic or concept that includes an engaging introduction and reflective/strong conclusion.* Leading up to this assessment, students engage in eight to twelve lessons that require them to critically read various texts, analyzing themes, unpacking metaphors, and taking notes along the way. They then use these notes to inform the essay.

Designing Competency-Aligned Assessments



Designing a challenge assessment takes several hours of work, typically spread across multiple days or weeks. Assessments can be designed by an individual educator who specializes in the course theme or by teams of school staff who design courses collaboratively. Bronx Arena teachers organize their work into five steps.

In practice: The completed Challenge Template on p. 19 illustrates how these steps play out in the context of Bronx Arena's unique Game Class.

1 Select target competencies.

The first step is to identify a focused set of competencies that the assessment will address. Reflecting on the scope or theme of the course, select competencies with a clear relationship to the content students will be studying. Choosing no more than one to three competencies will help sharpen the learning focus and ensure alignment of tasks and assessments.

In practice: For the first challenge assessment of Bronx Arena's Game Class—an interdisciplinary course in which students analyze, modify, and create their own board games—staff selected two competencies related to the overarching area of *thinking:*

CHALLENGE NAME: **Modify a Game**

ARENA COMPETENCY(IES)		
Wheel Domain	**Arena Competency(ies)**	**Product/Output**
THINKING Creative & Divergent Thinking THINKING Problem Solving	**Primary Competency:** Develop a unique approach that successfully addresses an issue, problem, or challenge. **Secondary Competency:** Break an idea, problem, work, etc., into its parts and analyze how those parts work together.	An effective modification to a game that incorporates peer feedback. A reflection that explains the individual changes and how they come together to improve the game.

Excerpt from Challenge Template (see page 20)

2 Develop assessment content.

Next, develop a challenge overview to help students understand what they are expected to do and why. To do this, begin by identifying a final work product, such as a paper, a presentation, or a film that students will produce. Make sure that this work product suits the target competencies. Then, consider what *essential questions* can organize students' exploration of the theme. (The concept of essential questions is drawn from Grant Wiggins and Jay McTighe's Understanding by Design approach to lesson planning. Essential questions tend to be broad, allowing for multiple lines of inquiry as students wrestle with complex ideas related to course content.)

In practice: Bronx Arena's Game Class is organized around the following essential questions:

Essential Questions

- *How do systems work?*
- *In what ways can a small change create ripple effects?*
- *How can a game help to teach an idea, representation, or skill?*

Excerpt from Challenge Template (see page 19)

Alongside this, identify the required understandings that students should gain through their work on this challenge. The content and activities of the challenge will then be set up to build those understandings and create opportunities for students to show them through the use of target competencies.

In practice: Bronx Arena's Game Class is shaped to teach the following required understandings:

Required Understandings
Systems are dynamic feedback mechanisms, and each component can have huge effects on other systems.
Making a small change in a part of a system can influence every other element of the system.
Games can be a powerful tool to help people invest in and learn about an idea, concept, or fact.

Excerpt from Challenge Template (see page 19)

3 Establish rubric criteria.

To make expectations clear to students, design rubrics that indicate the focal competencies and describe student work at varying levels of mastery. Ideally, structure the rubrics in a way that allows students to use them as checklists to self-assess and make midcourse corrections. Criteria used in the rubric should communicate to students that they are working on a focused set of competencies, which they will demonstrate through specific work products, and that there are levels of performance that move up to mastery.

Fill in each row of the rubric with one target competency. Then, enter your school's criteria for "proficient" and "exemplary" levels of performance for each competency (draw from your school's Wheel Framework as detailed in Chapter 2). Directly below this general schoolwide language, add two or three bullets describing what proficient and exemplary work looks like in the context of this class and for this particular challenge. This process pushes you to visualize the final work product in concrete terms; because it can lead to new ideas, it is important to keep revisiting prior stages of your challenges design to ensure overall coherence.

In practice: In the Game Class, proficiency in the "develop a unique approach" competency means demonstrating divergent thinking by developing one to two possible modifications, selecting one to playtest, modifying an existing game element to create a peer-appreciated game, using existing game structures to create a cohesive game, and incorporating one piece of specific student feedback in reflection to extend modification.

Competency	Proficient	Exemplary
Develop a unique approach that successfully addresses an issue, problem, or challenge.	The work shows evidence of original ideas and presents a clear way of using those ideas in response to an issue. ❑ Demonstrates divergent thinking by developing one or two possible modifications, selecting one to playtest. ❑ Modifies an existing game element to create a peer-appreciated game. ❑ Uses existing game structures to create cohesive game. ❑ Incorporates one piece of specific student feedback to extend modification.	The work uses original insights to structure a new way of addressing an issue with greater impact. ❑ Demonstrates divergent thinking by developing three or more possible modifications, selecting one to playtest. ❑ Develops a new game mechanic or tool to facilitate their game. ❑ Uses existing game structures to extend a game, resulting in a peer-appreciated game. ❑ Incorporates two or more pieces of specific student feedback to extend modification.

Excerpt from Challenge Template (see page 23)

4 Set a sequence of interim tasks.

Challenge assessments allow students to demonstrate the level of mastery they have built over time, but it is also important to attend to the smaller instructional steps that scaffold student learning along the way. By breaking down a competency-aligned assessment into its component skills and understandings, you can strategize about how to set up a progression of tasks that prepare students for the coming assessment. Ask yourself, "What do students need to know and be able to do to succeed on this challenge?" and identify a set of eight to twelve specific skills that build toward the competencies addressed in the assessment. Each skill should be something students can explore and practice in a 45- to 60-minute session. Set up eight to twelve corresponding lessons that will serve as a sequence of steps leading up to the challenge. Each lesson should include small, manageable tasks students can complete to practice and demonstrate the skill associated

with the lesson. Having this clear sequence of small demonstrations that builds up to more complex tasks enables teachers to be responsive to each student's interim progress and address skill needs as they arise (see more about instructional planning in Chapter 3).

5 Write guiding materials.

The final step is to create a set of materials to guide students through each step of the assessment. As you develop materials, consider four design elements:

- **Options.** Incorporate student choice as a way to differentiate for a range of learning needs and styles. For instance, you can offer students different ways to present their challenge, or ask them to choose from an array of prompts to engage with a task.
- **Resources.** Identify the resources students will need to work on the project, such as presentation equipment or online readings or videos.
- **Directions.** Provide clear directions in student-friendly language. Make sure students know the specific chronological steps to follow to complete the challenge.
- **Visuals.** Include visual images, graphs, and charts that illustrate the challenge content. This helps draw students into thinking about the assessment and builds on their background knowledge.

Repeat this process to build a course.

Use the Challenge Template three times to map out a progressive set of assessments for a full course. Start by laying out the final capstone challenge, which will address the target competencies of the entire course at the highest level of rigor. Design backward from there, using the Challenge Template to create preceding assessments that address focused subsets of the course competencies. The first challenge begins at the level of introducing and explaining an idea through one or two target competencies. The second challenge moves into other competencies through engaging students in deeper understanding and analysis. The culminating capstone asks students to demonstrate extended thinking as they apply the full set of skills and knowledge they acquired in the two prior challenges to new content and work products.

In practice: In one Bronx Arena history course, students complete three challenges that increase in complexity:

- **Challenge 1:** Students write an argument for and an argument against the Supreme Court decision in the Bush vs. Gore case, an opportunity to practice argumentation around political themes at a basic level.
- **Challenge 2:** Students act as a presidential candidate, designing and arguing for a specific policy and making strategic decisions along the campaign trail.
- **Capstone Challenge:** Students take on the role of the President of the United States, writing a clear, well-developed argument to several senators convincing them to approve a policy and incorporating counterclaims that show how the policy might be amended in response to senators' likely concerns.

Challenge Template

Bronx Arena High School

CHALLENGE NAME: **Modify a Game**

Summary of Challenge:

In the tasks so far, you have selected, played, and modified a game! Now is your chance to reflect on your game, its design, and your feedback. In this task, you will write a reflection on the game-modification and peer-reflection process. In doing so, make sure you answer the following questions:

- *How did you feel during the game-design process? Why?*
- *How did you feel leading a reflection? Why?*
- *When you modified your game, what were two significant changes you made from your first iteration? Why?*

IMAGE RELATED TO CHALLENGE

Essential Questions	Required Understandings	Relevance to Life and Learning
• *How do systems work?* • *In what ways can a small change create ripple effects?* • *How can a game help to teach an idea, representation, or skill?*	Systems are dynamic feedback mechanisms, and each component can have huge effects on other systems. Making a small change in a part of a system can influence every other element of the system. Games can be a powerful tool to help people invest in and learn about an idea, concept, or fact.	You chose to come to school today. What happens as a result? Do your friends treat you in a different way? Will you move towards graduation? Will your attendance influence other people? How? Why? Everything is a system. From the way a classroom operates, to the writing of the U.S. Constitution, to the organelles in a cell, everything needs different parts working in unison for something to happen. Games are like smaller versions of these real-life systems, and understanding the way a game works can help us to understand larger systems.

OPPORTUNITIES FOR STUDENT CHOICE

- Students will select a variety of games.
- Students choose how they would like to modify a game.

CHALLENGE NAME: Modify a Game

ARENA COMPETENCY(IES)		
Wheel Domain	**Arena Competency(ies)**	**Product/Output**
THINKING Creative & Divergent Thinking THINKING Problem Solving	**Primary Competency:** Develop a unique approach that successfully addresses an issue, problem, or challenge. **Secondary Competency:** Break an idea, problem, work, etc., into its parts and analyze how those parts work together.	An effective modification to a game that incorporates peer feedback. A reflection that explains the individual changes and how they come together to improve the game.

TASK NAME	LESSON OBJECTIVE(S)	TASK/ACTIVITY
Mini-Lesson: Game Design and Course Introduction	Students will be able to: • recognize different elements of game and game design. • create a small game.	Mini-Lesson: Create a small game based on given parameters. Identify the components of that game.
Play!: Goal	You will be able to identify the goal of a game you have played. You will be able to explain how a modification to the goal of the game may affect another system.	Play a game with your classmates. Debrief the game experience with the game designer and complete the **Playtest Reflection Sheet**. Complete the goals portion of your **Individual Elements Reflection**.
Play!: Challenge	You will be able to identify the challenge of a game you have played. You will be able to explain how a modification to the challenge of the game may affect another system.	Play a game with your classmates. Debrief the game experience with the game designer and complete the **Playtest Reflection Sheet**. Complete the goals portion of your **Individual Elements Reflection**.
Play!: Core Mechanics	You will be able to identify the core mechanics of a game you have played. You will be able to explain how a modification to the core mechanics of the game may affect another system.	Play a game with your classmates. Debrief the game experience with the game designer and complete the **Playtest Reflection Sheet**. Complete the goals portion of your **Individual Elements Reflection**.

CHALLENGE NAME: **Modify a Game**

TASK NAME	LESSON OBJECTIVE(S)	TASK/ACTIVITY
Play!: Components	You will be able to identify the components of a game you have played. You will be able to explain how a modification to the components of the game may affect another system.	Play a game with your classmates. Debrief the game experience with the game designer and complete the **Playtest Reflection Sheet**. Complete the goals portion of your **Individual Elements Reflection**.
Play!: Rules	You will be able to identify the rules of a game you have played. You will be able to explain how a modification to the rules of the game may affect another system.	Play a game with your classmates. Debrief the game experience with the game designer and complete the **Playtest Reflection Sheet**. Complete the goals portion of your **Individual Elements Reflection**.
Play!: Space	You will be able to identify the space of a game you have played. You will be able to explain how a modification to the space of the game may affect another system.	Play a game with your classmates. Debrief the game experience with the game designer and complete the **Playtest Reflection Sheet**. Complete the goals portion of your **Individual Elements Reflection**.
Play!: Roll-Out	You will be able to identify the roll-out of a game you have played. You will be able to explain how a modification to the roll-out of the game may affect another system.	Play a game with your classmates. Debrief the game experience with the game designer and complete the **Playtest Reflection Sheet**. Complete the goals portion of your **Individual Elements Reflection**.
Play!: Explode A Game	You will be able to identify the system of the game in which you participated. You will be able to explain how three or more elements of the game are dependent on one another.	Play a game with your classmates. Debrief the game experience with the game designer and complete the **Playtest Reflection Sheet**. Complete the goals portion of your **Individual Elements Reflection**.

CHALLENGE NAME: Modify a Game

TASK NAME	LESSON OBJECTIVE(S)	TASK/ACTIVITY
Modify a Game	Based upon criteria, you will work with other students to develop three coherent modifications to a game.	Design one or two modifications to an existing game. Discussion and design process overseen by teacher.
Playtest Your Mod!	You will lead a feedback design session based on feedback protocol.	Play a game with your classmates. Debrief the game experience with the game designer and complete the **Playtest Reflection Sheet**. Collect Playtest Reflection sheets to create written reflection on your game.
Challenge: Game Reflection	You will use student feedback to write your reflection piece.	

RESOURCES NEEDED
On-site people/facilities (people or places at Bronx Arena):
Equipment and materials: Game pieces and materials
Community resources/places (i.e., for field trips, etc.):

STUDENT DIRECTIONS FOR CHALLENGE PROJECT

You have selected and modified that game! Now is your chance to reflect on your game, its design, and your feedback. In this task, you will write a reflection on the game-modification and peer-reflection process. In doing so, make sure you answer the following questions:

- How did you feel during the game-design process? Why?
- How did you feel leading a reflection? Why?
- When you modified your game, what were two significant changes you made from your first iteration? Why?

Write your feedback and reflection in the Google Doc Reflection Sheet — access HERE

ACTION PLAN *(List the specific steps, including all research topics that students should work through to complete this challenge. Add more rows if necessary.)*
✓ *Modify a Game*
✓ *Playtest Your Modification!*
✓ *Reflect on Game Success Using Reflection Sheet*

Challenge Rubric

General language for all competencies will be provided. Add specific descriptors to individualize the criteria for your challenge.

Competency	Proficient	Exemplary	Feedback, Reflection, Notes
Develop a unique approach that successfully addresses an issue, problem, or challenge.	The work shows evidence of original ideas and presents a clear way of using those ideas in response to an issue. ❑ Demonstrates divergent thinking by developing one or two possible modifications, selecting one to playtest. ❑ Modifies an existing game element to create a peer-appreciated game. ❑ Uses existing game structures to create cohesive game. ❑ Incorporates one piece of specific student feedback to extend modification.	The work uses original insights to structure a new way of addressing an issue with greater impact. ❑ Demonstrates divergent thinking by developing three or more possible modifications, selecting one to playtest. ❑ Develops a new game mechanic or tool to facilitate their game. ❑ Uses existing game structures to extend a game, resulting in a peer-appreciated game. ❑ Incorporates two or more pieces of specific student feedback to extend modification.	
Break an idea, problem, work, etc., into its parts and analyze how those parts work together.	The response identifies structures in a form or work and provides a basic explanation of how the structures interact or work together. The response could further develop its analysis of how the structures work and/or support the work's purpose or message. ❑ Game elements interact to build toward a larger narrative. ❑ Goal of game clearly supported by four or five specific game elements. ❑ Reflection explains how playtest incorporated the modification.	The response identifies structures in a form or work, analyzes the structures and explains how they work together to create the form of the work. The response explains how the structure supports the work's purpose, message, or meaning. ❑ Game's various elements (e.g., mechanics, components) seamlessly interact to create a cohesive narrative. ❑ Goal of game clearly supported by six or more game elements. ❑ Reflection explains how playtest incorporated the modification and uses feedback to further develop that modification.	

A Final Challenge: Promoting Reflection and Ownership in the Senior Portfolio

In order to prepare and empower students for the transition to postsecondary independence, Bronx Arena gives students the opportunity to use the Challenge Template to create a course themselves as they approach graduation. As part of the senior-portfolio process, students design their own project, which offers them an opportunity to reflect on their goals and progress toward mastery of key skills. The process includes several critical steps.

1 Reflect and select learning goals.

As they prepare to use the Challenge Template, students work with a teacher to review their assessment data and a representative selection of past work. Students observe patterns and trends and reflect on when in their growth they experienced success and when they felt challenged. They then identify one or two target competencies from the Wheel Framework (see Chapter 2) as a focus for growth. This kind of deep reflection, grounded in a competency framework, supports students in considering how far they have come in their learning and where they would like to go next.

2 Design and complete a multistage project.

With target competencies in mind, students take the important step of designing a project that will provide opportunities to explore and practice those competencies. They move through the Challenge Template, mirroring steps teachers take (see Chapter 3) to develop activities aligned to target competencies. Teachers assist students to ensure the project will serve as a rigorous assessment of competencies and to break the project down into approachable steps that build toward the final product. This window into what is typically a teacher-led process fosters greater metacognitive awareness of the learning process, increasing students' ownership of their own learning.

Through the senior-portfolio process, Bronx Arena students have designed a wide variety of projects, ranging from research papers to short films to a proposal for a female football team to a historical joke book.

3 After completing the project, reflect in a public presentation.

After completing the project, students present their work to staff and reflect on:

- the experience of designing and executing a project and the learning they experienced,
- how the project relates to their overall experience of mastering competencies in the school, and
- how it connects to their postsecondary plans.

This final process of reflection prompts students to draw connections between their actions and resulting growth, reinforcing their sense of themselves as empowered, self-reflective learners.

4

Differentiated Instructional Planning: The Facilitation Plan Template

Putting the ***Facillitation Plan Template*** to use

Purpose:	Plan daily instruction for individual students based on their needs
Who uses it:	Teachers
When is it used:	Teachers create plans weekly and use them on a daily basis to guide instruction

To help students achieve mastery, teachers must provide differentiated support to individual students as they advance along their own learning paths. In a personalized, mastery-based learning environment such as Bronx Arena's, traditional weekly lesson plans are ineffective because they assume that students are all working on the same learning expectations and activities at the same time. Bronx Arena's Facilitation Plan helps teachers think carefully about each student's learning needs and the supports they will provide to individuals and groups of students on a given day or over the period of a few days.

Teachers first zoom in on individual students and their progress toward mastery of competencies. They then zoom out to consider the whole class, looking for trends and planning different modes of instruction accordingly. Teachers ask themselves questions like: What type of mini-lesson would best serve this small group? Is this a good place for collaboration among students working on the same or a similar skill? Do I need to set up a conference with the group of students who are working on their final draft? Decisions made in response to these questions are captured in the Facilitation Plan, enabling teachers to think through and record a variety of instructional modes that meet the needs of students in a given classroom.

Developing Personalized Instructional Plans

As a new course begins, take time to set up a Facilitation Plan Template to guide your work with students. Start making decisions about specific supports and interventions students need based on their performance on initial tasks. As the course progresses, set aside five minutes per student each week to update the template based on the progress they are making and your reflections on ongoing or new learning needs. (A student may be working on a particular competency across multiple days or weeks, in which case that portion of the Facilitation Plan Template stays the same, while other details change.) You may do this personalized lesson planning on your own or in meetings with colleagues who share the same students.

1 Review student progress.

To begin, review each student's recent assessments and coursework against the expected trajectory of skill development. As much as possible, gather input directly from students to inform this review. As you do, consider three questions:

- In which skills are they on track, in need of support, or ready to be pushed further?
- What else do you know about their strengths and challenges?
- Where exactly is the student in the course sequence? What have they experienced thus far and what is coming next?

Use this to identify which students need support now or may soon, which are strongly engaged, and which have the knowledge and skills necessary to advance. In the process, consider possible groupings based on patterns you find among students (see box on page 28).

In practice: One teacher at Bronx Arena builds time into his daily teaching block for students to review their work, set a goal for the day, and create a game plan for achieving the goals. At the end of the period, the teacher has students revisit their goals to see what they achieved and where they need to go next. Students thus inform the upcoming facilitation plans as they are determining their own next steps.

2 Determine learning targets for students.

Having considered specific student needs, narrow in on the specific focus competency for each student as they progress toward mastery in their current coursework. Then, identify one to three learning targets that specify next steps of growth related to the competency that the student can work on in the coming week. Learning targets should be framed as guidance to the student, typically written as "You will be able to…" statements. At Bronx Arena, these are typically derived from the sequence of skills previously mapped out in the Challenge Template (see Chapter 3).

In practice: The Learning Target for Anthony on p. 33: *"You will be able to choose the right version of the equation for the speed of light in order to calculate the wavelength, frequency, or speed of a photon of light."* This learning target builds toward the competency of *choosing an appropriate equation to analyze situations* and connects it to the curricular task of calculating properties of photons.

3 Determine the sequence of learning tasks.

Even with a specific target, there are still steps needed to scaffold students' skills and knowledge to get there. Ask yourself what a student needs to know to perform this task. What do they need to be able to do? Design activities that gradually become more cognitively demanding (moving to higher levels of Benjamin Bloom's Taxonomy of Learning) or gradually become more complex to apply (moving to higher levels of Norman Webb's Depth of Knowledge).

4 Develop checks for understanding.

Next, plan a way for students to demonstrate that they have achieved the learning targets. Identify a concrete task that is clearly aligned to the learning target and achievable within one or two days. Often, this can be done with tasks and assessments already in the curriculum, but it may involve setting up additional tasks for individual students to undertake. The resulting work gives an indication of progress that you can use to plan midweek adjustments and prepare the following week's facilitation plan.

In practice: In Anthony's example on p. 33, the teacher has noted *"Accurately completed question set and conclusion statement"* to indicate that Anthony will respond to questions and summarize his thinking in a conclusion in which the teacher will look for evidence of proficiency in selecting the appropriate equation to calculate a photon's wavelength, frequency, and speed.

5 Set instructional mode.

After repeating steps 1 to 4 for every student, determine how you will provide the most effective supports to help students meet their learning targets. Consider which instructional approaches (see table) are the most appropriate—whole group, small group/paired, or individual instruction—and then the mode that best fits the skill needs you've identified. In selecting among these modes, ask yourself:

- **Which students are working on the same skills, content, or competencies?** Find opportunities to efficiently address students working on the same task or on the same competency and related skills by setting up group instruction that meets similar needs.
- **How does each student learn best?** One-to-one support or conferencing are approaches that may be the most productive if a student does best working independently. If a student does better in groups, consider a small-group mini-lesson to fill in additional background-knowledge or skills, or small-group discussions or peer interaction to encourage deeper consideration of established topics.
- **Which modes have students engaged in—or avoided—recently?** While student preferences are important, it is also constructive to encourage their participation in a range of instructional modes as a way to develop adaptability and flexibility in the face of new learning situations.

6 Organize a schedule to implement.

Once plans are in place for what and how students will learn, the final step is to map these into a workable schedule. Set times and identify venues for the instructional interactions with students. During the week, reference the Template to adjust planning based on attendance and shifting student needs.

Instructional Modes

Following are seven instructional modes identified at Bronx Arena that guide teacher interaction with students.

Whole Group

The teacher identifies content, a specific skill, or directions to a task on which the entire class needs teacher-led instruction.

Small Group/Paired

- **Peer Interaction:** The teacher identifies two or more students who would benefit from working together on a specific task and provides the students with a clear goal and a structure or protocol to follow as they work together.
- **Small-Group Mini-Lessons:** The teacher identifies a group of students who need direct instruction on a specific skill or on specific content.
- **Small-Group Discussions:** The teacher identifies a group of students to participate in an in-class discussion.

Individual

- **One-to-One Support:** The teacher goes to a student or group of students and, based on the teacher's observations of their progress, assists them with their learning.
- **Conferencing:** The teacher schedules a time for the student to come to the teacher for a one-on-one meeting.
- **Circulation:** The teacher approaches a student to check the student's progress or, if the student is not actively progressing, to get the student back on track.

In practice:

	Whole/Small-Group Instruction	
	Session 1: Paired Discussion	**Session 2: Small-Group Mini-Lesson**
Day and Time	Monday 11:30	Tuesday 11:00
Location (push-in/ pull-out)	Push-in: Earth Science lab	Push-in: Earth Science classroom
Target Students	Joe, Sara	Kevin, Mark, Veronica, Sandy

Excerpt from Facilitation Plan (see page 30)

The goal is to find a way to support as many students as possible in a given period or week. Your approach to doing so will depend on your role:

- ***Classroom teacher:*** If you are a teacher who has preassigned portions of the day with a set group of students (e.g., sixth period algebra in room 319), there is likely less time available to sit with individual students. You will need to strategically plan when one-on-one and small-group activities will occur across a week.
- ***Nonclassroom-based teachers:*** If you are in a role (e.g., reading specialist, English language support) that allows you to pull out students or push into other classrooms, this can allow for grouping or time on individual needs in a designated portion of the room while the rest of the class carries on with the classroom teacher.
- ***Co-teachers:*** If you work with a partner teacher, this arrangement can be leveraged to increase attention on individuals and distinct groups and to support a broader range of instructional modes during class times.

7 Share the schedule with students and staff.

Finally, communicate the plan with students. Bronx Arena teachers do this by posting daily plans on the board or e-mailing students calendar appointments. This helps students mentally prepare for the work ahead and often provides another opportunity to gather their input. Checking in with co-teachers and push-in specialists can provide additional insight and flexibility to provide necessary supports. One way to share plans with other staff is to share plans in a secure online file folder. This allows for easy reference across the teaching staff and promotes collaborative planning within and across classes.

Facilitation Plan

Bronx Arena High School

Week: 9/28/15-10/2/15

Teacher: Push-in Science Teacher Nick

Whole/Small-Group Instruction			
	Session 1: Paired Discussion	**Session 2: Small-Group Mini-Lesson**	**Session 3: Whole Group Mini Lesson**
Day and Time	Monday 11:30	Tuesday 11:00	Thursday 9:30
Location (push-in/ pull-out)	Push-in: Earth Science lab	Push-in: Earth Science classroom	Push-in: Earth Science classroom
Target Students	Joe, Sara	Kevin, Mark, Veronica, Sandy	Whole class
Focus Competency	Break an idea, problem, work, etc., into its parts and analyze how those parts work together.	Use evidence to develop a valid argument. Make a claim supported by evidence.	Set and strive for appropriate goals.
Learning Target	You will be able to identify how the electromagnetic spectrum is organized.	You will use reference tables to make an inference about the name of a mineral based on the mineral's properties.	You will be able to set SMART goals for earth science credit.
Assessment/Check for Understanding	Completed drawing using the online source, completed questions	Completed lab	Completed/set course goals

Individual Instruction					
Room & Time	**Student Name & Instructional Mode**	**Competency/Learning Strategy Focus**	**Learning Target(s)**	**Check for Understanding / Follow-up Steps**	**Notes:**
103 Monday, 11:00	Henry One-on-one	Choose and use appropriate mathematics and statistics to analyze empirical situations, to understand them better, and to improve decisions.	You will be able to define each word in the competency in order to rewrite the competency in your own words. You will be able to reorganize the steps needed to achieve this competency.	Completed questions/ reorganized steps for competency	
Lab Monday, 11:15	Larissa One-on-one	Break an idea, problem, work, etc., into its parts and analyze how those parts work together.	You will be able to review previous work on a natural disaster and highlight the inputs as well as the different relationships that are involved. Specifically the relationships between wind and pressure and humidity, temp/dew point, and precipitation.	Completed PowerPoint.	Was absent

Developed by Bronx Arena High School in collaboration with reDesign, Eskolta School Research and Design, and NYCDOE Office of Postsecondary Readiness

Facilitation Plan

Bronx Arena High School

Individual Instruction					
Room & Time	**Student Name & Instructional Mode**	**Competency/Learning Strategy Focus**	**Learning Target(s)**	**Check for Understanding / Follow-up Steps**	**Notes:**
Lab Monday, 1:30	Amari Conference	Set and strive for appropriate goals.	You will be able to review old course work. You will be able to set SMART goals for Earth Science credit.	Set course goal to get credit. Enroll in new science course.	
101 Tuesday, 10:30	Anthony One-on-one	Choose and use appropriate mathematics and statistics to analyze empirical situations, to understand them better, and to improve decisions.	You will be able to choose the right version of the equation for the speed of light in order to calculate the wavelength, frequency, or speed of a photon of light in questions 1–3. You will be able to use the equation for the speed of light in order to calculate the redshift of four stars by completing the table. You will be able to apply your knowledge of z values in order to predict how fast the star you chose in Task 1.9 is moving away from the Earth by completing question 13.	Accurately completed question set and conclusion statement.	

Conditions that supported success

Implementing an effective mastery-based learning program—including the tools presented in this monograph—requires a paradigm shift for teachers and students alike. Students accustomed to earning credit based on effort or "seat-time" instead are asked to show full mastery of competencies as the common end goal. Teachers who are accustomed to outlining content that they will cover in 12, 18, or 40 weeks must rethink coursework as a deep thematic exploration, driven by the needs, interests, and pace of each student's learning.

Perhaps most importantly, mastery-based learning reframes failure. Students cannot master something if they have not had a chance to practice it with support, feedback, and opportunities to fall short and revise. Mastery-based learning systems frame struggles as a beginning point on a learning path, not as an end point labeled with a failing grade.

Bronx Arena's efforts to build and maintain a school model that embodies these ideas goes beyond a simple list of shared competencies. Several core features of their mastery-based learning program are outlined in this publication for others to learn from and adapt. However, these approaches would not have taken hold so successfully without a broader culture of revision, collaboration, and adult learning. Here, we describe some of the broader schoolwide conditions that have allowed mastery-based learning to thrive at Bronx Arena.

A Culture of Revision

In order to advance in their courses, students must demonstrate mastery on a series of process that often involves a great deal of revision. At Bronx Arena, the revision process is reinforced through several key school structures:

- **Timely feedback:** Teachers provide feedback on all assessments within 48 hours so that students can make revisions and continue progressing and teachers can use up-to-date data to drive instructional decisions (see Chapter 4).
- **Targeted instruction with one-on-one conferencing:** When mapping out individualized facilitation plans for students (see Chapter 4), Bronx Arena teachers incorporate regular one-on-one conferences to deliver feedback on recent work and to help students reflect and plan their next steps.

- **Self-paced performance:** In Bronx Arena's asynchronous model, learning is unhooked from a calendar and schedule. Coursework is perennially available to students through the online learning management system and can be revisited and revised repeatedly, regardless of how long it takes to demonstrate mastery.
- **Adult culture of revision:** The culture of revision extends to teachers as well, who continually revise and adjust course materials in response to students' struggles with concepts and skills. Bronx Arena teachers regularly revisit their curriculum, saying, "This isn't working; I have to find another way," which yields them the freedom to design new courses or retrofit existing ones.

Students accustomed to earning credit based on effort or "seat-time" instead are asked to show full mastery of competencies as the common end goal. Teachers who are accustomed to outlining content that they will cover in 12, 18, or 40 weeks must rethink coursework as a deep thematic exploration, driven by the needs, interests, and pace of each student's learning.

Constant Collaboration

A successful mastery-based learning culture requires consistency, and consistency is created through collaboration. When teachers work together, they can anchor communication about students in specific competencies and find clear connections to learning strategies. At Bronx Arena, four structures support teacher collaboration:

- **Curriculum design teams** are interdisciplinary groups of several teachers that meet regularly over a few months to create and revise courses. They use the Challenge Wheel Framework (see Chapter 2). Each team consists of teachers who are experts in the content of the course, an administrator or lead teacher to ensure consistency and fidelity, and a special education coordinator to support teachers in developing effective scaffolds. Teams have also found it helpful to include a teacher who is a novice on the subject at hand, as these teachers typically identify potential confusions and questions students might face that could otherwise be overlooked.
- **Student intervention teams** consist of the group of adults (teachers, counselors, nonclassroom-based teachers) who work with a common set of students. These teams meet twice a week to brainstorm interventions to assist individual students who are struggling. Common interventions include calls home to promote better attendance and additional academic help, like after-school writing support, that can then be built into weekly Facilitation Plans (see Chapter 4).
- **Feedback meetings** are blocks of time scheduled weekly for one-on-one discussions among teachers and administrators to review curriculum and Facilitation Plans.
- **Online document sharing** allows Bronx Arena teachers to constantly collaborate online. Teachers' curricular- and instructional-planning documents and student-work products are routinely saved in a shared Google drive, open to all faculty. There, staff freely offer one another feedback, material recommendations, and other support, which contributes to the open and collaborative culture.

Leaders with a Learning Stance

In order to create the space and trust for teachers to embrace revision and engage in collaborative efforts, everyone at Bronx Arena (leaders included) maintains a "learning stance." Bronx Arena's co-principals, Ty Cesene and Sam Sherwood, explicitly acknowledge that they are constantly learning and evolving, an attitude that helps teachers feel comfortable critiquing their own work and communicating honestly about where they need to grow. In order to build and maintain teacher buy-in, the school leaders attend vigilantly to three principles:

- **Make teachers' lives easier.** With each request or new initiative, the co-principals think about how it will allow teachers to work more effectively.
- **Let teachers generate solutions.** During planning, design, or feedback conversations, leaders take note when teachers say, "We aren't hitting it…" and create opportunities for them to think through what the school can do to make improvements.
- **Trust, trust, trust.** Bronx Arena's co-principals trust their staff to share their opinions, especially when it comes to instruction, wanting them to feel ownership over the school and the practices that keep it working.

Appendix A:

The Bronx Arena Wheel Framework

The Bronx Arena Wheel Framework

Competencies fit into the framework in three different ways, denoted by different colors in the tables on the following pages:

- **Domain Specific:** competencies that appear only once in the framework, in a single domain
- **Cross-Domain:** competencies that are included in multiple domains within one learning area
- **Inter-Disciplinary:** competencies that are included in different domains across multiple learning areas

DOMAINS		
DOMAIN 1	**DOMAIN 2**	**DOMAIN 3**
Competency 1	Competency 5	Competency 7
Competency 2	Competency 1	Competency 2
Competency 3	Competency 6	Competency 3
Competency 4		

The Bronx Arena Wheel Framework

Learning Area: Literacy

DOMAINS			
Comprehension (surface level)	**Fluency**	**Academic Vocabulary**	**Recognition & Phonics**
Analyze cause-and-effect relationships of events. Determine if something is a cause or a coincidence.	Analyze the impact of specific word choices on meaning and tone, including words with multiple meanings or language.	Define and analyze academic vocabulary and phrases.	Break an idea, problem, work, etc., into its parts and analyze how those parts work together.
Analyze how an author develops ideas, concepts, characters, or literary elements of a story or text.	Differentiate between literal and figurative language.	Differentiate between literal and figurative language.	Identify and correctly use patterns of word changes that indicate different meanings or parts of speech.
Analyze the impact of specific word choices on meaning and tone, including words with multiple meanings or language.	Present ideas in a clear and coherent manner so that others may understand the main points.	Understand how to use multiple definitions of words. Know how to use a reference to look up unknown vocabulary.	Recognize patterns and trends.
Break an idea, problem, work, etc., into its parts and analyze how those parts work together.	Read words accurately, using proper intonation and preserving the author's syntax.	Use a wide variety of vocabulary and phrases in writing, speaking, and reading that are college and career appropriate. (Sound educated without faking it!)	Sound out and pronounce written words.
Define and analyze academic vocabulary and phrases.	Read at an appropriate rate and speed.	Use speech and language strategically in a variety of mediums to present information, concepts, and analysis.	Use common, grade-appropriate context, affixes, and roots as clues to meaning of a word.
Determine important information in a given context.	Understand how to use multiple definitions of words. Know how to use a reference to look up unknown vocabulary.	Use common, grade-appropriate context, affixes, and roots as clues to meaning of a word.	
Develop questions to further explore a particular topic or idea.	Use a wide variety of vocabulary and phrases in writing, speaking, and reading that are college and career appropriate. (Sound educated without faking it!)		
Differentiate between literal and figurative language.	Use correct English conventions and grammar such as spelling, punctuation, and parallel structure.		
Explain and analyze how point of view or culture is expressed.			
Identify, summarize, analyze, and/or explore the theme or idea in a work(s) or subject.			
Recognize patterns and trends.			
Use evidence to develop a valid argument.			

☐ *Domain-Specific*
☐ *Cross-Domain*
☐ *Inter-Disciplinary*

The Bronx Arena Wheel Framework
Learning Area: Thinking

DOMAINS			
Reasoning, Analysis, and Interpretation	**Cyclical & Symbolic Thinking** (*identifying and synthesizing patterns, symbols, and abstract ideas*)	**Problem Solving**	**Creative & Divergent Thinking**
Analyze cause-and-effect relationships of events. Determine if something is a cause or a coincidence.	Break an idea, problem, work, etc., into its parts and analyze how those parts work together.	Analyze cause-and-effect relationships of events. Determine if something is a cause or a coincidence.	Combine and analyze qualitative and quantitative data.
Analyze how an author develops ideas, concepts, characters, or literary elements of a story or text.	Compare and contrast a concept, subject, or experience.	Break an idea, problem, work, etc., into its parts and analyze how those parts work together.	Create connections that aren't explicitly or traditionally made.
Analyze the impact of specific word choices on meaning and tone, including words with multiple meanings or language.	Compare and evaluate multiple points of view on a concept or topic.	Combine and analyze qualitative and quantitative data.	Develop a unique approach that successfully addresses an issue, problem, or challenge.
Break an idea, problem, work, etc., into its parts and analyze how those parts work together.	Demonstrate reflection.	Determine important information in a given context.	Engage in thoughtful and meaningful discussions.
Combine and analyze qualitative and quantitative data.	Evaluate the effect a medium has on a message or idea.	Develop questions to further explore a particular topic or idea.	Evaluate an argument, explanation, or concept and identify the strengths and weaknesses using evidence.
Evaluate an argument, explanation, or concept and identify the strengths and weaknesses using evidence.	Identify common themes and topics within the same period or style.	Evaluate an argument, explanation, or concept and identify the strengths and weaknesses using evidence.	
Explain and analyze how point of view or culture is expressed.	Identify, summarize, analyze, and/or explore the theme or idea in a work(s) or subject.	Follow and/or describe a procedure correctly.	
Identify, summarize, analyze, and/or explore the theme or idea in a work(s) or subject.	Recognize patterns and trends.	Recognize patterns and trends.	
Recognize patterns and trends.	Use images and symbols to express concepts and ideas.	Use evidence to develop a valid argument.	
Use evidence to develop a valid argument.			

☐ *Domain-Specific*
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The Bronx Arena Wheel Framework

Learning Area: Numeracy

DOMAINS					
Statistics & Probability	**Modeling**	**Geometry**	**Algebra**	**Functions**	**Number & Quantity**
Analyze cause-and-effect relationships of events. Determine if something is a cause or a coincidence.	Analyze cause-and-effect relationships of events. Determine if something is a cause or a coincidence.	Analyze cause-and-effect relationships of events. Determine if something is a cause or a coincidence.	Analyze cause-and-effect relationships of events. Determine if something is a cause or a coincidence.	Analyze cause-and-effect relationships of events. Determine if something is a cause or a coincidence.	Attend to accuracy and precision.
Break an idea, problem, work, etc., into its parts and analyze how those parts work together.	Break an idea, problem, work, etc., into its parts and analyze how those parts work together.	Break an idea, problem, work, etc., into its parts and analyze how those parts work together.	Break an idea, problem, work, etc., into its parts and analyze how those parts work together.	Break an idea, problem, work, etc., into its parts and analyze how those parts work together.	Combine and analyze qualitative and quantitative data.
Combine and analyze qualitative and quantitative data.	Choose and use appropriate mathematics and statistics to analyze empirical situations, to understand them better, and to improve decisions.	Compare and contrast a concept, subject, or experience.	Combine and analyze qualitative and quantitative data.	Follow and/or describe a procedure correctly.	Compare and contrast a concept, subject, or experience.
Compare and contrast a concept, subject, or experience.	Combine effectively a sequence of events or evidence to create a narrative.	Follow and/or describe a procedure correctly.	Compare and contrast a concept, subject, or experience.	Recognize patterns and trends.	Follow and/ or describe a procedure correctly.
Compare and evaluate multiple points of view on a concept or topic.	Determine important information in a given context.	Present ideas in a clear and coherent manner so that others may understand the main points.	Follow and/or describe a procedure correctly.	Understand, interpret, analyze, and build functions.	Recognize relationships between number, order, time, space, amounts, etc.
Determine important information in a given context.	Follow and/or describe a procedure correctly.	Recognize patterns and trends.	Recognize patterns and trends.	Use evidence to develop a valid argument.	Understand the number system.
Evaluate an argument, explanation, or concept and identify the strengths and weaknesses using evidence.	Present ideas in a clear and coherent manner so that others may understand the main points.	Understand that the attributes and relationships of geometric objects can be applied in diverse contexts.	Understand, interpret, and write expressions, equations, and inequalities accurately.	Use images and symbols to express concepts and ideas.	
Explain and analyze how point of view or culture is expressed.	Recognize patterns and trends.	Use and cite multiple sources with different perspectives and claims to form an understanding of an idea, answer a question, or solve a problem.	Use evidence to develop a valid argument.		
Follow and/or describe a procedure correctly.	Use evidence to develop a valid argument.	Use evidence to develop a valid argument.			
Recognize patterns and trends.	Use images and symbols to express concepts and ideas.				
Understand tools for describing variability in data and for making informed decisions that take it into account.					
Use and cite multiple sources with different perspectives and claims to form an understanding of an idea, answer a question, or solve a problem.					
Use evidence to develop a valid argument.					

Domain-Specific

Cross-Domain

Inter-Disciplinary

The Bronx Arena Wheel Framework
Learning Area: Expression

DOMAINS				
Voice & Style	**Writing Organization & Structure**	**Oral Presentations**	**Group Discussion**	**Grammar, Mechanics, & Syntax**
Analyze the impact of specific word choices on meaning and tone, including words with multiple meanings or language.	Break an idea, problem, work, etc., into its parts and analyze how those parts work together.	Combine effectively a sequence of events or evidence to create a narrative.	Compare and contrast a concept, subject, or experience.	Break an idea, problem, work, etc., into its parts and analyze how those parts work together.
Develop personal voice as a writer, attending to task and audience.	Combine effectively a sequence of events or evidence to create a narrative.	Determine important information in a given context.	Differentiate between literal and figurative language.	Present ideas in a clear and coherent manner so that others may understand the main points.
Differentiate between literal and figurative language.	Format essays in proper style (MLA and APA).	Present ideas in a clear and coherent manner so that others may understand the main points.	Engage in thoughtful and meaningful discussions.	Recognize patterns and trends.
Recognize patterns and trends.	Present ideas in a clear and coherent manner so that others may understand the main points.	Use a wide variety of vocabulary and phrases in writing, speaking, and reading that are college and career appropriate. (Sound educated without faking it!)	Present ideas in a clear and coherent manner so that others may understand the main points.	Use correct English conventions and grammar such as spelling, punctuation, and parallel structure.
Use speech and language strategically in a variety of mediums to present information, concepts, and analysis.	Use and cite multiple sources with different perspectives and claims to form an understanding of an idea, answer a question, or solve a problem.	Use and cite multiple sources with different perspectives and claims to form an understanding of an idea, answer a question, or solve a problem.	Use a wide variety of vocabulary and phrases in writing, speaking, and reading that are college and career appropriate. (Sound educated without faking it!)	Write a clear, organized, and well-developed essay to inform or explain a topic or concept that includes an engaging introduction and reflective/strong conclusion.
Understand how to use multiple definitions of words. Know how to use a reference to look up unknown vocabulary.	Use evidence to develop a valid argument.	Use correct English conventions and grammar such as spelling, punctuation, and parallel structure.	Use correct English conventions and grammar such as spelling, punctuation, and parallel structure.	Write and revise works to meet a specific purpose.
Use a wide variety of vocabulary and phrases in writing, speaking, and reading that are college and career appropriate. (Sound educated without faking it!)	Use sentence variety in writing to create style in formal and informal writing.	Use evidence to develop a valid argument.	Use speech and language strategically in a variety of mediums to present information, concepts, and analysis.	
Use literary elements (irony, metaphor, images, repetition, etc.) effectively to create a story, argument, or informative essay.	Use speech and language strategically in a variety of mediums to present information, concepts, and analysis.	Use speech and language strategically in a variety of mediums to present information, concepts, and analysis.		
Use sentence variety in writing to create style in formal and informal writing.	Write a clear, organized, and well-developed essay to inform or explain a topic or concept that includes an engaging introduction and reflective/strong conclusion			
Write a clear, organized, and well-developed essay to inform or explain a topic or concept that includes an engaging introduction and reflective/strong conclusion.	Write and revise works to meet a specific purpose.			
Write and revise works to meet a specific purpose.				

- *Domain-Specific*
- *Cross-Domain*
- *Inter-Disciplinary*

The Bronx Arena Wheel Framework
Learning Area: Self & Community

DOMAINS		
Personal Efficacy	**Social/Group Efficacy**	**Global Citizenship**
Analyze cause-and-effect relationships of events. Determine if something is a cause or a coincidence.	Analyze the impact of specific word choices on meaning and tone, including words with multiple meanings or language.	Analyze the impact of specific word choices on meaning and tone, including words with multiple meanings or language.
Attend to accuracy and precision.	Demonstrate self-control when working with others.	Compare and evaluate multiple points of view on a concept or topic.
Break an idea, problem, work, etc., into its parts and analyze how those parts work together.	Determine important information in a given context.	Demonstrate understanding of global issues and other cultures and communities values.
Compare and contrast a concept, subject, or experience.	Differentiate between literal and figurative language.	Engage in thoughtful and meaningful discussions.
Demonstrate reflection.	Engage in thoughtful and meaningful discussions.	Evaluate an argument, explanation, or concept and identify the strengths and weaknesses using evidence.
Demonstrate time-management skills by organizing time and effort effectively.	Evaluate an argument, explanation, or concept and identify the strengths and weaknesses using evidence.	Present ideas in a clear and coherent manner so that others may understand the main points.
Engage in regular physical activity.	Explain and analyze how point of view or culture is expressed.	Use speech and language strategically in a variety of mediums to present information, concepts, and analysis.
Engage in thoughtful and meaningful discussions.	Present ideas in a clear and coherent manner so that others may understand the main points.	
Know personal strengths, be aware of and use available supports, and self-advocate.	Use evidence to develop a valid argument.	
Persist through task completion despite setbacks.	Use speech and language strategically in a variety of mediums to present information, concepts, and analysis.	
Recognize patterns and trends.		
Set and strive for appropriate goals.		

☐ *Domain-Specific*
☐ *Cross-Domain*
☐ *Inter-Disciplinary*

Appendix B:

The Challenge Template — Blank

Challenge Template

CHALLENGE NAME:_____

Summary of Challenge:

_____

_____

_____

_____

_____

_____

Essential Questions	Required Understandings	Relevance to Life and Learning

OPPORTUNITIES FOR STUDENT CHOICE

Challenge Template

COMPETENCIES		
Domain	**Competency(ies)**	**Product/Output**

CHALLENGE NAME: _____

RESOURCES NEEDED
On-site people/facilities (people or places at school):
Equipment and materials: Game pieces and materials
Community resources/places (i.e., for field trips, etc.):

STUDENT DIRECTIONS FOR CHALLENGE PROJECT

ACTION PLAN *(List the specific steps, including all research topics that students should work through to complete this challenge. Add more rows if necessary.)*
✓
✓
✓
✓
✓
✓

Appendix C:

Facilitation Plan Template — Blank

Facilitation Plan

Week: _____ **Teacher:** _____

Whole/Small-Group Instruction			
Session			
Day and Time			
Location (push-in/pull-out)			
Target Students			
Focus Competency			
Learning Target			
Assessment/ Check for Understanding			

Developed by Bronx Arena High School in collaboration with reDesign, Eskolta School Research and Design, and NYCDOE Office of Postsecondary Readiness

Facilitation Plan

Week: _____ **Teacher:** _____

Individual Instruction					
Room & Time	**Student Name & Instructional Mode**	**Competency/ Learning Strategy Focus**	**Learning Target(s)**	**Check for Understanding / Follow-up Steps**	**Notes**

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