Pedagogy and Methodology

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Executive Summary

FLIGHT is a program for students that have demonstrated an academic mindset and whose curiosity, motivation and talent lead them to seek a challenging, enriching, and supportive learning environment.

FLIGHT is aligned with BC Ministry of Education competency-driven and concept-based curriculum, and prepares students for post-secondary education and workplace success.

Students follow the same BC curriculum as other students, but the path they take is different. Using a cross-curricular inquiry focused approach, FLIGHT students ask questions, research answers, and present learning in new and creative ways.

FLIGHT is inquiry and project-based learning mediated by 1:1 technology.

For FLIGHT students, school isn't rehearsal for real life — it is real life. Project-based learning (PBL) emphasizes learning as a process, allowing students to develop the skills necessary to become thoughtful, engaged citizens. PBL provides a focus for instruction to move beyond textbooks and worksheets, and creates opportunities for students to connect with their interests and passions.

Student use of a personal iPad device allows learning tasks to be redefined. Technology is embedded meaningfully and authentically throughout FLIGHT, redefining learning in previously inconceivable ways.

FLIGHT is learning beyond the school.

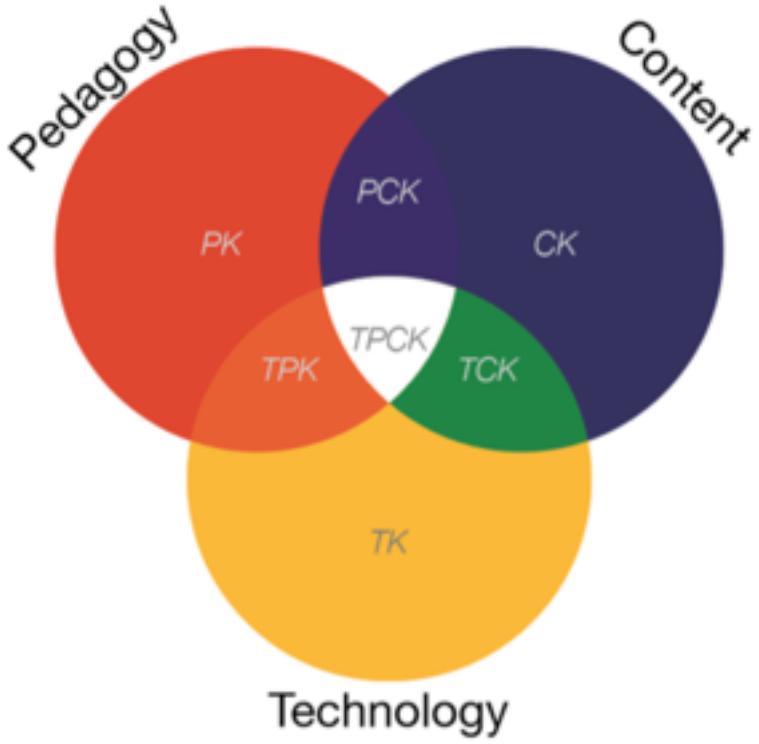
Students live in the real world — FLIGHT students learn there too.

Engaging with the real world means leaving the classroom on frequent day and overnight trips. These field learning experiences are tightly integrated with student inquiry and learning objectives and provide experiences for students that would otherwise be unavailable to them.

Pedagogy

FLIGHT instruction is shaped by three foundational forces: content (BC Ministry of Education Prescribed Learning Outcomes), pedagogy (project-based learning), and technology (iPad integration following the SAMR model).

This document attempts to summarize the FLIGHT team's common intellectual mission of creating engaging learning opportunities that exist at the intersection of these three forces.



The FLIGHT instructional approach is influenced by the TPACK Framework developed by Punya Mishra and Matthew J. Koehler. For more information visit http://tpack.org

Project-Based Learning

Project-based learning (PBL) uses projects as a focus for inquiry-based learning. It is the learning process that is evaluated—not the project as an end product.

Powerful PBL fosters significant learning. PBL connects students to the 'adult world' and authentic reasons for learning.

PBL requires students to be active participants in their learning and develop important skills such as creativity, critical thinking, collaboration, and communication.

Project-Oriented vs. Project-Based

While projects are a staple in many classrooms, there are important differences between "project-oriented learning" and "project-based learning". This chart describes the attributes that differentiate these easily confused terms.

Project-Oriented Learning	Project-Based Learning (PBL)
Teacher directed	Inquiry based
Highly prescriptive	Open-ended
Summative	On-going
Thematic	Driving question
Answer giving	Problem solving
School world (de-contextualized)	Real world (contextualized)
Teacher as audience	World as audience

FLIGHT teachers strive to incorporate the "Six A's" in PBL units they design: academic rigour, authenticity, applied learning, active exploration, adult-world connections, and assessment practices. Together they constitute a powerful list of features that are present in high-quality PBL classroom projects. For a detailed description of the Six A's, please see the appendix.

Seven Essential Elements of PBL

The following components are considered essential elements of PBL. Together they form the framework for our instructional design and unit planning.

1. Establish a Need to Know

Stage an “entry event” that generates student interest and curiosity. Students see the need to gain knowledge, understand concepts, and apply skills in order to answer the driving question and create project products. This could take the form of a video, a lively discussion, a guest speaker, field trip, or a compelling scenario.

2. Driving Question

Project work is focused by an open-ended question that students explore or that captures the task they are completing. At its core, the project is focused on teaching students important knowledge and skills, derived from standards and key concepts at the heart of academic subjects.

3. Inquiry and Innovation

Students are engaged in a rigorous, extended process of asking questions, using resources, and developing answers. Students find answers through the teacher, books, articles, websites, and experts. The gathered information is evaluated and organized, then used to create a product.

4. Develop 21st Century Skills

Tasks should be authentic, and require students to utilize collaboration, communication, creative, and critical thinking skills, as well as the meaningful use of technology.

5. Student Voice and Choice

Students are allowed to make some choices about the products to be created, how they work, and how they use their time, guided by the teacher and depending on age level and PBL experience. Allowing students to have a voice and choice makes projects more personal and meaningful.

6. Revision and Reflection

Peer and teacher critique throughout the learning process emphasizes the importance of creating a high-quality product. Rubrics, exemplars, peer-editing, and adult experts provide ongoing feedback and notes for revision. Students use feedback to consider additions and changes that lead to high-quality products, and as a prompt to think about what and how they are learning.

7. Present Product Publicly

Products of the culminating project are presented to an audience beyond their classmates and teacher. Either through inclusion as part of their online learning portfolio or by exhibition at a Presentation of Learning, students are motivated to create high-quality products for a public audience.

Core Competencies

In addition to a thorough understanding of provincial curriculum, FLIGHT students focus on and develop a set of core competencies that are often described as 21st century skills. These skills include critical thinking, creativity and innovation, collaboration, presentation, and writing.

FLIGHT uses criteria-referenced rubrics to describe what each of these skills look like in the context of project-based learning. These rubrics are included in the appendix.

Practicing and demonstrating mastery of these skills are components of all FLIGHT PBL projects.

Framework for Instructional Design

Planning a PBL project begins by asking a series of essential questions:

- What instructional objectives do I want to transform?
- What engaging, relevant, real-world problem could students attempt to solve that is related to the concepts and skills in the unit?
- What authentic roles can students take on to try solving this problem?
- How might students be asked to work collaboratively to try solving this problem?
- How can the learning be connected to the adult world beyond the classroom? What field learning opportunities would enhance the learning objectives?

Answers to these questions shape and inform instructional design. FLIGHT projects are conceived and designed with these elements in mind.

To guide the planning of a FLIGHT project, the FLIGHT team has developed the Big Idea Planner. This document summarizes the instructional content, learning objectives, and project strategies that will be undertaken by students within one guiding inquiry question.

The Big Idea Planner (T1) is included in the appendix.

Once a big idea framework has been constructed, individual projects are designed, each with their own driving question. These projects provide multiple entry points for students to dive deep and guide their own inquiry of the big idea.

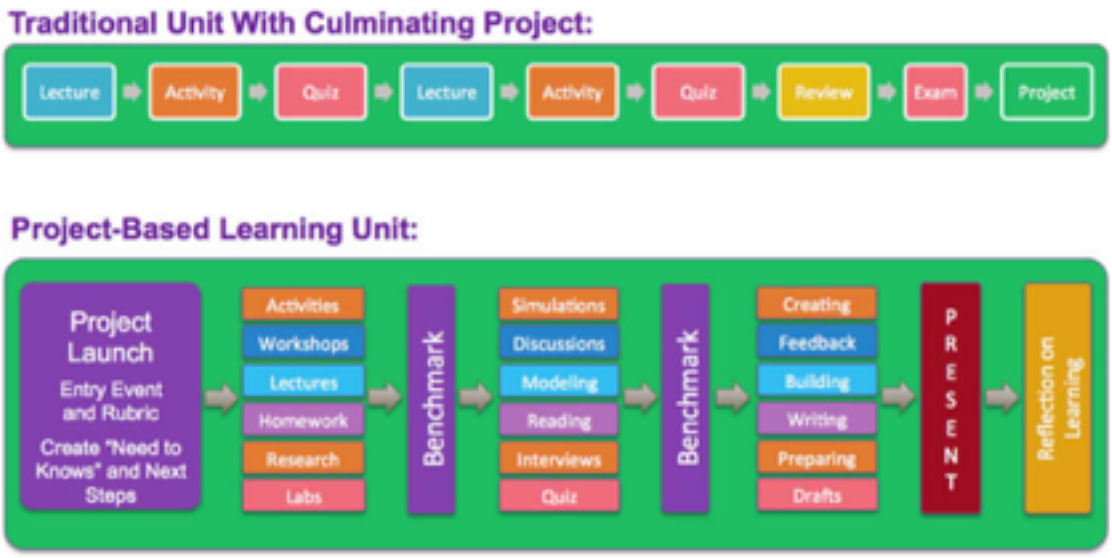
FLIGHT projects are mapped out using the Project Planner (T2). This template is a helpful guide to shape a project containing the essential elements of PBL.

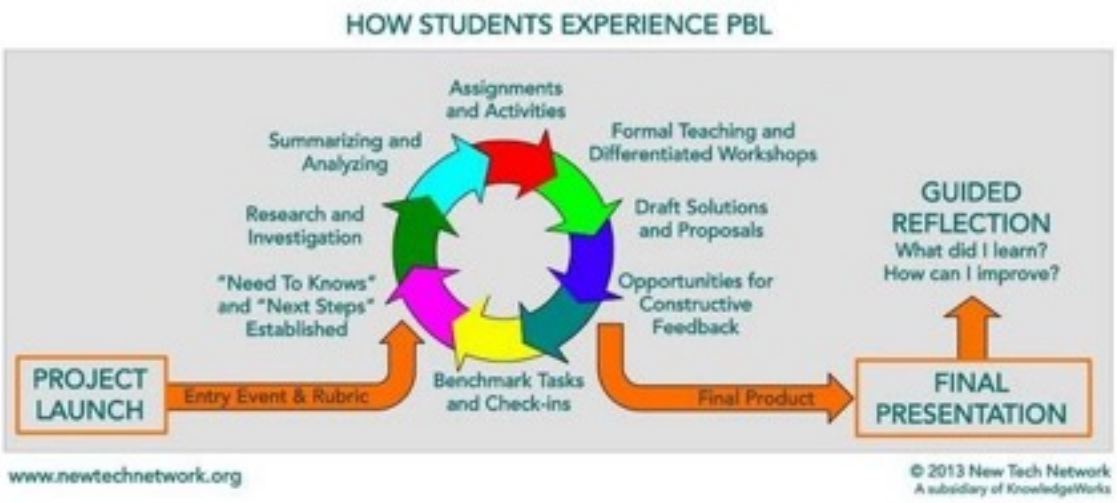
The Project Planner (T2) is included in the appendix.

Phases of PBL Instruction

PBL shifts the focus of instruction from teacher-driven to student-centred. Classroom activities could sometimes resemble traditional teaching strategies (such as direct instruction, teacher lecture, or conventional quizzes and tests), but PBL moves the learning paradigm to that of a process, not an end result.

A seven phase framework for the successful execution of a PBL unit is included in the appendix.





Inquiry

Inquiry is a process where students formulate questions, investigate to find answers, build new understandings, meanings and knowledge, and then communicate their learnings to others. Inquiry is the underpinning of FLIGHT's pedagogical approach.

In classrooms where teachers emphasize inquiry-based learning, students are actively involved in solving authentic real-world problems within the context of the curriculum and/or community. Through active inquiry, powerful learning experiences engage students deeply.

Focused Inquiry provides opportunities for students to:

- develop skills they will need all their lives
- learn to cope with problems that may not have clear solutions
- deal with changes and challenges to understandings
- shape their search for solutions, now and in the future.

A systematic approach to the development of these skills is essential to prepare students for problem solving and lifelong learning. A systematic approach ensures that students have the opportunity to engage in inquiry, to learn an overall process, and to understand that this general inquiry process can be transferred to other inquiry situations.

Inquiry-based learning helps students become more creative, more positive and more independent.

FLIGHT introduces three types of inquiry throughout the year.

Structured Inquiry: Students are given the question and the method for investigation.

Guided Inquiry: Students are given the question and must determine how to investigate.

Open Inquiry: Students propose and pursue their own questions..

Regardless of the form, inquiry encourages students to develop their own answers to the questions posed.

A guide to developing inquiry questions and the Inquiry Star, one possible model of the inquiry process, is detailed in the appendix.

Methodology

Philosophy of Assessment

FLIGHT is a project-based learning program, and as such, assessment is centred around the process of learning — not a final product or test score. The program sets a high standard for student achievement, and expects students to show evidence of having gained competency and core knowledge to an appropriate degree for their age and experience.

Emphasis is placed on formative forms of assessment that provide constant feedback to the student and parents on student progress and performance. Students do not receive traditional marks for completed work, but instead are measured against criteria-referenced performance standards in our core competency areas: critical thinking, creativity and innovation, collaboration, presentation, and writing.

Student achievement is communicated to parents on an ongoing basis via the online portfolio tool FreshGrade. Parents are encouraged to log in often to view evidence of their student's learning and progress.

Twice yearly student-led conferences provide students an opportunity to lead parents through a discussion of their work and established academic and social goals. The process includes the teacher as a facilitator in the conference process. The student directs the conversation focused on their work and classroom behaviour. For a discussion of student work to be relevant, accurate and complete, students need to be meaningfully engaged in the process. Having students lead a conference with parents is a way to maximize their involvement. The involvement of students in the conferencing process promotes three elements essential to improving student performance in school: relevance (why we are teaching what we are teaching to students), responsibility (making the student more responsible for learning), and reporting (to parents how students are progressing in learning).

Process of Assessment

Student work is evaluated at three phases: attempt and completion, growth of skill, and mastery.

Attempt and completion: The base requirement from all students is making a good faith effort to attempt and complete all assigned coursework and projects. Students who do not complete required coursework and projects are at risk of failing the core courses that comprise FLIGHT.

Growth of skill: Students demonstrate their developing understanding by receiving peer and teacher feedback on assignments, writing drafts, annotations, etc. Students have the opportunity to revise their work and resubmit.

Mastery: Students demonstrate their mastery of a subject in both traditional summative assessment formats (unit exams, essays, etc.) and through presentations of learning to public audiences.

Culture of Critique

Critique is a key component of the project-based learning culture in FLIGHT that is used to help students create beautiful work. An essential piece of learning, critique is not only from the teacher to the student, but also self-directed and peer-directed. Teachers encourage students to give each other kind, helpful, and specific feedback as they refine their work.

Students conduct critiques on drafts of writing, early iterations of project proposals, assignments, and more. Critique is used as a way of helping students articulate standards of quality for their work.

Critique is on-going throughout all work in FLIGHT and follows these guidelines:

Be Kind: Celebrate what is great about the work.

Be Helpful: Suggest what could be made stronger..

Be Specific: Specify next steps to make the work even better.

It is expected that after critique, students are able to articulate a blueprint for moving forward on their own work that addresses areas raised by the critique.

Revision

The driving focus of FLIGHT is deeper learning. Students are encouraged to revise their work based on self, peer and teacher critique. Multiple drafts are components of FLIGHT instructional design. During the growth of skill phase of instruction, students always have the opportunity to best demonstrate their learning by resubmitting revised work for reevaluation.

Students that receive “Approaching Standard” performance feedback are encouraged to revise and resubmit their work.

Students that receive “Below Standard” performance feedback are required to revise and resubmit their work.

Grading

Grades communicated to students take the form of feedback on how they have performed as compared to the standard expected. Performance “At Standard” represents conscientious completion of work at an academically rigorous level.

Performance is assessed using the following standard levels:

Below Standard (BES): Students have not yet shown evidence of the competency being assessed.

Approaching Standard (APS): Students show some evidence of gaining the competency, but still have gaps and/or deficiencies.

At Standard (ATS): Students show evidence of having gained the competency to an appropriate degree for their age and experience.

Above Standard (ABS): Students goes above and beyond what is expected to demonstrate competency.

Reporting Period Grades

Percentages for report card reporting periods will be arrived at via student self-assessment and teacher/student conference based on the following:

Above Standard	91% - 100%
At Standard	76% - 90%
Approaching Standard	61% - 75%
Below Standard	50% - 60%
Incomplete	0% - 49%

Philosophy of Technology

FLIGHT is a learning environment that supports learner strengths, differentiated to meet academic needs, and structured in a way to encourage and value students' creative passions. The FLIGHT team strives to provide this within real world, meaningful contexts to develop the varied skills of our students. Using embedded technology in an authentic and meaningful way is essential in to achieve these goals.

Put simply, effective use of the iPad in the classroom allows us to redefine learning in previously inconceivable ways.

Today, communication can happen in an instant with people in any part of the world. Students have access to an almost incomprehensible amount of information that is freely available on any topic at any time. Because of this, the nature of education needs to change. Literacy and numeracy are still at the core, however, school is no longer about memorizing content as much as it is about learning the skills and habits of mind that will allow a student to be a successful life-long learner.

In this environment, technology skills are essential. FLIGHT students do not have to wait for scheduled 'computer time' on shared devices. Instead, with a personal device, students have just-in-time access to a powerful tool that allows them to drive and document their learning in a way they never could before.

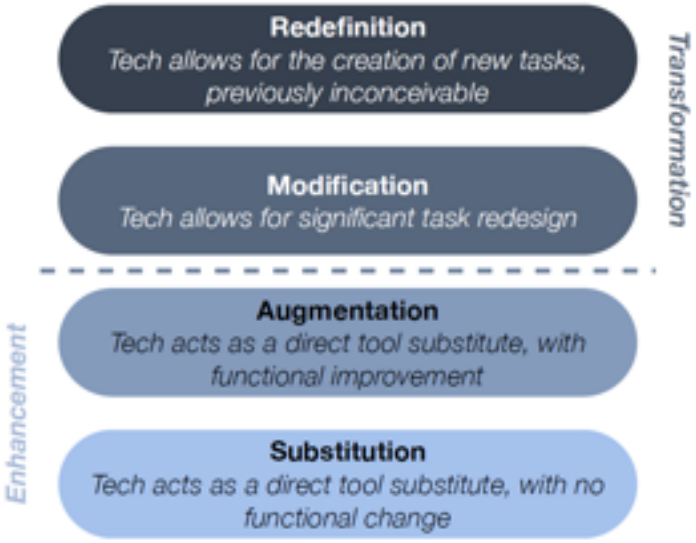
FLIGHT is not about students 'staring at a screen' all day. Digital resources allow FLIGHT teachers to differentiate curriculum to meet a student's specific needs in a way that simply wasn't possible before. Students use technology appropriately, as a tool for learning.

The SAMR Model

The SAMR model offers a blueprint for scaffolding technology into teaching and learning. Using the SAMR model, the FLIGHT team deploys technology in the classroom in a meaningful and purposeful way.

Developed by Dr. Ruben Puentedura, the model aims to enable teachers to design, develop, and integrate technology in ways that can move beyond enhancement of traditional learning tasks, and instead, technology can be used to transform learning tasks altogether, leading to higher levels of student achievement.

The FLIGHT team uses the SAMR framework to assess and evaluate the technology used in the classroom.



FLIGHT Technology Toolkit

The FLIGHT team has chosen a set of technology tools that support and advance the program's learning objectives. The following is a summary of the core tools that students use across the program.

Apple iPad

iPad was selected as the common technology platform for all FLIGHT students after careful consideration of the learning requirements demanded by the program.

iTunes U

iTunes U provides a flexible learning environment that allows teachers to create courses for each project. Replacing textbooks and handouts, iTunes U provides a customized learning experience.

Showbie

Showbie is an easy way for students and teachers to collect and review work on the iPad. Student work is collected and returned with teacher annotations (voice and/or text notes). Students can revise their work and resubmit.

FreshGrade

FreshGrade allows students and teachers to capture learning as it happens and automatically transform student work into a digital portfolio. Self-reflection and teacher critique in FreshGrade form the basis of assessment and student evaluation.

WordPress

All FLIGHT students have their own website on the school district's Blog 44 WordPress server. This space will be used to curate a public display of their best work in the form of a digital learning showcase.

Learning Beyond the School

Students live in the real world. FLIGHT students learn there too.

Students make stronger cognitive connections when learning is experiential, and rooted in a context that extends beyond school. FLIGHT offers travel opportunities that are unique and tightly integrated with student inquiry and learning objectives. Our goal is to provide a learning experience that would not otherwise be available to students on other trips.

FLIGHT's unique timetable makes frequent day trips from the school possible. Interruptions and absences from other classes are limited and teacher replacement costs are minimized.

Overnight trips allow the learning to go deeper. FLIGHT field learning trips provide opportunities for students to make unique real-world connections, allowing students to connect classroom learning in relevant and meaningful ways with the world around them. Travel sparks curiosity and can drive a lifelong intellectual inquiry.

Making Connections

By virtue of being out of the school setting, students on overnight international field trips learn to be ambassadors for their school, their community and even their country. They learn the realities of travel, the responsibilities and independence of self-governance, the communication skills and leadership skills necessary for teamwork, and the social skills necessary for a variety of circumstances.

FLIGHT field learning trips are different because:

Deep integration with learning objectives: Travel is designed to not only compliment and extend classroom learning, but as an essential component of the inquiry process.

Woven into instructional design: Travel opportunities are conceived at the same time curriculum learning goals are mapped out for the year ahead.

Unique experiences and adult-world connections: FLIGHT trips strive to offer one-of-a-kind access to locations and experts that wouldn't otherwise be available to students travelling with their families.

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Six A's of Powerful Projects

The Six A's constitute a powerful list of features that are present in high-quality classroom projects. FLIGHT teachers use these six factors as a quality check during the project design process.

Academic Rigour

The project addresses key learning standards from the curriculum and helps students develop habits of mind and work associated with academic and professional disciplines. Projects that feature academic rigor challenge students to fully engage their minds by mastering content standards and using professional-level thinking skills.

Authenticity

The project uses a real world context (e.g. community and workplace problems) and addresses issues that matter to the students. Projects designed with authenticity infuse student work with purpose and passion by connecting project work to real-world issues that students care about.

Applied Learning

The project engages students in solving problems that call on skills expected in high-performance work organizations (e.g. teamwork, problem-solving, communication). Projects that integrate applied learning push students to use their learning right away and to practice important skills demanded by the workplace.

Active Exploration

The project extends beyond the classroom and connects to community and work explorations. Projects with active exploration engage the bodies and minds of students through hands-on, field-based work.

Adult-World Connections

The project connects students with adult mentors and coaches from the wider community. Projects that incorporate adult-world connections support and inspire students through the meaningful involvement of adults beyond the classroom.

Assessment Practices

The project involves students in exhibitions and assessments of their work in light of personal, school, and real-world standards of performance. Projects with quality assessment practices provide opportunities for students to receive relevant feedback during and after their project work.

Core Competencies Rubrics

FLIGHT uses criteria-referenced rubrics to describe what good critical thinking, creativity and innovation, collaboration, presentation, and writing look like in the context of project-based learning.

The purpose of these rubrics is to help students reflect on their work and understand more clearly what they need to do to improve.

Critical Thinking Rubric: This rubric helps teachers guide students in being effective critical thinkers in various phases of a project, and is used to assess their performance at the conclusion.

Creativity & Innovation Rubric: The first part of this rubric helps teachers guide students in using an effective process for innovation in various phases of a project, and is used to assess their performance. The second part of the rubric is used to assess the degree of creativity shown in the products students create in a project.

Collaboration Rubric: This rubric helps teachers guide students in being effective collaborators in a project, and is used to assess their performance.

Presentation: This rubric helps teachers guide students in making effective presentations in a project, and is used to assess their performance.

Writing: This rubric helps teachers guide students to be effective communicators using the written word, and is used to assess their performance.

FLIGHT

C R I T I C A L T H I N K I N G R U B R I C

Critical Thinking Opportunity at Phases of a Project	**Below Standard**	**Approaching Standard**	**At Standard**	**Above Standard** ✓
Connect and Wonder **Analyze Driving Question and Begin Inquiry**	• sees only superficial aspects of, or one point of view on, the Driving Question	• identifies some central aspects of the Driving Question, but may not see complexities or consider various points of view • asks some follow-up questions about the topic or the wants and needs of the audience or users of a product, but does not dig deep	• shows understanding of central aspects of the Driving Question by identifying in detail what needs to be known to answer it and considering various possible points of view on it • asks follow-up questions that focus or broaden inquiry, as appropriate • asks follow-up questions to gain understanding of the wants and needs of audience or product users	
Investigate **Gather and Evaluate Information**	• is unable to integrate information to address the Driving Question; gathers too little, too much, or irrelevant information, or from too few sources • accepts information at face value (does not evaluate its quality)	• attempts to integrate information to address the Driving Question, but it may be too little, too much, or gathered from too few sources; some of it may not be relevant • understands that the quality of information should be considered, but does not do so thoroughly	• integrates relevant and sufficient information to address the Driving Question, gathered from multiple and varied sources • thoroughly assesses the quality of information (considers usefulness, accuracy and credibility; distinguishes fact vs. opinion; recognizes bias)	
Construct **Use Evidence and Criteria**	• accepts arguments for possible answers to the Driving Question without questioning whether reasoning is valid • uses evidence without considering how strong it is • relies on "gut feeling" to evaluate and revise ideas, product prototypes or problem solutions (does not use criteria)	• recognizes the need for valid reasoning and strong evidence, but does not evaluate it carefully when developing answers to the Driving Question • evaluates and revises ideas, product prototypes or problem solutions based on incomplete or invalid criteria	• evaluates arguments for possible answers to the Driving Question by assessing whether reasoning is valid and evidence is relevant and sufficient • justifies choice of criteria used to evaluate ideas, product prototypes or problem solutions • revises inadequate drafts, designs or solutions and explains why they will better meet evaluation criteria	
Debug **Justify Choices, Consider Alternatives & Implications**	• chooses one presentation medium without considering advantages and disadvantages of using other mediums to present a particular topic or idea • cannot give valid reasons or supporting evidence to defend choices made when answering the Driving Question or creating products • does not consider alternative answers to the Driving Question, designs for products, or points of view • is not able to explain important new understanding gained in the project	• considers the advantages and disadvantages of using different mediums to present a particular topic or idea, but not thoroughly • explains choices made when answering the Driving Question or creating products, but some reasons are not valid or lack supporting evidence • understands that there may be alternative answers to the Driving Question or designs for products, but does not consider them carefully • can explain some things learned in the project, but is not entirely clear about new understanding	• evaluates the advantages and disadvantages of using different mediums to present a particular topic or idea • justifies choices made when answering the Driving Question or creating products, by giving valid reasons with supporting evidence • recognizes the limitations of an answer to the Driving Question or a product design (how it might not be complete, certain, or perfect) and considers alternative perspectives • can clearly explain new understanding gained in the project and how it might transfer to other situations or contexts	

FLIGHT

CREATIVITY AND INNOVATION RUBRIC

PROCESS

Creativity & Innovation Opportunity at Phases of a Project	Below Standard	Approaching Standard	At Standard	Above Standard ✓
Connect and Wonder **Define the Creative Challenge**	• may just "follow directions" without understanding the purpose for innovation or considering the needs and interests of the target audience	• understands the basic purpose for innovation but does not thoroughly consider the needs and interests of the target audience	• understands the purpose driving the process of innovation (Who needs this? Why?) • develops insight about the particular needs and interests of the target audience	
Investigate **Building Knowledge, Understanding, and Skills**	• uses only typical sources of information (website, book, article) • does not offer new ideas during discussions	• finds one or two sources of information that are not typical • offers new ideas during discussions, but stays within narrow perspectives	• in addition to typical sources, finds unusual ways or places to get information (adult expert, community member, business or organization, literature) • promotes divergent and creative perspectives during discussions	
Construct and Debug **Generate, Develop, and Select Ideas**	• stays within existing frameworks; does not use idea-generating techniques to develop new ideas for product(s) • selects one idea without evaluating the quality of ideas • does not ask new questions or elaborate on the selected idea • reproduces existing ideas; does not imagine new ones • does not consider or use feedback and critique to revise product	• develops some original ideas for product(s), but could develop more with better use of idea-generating techniques • evaluates ideas, but not thoroughly before selecting one • asks a few new questions but may make only minor changes to the selected idea • shows some imagination when shaping ideas into a product, but may stay within conventional boundaries • considers and may use some feedback and critique to revise a product, but does not seek it out	• uses idea-generating techniques to develop several original ideas for product(s) • carefully evaluates the quality of ideas and selects the best one to shape into a product • asks new questions, takes different perspectives to elaborate and improve on the selected idea • uses ingenuity and imagination, going outside conventional boundaries, when shaping ideas into a product • seeks out and uses feedback and critique to revise product to better meet the needs of the intended audience	

Publish **Present Work to Users/Target Audience**	• presents ideas and products in typical ways (text-heavy PowerPoint slides, recitation of notes, no interactive features)	• adds some interesting touches to presentation media • attempts to include elements in presentation that make it more lively and engaging	• creates visually exciting presentation media • includes elements in presentation that are especially fun, lively, engaging, or powerful to the particular audience	
PRODUCT				
	Below Standard	**Approaching Standard**	**At Standard**	**Above Standard** ✓
Originality	• relies on existing models, ideas, or directions; it is not new or unique • follows rules and conventions; uses materials and ideas in typical ways	• has some new ideas or improvements, but some ideas are predictable or conventional • may show a tentative attempt to step outside rules and conventions, or find new uses for common materials or ideas	• is new, unique, surprising; shows a personal touch • may successfully break rules and conventions, or use common materials or ideas in new, clever and surprising ways	
Value	• is not useful or valuable to the intended audience/user • would not work in the real world; impractical or unfeasible	• is useful and valuable to some extent; it may not solve certain aspects of the defined problem or exactly meet the identified need • unclear if product would be practical or feasible	• is seen as useful and valuable; it solves the defined problem or meets the identified need • is practical, feasible	
Style	• is safe, ordinary, made in a conventional style • has several elements that do not fit together; it is a mish-mash	• has some interesting touches, but lacks a distinct style • has some elements that may be excessive or do not fit together well	• is well-crafted, striking, designed with a distinct style but still appropriate for the purpose • combines different elements into a coherent whole	

Note: The term "product" is used in this rubric as an umbrella term for the result of the process of innovation during a project. A product may be a constructed object, proposal, presentation, solution to a problem, service, system, work of art or piece of writing, an invention, event, an improvement to an existing product, etc.

FLIGHT

COLLABORATION RUBRIC

Individual Performance	**Below Standard**	**Approaching Standard**	**At Standard**	**Above Standard ✓**
Takes Responsibility for Oneself	• is not prepared, informed, and ready to work with the team • does not use technology tools as agreed upon by the team to communicate and manage project tasks • does not do project tasks • does not complete tasks on time • does not use feedback from others to improve work	• is usually prepared, informed, and ready to work with the team • uses technology tools as agreed upon by the team to communicate and manage project tasks, but not consistently • does some project tasks, but needs to be reminded • completes most tasks on time • sometimes uses feedback from others to improve work	• is prepared and ready to work; is well informed on the project topic and cites evidence to probe and reflect on ideas with the team • consistently uses technology tools as agreed upon by the team to communicate and manage project tasks • does tasks without having to be reminded • completes tasks on time • uses feedback from others to improve work	
Helps the Team	• does not help the team solve problems; may cause problems • does not ask probing questions, express ideas, or elaborate in response to questions in discussions • does not give useful feedback to others • does not offer to help others if they need it	• cooperates with the team but may not actively help it solve problems • sometimes expresses ideas clearly, asks probing questions, and elaborates in response to questions in discussions • gives feedback to others, but it may not always be useful • sometimes offers to help others if they need it	• helps the team solve problems and manage conflicts • makes discussions effective by clearly expressing ideas, asking probing questions, making sure everyone is heard, responding thoughtfully to new information and perspectives • gives useful feedback (specific, feasible, supportive) to others so they can improve their work • offers to help others do their work if needed	
Respects Others	• is impolite or unkind to teammates (may interrupt, ignore ideas, hurt feelings) • does not acknowledge or respect other perspectives	• is usually polite and kind to teammates • usually acknowledges and respects other perspectives and disagrees diplomatically	• is polite and kind to teammates • acknowledges and respects other perspectives; disagrees diplomatically	

Team Performance	**Below Standard**	**Approaching Standard**	**At Standard**	**Above Standard ✓**
Makes and Follows Agreements	• does not discuss how the team will work together • does not follow rules for collegial discussions, decision-making and conflict resolution • does not discuss how well agreements are being followed • allows breakdowns in team work to happen; needs teacher to intervene	• discusses how the team will work together, but not in detail; may just "go through the motions" when creating an agreement • usually follows rules for collegial discussions, decision-making, and conflict resolution • discusses how well agreements are being followed, but not in depth; may ignore subtle issues • notices when norms are not being followed but asks the teacher for help to resolve issues	• makes detailed agreements about how the team will work together, including the use of technology tools • follows rules for collegial discussions, decision-making, and conflict resolution • honestly and accurately discusses how well agreements are being followed • takes appropriate action when norms are not being followed; attempts to resolve issues without asking the teacher for help	
Organizes Work	• does project work without creating a task list • does not set a schedule and track progress toward goals and deadlines • does not assign roles or share leadership; one person may do too much, or all members may do random tasks • wastes time and does not run meetings well; materials, drafts, notes are not organized (may be misplaced or inaccessible)	• creates a task list that divides project work among the team, but it may not be in detail or followed closely • sets a schedule for doing tasks but does not follow it closely • assigns roles but does not follow them, or selects only one "leader" who makes most decisions • usually uses time and runs meetings well, but may occasionally waste time; keeps materials, drafts, notes, but not always organized	• creates a detailed task list that divides project work reasonably among the team • sets a schedule and tracks progress toward goals and deadlines • assigns roles if and as needed, based on team members' strengths • uses time and runs meetings efficiently; keeps materials, drafts, notes organized	
Works as a Whole Team	• does not recognize or use special talents of team members • does project tasks separately and does not put them together; it is a collection of individual work	• makes some attempt to use special talents of team members • does most project tasks separately and puts them together at the end	• recognizes and uses special talents of each team member • develops ideas and creates products with involvement of all team members; tasks done separately are brought to the team for critique and revision	

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PRESENTATION RUBRIC

Individual Performance	**Below Standard**	**Approaching Standard**	**At Standard**	**Above Standard ✔**
Explanation of Ideas & Information	• does not present information, arguments, ideas, or findings clearly, concisely, and logically; argument lacks supporting evidence; audience cannot follow the line of reasoning • selects information, develops ideas and uses a style inappropriate to the purpose, task, and audience (may be too much or too little information, or the wrong approach)	• presents information, findings, arguments and supporting evidence in a way that is not always clear, concise, and logical; line of reasoning is sometimes hard to follow • attempts to select information, develop ideas and use a style appropriate to the purpose, task, and audience but does not fully succeed	• presents information, findings, arguments and supporting evidence clearly, concisely, and logically; audience can easily follow the line of reasoning • selects information, develops ideas and uses a style appropriate to the purpose, task, and audience	
Organization	• does not meet requirements for what should be included in the presentation • does not have an introduction and/or conclusion • does not have a main idea or presents ideas in an order that does not make sense • uses time poorly; the whole presentation, or a part of it, is too short or too long	• meets most requirements for what should be included in the presentation • has an introduction and conclusion, but they are not clear or interesting • moves from one idea to the next, but main idea may not be clear or some ideas may be in the wrong order • generally times presentation well, but may spend too much or too little time on a topic, a/v aid, or idea	• meets all requirements for what should be included in the presentation • has a clear and interesting introduction and conclusion • states main idea and moves from one idea to the next in a logical order, emphasizing main points in a focused, coherent manner • organizes time well; no part of the presentation is too short or too long	
Eyes & Body	• does not look at audience; reads notes or slides • does not use gestures or movements • lacks poise and confidence (fidgets, slouches, appears nervous) • wears clothing inappropriate for the occasion	• makes infrequent eye contact; reads notes or slides most of the time • uses a few gestures or movements but they do not look natural • shows some poise and confidence, (only a little fidgeting or nervous movement) • makes some attempt to wear clothing appropriate for the occasion	• keeps eye contact with audience most of the time; only glances at notes or slides • uses natural gestures and movements • looks poised and confident • wears clothing appropriate for the occasion	

	Below Standard	Approaching Standard	At Standard	Above Standard ✔
Voice	• mumbles or speaks too quickly or slowly • speaks too softly to be understood • frequently uses "filler" words ("uh, um, so, and, like, etc.") • does not adapt speech for the context and task	• speaks clearly most of the time • speaks loudly enough for the audience to hear most of the time, but may speak in a monotone • occasionally uses filler words • attempts to adapt speech for the context and task but is unsuccessful or inconsistent	• speaks clearly; not too quickly or slowly • speaks loudly enough for everyone to hear; changes tone and pace to maintain interest • rarely uses filler words • adapts speech for the context and task, demonstrating command of formal English when appropriate	
Presentation Aids	• does not use audio/visual aids or media • attempts to use one or a few audio/visual aids or media, but they do not add to or may distract from the presentation	• uses audio/visual aids or media, but they may sometimes distract from or not add to the presentation • sometimes has trouble bringing audio/visual aids or media smoothly into the presentation	• uses well-produced audio/visual aids or media to enhance understanding of findings, reasoning, and evidence, and to add interest • smoothly brings audio/visual aids or media into the presentation	
Response to Audience Questions	• does not address audience questions (goes off topic or misunderstands without seeking clarification)	• answers audience questions, but not always clearly or completely	• answers audience questions clearly and completely • seeks clarification, admits "I don't know" or explains how the answer might be found when unable to answer a question	
Participation in Team Presentations	• Not all team members participate; only one or two speak	• All team members participate, but not equally	• All team members participate for about the same length of time • All team members are able to answer questions about the topic as a whole, not just their part of it	

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WRITING RUBRIC

	Below Standard	Approaching Standard	At Standard	Above Standard ✔
Meaning	• unfocused; may omit thesis • little understanding of topic • inadequate material • details, examples and quotes are not clearly linked to topic	• clear topic; thesis may be unfocused • basic understanding; tends to summarize • relies on general knowledge, emotion • relevant details, examples and quotes support main points	• clear, focused thesis • sound understanding; some depth • relevant details and examples • well-chosen detail, examples and quotes support main points	
Organization	• reader cannot follow the line of reasoning • does not have an introduction and/or conclusion • few transitions • paragraphing is illogical or omitted	• line of reasoning is sometimes hard to follow • has an introduction and conclusion, but they are not clear or interesting • formulaic transitions • some paragraphs not well-developed	• reader can easily follow the line of reasoning • has a clear and interesting introduction and conclusion • transitions smoothly connect ideas • competently developed paragraphs	
Style	• inappropriate voice and tone • basic and unvaried sentence structure • no figurative language • repetitive and colloquial language	• inconsistent voice and tone • minimal variation in sentence structure • minimal figurative language • appropriate language; may be redundant	• effective voice and tone • variety of sentence structure • takes risks with figurative language • varied word choice; complex vocabulary	
Conventions	• noticeable grammatical and spelling errors • errors distract the reader and may interfere with meaning	• few grammatical and spelling errors • errors could be fixed by careful proofreading	• minimal grammatical and spelling errors • errors only noticeable if the reader looks for them	

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BIG IDEA PLANNER

Class:
Teacher:
Date:

Idea/Theme/Question

Inquiry question focus

	Core Content	Instructional Objectives Beyond Content	Project Overview	Technology	Field Learning
Project #1 "Snappy Title" Driving question Duration	• What content will students learn in this project? • What prescribed learning outcomes will be covered?	• Core-competencies • High-order skills • Habits of mind • Practical skills	• Project in a nutshell • What is the real world application for this project? • What roles can students take on to solve real world problems? • Who is the audience and what is the public display for this project?	• Apps used • Skills developed	• Entry event • Adult-world connections • Guest speakers/experts • Field trips • Field school
Project #2 "Snappy Title" Driving question Duration	• What content will students learn in this project? • What prescribed learning outcomes will be covered?	• Core-competencies • High-order skills • Habits of mind • Practical skills	• Project in a nutshell • What is the real world application for this project? • What roles can students take on to solve real world problems? • Who is the audience and what is the public display for this project?	• Apps used • Skills developed	• Entry event • Adult-world connections • Guest speakers/experts • Field trips • Field school
Project #3 "Snappy Title" Driving question Duration	• What content will students learn in this project? • What prescribed learning outcomes will be covered?	• Core-competencies • High-order skills • Habits of mind • Practical skills	• Project in a nutshell • What is the real world application for this project? • What roles can students take on to solve real world problems? • Who is the audience and what is the public display for this project?	• Apps used • Skills developed	• Entry event • Adult-world connections • Guest speakers/experts • Field trips • Field school
Project #4 "Snappy Title" Driving question Duration	• What content will students learn in this project? • What prescribed learning outcomes will be covered?	• Core-competencies • High-order skills • Habits of mind • Practical skills	• Project in a nutshell • What is the real world application for this project? • What roles can students take on to solve real world problems? • Who is the audience and what is the public display for this project?	• Apps used • Skills developed	• Entry event • Adult-world connections • Guest speakers/experts • Field trips • Field school

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Class:
Teacher:
Date:

Project Title

Big idea:
Inquiry question focus:

Driving Question
State the essential question or problem statement for the project. The statement should encompass all project content and outcomes, and provide a central focus for student inquiry.

Begin With The End In Mind
Identify the content standards that students will learn in this project.
Prescribed learning outcomes (not necessarily in that language).

Identify instructional objectives beyond content that students will learn in this project.

Identify the cross-curricular competencies that students will practice in this project.
Can include Habits of Mind, personal or social skills.

Project Map
Outline the storyboard for this project, including entry event, activities and resources, and final product.

Outline the project timeline. Include all project milestones including critique dates, revision dates, and due dates,

Adult-World Connection
What is the real world application of this project?
Where might this question be addressed by an adult at work or in the community?

Who is the audience for this project?
Who would be appropriate based on the real world application.

How will you connect to professionals from outside the school?
What field based study or methods can students use to study the topic?

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Plan The Assessment

Define the process and products for the project.

What will students actually do during the project? How will skills and competencies developed be displayed?

What are the criteria for exemplary performance of each project deliverable that will be assessed?

Personalization

How will student choice be incorporated?

What aspects of the project do students have choice within? How will you communicate choice options?

Exhibition

How will the learning be made public?

Where will the exhibition take place? How will the exhibition be promoted? Who will be invited?

Reflection

How will students reflect on their learning as they progress through the project?

How will you and your students reflect on and evaluate the completed project?

Project Tuning

Has a date been set for either collegial or formal project tuning?

Phases of PBL Instruction

The following seven phases provide a framework for the successful execution of a PBL unit.

1. Introduction of Driving Question

This meaningful, open-ended, and higher-level question should focus on a real world issue that engages students and requires them to think deeply. Students should attempt to respond to the question before being given instruction so prior knowledge can be assessed and instruction can be tailored accordingly.

2. Introduction of Culminating Challenge

Introduce an authentic assessment or performance to the students that will allow them to demonstrate mastery in content and skills and clearly demonstrate evidence of learning.

3. Development of Subject Matter Expertise

This instructional phase often forms the longest part of the cycle. Students take up authentic roles and become subject matter experts through direct instruction and the inquiry process.

4. Doing the Culminating Challenge

This phase provides students with a chance to demonstrate their learning in a performance assessment. If possible, subject matter experts are brought in to help assess the quality of student work. These might include local professionals, college students majoring in the content area, or building administrators or fellow teachers. An outside perspective will "up the stakes" for students who are used to performing only for their teacher.

5. Doing the Culminating Challenge

The reflective practice of debriefing is extremely valuable for students and teachers alike. If time allows, invite the subject matter expert to participate in this experience. Immediate feedback from the expert can be especially powerful for students who routinely get the teacher's feedback on their performance.

6. Responding to Driving Question

As the project cycle comes to a close, ask students to respond to the driving question once again. They should have new vocabulary and a deep, conceptual understanding of the material covered during the cycle. The responses will be more sophisticated than those given on the first day of the cycle. As students complete this exercise, ask them to compare with their initial responses. Allow them time to examine the differences between the two samples and acknowledge the learning that has taken place.

7. Summative Assessment

A common summative assessment allows students to demonstrate their mastery of a concept. A summative measure is an important way to assess student learning. It provides another measure to determine individual student achievement of the learning objectives. If the individual and team tasks align with your instructional goals, then the summative assessment should measure student proficiency on those concepts and skills deemed important.

Developing Inquiry Questions

Deep learning through inquiry depends on the development of quality questions that drive the inquiry process.

FLIGHT uses a question formulating technique that develops a multi-faceted inquiry and deeper learning. The process includes the following steps:

1. A Question Focus (QFocus)

The QFocus is a topic, image, phrase or situation that will serve as the "focus" for generating questions. An effective QFocus is clear, provokes and stimulates new lines of thinking, and is not a question.

2. The Rules for Producing Questions

Ask as many questions as you can.
Do not stop to discuss, judge, or answer any questions.
Write down every question exactly as it is stated.
Change any statement into a question.

3. Producing Questions

Formulate as many questions as possible about the QFocus following the Rules for Producing Questions. In this part, students think freely and do not worry about the quality of the questions.

4. Categorizing Questions

Students label the questions on the list as closed-ended questions (questions that can be answered with a "yes" or "no" or with one word) or open-ended questions (questions that require and explanation).

5. Prioritizing Questions

Students choose three questions based on actions they want to take. For example, three most important questions, three questions they would like to address first, three questions they want to explore further, etc. After choosing the priority questions students name a rationale for choosing each.

6. Take Action using The Inquiry Star

7. Reflection

Students consider what they learned in the question formulating technique process and plan improvements for next time.

The Inquiry Star

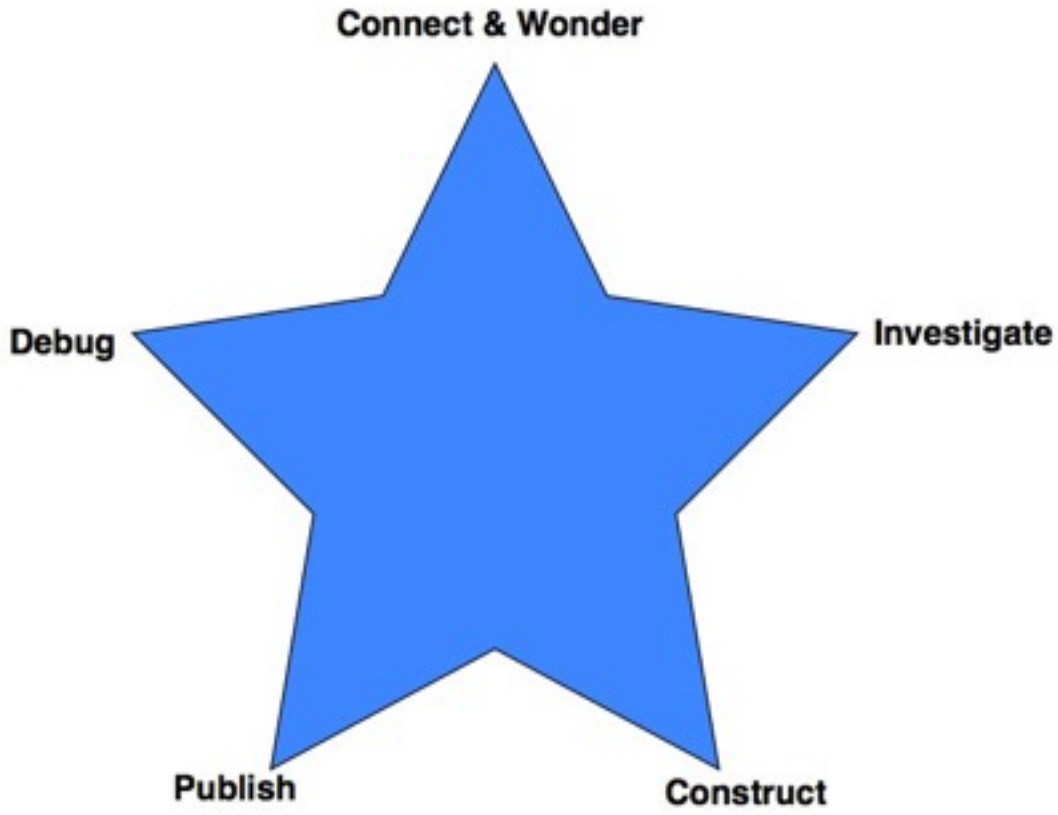
The Inquiry Star guides the inquiry process. Students move through lessons, units, and projects following the five stages of the Inquiry Star. Each stage is progressive, but at any point the student may move back a stage or two based on reflection throughout the process.

Progress though the process may happen over several weeks (during a project, for example), but it also can be used on a daily basis for tasks in class (on a blog post, for example).

During structured inquiry, students work step by step through the Inquiry Star with activities predetermined by the teacher, most likely to a common construction and publishing.

If the activity is a guided inquiry, students move through the Inquiry Star with activities of their own devising, but most likely to a common publishing, and possibly a common construction.

If it is an Open Inquiry, the students move through the stages of the star by choosing their own activities, construction and publishing.



Stage 1: Connect and Wonder

In this phase, students pose questions about the topic. Students ask what they know about a topic, how they know it and what do they need to know.

Stage 2: Investigate

Students find the resources needed to answer the inquiry question. This involves determining the resources that might help them answer the question, actively finding them, validating the sources, and looking for other information, including conflicting sources.

Stage 3: Construct

At this point, students interpret the information they have found. By looking at the relevance of the information gathered, determining how it supports a result and deciding whether it raises new questions, students should begin to develop a product—a construction—of their learning.

Stage 4: Publish

This stage is one of presentation. Publishing can take many forms: students will consider what media will best express the message of their inquiry. The audience also depends on the activity, but is always wider than just the teacher or classroom.

Work from the Inquiry Star is published on the student's blog and becomes an artifact in their learning portfolio. Often it will also be presented as part of their Presentation of Learning in the winter and spring.

Stage 5: Debug

The final stage is reflection, a process that has been ongoing during the the Inquiry Star process. This is a final chance for students to look back at their progress through the inquiry and share their feelings and reflections about the process.