



The Northwest Catholic  
District School Board  
SCHOOLS OF HOPE

## CODE Technology Innovation Funds Report 2015-16

### 1. Who participated?

Rick Boisvert – Director of Education  
Joanne Querel - Superintendent of Education  
Brendan Hyatt – Superintendent of Education

### 2. Where the program or project investigated was located (Board, School, System, city, conference, etc.):

The experience included the following activities:

1. Visiting High Tech High (HTH) Elementary and Secondary Schools in San Diego, California. The program was a Custom Residency where we observed classrooms in five High Tech Schools over two days.
2. Visiting IBM to learn about IBM Watson

The attached document *About High Tech High* provides an overview of the Mission, Goals, History and approach that is reflected in the schools and classrooms of the network of schools operating within this charter.

### 3. What was learned (highlights, effectiveness at that location)?

The goal of the experience was to learn about how High Tech High creates understanding and alignment among their schools so that the HTH principles and practices are reflected in both the elementary and secondary schools and classrooms.

With an elementary school focus, we were interested in seeing how instruction and learning were reflected in a 21<sup>st</sup> Century learning environment.

In an initial presentation one of the presenters indicated that although we would see technology present in the instruction and the learning it would not be the focus – this was true. We observed at both an elementary school level and at a secondary school level, students highly engaged in Project Based Learning that was interesting and relevant to students. The design of the learning space at both the elementary and secondary level reflected the desire to create spaces where students were supported in their learning and were able to be creative. Technology was present in all of the learning but the technology was a resource for staff in their instruction and for students in their learning. There was an emphasis on self-directed student learning where the teacher facilitated the learning.

The highlight of the visit was the opportunity to tour schools and classrooms and to speak with administrators, teachers and students about the learning that was happening.



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The focus for learning in the classrooms reflected a goal identified by High Tech High - to integrate technical and academic programming to prepare students for learning and application of learning beyond high-school. We observed that the learning is designed to be interdisciplinary and project based. The projects reflected student voice at each stage: project design (planning for learning), implementation (participating in the project) and assessment (presentation of learning).

The attached artifacts provide additional details:

Facilities Design Principles: Identifies the educational and design principles that support the support the mission of HTH and respond specifically to the needs of students. The four key design considerations include Adaptability, Ownership, Transparency and sustainability.

HTMMA (High Tech Middle Media Arts) Social and Emotional Learning Competencies: Reflects the strong emphasis that is placed on preparing students "socially, emotionally, physically and academically for future success." This emphasis on developing the whole student was embedded in all of the project work that we observed.

Project Tuning: A process utilized by staff to work collaboratively and to share their expertise while reviewing projects during the design phase. The process includes a presentation of the overview of the project, clarifying questions, probing questions and a process debrief. This process is designed to be time efficient and focussed on improvement.

PBL (project based learning) 101: Through a review of student projects the "Six A's of Powerful Projects" - *academic rigor, authenticity, applied learning, active exploration, adult connection and assessment practice* were investigated. Evidence of these six A's were present in the many projects displayed in classrooms, schools and shared/published material.

Although not present in the artifacts that were shared our team shared the observation that the students were able to clearly and confidently speak about their learning. The students were also able to connect their learning to the prior learning that they had completed and they had a clear sense of what the next stages of their learning would be. Students were all incredibly engaged with and connected to their learning.

**4. Application in your district school board what use will you be making of what was learned, value for students or staff or parents?**

The following connections were made with priorities identified within our Board. We will be reviewing/rethinking our practice in these areas:

interdisciplinary learning	inquiry based learning
student engagement	student voice
effective assessment	descriptive feedback to enhance student learning
the learning environment as teacher	

## About High Tech High

High Tech High began in 2000 as a single charter high school launched by a coalition of San Diego business leaders and educators. It has evolved into an integrated network of schools spanning grades K-12, housing a comprehensive teacher certification program and a new, innovative Graduate School of Education.



### Featured Project: I am an Artist

Students explored dimensions of their identity and created a double-sided canvas that visually expressed two sides of their selves.



### Featured Project: Public Service Advertising Campaign

Groups are assigned to create an advertising campaign focusing on a social issue. Each group chooses an organization (e.g., D.A.R.E., Operation Smile, ONE) that offers support for those affected by their chosen issue.

[More Projects](#)

### High Tech High: A Snapshot

- Thirteen schools (five high schools, four middle schools, and four elementary schools) at three locations.
- Approximately 5000 students (63% students of color; 42% qualify for free or reduced lunch).
- 600+ employees.
- 96% of graduates have gone on to college, 66% to four-year institutions.
- Students accepted by blind, zip code based lottery.
- 80% of students who enter as a 9th grader graduate from an HTH school (others change schools, move, etc.).
- 34% of graduates major in STEM (compared to 17% nationally).
- First charter management organization to operate its own Graduate School of Education (GSE) fully embedded within a K-12 learning community.
- Approximately 250 educators enrolled in formal credentialing and master's degree programs.
- Annual operating budget: approximately \$40 million
- HTH schools operate on effectively 85% of the public dollars of other California public schools, since there is a building cost for California charter schools.
- Approximately 2000 visitors per year.

### Mission

High Tech High's mission is to develop and support innovative public schools where all students develop the academic, workplace, and citizenship skills for postsecondary success.

## High Tech High Goals

At each HTH school, our goals include:

- Serve a student body that mirrors the ethnic and socioeconomic diversity of the local community.
- Integrate technical and academic education to prepare students for post-secondary education in both high tech and liberal arts fields.
- Increase the number of educationally disadvantaged students in math and engineering who succeed in high school and post-secondary education.
- Graduate students who will be thoughtful, engaged citizens.

The goals for the HTH central organization include:

- Support the development of excellent schools based on the HTH design principles.
- Become a self-sustaining central organization conducting “behind the whiteboard” management practices that are as exemplary as the “in front of students” programs offered at HTH schools.
- Inspire and enable others in the public education community to adopt the HTH design principles and instructional practices.

## History

High Tech High was originally conceived by a group of about 40 civic and high tech industry leaders in San Diego, assembled by the Economic Development Corporation and the Business Roundtable, who met regularly from 1996 - 1998 to discuss the challenge of finding qualified individuals for the high-tech work force. In particular, members were concerned about the “digital divide” that resulted in low numbers of women and ethnic minority groups entering the fields of math, science, and engineering. Gary Jacobs, Director of Education Programs at Qualcomm, and Kay Davis, Director of the Business Roundtable, were key participants in these discussions.

In late 1998 the group voted to start a charter school and engaged Larry Rosenstock, then President of Price Charities in San Diego, as the founding principal. The founding group was clear about its intent: to create a school where students would be passionate about learning and would acquire the basic skills of work and citizenship. Rosenstock, a former carpentry teacher, lawyer, and high school principal who had recently directed the U.S. Department of Education’s New Urban High School project, brought a vision and a sense of the design principles by which this mission might be accomplished.

**Key milestones in the development of HTH include:**

### 1999

Founding group submits Charter application.

### 2000

San Diego Unified School District approves charter.

Building site secured in Liberty Station, construction begins.

Gates Foundation awards replication grant in July.

The Gary and Jerri-Ann Jacobs’ High Tech High opens to 200 9th and 10th graders in September.

### **2003**

First graduating class of 50 students.  
High Tech Middle opens at Liberty Station campus.

### **2004**

High Tech High International opens at Liberty Station campus.  
Teacher Credentialing Program launched at High Tech High.

### **2005**

High Tech High Media Arts and High Tech Middle Media Arts open.  
Explorer Elementary joins High Tech High family.

### **2006**

Statewide Benefit Charter approved.

### **2007**

High Tech High Graduate School of Education opens, offering M.Ed. programs in Teacher Leadership and School Leadership.  
High Tech High Chula Vista opens with 150 9th grade students.  
High Tech High North County opens with 150 9th grade students.

### **2008**

High Tech High Chula Vista moves into their permanent site.

### **2009**

High Tech High North County moves into their permanent site.  
High Tech Middle North County opens with 330 students grades 6-8.  
High Tech High Graduate School of Education celebrated its first graduation, awarding six Master's degrees in Teacher Leadership.  
Statewide Benefit Charter expanded to K-12.

### **2011**

High Tech elementary Chula Vista opens with 420 students in grades K-5.  
High Tech Middle Chula Vista opens with 330 students in grades 6-8.  
High Tech Middle North County opens with 330 students in grades 6-8.

### **2013**

High Tech elementary North County opens in August.

## **Changing Schools**

At HTH, we believe that change in schooling happens, not incrementally by adding programs, but by generating holistic designs that enable new ways of teaching and learning. We believe that even the language we use to describe schooling needs to change. School reformers need to develop—and commit to—simple, elegant language that speaks to the deep purpose of schools: to prepare all students for entry into the world of work and citizenship in a democratic society.

High Tech High is not a franchise, nor even a model, but rather an organization advocating a set of design principles. We recognize a dynamic relationship between vision and practice. We understand that any significant innovation requires individuals at the sites to work out their own meanings and develop their own learning agendas, building on their successes as they go. We try to provide conditions of work that encourage teachers and students to explore new ways of realizing the HTH design in practice. We subscribe to Michael Fullan's view:

First, under conditions of dynamic complexity one needs a good deal of reflective experience before one can form a plausible vision. Vision emerges from, more than it precedes, action. Even then it is always provisional. Second, shared vision, which is essential for success, must evolve through the dynamic interaction of organization members and leaders. (*Changing Forces: Probing the Depth of Education Reform*)

Knowing that in creating a new school, one is creating a culture, and understanding the power of the “default” culture of schooling, we employ a “mitochondrial” strategy to create new schools. That is, we “seed” our new schools with a principal, teachers, and even students who already have lived and worked in a HTH school. In this way we emphasize experienced leadership, reflective practice, and peer learning, all in the interest of an evolving sense of shared purpose.

We also understand that schools are not closed systems. For all their internal routines and rituals, the work of schools and the possibility of change are influenced profoundly by post-secondary entrance requirements, teacher training practices, standardized testing, community pressures and other external forces. Part of our work is to understand and articulate those external influences that our schools must counter in order to control their own destiny. That is why, for example, we have secured approval from the state to certify our own teachers.

As we work for change in our own settings and think about change on a broader scale, we aim to do our work well, describe it well, and assist those who want to accomplish similar goals. We proceed via five basic strategies that positively affect the students, teachers and leaders in our schools:

- **Enact** change by directly establishing and managing excellent schools. HTH currently operates three campuses of schools. As of August 2013, all three villages serve K-12. The award of a statewide charter in 2007 authorizes us to create ten additional HTH Villages in communities across California. We have broadened our scope to include middle and elementary schools, partly to reach our students earlier, and partly because we see great benefit to grounding our vision in a pre-K through graduate school perspective.
- **Inspire** others to implement HTH design principles by encouraging outsiders to visit the schools, speak with the students and teacher, and observe its design principles in practice. High Tech High schools are open and transparent settings where visitors are always welcome. Over 2,000 visitors arrive annually from nearly every state (including eight governors) and many nations (including twenty education ministers).
- **Enable** others to establish schools based on the HTH design. Recognizing that it takes more than inspiration to change the paradigm of public education, HTH has modeled itself as an “open source” organization, offering institutes, residencies, and a free web-based resource center for educators.
- **Develop** teachers and leaders in its school network and beyond. HTH’s Teacher Credentialing Program guides scores of HTH teachers through the credentialing process each year. The HTH Graduate School of Education opened its doors in the fall of 2007 and expands upon HTH’s professional development offerings through its Master’s of Education programs.
- **Influence** policy makers and thought leaders to change public education policy. By changing some of the restrictive policies that affect both HTH and other public and charter schools, HTH enhances its own ability to function while improving the system for everyone who operates within it.

As an organization, we engage in ongoing reflection about our growth efforts. Rather than devising a rigid scheme for intended future impact that presumes to understand an unknowable future, High Tech High places a premium on retaining flexibility and agility. We know that whatever leverage we may have hinges upon High Tech High continuing to be known as an organization that operates only excellent schools. This is why we follow a slow deliberative process of building each new school “in brick,” securing ownership of our buildings and staffing new schools with experienced HTH educators.

This “bricklaying” allows us to maintain a deep level of intimacy between our schools and our central organization. Our growth efforts to date have taught us that quality replication requires that practitioners receive a higher level of support than is commonly thought necessary. We also know that the central organization must be finely tuned to its schools so that it can change the supports it offers to meet ever-evolving needs.

Proceeding “in brick” also helps us make sure that growth occurs slowly enough to cultivate the pedagogical expertise and leadership capacity needed to develop new HTH schools. HTH schools are very different from conventional public and private schools, and most of our incoming staff members have never seen HTH instructional practices on their feet. Having supported many new school leaders, we are convinced that integrating a deep understanding of HTH design principles requires that future leaders spend significant time in a setting where those principles are being universally and enthusiastically embraced.

Finally, our commitment to building excellent schools requires that we attend carefully to the development of the HTH culture. The reflective high stakes discussions that happen at High Tech High do not occur among strangers, and only time allows such trusting relationships to develop. As our staff become committed to one another and develop consensus regarding both the “how” and the “why” for our collective undertakings, the HTH culture becomes an indispensable resource infusing the organization with the professionalism, energy and optimism needed to take on ever growing challenges.

In essence, then, bricklaying at High Tech High is a way to preserve the organization’s “soul” - that part of us that knows well and cares for each and every family we serve and every staff member we employ. High Tech High does not pretend to know how many schools the organization can develop without compromising its “soul.” We also do not know whether the resources needed to support growth will be available in the future. We are therefore focused on becoming a self-sustaining organization in the very near term so that we may have a stable platform from which to take stock of our efforts and assess our options for the future.

High Tech High is a 501(c)3 nonprofit, public benefit corporation.

Federal Tax ID: 33-0866664



## Facilities Design Principles

High Tech High schools follow our Educational and Facilities Design Principles. Responding directly to the needs of students, these Principles support the broad mission of preparation for the adult world and permeate every aspect of life at High Tech High.

The Educational Design Principles of Personalization, Adult World Connection, and Common Intellectual Mission promote student engagement, small overall school size, a culture of openness, sustainable teaching practices, personalization through advisory, emphasis on integrated, project-based learning and student exhibitions, community internships, and the provision of ample planning time for teacher teams during the work day.



The facilities reflect these Educational Design Principles and offer a variety of spaces to develop multiple intelligences and learning modalities. These Principles extend beyond the architecture itself and include operational strategies to ensure facilities are not only safe and healthy when they first open for students, but are also effective learning environments in the long-term. At the core of this endeavor is the belief that the community can create the ideal conditions for learning, which will lead to increased student achievement and that graduates will be prepared for the challenges of career and citizenry in the 21st century. HTH school facilities are not just buildings. They are places that celebrate lifelong learning. They are safe without feeling like prisons. They are healthy for students and staff, but not in a way that feels sanitized. They are cost-efficient to operate, but not at a cost of comfort, functionality, or durability.

HTH staff and students make use of the flexibility that the facilities afford them, promoting collaboration and engagement in the school community. Teachers work in teams to design integrated projects that bridge across traditional subject-area boundaries. Each grade is a learning community broken into multi-disciplinary teams, and teacher offices are connected to the “seminar” rooms in which they team teach. These seminar rooms have movable walls that support a variety of room configurations and activities.

HTH interiors aim for a high level of transparency to make each school's particular culture of learning readily visible to its inhabitants. To this end, every wall surface in the school's public and circulation spaces offers a place either to exhibit student projects or to look (through abundant expanses of glass) into the school's dynamic seminar rooms, conference rooms, and specialty spaces. This transparency allows the students and visitors alike to understand what teams engaged in, and propels a cycle of improvement year over year by showcasing school work.



One important characteristic of High Tech High buildings is their adaptability to the changing needs of HTH students and faculty. Our thinking about how best to achieve this evolves with each new building we design. Our students and teachers are quick to tell us what works and what doesn't, and we incorporate



lessons learned across schools to ensure they can each take advantage of the new strategy. If there is one thing HTH does well, it is the ability to quickly adapt to better practices. Four key design considerations that inform our thinking include:

#### 1. Adaptability

Core learning areas, including Seminar Rooms, Studios, Commons Areas, and Exploratories, must adapt to multiple uses effortlessly. Rather than constructing separate spaces for each use, the users should be able to cycle through learning modalities and styles without special permission, tools, or permission. Example elements within the spaces include wifi connectivity, easily reconfigurable furniture, and operable partitions between team-taught spaces. All core learning areas must have hard surfaced floors for easy cleaning, as projects can be messy, and may occur almost anywhere; sinks for activity clean-up; distributed instructional tools storage; control of ambient light; excellent acoustics, abundant electrical outlets; and dependable audio/visual systems.



#### 2. Ownership

HTH achieves a personalized environment by creating small learning clusters within its already small learning community. Each grade-level is planned as a neighborhood which includes connected classrooms, teacher prep areas, storage, and a central break-out area connecting all of them with the outdoors. This approach promotes a high degree of ownership, as each grade level is responsible for their own neighborhood, and students and teachers customize these areas with their work in-progress. Public spaces such as Commons Areas and Galleries are used by the larger school community in the same way. Staff offices are distributed throughout the facility, rather than centralized, and occur at key circulation intersections for passive management, increasing the opportunity for students to connect with adults, and simultaneously increase confidence and defensibility.



#### 3. Transparency

Introducing large expanses of glass and an abundance of project exhibition space gives students and staff the opportunity to see what is going on in their own neighborhood as well as what is going on elsewhere. Not only do students learn from each other's work, staff do as well, and the cycle of improvement is accelerated. Wide circulation spaces with windows into the learning areas provide students, staff, and visitors alike information on how the school functions, what the school values, and where resources are found. Stairs are visible from everywhere, hidden corners are eliminated, and specialty spaces and staff offices have doors directly to the main circulation paths to promote access, openness, coherence and engagement.

#### 4. Sustainability

Every student deserves a safe and healthy place to learn, and HTH continually seeks to improve the learning and working environment to better serve the educational mission. At the core of this

endeavor is the belief that the community can create the ideal conditions for learning, which will lead to increased student achievement. HTH aspires each school to be toxics-free, use resources sustainably, and provide learning environments that engage students. Based on empirical evidence and previous experience, the main areas of focus for HTH design teams are acoustics, indoor air quality, daylighting, and energy efficiency. Good acoustics are essential in all areas because learning suffers in environments where students must strain to hear others. HTH schools are project-based and encourage learning outside of the traditional classroom, so the acoustical attributes of hallways, lobbies, offices, play yards, and even restrooms are considered. Good indoor air quality protects student and staff health, performance, and attendance rates. Similar to acoustics, compliance with code minimums will not ensure good quality, and material emissions, pollutant source control, enhanced commissioning, and maintenance plans must be actively managed. Daylighting should be the primary source of lighting in core learning areas as it is superior to artificial light for visually-critical tasks. When natural light is considered qualitatively, and not just quantitatively, it also provides an important cultural connection to the outdoors, reduces lighting energy costs, and improves productivity. Energy costs are the third largest operational cost for HTH, behind only salaries and rent. Energy efficient schools cost less to operate, while conserving resources and reducing atmospheric emissions. All of these sustainable design categories are easy to showcase in the facility, and with consideration can make the school itself as a learning tool to engage students and staff.



Creating a new language of design, both spatially and verbally, helps give form to the HTH vision. To further encourage how the spaces are used, we often refer to them with our own language. We find that the term “classroom” just doesn’t quite convey how our core learning areas function. Using the HTH Lexicon, key spaces within HTH buildings include:

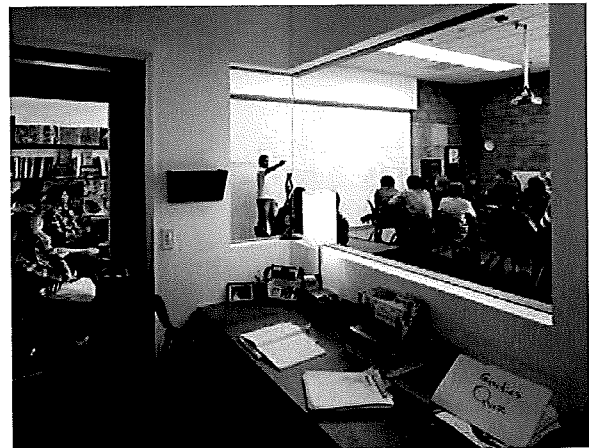
**Commons Area**—the intellectual hub of the school, a centrally located meeting area for student gatherings, exhibitions, presentations, performances, and community meetings.

**Teaching Clusters**—small “neighborhoods” of adjacent seminar rooms, studio spaces, and teachers’ offices, designed to promote team teaching as well as a sense of ownership and place.

**Seminar Rooms**—learning spaces with flexible furniture and walls that adapt to accommodate direct instruction, independent student research, group project work, and presentations.

**Studio Areas**—multi-purpose spaces for shared use by groups from adjacent seminar rooms to support individual, small group, and large group activities.

**Team Prep Areas**—teacher workstations and storage areas, clustered by teaching team, and offering direct visual and physical access to adjacent teaching spaces.



Gallery Spaces—exhibition walls and areas for display of student work, often located in or along corridors and circulation routes.

Exploratories—specialty project rooms with access to technology and equipment for learning in specialized areas such as biotechnology, mechanical engineering, and studio arts.

Outdoor Learning Spaces—study areas, courtyards, amphitheaters, and performance spaces that extend learning beyond the walls of the school and connect students to the natural world.



# HTMMA Social & Emotional Learning Competencies

One of HTMMA's core values is to educate the whole student. We strive to do this by preparing students socially, emotionally, physically, and academically for future success.



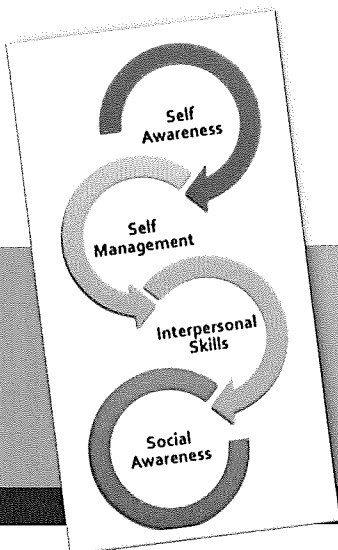
## SEL Main Concepts

**Self Awareness** Love Who You Are  
Understand Who You Are

**Self Management** Act With Integrity  
Aim High  
Solve Problems

**Interpersonal Skills** Understand Others  
Communicate Effectively  
Build Quality Relationships

**Social Awareness** Understand Your World



## Why is SEL important?

Research emphasizes a strong correlation between social emotional learning and emotional intelligence. Through social and emotional learning, kids improve their emotional intelligence as they learn to identify and manage emotions, tend to themselves and others, make ethical and accountable decisions, and develop affirmative relationships with peers and adults. In addition, children who develop social and emotional competence are more resistant to issues such as drugs, teen pregnancy, and gangs (Elias, Zins, et al, 1997). SEL positively effects all facets of a young person's life, from personal issues to academic performance; integrating this form of curriculum into the school's culture has proven results.

### What is an SEL Competency?

Social and Emotional Learning (SEL) Competencies are used to identify and prioritize the specific attitudes, knowledge and skills that students should be able to demonstrate as a result of participating in the learning process.

Source: ASCA Student Standards and CASEL



# HTMMA Social & Emotional Learning Competencies

## SELF AWARENESS

### Love Who You Are

- Develop a positive attitude towards yourself
- Recognize that you are a unique and valuable person

### Understand Who You Are

- Be able to identify your feelings
- Identify your personal strengths
- Identify your rights, needs and interests

## SELF MANAGEMENT

### Act With Integrity

- Demonstrate honesty, and moral and ethical principles
- Develop emotional control and be able to express your emotions appropriately
- Know the difference between appropriate and inappropriate behavior in different settings and act accordingly
- Take ownership of your decisions and actions

### Aim High

- Demonstrate a desire to try your best and welcome challenges (utilize the Growth Mindset)
- Persevere
- Learn and practice the goal-setting process

### Solve Problems

- Develop self-advocacy skills by communicating needs, interests, and desires
- Demonstrate the ability to seek help for solving problems and making decisions, applying self-advocacy skills
- Exhibit the ability to make safe and healthy choices
- Learn and apply coping skills for dealing with conflict and managing stress

## INTERPERSONAL SKILLS

### Understand Others

- Develop and demonstrate empathy

### Communicate Effectively

- Demonstrate effective communication skills
- Apply effective conflict resolution skills in relationships
- Exhibit digital citizenship

### Build Quality Relationships

- Utilize self management skills to develop positive relationships
- Utilize self awareness skills to respond appropriately to social pressures
- Learn about the differences between appropriate and inappropriate physical contact

## SOCIAL AWARENESS

### Understand Your World

- Demonstrate respect for ethnic and cultural diversity
- Show respect for individual differences
- Contribute to your community

# PROJECT TUNING

## Norms:

- Hard on the content, soft on the people
- Be kind, helpful and specific
- Share the air (or “step up, step back”)

## Protocol:

**Overview** (5 min) - Presenter gives an *overview of the work* and explains what *goals* he/she has in mind when designing the project. It may be helpful for the presenter to put the project into the broader context of what is happening in his/her classroom or school. Participants then may have an opportunity to *quietly look at “the work”* (e.g. project handout, student work, etc.). Finally, the presenter shares a dilemma by *framing a question* for the critical friends group to address during the discussion.

**Clarifying Questions** (5 min) – Critical friends ask *clarifying* questions of the presenter. Clarifying questions have brief, factual answers and are intended to help the person asking the question develop a deeper understanding of the dilemma. An example of a clarifying question is “How will groups be chosen for this activity?”

**Probing Questions** (5 min) – Critical friends ask *probing* questions of the presenter. Probing questions help the presenter expand his/her thinking about the dilemma. However, probing questions should not be “advice in disguise”, such as “Have you considered...?” An example of a probing question is “What evidence will you gather to determine the extent to which the goals of your project were met?”

**Discussion** (20 min) - The presenter reframes the question if necessary and then physically steps back from the group. The group discusses the dilemma and attempts to provide insight on the question raised by the presenter.

- **Positive feedback:** It is helpful to begin with positive feedback, such as “What strengths do we see in the project design?”
- **Opportunities for growth:** Next, the group takes a more critical analysis of the work, using the question proposed by the presenter to frame the discussion. For example, “What isn’t the presenter considering?” or “I wonder what would happen if...”

The presenter is not allowed to speak during the discussion, but should listen and take notes. It is a good idea for the presenter to physically sit outside of the circle and for the group to close in the circle without the presenter. *Resist the urge to speak directly to the presenter.*

**Response** (10 min) – The presenter has the opportunity to respond to the discussion. It is not necessary to respond point by point to what others said. The presenter may share what struck him/her and what next steps might be taken as a result of the ideas generated by the discussion.

**Debrief** (5 min)– The facilitator leads a conversation about the group’s observation of the project tuning process. One mark of a good facilitator is his or her ability to lead a good debrief.

**Close-the-Loop** (3-5 min) – Everyone in the group shares one take away either on the process or the project.

*Questions posed to the group might include:*

- Did we have a good question? How well did we stick to the question?
- To what extent was this process helpful for the presenter? Did our probing questions really push his/her thinking? Did our ideas from the discussion provide insight into possible next steps?
- Was there a moment when the conversation made a turn for the better? Was there any point where we went off track?
- How did we do embodying our norms? (e.g. “hard on the content, soft on the people”, “step up/step back”, etc.)
- *Resist the urge to turn the debrief back to a discussion of the dilemma.*

Total time: approximately 30 minutes

**Tips for facilitation:**

- *Work with the presenter to frame a good question beforehand* ~ meet beforehand to discuss the dilemma and wordsmith a question that is open-ended and not easily solved. Write the question on the whiteboard so that it is visible during the entire conversation.
- *Stick to the time for each section* ~ use a timer to keep track of time or ask a volunteer to help.
- *Don't be afraid to keep the group focused on the protocol* ~ if a probing question is asked during clarifying questions, gently ask the participant to write it down and wait until you have moved on to that point in the conversation.
- *Redirect the conversation when necessary (without unnecessarily monopolizing airtime)* ~ if the discussion jumps straight into responding to the dilemma question before sharing positive feedback, make sure to take time to celebrate the thinking or work first.
- *Resist the urge to skip the debrief* ~ the debrief is a crucial way to deconstruct the conversation and improve the quality of our dialogue w/colleagues over time. Value this part of the process by honoring the time dedicated to it.
- *Be courageous and confident* ~ strong facilitation is the key to having successful dialogue about our work and is appreciated by everyone in the group. If it helps to literally read each step to the group, by all means do so. And remember to “cowboy up” or take full ownership of your important role as facilitator!

# PBL 101

6 A's of Project Based Learning



## SIGNIFICANT LEARNING

For the next 5 minutes please journal about a moment in your school years where you really learned something -- in or out of school.

- What happened?
- Who was there?
- What do you remember about this moment?

## PAIR SHARE

- Share your significant learning experience with a partner.
- Pairs: Listen. What makes this learning significant?
  - Together, list the common elements of your significant learning.

# THEMES:

RELATIONSHIP BUILDING, LASTING (UN)INTENTIONAL IMPACT

VULNERABILITY, FAILURE, CHANGES THINKING

PERSEVERANCE MINDSET

IMPORTANT LEARNING

LEARNING "STUCK"

STIRRED AN EMOTIONAL RESPONSE

HANDS ON

NOVEL, DIFFERENT, INTERESTING

## NORMS FOR APPRECIATIVE INQUIRY

- Imagine the work as if a museum, we know a little bit about the author, but it's the work itself that speaks to us
- Focus on what is present, not what's missing
- Select one or two projects that speak to you

## THE SIX A'S OF POWERFUL PROJECTS

academic rigor

authenticity

applied learning

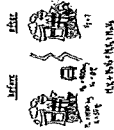
active exploration

adult connection

assessment practices

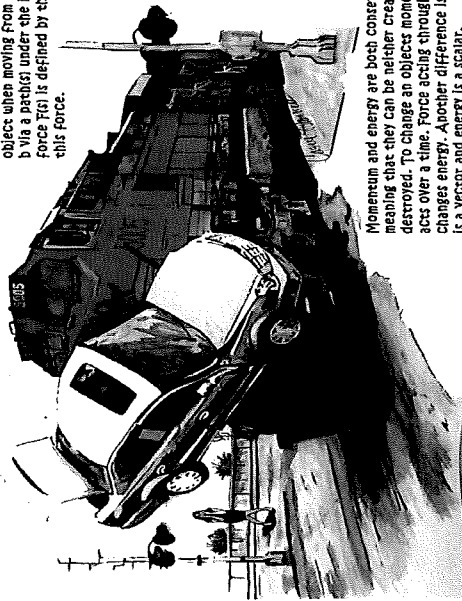
## Conservation of Momentum and Energy

A train racing down the tracks hits a car. What happens to the train's kinetic energy? What happens to the train's momentum? The train's energy transforms, becoming mechanical, thermal and kinetic energy, where the overall quantity of energy is conserved. The train's momentum partially transfers to the car at impact, and is conserved. See the



Momentum can be thought of as quantity of motion that an object has: a moving car has some quantity of motion, but a parked car has none. Momentum is found by multiplying an object's mass times its speed. There is no special unit, so the units are kg x m/s. Momentum = mass (kg) x speed (m/sec). When a moving object collides with another object (moving or not) there is a transfer of momentum. The transfer is such that the total momentum before and after the collision remains equal.

The change of kinetic energy ( $\Delta K$ ) of an object when moving from point a to point b via a path(s) under the influence of a force  $F(x)$  is defined by the work done by this force.



Momentum and energy are both conserved quantities, meaning that they can be neither created nor destroyed. To change an object's momentum a force acts over a time. Force acting through a distance changes energy. Another difference is that momentum is a vector and energy is a scalar.

STANDARD 2G Students know how to solve problems involving elastic and inelastic collisions in one dimension by using the principles of conservation of momentum and energy. Casey Stocker

# Academic Rigor

## Projects:

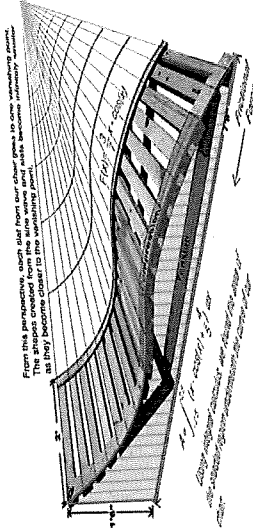
- Address key learning standards identified by the school or district
- Pose essential question(s) of relevance to student
- Span multiple disciplines and subject areas
- Develop habits of mind and work associated with academic and professional disciplines (e.g., to think like a scientist)

# Authenticity

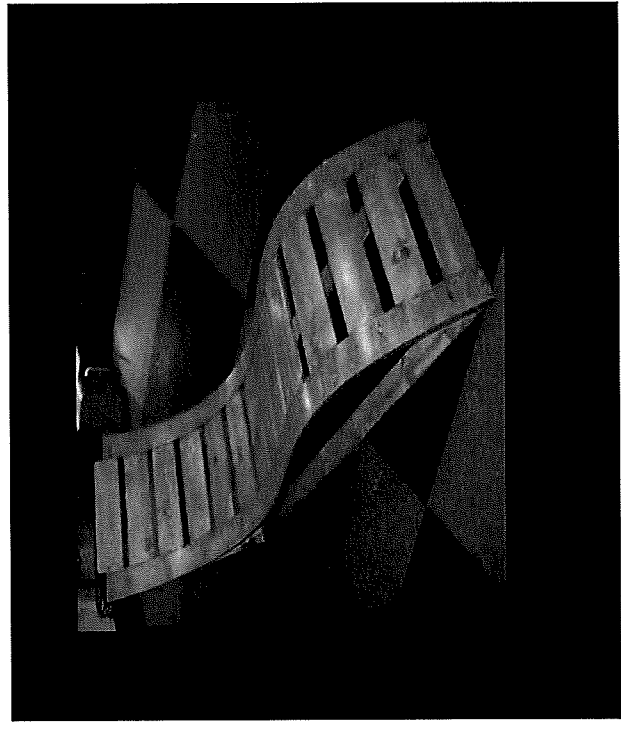
## Projects:

- Use a **real world context** (e.g., community and workplace problems)
- Emanate from a **problem** that has **meaning** to students
- **Result** in a product or performance that has **personal** and/or **social value**





**THE LEBOWSKI**  
 Designed by Gabi, Sarai, and Jon



# Applied Learning

## Projects:

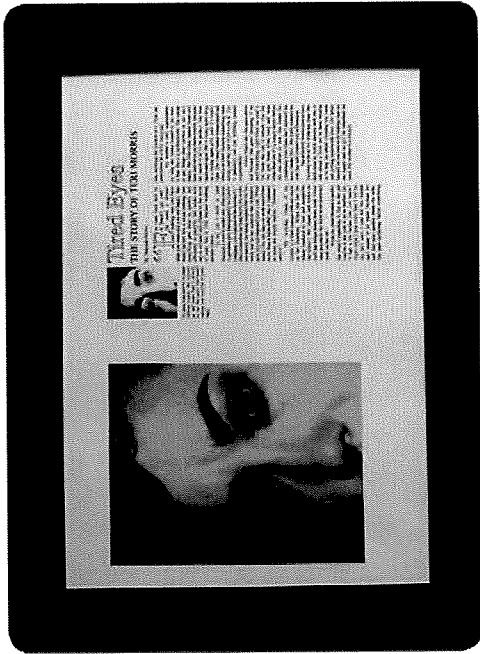
- Engage students in solving **semi-structured problems**
- Call for competencies expected in **high-performance work organizations** (e.g., teamwork, problem-solving, communication, etc.)
- Require students to develop **organizational and self-management skills**

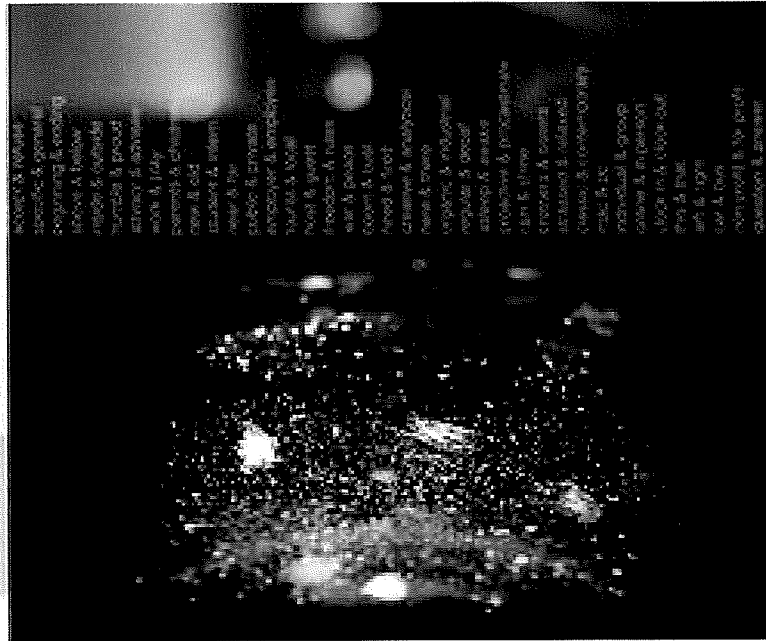


# Active Exploration

## Projects:

- Extend **beyond the classroom**
- **Connect students** to field-based investigations, community explorations, and work internships
- Require **real investigations** using a variety of methods, media, and sources





## Adult Connections

Projects:

- **Connect students with adult mentors** and coaches from the wider community
- **Expose students to adults with relevant expertise**
- **Engage adults in the design and assessment** of student projects

# Assessment Practices

Projects:

- Provide milestones/checkpoints
- Involve lots of reflection for students and teachers
- Result in exhibitions and performances
- Are grounded in personal, school and real-world standards of performance



## DISCOVER AN "A"

With your partner(s) find evidence of your "A" from the project you chose and note them on a poster.

Ideas to ponder:

- The teacher who taught this probably...
- If I were teaching this...I would...
- If you are not sure hypothesize how you would do it.

## Sticker Gallery Walk

Orange- NEW idea, WOW!, I want to  
know more...

Green- I do this, I believe in this

## SHARE OUT

What are some examples of each of the A's that were found in the projects?

academic rigor

authenticity

applied learning

active exploration

adult connection

assessment practices

## REFLECTION

### After looking at student work:

- What does this work tell you about the student experience?
- What does this work tell you about the design of the class?
- What does this work tell you about the design of the school?
- What does this work tell you about the role of the teacher?