Student Driven Projects

21st Century Learning
With a focus on Design Thinking
强调设计学习的21世纪教学

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The Future World of Work

21st Century Work

IN MORE DEVELOPED COUNTRIES

- Research
- Development
- Design
- Marketing and Sales
- Global Supply Chain Management

Creative Work

IN LESS DEVELOPED COUNTRIES

Routine Work
DONE BY PEOPLE

Routine Work
DONE BY MACHINES
Framework for 21st Century Learning

21世纪学习的框架图

Core Subjects and 21st Century Themes

Life and Career Skills

Learning and Innovation Skills

Information, Media, and Technology Skills
P21 and Common Core

CCSS explicitly integrate higher-order thinking skills nationally for the first time.

Creativity, life skills and 21st century themes are implied within CCSS.

CCSS focus on what is most essential and represent a baseline starting point for 21st century learning.
21st Century Learning

“7Cs” Skills

Critical thinking and problem solving
Creativity and innovation
Communication and media literacy
Collaboration and leadership
Cross-cultural and social fluency
Career, civic and learning self-direction
Computing and digital proficiency
Three Approaches to 21\textsuperscript{st} Century Learning
面向21世纪学习的三种方法

- Multilingualism - Immersion 多元语言教育
- Design Thinking 设计化思考
- Project-based Learning
- 基于项目的学习
Creating Tomorrow’s Global Leader’s Today
培养明天的全球领导
RIA Trilingual Programs
RIA三语课程

• Mandarin Language Academy Charter – Mandarin Immersion 50% - English 50% with Spanish Enrichment 中文普通话课程:普通话占50%, 英语占50%, 也有西班牙语。  
• Riverview International Academy (90/10 model - Spanish Immersion with Chinese Enrichment) 河景国际学术课程:90/10模式-西班牙语, 也包括中文。  

• Program Goals: 项目目标:  
  • Triliteracy in Spanish, Mandarin Chinese, and English 三语培养: 西班牙语, 中文普通话和英语  
  • Passing 3 AP tests in high school (2 in Spanish, 1 in Chinese) or IB equivalent 在高中通过三门高级课程测试: 2门西班牙语, 1门中文, 或IB  
  • 2 Seals of Biliteracy on their high school diplomas – 1 in Spanish and 1 in Chinese  
  • 高中文凭的双语素养培养: 1门西班牙语, 1门中文。
What is Immersion?

IMMERSION

• Uses two languages for instruction
• Serves students of **majority** language backgrounds
• Goal includes high levels of proficiency in new language and in home language
• Use of home language gradually increased
• **Additive bilingualism**
Key Immersion Concepts

- To develop high level of proficiency in reading, writing, speaking and listening in two languages.
- To develop high academic performance in all content areas.
- To develop a deep understanding and appreciation of other cultures.
- To develop skills in cross cultural communication and a sense of responsible global citizenship.
- To develop the ability to study and communicate across the curriculum in two languages.
- To develop competence in social interactions in the two languages.
Immersion Connections

Diagram:

- Language
- Literacy
- Academics

Connections:

- Language to Literacy
- Literacy to Academics
- Academics to Language
The dschool at Stanford University
斯坦福大学d-school
Design Thinking

• Design Thinking is an approach to learning that focuses on developing students’ creative confidence.

• Teachers and students engage in hands-on design challenges that focus on developing empathy, promoting a bias toward action, encouraging ideation, developing metacognitive awareness and fostering active problem solving.

• Using one’s imagination is central...
The design process is what puts Design Thinking into action.

It’s a structured approach to generating and developing ideas.

The five phases of the design process:

1. **Discovery**
   - I have a challenge. How do I approach it?

2. **Interpretation**
   - I learned something. How do I interpret it?

3. **Ideation**
   - I see an opportunity. What do I create?

4. **Experimentation**
   - I have an idea. How do I build it?

5. **Evolution**
   - I tried something. How do I evolve it?
Design Thinking
Project-based Learning
基于项目的学习
PBL: Challenge Based Learning Project

基于项目的学习

Design Thinking requires students:

设计化思考要求学生：

- Ask questions – inquiry based Problem solve
  • 提出问题——基于探究的问题解决

- Collaborate on real world issues and solutions
  • 对真实世界的问题解决的合作

- Recognize their ability to have an impact認識到他們的能力

- Communicate with peers respectfully
  • 帶有尊重地與他人溝通

- Leverage technology
  • 运用科技=使得學習相關和具有興趣

= Makes learning relevant and interesting
“During discussion learners are not passive recipients of information that is transmitted from a teacher. Rather, learners are active participants.”

在讨论中，学习者不是被动的信息接受者，不是简单地接受教师提供的信息。学习者是积极的学习参与者。
Blended Learning: Shifting The Paradigm
混合学习：模式的转变

Paradigm Shift
模式的转变
Riverview...今年河景学校的变化
Engineering is Elementary and FIRST Robotics League
在小学的工程课程和第一次机器人制作的比赛

RESEARCH PROBLEM
This month marked the ten year anniversary of one of the worst natural disasters to hit the East County of San Diego, the 2003 Cedar Fire. In this disastrous wildfire 15 people lost their lives (13 were from Lakeside). Hundreds more lost their pets, animals, homes and all their belongings. In order to discover more about this problem we researched using the Internet and interviewing people who could help us.

We interviewed firefighter Tim Mehr who fought the two wildfires (Cedar and Witch Creek) that affected the East County.

Our task:

To learn what we could about the problem and find a creative solution to help our community.

We interviewed our school secretary, Robin Sundbeck, who lost her home and some of her animals in the Cedar fire.

OUR SOLUTION: THE HOT SHOTTER
We learned how to use Sketch-up from Mr. Kyriakidis, an engineer and we created a solid model of our tank.

The tank is fitted with a shovel that can dig up burning brush and roots and smother with flames with dirt.

The tank gun turret is replaced with a cannon that shoots Type A foam which smother wood-burning fires.

Removable blades can cut burning trees down and then the cannon can smother the fire with Type A foam.

oblique view

top view

front view

side view
Common Core and P21

A turning point in the standards movement

A common baseline for academic knowledge and college & career readiness skills

A foundation - not the “ceiling” in expectations for student outcomes in the 21st century