Developing Collaboration and Critical Thinking in the 21st Century Mathematics Classroom

Project Rationale

Rationale

Research tells us that collaboration is an essential tool to develop student understanding and critical thinking. This project will allow our group to explore the two "C's" of 21st learning: collaboration and critical thinking. Our Professional Learning Team will aspire to create a professional learning cycle (PLC) to lead both faculty and students alike into the 21st Century Classroom, fostering critical thinking through a collaborative learning model (Catholic Graduate Expectations 5a and 5b).

Given the diverse learning needs of students within the classroom, and the changing nature of the workplace, the use of various technologies would complement and help to foster critical thinking through collaboration. We plan to implement learning through collaboration using Project Based Learning and the iPad as a learning tool.

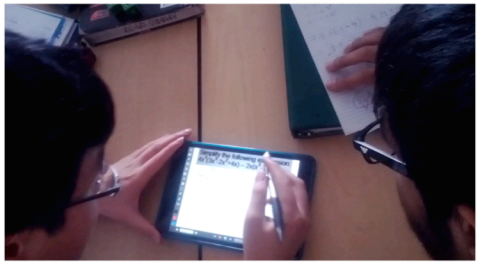
Outcomes

When educators foster collaborative learning through the use of technology, student engagement will become more evident and the critical thinking process becomes more apparent. Students will learn to guide and take greater responsibility for their own learning. The teacher's role has now become one of a facilitator of collaborative learning. As a result, differentiated instruction will be nurtured by default, giving students the ability to choose different mediums to present their evidence of learning.
Employing the use of various technologies enhances learning in three main ways:

1) Improving student engagement using technology and Web 2.0 tools (measure by better attendance, fewer lates, student questionnaires)
2) Improved collaboration (teacher is facilitator of learning, students become more independent learners)
3) Improved critical thinking (teachers ask more open questions, students communicate and think more effectively)

E2CL collaboration critical thinking

Dufferin-Peel Catholic District School Board



Contact Information

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Principal of Program: Joanna Boudreau

Superintendent of Program: Max Vecchiarino

Websites and Wikis

For further information about the Cardinal Ambrozic CSS TLLP Project:

SRS Wiki

http://Engaging2CLearning.wikispaces.com

Website

http://Engaging2CLearning.weebly.com

Twitter

@Engaging2CLearn

iBooks: Engaging 2C Learning

http://goo.gl/WEcXdT

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Engaging 2C Learning

Developing Collaboration and Critical Thinking in the 21st Century Mathematics Classroom

TLLP: Teacher Learning and Leadership Program

March 5th, 2015
Digital Marketplace DPCDSB @2030

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Project Process

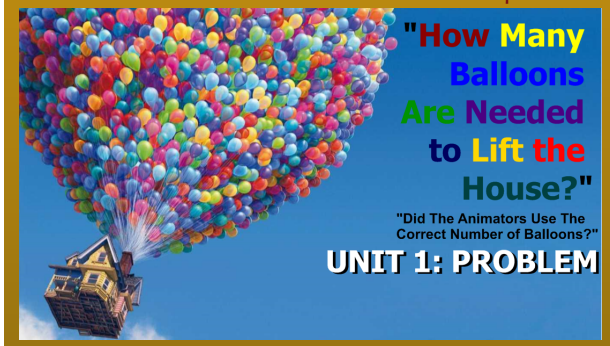
Inquiry Question

In our TLLP journey, we have changed the classroom environment to allow for collaboration in a team setting. Students are placed in new "teams" at the beginning of each problem. Units are called problems and activities/math concepts are called "tools"

Step 1: Formation of Teams
Step 2: Introduction to Problem
Step 3: Brainstorming "Student Learning Goals"
Step 4: Learning the "Tools"
Step 5: Collaborative Hands On Task
Step 6: Evidence of Learning – Student Reflection

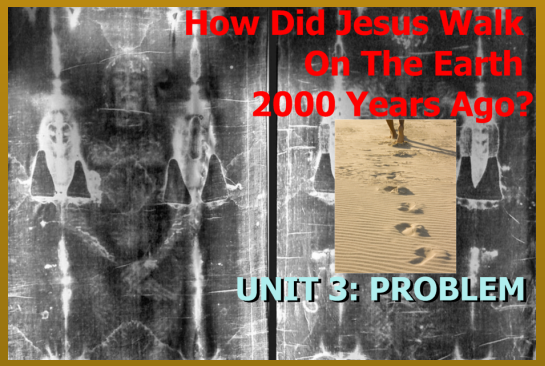
Problem Projects

Problem 1: Are the animators using the correct number of balloons in the movie "Up"?

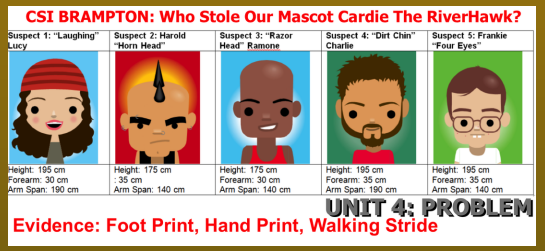


Problem 2: How can you build a kite?

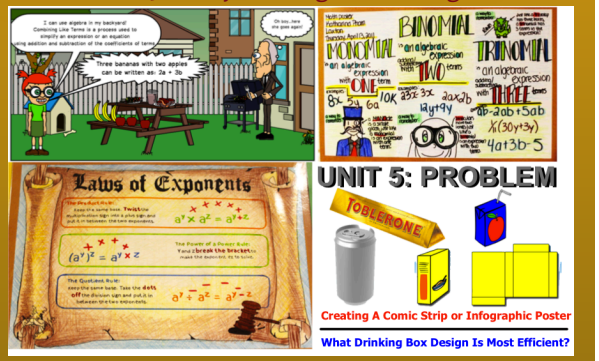
Problem 3: How did Jesus walk 2000 years ago?



Problem 4: CSI Brampton: who stole Cardie?



Problem 5: Can you design a drinking box?



Problem 6: Which Bridge is a better design?