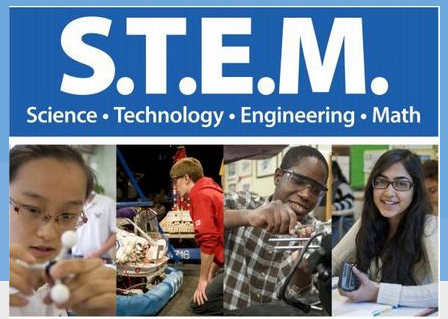
#olasc16

STEM education: full STE(A)M ahead at your Library Learning Commons!



goo.gl/judIJ7

Super Conference Thursday Jan 28, 2016

Session # 19138

Raman Sarai, Mira Campbell, Megan Linton

& Fran Potvin-Schafer

tdsb L!brary


@RamanS23
Ramandeep.Sarai@tdsb.on.ca


@CampbellMira
Mira.Campbell@tdsb.on.ca


@Teachlinton
Megan.Linton@tdsb.on.ca

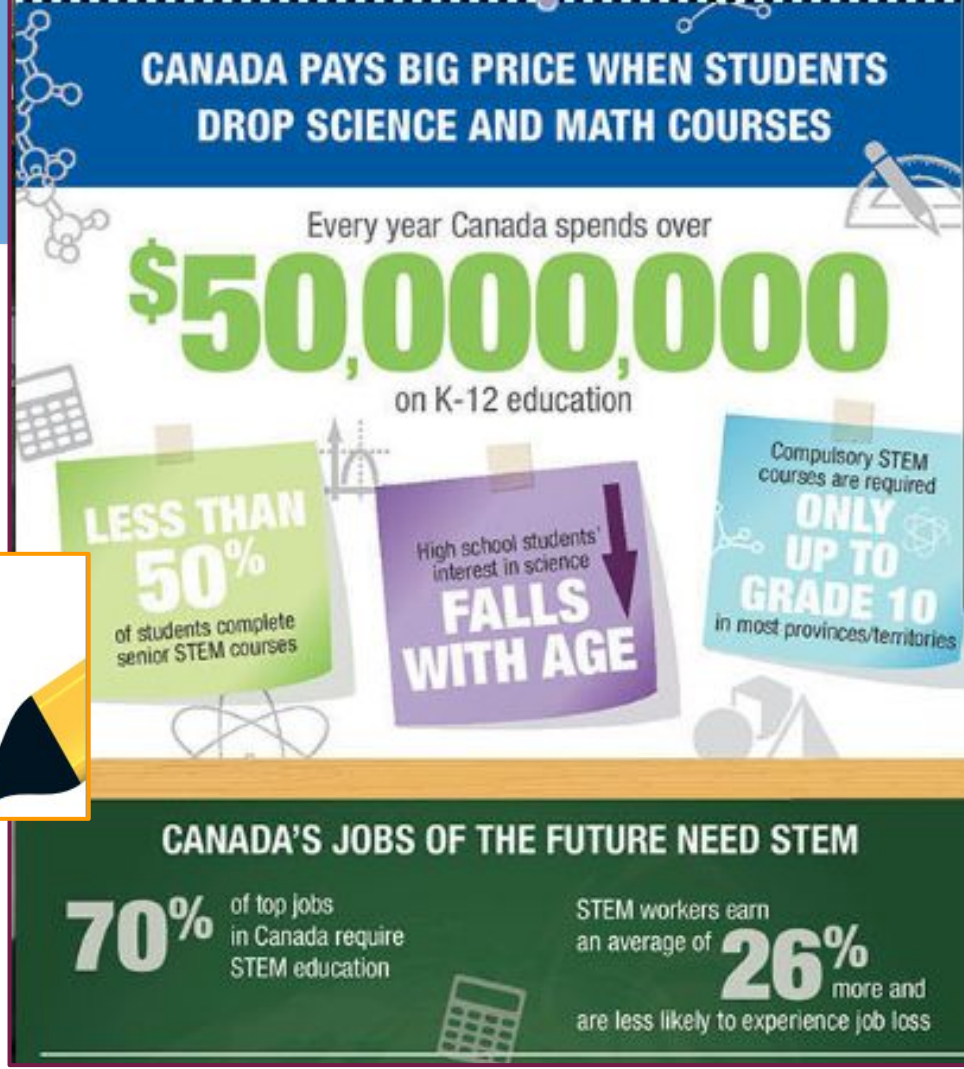

@Fran_PotvinS
Frances.Potvin-Schafer@tdsb.on.ca

What is STEM?

Why STEM?

THE CHALLENGE

Fostering a knowledge-based and creative economy to ensure Canada grows, prospers and remains competitive with its peer countries requires a diverse talent pool with a strong STEM skills.



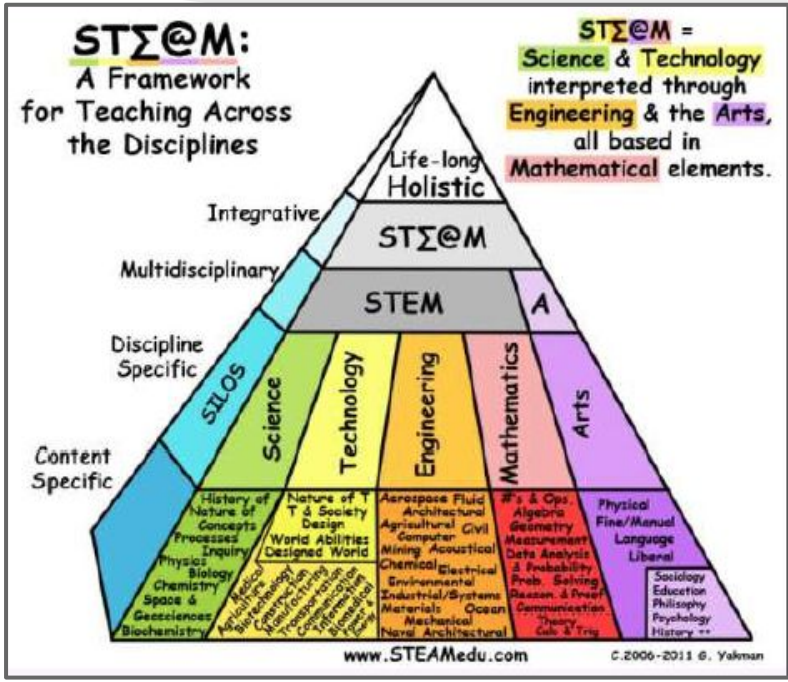
Source: Let's Talk Science

STEM Learning: beyond 4 disciplines

Definition: A trans-disciplinary approach to inquiry and problem-based learning that fosters collaboration, creativity, and innovation in all students. (TDSB)

Source: TDSB,

STEM: a learning approach that can be used with ALL subjects, with ALL learners



Source: STEAM Education, http://steamedu.com

STEM in the LLC Context

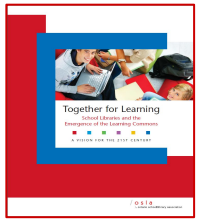
Learning Partnerships

The Learning Commons provides a space where everyone in a school can work together. Teachers, teacher-librarians, principals, technical staff, students... all can collaborate in learning partnerships. And all can switch the emphasis from teaching to learning. With everyone modeling how to learn, the learning proc

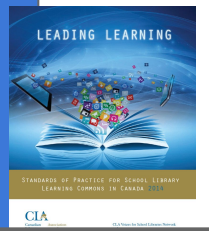
Creating a Culture of Inquiry

Inquiry is a complex process of constructing personal meaning, applying critical thinking skills, solving problems, creating understanding, and questioning.

Source: *Together For Learning* (2010)



Some metaphors for the school library learning commons might be: learning laboratory, idea factory, studio or even "great room: in the school and community.



Build learning environments that support and nurture inquiry, experimentation, innovation, creativity and playing to learn. *Leading Learning* (2014)

Imagination and Creativity

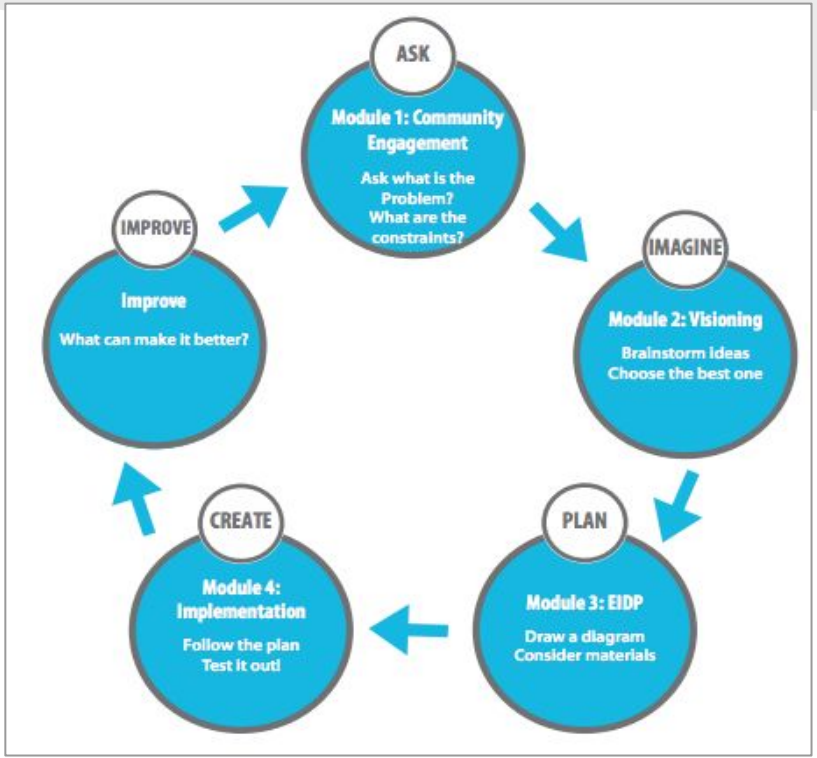
Imagination is a talent that atrophies when it's not used often enough. A recent study shows 98% of four year olds could be classified as divergent thinkers. By age 12, however, this percentage dwindles to 10%. Daily opportunities to use "creative muscles" result in exciting learning experiences, individualized expression and self-directed learning. End

Technology in Learning

Students appear to have natural abilities to use emerging technology. But the reality is, while students easily grasp the entertainment and communication value of the devices they use, they need to be taught how these tools can be used in learning and critical thought. This is a task for the Learning Commons.

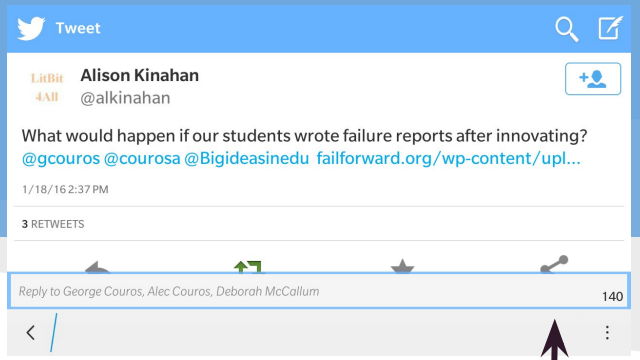
Inquiry & Engineering (PBL)

Model of Inquiry



Engineering Design Process

Growth mindset …



- Challenges with STEM:
  - perception of STEM
  - how students identify themselves
- Role School LLC plays in a student's "STEM Identity" (School Librarians can be Crucial Partners in STEM, *STEMWire* July 10, 2013).
- Building a culture of risk taking and freedom to make mistakes to develop critical thinking skills : "Fail Forward" thinking! (twitter-verse!)
- Carol Dweck and the power of YET!

Inquiry and STEM/STEAM… a perfect fit in the Library Learning Commons!

- The power of the generalist - supporting *all curriculum areas* (multi/inter/trans-disciplinary approaches)
- Collaboration with colleagues and students to Support STEM Thinking and build a positive "STEM Identity"
- Focus on *Inquiry-Based learning* - inquiry in all curriculum areas (inquiry instruction from guided to independent)
- *Technology* integration/transformation (student engagement)
- *Co-learner* stance - individual choice/risk-taking in learning (voice/choice)

STE(A)M at TDSB- What's happening in our TDSB elementary/M.School LLCs?

Two different approaches to Making:

Raman Sarai: Westwood Middle School gr 6-8: MakerSpace

Megan Linton: John A. Leslie , JK-8: Makerspace

Math and Collaboration @YOUR LLC
Mira Campbell F.H. Miller JK-6:

Westwood Middle School

Getting Started on the Makerspace…
An Evolving Experience

Ramandeep Sarai

The Middle School LLC

- Enhancing the book exchange period with innovation, creation and play.
- Students rotate and try out various activities that promote critical thinking, problem solving, literacy skills, cooperative skills and more.

Rationale

"Adolescent learners may:

- be accustomed to receiving information quickly
- prefer multi-tasking
- prefer non-linear access to information
- engage in games, simulations, and role play
- engage in social interactions through a variety of technologies"

Adolescent Literacy Guide: A Professional Learning Resource for Literacy, Grades 7-12. N.p.: Ontario Ministry of Education, 2012. Print.

Adolescent:

Cognitive	Emotional	Social
• ability to think more about a variety of possibilities • improved abstract thinking skills • to think more about thinking(metacognition)	• empathy for others • emotional self-control	• personal identity • social identity • sense of independence • strong relationships

Adolescent Literacy Guide: A Professional Learning Resource for Literacy, Grades 7-12. N.p.: Ontario Ministry of Education, 2012. Print.

Activities

1. Word Nerd
2. Back to the Future
3. Build
4. All the Good Apps Are Taken
5. Reading is Jawsome!
6. Create: Make Your Mark

Student Instructions

Word Nerd

In small groups, students play literacy based board games:

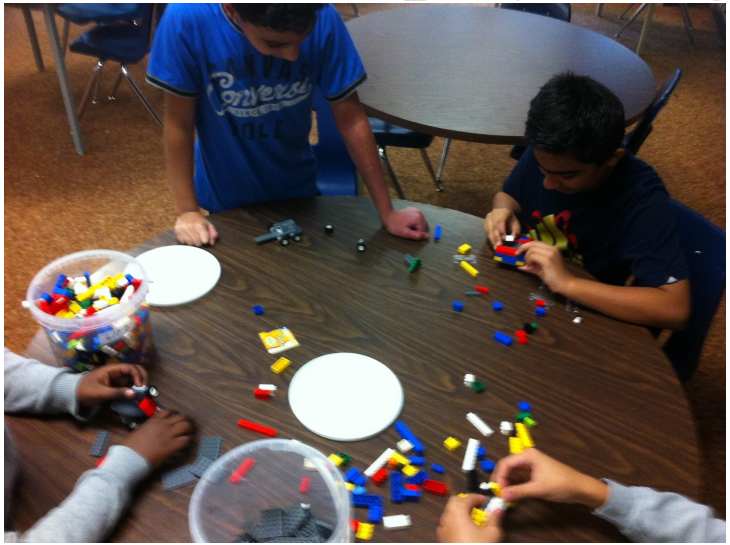
Back to the Future

- Using old technology, students take apart old technology to see how it was built
- You will need safety goggles, screwdrivers
- Most equipment are broken down computers from the school.
- Second hand stores are a good place for collecting old technology or ask for donations

Back to the Future

Build

- Students work with lego to build or play Jenga



All The Good Apps Are Taken

- Students (in pairs) are given an app to play with
- Students focus on the how the app works and how it could be useful for them in their learning
- Students discuss and if time share their creation with the class

Create: Make Your Mark

- Students use recycled materials that I have collected over time
- Students create or build anything they want

Reading is Jawesome

For students who love to read, they can look for a book to enjoy

T-L Role

During the makerspace times:

- Observing student interactions and conversations
- Questioning students
  - What skills did you use for this activity?
  - How could use what you did in a class project or assignment?
  - What was challenging about this activity?
  - What did you like about this activity?

Reflection

- Build in time for reflection, either written piece or as a class discussion
- APP reflection
- Reflection

“We had to use our collaboration skills to figure out how to work together to have the jenga pieces stay together.”

“It was fun to see how a computer is put together.”

Activity:_____

What did you like about this activity?

What could be better for this activity?

What skills from this activity could you use in your learning?

APP TITLE?
What did you like about this app? What did you not like this about app? How could use this app in your learning?

Logistics

- Work with the classroom teacher to predetermine groups or decide during book exchanges
- 50 minute periods every 2 weeks
- Open dialogue with staff and students for the rationale behind the makerspace
- Gathering materials
- Pop-up space (Storage options)
- Takes time to build the routine

Revisions

- Get student and teacher feedback to alter activities
- Change up the centres or have specific tasks connected to books in the various centres
- Still a work in progress….

The Future:

3-D printing, minecraft, coding and more….

Contact Info

Ramandeep (Raman) Sarai:

Email: ramandeep.sarai@tdsb.on.ca

Twitter: @RamanS23

John A. Leslie Public School

Our Journey Through the MakerSpace Age…

Megan Linton

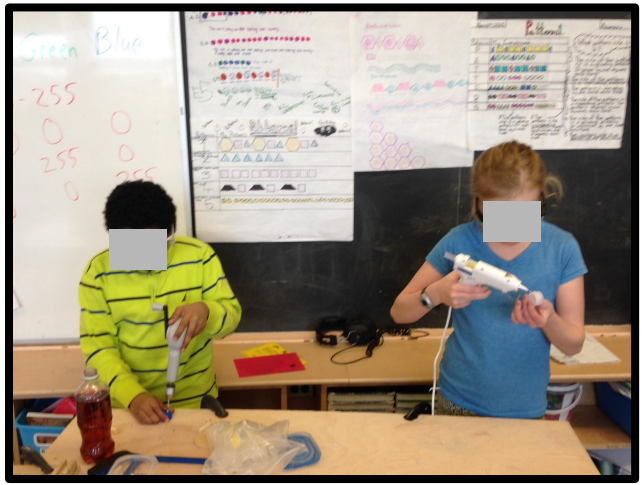
The vision...

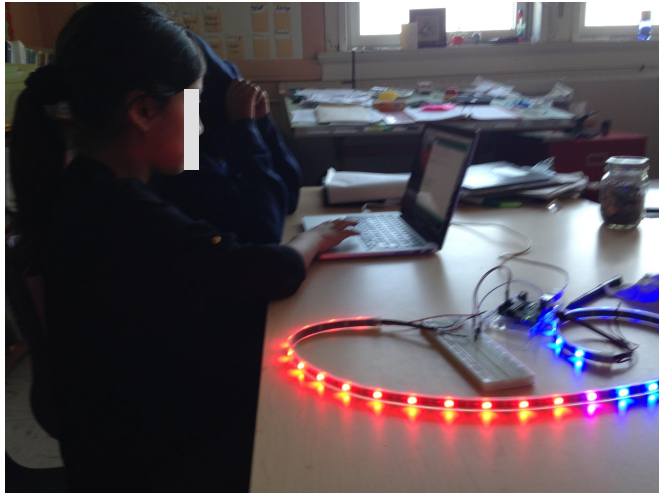
The idea for the JAL Innovation Lab came out of a desire to change the culture of the school; to embed creativity and problem solving throughout the curriculum. The iLab has become a learning hub for project based learning at the school, but innovation and the Maker/Hacker ethos is on display in classrooms throughout the school.

Computer Lab to MakerSpace

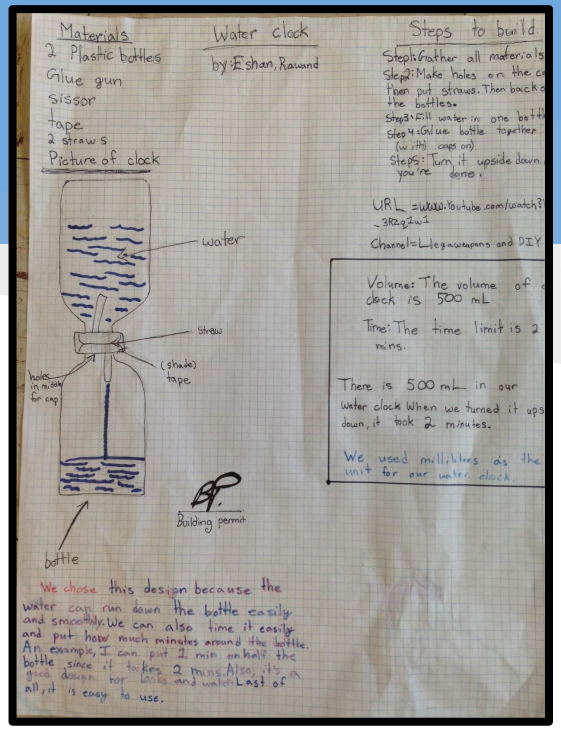
“Maker” in the classroom

Opportunities to Use Tools in Various Subjects





Use of Technology In Math and Science

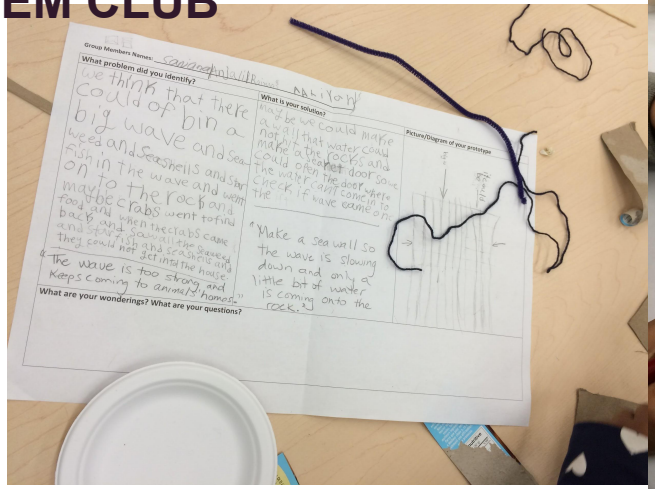


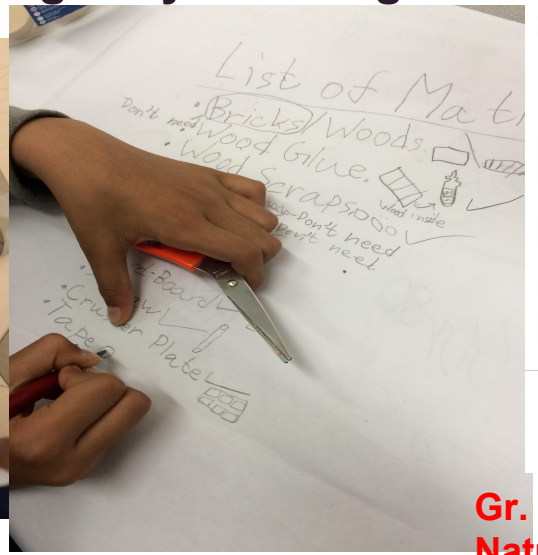
Building/design Math Activities

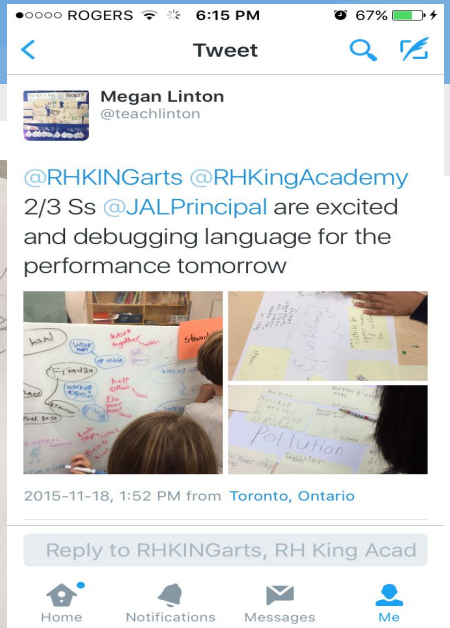
Innovation Lab

It starts with a problem...

Gr. 2/3
Various problems after seeing a remake of the "True Story of the Three Little Pigs" by R.H King
STEM CLUB



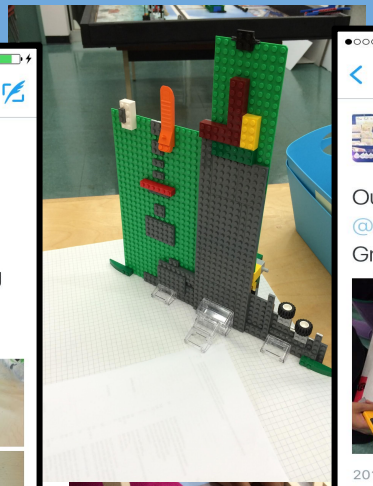




Gr. 7
How do we get students of JAL/community to dispose of/recycle batteries safely?

Gr. 5
Natural disasters occur all around the world. How can you create a structure to defy this force?

...with endless possibilities!



How does it work?

- Role as a TL - MaRS Discovery District to promote Entrepreneurial Thinking
- Partnering
- Scheduling
- Planning time
- How else do students get to come down?

Other projects…

-Community networking/outreach for supplies/donations

-Grade 2/3's Working with STEM club at R.H. King

-Visitors for sharing/feedback

Next Steps…

-Getting students to explicitly identify the connections between Math, Art and Science during STEM/STEAM based activities

-Increase class access to the space

-STEM kits to go

Contact Information

Twitter: @teachlinton

email: megan.linton@tdsb.on.ca

#OLASC16

FH Miller Jr PS

Making Math Thinking Visible

with iPads & Padlet

A Snapshot K-6

tdsb L!brary

Mira Campbell

Learning Goal

To strengthen students' math communication & improve student achievement.

The Elementary LLC

- Collaborative partnership with classroom teachers during Library periods

- Students (K-6) communicate and demonstrate their learning in math using iPads & Padlet

Making Math Thinking Visible

Video Trailer

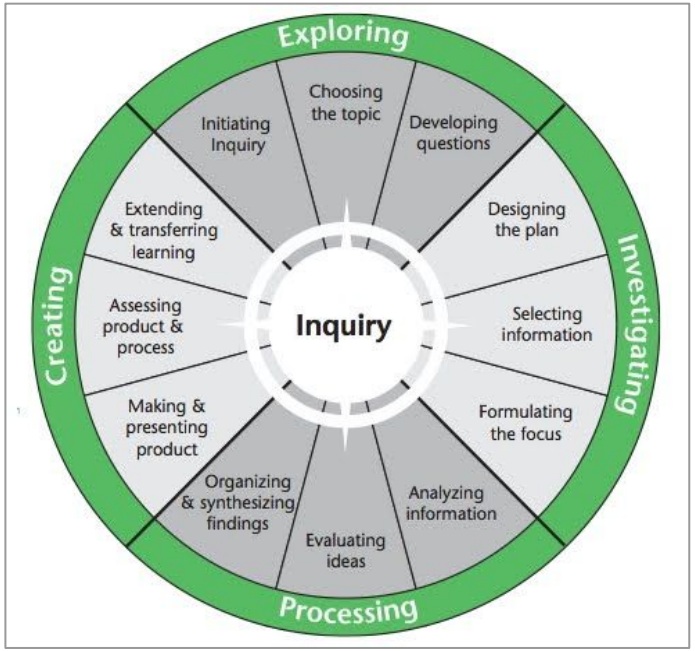
Format

- Library Period (40-60 Minutes)
- Partnership between Classroom Teacher & TL
- 3-Part Math Lessons
- Hands-On
- Students work in groups using iPads & post on Padlet
- Choice given to students on *how* to communicate ideas

Planning

- Can be informal…not always joint prep time
- Used Google Docs to collaborate & plan
- Planned outside of instructional hours
- Homeroom teachers support allowed for focused instruction in LLC

Model of Inquiry



Model of Inquiry

3-Part Math Lesson aligns with Inquiry

Choice

Select

Collaborate

Analyze

Identify

Organize

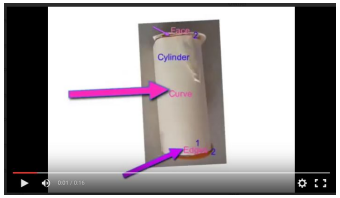
Present

Why Padlet?

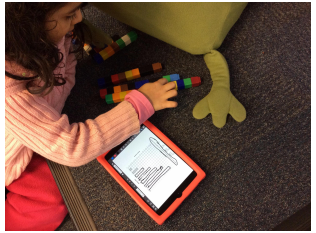
- Similar to online ‘live’ bulletin board
- Easily accessible
- Collaborate in real time
- Customizable
- Post comments with multimedia
- Revisit work anytime
- Easily shared
- Provides assessment & activity data for teachers

Student Using QR Code to post on Padlet

Student Video Embedded in Padlet



Why iPads?



- Built-in Accessibility features to support student learning (e.g., microphone; speech)
- Camera/Video to capture & record thinking
- Apps like Skitch & Explain Everything
- Padlet app makes it easy for work to be directly uploaded
- Student engagement

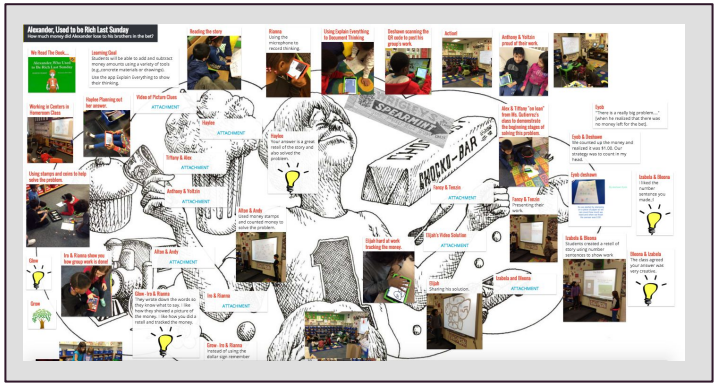
Making Thinking Visible…

The Impact on Student Learning

- Ongoing documentation
- Multiple ways to demonstrate learning
- Technology allows for *all* students to participate
- Creates an authentic record of the learning
- Self/peer descriptive feedback

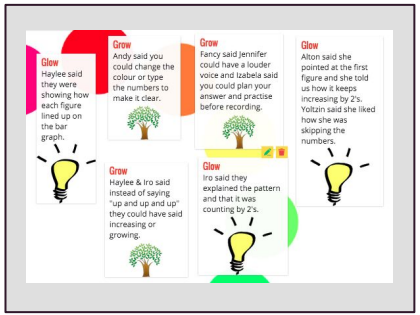
Engagement

Evidence of Learning

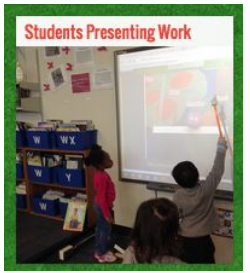


Students Choose How They Demonstrate Own Understanding

Students Annotate Photographs of their Work to Show Thinking



Peer Assessment using “Glow & Grow”



Students Improve Math Vocabulary By Presenting

Students Use Manipulatives to Solve Problems

FH Miller Padlets

Snapshot: K-6

Grade 2/3 Math Minds On

Why is it helpful to include pictures in mathematics? What are some ways you can demonstrate your learning in math?

Fancy
You can write the answer.

Student Explanation
There is a key for each one and the pictures to tell how much each picture is. For example there are 9 students who said their favorite school lunch is pizza

Iro & Taylor
If you don't put pictures then people won't know how you solved it.

Student Explanation
I could video tape my answer. I could record your voice.

Yoltzin
Sometimes the picture you draw gives you the answer. Sometimes the picture gives you information you need to solve the problem.

Iro
You could draw the answer.

Haylee
We were counting all the money and when we knew the answer we recorded ourselves while we were solving the problem.

Frida
I took a picture of my work and explained what it meant while we were recording it.

Anthony
You could build your answer.

Deshawn
Crayon problem.

Eygb, Izabela & Iro

Frida
Drawing out the solution to the crayon problem

Sample Minds On

Grade 2/3 Pictures in Math
Ms. Narayan's Class

Ms. Chow's Kinders Learn About Measurement

Order the objects in your basket.

Learning Goal
We are learning about measurement and COMPARING/ ORDERING objects.

Tony
We can use a table because when they stand up then you can see that it's all flat.

Lucas
Biggest to shortest.

Students measuring their objects

Daniel, Lucas and Phil

Students Photographing Own Work

Ordering Objects
I can use words like small, medium and large .

Tony
First, second, third, fourth...

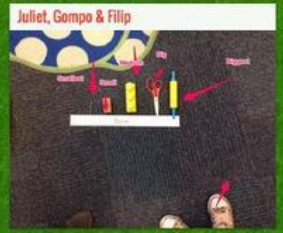
Xavier
By counting like 1, 2, 3....

Bryan
a, b, c,....

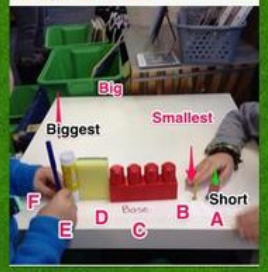
Grow
We need to remember to line up along the base carefully.

Mika & Kamea & Dhakpa

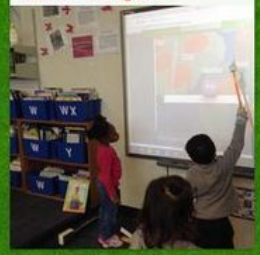
Juliet, Gompo & Filip



Daniel, Rinnai and Xavier



Students Presenting Work



Numbers
1, 2, 3, 4...

Mika
We can order shortest to biggest.

Elio
Helping Kinder students to post on Padlet using QR codes.

Rinnai
I was putting the words. I was using the microphone

Success Criteria

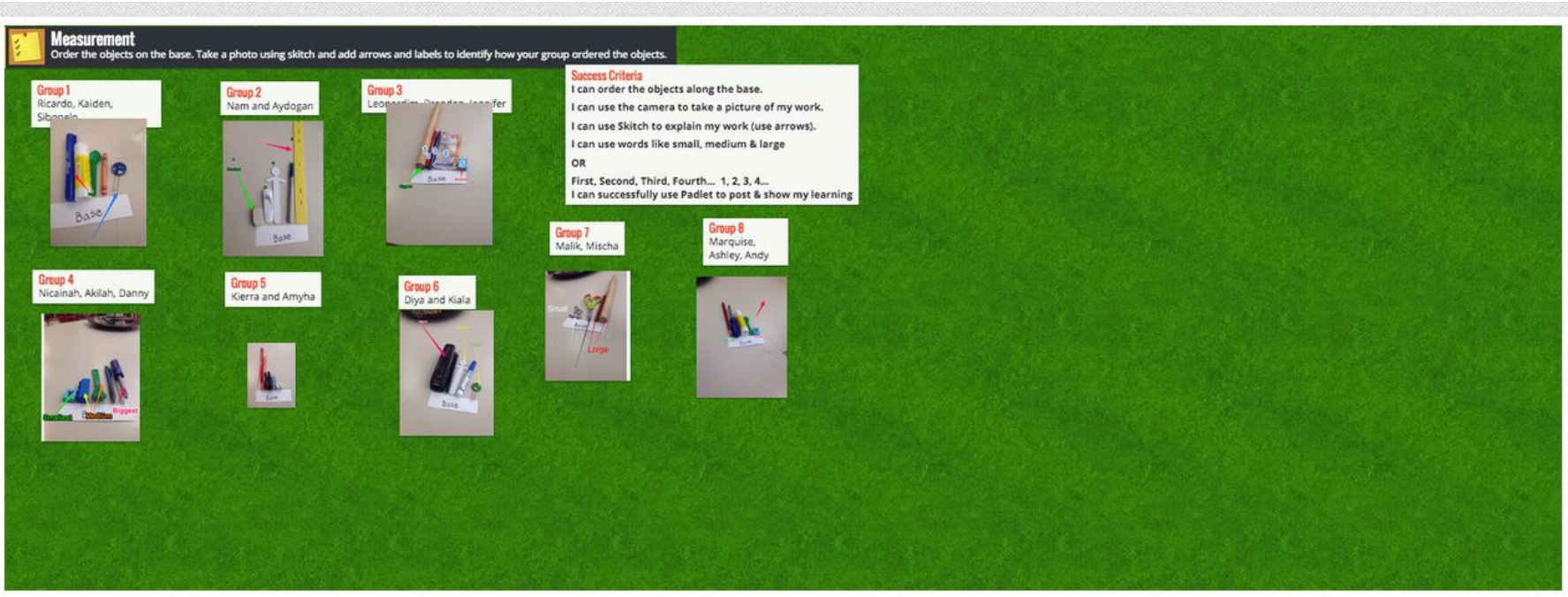
Student using Microphone
to label work with Skitch

Glow
We love how this group used two strategies to order.

Xavier
We used the table because the floor was too bumpy. Some objects didn't stand up so we used blue sticky stuff.

Kindergarten - Measurement

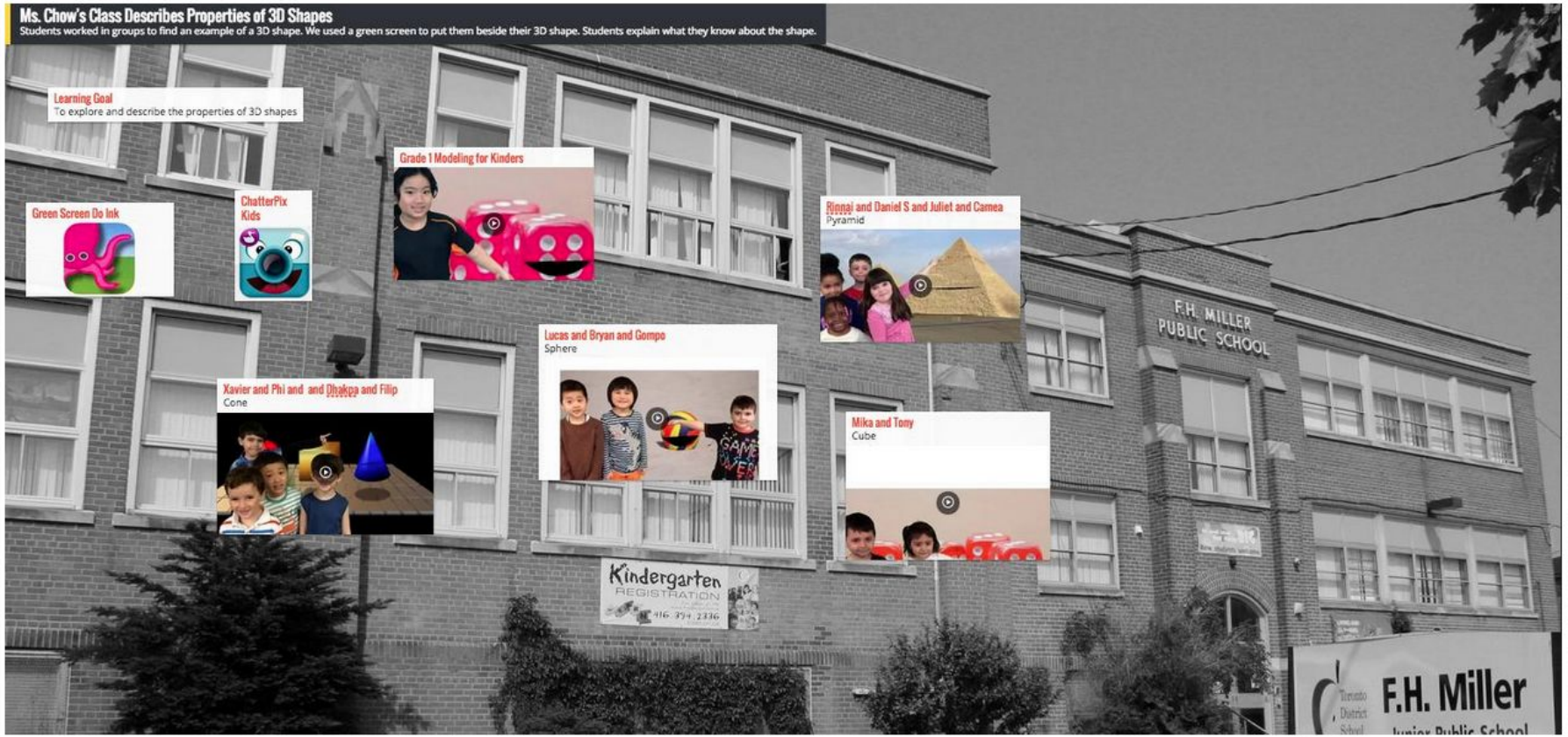
Ms. Chow's Class



Measurement

Courtney Smyth's Kinder Class

Chalkfarm



Kindergarten - 3D Talking Shapes
Ms. Chow's Class

Kinders in Ms. Palmer's Class Measure Snakes

Students had to first estimate (guess) how long they thought their snake would be and then they measured it in blocks.

Learning Goal
We were learning to ESTIMATE and measure our worms with CUBES.

Burak and Sadie
Sadie: I guessed 12 cubes and Burak guessed 5 cubes. My snake was 8 cubes long.

I Can Measure...

Zeynep

Allan and Troyson
Allan: I guessed 2 cubes. Troyson: I guessed 5. Tae said that Troyson's guess was a little bit closer.

Ethan and Tae
Tae: I guessed it would be 25 cubes. That was too much.
Ethan: I guessed it would be 9 cubes. I guessed right!

Tae
Explaining his work.

Apollonia
I was counting the cubes to find out how many cubes long.

Esteban

Elizabeth
My guess was kind of close but on the second one I was really close. I guessed the pencil would be 8 cubes and it was 9.

Sadie Photographing the Snake

Abigael and Apollonia
We were measuring our worms

Hasen

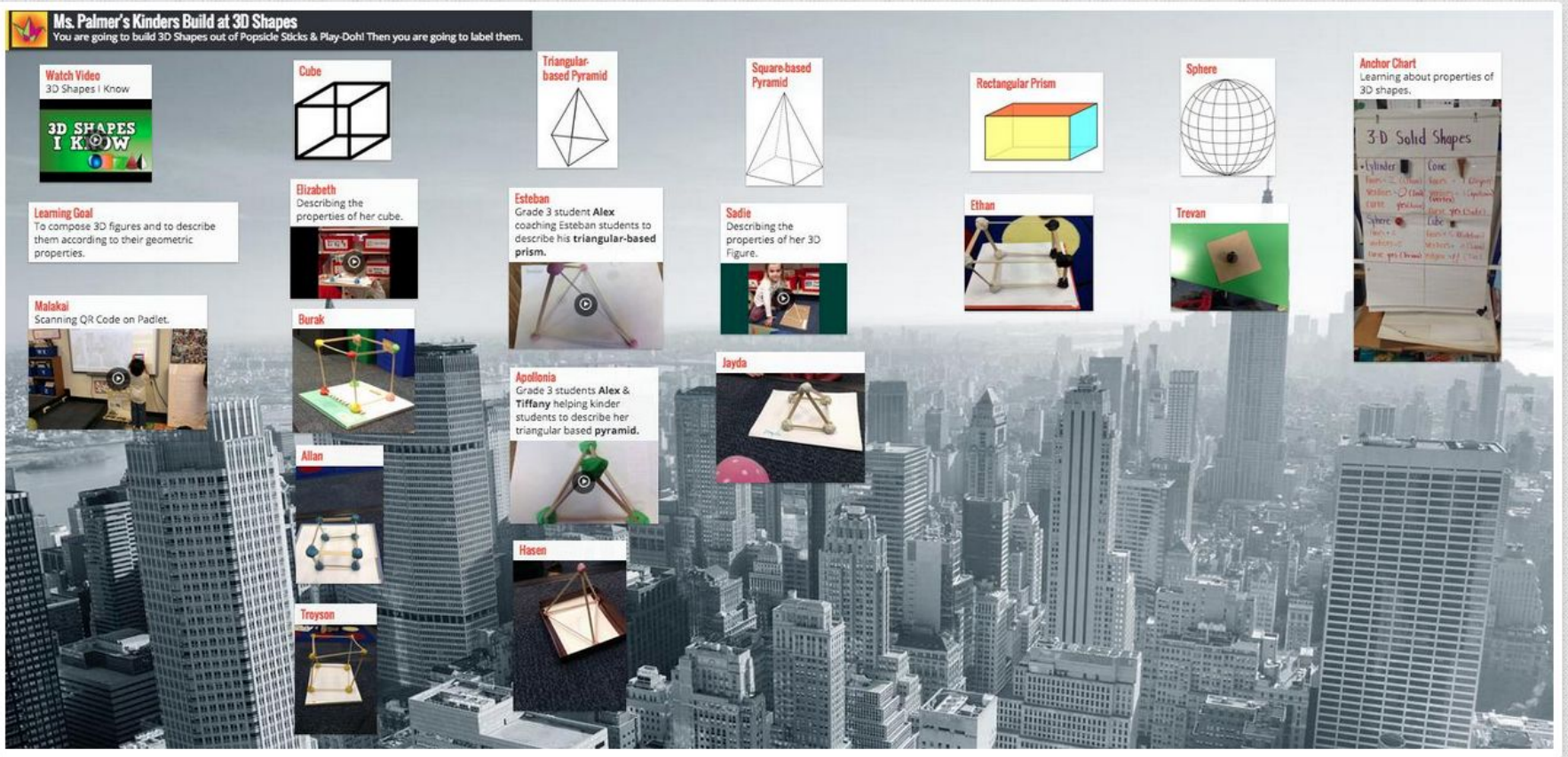
Ethan
Ethan was using the iPad app Skitch to label his picture.

Alan
I was counting the number of cubes.

Jayda
Jaida estimated 10 cubes. Zain said her guess was a little bit far.

Roshan

Kindergarten - Estimation
Ms. Palmer's Class



Kindergarten -3D Shapes

Ms. Palmer's Class

Ms. Foster's Class Labels 3D Shapes

1) Watch the video 2) Take a picture of the 3D shape that you made 3) Label all the parts of it in the app Explain Everything 4) Find 1 real life example of 2 shapes. You can take a picture of an object in the library or search Pixabay.com 5) Copy picture link in Padlet and move to the correct spot

Watch Video - Minds On
3D Shapes I Know

Search For Images...

Pryamid

Cube

Cone

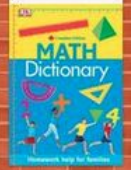
Cylinder

Rectangular Prism

Triangular Prism

Learning Goal
To compose 3D figures and to describe them according to their geometric properties.

Math Dictionary
Judith de Klerk



Isaac and Xander

Ajani

Ajani

Yiga

Jason

Shiloh

Hint

Xander & Isaac
Recording their thinking in Explain Everything

Glow - Ajani
Very detailed description of the properties of a cone.

Jason
Using the app Explain Everything to label his 3D Figure.

Monica

Hint

Amanda

Hint

Aliyah

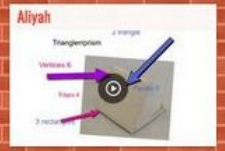
Aliyah
Searching for images of real life examples of 3D shapes.

Glow - Amanda
Great job listing all your 2D shapes and the edges and vertices.

Ajani

Chineyre

Aliyah

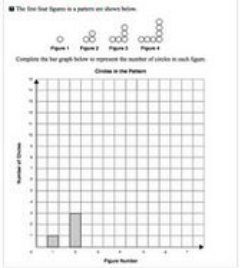


Grade 1 - 3D Solids
Ms. Foster's Class

Grade 2/3 Graphing a Pattern

Complete the bar graph below to represent the number of circles in each figure. Don't forget

Question Part 1



Learning Goal

Use App Explain Everything to complete the graph and explain your thinking.

Success Criteria:

1) I can complete the figures on the bar graph
2) I can tell how many circles will be needed in Figure #7
3) I can explain my thinking using app Explain Everything

Question Part 2

Explain Your Thinking

Georgina, Nayeli, Andy, Yoltzin

Glow

Alton said she pointed at the first figure and she told us how it keeps increasing by 2's. Yoltzin said she liked how she was skipping the numbers.

Fancy

Grow

Andy said you could change the colour or type the numbers to make it clear.

Eyob and Jayden

Izabela and Iro

In the video we made a mistake. We said counting by 3's instead of counting by 2's.

Jennifer and Gianna

Glow

Haylee said they were showing how each figure lined up on the bar graph.

Grow

Fancy said Jennifer could have a louder voice and Izabela said you could plan your answer and practise before recording.

Rianna, Frida & Bleona

Alton & Deshawn & Anthony

Grow

Haylee & Iro said instead of saying "up and up and up" they could have said increasing or growing.

Glow

Iro said they explained the pattern and that it was counting by 2's.

Grade 2/3 - Graphing
Ms. Narayan's Class

Math & Literacy

Grade 2/3 - Money Problem Solving
Ms. Narayan's Class

Image Source: Alexander, Who Used to Be Rich Last Sunday by Judith Viorst ©1978

What is Padlet?

According to Students... .

"A padlet is for learning your mistakes and fixing you mistakes and when you have a question like the padlet you can finish it fast." ~ Eyob

"It is something that you use to do math and check work that you did and put work in groups." ~ Haylee

"Padlet is we're you post work that you did because so we can look at it again and again." ~ Izabela

"Padlet is waer we post awer aster." ~ Rianna

"Because we post all our answers and share them as a class and see who gets the right answer." ~ Iro

"Something that we put online so people can see it." ~ Gianna

Reflections…

Successes

- Improved student math communication
- Students engagement high
- *All* learners can participate
- Transfer math skills & apply in new context
- Demonstrated the importance of continuous learning to students

Challenges

- Investment of Time
- Managing varying levels of teacher experience & commitment
- Lessons can extend over several periods
- Co-Planning
- Technical difficulties

Student Quote

"When we had two teachers we got more help and it was easier because one teacher knew one thing and the other teacher knew other things." You [Ms. Campbell] knew more about ipads and chromebooks and Ms. Gutierrez knew more about the math. So both of you when you were helping us it was really neat how you could work together to make our project better." ~Veronica Grade 4

Contact Information

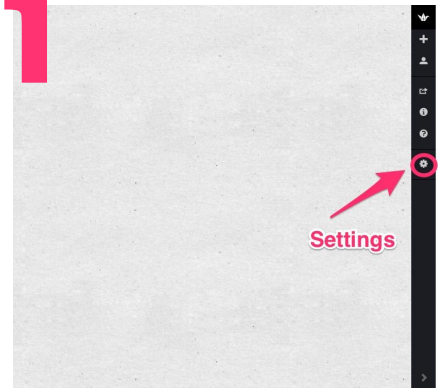
@CampbellMira

Email: Mira.Campbell@tdsb.on.ca

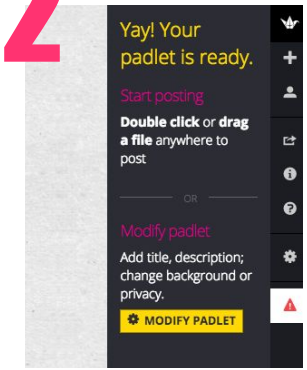
More Padlets: bit.ly/visiblemaththinking

Padlet: A Quick How To…

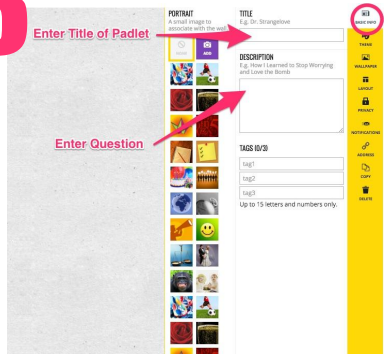
1



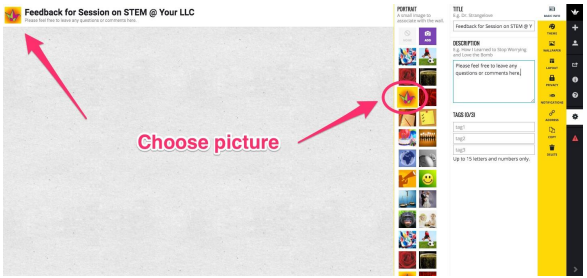
2



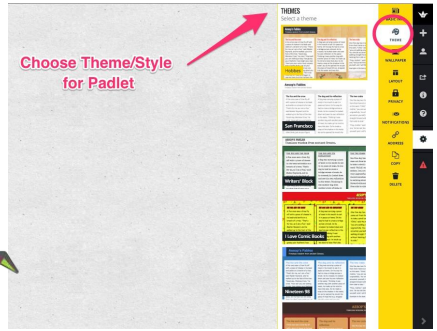
3



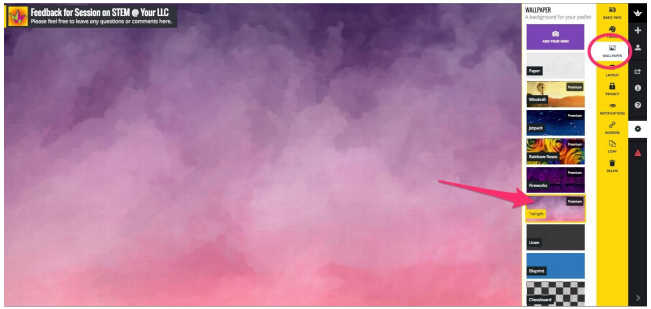
4



5

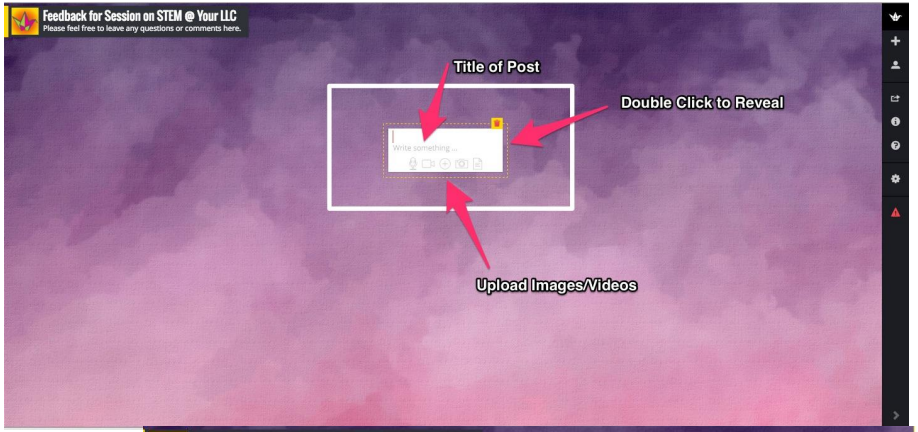


6

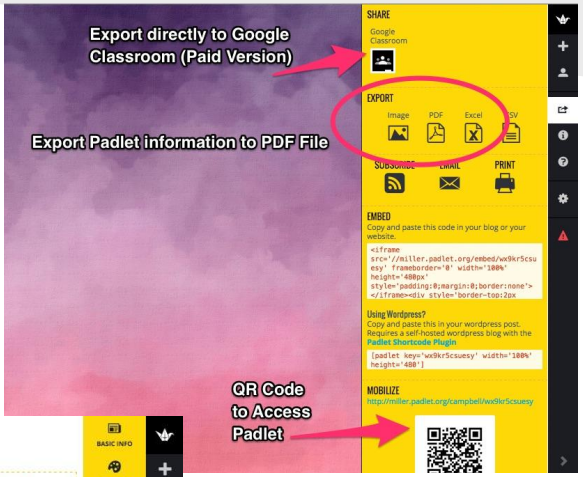


Feedback Padlet

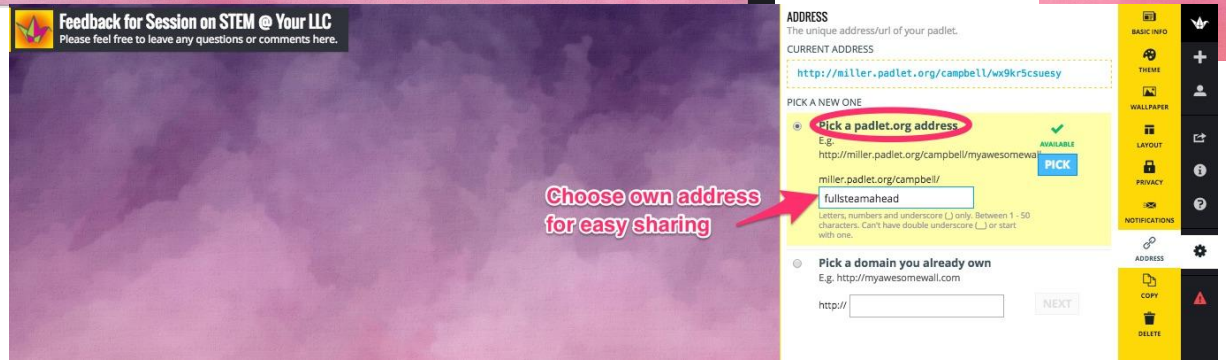
7



8



9



Feedback Padlet

What next…

1. What are you already doing that fits with STEM?

2. What is one STEM idea you would like to try?

3. Who might be a “STEM partner” at your school or in your community?

Resources

- Stem in Action
- Hour of Code
- Lit Bit 4All @alkinahan
- Laura Fleming @NMHS_lms Worlds of Learning
- Twitter lists created by Lisa Dempster TDSB STEM
- Makerspace Reflections by Diana Rendina @DianaLRendina
- Diane Rendina's Makerspace Resources
- A year with a 3D printer by Laura Taalman @mathgrrl
- Melanie Barker @indieschoollib Indie School Librarian
- Love the Learning @LisaJDempster
- The Journey from Library to Learning Commons
- Make It @your library
- If you let them build it, they will learn Laura Fleming

A fleeting thought from Diana Rendina:

Resources .../2

- A Librarian's Guide to Makerspaces: 16 Resources
- Shared doc: Schools with flexible spaces (Makerspaces)
- Worlds of Making by Laura Fleming
- Pinterest Canes Media
- Pinterest Sue Ellen Greer
- STEM Bibliography (Picture Books for JK - 8)
- Picture Books to use with STEM
- STEM and Aboriginal Students: T.D.S.B Professional Library bibliography
- STEM and Special Education Bibliography T.D.S.B Professional Library bibliography
- Cybrary Man's Makerspaces #MakerEd sources
- Making SySTEMic Change by Laura Fleming
- Five STEM Tools for any subject
- 20-Time In Education Inspire. Create. Innovate.
-

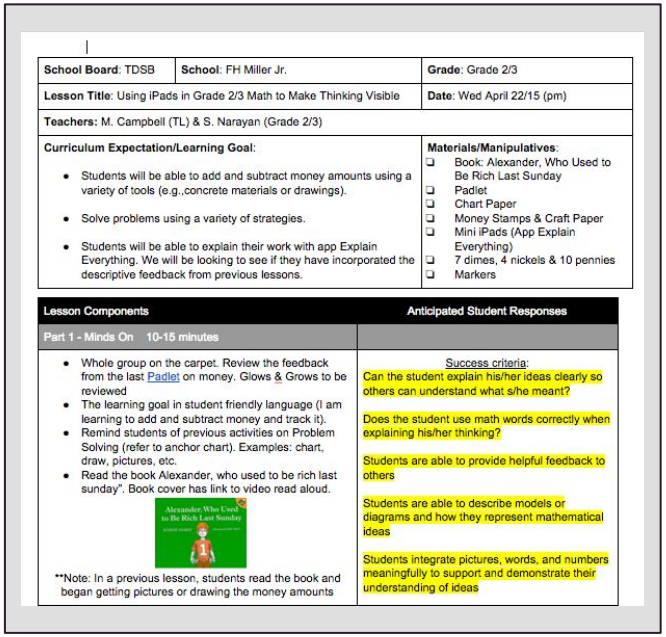
References

1. Clark, M. Libraries & makerspaces: A revolution? Technology & Social Change Group, University of Washington Information School. June 13, 2004.
2. Lodoya, Hetali. School librarians can be crucial partners in STEM July 10, 2013.
3. Kurti,R. Steven, Debby L. Kurti, Laura Fleming. The Philosophy of Educational Makerspaces Part 1 reprinted from the June 2014 issue of *Teacher Librarian*
4. 20-Time In Education Inspire. Create. Innovate.
5. STEM for All. Educational Leadership. Dec2014-Jan2015.
6. Vasquez, Jo Anne. C Sneider, M Comer. STEM Lesson Essentials, grades 3 - 8. Heinemann, 2013.
7. School Librarians can be crucial partners in STEM
8. Failure Reports: A How-To Guide
9. Hatch, M. The maker movement manifesto: Rules for innovation in the new world of crafters, hackers and tinkerers. McGraw-Hill, 2014.

Resources

Mira Campbell

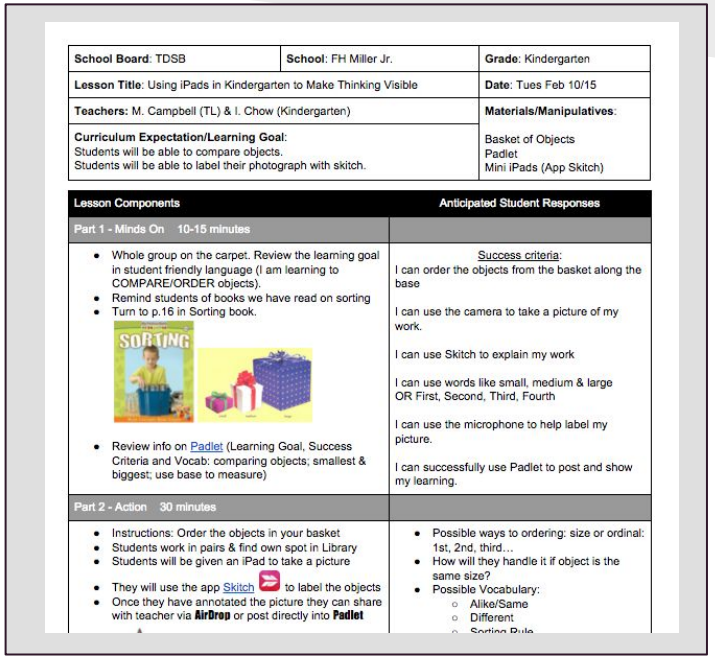
Lesson Plan Resources



School Board: TDSB	**School**: FH Miller Jr.	**Grade**: Grade 2/3
Lesson Title: Using iPads in Grade 2/3 Math to Make Thinking Visible		**Date**: Wed April 22/15 (pm)
Teachers: M. Campbell (TL) & S. Narayan (Grade 2/3)		
Curriculum Expectation/Learning Goal: • Students will be able to add and subtract money amounts using a variety of tools (e.g.,concrete materials or drawings). • Solve problems using a variety of strategies. • Students will be able to explain their work with app Explain Everything. We will be looking to see if they have incorporated the descriptive feedback from previous lessons.		**Materials/Manipulatives**: ❑ Book: Alexander, Who Used to Be Rich Last Sunday ❑ Padlet ❑ Chart Paper ❑ Money Stamps & Craft Paper ❑ Mini iPads (App Explain Everything) ❑ 7 dimes, 4 nickels & 10 pennies ❑ Markers

Lesson Components	Anticipated Student Responses
Part 1 - Minds On 10-15 minutes	
• Whole group on the carpet. Review the feedback from the last Padlet on money. Glows & Grows to be reviewed • The learning goal in student friendly language (I am learning to add and subtract money and track it). • Remind students of previous activities on Problem Solving (refer to anchor chart). Examples: chart, draw, pictures, etc. • Read the book Alexander, who used to be rich last sunday". Book cover has link to video read aloud. **Note: In a previous lesson, students read the book and began getting pictures or drawing the money amounts	Success criteria: Can the student explain his/her ideas clearly so others can understand what s/he meant? Does the student use math words correctly when explaining his/her thinking? Students are able to provide helpful feedback to others Students are able to describe models or diagrams and how they represent mathematical ideas Students integrate pictures, words, and numbers meaningfully to support and demonstrate their understanding of ideas

Grade 2/3 Money Literacy Lesson Plan



School Board: TDSB	**School**: FH Miller Jr.	**Grade**: Kindergarten
Lesson Title: Using iPads in Kindergarten to Make Thinking Visible		**Date**: Tues Feb 10/15
Teachers: M. Campbell (TL) & I. Chow (Kindergarten)		**Materials/Manipulatives**:
Curriculum Expectation/Learning Goal: Students will be able to compare objects. Students will be able to label their photograph with skitch.		Basket of Objects Padlet Mini iPads (App Skitch)

Lesson Components	Anticipated Student Responses
Part 1 - Minds On 10-15 minutes	
• Whole group on the carpet. Review the learning goal in student friendly language (I am learning to COMPARE/ORDER objects). • Remind students of books we have read on sorting • Turn to p.16 in Sorting book. • Review info on Padlet (Learning Goal, Success Criteria and Vocab: comparing objects; smallest & biggest; use base to measure)	Success criteria: I can order the objects from the basket along the base I can use the camera to take a picture of my work. I can use Skitch to explain my work I can use words like small, medium & large OR First, Second, Third, Fourth I can use the microphone to help label my picture. I can successfully use Padlet to post and show my learning.
Part 2 - Action 30 minutes	

• Instructions: Order the objects in your basket
• Students work in pairs & find own spot in Library
• Students will be given an iPad to take a picture
• They will use the app Skitch to label the objects
• Once they have annotated the picture they can share with teacher via **AirDrop** or post directly into **Padlet**
	• Possible ways to ordering: size or ordinal: 1st, 2nd, third…
	• How will they handle it if object is the same size?
	• Possible Vocabulary:
	  ○ Alike/Same
	  ○ Different
	  ○ Sorting Rule

Kindergarten Measurement Lesson Plan

Assessment Samples

Grade 1 - Label a Graph

Name the all the parts of the graph.

MIRA • JANUARY 16, 2015

MIRA FEBRUARY 18, 2015

Why do we make bar graphs? What do they tell us?

To compare information - Chinyere

So you can see the information quickly. "The blue is taller than all the rest so I know blue has the most m&m's.

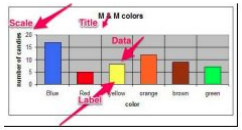
MIRA JANUARY 16, 2015

Learning Goal:

I can label all the parts of the graph

MIRA FEBRUARY 09, 2015

Jheneil and Aliyah



MIRA FEBRUARY 18, 2015

Where do you get the information from for the graph

The data comes from a survey. Shiloh

MIRA FEBRUARY 18, 2015

Ajani

I learned that label is important so you know what you are talking about.

MIRA FEBRUARY 18, 2015

Ms. Foster

I wonder if these colour amounts are the same in all packages?

MIRA FEBRUARY 18, 2015

Ajani

I learned that label is important so you know what you are talking about.

MIRA FEBRUARY 18, 2015

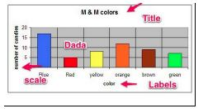
Salma

I used the iPad to learn about labels.

MIRA JANUARY 16, 2015

MIRA FEBRUARY 09, 2015

Madison and Amanda



MIRA FEBRUARY 18, 2015

Why do we need labels on a graph?

So people know what we are talking about. This label is teaching us about colour. Madison

Assessment Samples

Kinder Patterns

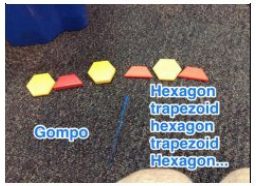
Create a pattern using the shape blocks.

MIRA • JANUARY 16, 2015

MIRA
JANUARY 16,
2015

Gompo

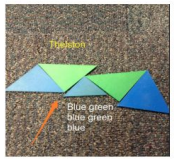
This is my pattern.



MIRA
JANUARY 16,
2015

Thelston

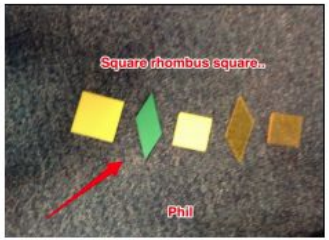
I made a colour pattern



MIRA
JANUARY 16,
2015

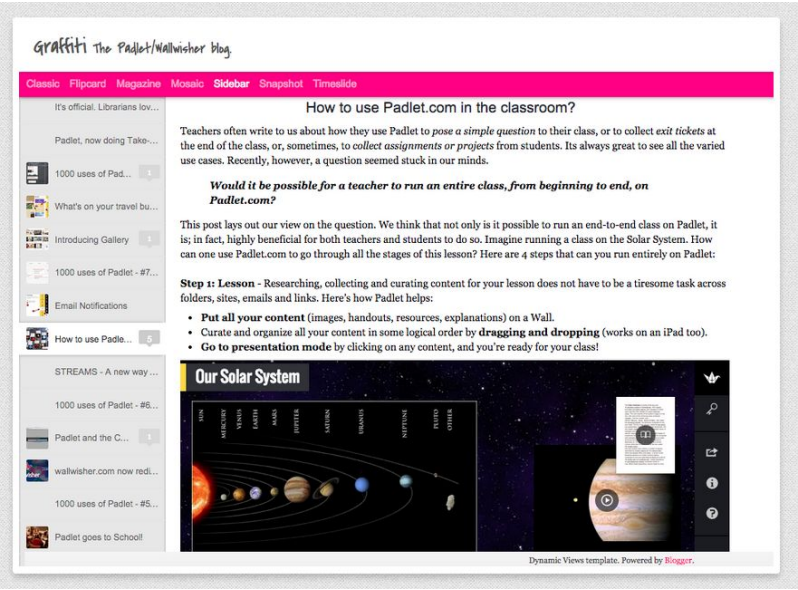
Phil

My pattern is by shape.



MIRA
JANUARY 16,
2015

Learn More about Padlet



*There is a free version & paid version of Padlet.

Learn More….

Check out the Padlet Blog for Amazing Ideas!

FAQ's

Padlet Junction

@padlet

Skitch

Features:

- Communicate & collaborate ideas
- Mark-up photos with arrows & words
- Available across platforms (iPad, Computer & Phone)

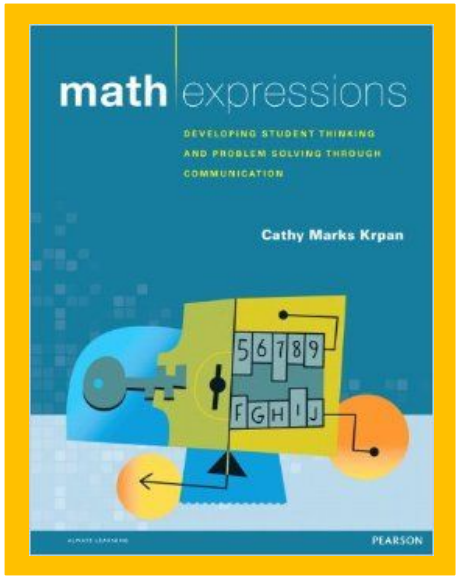
iPad Tutorial

Explain Everything Tutorial

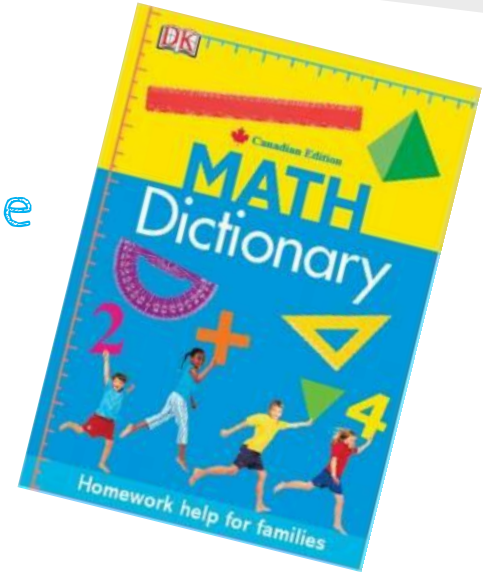
Basic Features

* There has been an update since this tutorial was created. The basic features icons look different but operate the same way.

Recommended Books



Great Math Resource



Success Criteria for Mathematical Discourse
& Samples of Effective Questioning