

**Creating Concept and Competency-based Classrooms:
The Launch**

Lower Vancouver Island

January 18, 2021

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UBC

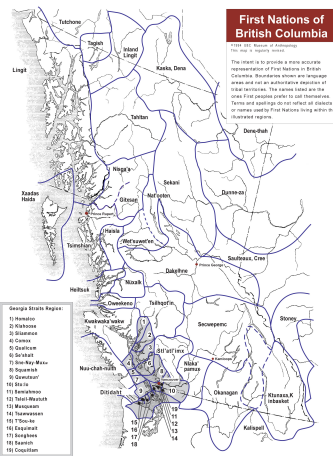
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Land Acknowledgement

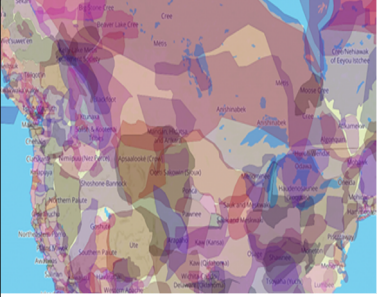
I would like to begin by acknowledging that the land that I join you from is the unceded territory of the Syilx (Okanagan) Peoples. I live, learn, and research together with the Land and its inhabitants, human and more-than-human. I am grateful and respectful of this place and the countless generations of Indigenous Peoples who have cared for it. I acknowledge, respect, and honour the enduring presence of all First Nations, Metis, and Inuit Peoples.



ruralteachers.com



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native-land.ca

Why is this acknowledgement happening?

How does this acknowledgement relate to the event or work you are doing?

What is the history of this territory? What are the impacts of colonialism here?


What is your relationship to this territory? How did you come to be here?

What intentions do you have to disrupt and dismantle colonialism beyond this territory acknowledgement?

3

Our purposes for today...


- Create a schema for concept-based learning
- Reground ourselves in the fundamental task of seeing and nurturing competency(ies) in our middle years learners
- Find a starting place for y/our work together as part of this series



[Gorgeous work from Sam Bradd @ Drawing Change \[click for full set of images!\]](#)

4

- Experience the possibilities and features of [Liberating Structures](#) for gathering amazingly online
- Connect as colleagues to reflect on our work together this year, support each other, and generate possibilities for our work



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Our (visual) Agenda

[Impromptu Networking](#)

[Mad Tea](#)

[Conversation Cafe](#)

WELCOME!



Slide credit: [Nancy White](#)

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Impromptu Networking



- Respond to the invitation with a partner
- Three rounds of 4 mins each
- Randomly Assigned Breakout Rooms
- Use to build quick connections, invite people's voices in, generate initial responses to a question



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Invitation

What brings you here today?

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The Nature of Learning (Dumont et al., 2012)

... the ultimate goal of learning and associated teaching ... is to acquire adaptive expertise—the ability to apply meaningfully learned knowledge and skills flexibly and creatively in different situations.

The capacity to continuously learn and apply/integrate new knowledge and skills has never been more essential.

Students should become ... life-long learners, especially as they prepare for jobs that do not yet exist, to use technologies that have not yet been invented, and to solve problems not yet recognized as problems.

(see <http://www.oecd.org/edu/cei/thenatureoflearningusingresearchtoinspirepractice.htm>)

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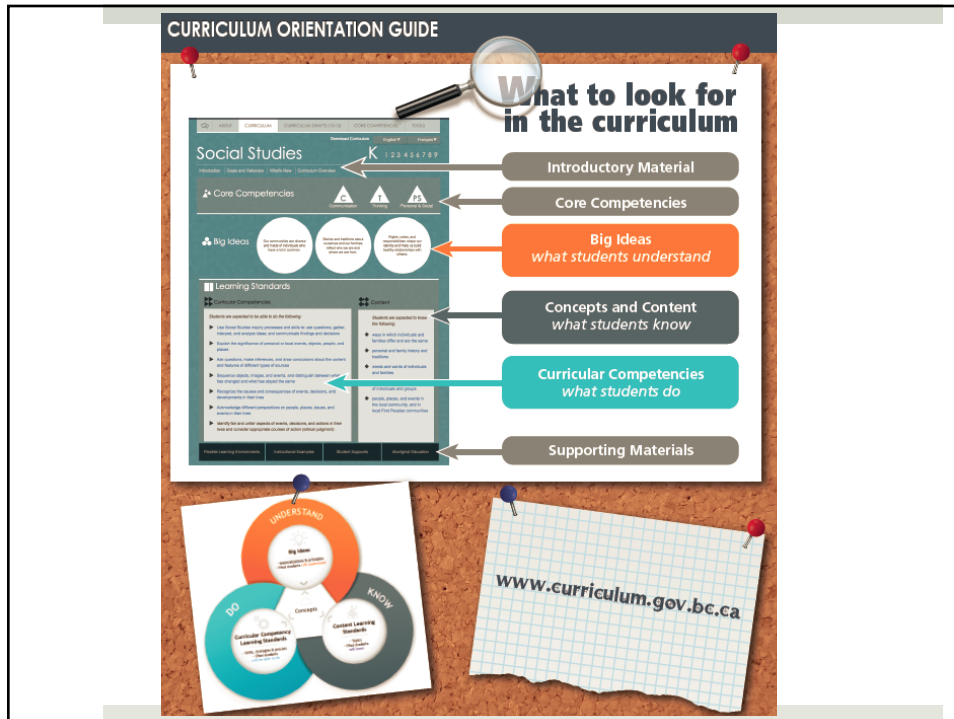
Where does research say we should be heading?

Help students to:

- see how subjects are interconnected
- be respected
- solve real problems
- learn from and with each other and people in their community
- feel they make a difference in the world, engage with knowledge that matters to them
- connect with experts and expertise
- have more opportunities for dialogue and conversation about their learning.

(Wilms et. al, 2009)

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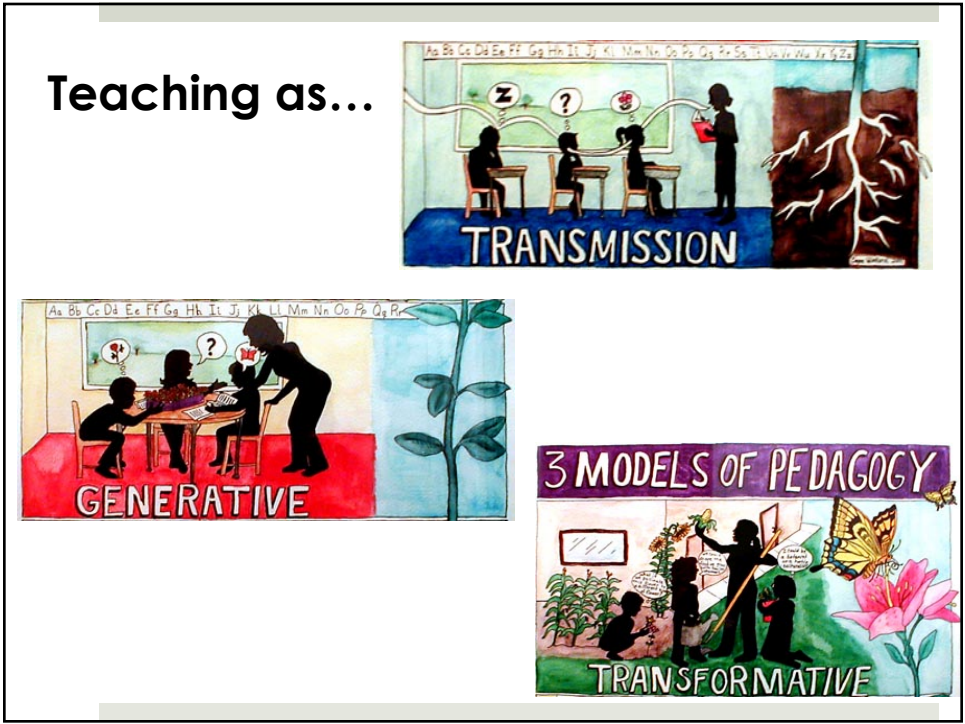
BC REDESIGNED CURRICULUM

SUPPORTS ABORIGINAL EDUCATION WOVEN INTO ALL TEACHING AND LEARNING

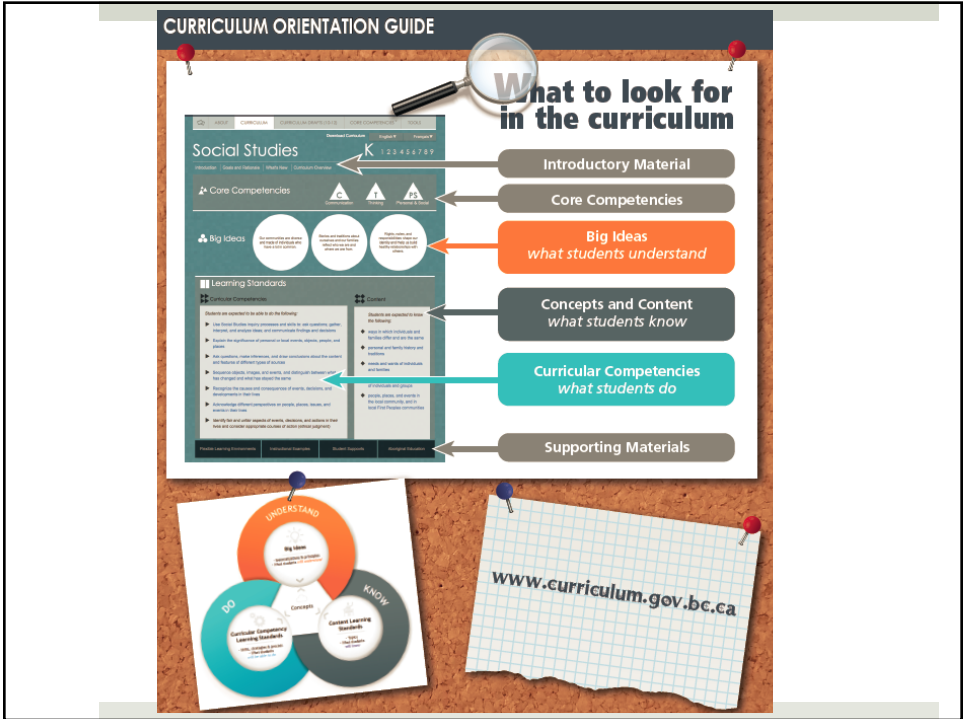
- Teachers focus on the gifts that each student brings.
- Teachers invite learners to express their understanding of who they are as learners.
- Teachers ask learners to support each other creating spaces of belonging in a community of learners.

For First Peoples classroom resources visit: www.fnesc.ca

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Concept-based curriculum

Why

- We want students to be strong thinkers, problem solvers, readers, writers and speakers
- We want students to see the world from multiple perspectives
- We want students to act differently because of what they have learned
- The key to understanding is **transfer**

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Concept-based curriculum

- If we remain at the topic and factual level, students stop trying to derive larger principles about what they are learning
- Students' understanding of conceptual relationships should alter how they see the world beyond the walls of the classroom and how they solve problems that occur outside the neat, teacher-constructed parameters of an academic exercise
- Conceptual transfer only occurs when students apply insights about the relationship among concepts to a new scenario.

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Concept-based curriculum

John Hattie's (2012) work supports the claim that conceptual understanding is key to transferring learning to new situations:

"We come to know ideas, and then we can be asked to **relate** and **extend** them. This leads to **conceptual understanding**, which can in turn become a **new idea**—and so the cycle continues.

These conceptual transfer only occurs when students **apply insights about the relationship among concepts to a new scenario**. understandings form the "coat hangers" on which we interpret and assimilate new ideas, and relate and extend them (p. 115)."

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"If at any time in the instructional process students demonstrate that they've learned the concepts well and mastered the intended learning goals, doesn't that make all previous information on their learning of those concepts inaccurate and invalid?"

~ Tom Guskey

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What concepts will my students learn?

What competencies do I want them to develop and use?



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[More gorgeous visuals from Sam Bradd @ Drawing Change!](#)

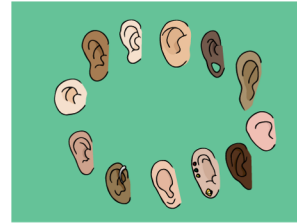
 **Conversation Cafe**
Engage everyone in making sense of challenges

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Conversation Cafe Process

Round 1 *Talking Circle: One-by-one each person shares their perspective on the question or topic. [3-4 mins]

Round 2 *Talking Circle: Follow-up on anything or elaborate on what was said in Round 1. Continue one-by one. [3-4 mins]



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Taking Turns to Speak

- Name the next person to go after you in talking circle rounds (1, 2 + 4)
- When someone else has the mic, you are invited to listen
- You may always “pass” the mic if you do not feel like contributing in the moment
- Set a timer for yourself for 1 minute



Zoom “selfie”!

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**Cafe Guiding
Question:**

***What has been your
experience with
concept-based
teaching? Successes?
Challenges?***



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**What concepts will my students
learn?**

**What competencies do I want them to
develop and use?**



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Semester 1

Period	Programming	
1	Jr. Academy	Core (English, Math, Science, Socials+ Health and Careers)
2		
3		
4	Language course Jr. Acad. Teacher common prep.	French, Okanagan Language, Learning Skills

Semester 1

Period	Programming	
1	Jr. Academy	Core (English, Math, Science, Socials)
2	Gr. 8 Elective	
3	Gr. 8 Elective	
4	Gr. 8 Elective	

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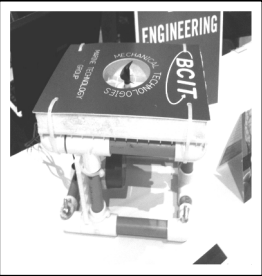
Submarine Project

Phil Nuytten and Nuytco has recently asked you to submit a proposal for the design and build of a low budget Submersible ROV to be used by the developing world for exploration of underwater environments. These may be used for a variety of jobs (mining exploration, oil discovery, scientific research, repair and maintenance of ships and underwater equipment.)

Nuytco will pay close attention to all aspects of your work and will expect a prototype to be built and operational by September 27.

Constraints for project:

- Equipment:
- 8 elbows
- 6 T's
- ½ inch PVC pipe
- light diffuser (grid material)
- 3 modified bilge pumps and wiring harness
- zap straps
- foam (buoyancy)
- Washers for weight
- Any extra materials must be recycled or not cost anything
- Size: must fit in provided tubs
- Must be able to move forward, turn, and go up and down
- Must be able to attach equipment/payload (camera)




What types of tasks can our submarine do? (collect samples?, collect temperature?, find depth?, observe aquatic life?...)

Is the data quantitative (a measurement) or qualitative (an observation)?

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How do you propose collecting this Data
(remember you will have an onboard camera)?



Make rough sketches of your submarine ideas that you can use for your planning stage.
Remember to think about:


- Protecting motors
- Balancing heavy object (like motors)
- Steering
- Surfacing and submerging.

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Learning intentions:

- I can use details to explain my inferences and plans.
- I can work with others to find key ideas, ask questions and make connections
- I can reflect on my learning

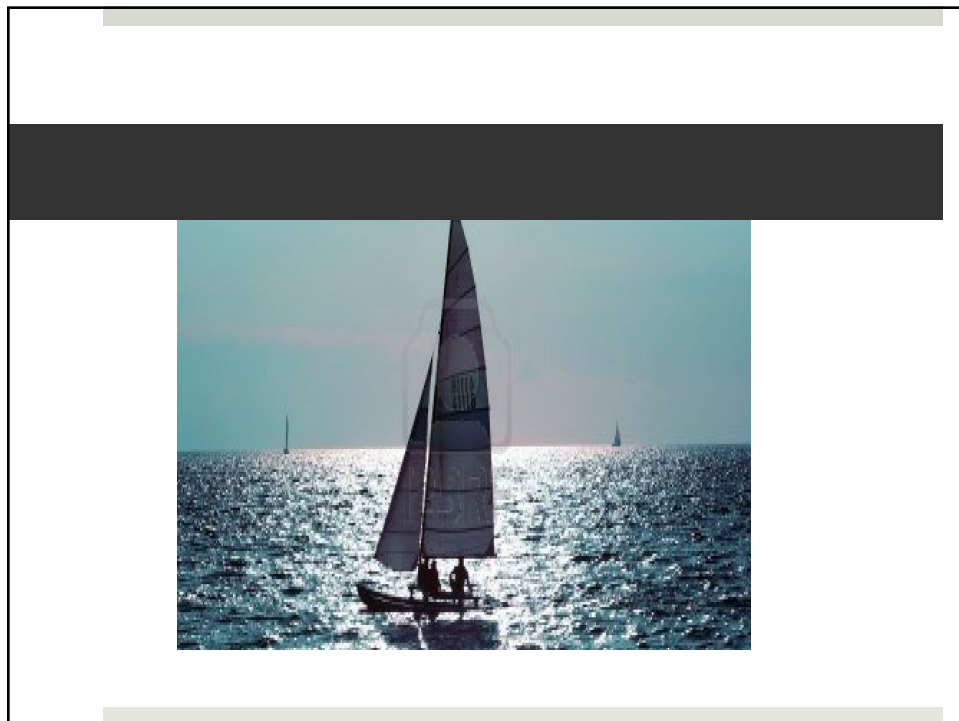
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Essential
Questions 


What do you notice?




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30

Essential
Questions 


- **What's working?**
- **What else would help you?**



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Essential
Questions 

- **What do you notice?**



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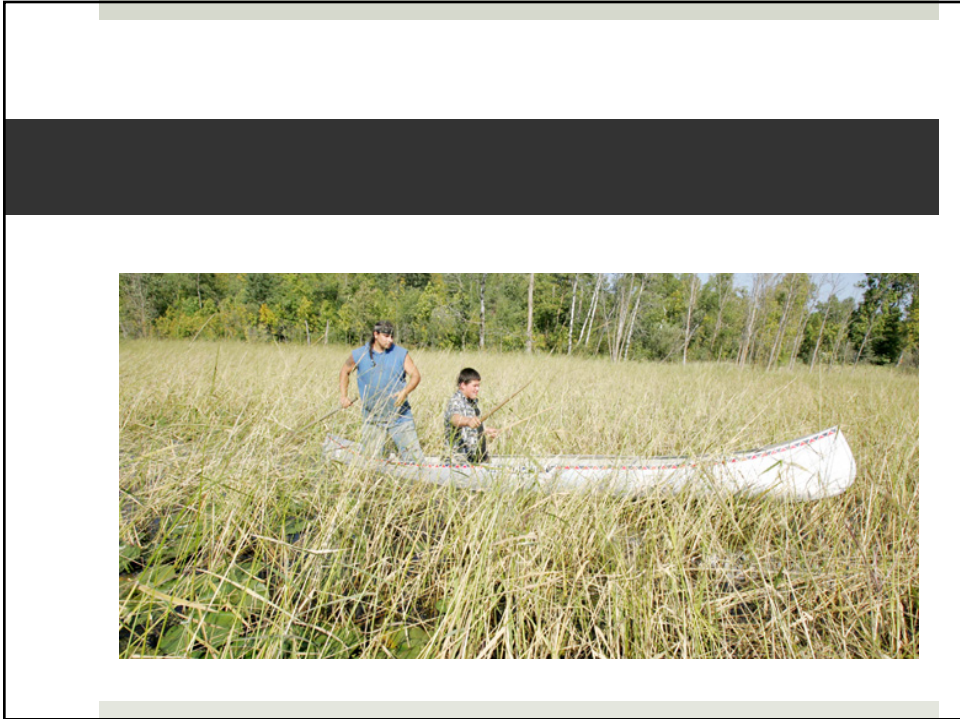
Essential

Questions

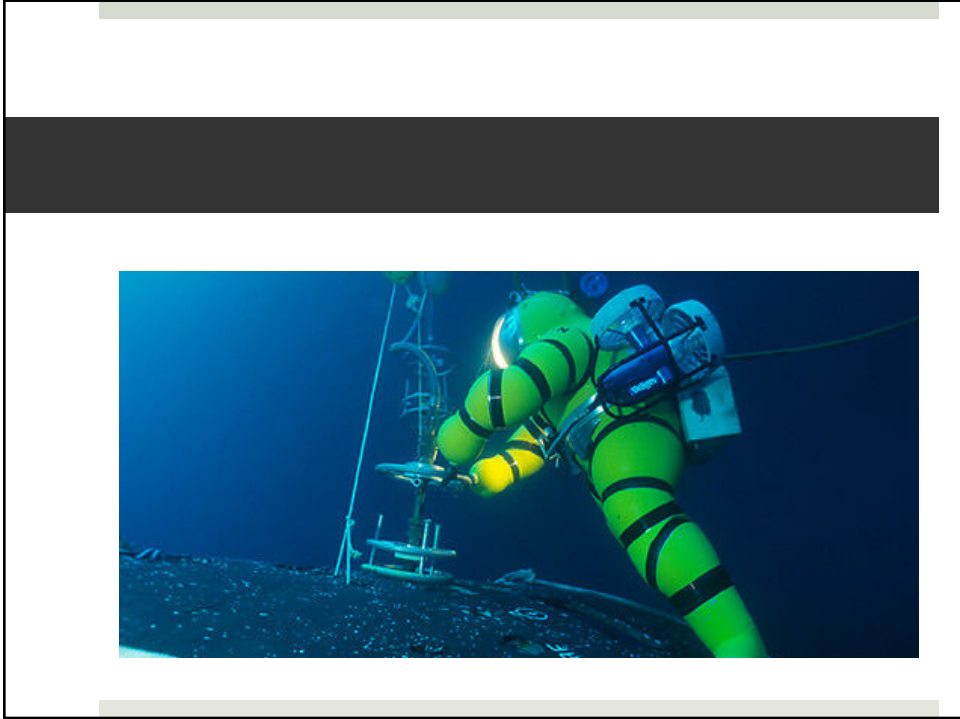
- What do you notice?
- What do you wonder?



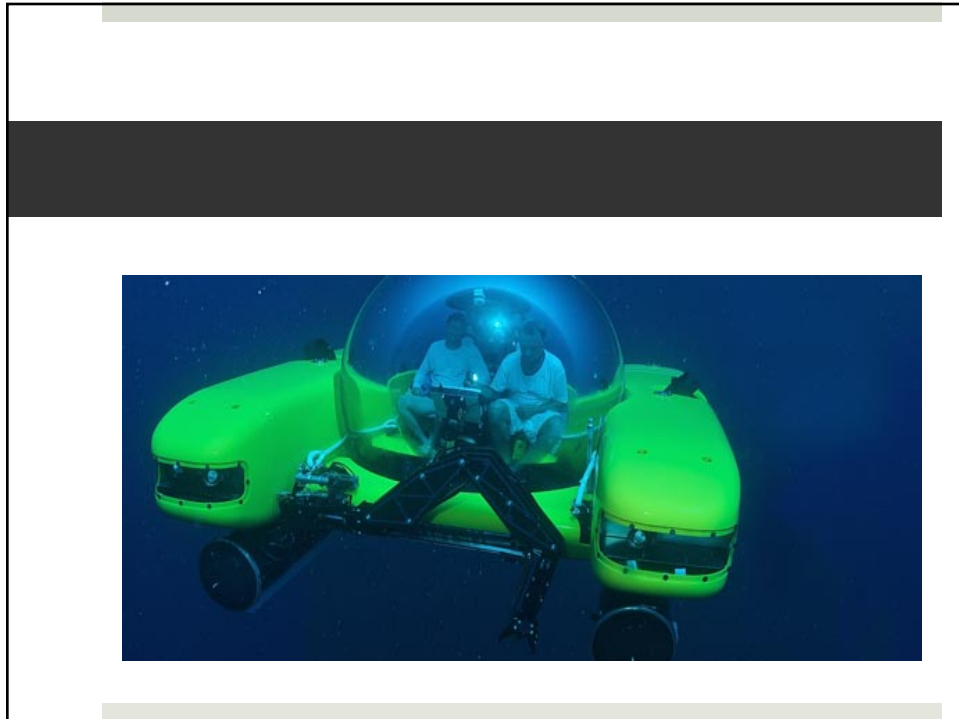
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Partner Talk

Text Set: Images and Info Text

Mini-Lesson

Competency development

Concept-based Learning

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Word Sort

water	tropical	Titanic
ecosystem	drinking	rain
bolts	undercurrent	dignity
pressure	iceberg	escape
wave	captain	ship
scared	engine	buoyancy
sharks	hurricane	sail

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P
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Chunk 1

What's Important	Why is this Important?
------------------	------------------------

Questions and connections...

40

**P
R
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Chunk 2

What's Important	Why is this Important?
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Questions and connections...

41

**P
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Chunk 3

What's Important	Why is this Important?
------------------	------------------------

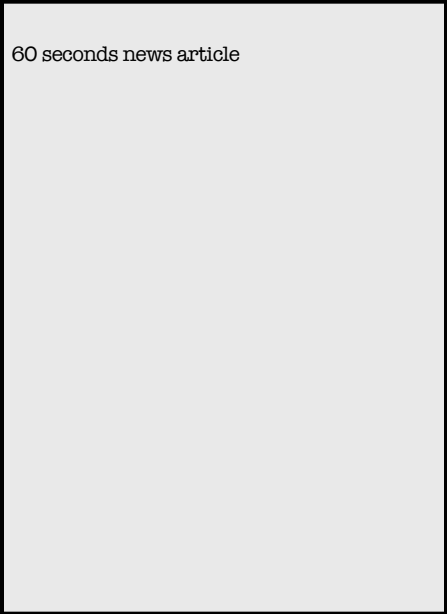
Questions and connections...

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Name: _____ Date: _____

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60 seconds news article



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3..2..1

3 Big Ideas...

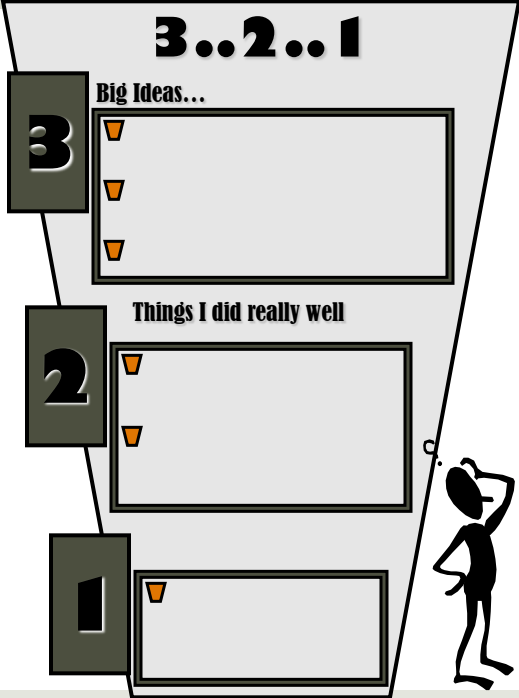
- ▼
- ▼
- ▼

2 Things I did really well

- ▼
- ▼

1

- ▼



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Mad Tea Party



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Mad Tea *Etiquette*

- Stay curious, dig deep, have fun
- Honour your first thoughts
- Using chat, finish each of the open sentences **with a short phrase!**

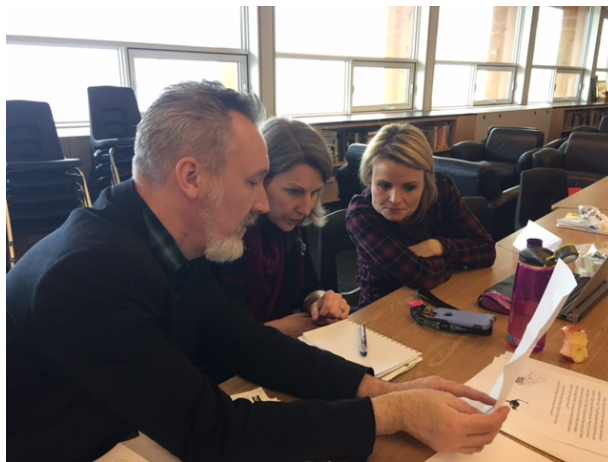


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A connection I made with my practice...

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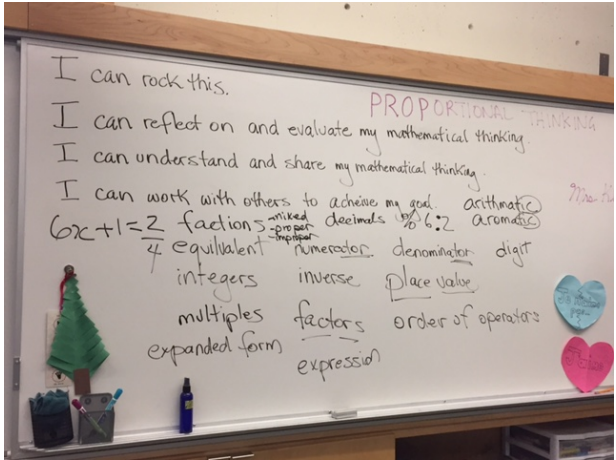
Numeracy Circles



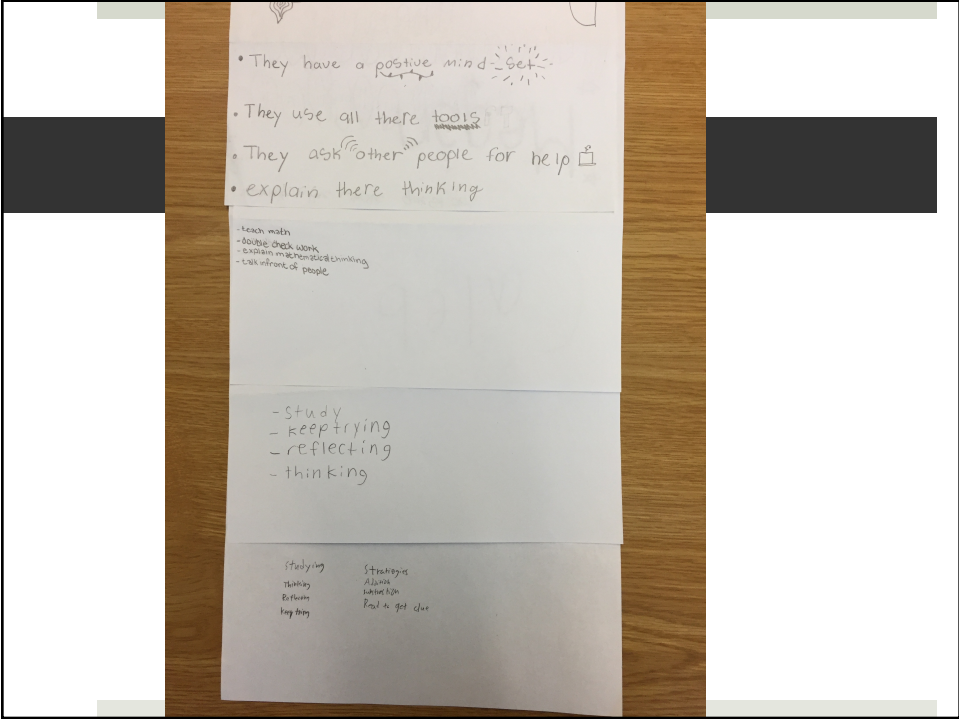
Butler, Schnellert & Perry, 2016; Schnellert, Watson & Widdess, 2015

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Learning intentions

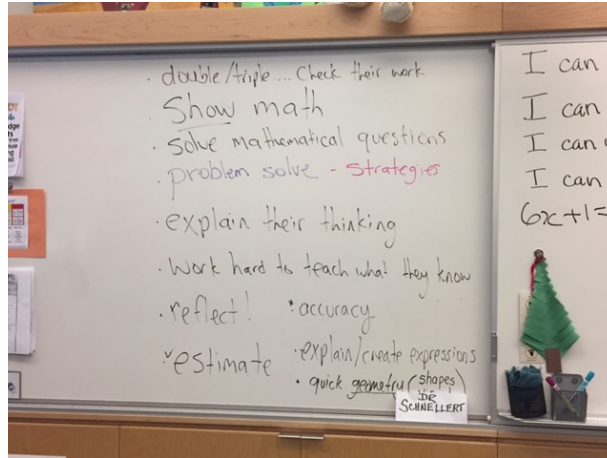


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Activating prior knowledge



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One night the King couldn't sleep, so he went down into the Royal kitchen, where he found a bowl full of mangoes. Being hungry, he took $\frac{1}{6}$ of the mangoes.
 Later that same night, the Queen was hungry and couldn't sleep. She, too, found the mangoes and took $\frac{1}{5}$ of what the King had left.
 Still later, the first Prince awoke, went to the kitchen, and ate $\frac{1}{4}$ of the remaining mangoes. Even later, his brother, the second Prince, ate $\frac{1}{3}$ of what was then left.
 Finally, the third Prince ate $\frac{1}{2}$ of what was left, leaving only three mangoes for the servants.

How many mangoes were originally in the bowl?

Dad bakes some cookies. He eats one, hot out of the oven, and leaves the rest on the counter to cool. He goes outside to read. Dave comes into the kitchen and finds the cookies. Since he is hungry, he eats half a dozen of them.
 Then Kate wanders by, feeling rather hungry as well. She eats half as many as Dave did. Jim and Eileen walk through next, and each of them eats one third of the remaining cookies. Hollis comes into the kitchen and eats half of the cookies that are left on the counter. Last of all, Mom eats just one cookie. Dad comes back inside, ready to pig out. "Hey!" he exclaims. "There is only one cookie left!"
 How many cookies did Dad bake in all?

Three sailors were marooned on a deserted island that was also inhabited by a band of monkeys. The sailors worked all day to collect coconuts but were too tired that night to count them. They agreed to divide them equally the next morning.

During the night, one sailor woke up and decided to take his share. He found that he could make three equal piles, with one coconut left over, which he threw to the monkeys. Thereupon, he put his own share in a pile down the beach, and left the remainder in a single pile near where they all slept.

Later that night, the second sailor awoke and, likewise, decided to take his share of coconuts. He also was able to make three equal piles, with one coconut left over, which he threw to the monkeys.

Somewhat later, the third sailor awoke and did exactly the same thing with the remaining coconuts.

In the morning, all three sailors noticed that the pile was considerably smaller, but each thought that he knew why and said nothing. When they then divided what was left of the original pile of coconuts equally, each sailor received seven and one was left over, which they threw to the monkeys.

How many coconuts were in the original pile?

Raul and Esteban just started working at their uncle's farm on the weekends. Their first task was to count the ostriches and llamas. When they reported to their uncle, Raul said, "I counted 47 heads." Esteban added, "I counted 122 legs."

"How many are ostriches? How many are llamas?" asked their uncle. "It's getting dark and I promised your mother I'd get you home for dinner. There's no time to count again. You'll have to figure out how many ostriches and how many llamas there are from that information when you get home. Can you give me a call after dinner and let me know your answer?"
 How did Raul and Esteban figure out how many ostriches and how many llamas there were?

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Name _____

NUMERACY CIRCLES

THE BIG 4: What to ask to get a handle on any word problem

What do I KNOW for sure?
What is HAPPENING in the problem?

What will the answer TELL me? What am I trying to FIND out?

Are there any special CONDITIONS, RULES, or is there BACKGROUND KNOWLEDGE I need to know?

ABOUT how much is the answer?

This is how I solved the problem using pictures, numbers, and words: ORIGINAL COLOUR NEW UNDERSTANDINGS COLOUR

REFLECTING ON MY LEARNING (or Why I am smarter after my meeting):

I'm positive
 I'm pretty sure
 I'm not sure

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NUMERACY CIRCLES

THE BIG 4: What to ask to get a handle on any word problem

What do I KNOW for sure? What is HAPPENING in the problem? - w/e called my legs - there are 47 numbers and 122 legs	What will the answer TELL me? What am I trying to FIND out? - we are trying to find out how many horses and how many of horses there are.	Are there any special CONDITIONS, RULES, or is there BACKGROUND KNOWLEDGE I need to know?	ABOUT how much is the answer? 23 23
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This is how I solved the problem using pictures, numbers, and words: ORIGINAL COLOUR NEW UNDERSTANDINGS COLOUR

heads	legs	L	L	Total	L	legs
23	89	24	95	127	14	56
21	84	26	52	136		
18	72	27	58	130		
14	56	33	66	122		

NUMERACY CIRCLES

THE BIG 4: What to ask to get a handle on any word problem

What do I KNOW for sure? What is HAPPENING in the problem? We have to look at problem being offered about how many of horses there are the how many only 47 horses in total.	What will the answer TELL me? What am I trying to FIND out? We are trying to find out how many horses there are and how many of horses there are.	Are there any special CONDITIONS, RULES, or is there BACKGROUND KNOWLEDGE I need to know? There are 47 horses with 56 legs total. There are 33 horses with 122 legs total.	ABOUT how much is the answer? 33
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This is how I solved the problem using pictures, numbers, and words: ORIGINAL COLOUR NEW UNDERSTANDINGS COLOUR

12	18	20	4	16	16	10	62
12	18	20	4	16	16	10	62
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12	18	20	4				

NUMERACY CIRCLES THE BIG 4: What to ask to get a handle on any word problem

<p>What do I KNOW for sure? What is HAPPENING in the problem? We have to find out how many llamas and how many ostriches there are. We know there's only 47 animals in total.</p>	<p>What will the answer TELL me? What am I trying to FIND out? We are trying to find out how many llamas there are out of 47 and how many ostriches are out of 47.</p>	<p>Are there any special CONDITIONS, RULES, or is there BACKGROUND KNOWLEDGE I need to know? - we can't have more than 47 heads or 122 legs out of all the animals.</p>	<p>ABOUT how much is the answer? More ostriches than llamas There's 4 llamas with 56 legs total. There's 33 ostriches with 66 legs total.</p>
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This is how I solved the problem using pictures, numbers, and words:

ORIGINAL COLOUR NEW UNDERSTANDING COLOUR

I'm positive
 I'm pretty sure
 I'm not sure

55

Resources

Brownlie, Fenick & Schnellert (2016). **Student diversity.** Pembroke.

Butler, Schnellert & Perry. (2017). **Developing Self-Regulating Learners.** Pearson Publishers.

Schnellert, Watson & Widdess (2015). **It's all about thinking: Building pathways for all learners in the middle years.** Portage and Main Press.

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