Expeditionary Learning

University of Manitoba

Monday, September 24

1. Being curious
2. Examples of expeditions
3. Learning strategies, behaviors and skills

What might schools be if they were limitless?

https://www.bing.com/videos/search?q=forest+kindergarten+%2bfinland&&view=detail&mid=EF011D05822D0DFC1ECAEF011D05822D0DFC1ECA&FORM=VRDGAR

How are our schools preparing kids to take part in society?

http://www.cbc.ca/news/canada/ottawa/joel-westheimer-book-our-ottawa-1.3243853

•Wonder about the mathematics of a situation
•Identify problematic situations

•Examine a problem from multiple perspectives
•Ask specific questions

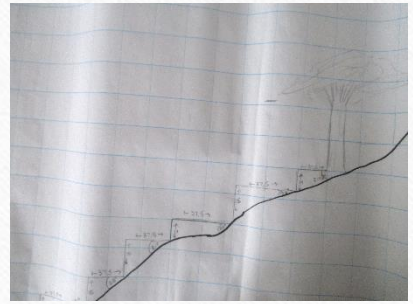
•Identify data and information that will be needed
•Select tools and instruments best suited to the data and calculations required

•Suggest multiple strategies / processes to solve a problem
•Share creative and innovative strategies and processes
•Evaluate the potential of each strategy and process

•Judge the appropriateness of an answer using known facts and experiences
•Draw conclusions based on current results and past experiences,
•Construct mathematical arguments using calculations, formulas and experiences to support statements

•Identify errors and give reasons
•Construct mathematical arguments using calculations, formulas and experiences to support statements

•Monitor and evaluate the success of each strategy
•Adjust the plan as needed, include creative and innovative ideas that arise
•Experiment with new strategies and processes



•Use mathematical language and symbols to express ideas and solution
•Express solutions in multiple ways; visuals, words, calculations, symbols…

Towards Inclusion

Manitoba Education

Manitoba Education is committed to fostering inclusion for all people. Inclusion is a way of thinking and acting that allows every individual to feel accepted, valued, and safe. An inclusive community consciously evolves to meet the changing needs of its members. Through recognition and support, an inclusive community provides meaningful involvement and equal access to the benefits of citizenship. In Manitoba, we embrace inclusion as a means of enhancing the well-being of every member of the community. By working together, we strengthen our capacity to provide the foundation for a richer future for all of us.

Standards for Student Services

Manitoba Education

- All students can learn, in different ways and at different rates.
- All students have individual abilities and needs.
- All students want to feel they belong and are valued.
- All students have the right to benefit from their education.

Inclusion

"The purpose of education is to engage students with their passions and a growing sense of purpose, teach them critical thinking skills needed for career and citizenship, and inspire them to do their very best to make their world better."

Most Likely to Succeed, Tony Wagner and Ted Dintersmith, p.44

Inclusion

"Inclusive education is about providing opportunities with supports for all students to have access to, and contribute to, an education rich in content and experience with their peers."

One Without the Other: Stories of unity through diversity and inclusion, Shelley Moore, p.17

How many fans can sit on the bleachers at one time?

Who has the best seat for the game?

https://www.teachingchannel.org/videos/pbl-building-blocks-ntn

Explore

- Wonder about our world
- Identify problematic situations or instances where improvements can be made
- Ask specific questions
- Examine a problem from multiple perspectives
- Predict / estimate solution (using known facts and experiences)
- Define the criteria for a solution
- Understand the need / purpose of a solution
- Visualize a situation
- Make connections with past experiences that are similar and those that are not similar

Ill defined, messy, open and full of possibilities

- “How come the wheels on the skateboard are so small?”
- “Are there even different sizes of wheels?”
- “How do the gears work? Is it harder to pedal when the gear is big or when it’s small?”
- “How many times does the wheel turn for each pedal?”
- “Do you go further in different gears?”
- “How come we don’t loose our balance when we’re on a bike?
- “I’ve seen bikes that pull kids in strollers and wagons. Does that change how the bike works?”
- “How come they make us wear bike helmets? Is it really going to help?”
- “How do the skateboarders go down those ramps and rails?”

Research

- Identify data and information that will be needed to determine a solution
- Identify reliable and relevant sources of information
- Select tools and instruments best suited to the data and calculations required
- Create a system of organizing data that highlights patterns, anomalies, and outliers
- Identify necessary knowledge and information that is known that might support our response
- Identify formulas that are not known yet that I need to learn to develop a response
- Sketch the problem (diagram, labels, dimensions)
- Know my strengths so that I may be a resource for others, look for strengths in others so that they may be a resource for me.

Formula = $\frac{\text{price}}{\text{amount}}$

amount

Determine the unit price when 6 cans of soup are sold together for $8.25.

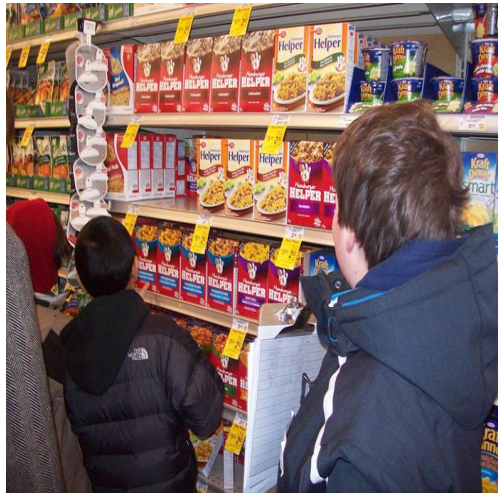
price

Decide that we want to buy some soup.

What is the price of one can of soup?

What is the price for the case of 6 cans of soup?

How much soup do we want?



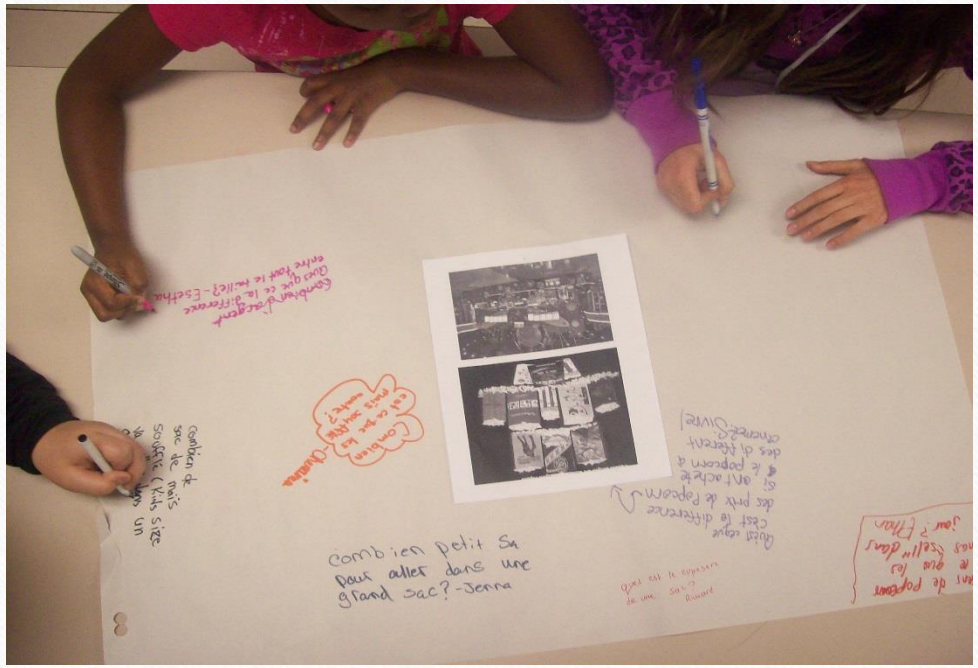
How does the price for the 6 cans compare with the price for one can?

What is the unit price for one can of soup in the case of 6?

Which is the better deal? Buying the case of 6 cans together or buying individual cans?

Develop

- Refining the question by uncovering the layers
- Suggest multiple strategies / processes to solve a problem
- Share creative and innovative strategies and processes
- Evaluate the potential of each strategy and process
- Select and use technological tools and instruments best suited to the data, observations, and calculations
- Accept and reject plans, justify
- Collaborate
- Plan for the active involvement of all team members
- Check the plan with the criteria for a solution
- Flex, rethink, revisit, adjust

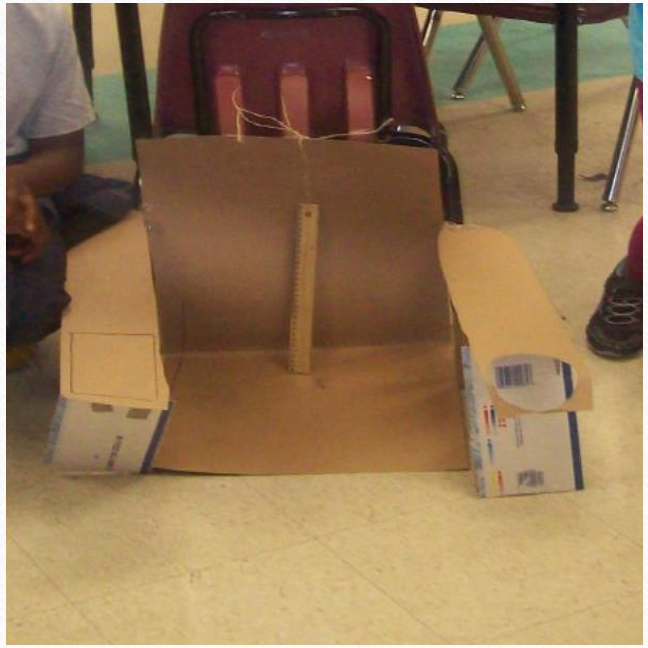


Create and Construct

- Implement the chosen strategies and processes
- Maintain and use a balance of innovative personal strategies, known strategies and traditional algorithms
- Monitor and evaluate the success of each strategy and process as you go
- Flex -Adjust the plan as needed, include creative and innovative ideas that arise during the process
- Experiment with new strategies and processes
- Generate valuable data
- Persist stick with a problem until a solution I reached
- Include all necessary units of measure
- Check that all data and calculations are relevant to the solution

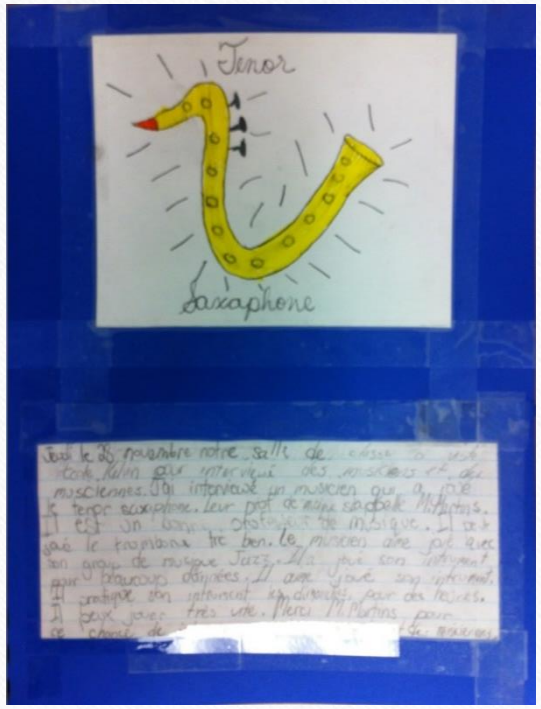
Reason

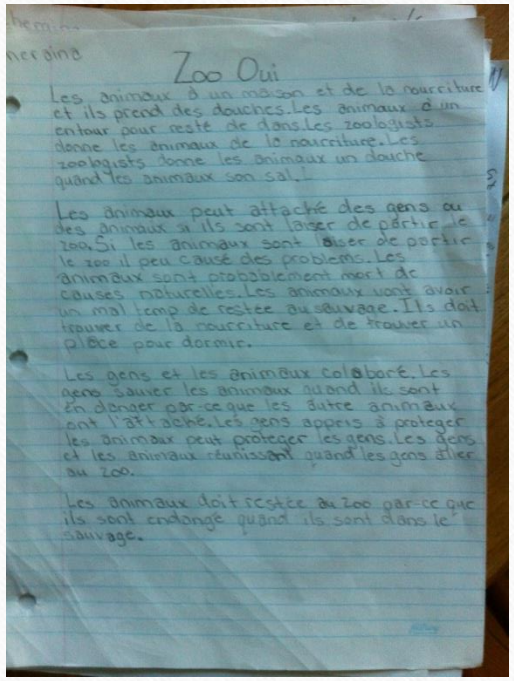
- Judge the appropriateness of an answer using known facts and experiences
- Accept and reject solutions using known facts and experiences
- Develop new understandings by blending personal ideas and those of others
- Draw conclusions based on current results and past experiences
- Identify patterns and non patterns in solutions
- Derive formulas from experiences
- Identify errors and give reasons
- Construct mathematical arguments using calculations formulas and experiences to support statements
- Engage in productive disagreement (with good citizenship)
- Organize thinking, data, calculations and results



Communicate

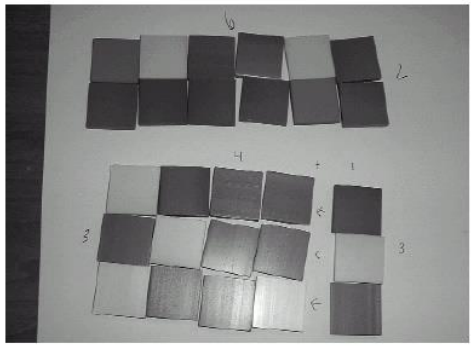
- Use appropriate language and symbols to express ideas and solutions
- Express responses and solutions in multiple ways; visuals, words, calculations, symbols…
- Include correct units, references, and notes
- Contribute to the shared knowledge of the learning community
- Make an effort to understand the strategies and processes of others, consider the strengths of other solutions
- Appreciate the diverse contributions of others

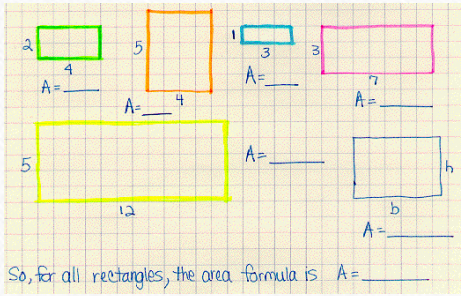


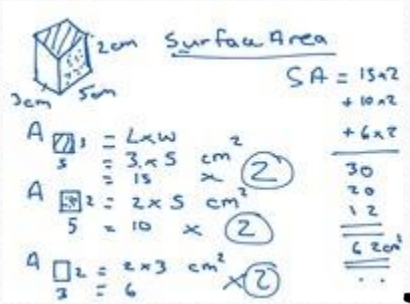


Connect

- Identify and explain mathematical relationships
- Apply newly learned mathematical skills and knowledge to new experiences
- Make connections between new and old
- Identify more question for research
- Extend learning to new situation

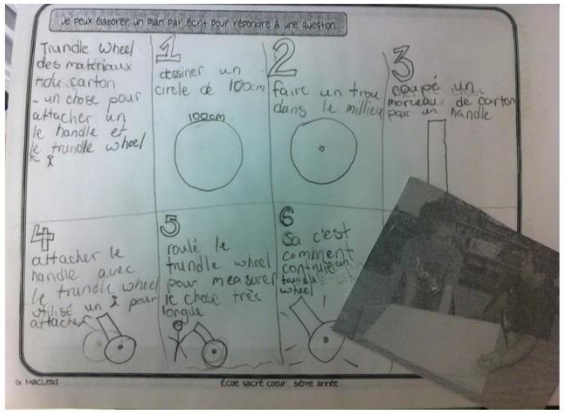


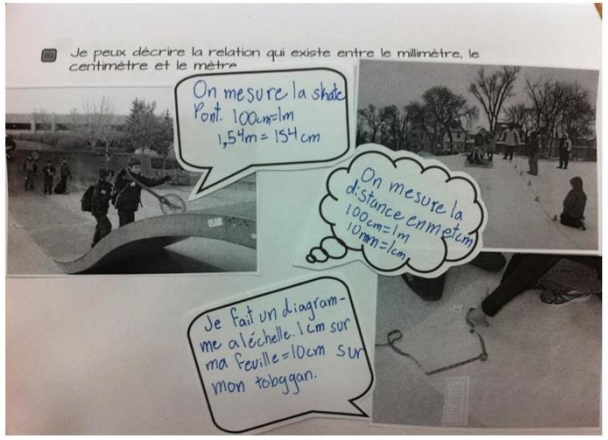


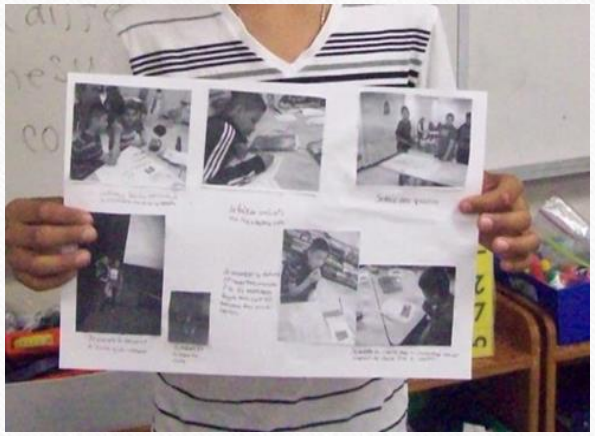


Reflect

- Assess the effectiveness of a strategy or process
- Suggest improvements to known strategies and processes
- Replace inefficient and ineffective strategies with more efficient ones
- Evaluate ones participation and contribution to the learning community
- Persist stick with a problem until a solution is reached
- recommend improvements to the way we work together
- Evaluate individual strengths and identify successes and next steps







Lesson Comparison

1 outcome, three lessons

a) What does traditional / expeditionary teaching and learning look like?
b) What is the role of the student?
c) What is the role of the teacher?
d) What might the learning resources look like?
e) Are all learners included through the instructional practices? Through the physical set up and movement? Through social and emotional belonging?
f) What would authentic assessment look like in a traditional/constructivist/expeditionary classroom?

Next Week

1. Explore your neighborhoods
2. Wonder
3. Assignment 1
4. Consider ideas for assignment 3