

21st Century Learning Skills @ Hurstville Public School

Term 2 2016

Presented by A. Mortimer & J. Liang

Welcome

- Sign on Sheet & Exit Sheet
- Visiting after? – pls sign on as visitor at the office.
- Pre-survey Monkey www.surveymonkey.com/r/HPS21learning

21st Century Introduction

“The term ‘21st-century skills’ is generally used to refer to certain core competencies such as collaboration, digital literacy, critical thinking, and problem-solving that advocates believe schools need to teach to help students thrive in today's world.”

- <https://www.youtube.com/watch?v=f0RyaAsVNGU> (Scott Crombie)

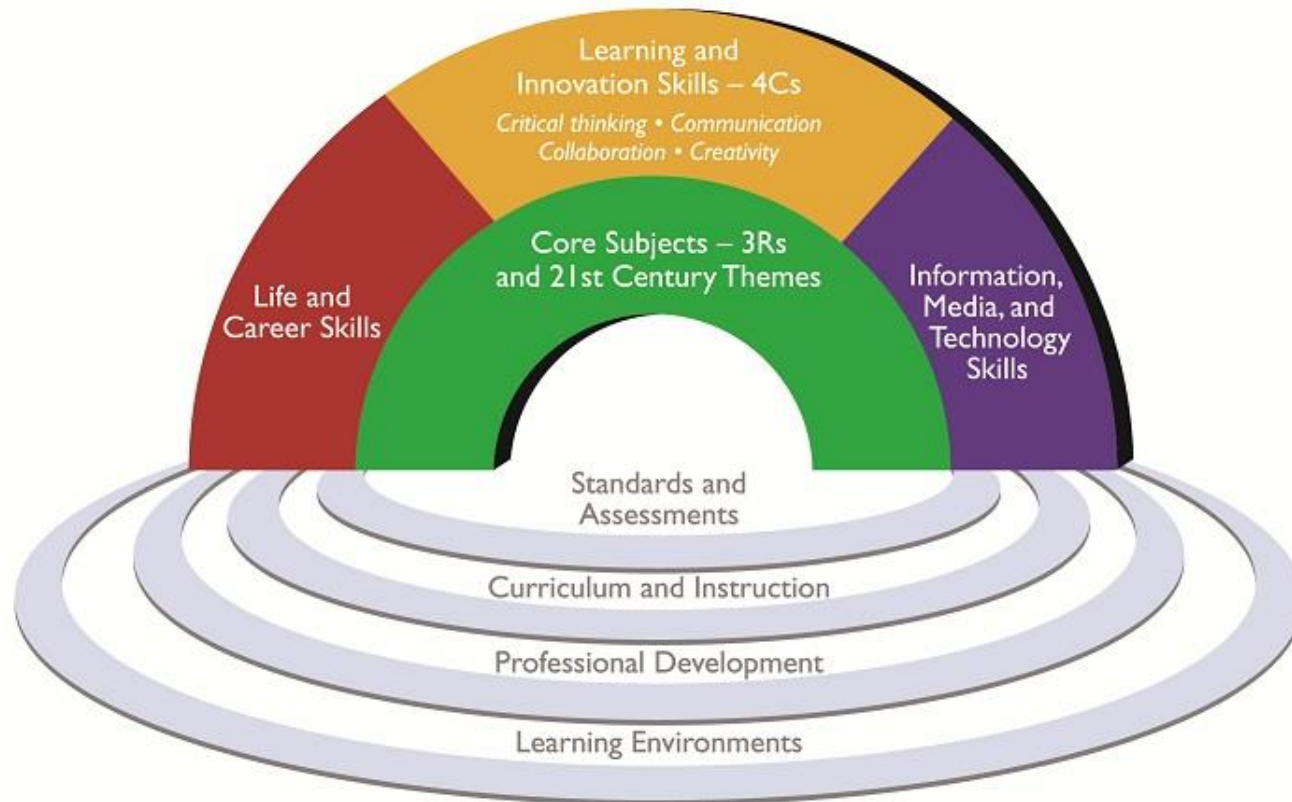
21st Century Learning Skills.

Promoting an understanding of academic content at much higher levels.

- **Learning and Innovation Skills (the 4 Cs as endorsed by DEC-Bruniges, DG, 2012)**
 - Collaboration
 - Critical Thinking
 - Creativity
 - Communication
- “There is a greater need for “**imagination, creativity and collaboration** as societies become more knowledge-based” (UNESCO, 2006)
- **Information Media and Technology Skills:** ICT, Civic & Health literacy
- **Life and Career Skills:** Adaptability, Self direction, cross-cultural skills etc

21st Century Student Outcomes & Support Systems.

21st Century Student Outcomes and Support Systems



21st Century Skills

Responding to the challenges of the twenty-first century – with its complex environmental, social and economic pressures – requires young people to be creative, innovative, enterprising and adaptable, with the motivation, confidence and skills to use critical and creative thinking purposefully (ACARA, 2013).

Link to NSW Syllabus for Australian Curriculum

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General Capability of Critical and Creative Thinking

- Activities that foster critical and creative thinking should include both **independent** and **collaborative tasks**....challenge [students] to **think logically**, reason, be **open-minded**, seek **alternatives**, **tolerate ambiguity**, inquire into **possibilities**, be **innovative risk-takers** and use their **imagination**

(ACARA, 2013; Claxton, Lucas & Spencer, 2013; Robinson, 2011)

Re-viewing our pedagogy to suit current climate

- Not new... but a re-emphasis
- Not replacing... but supporting and enhancing academic content
- Not an 'add-on'... but an approach

Knowledge is still crucial.

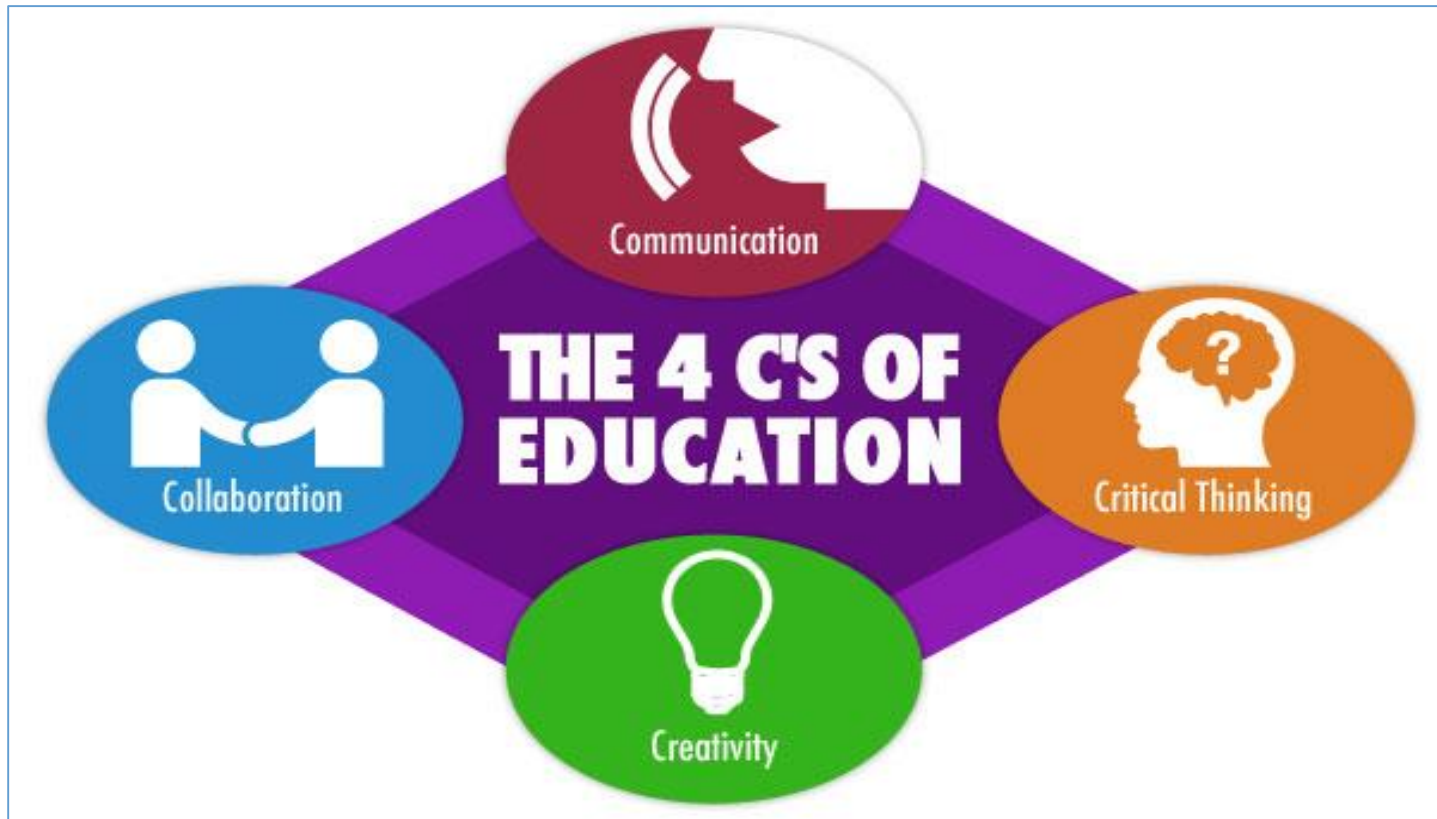
Acquisition of knowledge is more readily available.

We need to address how knowledge is interpreted, weighed, applied and how the skills learnt in that process are transferred across the curriculum.

Promoting an understanding of academic content at much higher levels.

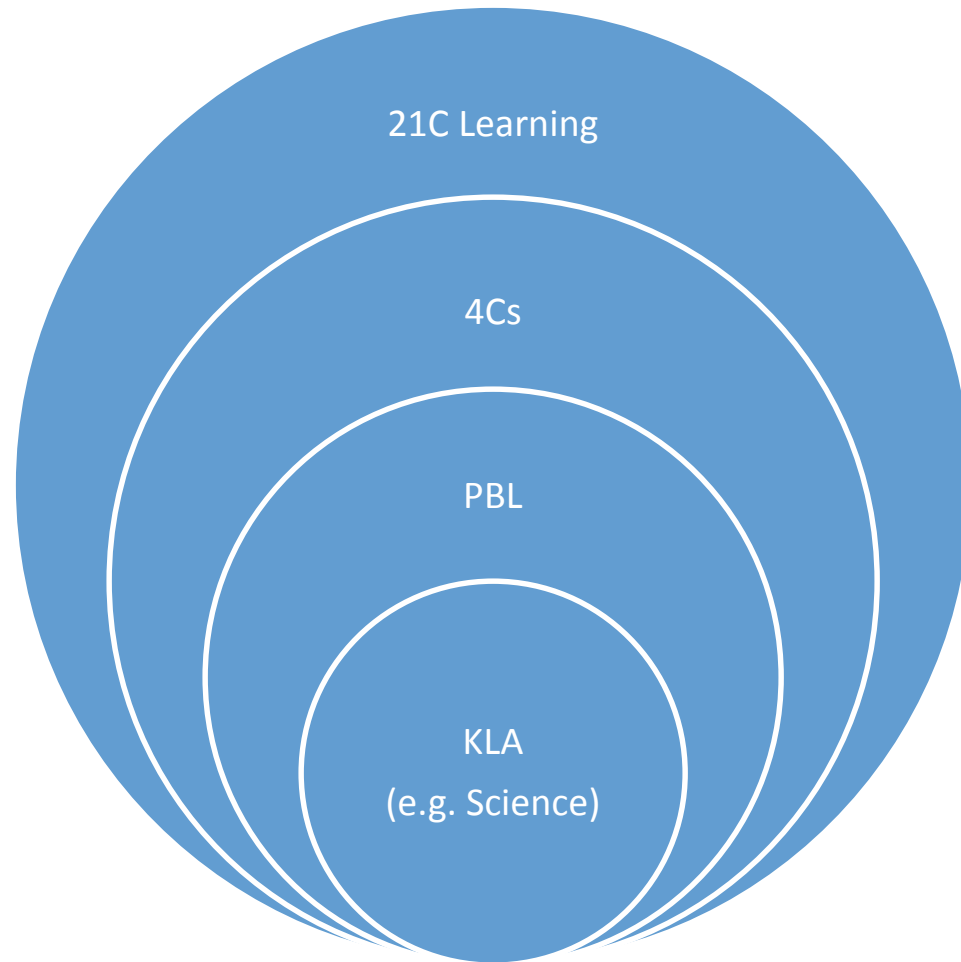
Hurstville's School Plan incorporates 21st Century Learning Skills

- Hurstville school plan incorporates 21st Century Learning skills in order to improve academic outcomes
- Specifically the 4 Cs (**Collaboration, Creativity, Critical Thinking and Communication**)
- Knowledge and application to develop understanding
 - “How do we use this knowledge?”
 - “How do I apply what I know to build on my understanding and create new knowledge?”
- Using Project Based Learning (PBL) as a vehicle to incorporate the 4Cs



<https://www.youtube.com/watch?v=INVQNz2Hto8>

The purpose of the 4 Cs

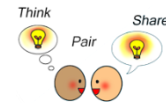


Creative Thinking Goals @ Hurstville PS

- To respond to our school's strategic plan on 21st Century Learning and the 4Cs
- To reflect on our teaching practice and consider ways to promote creative abilities and skills that enhance student learning outcomes across the curriculum.
- To provide opportunities and a quality learning environment in which particular conditions of creativity can be realised and nurtured.

Collaborative strategies

Think Pair Share



Group Roles 

Jigsaw 

Snowball 

GROUP LEADER



TIME KEEPER

MATERIAL MANAGER



SCRIBE



ENCOURAGER



Materials Manager Gets all materials. The only person allowed to leave the groups work area to get materials, returns extra materials, or throw away any trash.

Description of Jobs

Group Leader Makes sure everyone is working hard, getting along in the group, and following classroom and project rules.

Time Keeper Reminds the group of how much time is left in the projects and that there is no time to play.

Encourager Group Cheerleader. Tells the group they can do it even if the group thinks the project is too hard.

Scribe Writes everything down for the group. Records all data.

Focus for Collaboration

- **Active Contribution/ talking**
- **Active Listening**
- **Take Responsibility**
- **Value others' viewpoints**

Year 5 Art



5x6 sheets of A4. Warhol's *Marilyn* recreated by 5M, December 2014

Focus for Creative Thinking

with reference to *Lucas, B, G. Claxton and E. Spencer (2013)*,



Idea generation



Idea connection
& transfer



Taking risks/ Tolerating
ambiguity



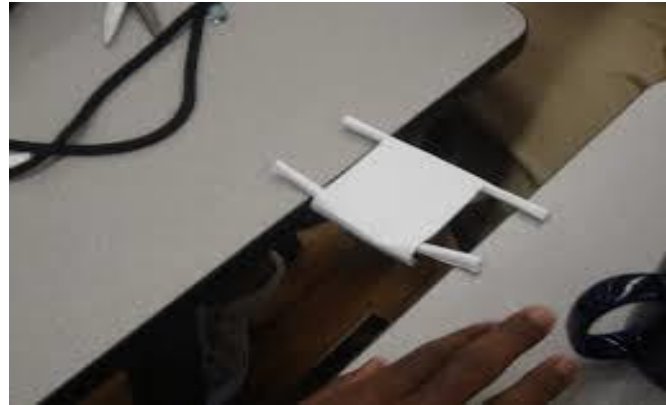
Perseverance &
Discipline

Year 1 – Idea Connection & Transfer



Aim2: To focus on creative thinking skills of 'generating ideas' and 'taking (responsible) risks'

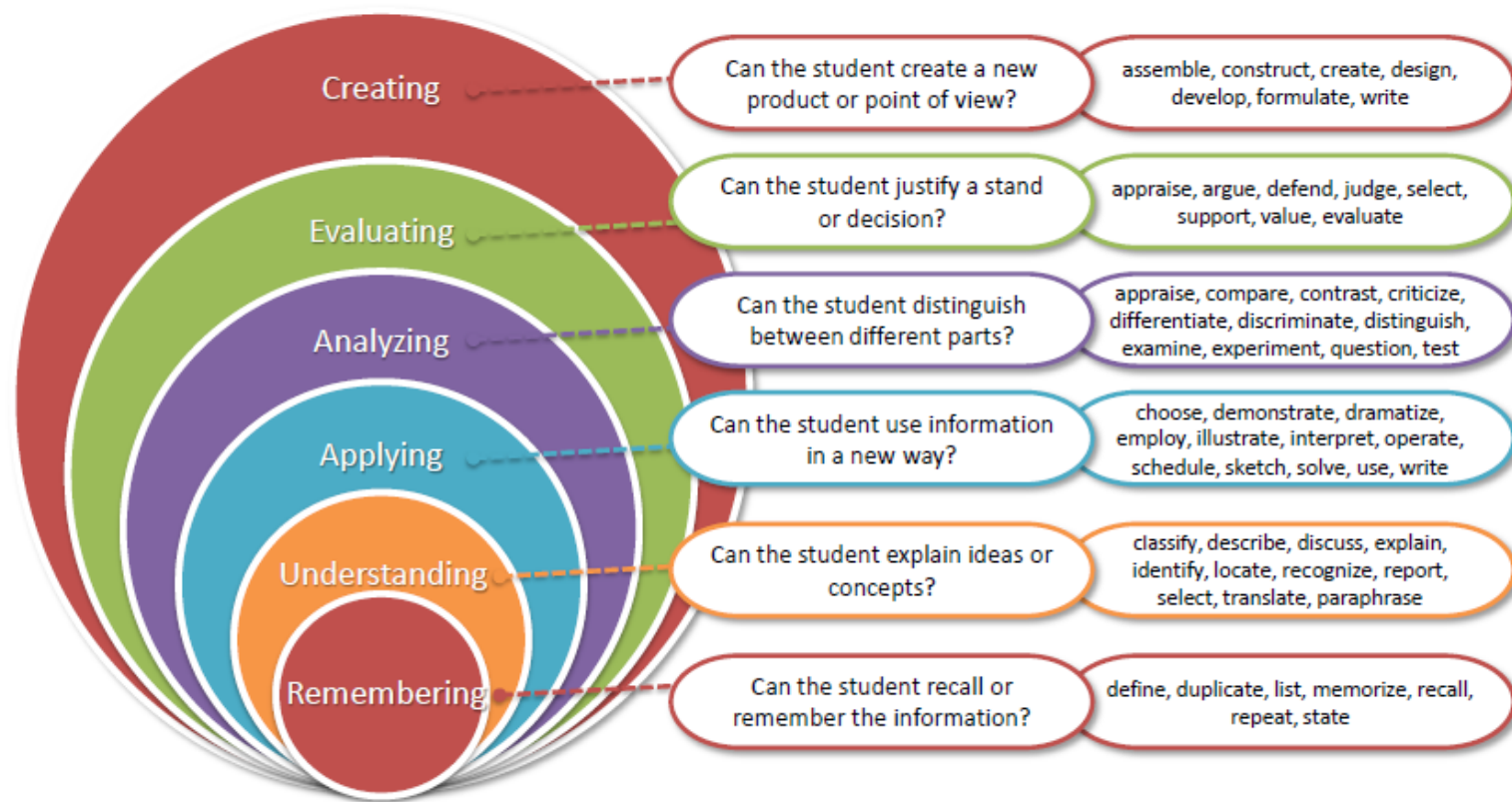
Various interactive activities that required them to collaboratively brainstorm and 'have a go'



- Self Reflection diaries and Peer assessment

Critical Thinking

Bloom's Taxonomy (Revised)























Critical Thinking





Thinker's Keys

The reverse:  Place words such as cannot , never and not in sentences which are commonly displayed in a listing format.	The What if:  You can ask virtually any What If question. They can be either serious or frivolous. One excellent means of displaying ideas from this key is to draw up an Ideas Wheel. Great for introducing an area of study, and for tapping into the students' knowledge base. It also generates loads of innovative ideas.	The disadvantages: List disadvantages and improvements for: Choose an object, eg an umbrella, or a practice, eg playground duty, and list a number of its disadvantages. Then list some ways of correcting, or eliminating these disadvantages. 	The combination:  List the attributes of 2 dissimilar objects (one within your area of study, one outside), then combine the attributes into a single object.
The BAR: The following acronym, or ladder of words, can be used by different age groups (ranging from Yr 1 to adults) to reinvent or redesign everyday objects. BIGGER ADD REPLACE 	The alphabet:  Choose an object or general category of objects which features in the area of study and compile a list of words from A to Z which have some relevance to the object/s. Then try to expand on some ideas which link with each of the words.	The variations: This key employs a special group of words. Start each question with "How many ways can you ..." 	The picture:  The teacher draws a simple diagram which has no relevance to the area of study and the students then try to work out ways in which it could be linked with that area. As an interesting imaginative writing exercise, ask the students to compile a list of 10 things that the diagram could represent.
 The prediction: Ask for a series of predictions in regard to a particular situation, product or set of circumstances.	The different uses:  Put your imagination to work and list some widely different uses for a chosen object from your area of study.	 The ridiculous: Make a ridiculous statement that would be virtually impossible to implement, and then attempt to actually substantiate it.	The commonality:  Decide upon 2 objects which would generally have nothing in common, and try to outline some points of commonality between them.
The question:  Start with the answer, and try to list 5 questions which could be linked with that answer.	The brainstorming: State a problem which needs to be solved and brainstorm a list of solutions. Start the brainstorm statement with the words 'How to'. 	The inventions:  Encourage students to develop inventions which are constructed in an unusual manner. The first step would be to outline the product on paper, which would then lead into possible construction.	The brick wall:  Make a statement which could not generally be questioned or disputed, and then try to break down the wall by outlining other ways of dealing with the situation.
 The construction: Set up a wide variety of construction problem-solving tasks and use lots of readily available materials.	Forced relationships: Develop a solution to a problem by employing a number of dissimilar objects. For Years 1/2 - one object For Years 3/4 - two objects For Years 5/6/7 - three objects For Years 8-12 - four objects 	The alternative:  List ways in which to complete a task without using the normal tools or implements.	The interpretations:  Describe an unusual situation and then think of some different explanations for the existence of that situation.

Cultural studies: The San Fermin festival



The San Fermin festival is held every year in July, in the Spanish town of Pamplona. It involves bulls chasing people through streets! They must try and run away from these animals.



The Different Uses Key

Think of 10 different uses for bulls.

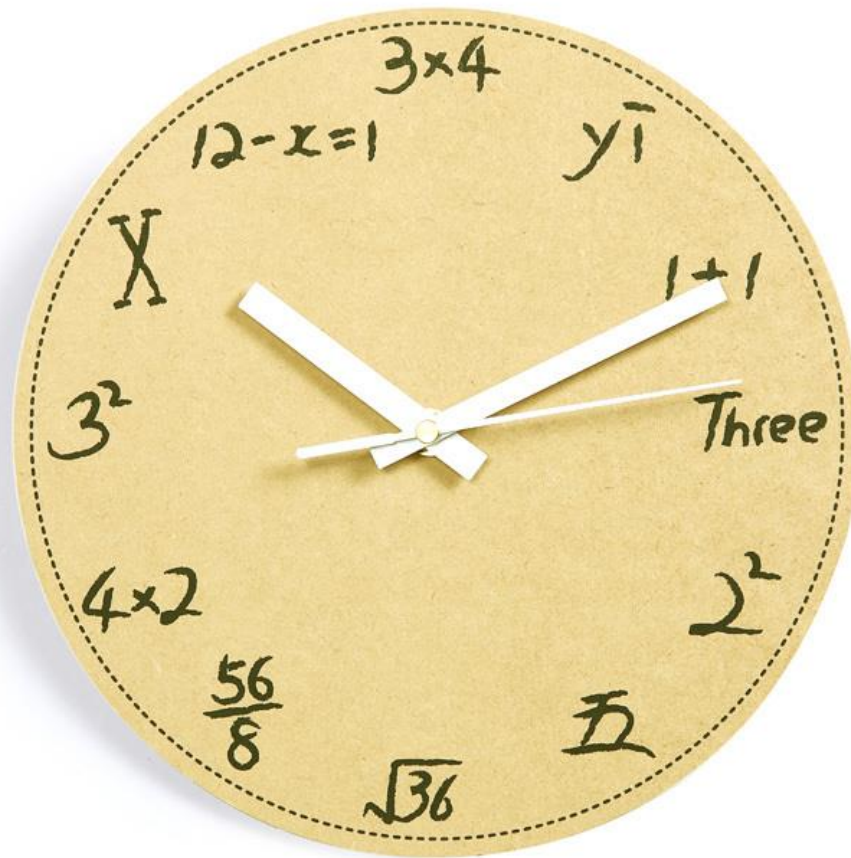


The Reverse Key

List 10 things you'll never see in a bullfighting ring



Critical and Creative thinking in Maths



What could these numbers be?

- **0412 376 542**
- **02 9826 3756**
- **5404 7984 3615 4287**
- **07/17**
- **2220**
- **2015**
- **18:30**

Communication

- Term 3 and 4



Interconnecting the 4Cs



Project Based Learning as a vehicle to develop the 4Cs



<https://www.youtube.com/watch?v=LMCZvGesRz8> (PBL)



Examples of K-6 Driving questions

- Kindy - **What do living things need to survive?**
- Yr 1 - **How do living things change and survive in built and natural environments?**
- Yr2 -**What is the design of our school and how can we modify the design to enhance our daily school life?**
- Yr 3 – **You are the managers of a National Park. What are the top 3 problems at your park and how will you manage them?**
- Yr 4 - **How can media be used to improve the communication of Road Safety within our school community?**
- Yr 5 & 6 - **How can animals and plants adapt to suit a changing environment?**

Kindergarten:

- **What do living things need to survive?**

- describe what plants and animals, including humans, need to stay alive and healthy.

- identify the needs of a variety of living things in a range of situations, eg pets at home, plants in the garden or plants and animals in bushland and/or on farms

- explore their immediate surroundings by questioning, observing using their senses and communicating to share their observations and ideas.

After introduction lesson & specific lessons on different elements of 'living things'...

- Students chose a farm animal to make an A3 poster about.
- Groups were provided with information (e.g library books or print outs from the internet) about their animal, plus their experience of the farm excursion.
- Poster required students to apply and display their knowledge about what an animal would need to survive:

Shelter, food/water, the purpose of the animal, any extra relevant information.

- Students visited another Kindergarten class to share their work.

Yr 6 Science PBL – focus on Creative thinking

- **Business Project** – Creating their own products to sell at Mini-Fete
- **Idea Generation**
 - Students are learning to elaborate on their ideas
 - Sharing ideas & learning from other students' imaginative approaches
- **Perseverance/Discipline**
 - Imagining possibilities
 - Students are becoming problem solvers – when resources/ideas failed, they needed to improvise/change
- **Idea Connection & Transfer**
 - Business Project incorporates skills/knowledge from several KLAs including Science, Maths, English, Creative Arts & Technology.

Reflections

- Some **benefits** I've seen:
 - Students are becoming more 'creative' with practice
 - Students are collaborating 😊
 - Students are communicating more, learning from each other & getting insight into how other students think & imagine
 - Students are becoming better at tolerating ambiguity and the lack of one correct answer (especially in Maths)
- Some **challenges**:
 - When students struggle to generate ideas > Scaffold: Provide selection of ideas for them to choose from, then ask them to make some adaptation of their own.
 - When students struggle to persevere > Break challenges into smaller, defined tasks. The 'big picture' is sometimes too daunting.
 - When students struggle to transfer knowledge into new contexts – do a 'mini-lesson' on the skill/knowledge needed and show how it connects to the task.

Project Based Learning Assessment Rubric

Term 2 Science Unit: Adaptation



Group:

Followed appropriate inquiry process	No evidence is available showing that we followed the correct inquiry process 0	Little evidence is available showing that we followed the correct inquiry process. 5	Some evidence is available showing that we followed most of the correct inquiry process 15	Evidence is available showing that we followed the correct inquiry process. This includes, note-taking on a graphic organiser, drafting information into paragraphs, storyboarding and presenting my information 30
Quality of research (what we found out)	Little information given / is difficult to understand 5	Some information given 10	Good information that answers most of the fat question 15	Excellent information that answers the question fully and in a logical order 20
Quality of presentation (how well we shared what we found out)	Oral presentation not presented clearly Visual work not presented clearly Multimedia work not presented clearly 0	Some of oral presentation articulated clearly Some of visual work presented clearly Some of multimedia work presented clearly 5	Oral presentation mostly articulated clearly Visual work mostly presented clearly Multimedia work mostly presented clearly 15	Oral presentation 'articulated clearly in our own words, with correct posture, clear speaking (not reading) and good volume Visual presentation gives information in our own words, is neat, legible, attractive with correct spelling Multimedia presentation given in our own words, easy to view with clear information, correct spelling and attractive layout 20
How we used 'extras' to make my presentation richer	Sequence and layout used poorly / hasn't added to the quality of the presentation 0	Sequence and layout needs improvement in some areas 5	Sequence and layout mostly used well 10	Sequence and layout (headings / sub headings / diagrams / props / pictures / labels / extras) add to the quality of the presentation 15
Resources we used	No bibliography presented 0	Bibliography shows few sources used 1	Bibliography shows some sources have been used 3	Bibliography shows that information comes from a variety of sources 5
WOW factor	Nothing extra that could be called 'wow' 0		Just a little bit of a WOW factor 3	You've surprised the teachers by adding something extra that makes us go 'WOW!' 10

Post Survey

- <https://www.surveymonkey.com/r/HPSPPOSTSURVEY>
- **Next session; Tues 14th June 9.15-11.15
(workshop – hands on and making resources)**

Extra Resources:

<http://www.dec.nsw.gov.au/about-us/key-people/secretarys-update/21st-century-teaching-learning>

(21st Century Learning DEC)

<http://wiseman030.wix.com/21stcenturywow#!21st-century-learners/cx3> (21st Century Learning from AITSL)

<https://tip.duke.edu/node/822> (tips for parents on critical thinking)

<http://aussiechildcarenetwork.com.au/articles/teaching-children/using-open-ended-questions-with-children> (open ended questioning)

With reference to

Open ended questions...info

- Language is one of the most powerful tools for learning. We can use language to stretch children's curiosity, reasoning ability, creativity and independence.

One effective way to do this is by asking open-ended questions - those with no single right or wrong answer. Instead of predictable answers, open-ended questions elicit fresh and sometimes even startling insights and ideas, opening minds and enabling adults and children to build knowledge together.

Ask questions such as:

Tell me about your picture.

- What else can you do with play dough?
- Why do you think this happened?
- What do you think would happen if ...?
- Is there another way to ...?
- **Open-ended questions encourage learning**
- Open-ended questions offer children the opportunity to freely express feelings, motives and ideas. A question like, "What color is that block?" evokes a one-word answer. But an open-ended question such as, "Tell me about the blocks you are using," encourages a child to describe the blocks or explain what he or she is doing. There is no right or wrong answer.

Asking open-ended questions give children opportunities to use an expanded vocabulary. An answer to an open-ended question gives us a window into what the child is thinking and feeling. The response is sometimes wonderfully creative. In explaining or describing, children also use language more fully.

Open ended questions cont...

- If children only provide one-word responses to your open-ended questions, there are still ways you can encourage them to communicate more interactively. Start questions with "how," "what," "where," "why" or "when." Talk with children about what interests them. Create opportunities for children to ask each other questions.

Use "wait time:" briefly staying quiet and listen until the child responds to your comment or question. Five seconds is long enough. (Young children who are just developing oral language skills often need extra time to decide what to say and how to say it.)