



## Climate change: Creating online education in Western Australian primary schools.

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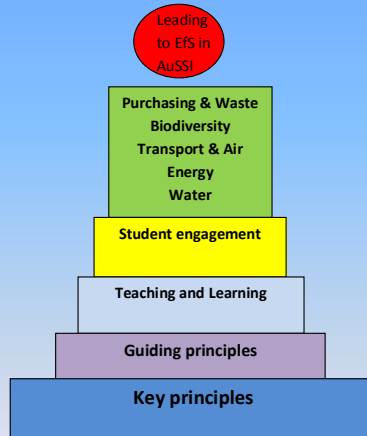
Web designer Sam Cross from Flamingcow

## In the beginning!

The decision to create an on-line collection of rich tasks to provide learning experiences framed in future thinking ideals. Including ;

- critical and creative thinking skills
- problem solving activities based on authentic tasks
- experiential hands-on component
- ICT literacy skills
- Range of communication skills
- Incorporate individual and group work

## Learning journey structure



## Key Principles

- 5 Minds for the Future, Gardener
- Queensland New Basics – Rich tasks
- Constructivism
- Blooms Taxonomy

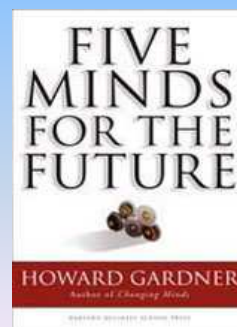
## *Technology Education – A Shared Vision 2002*

- Recognise and create opportunities for innovation in diverse and rapid-change settings;
- Foster creativity and the power of ideas;
- Design, develop and communicate holistic solutions;
- Enhance practical knowledge and capabilities;
- Critique past, present and emerging technologies;
- Apply new, different and appropriate technologies and mental tools; and
- Evaluate and embed values to promote environmental and social sustainability.

– Fleer & Jane (2004). *Technology for Children: research-based approached.* (2<sup>nd</sup> ed)

## 5 Minds for the Future

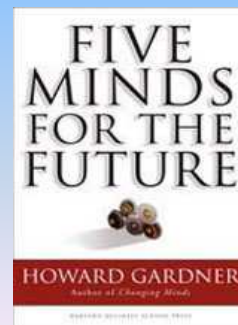
- **Intellect or cognitive aspects**
  - The Disciplined Mind:
  - Synthesizing Mind:
  - Creative Mind;
- **Personal character**
  - Respectful mind
  - Ethical Mind



## 5 Minds for the Future

- **Intellect or cognitive aspects**
- **The Disciplined Mind:** Students should master information within the major disciplines challenging to learn and require practice in school, since they are cultural inventions that the human brain is not pre-wired to understand intuitively.
- **Synthesizing Mind:** In this age of digital media and information overload, students with knowledge within a discipline must be able to sort out what is important and what is not from the massive amount of available information .
- **Creative Mind;** Creativity allows for innovation or meaningful change in how problems are approached in the field. The creative person takes chances, and therefore must also be ready for negative feedback, which can often be used to change direction and make forward progress.

- **Personal character.**
- **Respectful mind :** Cultivating respect and emotional and interpersonal intelligence among students, teachers, and the greater school community are essential goals in a world where diversity of perspectives is a fact of life.
- **Ethical Mind:** Requires more abstract and reflective thinking about one's behaviour. ... to be excellent in quality and ethical in conduct, and then follow through with those responsibilities.



## Guiding Principles

- Climate Change – systems thinking
- Environmental Literacy – negotiated
- In & about and for the environment – values - sense of place, inspiring not prescribing
- Student focused, multi modal - individual, group or class tasks

- Engaging for teachers, Integrated across curriculum – ongoing support
- Collaboration – wider community and other schools
- A building platform for AuSSI & EE/EfS programs already available, no need to repeat these programs

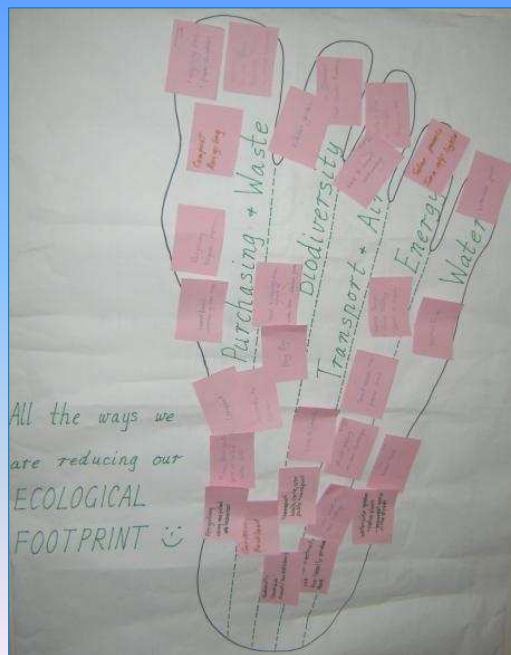
# Students

- Hands on /experiential
- Engaging and interesting tasks
- Enquiry based learning
- Web based medium, access all hours
- Share, show and tell aspect
- A sense of place, environment, society
- Connected to school community effort

Operation Climate Change – Footprint Overview				
Whole System Category	Learning Area: Outcomes	Mission Description	Learning Strategy Ass Strategies	Linked programs
Climate Change	Operation Climate Change is designed as an introduction to the suite of Operations. It is important to help the learner develop their understanding about the underlying issues of the inter-connections within whole systems thinking. The learner only needs to complete one of the three missions before progressing to the other Operations. The learner must complete the Checklist before beginning the selected Mission and then complete the Debrief to demonstrate their new understanding. The learner is encouraged to complete this Mission to gain 'greenhouse balloons' to use in the My Home game.			
	<b>Climate Change checklist</b> – pre-test of knowledge for one of the missions below. NAPLAN format – automatically tallies			DEC website Dept of E, W, H & A website UN EP website Dept of E, W, H & A website US EPA website US National Teachers Assoc website
<b>Mission One</b> Eco-Footprint Maths	<b>Society &amp; Environment</b> Investigation Communication & Participation Natural & Social Systems <b>Maths:</b> Working Mathematically <b>Core Shared Value</b> Social & Civic Responsibility Environmental Responsibility	<b>Galloping Greenhouse</b> – Would you like to learn how to save money and greenhouse gases at the same time? Calculate greenhouse gas emissions for your household or school, take action to improve your savings. Tell everyone how easy it is to make these changes and advertise your suggestions.	S & E Investigation Maths Communicating scientifically Mind Map Teacher rubric	
<b>Mission Two</b> Video evidence	<b>Society &amp; Environment</b> Investigation Communication & Participation Natural & Social Systems <b>Core Shared Value</b> Social & Civic Responsibility Environmental Responsibility	<b>Video Vapours</b> – Video current backyard, school grounds and/or local area showing understanding of the impact of climate change. Include dramatic performance, singing, etc.	Research internet site Communicating scientifically PMI Teacher rubric	
<b>Mission Three</b> Visual Art	<b>Society &amp; Environment</b> Investigation Communication & Participation Natural & Social Systems <b>Art</b> <b>Core Shared Value</b> Social & Civic Responsibility Environmental Responsibility	<b>Earth on the Easel</b> – Create a painting to illustrate the complexity of climate change – that it is due to multiple causes spread out all over the world.	Research internet site Communicating scientifically PMI Teacher rubric	
	<b>Climate Change debrief</b> - post-test to determine level of understanding developed after completing one of the missions. NAPLAN format – automatically tallies			

## Pilot Trial - Schools

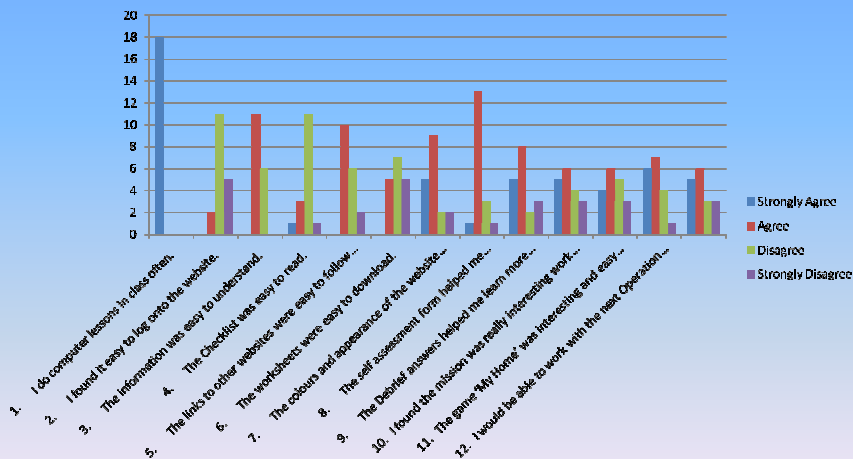
- The following schools were given a half day professional development session
  - Rural District High School
  - Metro Senior High School – Bushranger cadets Leader
  - Inner city, some ESL, Primary School
  - Inner city Primary School
  - High ESL Primary School
  - Home Schooling



## Teachers responses

- Computer system at school too difficult
- Difficulty in logging on to the system for students
- Game not functioning well, students lost interest
- Teachers log on process not easily accessed
- Teachers skills limited in navigating websites
- Didn't fit into the terms work
- Language level difficult for ESL students

## Inner City School Survey





Operation Climate Change and the Principles for EFS

Principle of EFS 2009 National Action Plan	Starting Individuals in organising team aware/working to build ...	Establishing All organising team members aware/working to build...	Achieving Organising teams, partners & volunteers aware/working to build...	Excelling All event decisions, actions & outcomes embed...
<b>Transformation and change ...</b> equip people skills/capacity/ motivation to manage change	✓			
<b>Education for all and life long learning ...</b> people of all ages/ backgrounds & occurs in all possible learning spaces		✓		
<b>Systems thinking ...</b> equip people to understand connections between systems		✓		
<b>Envisioning a better future ...</b> engage people in developing a shared vision of a sustainable future	✓			
<b>Critical thinking and reflection ...</b> reflect/challenge accepted ways of interpreting/engaging with the world		✓		
<b>Participation ...</b> critical for engaging groups and individuals in sustainability		✓		
<b>Partnerships for change ...</b> build networks & relationships, improve communication		✓		

- Operation climate website  
– [www.operationclimatechange.com.au](http://www.operationclimatechange.com.au)

