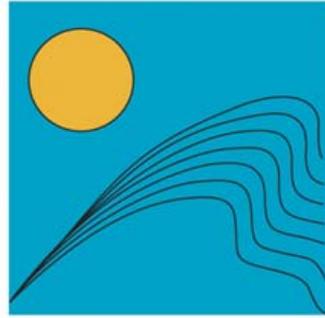


Learning for a
Sustainable Future

LSF



L'éducation au
service de la Terre

LST

**Moving from Traditional
Education
to
Transformational
Learning for 21st century
Responsible Citizenship**

**Pamela Schwartzberg,
Executive Director LSF**

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LSF's MISSION
is to promote,
through education,
the knowledge,
skills, values,
perspectives
and practices
essential to a
sustainable future.



Strategic Initiatives

- ✓ **Research to advance innovative policies, standards and practice**
- ✓ **Reorient teaching/learning toward active, responsible citizenship**
- ✓ **Foster sustainable communities—linking education to action**
- ✓ **Support collaborative initiatives, networks and champions**



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The Challenge of Sustainability for the 21st Century is Primarily Educational



Human evolution has always depended on the ability of communities and groups to learn

- prehistoric times, worked together to find food
- Agricultural Revolution, hunter-gatherers shared information about cultivating seeds and domesticating animals
- Industrial Revolution, partnership between scientists and capitalists

To continue our evolutionary journey, Homo sapiens needs to learn how to live sustainably on the Earth.

“We are currently preparing students for jobs and technologies that don’t yet exist ... in order to solve problems we don’t even know are problems yet.”

SHIFT HAPPENS

- **Top 10 in-demand jobs for 2010 did not exist in 2004**
- **Today’s learners will have had 10 – 14 jobs by the time they reach age 38**
- **2.7 billion Google searches are performed each month. To whom were these questions asked before Google?**
- **Half of what students learn in their first year of university will be out of date by 3rd year**

Do we want our education system to produce students who are consumers or creators??

Minister of Education in Bhutan

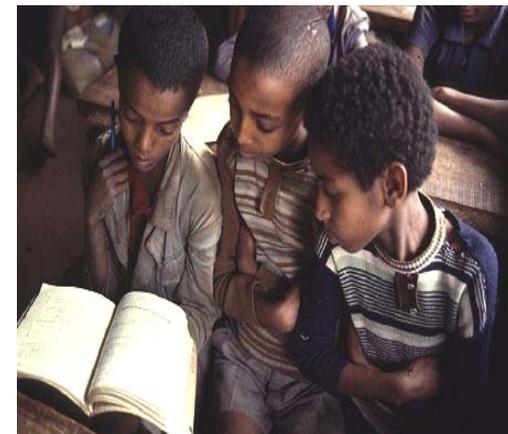


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How is Education in Ontario responding..

- \$24.1 B for Education/\$7.7 B for Post Secondary/Training
- Only 37% of Canadian students feel intellectually engaged by Grade 12
- Only 33% of new teachers (less than 5 years) feel that they frequently have the opportunity to teach the way they aspire to teach
- In the digital age of the 21st century, \$35 Million per year for textbooks



What is the Purpose of Education?

- To prepare students to be creative, responsible, active citizens, innovators, entrepreneurs, employees and consumers
- To equip students with the skills and values to address complex economic, social, and environmental challenges.
- To engage students academically, intellectually and socially



Skills for a changing world

The Handbook of Sustainability Literacy

- Grounded Economic Awareness
- Ecological Intelligence
- Social Conscience

- Systems Thinking
- Futures Thinking
- Coping with and Managing Complexity

- Values Reflection
- Experience meaning without consuming
- Being in the world



“Traditional” education in which the teacher transmits knowledge to students must give way to “transformational” education in which the teacher facilitates the acquisition of skills and competences.

The teacher serves as guide/learning coach.



“Education is not about filling a pail it is about lighting a fire.”

Reorienting Education for the 21st Century

Traditional Education

- Primarily for Employment
- Information Transfer
- Passive
- Textbook
- Within the classroom

Transformational Learning

- For Responsible Citizenship
- Information mining/analysis;
- Active
- Authentic
- Outside the classroom in the community



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Learning for the Future: Competencies for ESD

www.unece.org/en/esd.html

Essential Characteristics of ESD

A holistic approach - integrative thinking, inclusivity and dealing with complexity
Envisioning change - learn from the past, inspire engagement in the present and explore alternative futures

Achieving transformation – of what it means to be an educator, of approaches to teaching and learning, and of the education system as a whole

Categories of Learning Experiences

Learning to know – understanding the challenges facing society locally & globally

Learning to do – developing practical skills and action competences

Learning to live together - appreciation of interdependence, pluralism, mutual understanding and peace

Learning to be – the development of one's personal attributes and ability to act with greater autonomy, judgment and person responsibility

Learning Methodologies that support ESD

Not new—from best practices in educational literature:

- Environmental Education
- Constructivism
- Multiple intelligences
- Girls and science research
- Boys and reading research
- Authentic Instruction and Assessment
- Neuroscience
- ...

Problem solving, thinking critically, and exploring creativity, not only build knowledge, but enhance and build brain pathways, prepping the brain for future educational experiences.

TeachThought, 9 Ways Neuroscience Has Changed The Classroom, 2012

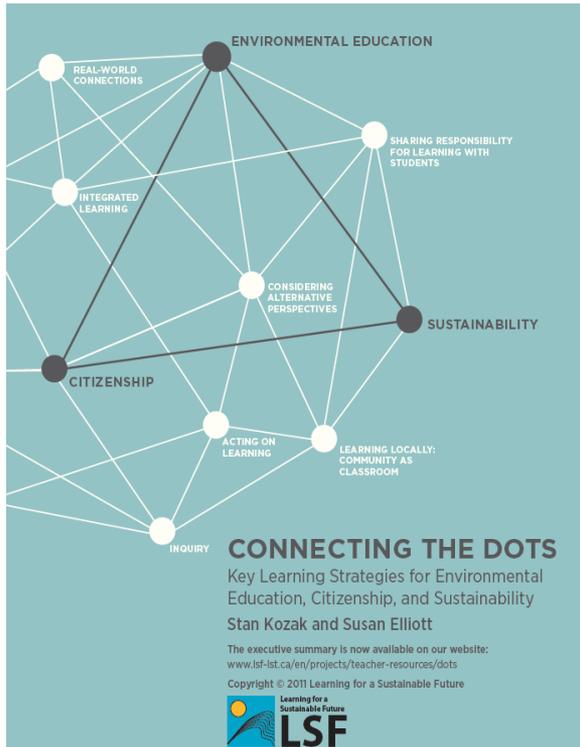


Learning for a Sustainable Future

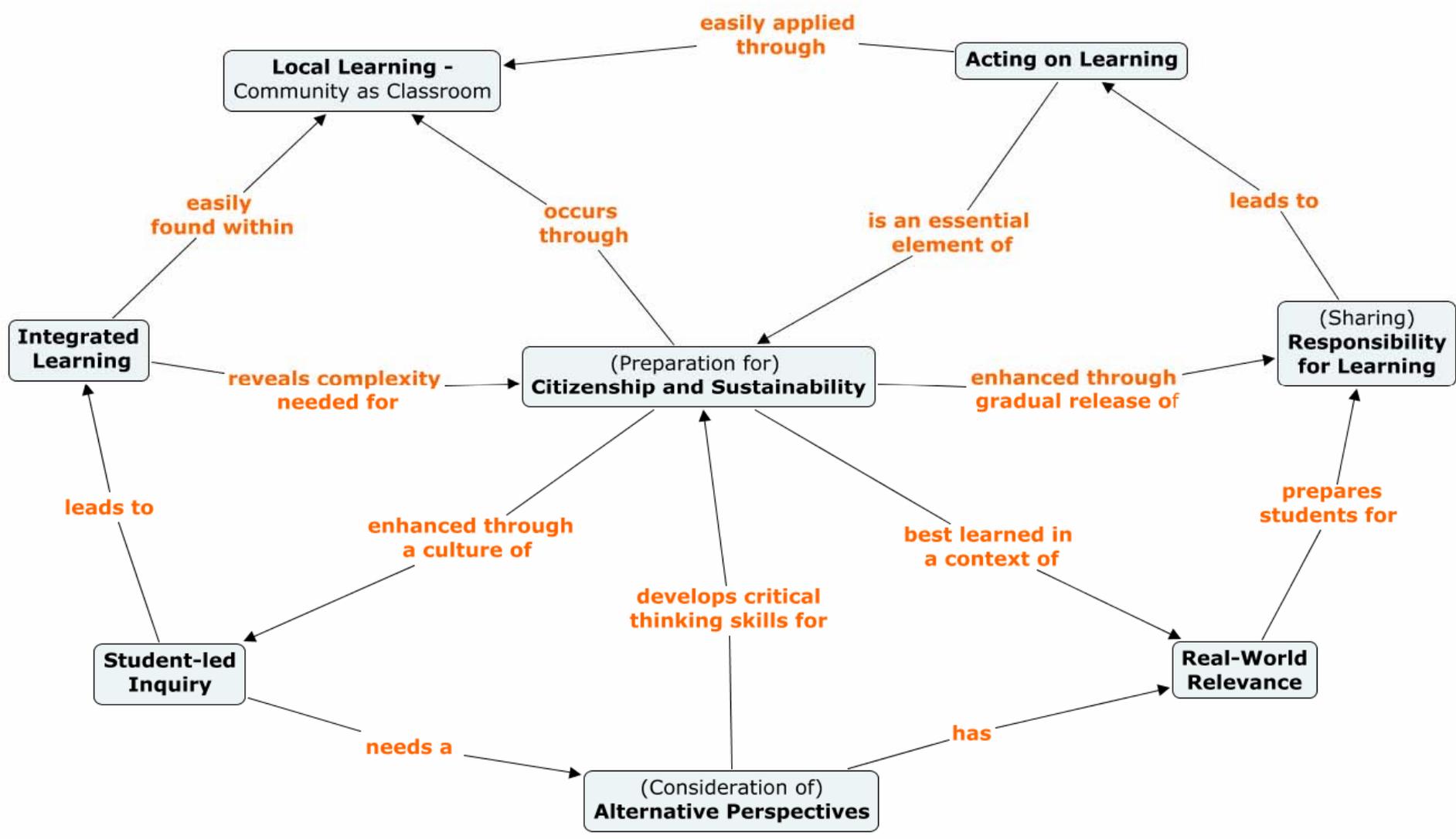
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7 Strategies for ESD

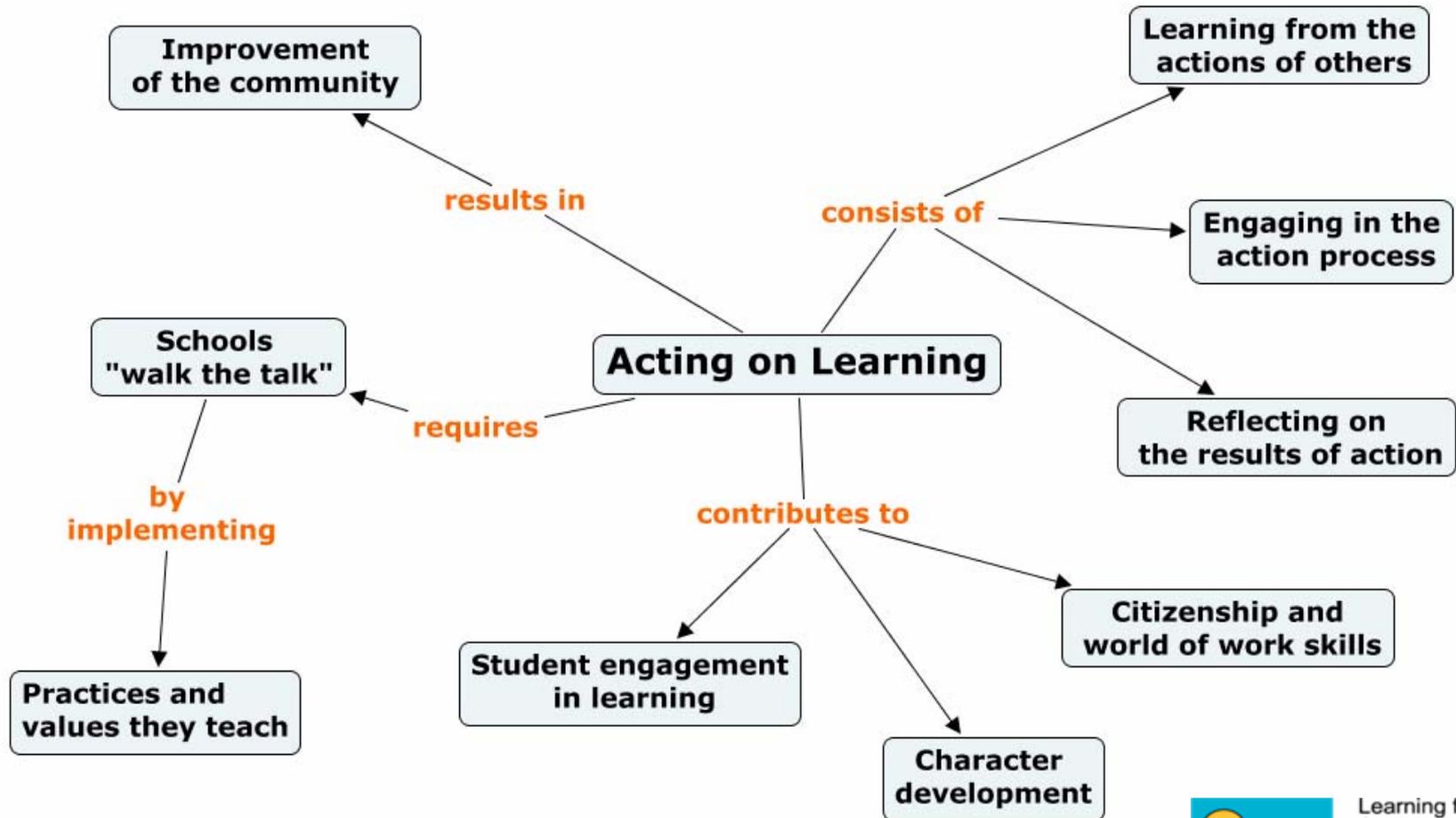
- Integration/Interdisciplinary Learning
- Following an Inquiry Path
- Connecting Learning to the Real World
- Considering Alternative Perspectives
- Using Local Experiences- The Community as Classroom
- Acting on Learning
- Sharing Responsibility for Learning with Students



Connecting the Dots: 7 Strategies for ESD

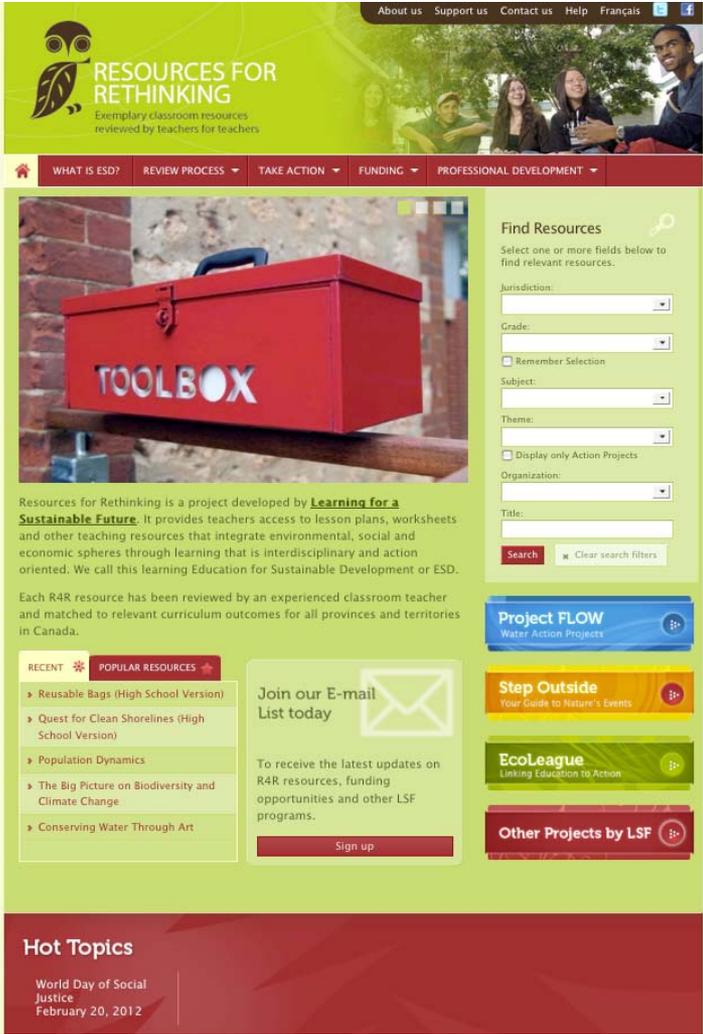


Visualizing Acting on Learning



Resources for Rethinking Database

- Free online database (www.r4r.ca)
- Over 950 lesson plans, children's literature and videos
- Searchable by grade, subject, unit, theme
- Reviewed by teachers against 9 sustainability and 11 pedagogy principles



The screenshot shows the homepage of the Resources for Rethinking website. At the top, there is a navigation bar with links for 'About us', 'Support us', 'Contact us', 'Help', and 'Français'. The main header features the 'Resources for Rethinking' logo, which includes a stylized owl and the text 'Exemplary classroom resources reviewed by teachers for teachers'. Below the header is a red navigation bar with menu items: 'WHAT IS ESD?', 'REVIEW PROCESS', 'TAKE ACTION', 'FUNDING', and 'PROFESSIONAL DEVELOPMENT'. The main content area is divided into several sections. On the left, there is a large image of a red toolbox with 'TOOLBOX' written on it. To the right of the toolbox is a 'Find Resources' search form with fields for Jurisdiction, Grade, Subject, Theme, and Organization, along with a 'Search' button and a 'Remember Selection' checkbox. Below the toolbox image is a paragraph of text explaining the project's purpose: 'Resources for Rethinking is a project developed by Learning for a Sustainable Future. It provides teachers access to lesson plans, worksheets and other teaching resources that integrate environmental, social and economic spheres through learning that is interdisciplinary and action oriented. We call this learning Education for Sustainable Development or ESD. Each R4R resource has been reviewed by an experienced classroom teacher and matched to relevant curriculum outcomes for all provinces and territories in Canada.' Below this text is a 'RECENT' section with a list of resources: 'Reusable Bags (High School Version)', 'Quest for Clean Shorelines (High School Version)', 'Population Dynamics', 'The Big Picture on Biodiversity and Climate Change', and 'Conserving Water Through Art'. To the right of the recent resources is a 'Join our E-mail List today' section with a sign-up button. At the bottom of the page, there is a 'Hot Topics' section with a link to 'World Day of Social Justice February 20, 2012'. The footer of the page features the 'Learning for a Sustainable Future LSF' logo, which consists of a stylized sun and waves icon and the text 'Learning for a Sustainable Future LSF'.

Principle	Rating	Explanation
 <u>Bias Minimization</u>	Very Good	This resource makes a very good case for the importance of being aware of bias in all that we do. It also provides a very good outline that could be used at any level, by any teacher, regarding ways to identify and to deal with bias.

Relevant Curriculum Units

The following tool will allow you to explore the relevant curriculum matches for this resource. To start, select a province listed below.

Step 1
Select a province

Step 2
Select a grade level

Step 3
Select a subject

Step 4
Relevant matches

Alberta	Kindergarten	English/Language Arts	Explore Thoughts, Ideas, Feelings and Experiences
British Columbia	Grade 1	Science	
Manitoba	Grade 3		
New Brunswick	Grade 4		
Newfoundland & Labrador	Grade 5		
Northwest Territories	Grade 6		
Nova Scotia	Grade 7		
Nunavut	Grade 8		
Ontario			
Prince Edward Island			
Quebec			
Saskatchewan			
Yukon Territory			

other areas, particularly in Eastern Canada. However, the resources listed do include authors from across Canada.

 **Past, Present & Future**

Very Good

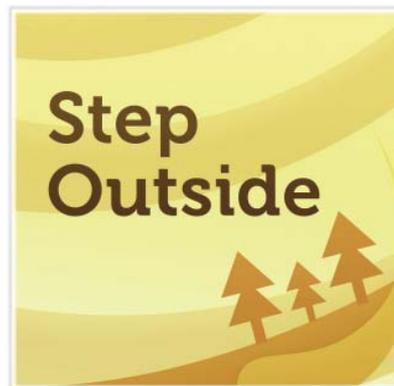
The resource is built on the ideal of promoting understanding.

Linking Education to Action



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PROJECT **flow**
FOR THE LOVE OF WATER

The Way Forward

- No single discipline/group/teacher can do it all
- Every discipline/group/teacher can contribute something
- move teaching from “sage on the stage” to coach/facilitator

Implications



If you are thinking a year ahead, sow a seed,
If you are thinking ten years ahead, plant a tree.
If you are thinking one hundred years ahead,
educate the people.

KUAN TZU CHINESE POET C. 500 B.C.



"You made me realize so much about the world, environment and what we can do to make a difference." Student



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Building the Next Phase in Ontario's Education Strategy

- Broaden view of student achievement to include greater emphasis on higher-order skills- critical thinking, communications, collaboration, creativity and entrepreneurship ...for developing global citizens who bring the competencies and qualities that employers of today and tomorrow are looking for and that our children will need to thrive.
- Also bring more focus to state of student wellbeing in addition to academic goals... developing healthy, well-rounded, resilient young adults.

Questions

1. What are the skills, knowledge and characteristics students need to succeed **after they have complete school** and how do we better support all learners in their development
2. What does student well-being mean to you, and what is the role of the school in supporting it?
3. What opportunities exit

Neuroscience

- Variety boosts levels of both attention and retention in students
- Novel experiences builds new neural connections connecting new information to previous experiences students.
- Making learning a fun and positive experience boost performance.
- Make learning social (group work) results in less anxiety and higher cognitive brain function
- Problem solving, thinking critically, and exploring creativity, not only build knowledge but enhance and build brain pathways, prepping the brain for future educational experiences.

