

Regenerative Education

From a pathogenic to a salutogenic approach to education

Green School Education

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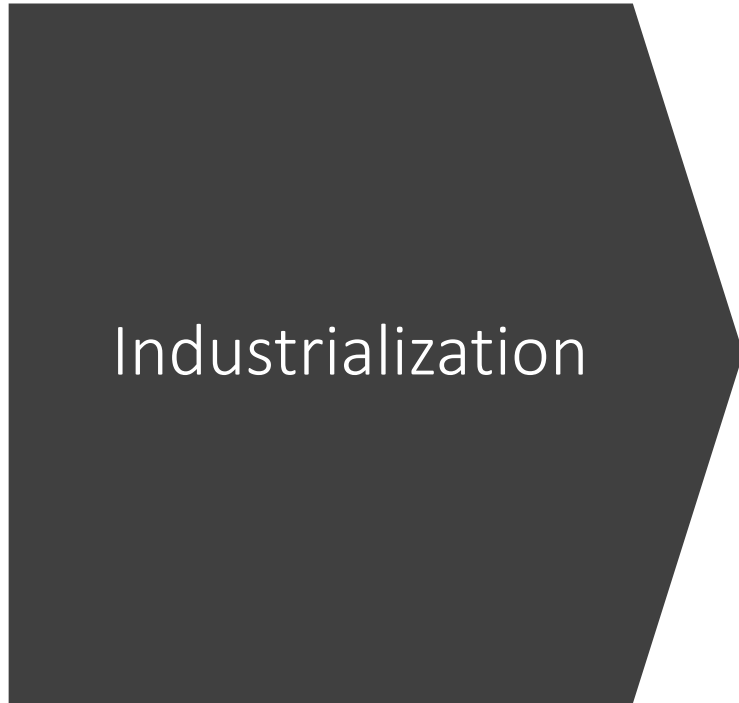
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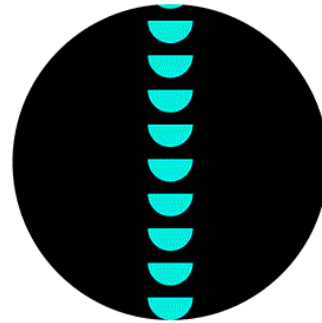
Green School learning environment

My provocation: *Schooling today is pathogenic*

We can generally agree that industrialization’s relationship to the environment must change



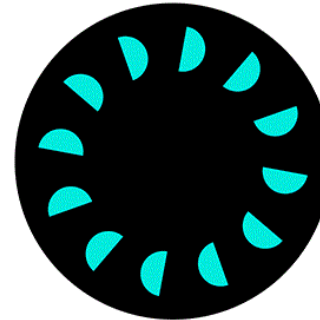
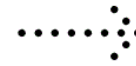
How we got here



1760 – 1987

Extract

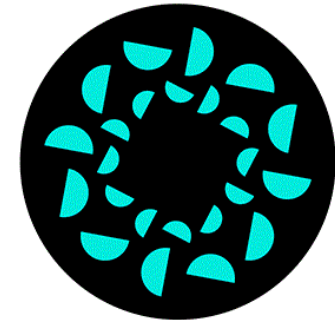
Deplete | deforest | degrade



1987 – 2020

Sustain

Reduce | Reuse | Re-cycle



2020+

Regenerate

Rethink | Restore | Replenish

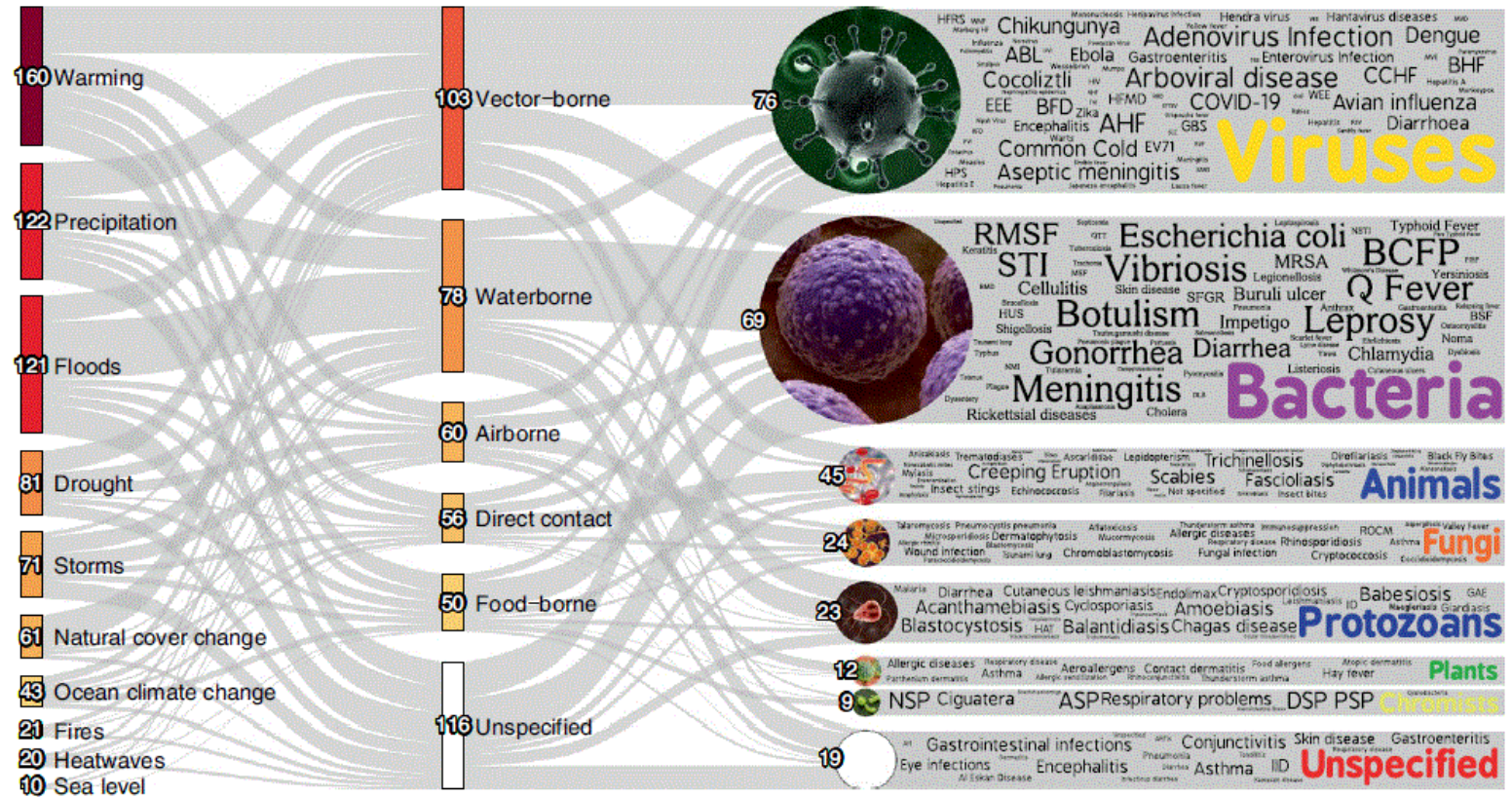
Human activity since the Industrial Revolution has put growing pressure on our planet, leading to environmental degradation.

As awareness of these challenges spread, we sought to 'do less harm' to the planet.

Now we seek to learn from Earth’s living systems and look to a regenerative future.

The pathogenic paradigm

Some link industry’s extractive environmental practices directly to an increase in disease proliferation. Borrowing this heuristic, I argue that **industrial education practices** are ‘extractive’ in terms of its impact on student well being and flourishing. Moreover, many of our efforts to improve matters adopt a **pathogenic** approach.



Antonovsky's salutogenesis



- In Antonovsky's salutogenic approach to health care a key term is 'sense of coherence' (SOC). This is 'a way of looking at the world' (Antonovsky, 1987) and coping with stressors that sees life as understandable, manageable, and meaningful (Fries, 2020).
- Like Bourdieu's 'habitus' SOC is a learned set of preferences or dispositions by which a person orients to the social world.
- 'From the time of birth, or even earlier, we constantly go through situations of challenge and response, stress, tension, and resolution. The more these experiences are characterized by consistency, participation in shaping outcome, and underload-overload balance of stimuli, the more we begin to see the world as being coherent and predictable' (Antonovsky, 1987).

Pathogenesis in education



- ‘Pathogenesis starts by considering disease and infirmity and then works retrospectively to determine how individuals can avoid, manage, and/or eliminate that disease’. (Antonovsky Aaron. *Unravelling the mystery of health*. San Francisco: Jossey-Bass; 1987.)
- Antonovsky explains that ‘the disease care institution, organized around the problem of pathology, is more comfortable with the individual patient who has come down with a diagnosable disease for which effective therapy is available’ (Antonovsky, 1987)

Educational example of a pathogenic approach:

- *Disease*: Schools are working with students experiencing increased levels of stress and anxiety
- *Treatment*: Build strategies aimed at increasing student ‘resilience.’
- ‘The emphasis of the pathogenic approach is on understanding the causes and consequences of disease, rather than understanding the factors that promote health and healing.’

(Fries CJ. Healing Health Care: From Sick Care Towards Salutogenic Healing Systems. *Soc Theory Health*. 2020;18(1):16-32. doi: 10.1057/s41285-019-00103-2. Epub 2019 Apr 11. PMID: 32226316; PMCID: PMC7099730.)

Salutogenesis and its relevance to education



Learning as providing a sense of coherence in the face of ‘generalized resistant resources’

- GRRs run the range from genetic and biophysical properties of the individual all the way up to the structural and cultural properties of societies’ (Fries, 2020).
- ‘GRRs are an expansive concept, including factors such as: adaptability on the physiological, biochemical, psychological, cultural, and social levels; profound ties to concrete, immediate others; and commitment of and institutionalized ties between the individual and the total community’ (Fries, 2020).

Learner stress/anxiety using the resilience strategy example

- Pathogenic education individualizes the problem and leads to a deficit approach. The student becomes further isolated from the rest of the community. Furthermore, this approach negates the importance of GRRs as described above.

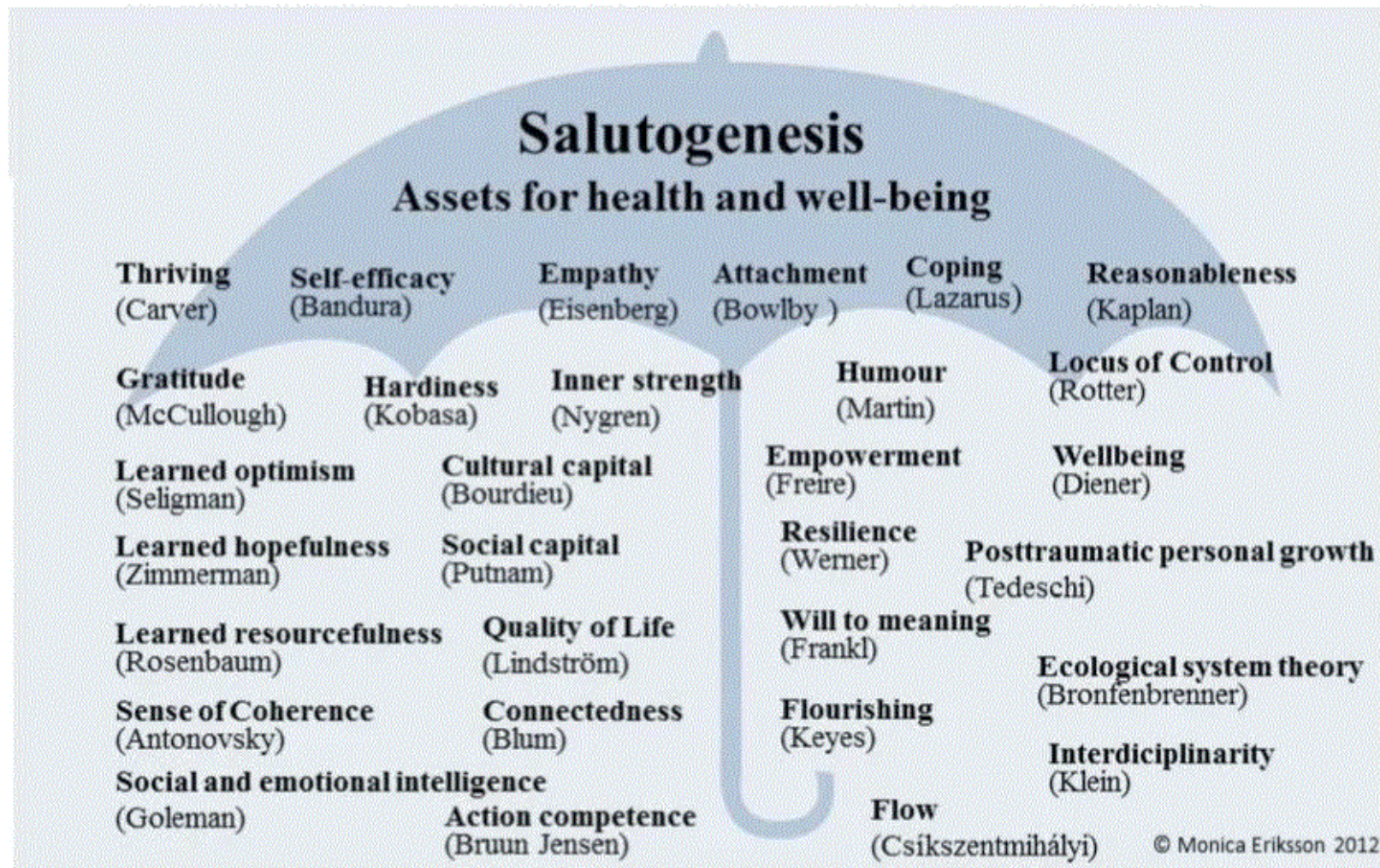
Consider the following statement about health in the context of education:

- ‘health derives in part from our ability to adapt and the faith in the future that we develop as children, as well as from the friendship and support networks to which we have access at work, at home, and in the community. Health also stems from our sense of having room to manoeuvre along with some control over our work, and from our capacity for dealing with abrupt changes in our lives’

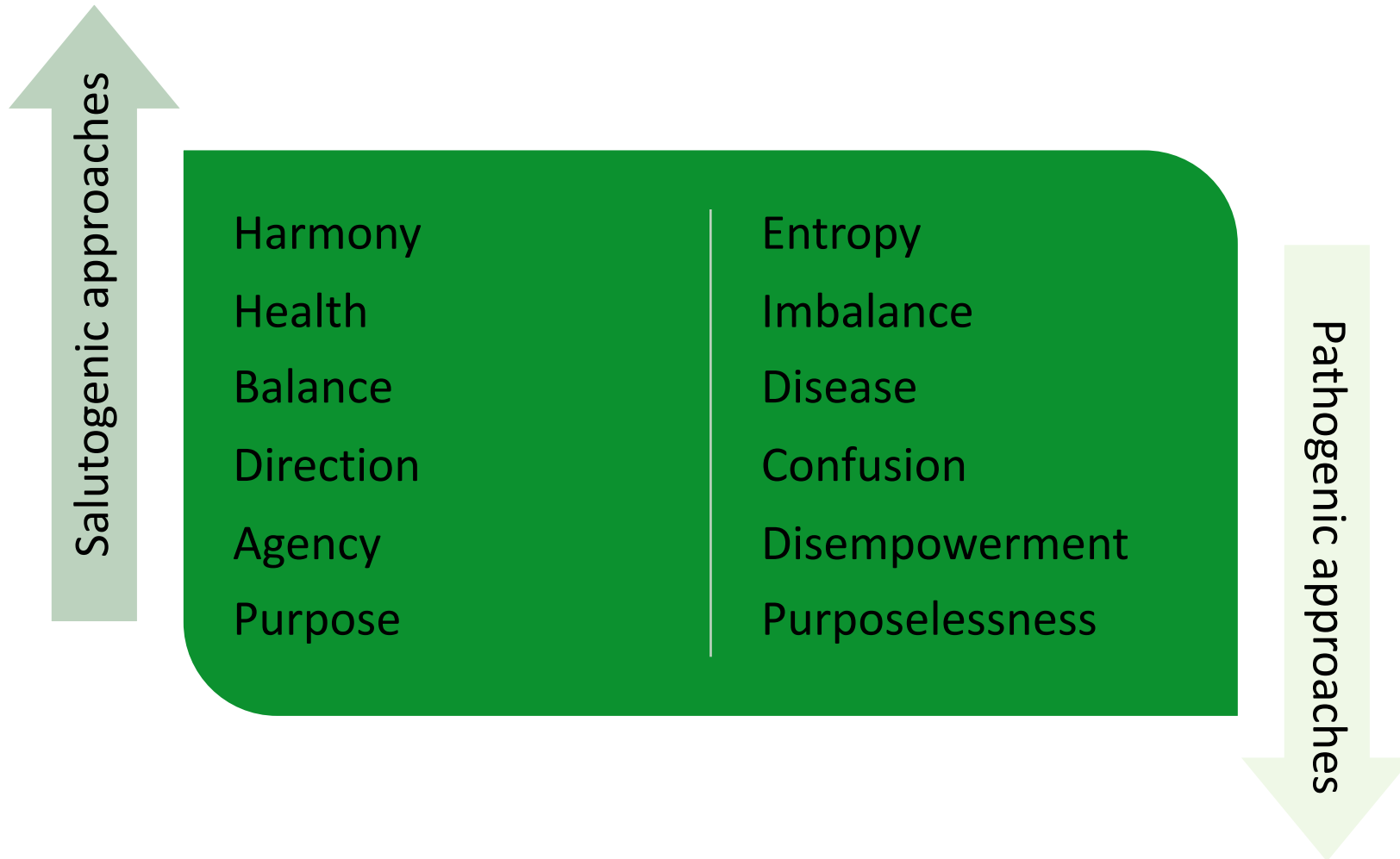
(Renaud M, et al. The future: Hygeia versus Panakeia. In: Evans RG, et al., editors. *Why are some people healthy and others not?* New York: Aldine De Gruyter; 1994. pp. 317–334).

In education terms building flex, optimism, relationships, community, agency become the core knowledge, skills, and dispositional traits for navigating VUCA and maintaining flourishing. Isn’t this the deeper purpose of education?

Contextualizing salutogenic approaches in education



Salutogenic transformation in learning communities



A Case Study: The Green School

A complex systems approach



I am arguing that more than ever, the job of education is to nurture *phronesis** (practical wisdom) as a route to regenerative living. Green School's vision is for learners to 'thrive with purpose.' Its curriculum framework is designed to build phronesis through the understanding that living is iterative and learning regenerative.

*Phronesis is simply one description of the moral self. Based on context, can and should be substituted with models drawn from indigenous knowledge systems, which are.

1. Learning design – curriculum & pedagogy

- 4 foundations
- Green Literacies

2. Evidencing eco-system – assessment & evaluation

- Seeing growth
- Capturing attainment
- Avoiding metrics of scale

3. Learning translation – recognition & understanding

- A complex systems problem
- Clinging to parts rather than embracing the elephant

4. Learning environment – architecture & community

- Space that amplify
- Serving all stakeholders

Green School Learning Design

Green School Curriculum

A Template for Regenerative Education

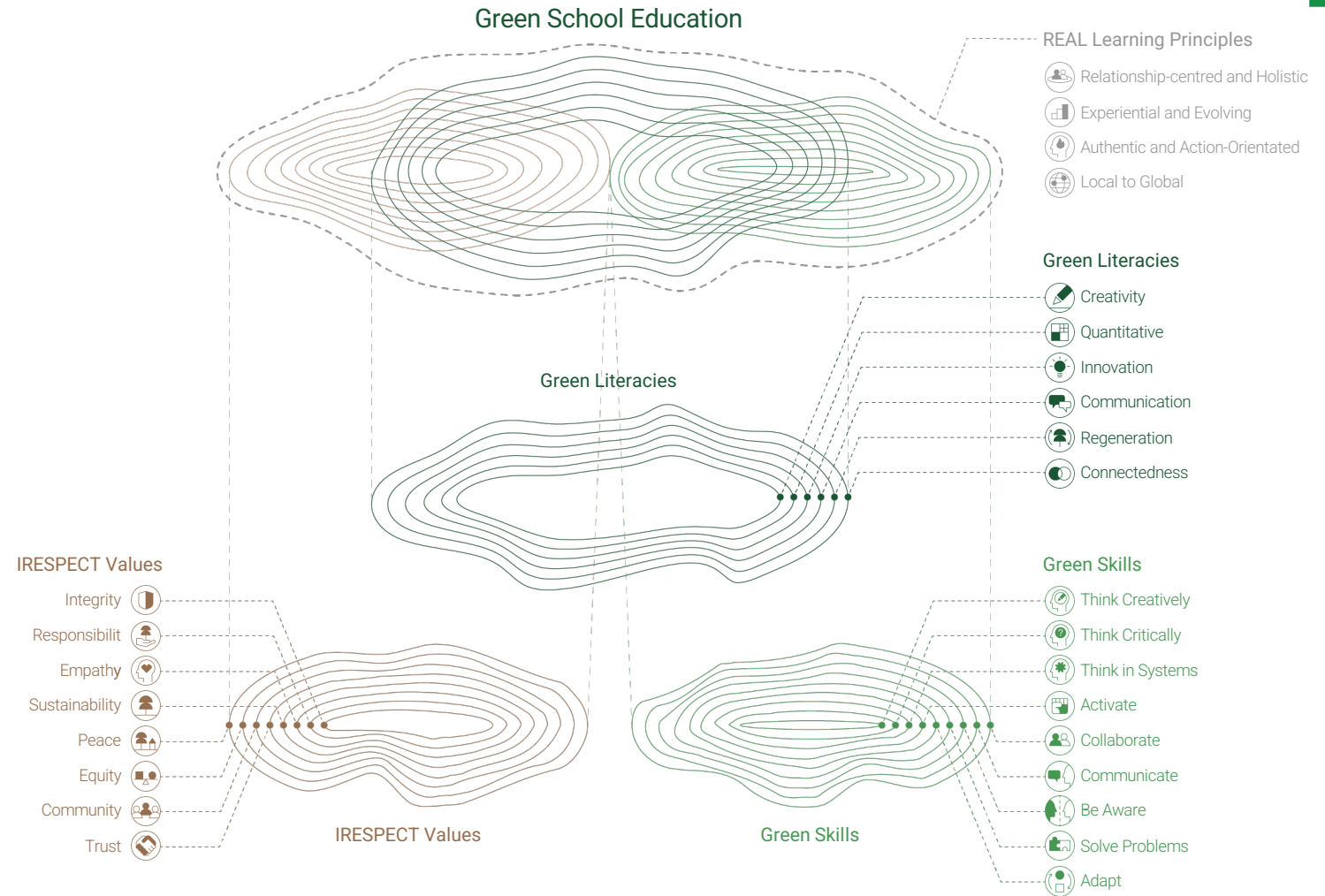


Innovative Curriculum

The Green School's dynamic interdisciplinary approach is grounded in real-world sustainability challenges and provides future-focused and rigorous academic pathways. Green School's signature Green Literacies Framework, builds the fluency necessary for success as we transition to a more sustainable future for ourselves and the planet. This ground-breaking learning experience sets a new bar for the future of education and student progress evaluation.

Available across

- Early Childhood
- Primary/Elementary school
- Middle School
- High School (Green School Diploma)



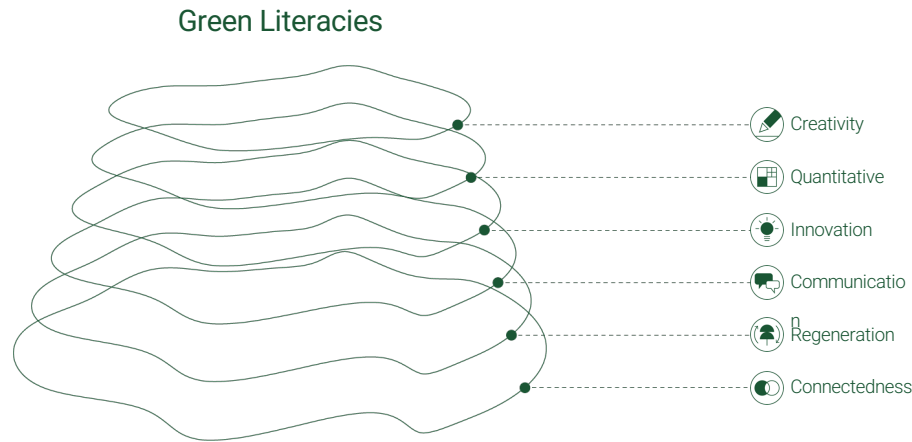
Green Literacies Framework

Middle & High School



The interdisciplinary approach to disciplinary knowledge and skills is learned through a project-based curriculum. This principle recognises specific areas of expertise are deepened through regular standalone subject learning. For most of the Green School learning journey the curriculum is curated using 6 green literacy strands, each containing 3 concept domains and 9 knowledge dimensions.

The Middle and High School framework articulates the culminating levels of fluency across the 6 literacies.



Creativity	Quantitative	Innovation	Communication	Regeneration	Connectedness
Appreciation Emotions & Senses Aesthetic Cultural	Number Sets & Models Number Systems Data & Statistical Models Graphical Representation	Chemistry Chemical Transformation Chemical Systems Living & Non-Living Systems	Proficiency Decoding Language Communicating with Purpose Multilingualism	Environmental Science Ecological Systems Biological Systems Earth Sciences	Self Physical Emotional Cognitive
Inspiration Nature Passions Causes	Geometry Shape and Space Geometric Models & Proofs Transformations	Physics Movement, Forces & Space Energy & Work Physical Systems	Expression Spoken Narratives Listening and Response Digital Reach	People & Society Cultural Systems Circular Economy Education & Health	Humanity Ethics Inclusivity Identity & Diversity
Exposition Mastery & Craft Solo Collaborative	Relations & Functions Domains Sets & Mapping Statistics & Society Complex Functions	Solutioning Technological Design Entrepreneurial Mind Sustainable Partnerships	Meaning Critical Consumers Power of Communication Shared Humanity	Changing Planet Resources and Geopolitics Climate Change The Built Environment	Nature Natural World Systems Design
Creative literacy is crucial for generating innovative and sustainable solutions to complex challenges. It enables individuals to think critically, identify opportunities for positive change, and develop creative approaches to address environmental and social issues.	Quantitative literacy is essential for understanding sustainability metrics, analysing environmental data, and making informed decisions based on quantitative information. It enables individuals to assess the environmental impact of various actions, measure progress towards sustainability goals, and identify areas for improvement.	Innovative literacy plays a key role in driving sustainable practices and solutions. Being innovative involves finding new ways to reduce resource consumption, develop clean technologies, and implement sustainable business models. It also requires a mindset that embraces circular economy principles and fosters continuous improvement.	Communicative literacy is vital for promoting sustainability initiatives and engaging stakeholders. Communicative literacy allows individuals to convey the importance of sustainability, advocate for environmentally responsible practices, and collaborate with diverse stakeholders to drive sustainable change.	Regenerative literacy aligns closely with sustainability goals. It involves understanding and implementing practices that restore ecosystems, promote biodiversity, and regenerate natural resources. Individuals with regenerative literacy can contribute to sustainable agriculture, renewable energy, and regenerative design, among other areas.	Connected literacy is crucial for leveraging technology and global networks to advance sustainability efforts. It enables individuals to access and disseminate information about sustainable practices, collaborate with international partners on sustainability projects, and utilize digital platforms to raise awareness about environmental issues.

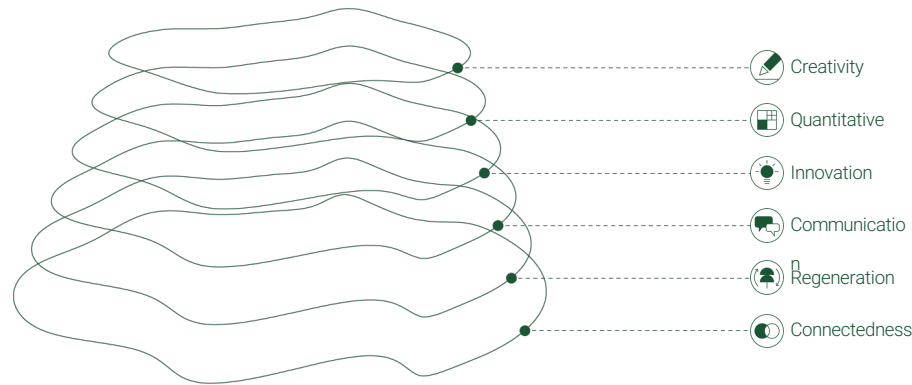
Green Literacies Framework Primary School

The interdisciplinary approach to disciplinary knowledge and skills is learned through a project-based curriculum. This principle, however, recognises specific areas of expertise are deepened through regular standalone subject learning. The Green School learning journey is anchored using 6 green literacy strands, each containing 3 concept domains and 9 knowledge dimensions.

The Primary School framework articulates the developmental stages of fluency building across the 6 literacies.



Green Literacies



Creativity	Quantitative	Innovation	Communication	Regeneration	Connectedness
Appreciation Emotions & Senses Artistic Cultural	Number Building a Math Mindset Using Data Early Algebra	Chemistry Matter Reactions Atoms & Particles	Proficiency Learning Languages Communicating Multilingualism	Environmental Science Ecological Systems Biological Systems Earth Sciences	Self Healthy Body Feelings Healthy Brain
Inspiration Nature Passions Interests	Geometry Shape and Space Geometric Designs Transformations	Physics Forces Movement Energy	Expression Spoken Narratives Listening & Response Digital Learning	People & Society Cultural Systems Circular Economy Education & Health	Humanity Making Good Choices Including Everyone Everybody Matters
Exposition Mastery & Craft Solo Collaborative	Relations & Functions Numbers Graphs & Charts Functions & Formulae	Solutioning Technological Design Entrepreneurial Mind Sustainability	Meaning Researching Information Power of Communication Shared Humanity	Changing Planet Resources & Materials Climate Change Structures & Buildings	Nature Natural World Making Links Design in Nature
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Green Literacies Framework

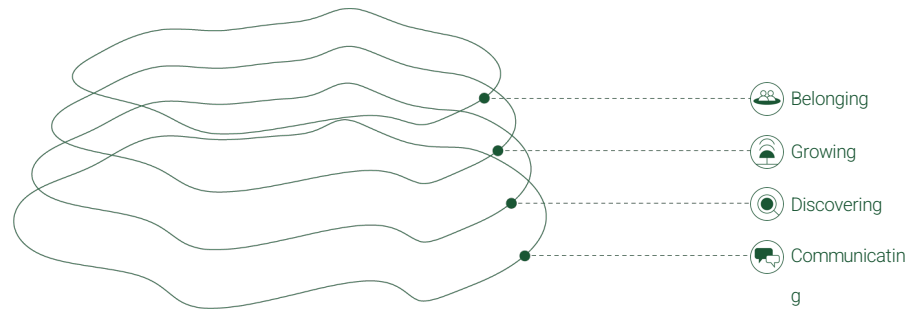
Early Childhood

The interdisciplinary approach to disciplinary knowledge and skills is learned through a project-based curriculum. This principle recognises specific areas of expertise are deepened through regular standalone subject learning.

However, in recognition of the differing developmental stages of the learner there are only 4 foundational literacies in Early Childhood.



Green Literacies



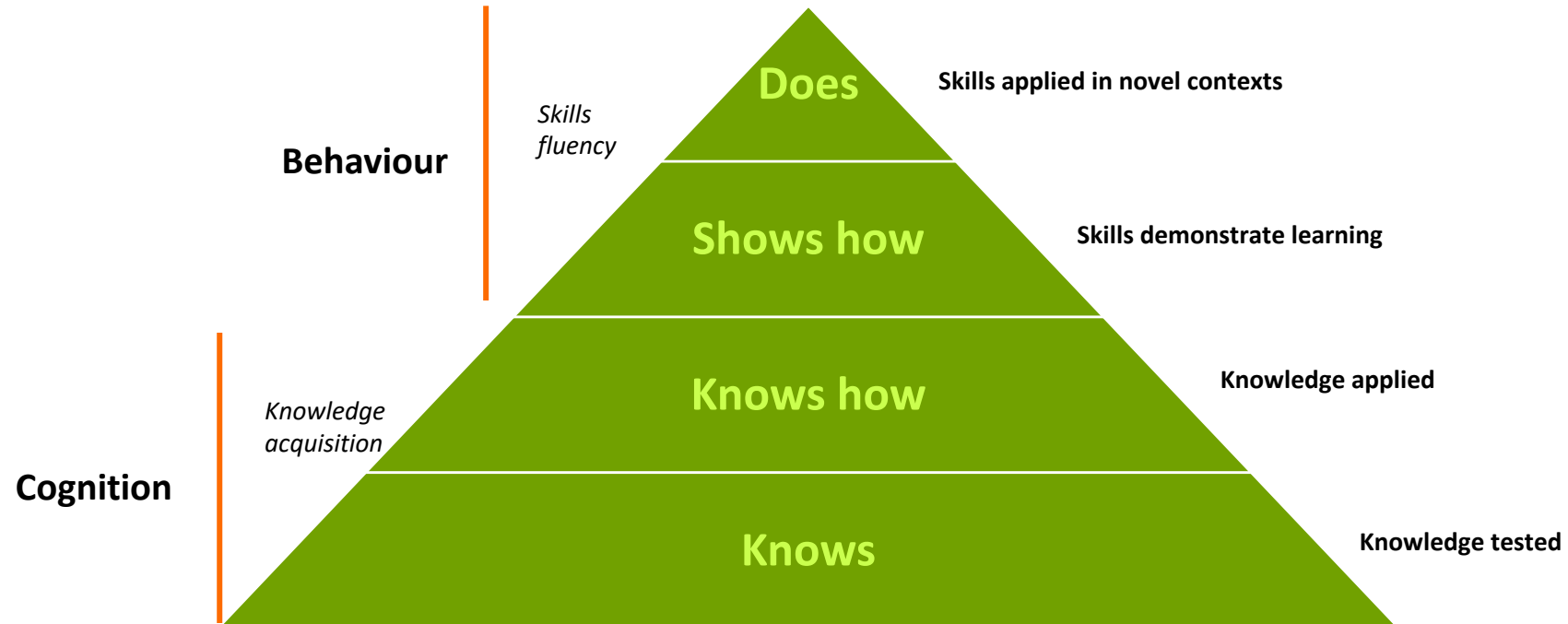
 Belonging	 Growing	 Discovering	 Communicating
Identity (Self) About Me Similarities & Differences Feeling Safe	Healthy Bodies Human Body Nutrition Keeping Fit	Numbers & Shapes Counting Measuring Shape & Space	Worlds Phonics Early Reading Early Writing
Security (Family) My Family & Relatives My House & Home People Who Care For Me	Healthy Minds Mindfulness Imagining & Creating Thinking About Others	Our World Living Things Made & Reclaimed Materials Natural Materials	Pictures & Objects Picture Books Making & Appreciating Digital Images
The Wider World Care For The Natural World Care For Our Neighbourhood International Connections	Healthy Relationships Making Friends Seeking Connections Patterns & Sequences	Build Up & Break Up Cycles & Circularity Building Things Taking Things Apart	Sounds Making Music Story Telling Speaking & Listening
Belonging entails understanding the connections that bind all living things together. It enables young learners to see themselves as part of the larger web of life by fostering a deep sense of responsibility towards preserving both diversity and harmony in the natural world.		Growing embodies the cultivation of knowledge, skills, and attitudes that contribute to personal and environmental flourishing. This literacy helps young learners develop agency and personal resilience within the context of ecological understanding and play-based landscapes.	

Green School Evidencing Eco-system

Miller's Pyramid



Miller's model as literacies fluency



Evidencing learning: 4 modes of evaluation and assessment data



Knowledge tested for mastery

- *Machine enhanced feedback and evaluation*
- *Peer evaluation*
- *Expert evaluation*

Knowledge applied with self-reflection

- *Self-evaluation of knowledge acquisition*
- *Self-evaluation of skill application*

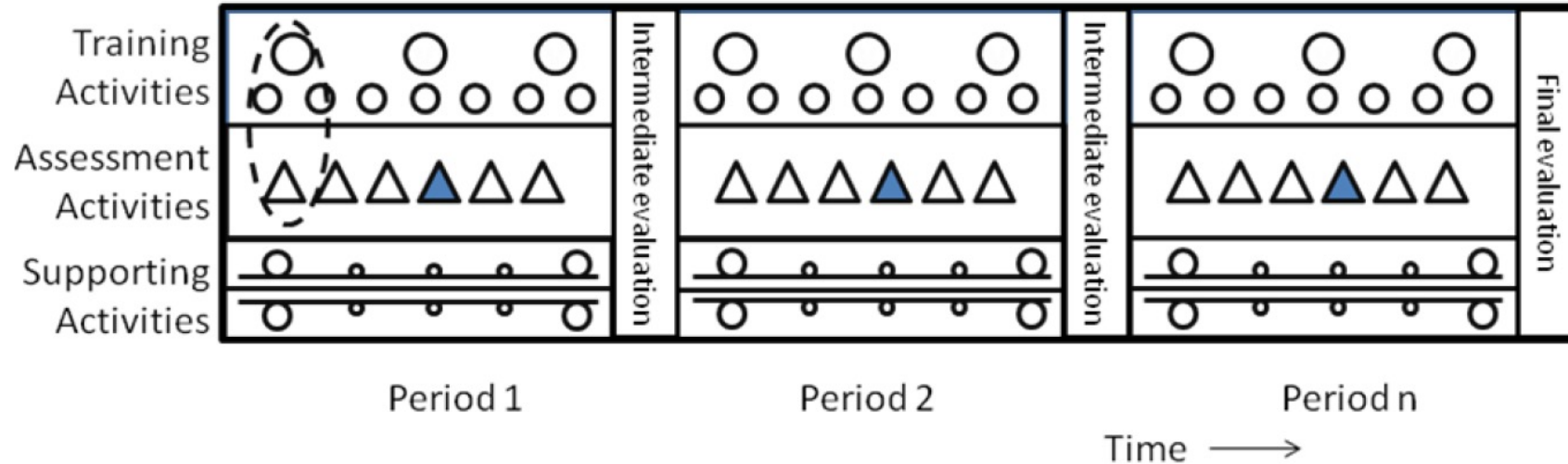
Skills demonstrated using peer intervision

- *Intervision involves a group approach to problem identification using interrogative questioning of each other's understandings and ideas*

Skills demonstrated using expert supervision

- *Application of knowledge and skills to solve novel real-world problems and/or offer scenarios for further exploration*

Cadence of evidencing and evaluation



- = learning task
- ◯ = learning artifact
- △ = single assessment data-point
- ▲ = single certification data-point for mastery-tasks
- 🔗 = learner reflection and planning
- 🔗 = social interaction around reflection (supervision, intervision)
- ⋯ = learning task being an assessment task also

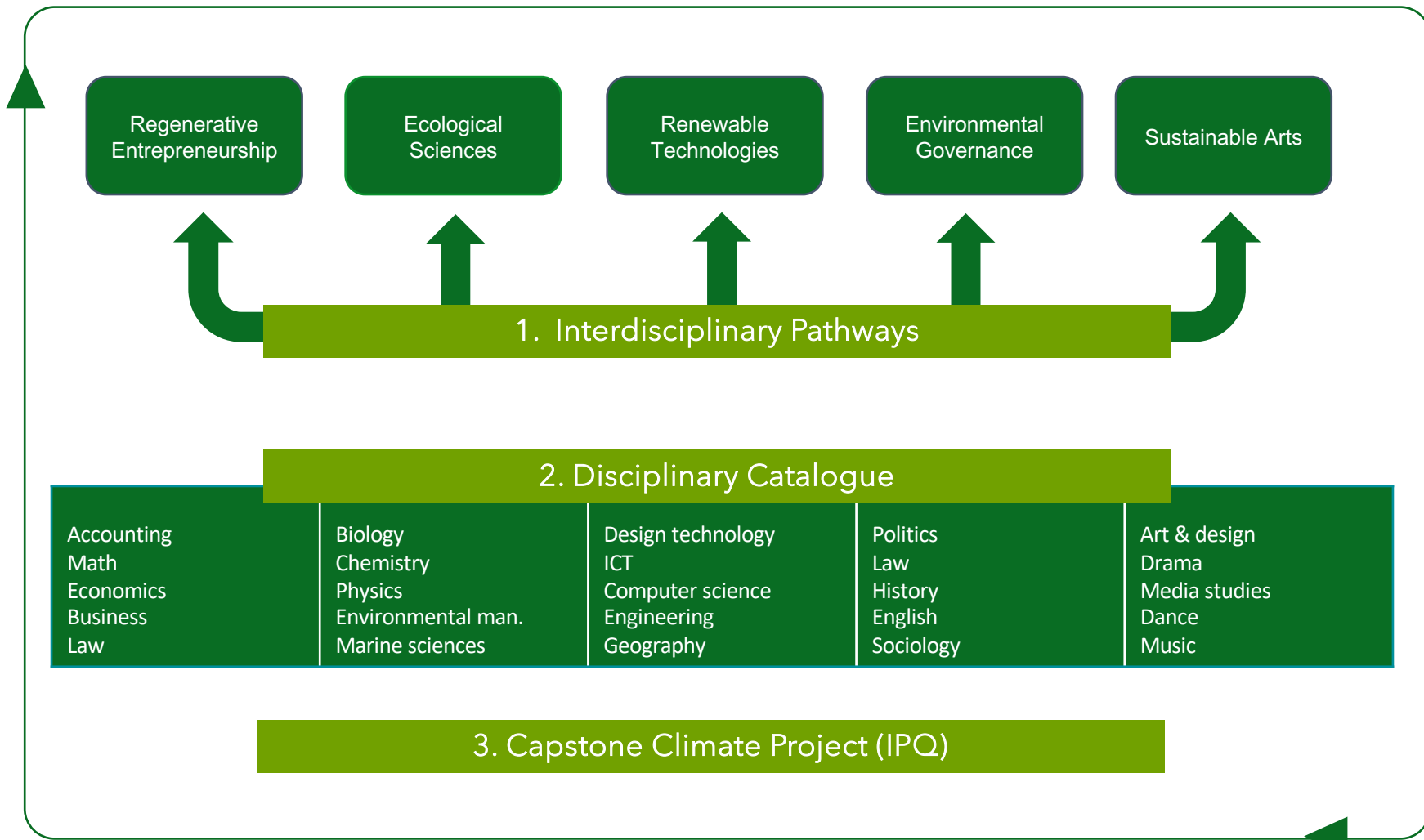
Evidence of learning combines: learning – artifact – data - support

Green School Learning Translation

The Green Baccalaureate



During their final two years, the Green Literacies focus on students selecting 1 of 5 climate pathways to have a more focused impact for a greener world. For example, each pathway combines 3 A levels (Global Perspectives plus two other subjects), and a Capstone Climate Project to create a unique diploma that is globally recognised for university access.



Mastery Transcript Consortium



Globally Recognised Qualifications

Green-focused pathways leveraging the Global Perspectives A level



Regenerative Entrepreneurship	Ecological Sciences	Renewable Technologies	Environmental Governance	Sustainable Arts
Intro to Regenerative Entrepreneurship	Introduction to Ecology	Introduction to Renewable Technologies	Introduction to Environmental Governance	Introduction to Sustainable Art and its Principles
Design Thinking Practices	Ecology and Ecosystems	Solar Energy	International Approaches to Environmental Governance	Sustainable Design in Arts
Social Innovation Principles	Biodiversity and Conservation	Wind Energy	Civil Approaches to Environmental Governance	Environmental Awareness in Arts
Business Planning and Strategy	Global Environmental Issues	Hydro Energy	Corporate Approaches to Environmental Governance	Sustainable Art Materials and Techniques
Social and Environmental Impact Assessment	Population and Community Ecology	Geothermal Energy	Environmental Governance Impact Assessment	Sustainable Art Movements
Funding and Investment for Regenerative Enterprises	Environmental Science and Sustainability	Biomass Energy	Civil Approaches to Environmental Governance	Sustainable Art Production
Legal and Ethical Considerations	Applied Ecology and Conservation	Project Planning and Management	Challenges and Opportunities in Governance	Future of Sustainable Arts
Case Studies in Regenerative Entrepreneurship	Case Studies in Ecological Sciences	Case Studies in Renewable Technologies	Case Studies in Environmental Governance	Sustainable Art Project or Series
Pathways diploma using one of the above Global Perspectives alongside 2 A Levels (CIAE)				
Accounting	Biology	Design technology	Politics	Art & Design
Math	Chemistry	ICT	Law	Drama
Economics	Physics	Computer science	History	Media Studies
Business	Environmental management	Engineering	English	Dance
Law	Marine sciences	Geography	Sociology	Music
Greenstone Project - IPQ (CIAE)				

The 5 pathways above capture the kinds of exemplar concepts that might be pulled from existing A levels or elsewhere. It is offered here as only an example to show the potential to create inter-disciplinary pathways that also meet the disciplinary expectations of a wide range of A level courses.

Green School Environment

School without walls – Green School, Bali



Iconic architecture - Green School, New Zealand



Biophilic architecture - Green School, New Zealand



Inspiring architecture - Green School, New Zealand



Enhancing flourishing - Green School, New Zealand



Nurturing creativity - Green School, New Zealand



Engaging students - Green School, Bali



Collective engagement - Green School, Bali



Building community - Green School, Bali



The Bridge

Green School for Grown-ups: a co-learning center of change, inspiration and reflection for Parents, set on the campus of Green School Bali.

A salutogenic approach in Green School's learning communities

