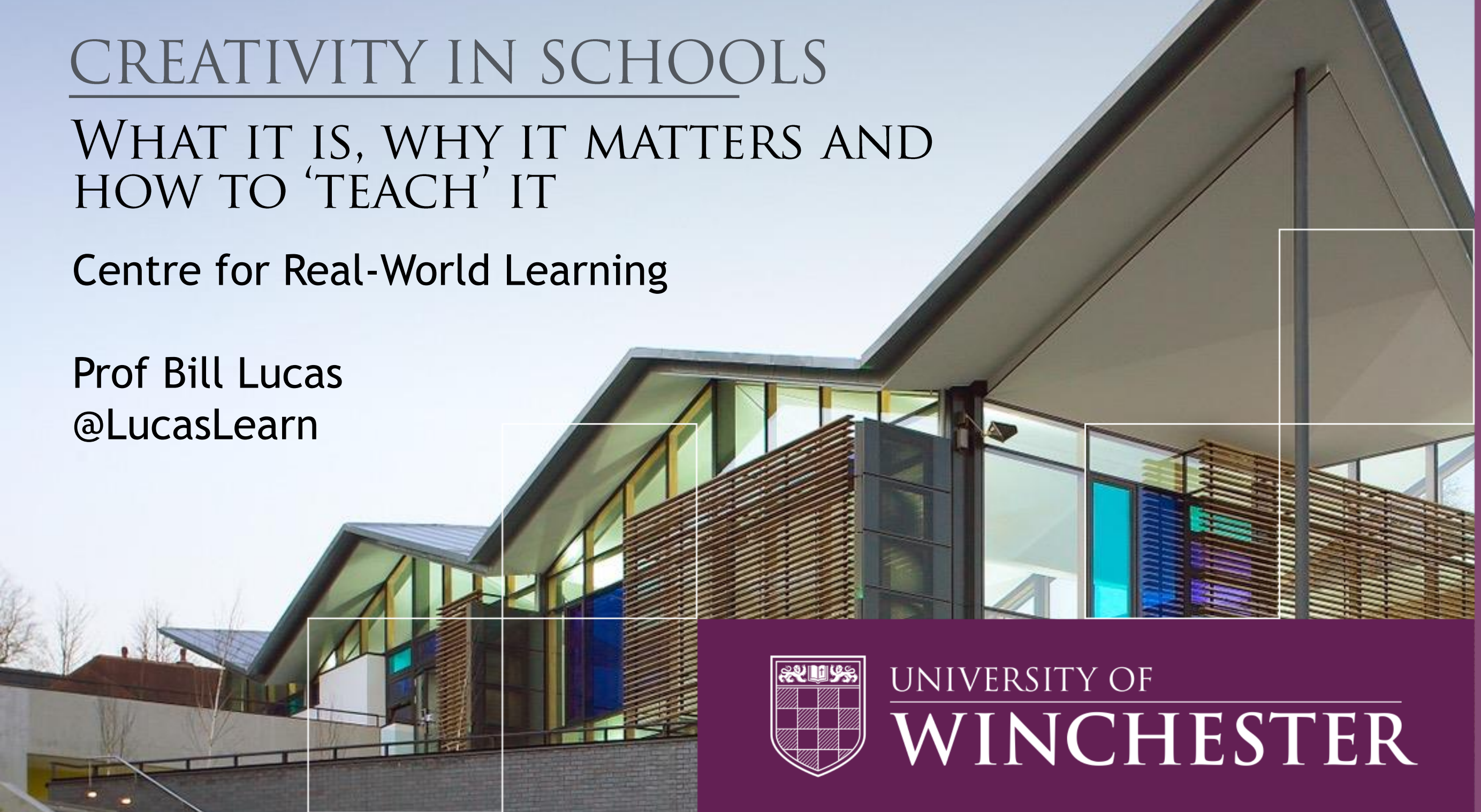


CREATIVITY IN SCHOOLS

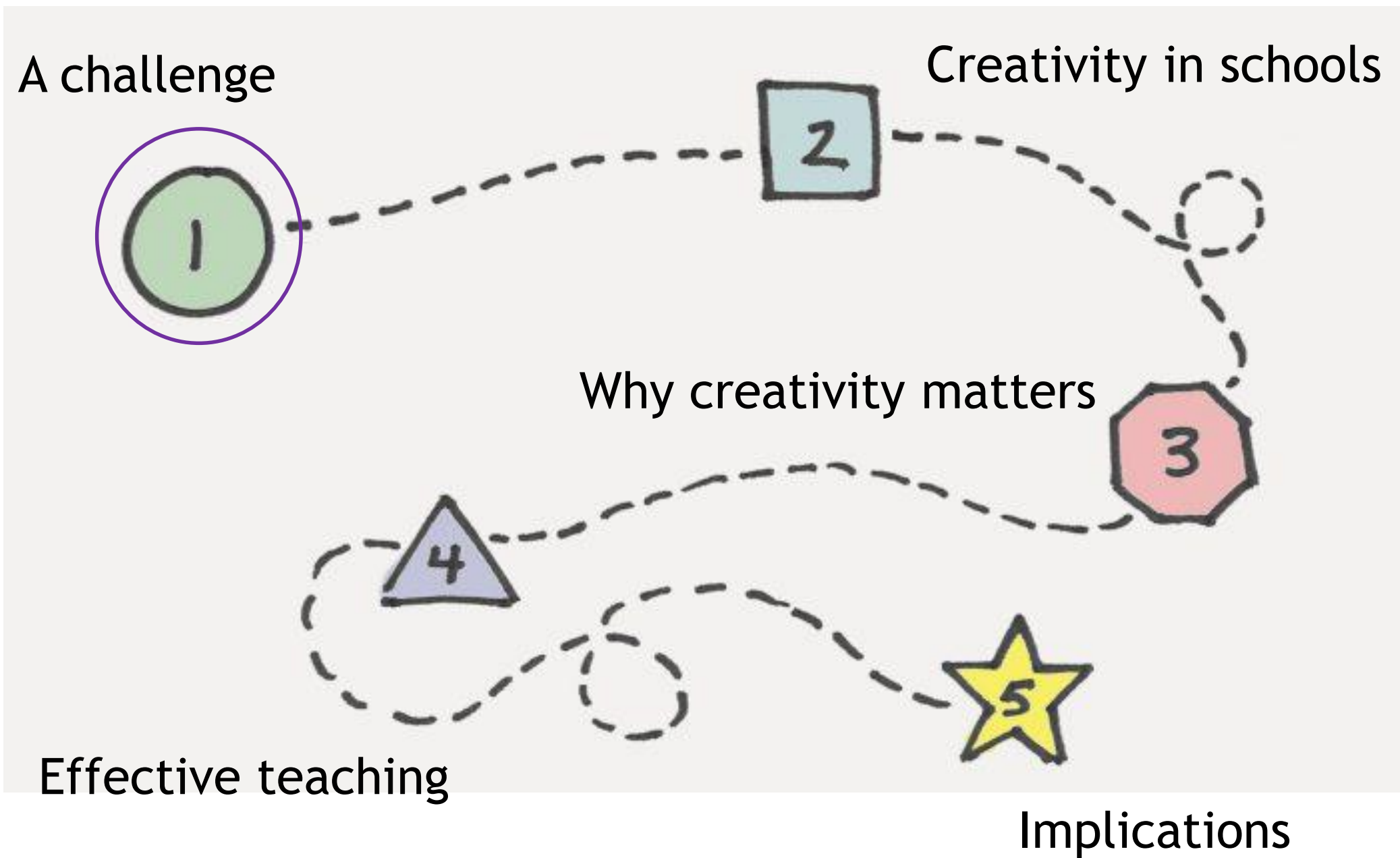
WHAT IT IS, WHY IT MATTERS AND
HOW TO 'TEACH' IT

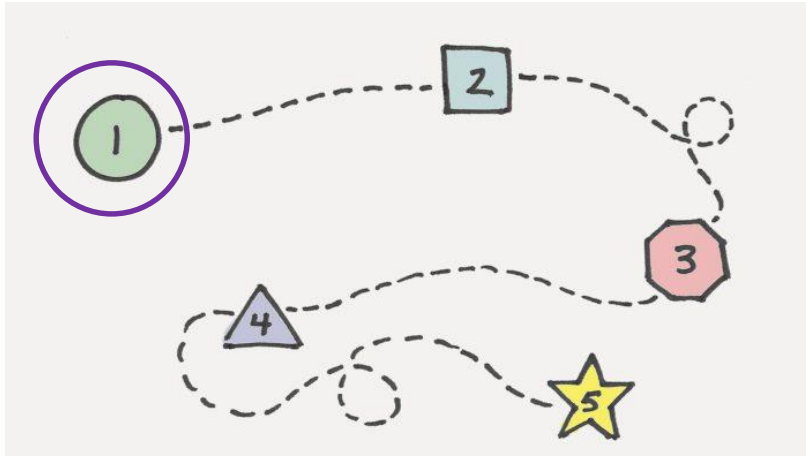
Centre for Real-World Learning

Prof Bill Lucas
@LucasLearn



UNIVERSITY OF
WINCHESTER





1. A challenge

Year 5 Timetable

	9.05-9.25	9.25-10.45	10.45-11.00	11.00-12.00	12.00-12.30	12.30-1.30	1.30-3.25	
Mon	REGISTER/ASSEMBLY	Maths	BREAK	Literacy	RR		RE	PSHE

Tues Staff meeting (up to an hour)	Maths					
Wed	Maths					
Thur	Maths					
Fri Staff briefing 8.40am	Maths					

Library – this is when children ‘free-read’ and

Y7CM	1 9.15 to 9.55	2 9.55 to 10.45	3 11.05 to 11.55	4 11.55 to 12.45	5 1.45 to 2.35	6 2.35 to 3.25
Monday	Literacy	English	Maths	ICT	PSCHE	Geography
Tuesday	English	Art	French	Science	Design Technology	
Wednesday	Literacy	DT	Art	Drama	ICT	Science
Thursday	PE	Maths	RE	English	History	PSCHE
Friday	Literacy	Maths	Art	Science	PE	

What kind of a thing is creativity?



OECD 2030 Framework for Education



Knowledge
Know what



Skills
Know how



Capabilities
Know what
+ know how
+ be able to do it



Habits / Dispositions
Know what
+ know how
+ know when



MITCHELL REPORT NO. 03/2018

The capable country

Cultivating capabilities in Australian education

OCTOBER 2018

Bill Lucas
Charlene Smith

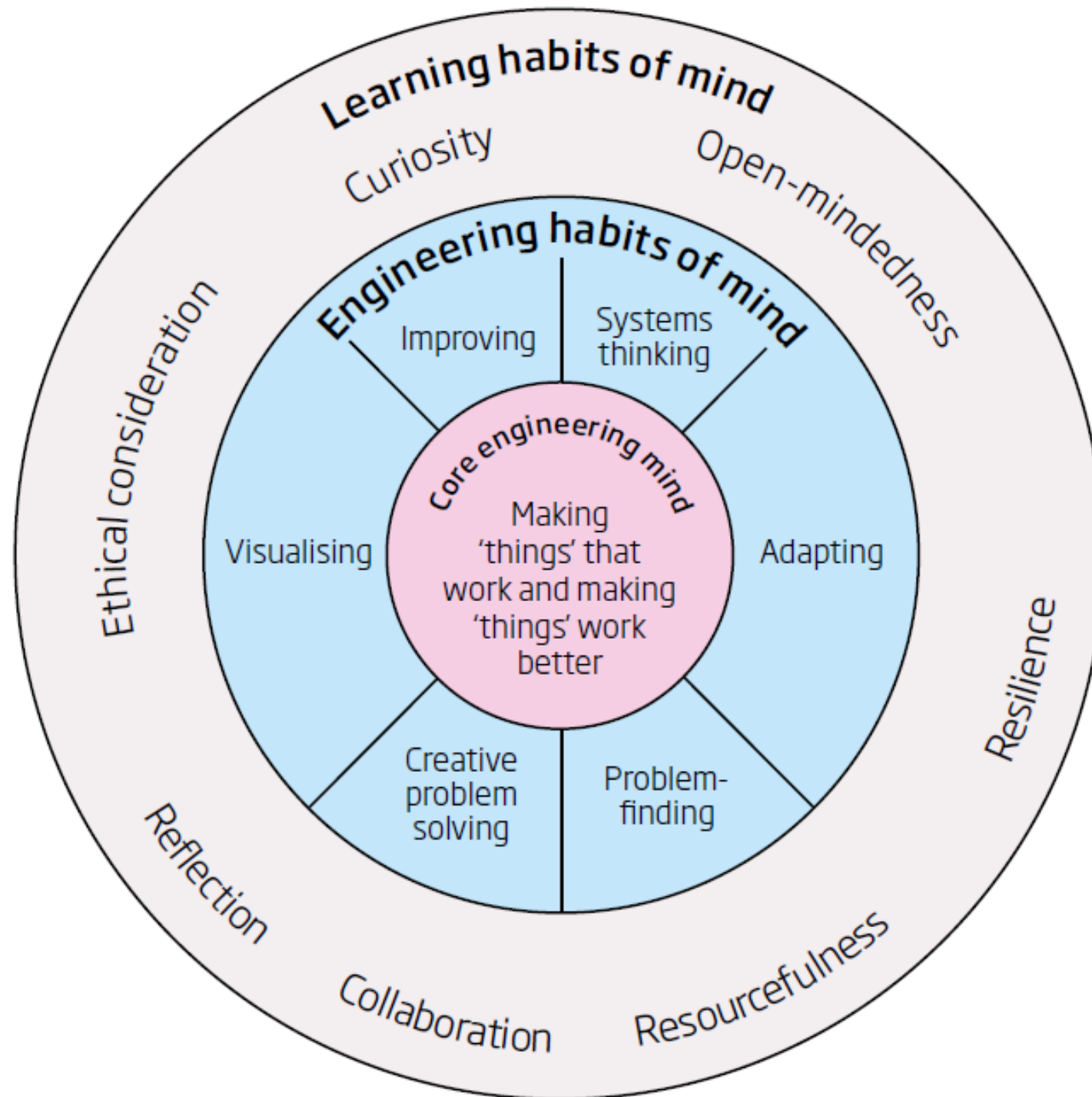
attribute, capacity, capability, character,
characteristics, cognitive skill,
competence, competency,
cross-functional skill, disposition,
habit of mind, key competence,
non-cognitive skill, soft skill,
trait, transferable skill, transversal skill,
twenty-first century skill, wider skill

Why we need to stop talking about twenty-first century skills

Bill Lucas

SEMINAR SERIES **283**



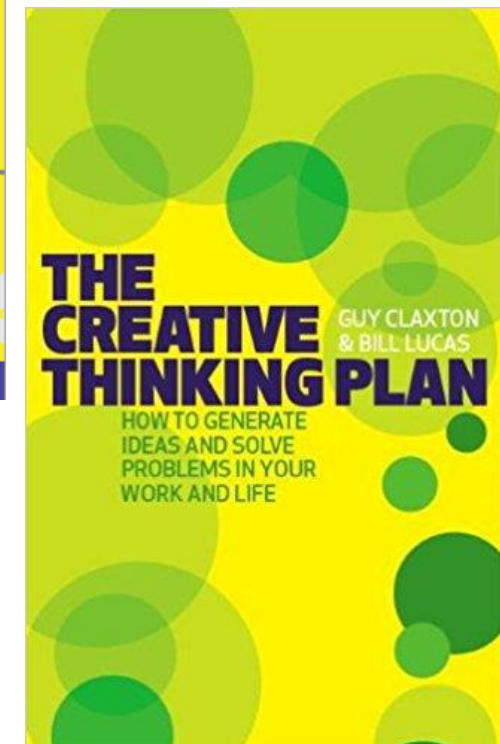
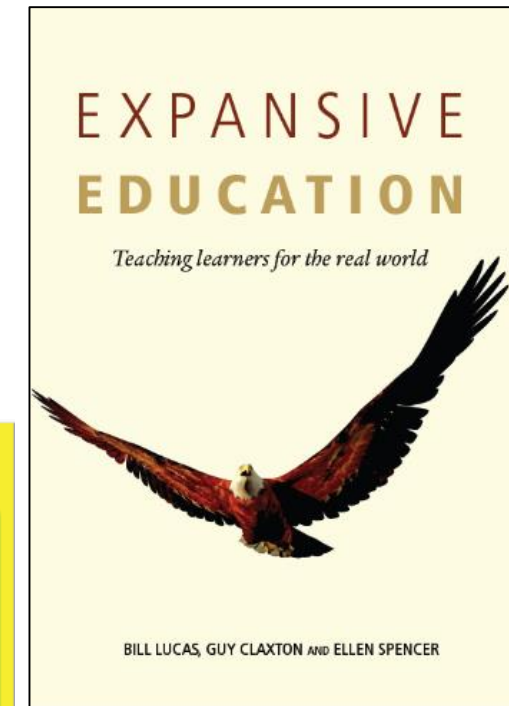
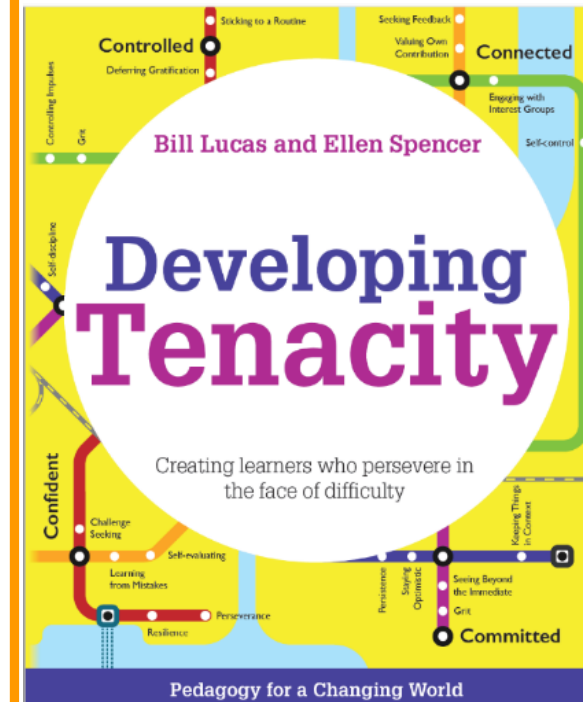
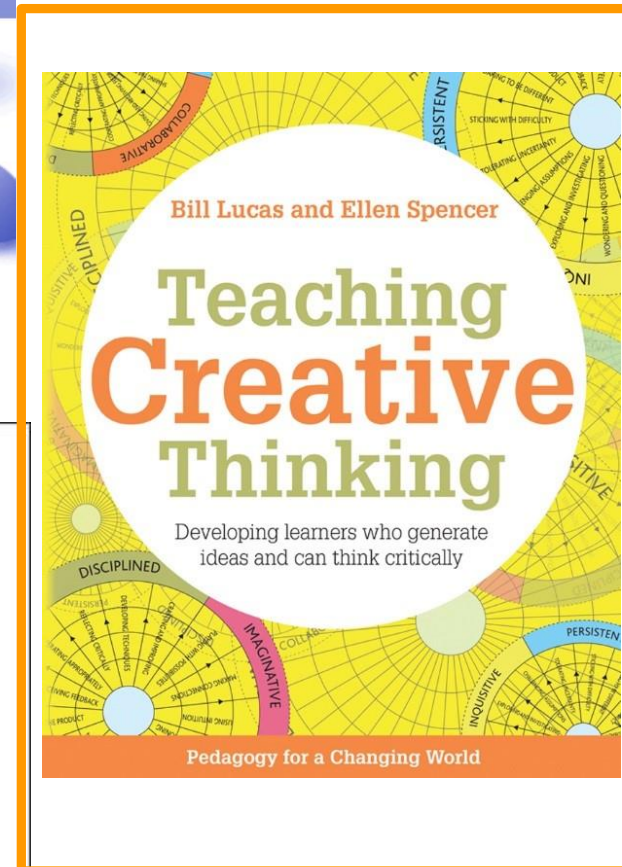
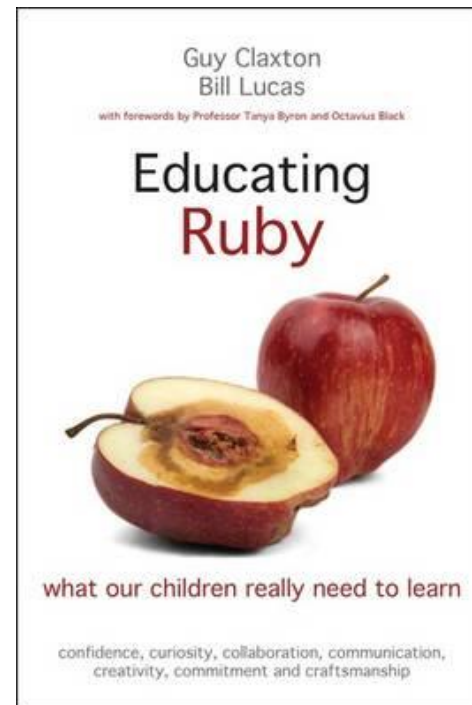
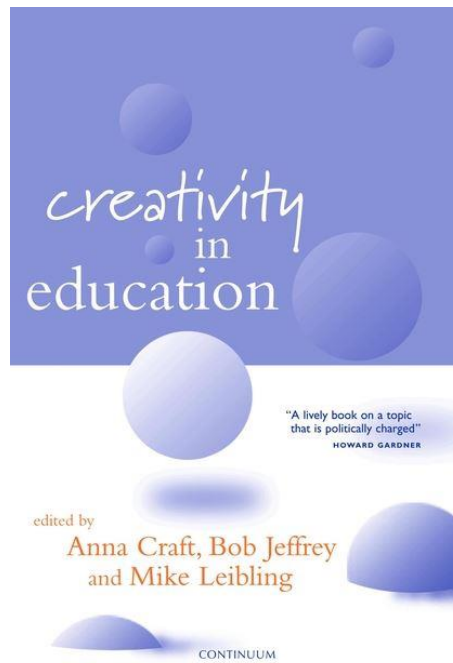


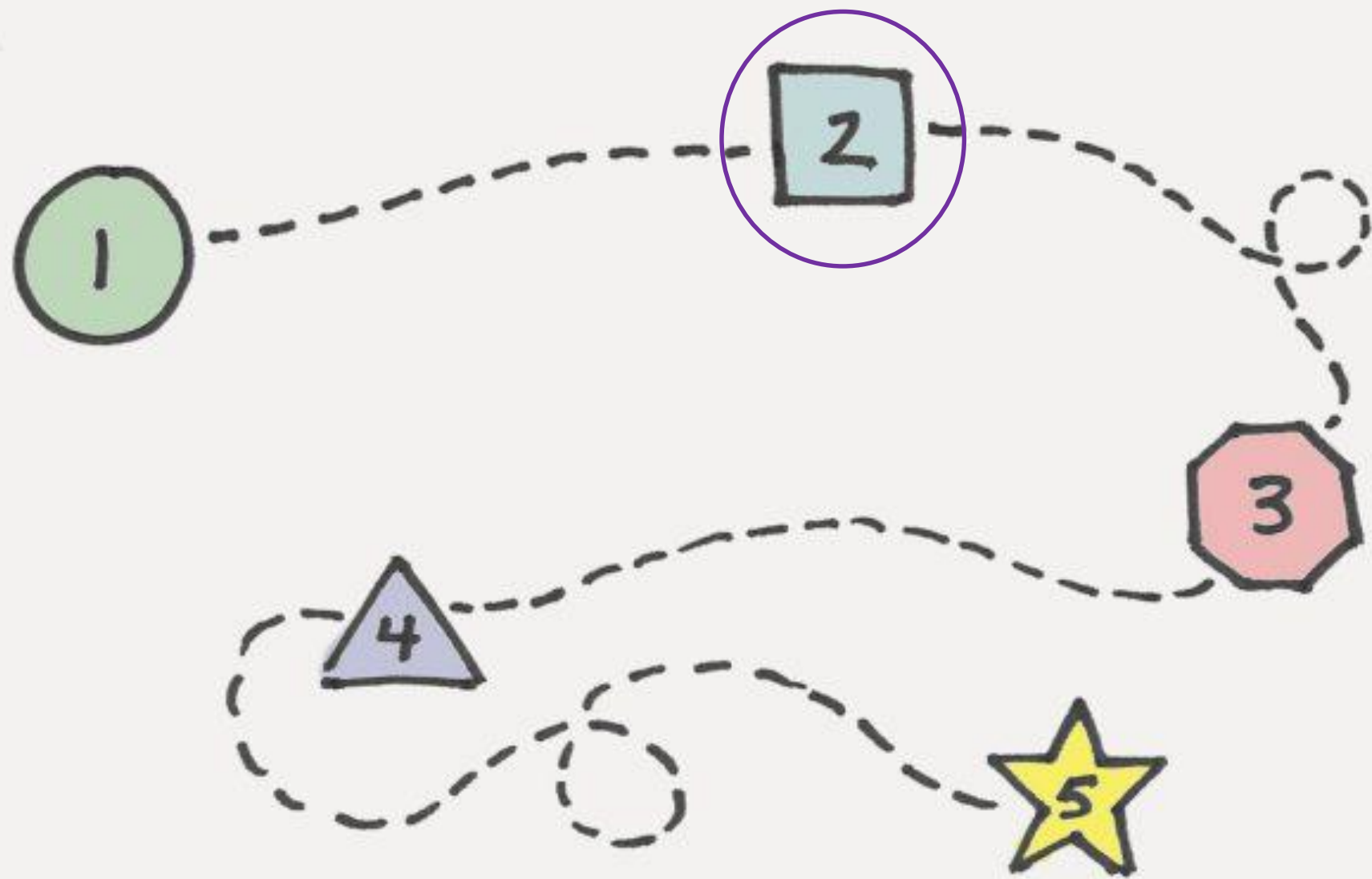
ROYAL ACADEMY OF ENGINEERING

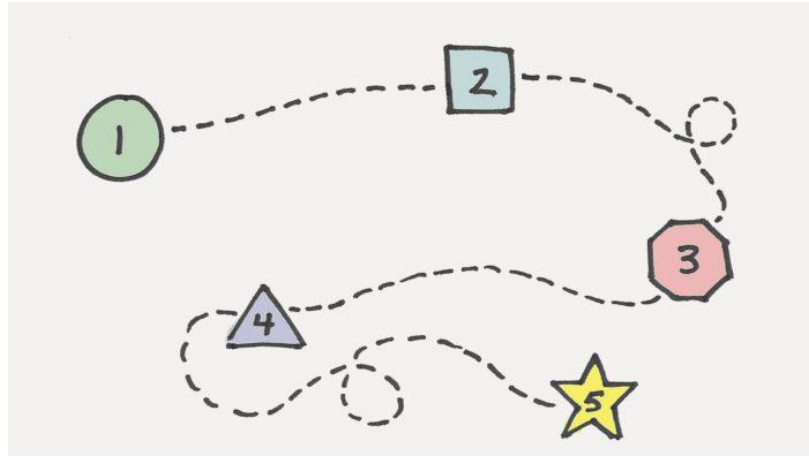
Centre for Real-World Learning

Thinking like an engineer
Implications for the education system

May 2014

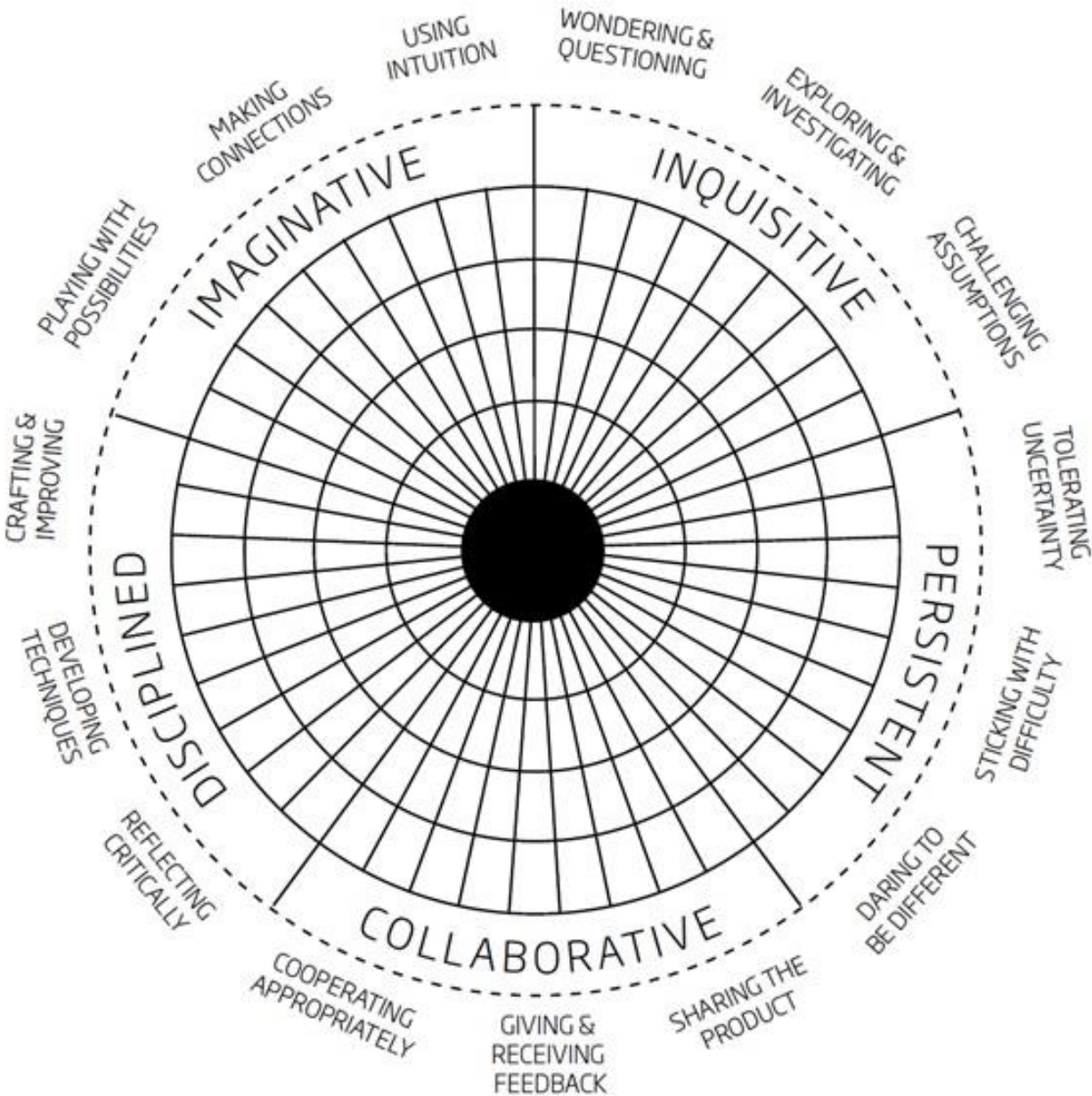






2. Creativity in schools

The Centre for Real-World Learning's model of creativity



OECD publishing

Please cite this paper as:

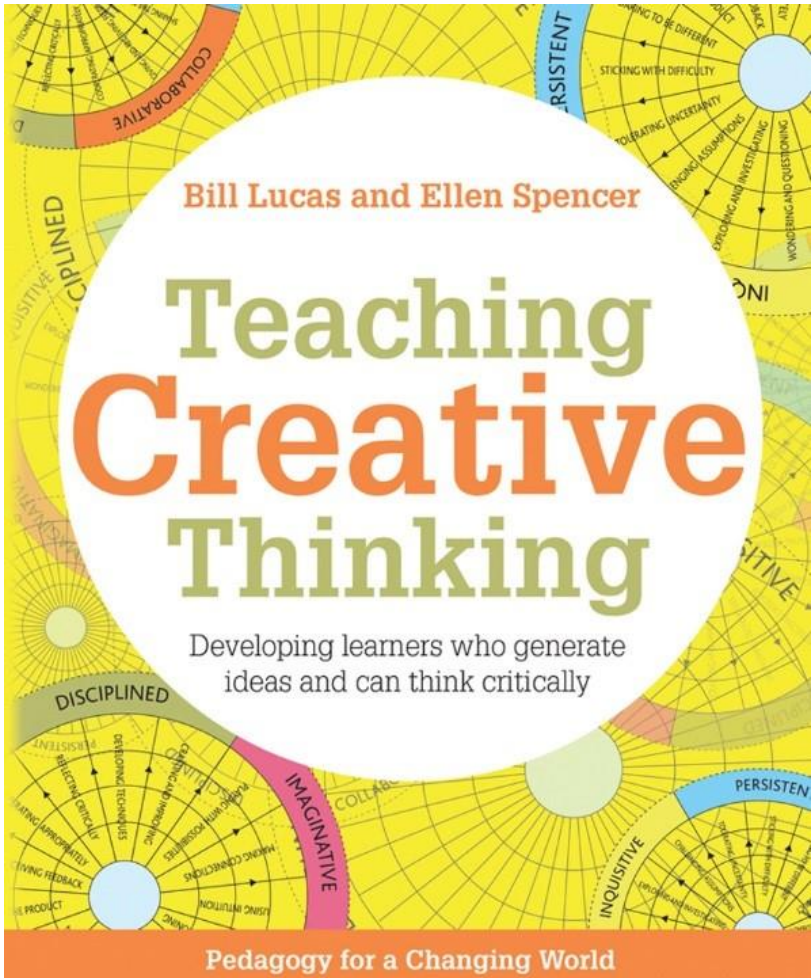
Lucas, B., C. Claxton and E. Spencer (2013), "Progression in Student Creativity in School: First Steps Towards New Forms of Formative Assessments", OECD Education Working Papers, No. 86, OECD Publishing, <http://dx.doi.org/10.1787/5b4d9b5b9b5b5b5b>

OECD Education Working Papers
No. 86

Progression in Student
Creativity in School

FIRST STEPS TOWARDS NEW FORMS OF
FORMATIVE ASSESSMENTS

Bill Lucas, Guy Claxton, Ellen Spencer





TALLIS HABITS

"Learning to understand the world
and change it for the better"



INQUISITIVE:

Wondering & questioning
Exploring & investigating
Challenging assumptions

COLLABORATIVE:

Co-operating appropriately
Giving & receiving feedback
Sharing the product



PERSISTENT:

Sticking with difficulty
Daring to be different
Tolerating uncertainty

DISCIPLINED:

Crafting & improving
Reflecting critically
Developing techniques



IMAGINATIVE:

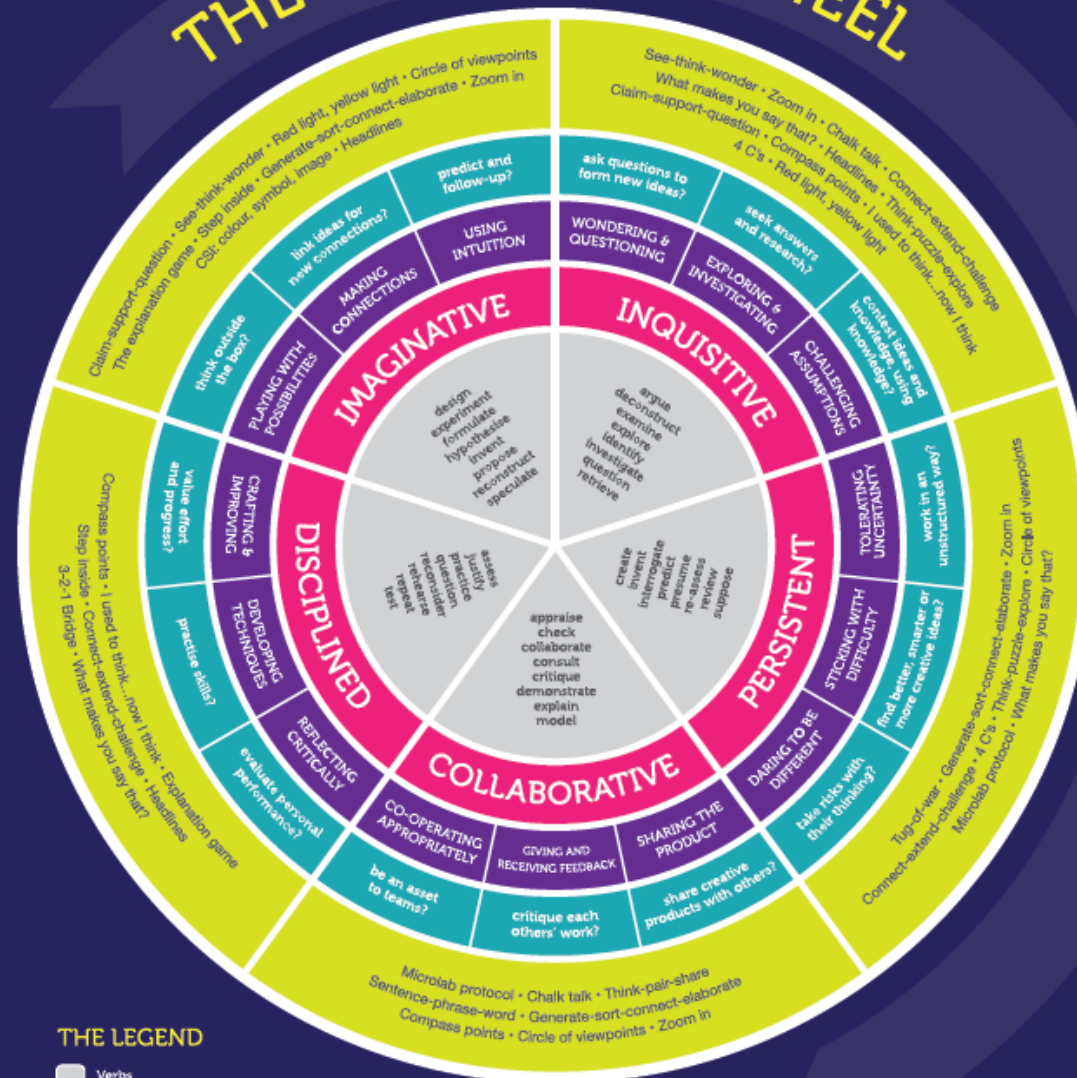
Using intuition
Making connections
Playing with possibilities



ROOTY HILL HIGH SCHOOL

A Community School Committed to Excellence in Learning, Leadership and Achievement

THE CREATIVITY WHEEL

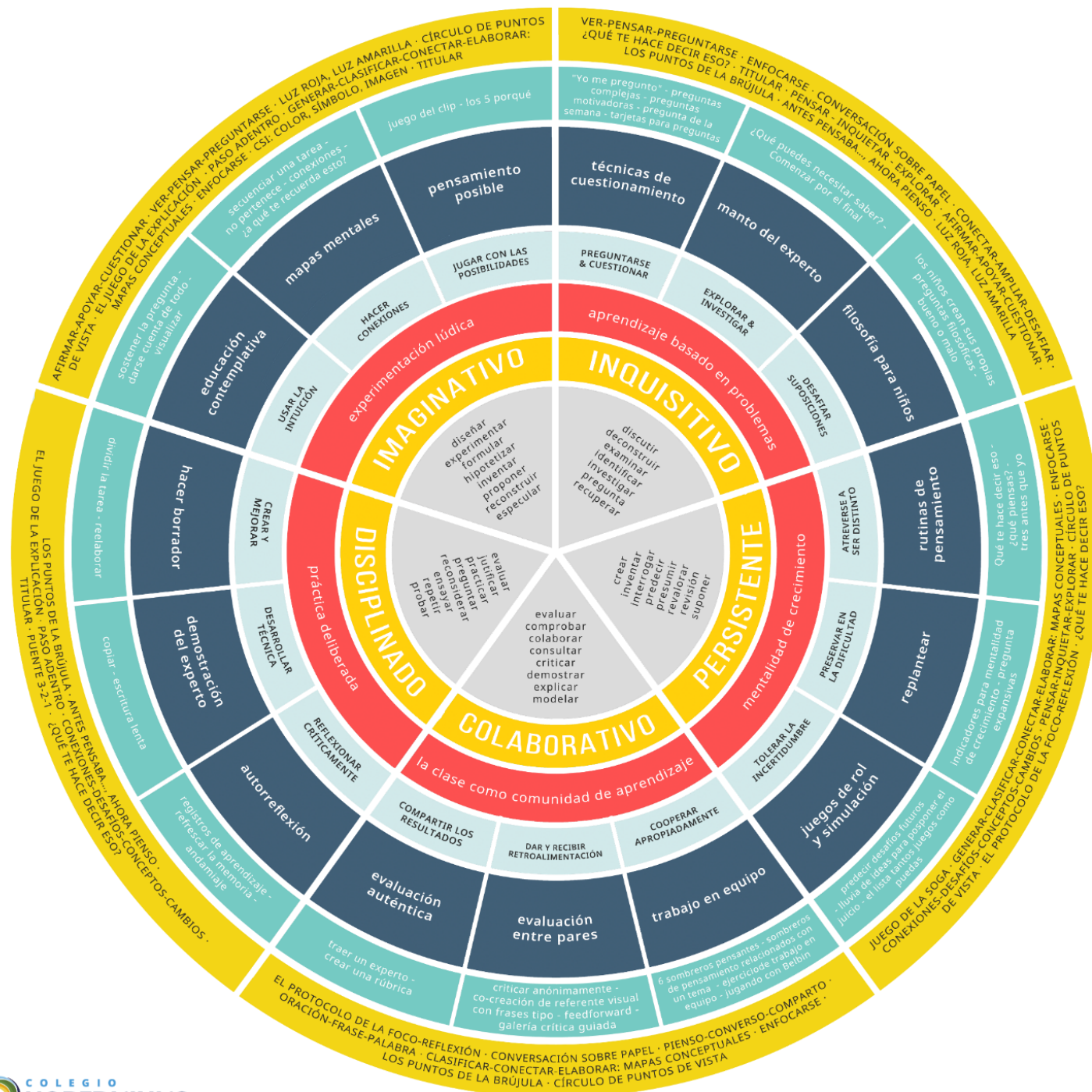


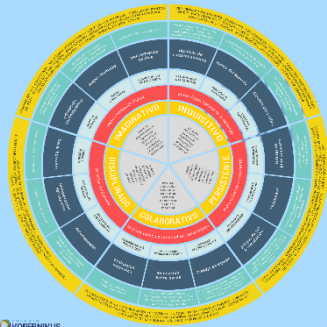
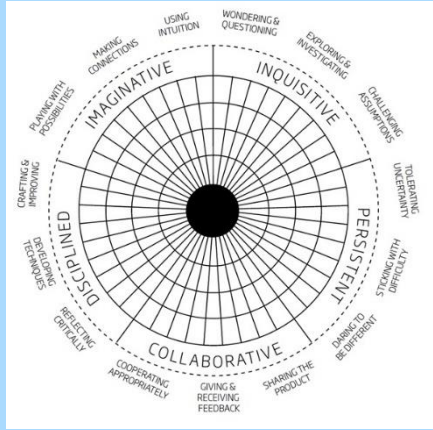
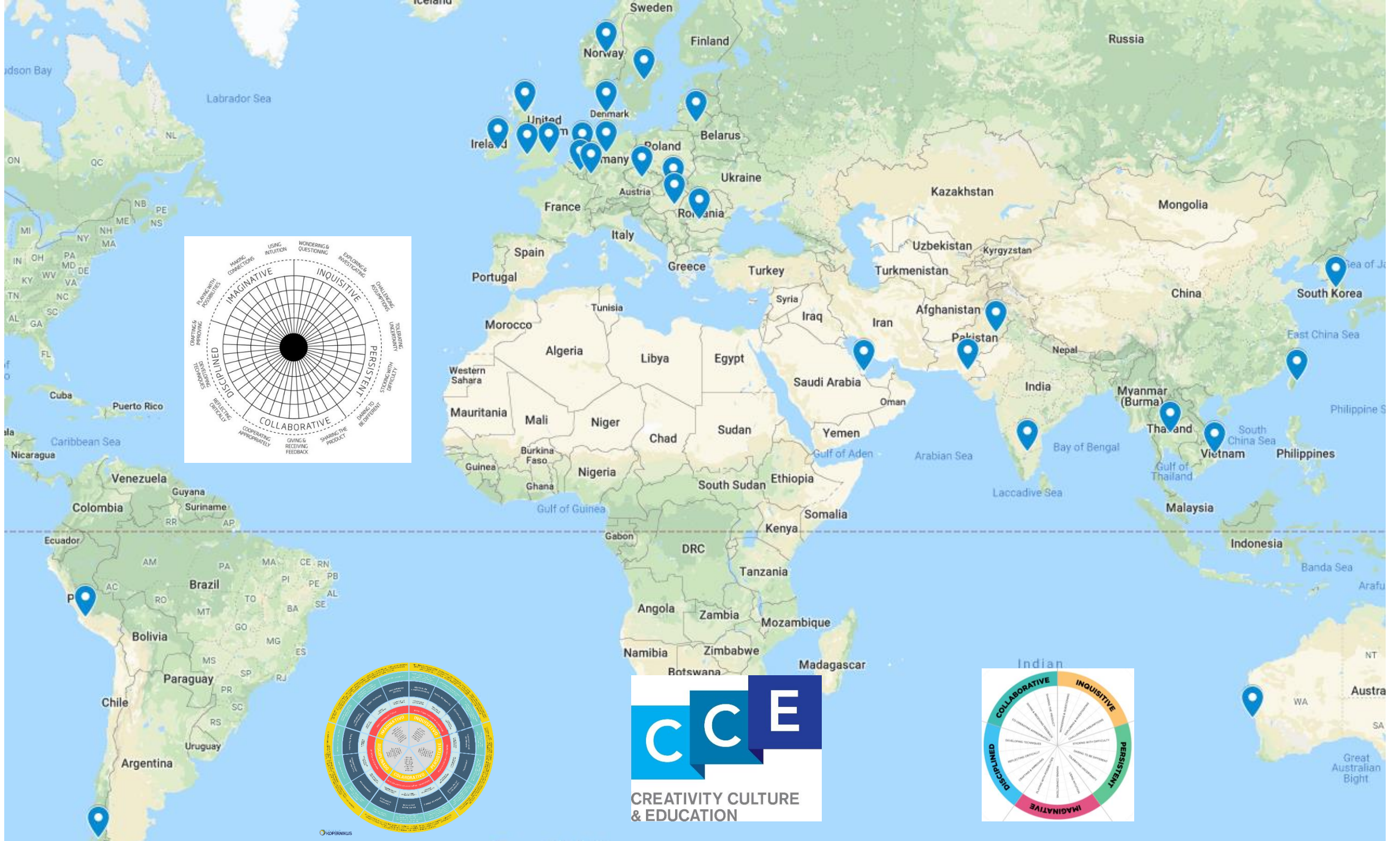
THE LEGEND

- Verbs
- Creativity disposition
- Creativity sub-disposition
- In our programs and our practices do we provide opportunities for students to...
- Visible thinking routine

The Tallis Habits are based on Bill Lucas, Ellen Spencer, and Guy Claxton (2013) 'Progression in Student Creativity in School: First steps towards new forms of formative assessment' *OECD Education Working Papers No 86*. Paris: OECD Publishing.

Developed by Rooty Hill High School from the work of Lucas, Claxton and Spencer.





1. Fluency (the ability to produce great number of ideas or problem solutions)
2. Flexibility (the ability to simultaneously propose a variety of approaches to a specific problem)
3. Originality (the ability to produce new, original ideas)
4. Elaboration (the ability to systematize and organize the details of an idea in a head and carry it out)

Joy Paul Guilford



‘Imaginative activity fashioned so as to produce outcomes that are both original and of value.’

UK National Advisory Committee on Creative and Cultural Education, 1999

‘Creative Thinking in PISA 2021 is defined as the competence to engage productively in an iterative process involving the generation, evaluation and improvement of ideas, that can result in novel and effective solutions. Creative thinking is enabled by domain knowledge, curiosity, confidence, goal orientation and task motivation, as well as by external conditions, and it can be both an individual and collaborative endeavour.’

OECD Directorate for Education and Skills, PISA 2021 Creative Thinking

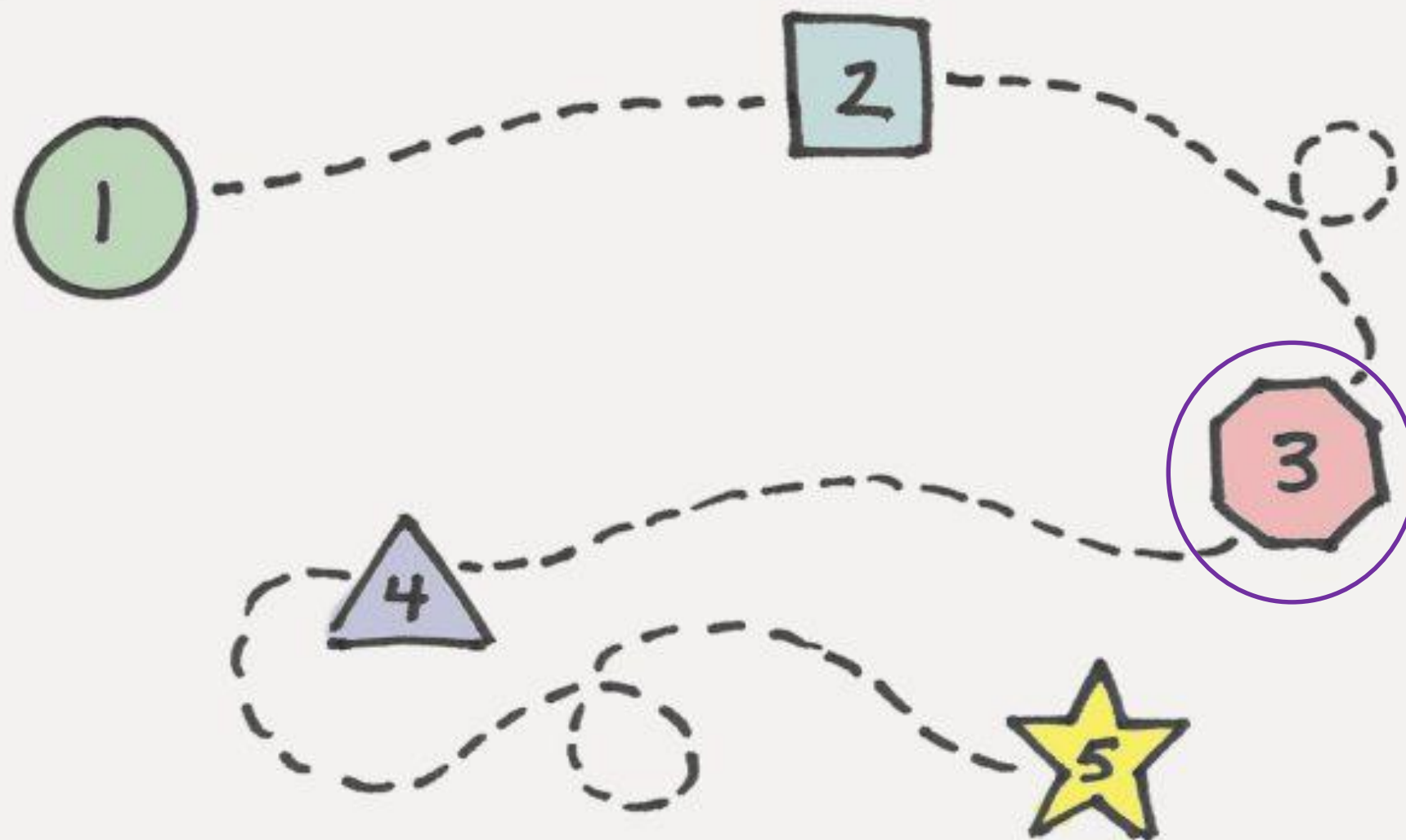
DURHAM COMMISSION DEFINITIONS

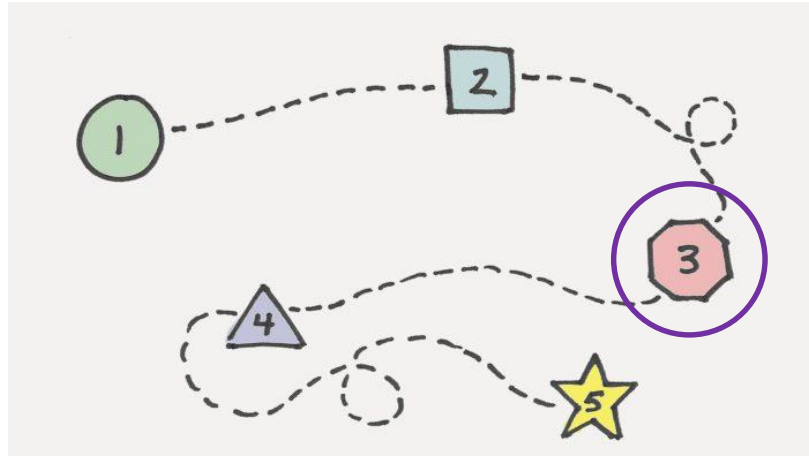
Creativity: The capacity to imagine, conceive, express, or make something that was not there before.

Creative thinking: A process through which knowledge, intuition and skills are applied to imagine, express or make something novel or individual in its contexts. Creative thinking is present in all areas of life. It may appear spontaneous, but it can be underpinned by perseverance, experimentation, critical thinking and collaboration.

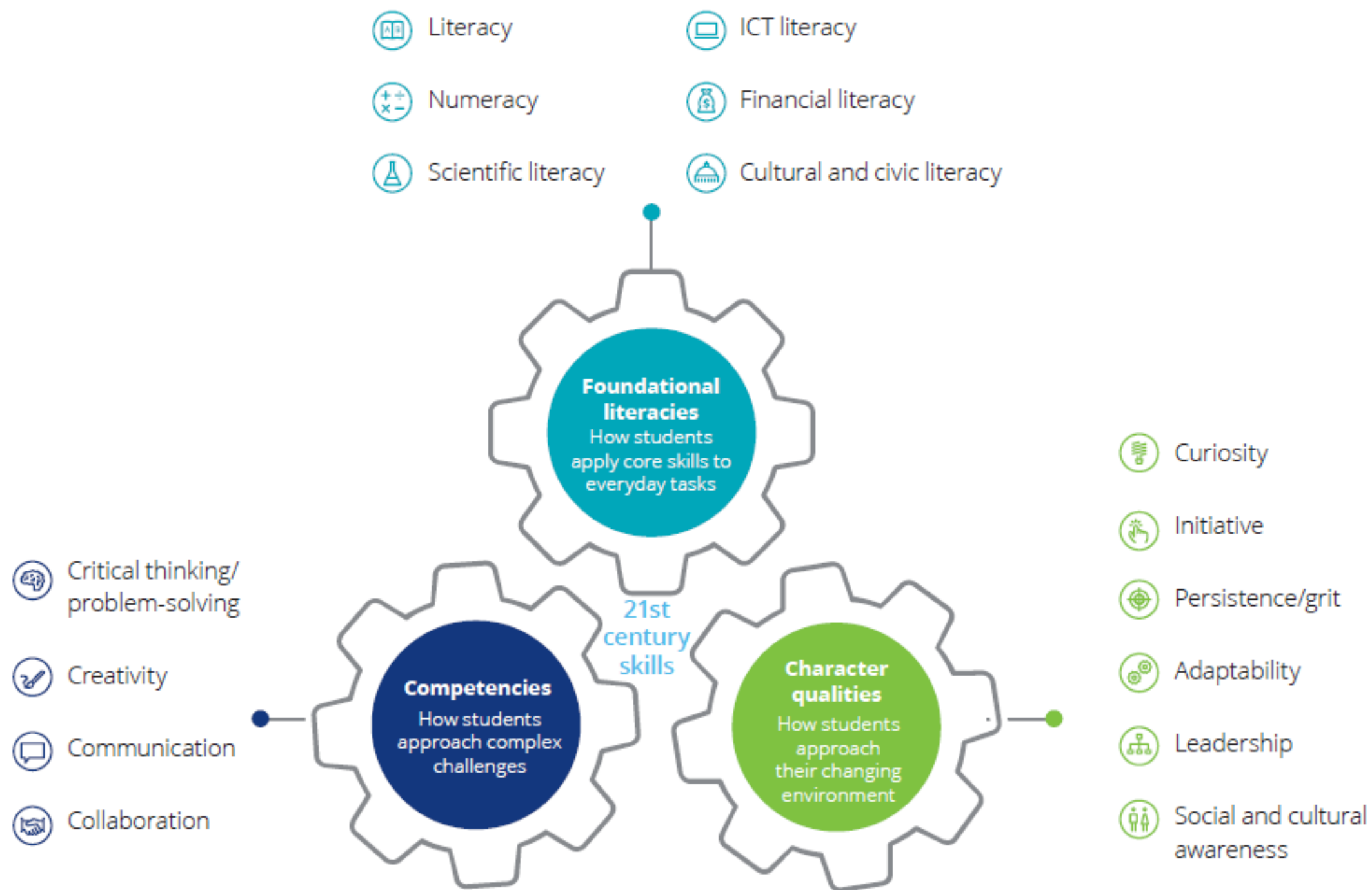
Teaching for creativity: Explicitly using pedagogies and practices that cultivate creativity in young people.

Durham
Commission
on Creativity
and Education





3. Why does it matter?





The state of creativity today

Global respondents believe being creative is valuable to society (70%) and the economy (64%). **PAGE 8**

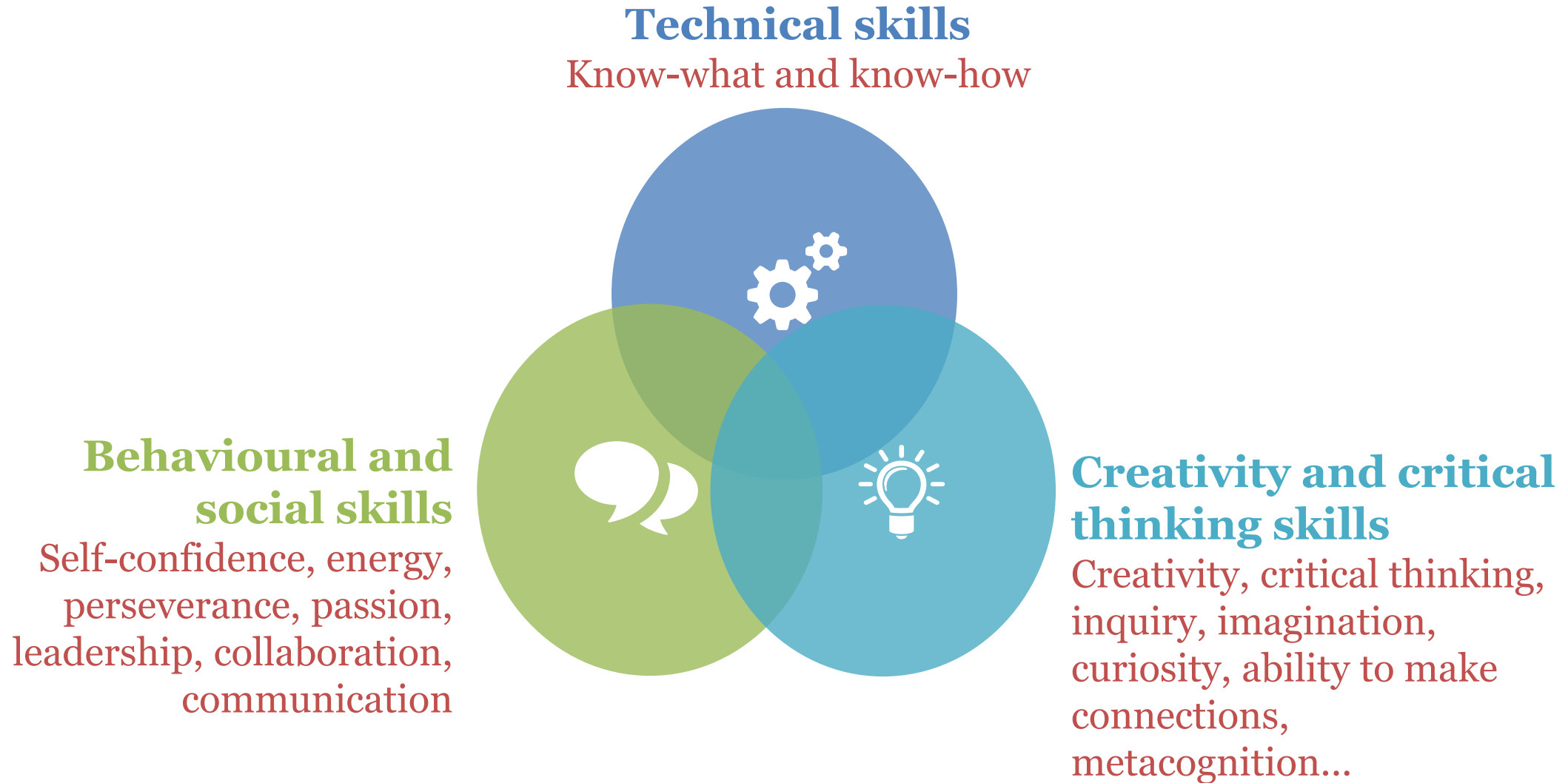
Being creative helps make people better workers (70%), leaders (70%), parents (69%) and students (69%). **PAGE 9**

Yet only forty-one percent describe themselves as creative and thirty-one percent report they are living up to their creative potential. **PAGES 10, 11**

Compared to older generations, younger generations are more likely to:*
Describe themselves as creative (48% vs. 38%) and want others to see



What skills should education systems foster according to OECD?



NON-COGNITIVE SKILLS

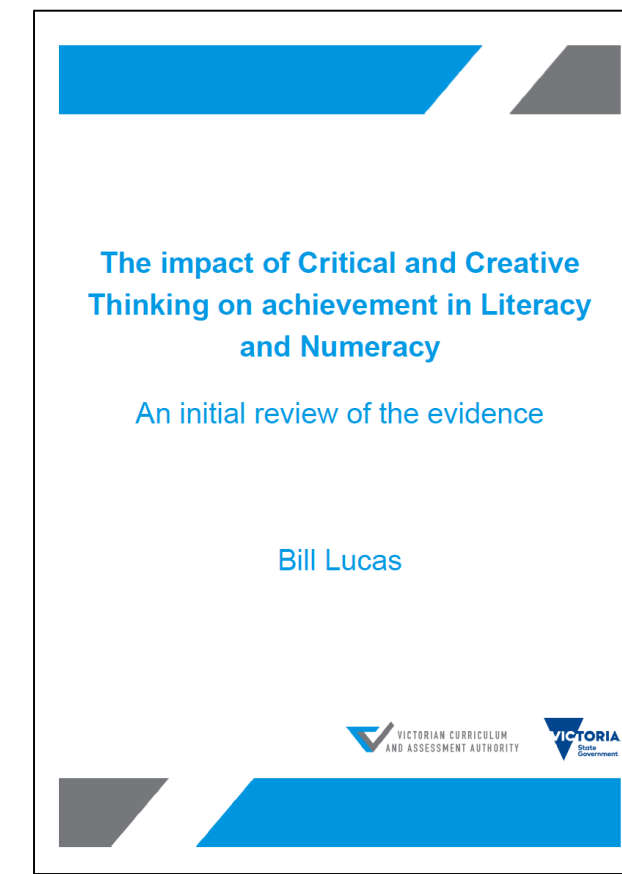
1. Self-perception – an individual's belief about whether or not they can accomplish a task – includes self-efficacy, which relates to how they feel about past performance, and expectations about performing specific tasks in the future
2. Motivation – why individuals think and behave as they do
3. Perseverance – steadfastness on mastering a skill or completing a task (it includes engagement, ie: how committed students are to academic tasks, and grit, ie: perseverance and passion for long-term goals)
4. Self-control – the ability to forgo short-term temptations, appetites, and impulses in order to prioritise a higher pursuit
5. Metacognitive strategies – consciously focusing on thinking, selecting, monitoring and planning strategies that are most conducive to learning
6. Social competencies – social interactions and relationships with others, including leadership and social skills
7. Resilience and coping – resilience is adapting positively to challenges despite the presence of risk; coping involves using skills when faced with specific difficulties, and this process of coping leads to resilience
8. Creativity – the production of novel and useful ideas

Leslie Gutman & Ingrid Schoon (2013)

The impact of non-cognitive skills on outcomes for young people.

A significant positive impact on achievement

Focus	Type of study	Authors and date	Effect size
Critical Thinking	Meta-analysis	Abrami et al., 2015	medium
Critical Thinking	Meta-analysis	Higgins et al., 2005	large
Creativity	Meta-analysis	Gajda et al., 2016	small
Lucas, Bill (2019)			





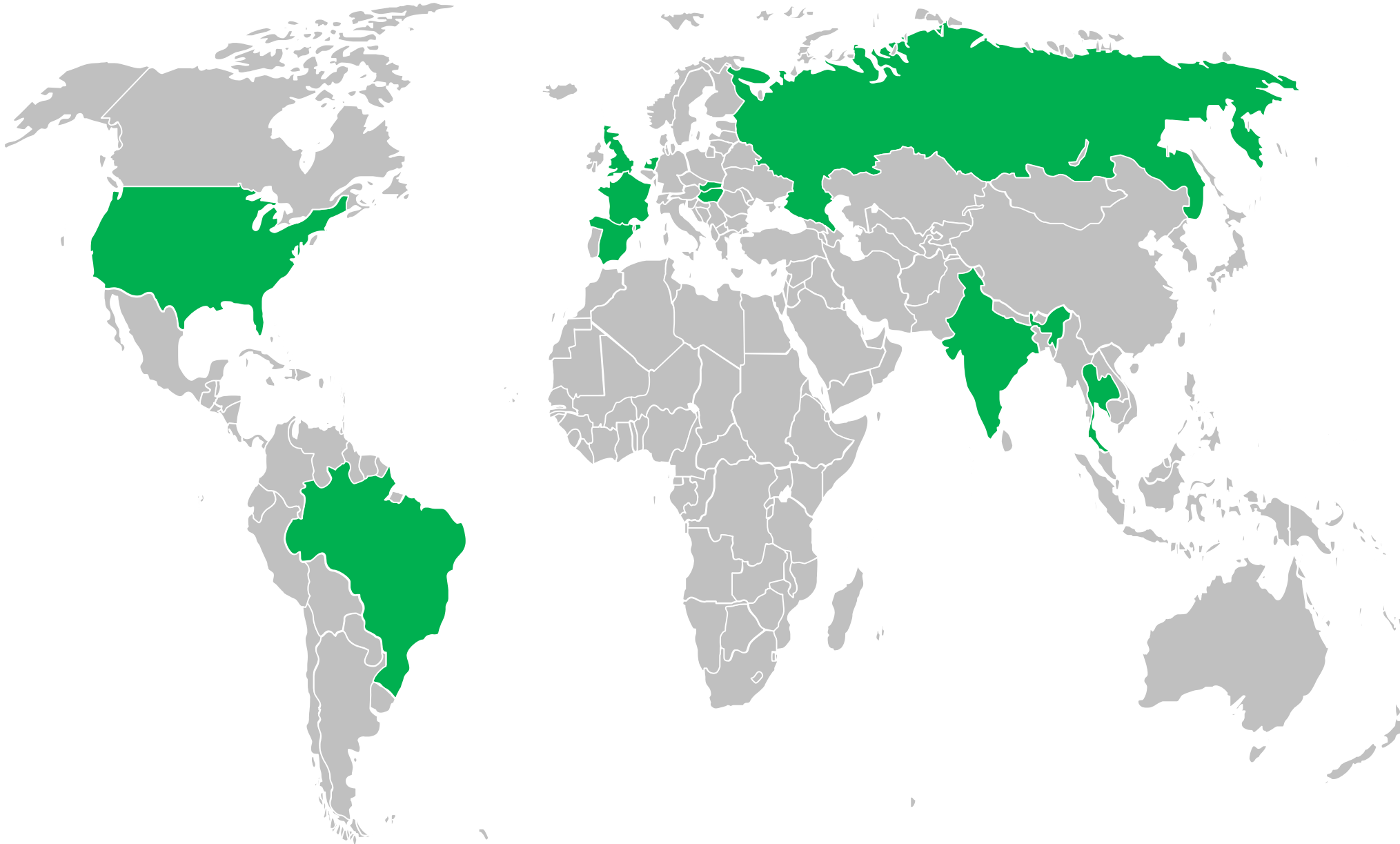
OECD project on fostering and assessing students' creativity and critical thinking

1. Articulate a common **international language**
2. Develop an exemplary **bank of pedagogical resources** to teach and assess creativity and critical thinking as part of countries' (current) curriculum
3. Develop **professional development plans**
4. Develop and pilot **evaluation instruments** to measure the effects of pedagogical practices on pedagogies, beliefs, social and behavioural skills, and standardised measures of creativity and academic achievement





Fieldwork over 2 school years in 11 countries with 800 teachers and 20,000 students in 320 primary and secondary schools



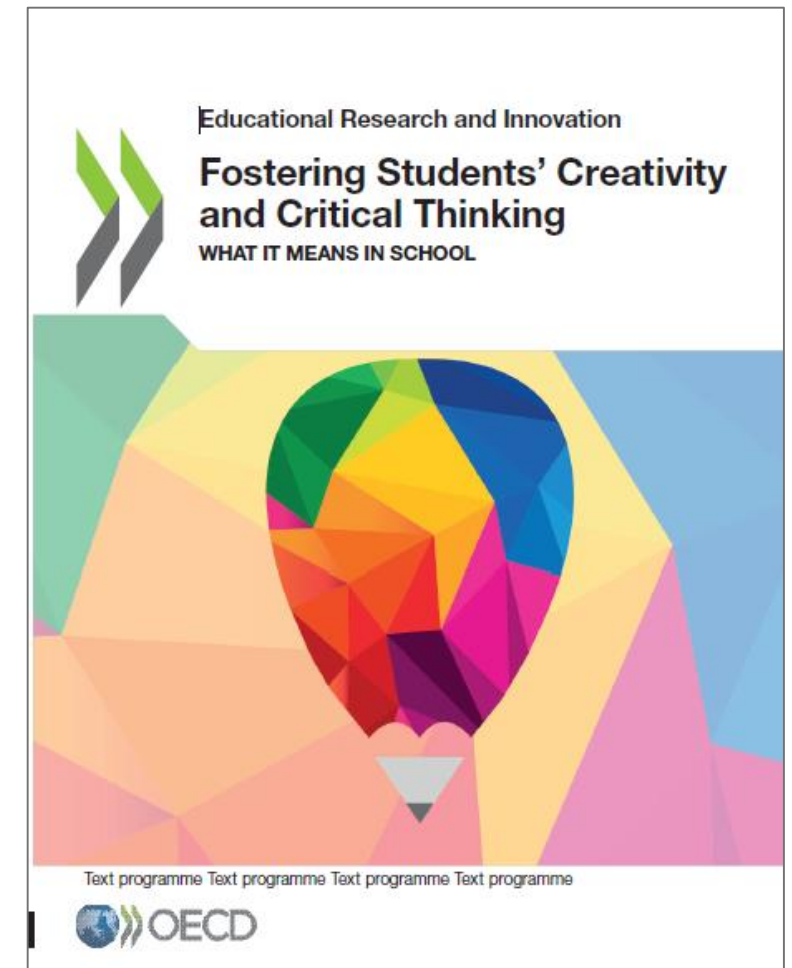
**Round 1
(2015-16):**
Brazil, France,
India, Hungary,
Netherlands,
Russia,
Slovakia,
Thailand,
United States

**Round 2
(2016-17):**
Brazil, France,
India, Hungary,
Russia, Spain,
Thailand,
Wales (UK),
United States



Fostering Students' Creativity and Critical Thinking

- Creativity and critical thinking can be learnt and assessed in all subjects
- We need to be intentional and thus clear about what we try to achieve: rubrics help clarify
- Teachers need support: professional learning opportunities and scaffolding (resources, examples, peer learning, etc.)
- It is not easy, it takes time, but it is feasible - and real teachers in real-life settings have already done it
- There are many different ways to do it (and just starting to move the needle is an important step)





Design criteria for good lessons

1. Create students' **need/interest to learn**
2. Be **challenging**
3. **Develop clear technical knowledge** in one domain or more
4. Include the **development of a “product”**
5. Have **students co-design part of the product/solution or problem**
6. Deal with **problems that can be looked at from different perspectives**
7. Leave room for the **unexpected**
8. Include **space and time for students to reflect and give/receive feedback**

Creative Schools initiative: A new way to learn

Programme aims to enable children’s creative potential

Wed, Mar 27, 2019, 05:00

 Sara Keating

0



The project aims to explore the idea of creative engagement in schools

What does creativity mean? The answers are as varied as the creative arts themselves. According to four-year-old **Jamie Cozma** “it’s painting rainbows, twisting in dance class and making up songs”. For Nicolás Rodgers (7), “it’s when you use your imagination to make something when you are bored”. Nine-year-old Lily McDonnell says it’s about “being yourself and having no limits”. **Liam Hurley** (16) thinks it means “being free to do what you are not told to do”, while for **Emma Walsh** (6) it is simply “being magical”.

Ireland



An Roinn Oideachais
agus Scileanna
Department of
Education and Skills

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20 September, 2018 - Minister Bruton announces schools to participate in network of Creative Clusters

Creative Cluster approach is part of the Schools Excellence Fund and the Creative Ireland Programme

68 schools to use art and creativity to address shared challenges and to achieve better learning outcomes

The Minister for Education and Skills, Richard Bruton T.D., today (20th of September) announced that 68 schools have been selected to participate in a network of Creative Clusters as part of the Schools Excellence Fund and the Creative Ireland Programme.

The Schools Excellence Fund is an initiative in the Action Plan for Education, the government’s plan to make Ireland’s education and training service the best in Europe by 2026. It sets out to encourage and recognize excellence and innovation in our schools. This initiative will help deliver on the Creative Youth pillar of Creative Ireland, which sets out a commitment that every child in Ireland has practical access to tuition, experience and participation in music, drama, arts and coding by 2022.

The benefit of the Creative Cluster approach is that it gives school leaders on the ground the support to collaborate on ideas based on their local experience and unique perspective. It allows them to work together, in some cases with higher education institutions and enterprise, and experiment to find creative solutions to complex problems. Successful approaches can then be shared across the school sector.

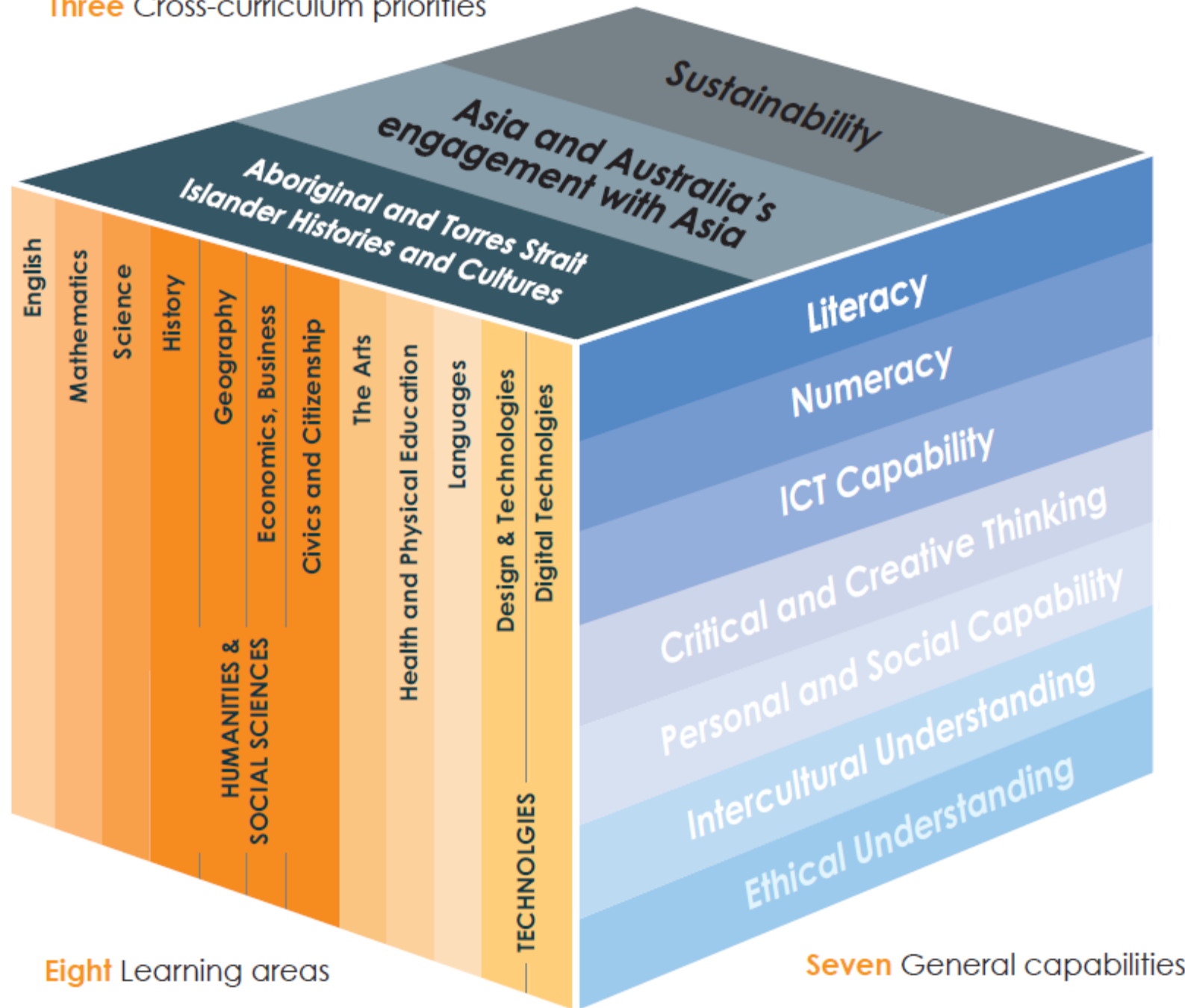
The Minister has set the ambition to make Ireland’s Education and Training service the best in Europe by 2026. This transformative approach to supporting local innovation will be key to realizing this vision.

Speaking at the announcement, Minister Bruton said, “The Schools Excellence Fund provides new and exciting opportunities for schools. Never before have schools been funded to work together on innovative solutions and given the freedom to experiment with new projects to see what works and what doesn’t. I am committed to building on this initiative and expanding on this approach during my time as Minister.

“Creative Clusters is one of a range of activities forming part of the Government’s Creative Ireland Programme. Creativity and flexibility are key skills for our children and young people to develop in a modern society. This new initiative underlines my commitment to developing and fostering these skills in our children and young people.”

Participating schools will receive supports by having access to a facilitator – a specialist working in the cluster’s chosen area/theme, who will assist participating schools in developing their plans. Clusters will also receive €2,500 to help activate and animate their plans.

Three Cross-curriculum priorities

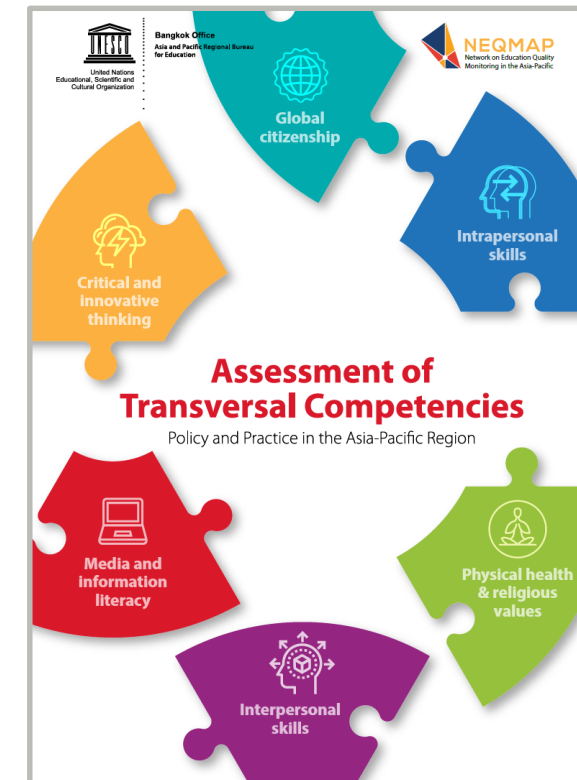
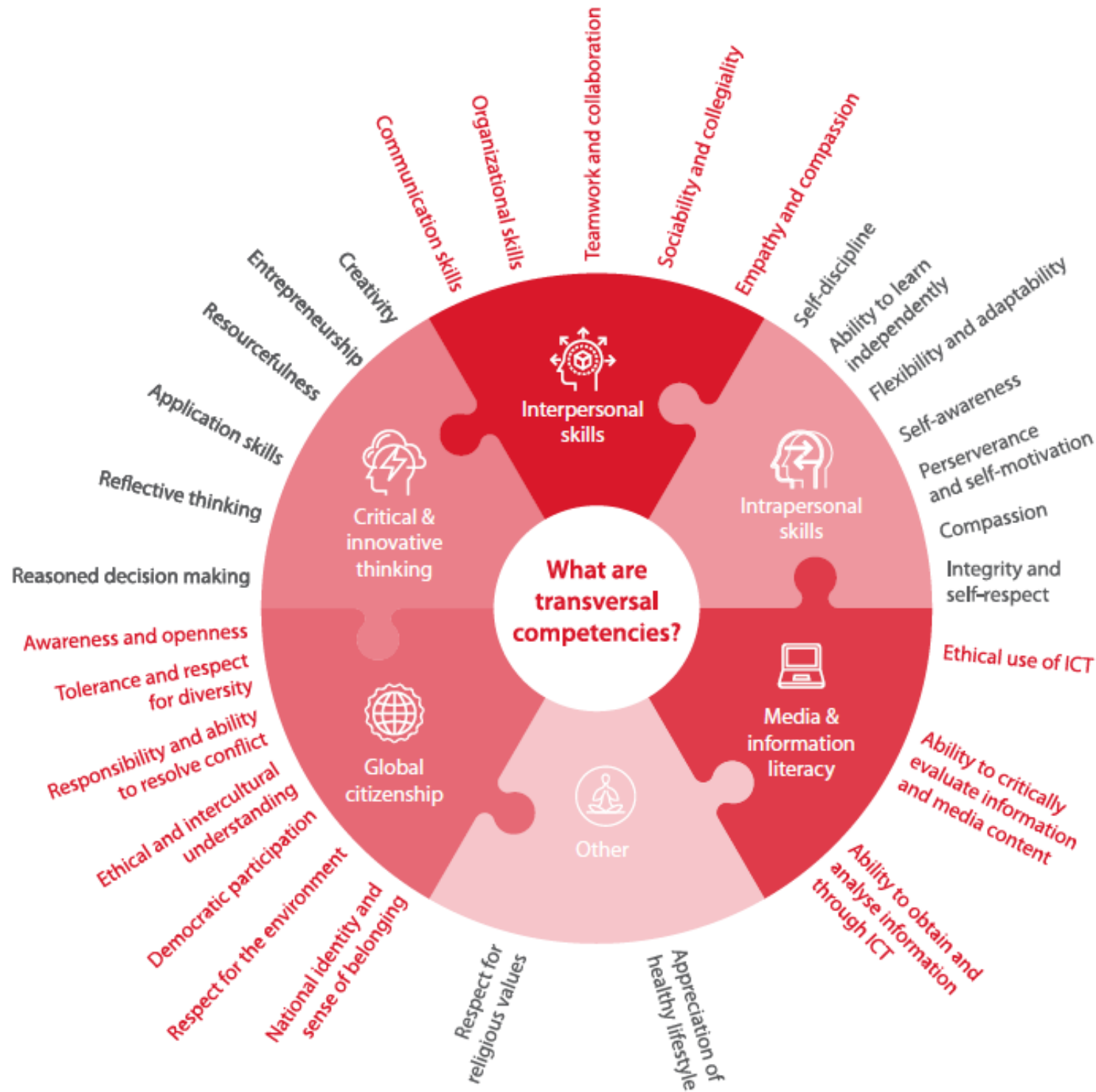


Eight Learning areas

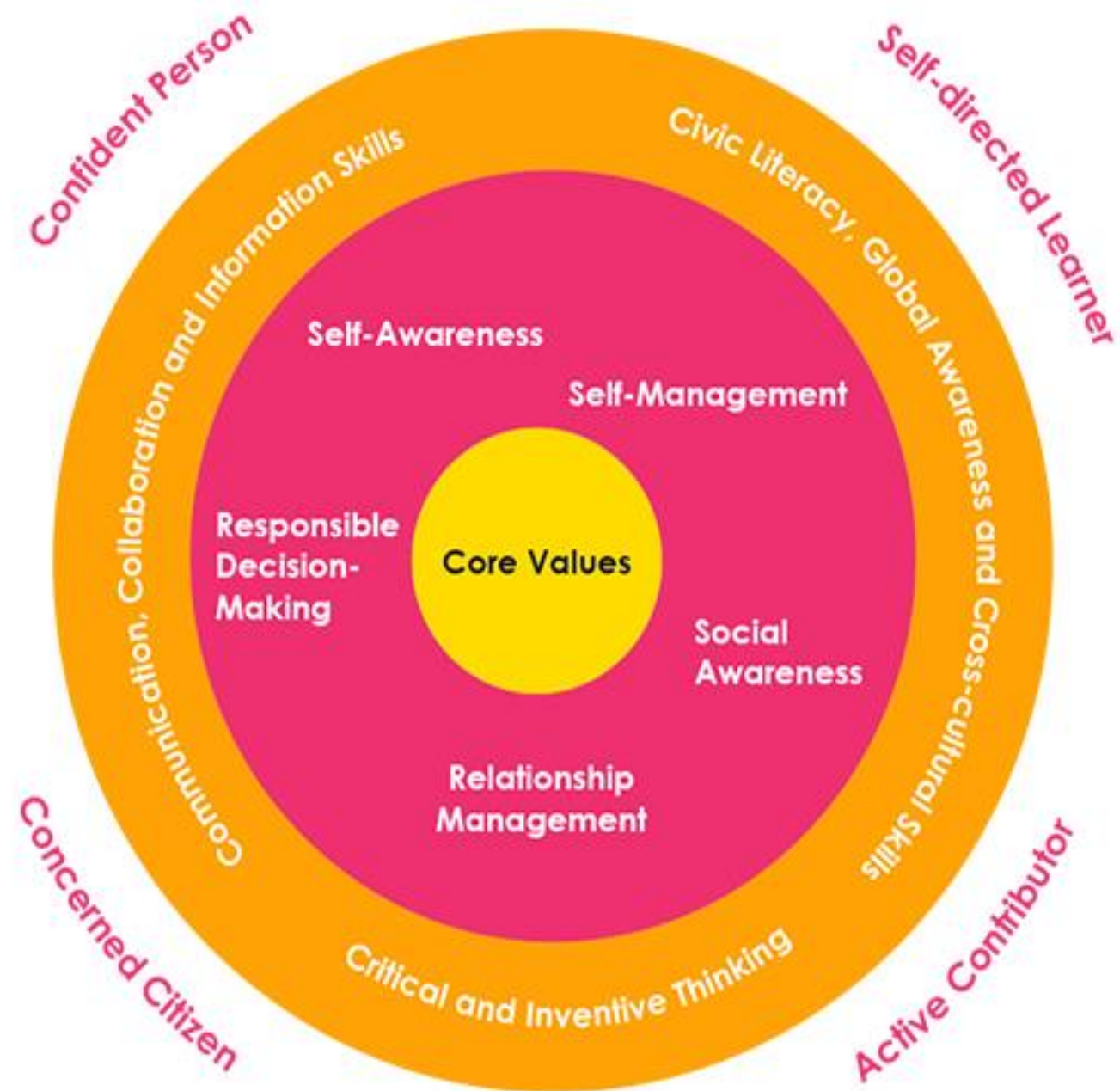
Seven General capabilities

Australia

Asia-Pacific



Singapore



Canada

DEEP LEARNING COMPETENCIES

The Deep Learning Competencies, better known as the 6 C's, are the skill sets each and every student needs to achieve and excel in, in order to flourish in today's complex world.

These competencies form the foundation for the New Measures and NPDL teachers use the [Deep Learning Progressions](#) to assess students' current levels in each of the six Deep Learning Competencies. They combine this with information about student achievement, interests, and aspirations to get a clear understanding of what each student needs to learn.

[↗ Learn More](#)



COLLABORATION



CREATIVITY



CRITICAL THINKING



CITIZENSHIP



CHARACTER



COMMUNICATION

USA



Wales

ambitious, capable learners who:

- › set themselves high standards and seek and enjoy challenge
- › are building up a body of knowledge and have the skills to connect and apply that knowledge in different contexts
- › are questioning and enjoy solving problems
- › can communicate effectively in different forms and settings, using both Welsh and English
- › can explain the ideas and concepts they are learning about
- › can use number effectively in different contexts
- › understand how to interpret data and apply mathematical concepts
- › use digital technologies creatively to communicate, find and analyse information
- › undertake research and evaluate critically what they find and **are ready to learn throughout their lives.**

www.llyw.cymru
www.gov.wales

**All our
children
and young
people
will be...**

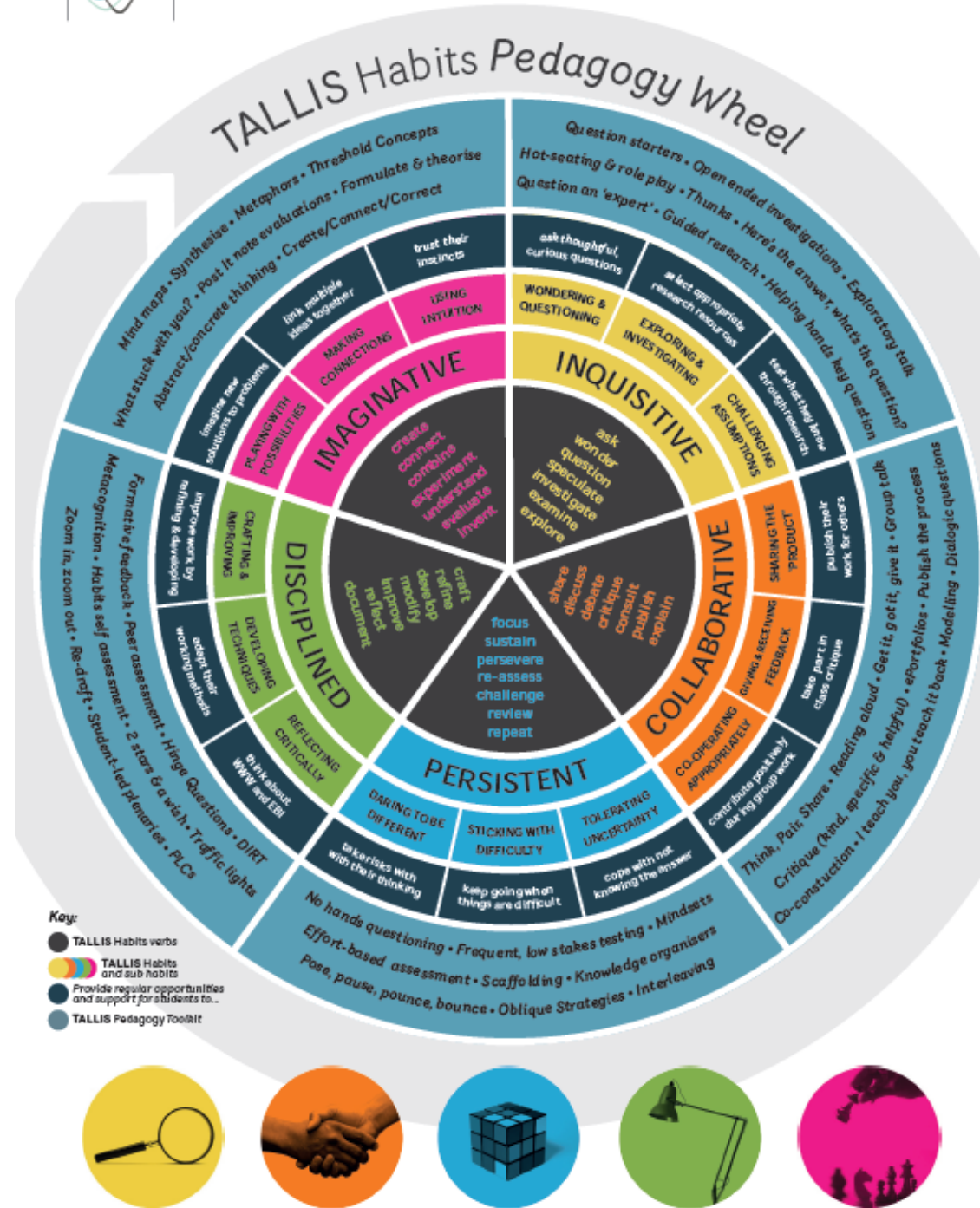
enterprising, creative contributors who:

- › connect and apply their knowledge and skills to create ideas and products
- › think creatively to reframe and solve problems
- › identify and grasp opportunities
- › take measured risks
- › lead and play different roles in teams effectively and responsibly
- › express ideas and emotions through different media
- › give of their energy and skills so that other people will benefit
- and **are ready to play a full part in life and work.**

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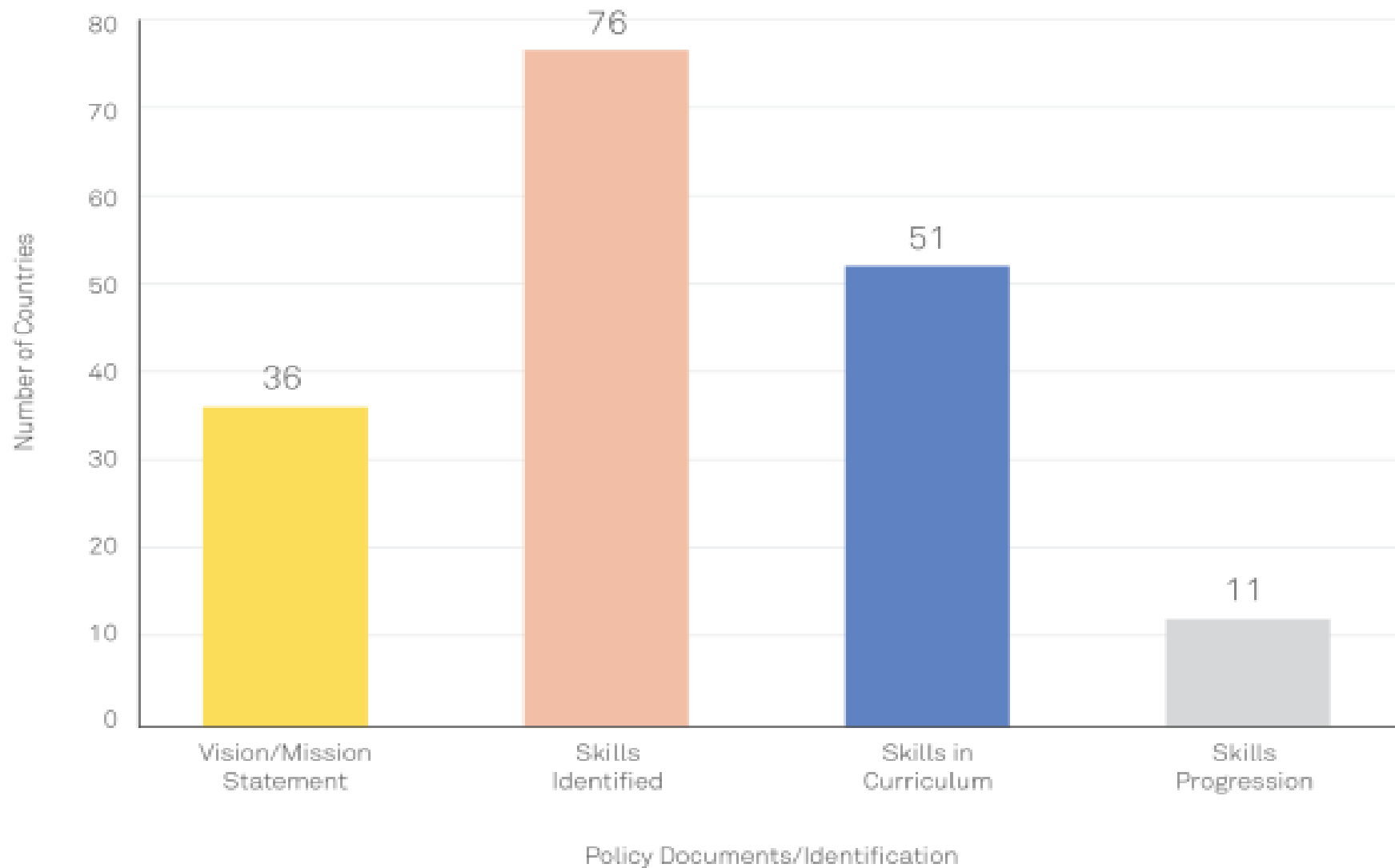
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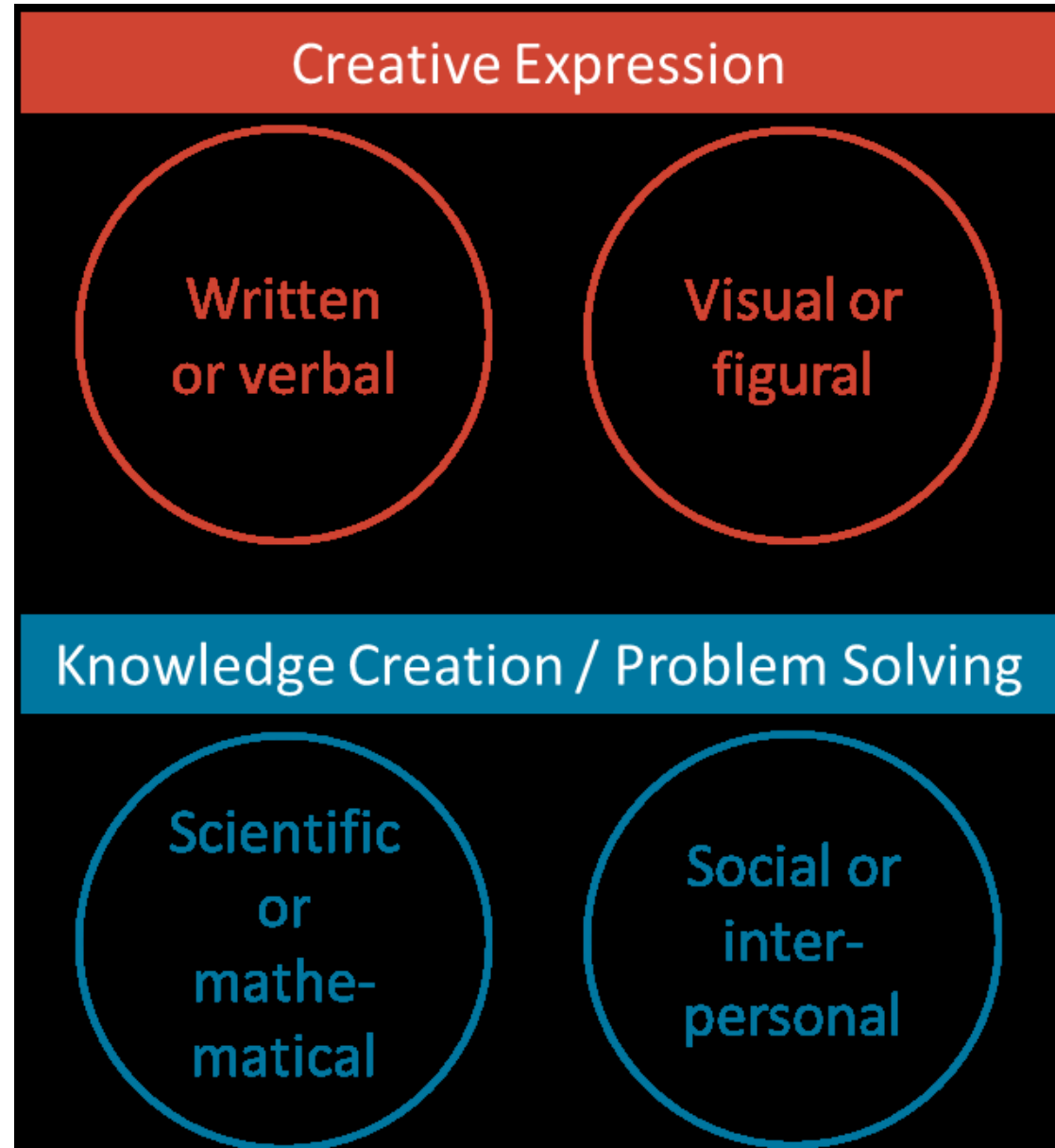
Durham Commission on Creativity and Education

Countries across the world are specifying creativity



BROOKINGS

PISA Creative Thinking, 2021



OECD
PISA

Critical and Creative Thinking learning continuum

Sub-element	Level 1 Typically, by the end of Foundation Year, students:	Level 2 Typically, by the end of Year 2, students:	Level 3 Typically, by the end of Year 4, students:	Level 4 Typically, by the end of Year 6, students:	Level 5 Typically, by the end of Year 8, students:	Level 6 Typically, by the end of Year 10, students:
Inquiring – identifying, exploring and organising information and ideas element						
Pose questions	pose factual and exploratory questions based on personal interests and experiences	pose questions to identify and clarify issues, and compare information in their world	pose questions to expand their knowledge about the world	pose questions to clarify and interpret information and probe for causes and consequences	pose questions to probe assumptions and investigate complex issues	pose questions to critically analyse complex issues and abstract ideas
Identify and clarify information and ideas	identify and describe familiar information and ideas during a discussion or investigation	identify and explore information and ideas from source materials	identify main ideas and select and clarify information from a range of sources	identify and clarify relevant information and prioritise ideas	clarify information and ideas from texts or images when exploring challenging issues	clarify complex information and ideas drawn from a range of sources
Organise and process information	gather similar information or depictions from given sources	organise information based on similar or relevant ideas from several sources	collect, compare and categorise facts and opinions found in a widening range of sources	analyse, condense and combine relevant information from multiple sources	critically analyse information and evidence according to criteria such as validity and relevance	critically analyse independently sourced information to determine bias and reliability
Generating ideas, possibilities and actions element						
Imagine possibilities and connect ideas	use imagination to view or create things in new ways and connect two things that seem different	build on what they know to create ideas and possibilities in ways that are new to them	expand on known ideas to create new and imaginative combinations	combine ideas in a variety of ways and from a range of sources to create new possibilities	draw parallels between known and new ideas to create new ways of achieving goals	create and connect complex ideas using imagery, analogies and symbolism
Consider alternatives	suggest alternative and creative ways to approach a given situation or task	identify and compare creative ideas to think broadly about a given situation or problem	explore situations using creative thinking strategies to propose a range of alternatives	identify situations where current approaches do not work, challenge existing ideas and generate alternative solutions	generate alternatives and innovative solutions, and adapt ideas, including when information is limited or conflicting	speculate on creative options to modify ideas when circumstances change
Seek solutions and put ideas into action	predict what might happen in a given situation and when putting ideas into action	investigate options and predict possible outcomes when putting ideas into action	experiment with a range of options when seeking solutions and putting ideas into action	assess and test options to identify the most effective solution and to put ideas into action	predict possibilities, and identify and test consequences when seeking solutions and putting ideas into action	assess risks and explain contingencies, taking account of a range of perspectives, when seeking solutions and putting complex ideas into action

Approaches to assessing capabilities














PUPIL	TEACHER	REAL WORLD	ONLINE
Real-time feedback Photos Self-report questionnaires Logs/diaries/journals Peer review Group critique Digital badges Portfolios	In-process evaluation Criterion-referenced grading Performance tasks Rating of products and processes Structured interviews Capstone projects	Expert reviews Authentic tests eg presentations, interviews, podcasts, films Gallery critique Exhibitions	Reliable, validated online tests


An example from Rooty Hill High School

Welcome to the Learning Hub

Hi Bill, click here to [Add Evidence](#)

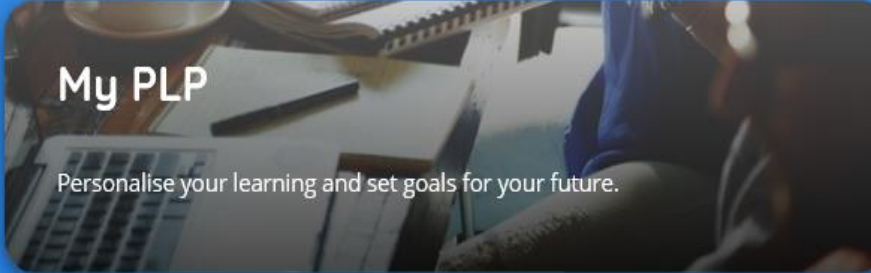
[Sign Out](#)





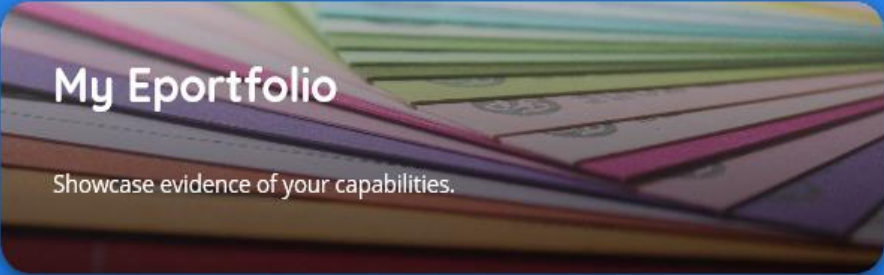
My Capabilities

Learn about capabilities and upload new evidence.




My PLP

Personalise your learning and set goals for your future.



My Eportfolio

Showcase evidence of your capabilities.



Leaderboards

Compare your own progress to the progress of the school.



The new Tallis Habits web app is a fun and interactive way to record how you are learning.

The Habits focus for this half term is **IMAGINATIVE.**



IMAGINATIVE:
Using intuition
Making connections
Playing with possibilities

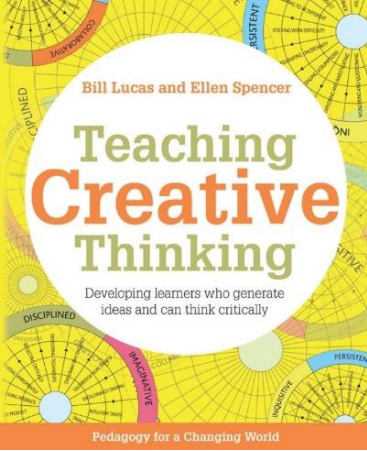
Download the
TALLIS ONLINE APP



TALLIS HABITS

- INQUISITIVE
- COLLABORATIVE
- PERSISTENT
- DISCIPLINED
- IMAGINATIVE

EXCELLING
SECURING
DEVELOPING
EMERGING



Ruby's creative powers

Craftsmanship

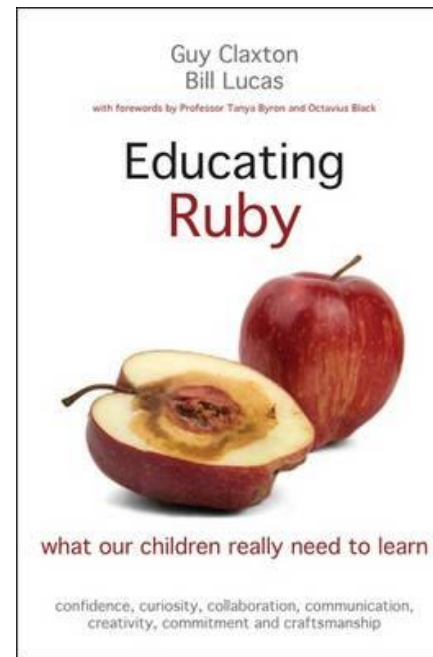
Confidence

Commitment

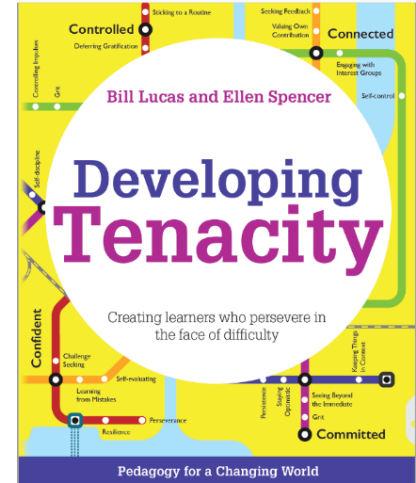
Creativity

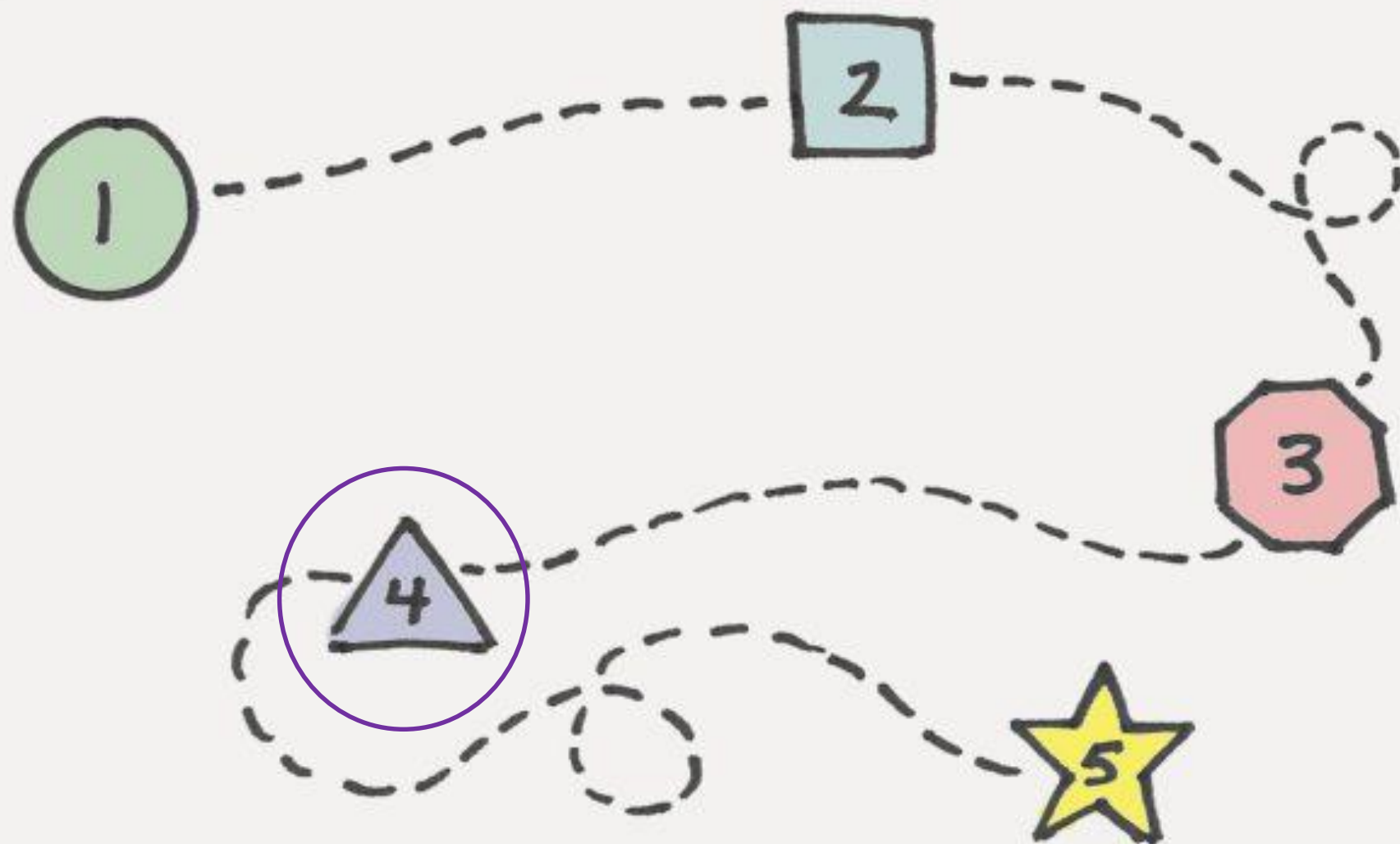
Curiosity

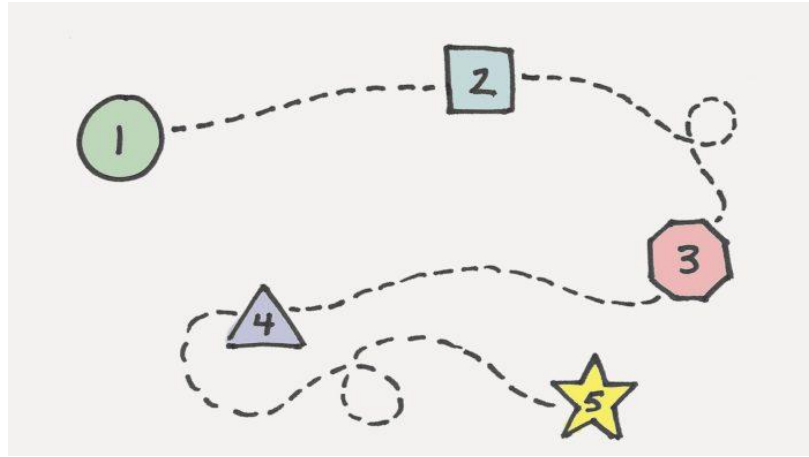
Collaboration



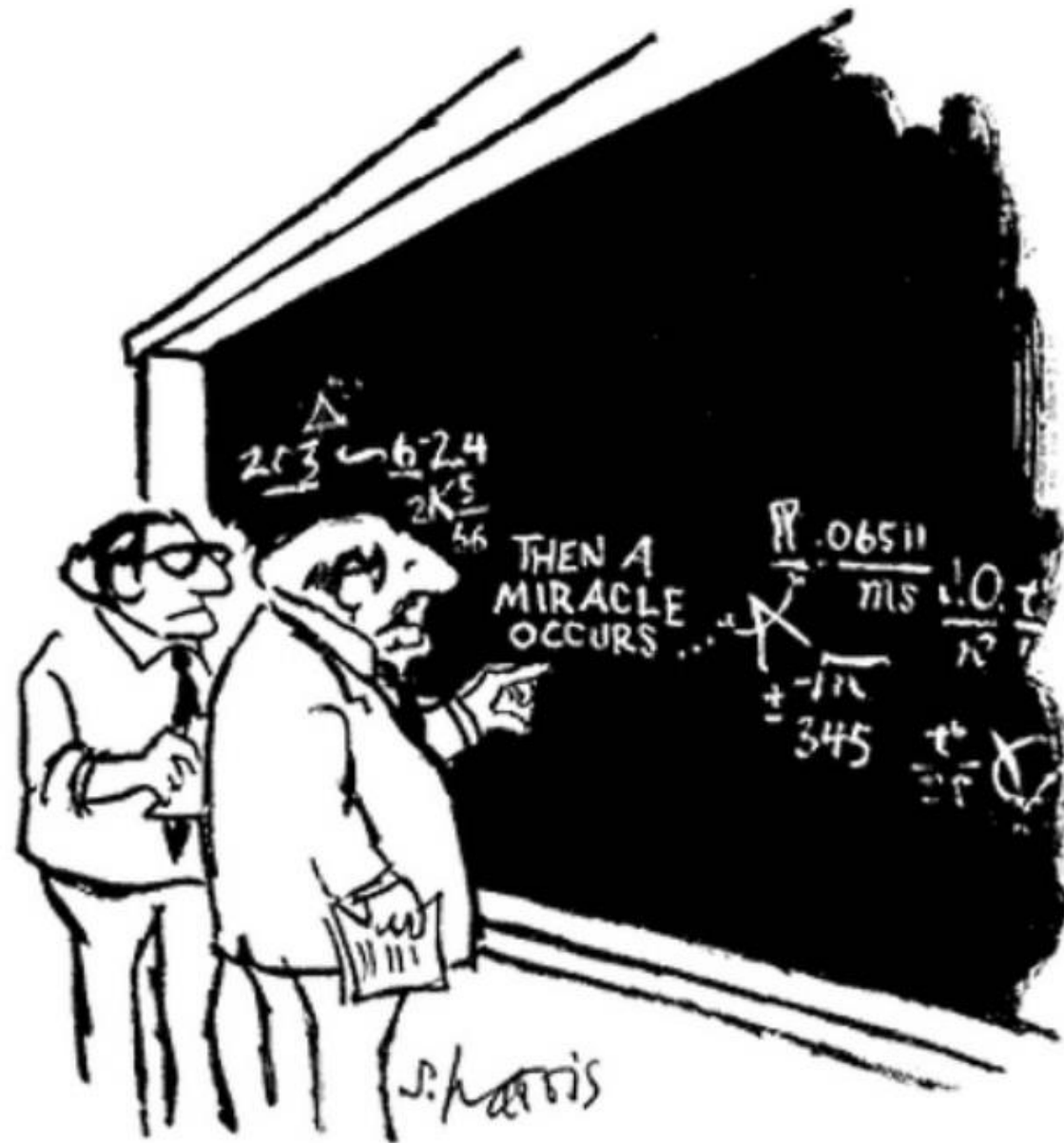
Communication





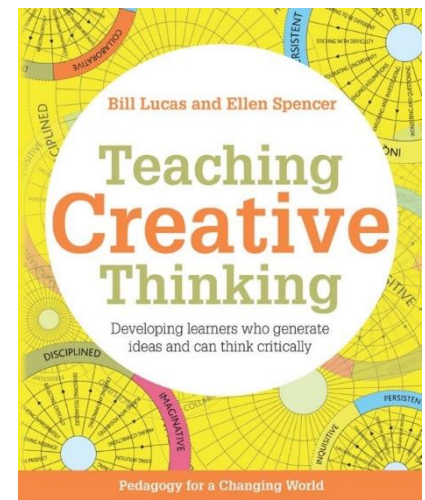
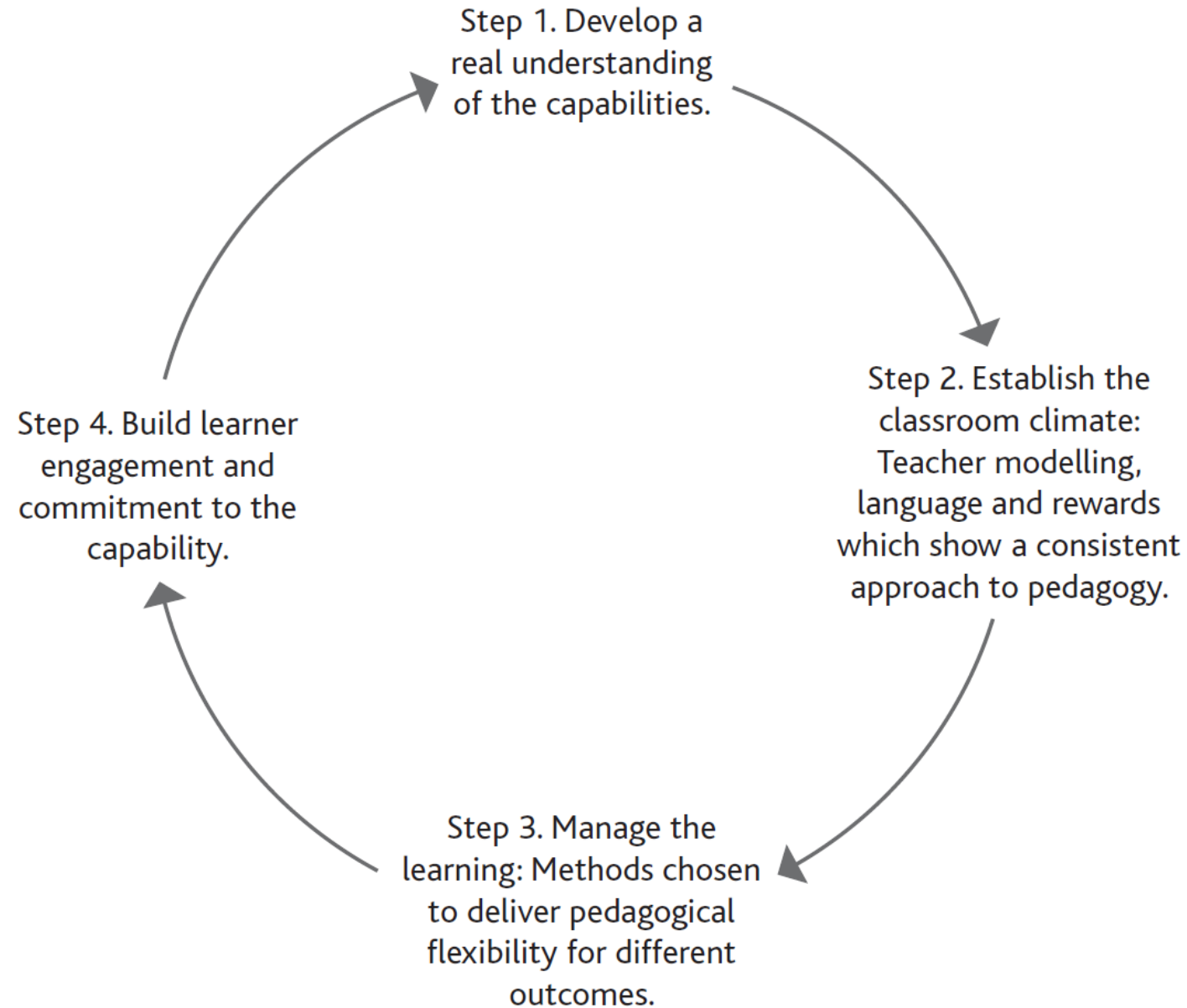


4. Effective teaching



‘I think you should be clearer about step 2!’

A cyclical process of embedding creativity



Ten principles for a creative eco-system

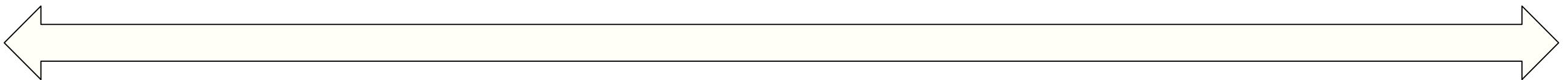
1. Learning almost always framed by engaging questions which have no one right answer
2. Space for activities which are curious, authentic, extended in length, sometimes beyond school, collaborative and reflective
3. The opportunity for play and experimentation
4. Opportunity for generative thought, where ideas are greeted openly
5. Opportunity for critical reflection in a supportive environment
6. Respect for difference and the creativity of others
7. Makes creative processes visible and valued
8. Actively engages students as co-designers
9. Integrates a range of assessment practices within teaching
10. Leaves space for the unexpected

No

Sometimes

Mostly

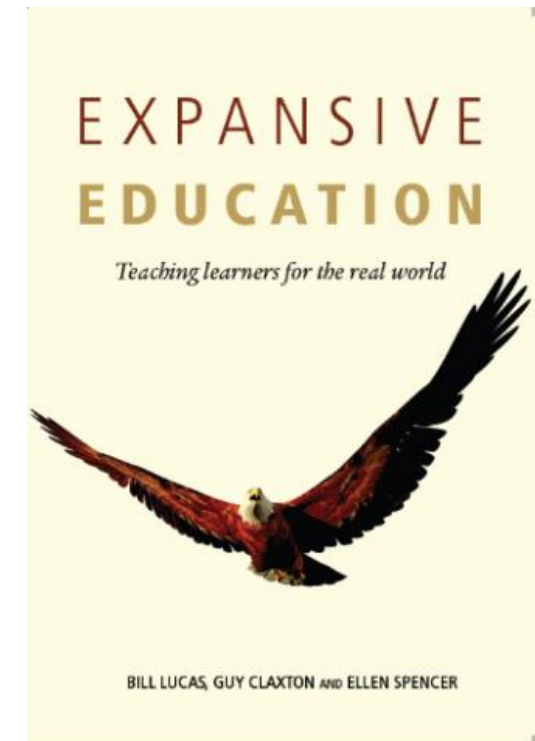
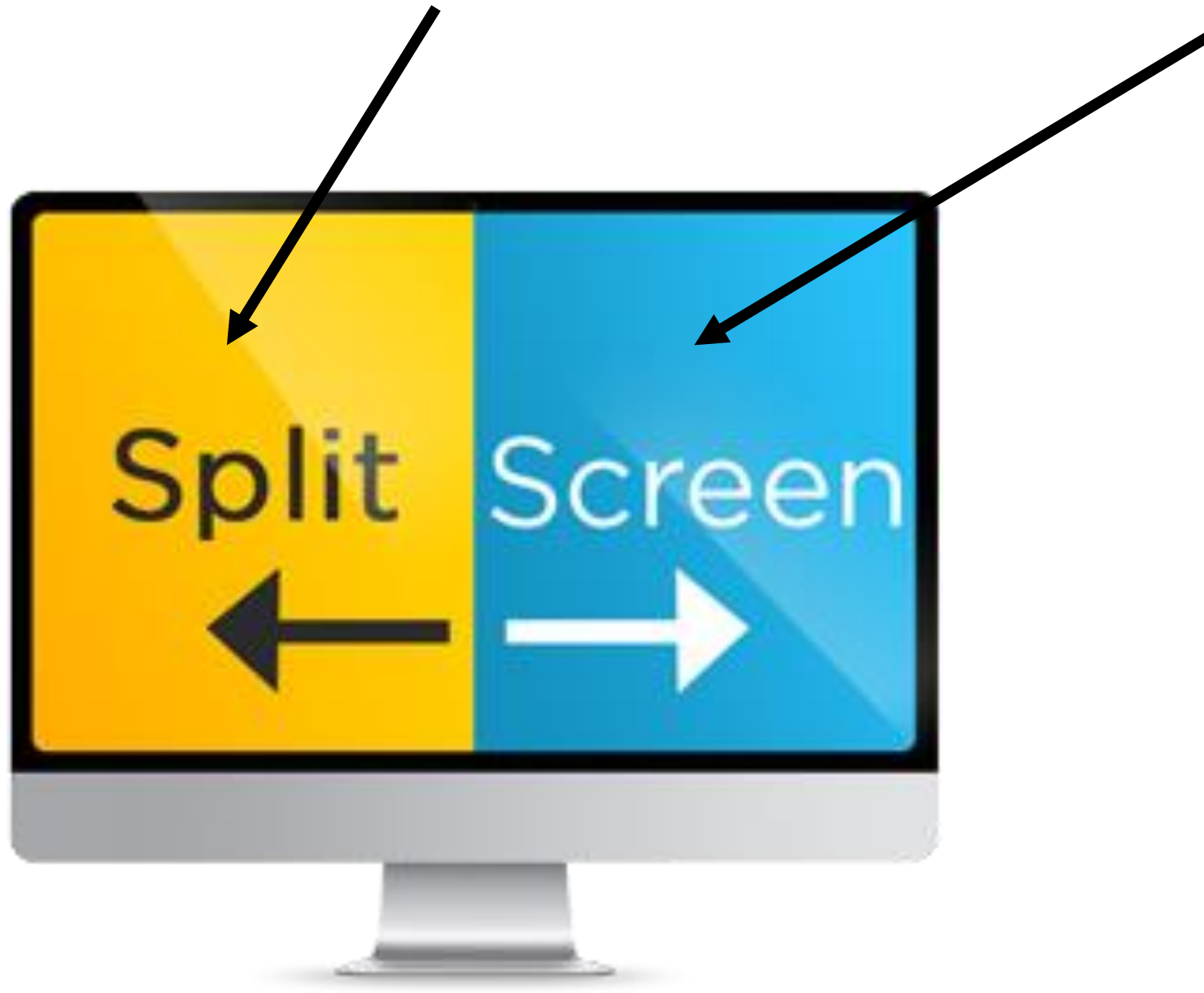
Yes



Three key approaches

1. Split Screen Teaching
2. Visible Thinking
3. Signature Pedagogies

1. Teach knowledge *and* creativity



2. Make creative thinking visible and habitual



Visible Thinking in Action
Getting Started
Thinking Routines
Introduction
Core Routines
Understanding Routines
Fairness Routines
Truth Routines
Creativity Routines
Thinking Ideals
School-Wide Culture of Thinking
VT Network
What's New

Core Routines

The core routines are a set of seven or so routines that target different types of thinking from across the modules. These routines are easy to get started with and are commonly found in Visible Thinking teachers' toolkits. Try getting started with with one of these routines.

[What Makes You Say That?](#) *Interpretation with justification routine*

[Think Puzzle Explore](#) *A routine that sets the stage for deeper inquiry*

[Think Pair Share](#) *A routine for active reasoning and explanation*

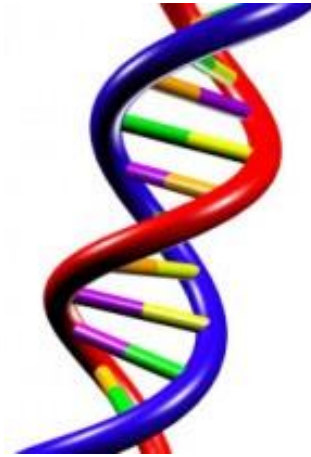
[Circle of Viewpoints](#) *A routine for exploring diverse perspectives*

[I used to Think... Now I think...](#) *A routine for reflecting on how and why our thinking has changed*

[See Think Wonder](#) *A routine for exploring works of art and other interesting things*

[Compass Points](#) *A routine for examining propositions*

3. Use signature pedagogies



Lee Shulman (2005) Signature pedagogies in the professions.
Daedalus, 134, 52-59

Playful Experimentation

- 13. Possibility Thinking
- 14. Process mapping
- 15. Meditation

Problem-based Learning

- 1. Questioning techniques
- 2. Mantle of the Expert
- 3. Philosophy for Children

Deliberate Practice

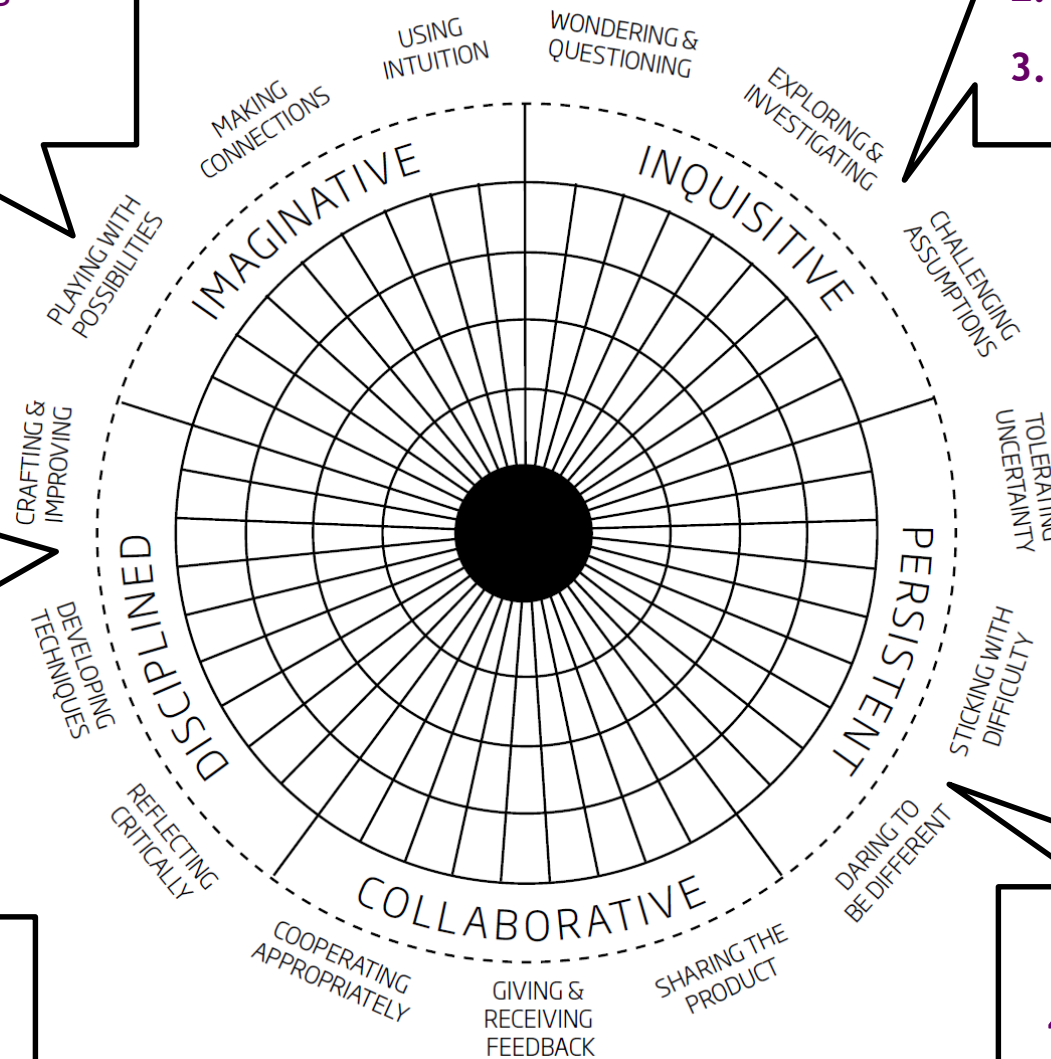
- 10. Drafting
- 11. Expert demonstration
- 12. Student feedback

Classroom as Learning Community

- 7. Group working
- 8. Peer teaching
- 9. Authentic assessment

Growth mindset

- 4. Role play and simulation
- 5. Reframing
- 6. Perspective taking



Some key methods

case studies

problem-based learning

thinking routines

philosophy for children

role play

games

deep questions

teacher modelling

authentic tasks

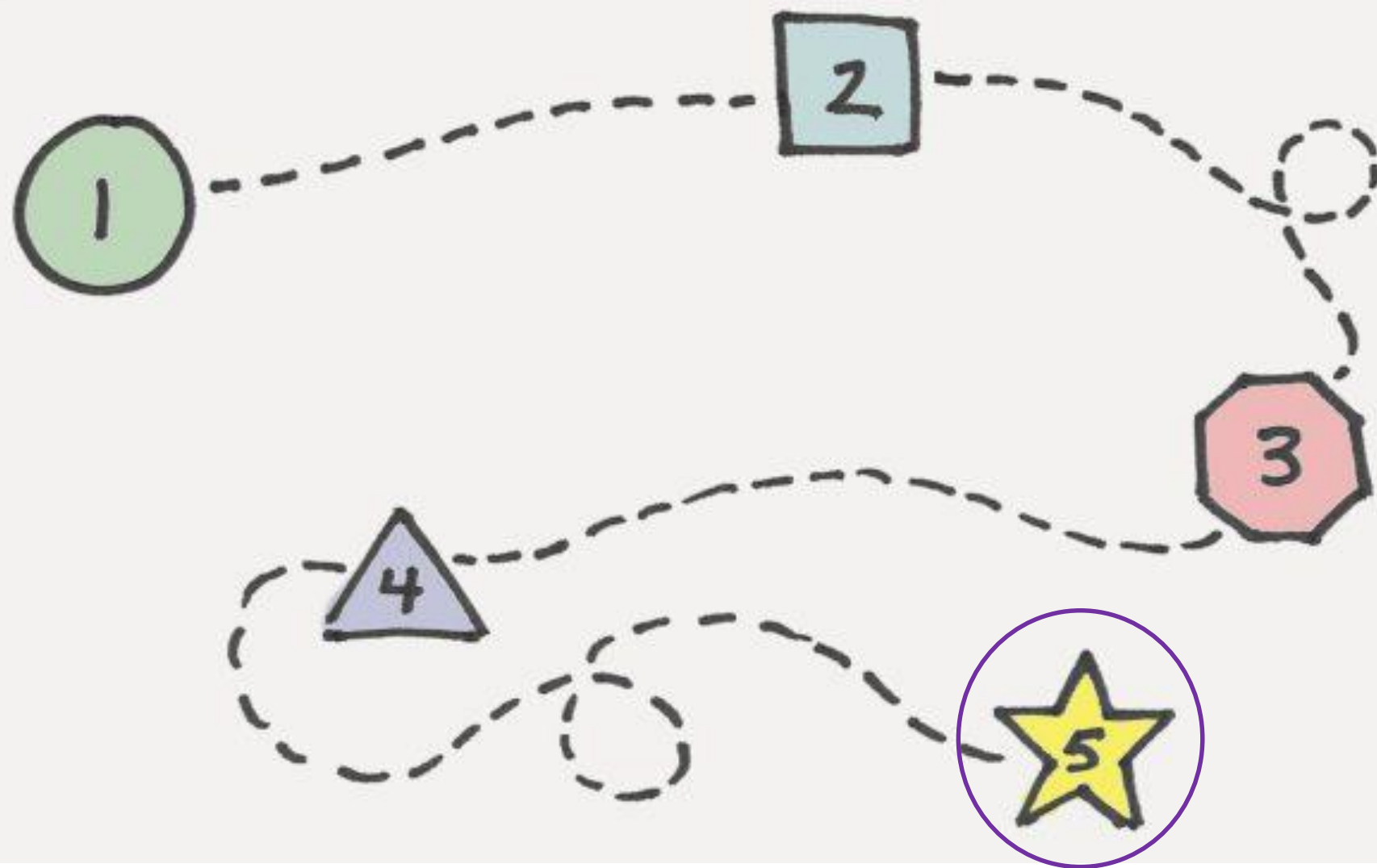
thinking out loud

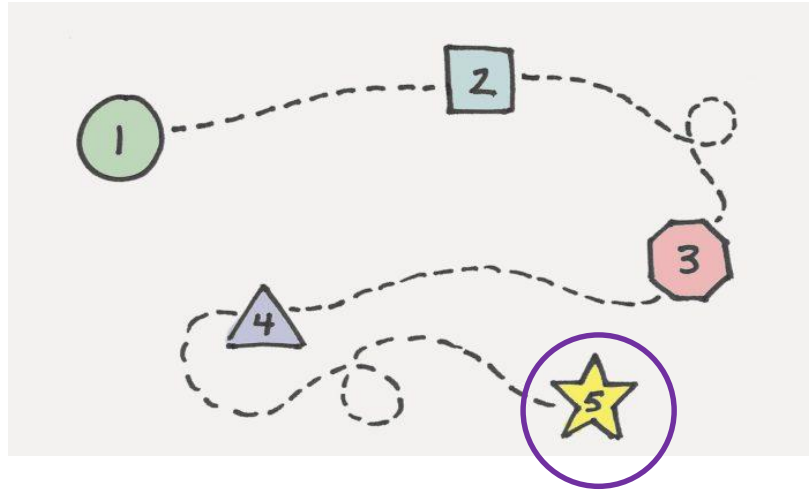
peer teaching

coaching

self-managed projects

enquiry-led teaching





5. Implications?

Shifting the paradigm?



Alice laughed:

"There's no use trying," she said; "one can't believe **impossible things**."

"I daresay you haven't had much practice," said the **Queen**.

"When I was younger, I always did it for half an hour a day. Sometimes I've believed as many as six **impossible things** before breakfast."

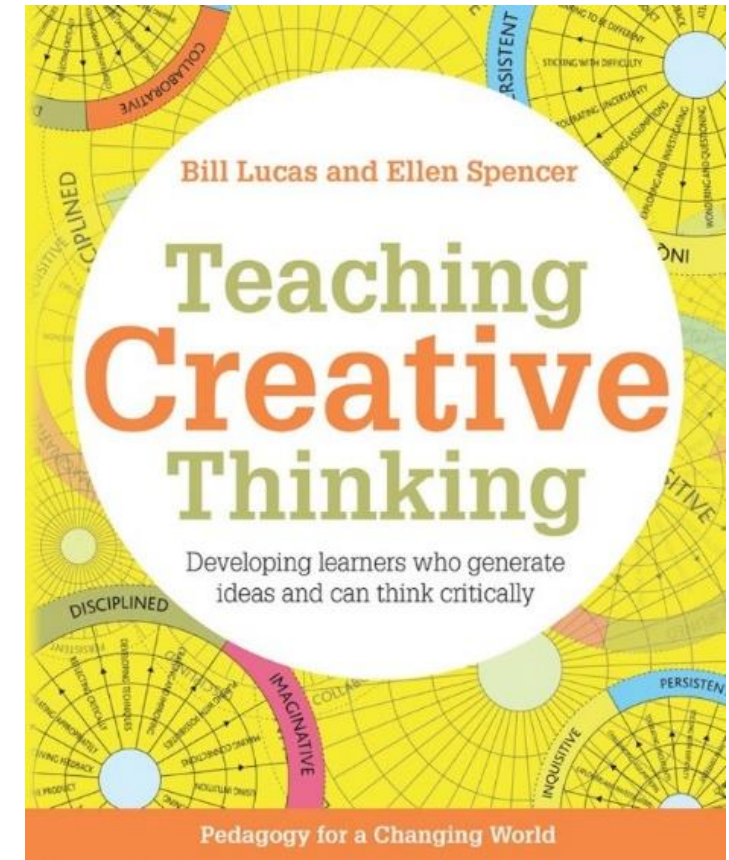
Lewis Carroll, *Through the Looking Glass*, 1871

... but it is possible



Alice:
This is impossible.

The Mad Hatter:
Only if you believe it is.



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