

FORM.
building a state of creativity



A field guide to assessing
**creative thinking
in schools**

Bill Lucas



RETHINKING
ASSESSMENT

**creative
schools**

About the guide

This short field guide has been written to help teachers in Australia and England to develop their confidence in evidencing the development of creativity in the young people they teach. It is informed by the practices of the Creative Schools collaborating with FORM in and around Perth as well as by examples from schools with which the author is working in Australia and in the UK.

The practical tools on pages 44-75 of the guide draw on ideas in *Teaching Creative Thinking: Developing learners who generate ideas and think critically*, written with Ellen Spencer.

Acknowledgment

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Creative Schools and many of the examples sited in this field guide were conceived and delivered on the lands of Nyoongar* people, the traditional owners of Nyoongar* Boodja. We respect and acknowledge all of Australia's traditional owners, and their Elders past and present. We acknowledge their continuing culture and the contribution they make to the life of this region and world.

*Alternative spellings include Nyungar, Nyoongar, Nyoongah, Nyungah, Nuyuguh, Yunga.

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1. Introduction

Across the world curricula are changing in recognition of the widespread view that, in addition to subject knowledge, young people need to develop certain key dispositions or capabilities in order to thrive today. Such dispositions broadly fall into two categories; those which might be described as concerned with the development of character (ethical understanding, for example) and those which focus on a wider set of skills (such as creativity, critical thinking or collaboration).

This guide focuses on the latter group with a specific emphasis on creativity, what is increasingly referred to as ‘creative thinking’ (Lucas and Spencer, 2017; OECD, 2019; Durham Commission, 2019) and what in Australia is termed Critical and Creative Thinking (Australian Government, 2018).

Nearly a decade ago, at the Centre for Real-World Learning (CRL) at the University of Winchester and in partnership with Creativity, Culture and Education, we developed a five-dimensional model of creativity for schools in the UK. At the time there were a small number of definitions of creativity, often inspired by the work of Sir Ken Robinson (National Advisory Committee on Creative and Cultural Education, 1999). But there were almost no attempts to move from definitions of creativity or creative thinking to a more detailed description of creativity in practice in schools. Our model does just that and is now used across the world in more than thirty countries.

In parallel to our research into how creativity might be operationalised in schools, we also looked at research into how it might be assessed in a school context, something that was not attempted in schools (Spencer et al., 2012; Lucas et al. 2013). Some teachers we interviewed at the time thought that any attempt to ‘measure’ creativity in young people was potentially reductionist, against the spirit of imaginative and divergent thinking and an unhelpful additional assessment burden for them to manage. But the majority found the process helped them to be more precise about what creative thinking is, better able to select appropriate pedagogies and better equipped to track the progression of students’ creative thinking over time.

When the global testing organisation the Programme for International Student Assessment (PISA) chose to make creative thinking the focus of its test in 2021 (now set to take place in 2022 as a result of the pandemic) creativity had achieved something else; a significant enhancement in its stature. For what gets assessed tends to get done in schools.

Recent research (Taylor et al., 2020) found that creativity or creative thinking is now specified in the curricula of 21 countries. But in none of these examples is any guidance on its assessment provided. At the same time groups like Rethinking Assessment¹ in the UK and New Metrics for Success² in Australia have been considering ways of evidencing creativity along with other key dispositions and capabilities using a range of approaches to formative assessment.

¹<https://rethinkingassessment.com/>

²<https://education.unimelb.edu.au/new-metrics-for-success>



How to use this guide

A field guide to assessing creative thinking in schools offers teachers some key principles for assessing creative thinking as well as some practical assessment tools to explore. Sections 1-3 describe the thinking that schools may find helpful before trying out some of the methods in section 4. Section 4 falls into two halves - a description of important preparatory work needed and then sixteen suggested assessment tools to try out.

To help you reflect as you develop your practice in assessing creative thinking you might like to use any blank spaces in the guide to write notes and reflections as you go along.

You might like to think of this as a 'field guide' in which you, as an assessment 'naturalist' or 'explorer' are identifying the 'flora' and 'fauna' which make up the different assessment methods in the field. All the while you are trying to understand the ecology of creativity in your school, promoting creative 'bio-diversity' as you go!

Please share your experiences widely.

2. An urgent need to rethink assessment in schools

Assessment, pedagogy and curriculum are integrally connected. What you teach depends on what is assessed. How you assess depends on what is being taught and how it is being taught. Across the world politicians, employers, researchers, parents and all those who work in schools are waking up to the fact that today's assessment practices are no longer fit for purpose.

Currently the knowledge that is typically assessed is from a narrow range of subjects, rarely explored in depth and almost never inter-disciplinary. Practical knowledge and skill is not much assessed in general education and individuals rather than groups remain the focus. Complex, higher order skills are rarely assessed in ways that recognise the subtleties involved. Many dispositions or capabilities known to be important in life are not assessed at all. As Sandra Milligan and colleagues put it recently:

Without a focus on mastery of generic capabilities, assessment and teaching practices tend to privilege memorisation, essay writing, individual mastery of set content and solving of problems with formulaic solutions. The risk is that schools create students dependent on direct instruction, cramming, drilling and coaching, reliant on expert instruction by teachers who are expected to guide learners through a carefully prescribed body of knowledge, assessed in predictable ways. (Milligan et al, 2020. p.14)

¹<https://rethinkingassessment.com/>

²<https://education.unimelb.edu.au/new-metrics-for-success>

2.1 Contemporary curricula

For the last three decades curricula across the world have been evolving to include new subjects of study and re-emphasise certain key skills, dispositions and capabilities of relevance today. This shift in thinking about what young people need to learn has coincided with the birth of a new millennium, the twenty-first century. Perhaps unsurprisingly it has developed a shorthand to encapsulate these changes - twenty-first century skills.

For some educators this is welcome phrase. For others, myself included, it sounds too evangelical and too vague when with research we can be more precise. In Table 1 I have summarised the kinds of dispositions which are increasingly in demand. The highlighted ones relate to the focus of this guide - creativity, creative thinking and critical thinking as defined in our model.

European Key Competences for Lifelong Learning 2007	Pellegrino and Hilton 2012	Gutman and Schoon 2013	Heckman and Kautz 2013	Lamb et al. 2017
<ul style="list-style-type: none"> • Communication in mother tongue • Communication in foreign languages • Digital competence • Learning to learn • Social and civic competences • Sense of initiative and entrepreneurship • Cultural awareness and expression 	<ul style="list-style-type: none"> • Critical thinking • Information literacy • Reasoning • Innovation • Intellectual openness • Work ethic • Conscientiousness • Positivity • Communication • Collaboration • Responsibility • Conflict resolution 	<ul style="list-style-type: none"> • Motivation • Perseverance • Self-control • Metacognitive strategies • Social competencies • Resilience and coping • Creativity 	<ul style="list-style-type: none"> • Perseverance • Self-control • Trust • Attentiveness • Self-esteem and self-efficacy • Resilience to adversity • Openness to experience 	<ul style="list-style-type: none"> • Critical thinking • Creativity • Metacognition • Problem-solving • Collaboration • Motivation • Self-efficacy • Conscientiousness • Perseverance

Table 1. Dispositions for a lifetime of learning (Lucas, 2019)

2.1 Australia

The Australian curriculum is beginning to capture some of the dispositions in Table 1 above in its general capabilities, see Figure 1.

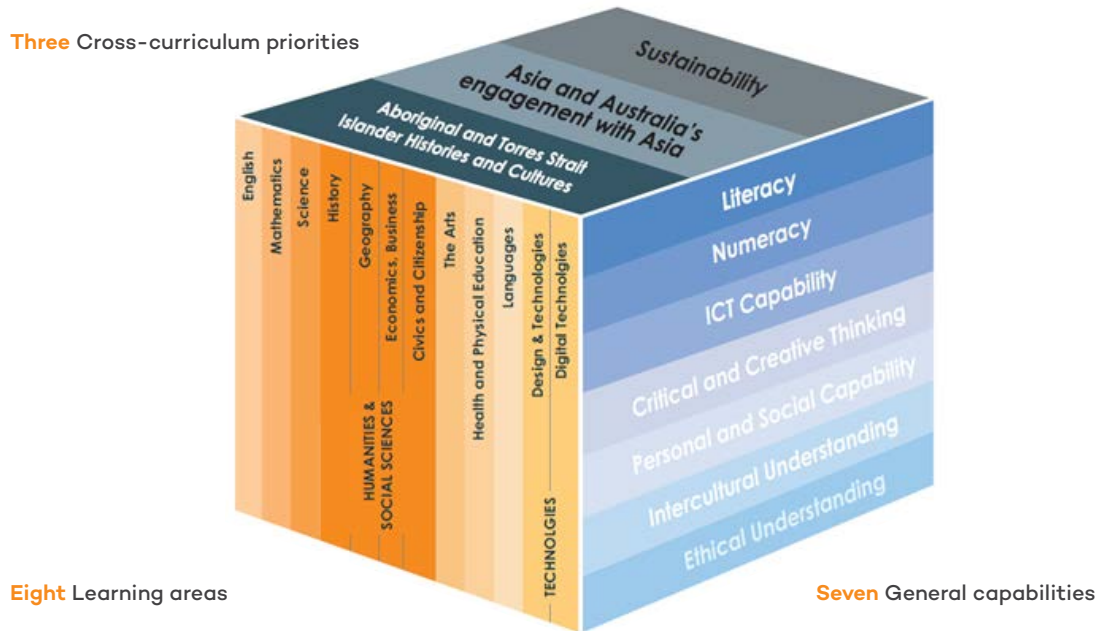


Figure 1. The Australian Curriculum

Critical and Creative Thinking is the term used to encapsulate creativity in Australia and in each State it is interpreted slightly differently.

2.3 The UK

In the UK the picture is more mixed. A new Welsh Curriculum has four purposes, one of which is to develop young people as ‘enterprising, creative contributors who are ready to play a full part in life and work’¹. In the Scottish Curriculum for Excellence², creativity is seen as a key element of many subjects recognising ‘the role of creativity and inventiveness in the development of the sciences’ and suggesting that ‘learning mathematics develops logical reasoning, analysis, problem-solving skills, creativity and the ability to think in abstract ways’. In Northern Ireland there is an explicit recognition of creativity’s ‘economic significance: as the driving force behind innovation, invention and breakthroughs in science, technology and the arts.’ It is also seen ‘as a way to encourage mindfulness and resilience while occupying a central role in promoting thinking skills and personal capability...’³.

In the English national curriculum there is almost no mention of creativity. This may well change in the coming years as a result of the *Durham Commission on Creativity and Education (2019)* and the implementation of one of its recommendations, the establishment of eight networks of schools across the country which have been funded to act as testbeds for increased understanding of teaching for creativity.

¹<https://hwb.gov.wales/curriculum-for-wales>

²<https://education.gov.scot/Documents/All-experiencesoutcomes18.pdf>

³<https://ccea.org.uk/downloads/docs/ccea-asset/Resource/Teaching%20for%20Creativity.pdf>

2.4 A global shift

Assessment in schools is changing too, albeit more slowly. The speed of change is in part due to the difficulty of changing national assessment systems given the need to satisfy employers, universities, colleges and, perhaps most significantly, parents. For parents vote for governments, governments operate in four or five year cycles and changes in national assessment systems are often seen as statements of political belief signalling so-called progressive or traditional views. Figure 2 summarises some key trends.

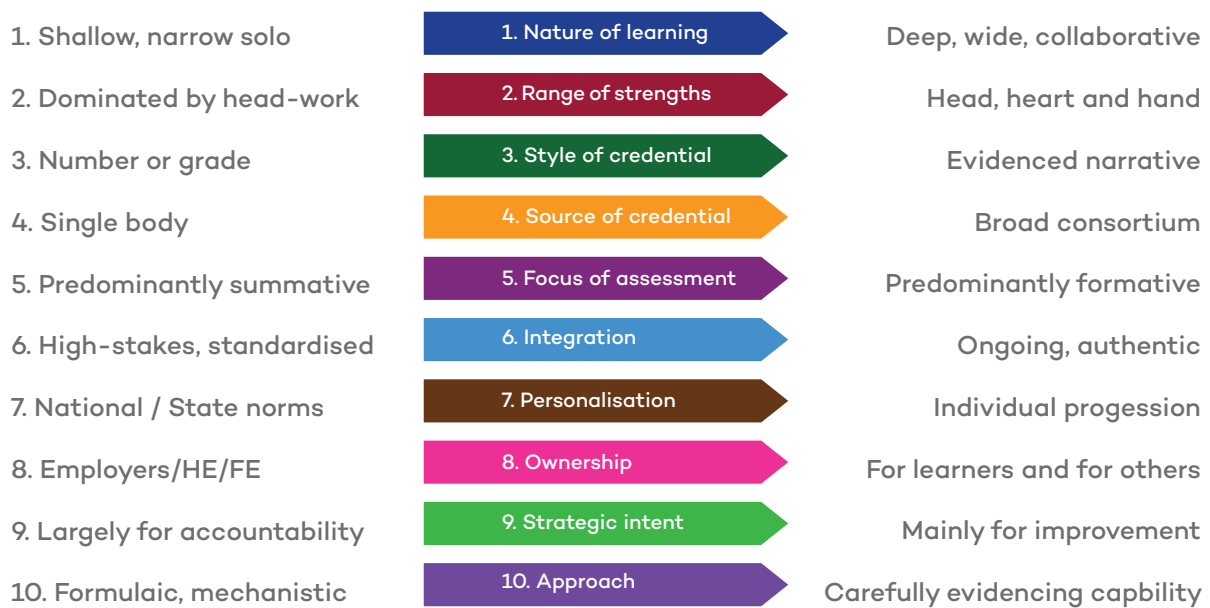


Figure 2. Global trends in assessment

Australia is at the forefront of thinking about more rounded ways of evidencing the strengths of young people as they transition from school to further study, training or employment (Education Council, 2020):

Students will leave school with a Learner Profile, identifying the range of their skills, knowledge and experiences. It will include learning and experiences gained inside and outside of school. Students will be guided to recognise the attributes they have acquired through study in the classroom as well as from work experience, volunteering and personal achievement. (page 13)

Such a profile will provide opportunities for schools to more carefully evidence the capabilities and dispositions of their students.

2.5 Assessment of, for and as learning

It's easy to forget three related but different purposes of education:

Assessment for learning is designed to give teachers information to modify and differentiate teaching and learning activities. It acknowledges that individual students learn in idiosyncratic ways, but it also recognizes that there are predictable patterns and pathways that many students follow.

Assessment as learning is a process of developing and supporting metacognition for students. Assessment as learning focusses on the role of the student as the critical connector between assessment and learning.

Assessment of learning is summative in nature and is used to confirm what students know and can do, to demonstrate whether they have achieved the curriculum outcomes, and, occasionally, to show how they are placed in relation to others. (Earl and Katz, 2006, pages 13-14)

All too often it is the third of these three which occupies our attentions. In this guide we will be focusing largely on the first and second.

¹<https://rethinkingassessment.com/>

²<https://education.unimelb.edu.au/new-metrics-for-success>

2.6 Different layers of assessment

When students finish a term or a year or their time at school they receive some kind of formal report. Typically this takes the form of a High School Certificate (HSC) or a set of examination grades which formally signify achievement in a range of subjects.

In Australia HSC scores are converted into the Australian Tertiary Admission Rank (ATAR), a score out of 100. In England qualifications are given points by the Universities and Colleges Admissions Service (UCAS) with the total score being used by universities in the entrance processes. Reports like these and their equivalent numbers are the most formal layer of assessment in these countries.

In thinking about the assessment of creative thinking there are two more important layers which teachers will find helpful - recording and evidencing. Recording, as its name suggests, is a short description of a course or learning experience undertaken by a student. Such descriptions can indicate the range of experiences through which dispositions have been learned.

Evidencing is a particularly important part of the formative assessment process in schools enabling reflective conversations between learners, teachers and others working with them to use a range of assessment methods to track their progress.

In terms of evidencing dispositions, Rosemary Hipkins reminds us that, 'Only when students are offered rich opportunities to demonstrate their capabilities will we know what they are actually capable of' (Hipkins, 2018, page 22).

3. Assessing creativity - some principles

The assessment of creativity goes back some seventy years to psychologist J.P. Guilford who first suggested the value of measuring of creativity (Guilford, 1950). But while researchers in the wider world have developed many well-used ways of measuring creativity - the Torrance Tests of Creative Thinking is a good example (Torrance, 1966) - it is only in the last two decades, as national curricula have begun to specify dispositions such as creative thinking, that educators have begun to consider the benefits of assessment.

In 2012, with colleagues at the Centre for Real-World Learning (CRL) and supported by Creativity, Culture and Education, we developed a five-dimensional model of creativity and illustrated some ways in which the progress of young people's creativity could be tracked (Lucas et al., 2013), Figure 3:

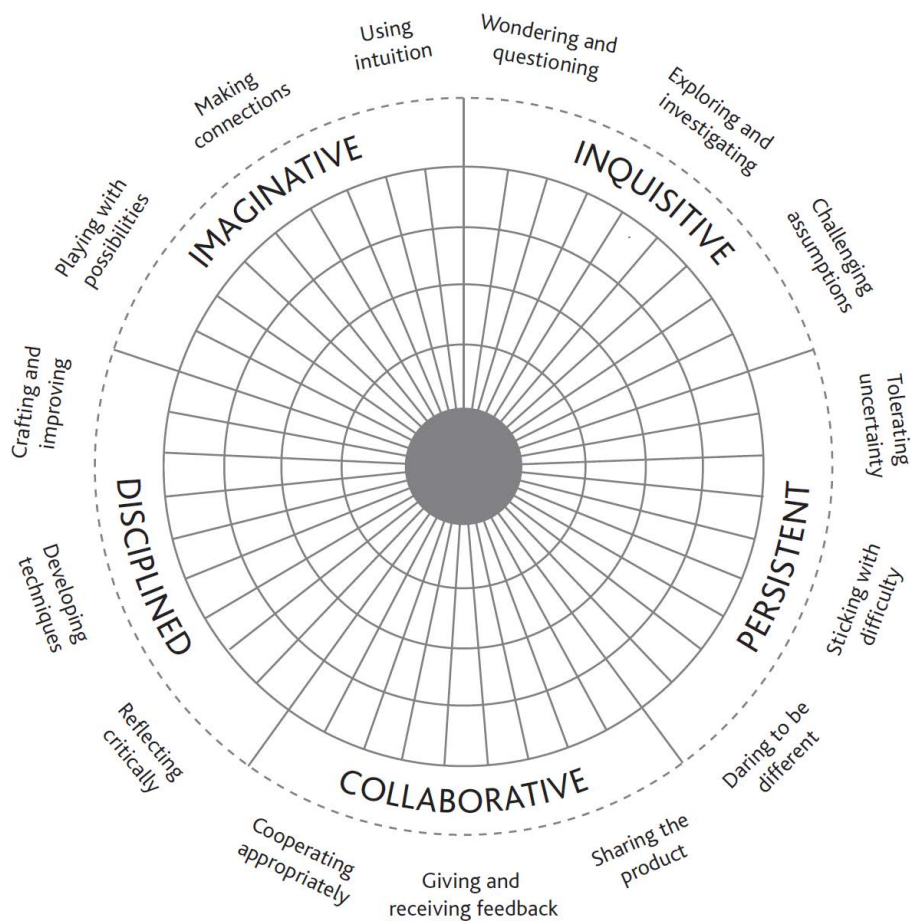


Figure 3. The CRL five-dimensional model of creativity (Lucas et al., 2013)

We found that assessing creativity can enhance the status of creativity, enhance understanding helping teachers to think specifically how they can cultivate the full range of creative dispositions and provide ways of structuring conversations between learners and their peers as well as between learners and teachers.

3.1 Lessons from research

While our understanding of the assessment of dispositions and capabilities is still in its infancy (Lucas, 2021) a number of lessons are beginning to emerge.

Centre for Real-World Learning, University of Winchester

In field trials of our five-dimensional model we explored a number of ways of indicating progression. At its simplest, as piloted in Thomas Tallis School in London, we developed a simple visualisation tool for students to use, Figure 4, enabling them to chart progress using four levels – beginning, developing, confident and expert.

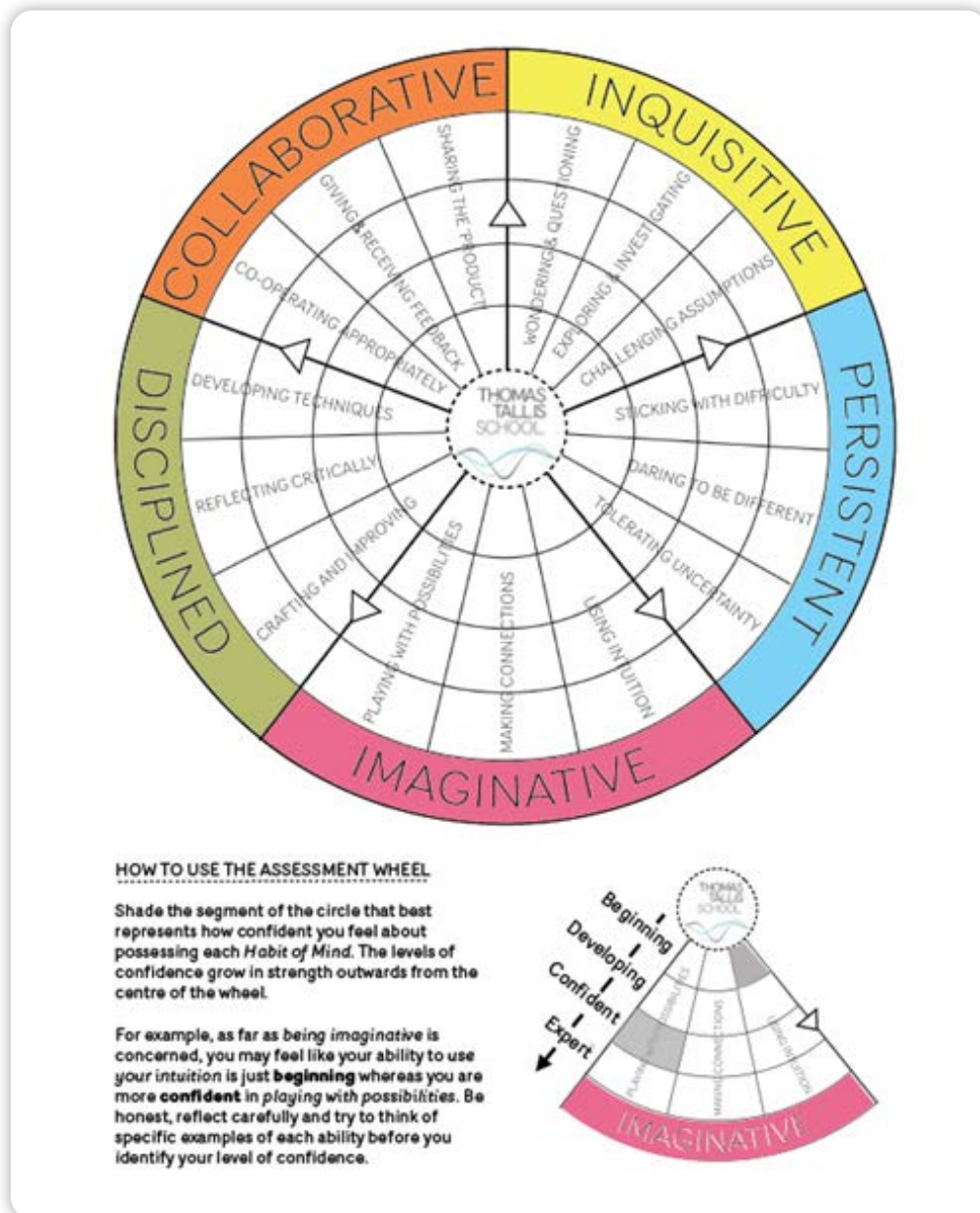


Figure 4. The Creative Habits of Mind Assessment Wheel.

To capture teachers' perspectives on students' progress we invited them to indicate their perception of the growth of creative thinking skills considering each sub-habit in terms of strength, breadth and depth, Figure 5.

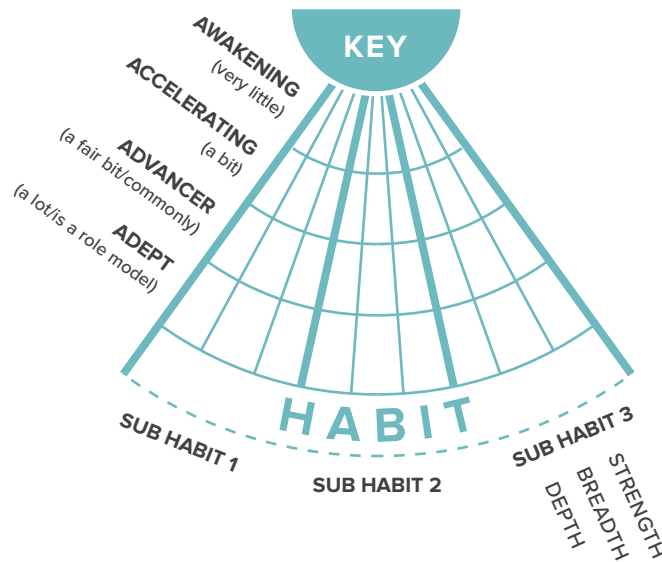


Figure 5. Strength, breadth and depth in creative thinking.

Strength is a measure of the level of independence demonstrated by students in terms of their need for teacher prompts or scaffolding, or their need for favourable conditions.

Breadth is an indication of the tendency of students to exercise creative dispositions in new contexts, or in a new domain.

Depth describes the level of sophistication displayed and the extent to which application of dispositions was appropriate to the occasion.

Such teacher judgments drawing on a range of qualitative evidence, enabled more precise description but they also proved to be too demanding within the constraints of a busy school week. So while they provide a framework for tracking progression, it may be better used as a way of teachers coming to an overall view rather than focusing on too many detailed observations.

In Australia today teachers using the CRL model can support their judgements by cross-reference to ACARA's Critical and Creative Thinking continuum (Figure 1) or with Western Australia's year-based syllabuses and standards. In England teachers may want to refer to definitions suggested by the Durham Commission on Creativity and Education (2019) which are increasingly being used. Wherever teachers are seeking to evidence progression in creative thinking the use of analytical marking and teacher moderation will help to build a common and more reliable understanding of student's development.

Centre for Educational Research and Innovation

Between 2015 and 2019 the Centre for Educational Research and Innovation (CERI) at the Organisation for Economic Co-operation and Development (OECD) took our five-dimensional model as its starting point (Vincent-Lancrin et al., 2019) for an eleven country study designed to understand more about how creativity is taught and assessed in schools.

A key finding from this was research was that models of creativity need further translation for the classroom and that rubrics can help with this:

Rubrics are a way to simplify, translate and construct a social representation of what creativity and critical thinking look like in the teaching and learning process. They aim to create a shared understanding of what creativity means in the classroom, and share expectations among teachers, and among teachers and students. The function of rubrics is to simplify the big concepts of creativity and critical thinking so that they become relevant to teachers and learners in their actual educational activities. (Vincent-Lancrin et al., 2019, page 21.)

Table 2 below is an example of a rubric used with teachers in the OECD-CERI research. It seeks to break down a disposition such as creativity or critical thinking into parts which can be described clearly and unambiguously.

CREATIVITY <i>Coming up with new ideas and solutions</i>	CRITICAL THINKING <i>Questioning and evaluating ideas and solutions</i>
INQUIRING Make connections to other concepts and knowledge from the same or from other disciplines	Identify and question assumptions and generally accepted ideas or practices
IMAGINING Generate and play with unusual and radical ideas	Consider several perspectives on a problem based on different assumptions
DOING Produce, perform or envision a meaningful output that is personally novel	Explain both strengths and limitations of a product, a solution or a theory justified on logical, ethical or aesthetic criteria
REFLECTING Reflect on the novelty of the solution and of its possible consequences	Reflect on the chosen solution / position relative to possible alternatives

Note: This rubric is meant for teachers/faculty to identify the student skills related to creativity and to critical thinking that they have to foster in their teaching and learning, not for assessment.

Table 2. OECD rubric on creativity and critical thinking, (Vincent-Lancrin et al., 2019, page 23)

PISA Creative Thinking Test

In 2022 PISA is for the first time testing the creativity of fifteen year olds (OECD Directorate for Education and Skills, 2019), Figure 6.

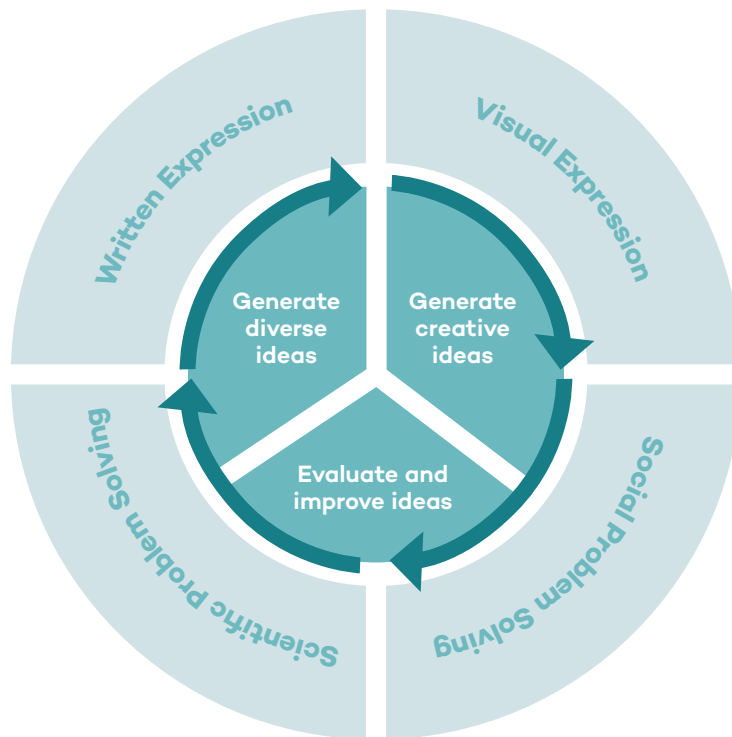


Figure 6. PISA Creative Thinking Test (OECD, 2019, page 23)

The PISA Creative Thinking Test in 2022 seeks to clarify not just the elements of creative thinking - generating diverse ideas, generating creative ideas and evaluating and improving ideas - but also to suggest two domains in which they might be embedded and two modes through which they might be expressed, see Figure 6.

The PISA 2022 Creative Thinking assessment introduces two methodological innovations. For the first time in PISA students will have the chance to produce a visual artefact, rather than construct a written response or choose the correct answer. The assessment also only includes open-ended tasks with no single solution but with multiple correct responses. Rubrics and sample responses from field trials will be used in the assessment process.

Australian Council for Educational Research

With the Australian Curriculum The Australian Council for Educational Research (ACER) has begun to explore ways in which general capabilities such as Critical & Creative Thinking can best be assessed (Scoular et al., 2020). At the heart of ACER's approach is the requirement for teachers to focus on the growth of the respective skills associated with a particular capability or disposition and how these skills can best be demonstrated.

ACER has developed a model of Creative Thinking which has three strands - Generation of ideas, Experimentation and Quality of ideas (Ramalingam et al., 2020), see Figure 7. Each strand has two or three more specific aspects. In doing this ACER has focused on one of the four elements of Critical and Creative Thinking as it appears in the Australian Curriculum (see Appendix 1).

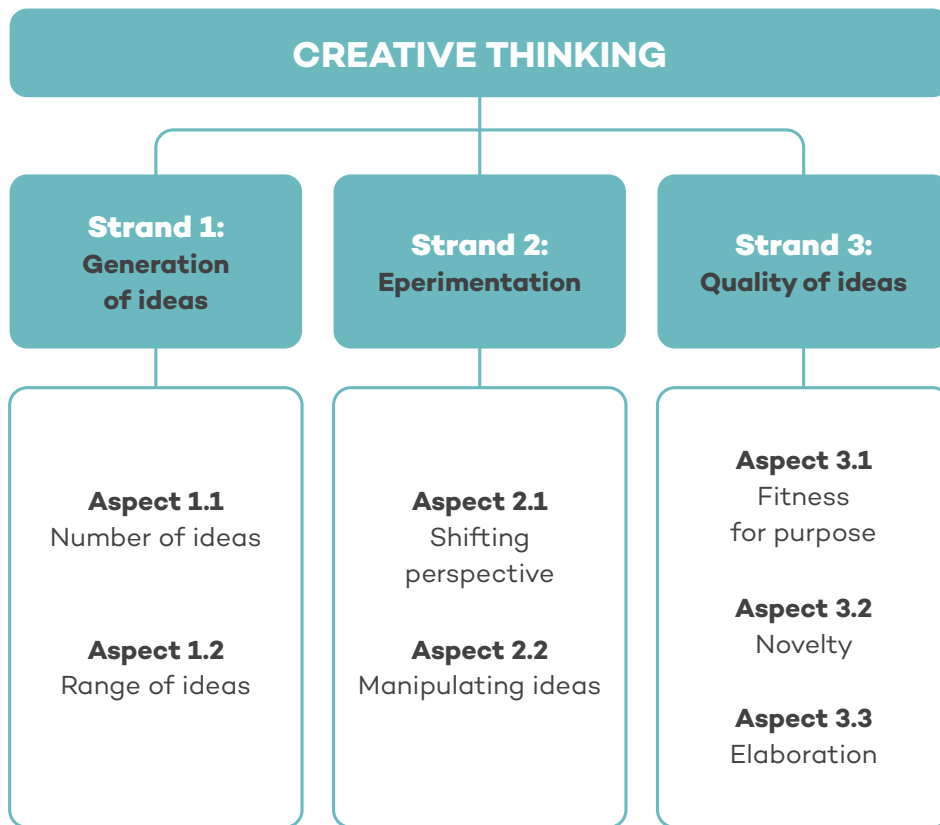


Figure 7. ACER Creative Thinking Skills Framework (Ramalingam et al., 2020, page 6)

Figure 8 indicates what progress might look like for two aspects of Creative Thinking:

CREATIVE THINKING	SKILLS	CURRICULUM	ASSESSMENT	PEDAGORY
		<i>Learning Outcome</i>	<i>Assessment Criteria</i>	<i>Teaching Strategy</i>
	Aspect 2.1 Shifting Perspective	<p>Critical and creative thinking</p> <p>Element: Generating ideas, possibilities and actions</p> <p>Sub-element: Consider alternatives: identify situations where current approaches do not work, challenge existing ideas and generate alternative solutions</p>	<p>High: Learners demonstrate a willingness to experiment, shifting beyond conventional perspectives leading to new possibilities. They question and renegotiate the boundaries of the task to navigate around possible constraints. They test out multiple pathways, even those that seem unlikely.</p> <p>Mid: Learners can shift perspectives, thinking about the task in a different way and considering the task from a range of conventional perspectives. They are willing to test out an alternative pathway.</p> <p>Low: Learners view the task through their single perspective without consideration of what the task elements can be changed, or considering alternative perspectives or pathways.</p>	<p>Teach techniques for reconsidering problems and situation, such as a circle of Viewpoints Routine, Six Thinking Hats or a PO Distribution.</p>
3.2 Novelty	<p>Critical and creative thinknig</p> <p>Element: Generating ideas, possibilities and actions</p> <p>Sub-element: Imagine possibilities and connect ideas, Combine ideas in a variety of ways and from a range of sources to create new possibilities.</p>	<p>High: Learners develop some original ideas containing concepts less familiar to them beyond their social context.</p> <p>Low: Learners present ideas that are obvious or conventional and contain concepts that are really familiar to them.</p>	<p>Challenge students to consider a range of novel solutions or ideas by facilitating an extended brainstorm (i.e. beyond fluency of ideas) to encourage flexibility or range originality and elaboration of thinking.</p>	

Figure 8. ACER Creative Thinking Skills Framework (Ramalingam et al., 2020, page 6)

ACER uses a simple three level description of progress - low, mid and high.

Whichever model of Creative Thinking teachers decide to use the examples from the OECD, PISA and ACER remind us of the importance of:

- Integrating assessment with curriculum and pedagogy
- Recognising that creative thinking can be demonstrated in different contexts and in many different ways
- Developing clear rubrics which can be used to describe progression along with three or four level descriptors.

3.2 Some key principles for assessing creativity

Assessing creativity is not the same as assessing maths or geography with their syllabuses and programmes of study specifying the knowledge and skills which need to be learned within a specific discipline. For creative thinking is a set of skills which can be developed in any learning area or as part of inter-disciplinary problem-based learning or while undertaking extra-curricular activities.

3.2.1 Make the invisible visible

Creativity is invisible on any school timetable. In the classroom examples of creative thinking are easy to miss. They may or may not produce artefacts which can be seen or held. Creative thinking processes may exist in conversations and interactions between students and are can be easy to miss. Creative thinking often takes place in the mind of the learner and not leave any obvious trace to an observer.

It is helpful if teachers can make creativity evident through language and visually. As part of the Creative Schools programme our five habits model has been designed to look like a coloured football .

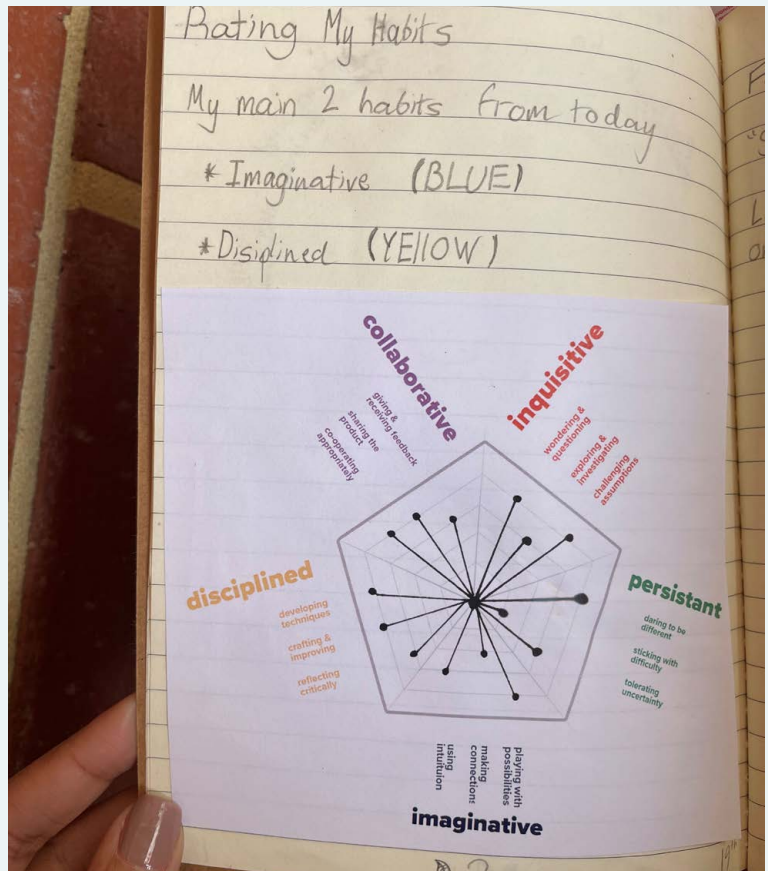


¹The examples here and throughout most of this document are drawn from our five habits model of creativity as these are becoming widely used. It is equally possible for schools to adopt the OECD, PISA or ACER models or the definition used in the Durham Commission on Creativity and Education



North Fremantle Primary School.
Teacher Elizabeth Smith.
Creative Practitioner
Daniel Burton

[Read full Case Study](#)



Teachers use the language of the five habits regularly so that they become routine for students. Jodie Davidson and Alison Benwood at Glencoe Primary School had a simple way of making them visible for very young learners:

Each week, choose a new habit/ 'big' word/colour from the poster. Encourage the children to associate an action with the colour/word. Calling out a colour triggers an action. For example:

- Red** – Inquisitive (I wonder) = finger to chin
- Blue** – Imaginative (I think) = looking up
- Green** – Persistent (I can) = digging in
- Orange** – Disciplined (I will) = hands on hips
- Purple** – Collaborative (We all) = arms open

The red of inquisitive 'thinking' became pointing to the head while the blue of imaginative 'wonder' was accompanied by looking upwards with a finger on the chin. The class decided that they required discipline to learn how to tackle the monkey bars and putting their hands on their hips signified an 'I can' approach to the green of persistence...

Jodie Davidson



Glencoe Primary School. Project – The Environment and Senses.
Teacher Alison Benwood & Debbie Hume. Creative Practitioner Jodie Davidson

[Read full Case Study](#)



Daniel Barton and Fiona Alexander used a different approach at Scotch College. They set up five 'stations' around the classroom. Each station has a big sheet of paper featuring a habit word, e.g., Imaginative. He gave the children time to visit each of the stations to draw or write what they think these words mean. Then they came back together as a group and discussed the creative habits that seem the most 'popular' or most frequently visited. He uses this as a way of stimulating discussion about what the habits mean...

There are many other ways of making creative thinking visible, including:

- Asking a student to be a 'Creativity Detective' for a lesson, sharing their thoughts at the end of the lesson. Which creative habits were being used? When and by whom? What were they doing?
- Focusing on one habit or aspect of creativity for a week or a month or a half-term and reinforcing it through assemblies.
- Making visual maps of every subject on the curriculum, picking out the creative habits that seem best to fit them and making wall displays for the classroom and staffroom
- Teachers providing a commentary on their own actions or those of their students deliberately noticing creativity in action.

Scotch College – Year 2. Project – Beach School.
Teacher Fiona Alexander. Creative Practitioner Daniel Burton.

Read full Case Study



¹For further reading look at what the State of Alberta has done in mapping capabilities and dispositions to every subject
<https://education.alberta.ca/competencies/competencies-in-subjects/everyone/competencies-in-subjects/>
²<http://reflectionsmyteaching.blogspot.com/2013/04/creating-culture-of-critique.html>

PERSISTANT

IMAGINATIVE

DISCIPLINE
TEAMWORK

OUR INQUISITIVE ??

?? Questions BOARD

I WONDER...

- WHERE DO STORIES COME FROM?
- WHY DO WE HAVE BOOKS?
- How do ABORIGINAL PEOPLE...
- WHY DO THEY MAKE STORIES IN THE FIRST PLACE?
- IS A BOOK DIFFERENT FROM A STORY?
- WHO MADE THE FIRST BOOK ON EARTH?
- What was the first book discovered?
- Why do we have books?

INQUISITIVE SUPERPOWERS



We would like to acknowledge today we are on Whadjuk Noongar Boodjar and 'pay our respects' to Elders past and present.

Thank you to the Noongar people for sharing this place with us.

Together we will look after the waters, the skies, the land, the animals and the people.

We are listening.
We are learning.



Beginning

What leads up to the problem?

Build-up

Problem

What goes wrong?

Resolution

How do they fix the problem?

Ending

How does the story end?

One day...

One sunny morning...

One rainy evening...

Out of nowhere...

Suddenly...

Unfortunately...

For...

Thank...

She was never naughty again!

They never...

...il fox again!

3.2.2 Create a culture of reflection

The main purpose of assessing creativity is to help students increase their understanding of the skills they are using and to help them to understand how they can make these skills stronger, more transferable to other settings and more subtle and nuanced; in short to make progress in becoming more creative. This kind of assessment is formative, often referred to as assessment for learning (William, 2007).

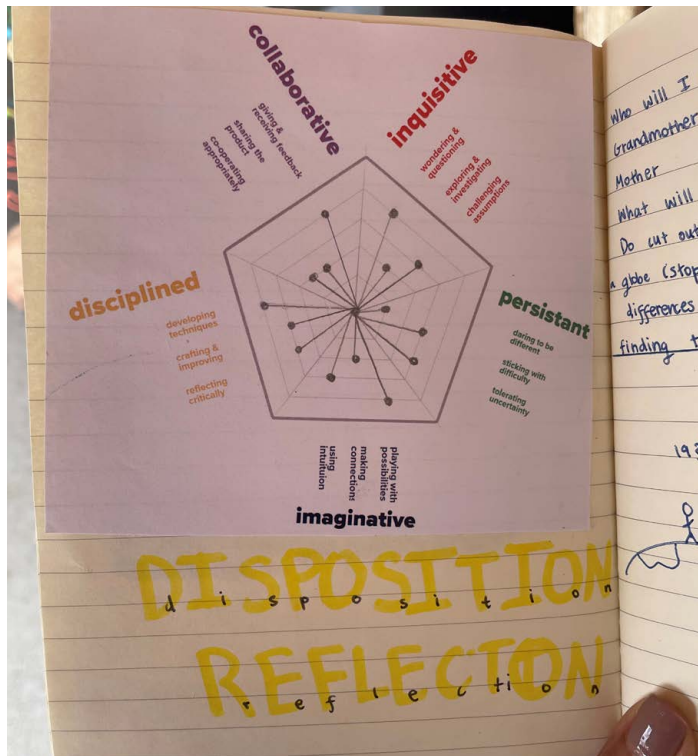
At the heart of assessment is feedback, either offered by an adult or by a fellow student or, as students become more confident, suggested by themselves in the light of their experiences. For feedback to be freely and genuinely offered and accepted the classroom needs to be a place where:

- Mistakes are seen as part of the learning process
- There is an explicit process on the 'disciplined' aspect of creativity with students assuming that their work will go through many drafts
- Feedback is expected and offered in a way that is timely, specific, actionable and kind.

Two practical ways of encouraging reflection are:

- Encouraging students to keep a reflective journal
- Regularly laying out work in progress for others to critique using post it notes, what Ron Berger calls gallery critique. (Berger, 2003)





3.2.3 Plan opportunities to demonstrate creativity

The ACER model, Figure 9 on page 27, carefully brings together assessment, curriculum and pedagogy. Obvious as this may seem, if you want to be able to evidence the growth in students' creativity it will be important to provide explicit opportunities for them to acquire creative skills.

ACER suggests that one way of assessing capabilities such as creative thinking is through problem-based learning:

Complex problem-solving provides a rich, extended activity for students to use the range of skills that ACER is interested in measuring. Therefore, each of the skills presented in the ACER approach are contextualised in complex problem-solving activities. Although the problem tasks are primarily positioned as the context for students to work collaboratively with their classmates to come up with feasible solutions, the problem tasks are designed to give students the opportunity and time to engage and demonstrate the skills. (Scoular et al., 2020, page 15)

ACER has developed two assessment modules or projects, one based in the Humanities exploring refugee resettlement and the other within STEM exploring the design of a sculpture.

While it makes a lot of sense to provide opportunities to develop creative thinking within a problem-based assignment, something many Primary schools would be very familiar with, at secondary level it may be preferable to locate activities within individual subjects.

3.2.4 Make assessment as authentic as possible

Across the world dispositions or capabilities like critical and creative thinking have been chosen because they are of use to learners throughout their life and in the real world. All too often in schools when we assess students within specific learning areas we construct questions or assignments which can be abstract, against a relatively random time pressure and bearing little relevance to the world outside school.

With creative thinking it is important to be as authentic as possible, providing students with purposeful tasks which can be assessed as far as possible in ways which are relevant to the activity. Examples of this include:

- An exhibition of work assessed by experts in the field such as engineers, artists, journalists, scientists
- A presentation using the medium that might be adopted in the real world
- A film or podcast
- A portfolio of evidence.

3.2.5 Assess students over time

Dispositions take time to develop. Skills are learned and practised in a range of contexts until they become habitual, second nature. A disposition such as creative thinking is at least as much process as it is outcomes and, as such, needs to be seen over time. These kinds of deeper learning need different kinds of assessment methods (Darling-Hammond, 2017), see Figure 9.

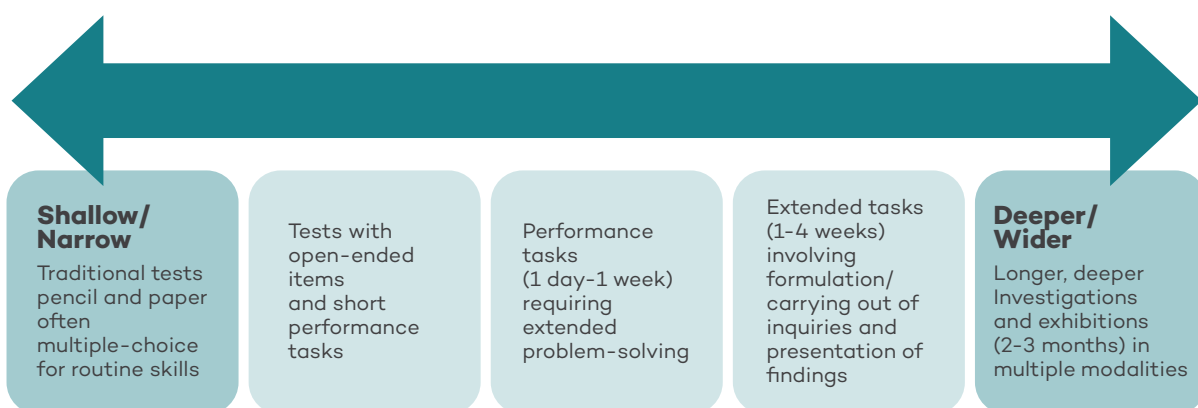


Figure 9. A continuum of assessment methods, adapted from Darling-Hammond (2017), p.6

3.2.6 Use a range of methods

In the assessment of students in individual learning areas we often use a grade or mark. It's important to get this one moment of judgment right, valid and reliable. But in evidencing the development of dispositions a different principle is at work - multi-modality. We need to draw on several sources to get a good fix on how a student is progressing.

Typically this involves hearing the student's view, drawing on teacher judgment both in observing the processes and 'products' of young people's creativity, and, wherever possible, using the perspectives of other adults in the school's wider community. Table 3 gives an overview of some of the methods you might like to use.

<p>Student</p> <ul style="list-style-type: none"> Real-time feedback Photographs Self-report questionnaires Logs/diaries/journals Portfolios 	<p>Teacher</p> <ul style="list-style-type: none"> Criterion-referenced rating of products and processes Structured progress interviews Performance tasks Capstone projects 	<p>Real-world</p> <ul style="list-style-type: none"> Expert reviews Gallery critique Authentic tests eg displays, presentations, interviews, podcasts, films Exhibitions 	<p>Online</p> <ul style="list-style-type: none"> Reliable, validated online tests Digital badges E-portfolios
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Table 3 - Approaches to assessing creativity adapted from Lucas and Spencer, 2017 p.160

3.2.7 Make moderation an opportunity for professional learning

Moderating student's work, whether by looking at artefacts, watching film of work in progress or observing a lesson provides opportunities for staff to compare notes about which aspects of creativity are being demonstrated and, using rubrics, frameworks and descriptions of progress is essential to ensure that assessment is of a high quality.

Recent research even suggests that participation in professional learning can boost teachers' sense of their own creativity (Liu et al., 2021).



Wembley Primary School –
whole staff professional
learning. Creative Practitioners
Jodie Davidson and Anne Gee

[Read full Case Study](#)

Hudson Park Primary School –
whole staff professional learning
with Creative Practitioner
Shona McGregor

[Read full Case Study](#)



4. Assessing creativity in practice

This is where the 'field guide' begins in earnest. Wherever you are in the world you can build on the examples throughout this document from teachers in Western Australia with whom we have been working. If you would like to delve deeper the references at the end provide further support.

Teachers and school leaders in Australia have a national curriculum which supports the teaching of critical and creative thinking (see Appendix 1) and then need to take into account the specific emphasis that their State brings to the topic.

Teachers and school leaders in Wales, Scotland and Northern Ireland can connect to aspects of their national curricula; teachers in England can take inspiration from the Durham Commission on Creativity and Education (2019) and draw ideas from the Creativity Exchange website¹.

4.1 Getting ready

With the principles we have explored so far in mind, there are five key decisions you will need to take:

1. Which definition of creative thinking will you use
2. How will you map progression?
3. Which subjects will you focus on?
4. Which pedagogies will you use?
5. What other extra-curricular and community learning experiences will you offer?

4.1.1 Defining creativity and creative thinking

While there are differences of emphasis in different models and definitions of creativity, they share much in common. This guide takes the Centre for Real-World Learning (CRL) five dimensional model as its starting point as developed by Rooty Hill High School in Australia and Thomas Tallis School in England, Figure 10:

¹<https://www.creativityexchange.org.uk/>

Below are some definitions broadly speaking organised chronologically.

National Advisory Committee on Creative and Cultural Education (NACCCE)

NACCCE defined creativity as 'Imaginative activity fashioned so as to produce outcomes that are both original and of value.' NACCCE, 1999

*Australian Curriculum, Assessment and Reporting Authority (ACARA)*¹

There are four elements to the ACARA model of critical and creative thinking, Figure 11:

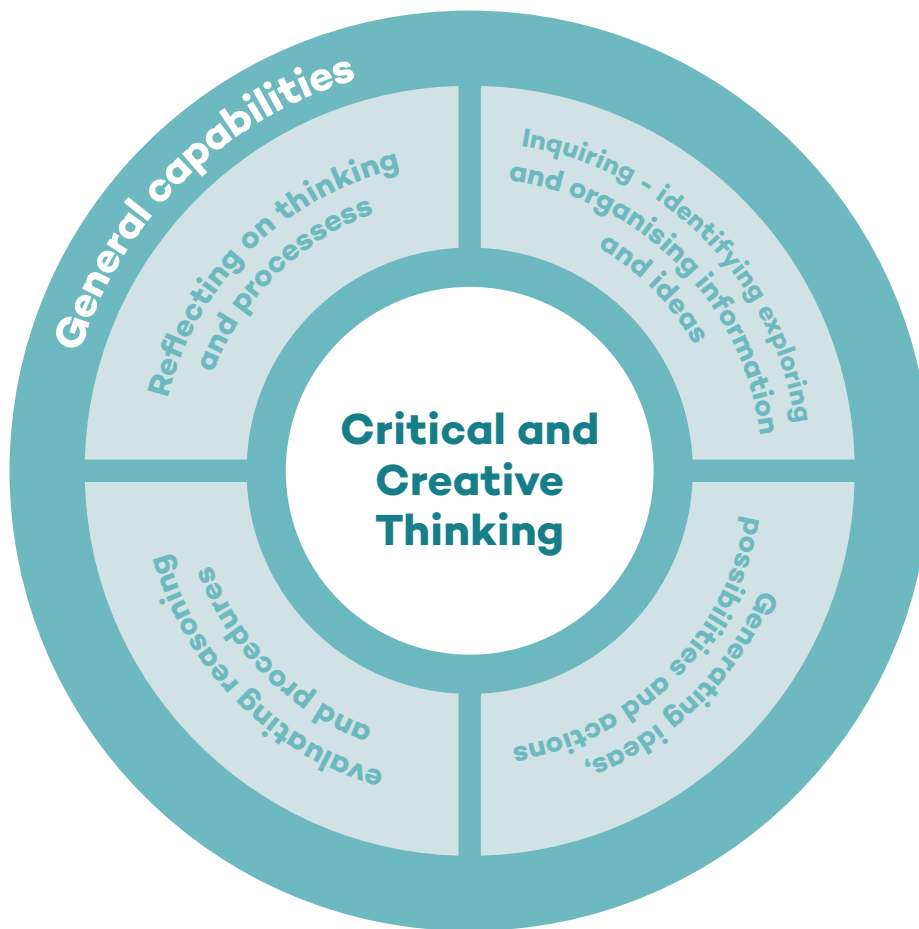


Figure 11. The ACARA model of critical and creative thinking

¹<https://www.australiancurriculum.edu.au/f-10-curriculum/general-capabilities/critical-and-creative-thinking/>

The four elements are:

1. Inquiring

Students pose questions and identify and clarify information and ideas, and then organise and process information. They use questioning to investigate and analyse ideas and issues, make sense of and assess information and ideas, and collect, compare and evaluate information from a range of sources.

2. Generating ideas, possibilities and actions

Students imagine possibilities and connect ideas through considering alternatives, seeking solutions and putting ideas into action. They explore situations and generate alternatives to guide actions and experiment with and assess options and actions when seeking solutions.

3. Reflecting on thinking and processes

Students think about thinking (metacognition), reflect on actions and processes, and transfer knowledge into new contexts to create alternatives or open up possibilities. They apply knowledge gained in one context to clarify another.

4. Analysing, synthesising and evaluating

Students identify, consider and assess the logic and reasoning behind choices. They differentiate components of decisions made and actions taken and assess ideas, methods and outcomes against criteria.

The Australian Council for Educational Research (ACER)

ACER defines creative thinking as:

...the capacity to generate many different kinds of ideas, manipulate ideas in unusual ways and make unconventional connections in order to outline novel possibilities that have the potential to elegantly meet a given purpose. (Ramalingam et al., 2020).

Within this ACER identifies three strands, each with a number of aspects:

Strand 1 Generation of ideas - Number of ideas and Range of ideas

Strand 2 Experimentation - Shifting perspective and Manipulating ideas

Strand 3 Quality of ideas - Fitness for purpose, Novelty and Elaboration

The Durham Commission on Creativity and Education England

The Durham Commission distinguishes between creativity, creative thinking and teaching for creativity:

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

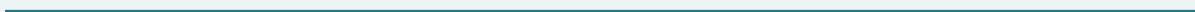
Creative thinking: A process through which knowledge, intuition and skills are applied to imagine, express or make something novel or individual in its contexts. Creative thinking is present in all areas of life. It may appear spontaneous, but it can be underpinned by perseverance, experimentation, critical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

Teaching for creativity: Explicitly using pedagogies and practices that cultivate creativity in young people. (Durham Commission, 2019).

PISA

Creative thinking in the PISA Test taking place in 2022 is defined as:

... the competence to engage productively in the generation, evaluation and improvement of ideas, that can result in original and effective solutions, advances in knowledge and impactful expressions of imagination. (OECD Directorate for Education and Skills, 2019).



4.1.2 Map progression

Whichever model or definition you choose, you will need to have a sense of how students' creativity develops over time. Figure 12 takes one of the four elements of the ACARA model and describes its development in two year periods from the Foundation Year to Year 10.

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 actions	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 actions	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 risk and explain contingencies, taking account of a range of perspectives when seeking solutions and putting complex ideas into action

Figure 12. Progression in generating ideas, ACARA

Teachers will recognise from other syllabuses how such progression statements build in complexity. A simpler approach is to consider expressing progress in terms of strength, breadth and depth as described on page 16. Or you could decide that, whether you are in a Primary or Secondary school context you will map progression by using a number of levels such as the beginning - developing - confident - expert continuum described on page 13. For each level it may be helpful to indicate the kinds of activities or behaviours which might be visible in a classroom as ACER does in its framework in Figure 7 on page 18.

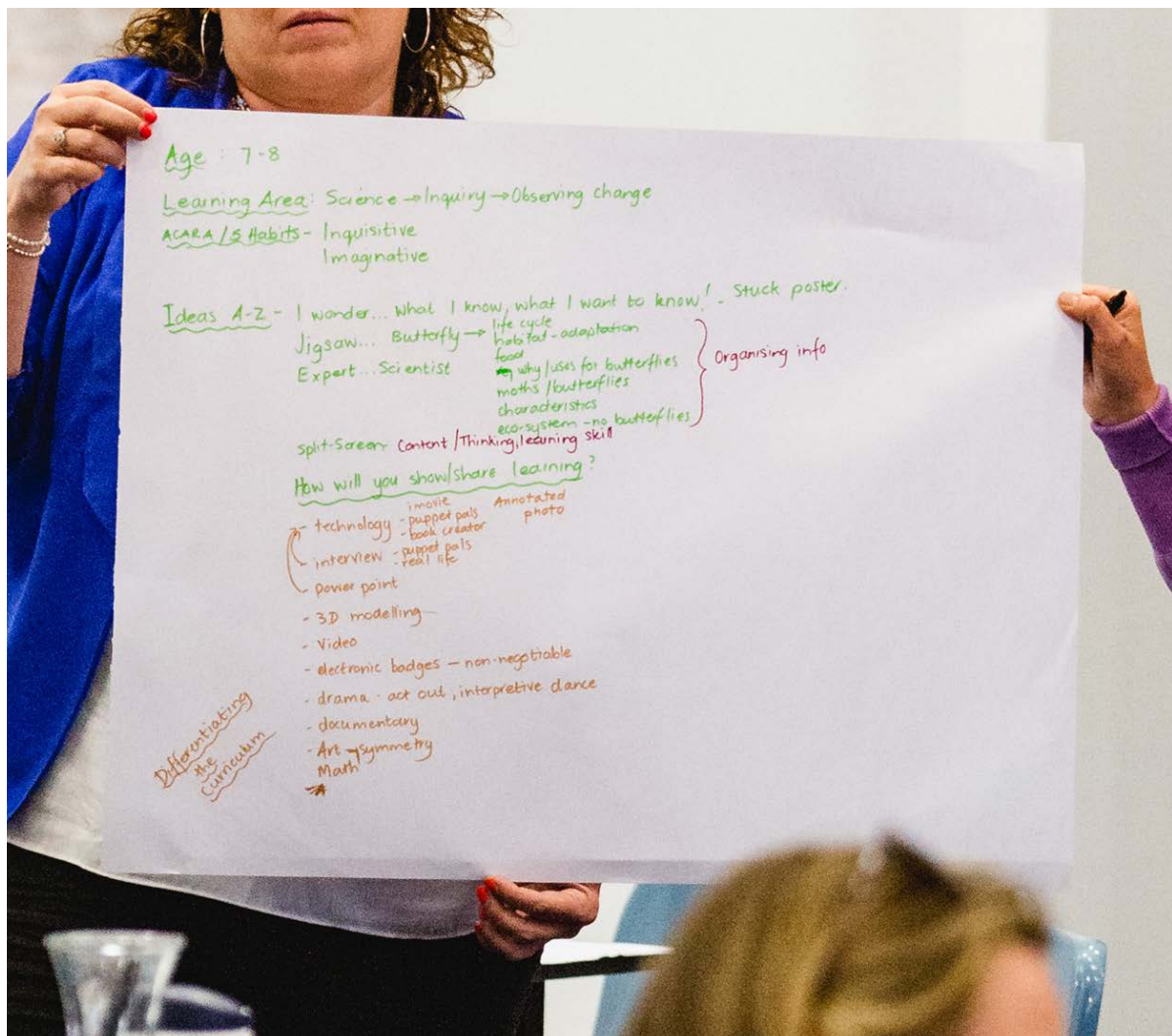
Although mapping progression may seem to require a considerable amount of time it is a really good investment of staff resource precisely because it helps teachers to become clearer about what it is they mean and what kinds of evidence they might use to show student progress.

4.1.3 Integrate creative thinking into the curriculum

It is possible to teach for creativity in every subject of the school curriculum. Equally it is possible to adopt a project-based or cross-disciplinary approach. Evidence suggests that teaching for creativity works best when it is intentional (Vincent-Lancrin et al., 2019) and for this to happen it will be helpful either to look carefully at what you are already teaching and spotting opportunities to embed creative thinking or explicitly planning a lesson or series of lessons in one or more subjects with teaching for creativity in mind. The Victorian Curriculum and Assessment Authority in Australia is one of a number of organisations which has been producing resources to support teachers in their planning which you might find helpful¹.

A key idea here is split-screen teaching first developed by Guy Claxton as part of his Building Learning Power Approach. Teachers have found it helpful explicitly to think about their teaching as having two 'screens'. One is the knowledge and skills they are seeking to impart and the other is the capability or disposition on which they are focusing.

You can either start from subjects and integrate aspects of creative thinking as in the example below.



Teachers beginning to integrate creative thinking into subjects.

¹<https://curriculumplanning.vcaa.vic.edu.au/by-curriculum-area>



Or you could start from the five creative habits and work the other way as in Figure 13.

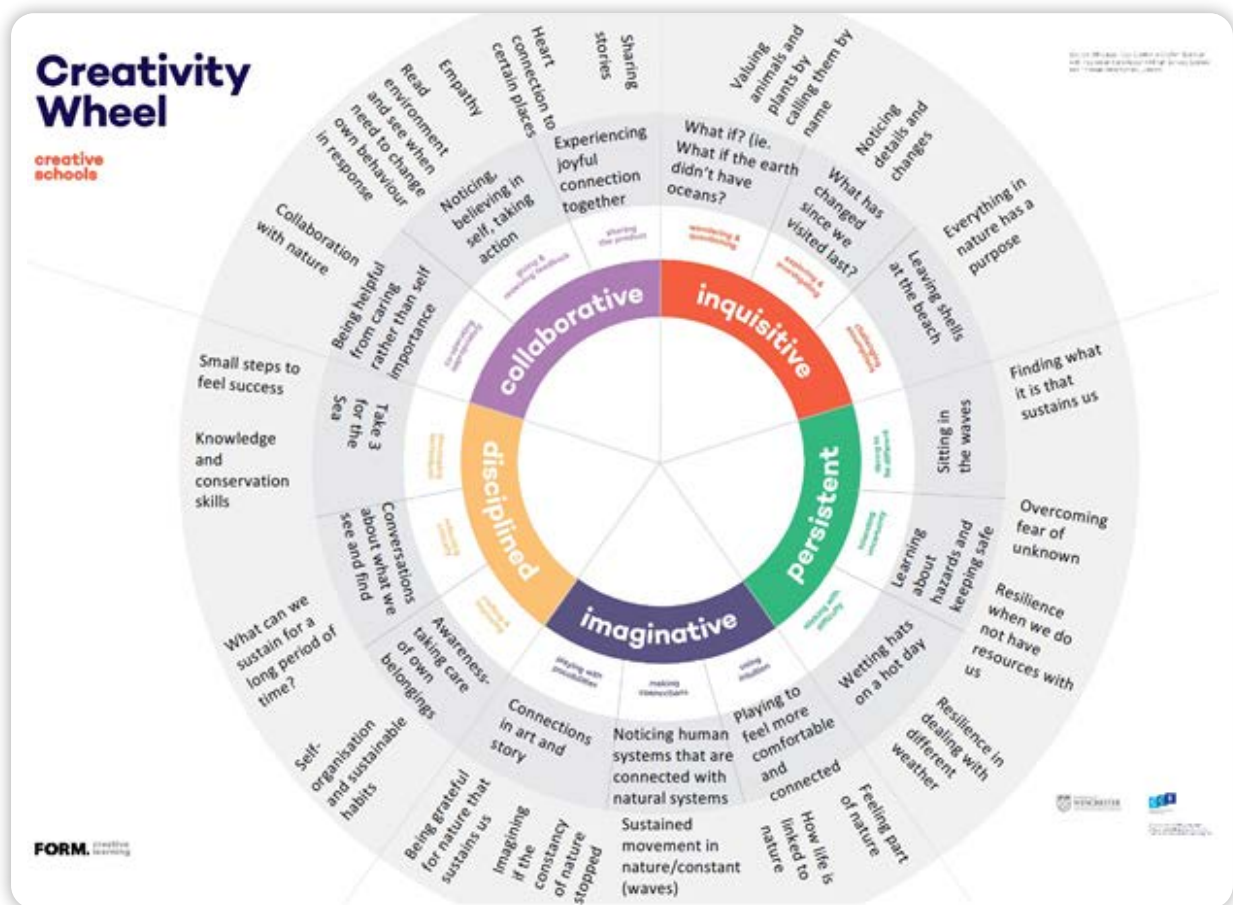


Figure 13. Sustainability issues mapped to creative thinking. Developed at St Mary's Anglican Girls' Beach School 2020.

4.1.4 Select and use signature pedagogies

In our research we have developed the idea of signature pedagogies (Shulman, 2005) to describe those teaching and learning methods most suited to the development of creativity. By signature we mean the formal teaching and learning methods which are most likely to cultivate a capability or disposition such as creativity. The kinds of methods which work well (Lucas and Spencer, 2017; Vincent-Lancrin et al., 2019), include:

authentic tasks
 case studies
 coaching
 deep questions
 design thinking
 dialogic teaching
 enquiry-led teaching
 expeditionary learning
 games
 jig saw techniques

mantle of the expert
 peer teaching
 philosophy for children
 playful experimenting
 problem-based learning
 role play and scenarios
 self-managed projects
 studio thinking
 thinking routines
 working with creative cultural practitioners.



Hudson Park Primary School. Project –It’s a Jungle Out There.
 Teacher Brad Crooks.
 Creative Practitioner Shona McGregor

[Read full Case Study](#)



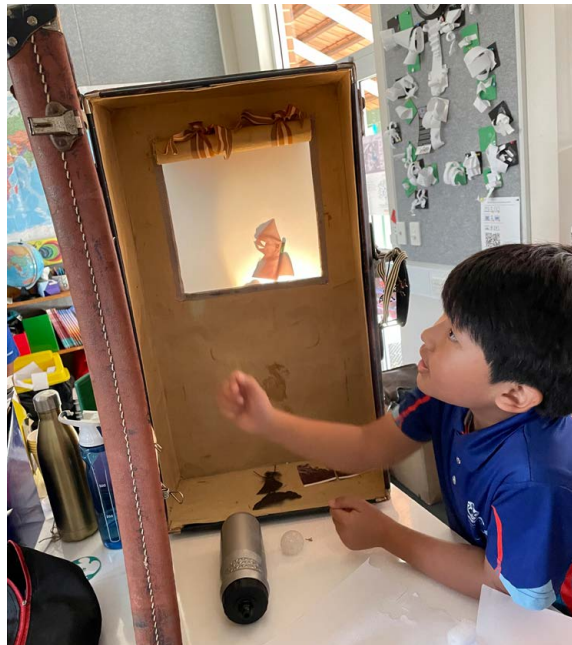
Yule Brook College. Project – Choices.
Teacher Anne Veenstra and Kofi Ofori.
Creative Practitioner Michael Abercromby

[Read full Case Study](#)



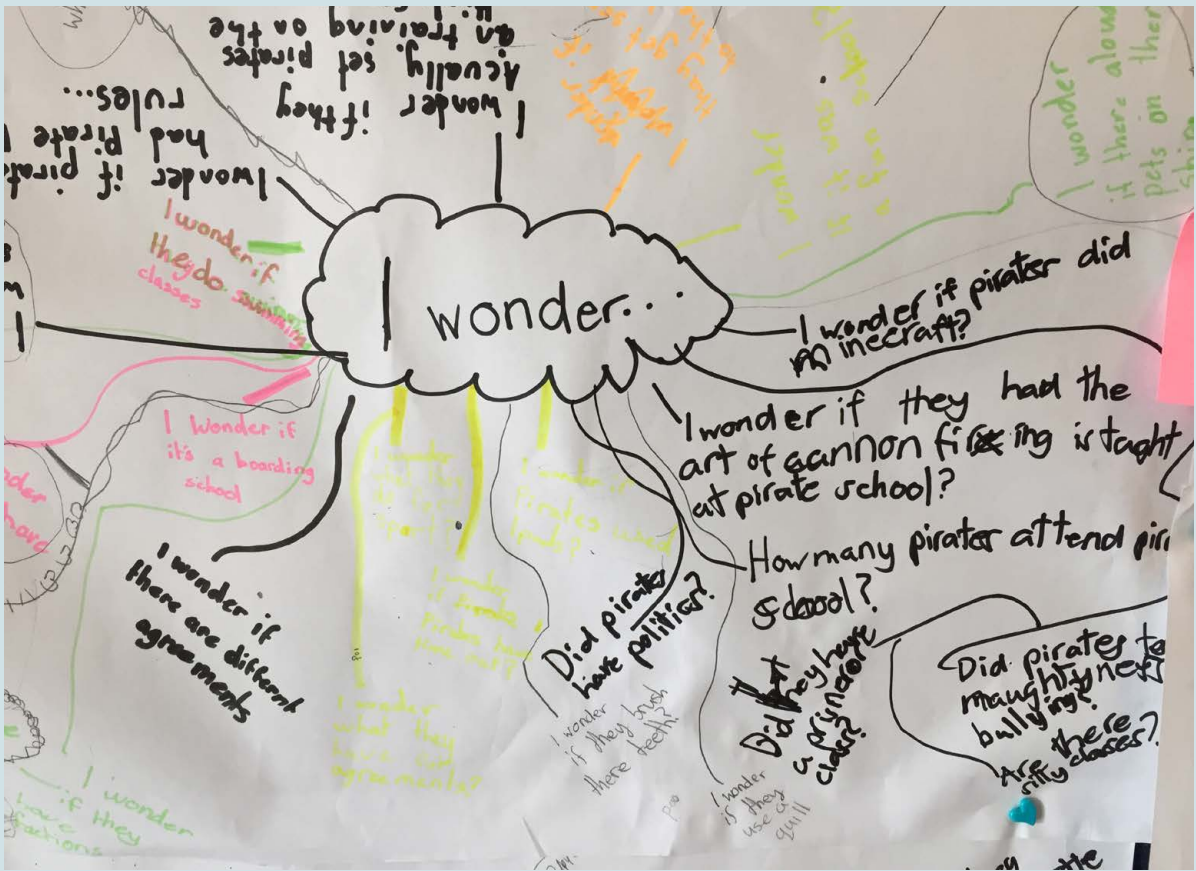
Marri Grove Primary School. Project –
Forest Companions. Teacher Kelly Kleinjan.
Creative Practitioner Stephanie Reisch

[Read full Case Study](#)



Wembley Primary School. Project – Casting Light.
Teacher Hannah Cox.
Creative Practitioner Anne Gee

[Read full Case Study](#)





4.1.5 Identify and map signature learning experiences

As well as formal learning it is helpful to focus on extra-curricular learning and opportunities provided beyond the school in the wider community. In our work on cultivating zest in learning (Lucas and Spencer, 2020) we extend the idea of signature pedagogies to become signature learning experiences - informal learning methods which are most likely to cultivate a capability or disposition such as creativity. Examples of these include learning:

by making
through the arts
by volunteering
in and through worship
through sports
by reading widely
through museums
by following
by practising
by deliberate searching
by performing
through conversation and listening
through a focus on life skills

by travel / being away from home
by joining clubs /trying something new
by planning and following through
through researching
by teaching
by being mentored
from others' experiences
by being coached
through play and games
by exercising
by being outdoors with nature
by imitation
by socialising.





FORM – The Goods Shed Gallery. Exhibition – Relics.
Students engage with Creative Practitioner Jackson Harvey.

[Read full Case Study](#)





If young people's creativity is to be cultivated in every aspect of a school's life then it will be helpful if you actively select those signature learning experiences you want all students to have and then map these across different year groups.

Celebrating the work of students from three Curriculum and Reengagement in Education (CARE) Schools: Alta-1 College, Bunbury Regional Community College and Port School. Now I Own exhibition, Fremantle Western Australia.

[Read full Case Study](#)

4.2. Developing a repertoire of assessment tools

Evidencing the development of dispositions like creativity is fundamentally a multi-modal activity. The more assessment methods teachers feel confident to use, the more nuanced and effective assessment can be.

In this section guidance is offered for some of the methods we met earlier in Table 3 on page 28.

Student

- Real-time feedback
- Photographs
- Self-report questionnaires
- Logs/diaries/journals
- Portfolios

Teacher

- Criterion-referenced rating of products and processes
- Structured progress interviews
- Performance tasks
- Capstone projects

Real-world

- Expert reviews
- Gallery critique
- Authentic tests eg displays, presentations, interviews, podcasts, films
- Exhibitions

Online

- Reliable, validated online tests
- Digital badges
- E-portfolios

Table 3 - Approaches to assessing creativity, adapted from Lucas and Spencer, 2017 p.160

4.2.1 Student-led

Whichever method you use it is important to invest time in developing your students' understanding of creativity and the language you are encouraging them to use to describe their progress. You might like to share your model of creativity in a visual format with clear definitions of key words in age-appropriate language. For very young children it may be helpful to choose animals or characters from stories to represent aspects of creativity. Remember that students need to be taught how to assess creativity and then be given opportunities to practise.



Campbell Primary School – Year 6.
Teachers Kellie Gibson and Daniel Kujawski. Creative Practitioners Naomi West and Trudi Bennett.





Real-time feedback

Description

Feedback given during or at the end of any learning. Can be student to student or student to teacher.

Benefits include:

- Encouraging students to reflect
- Promoting deeper understanding
- Helping students see mistakes as part of learning
- Developing student agency.

How to

For young students make it simple and short for example turning to their neighbour a few minutes at the end of a class and share something they liked and something which could be 'even better if'. Or students can be given a role such as 'inquisitiveness monitor' or 'persistence checker' during a lesson and then encouraged to give quick verbal feedback at the end of a lesson commenting on pupils who have demonstrated these habits.

Or suppose you were looking at 'crafting and improving'. Students might work together in pairs to look at the ways in which, over a series of lessons, each had been crafting and improving, say, a presentation about the local history of their area and why it would be of interest to a foreign visitor. You'd need to give some guidance, possibly some templates to the pupil reviewers. This might be (1) start with something you liked and why (2) suggest one area for improvement using the phrase 'You might like to...' (3) end with something like: 'How does that seem to you...?'

An Assessment for Learning technique such as the use of traffic lights (RED = don't understand, not confident; AMBER = beginning to grasp this, getting there; GREEN = totally get it, feeling confident) can be applied in classrooms teaching Creative Thinking to check understanding.

Students can be taught how to give constructive feedback to their teachers. Give them a phrase bank to use: 'I found it really helpful when you...' 'I wonder if you could give us a little more time to...?' 'Can you help me understand ...?'

Most classroom technologies have feedback and polling options. Other simple methods include Mentimeter¹, AnswerGarden² and Padlet³.

Tip

Student feedback works best when it is constantly modelled by teachers.

¹<https://www.mentimeter.com/>

²<https://answergarden.ch/>

³<https://padlet.com/>



Real-time feedback

Description

A picture taken with a camera or phone or tablet of a student's final product or work in progress.

Benefits include:

- Photographs of beautiful work induce pride
- Photographs over time help learners see what they are doing and how this can be improved
- Photographs can be shared with others for their feedback
- Photographs can be incorporated into a portfolio.

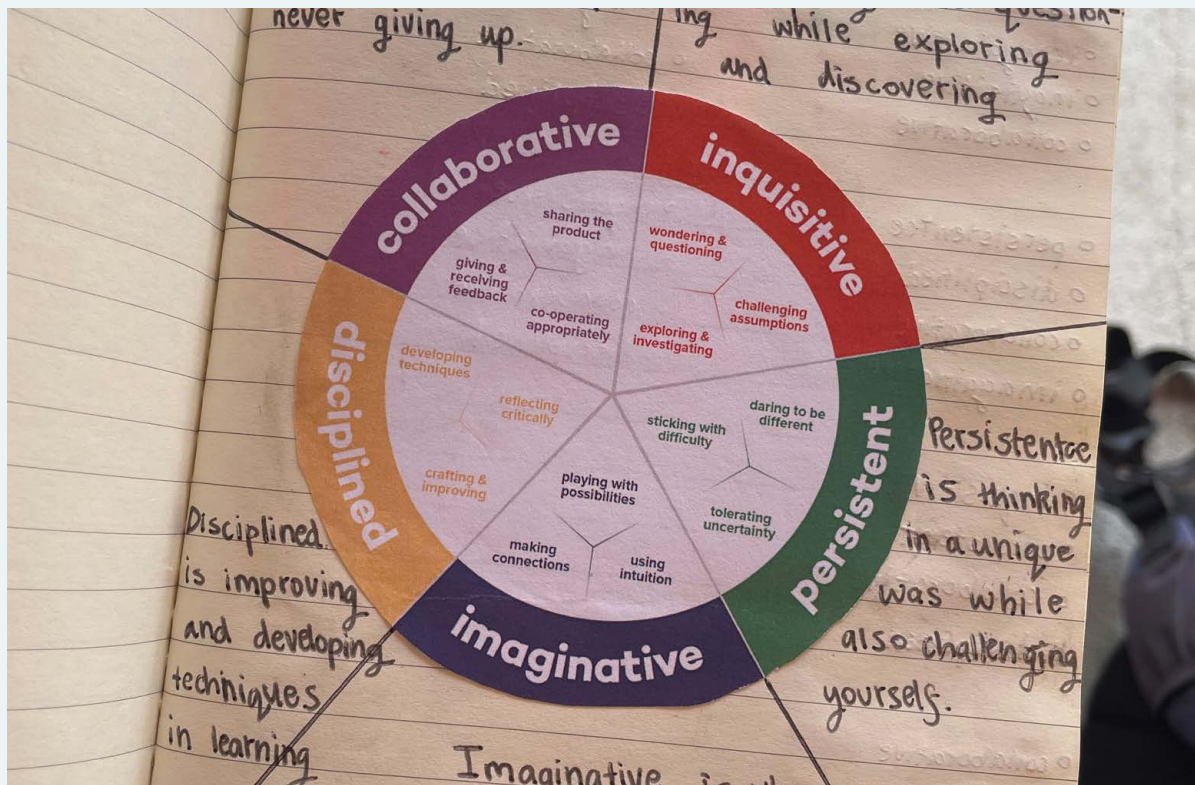
How to

In a digital age students no longer need to be taught how to take photographs; their days are shaped by the many images they take and share! But it will be necessary to be clear that these photographs are either designed to show a piece of work in its best light or to show work in progress or to show the creative process in action in some way.

Many schools have BYOD (Bring Your Own Device) policies actively encouraging students to use their mobile phones to take pictures. In this case it is an easy matter for students to photograph their work and either store as hard copies or upload to an e-portfolio.

Tip

Equip all students with a portfolio or personal website where they can upload, tag and curate photographs of their creative (and other) work.



Student self-report questionnaires

Description

A self-report questionnaire is a series of statements or questions which students use to self-rate.

Benefits include:

- Encouraging self-awareness
- Promoting agency
- Being able to track development
- Inviting support from peers and their teacher.
- Developing student agency.

How to

Typically self-report questionnaires might be framed as 'can do' statements or learners might be given alternative words to choose such as 'never', 'sometimes', 'often', 'always' to describe the degree to which a course of action is truly confident or 'not at all', 'quite', 'very', 'extremely' to describe their degree of confidence with regard to a particular activity.

Another way of developing these is to produce a statement such as 'I always keep going when I get stuck' and ask children to say whether it is 'like me' or 'not like me'. If this is represented graphically it is possible to have a sliding scale to enable pupils to show progress. Self-reports like these can be a useful tool in helping pupils start to use and understand language to describe their progress. On their own they are neither valid nor reliable, but set against other measures such as teacher's observations they can be very useful.

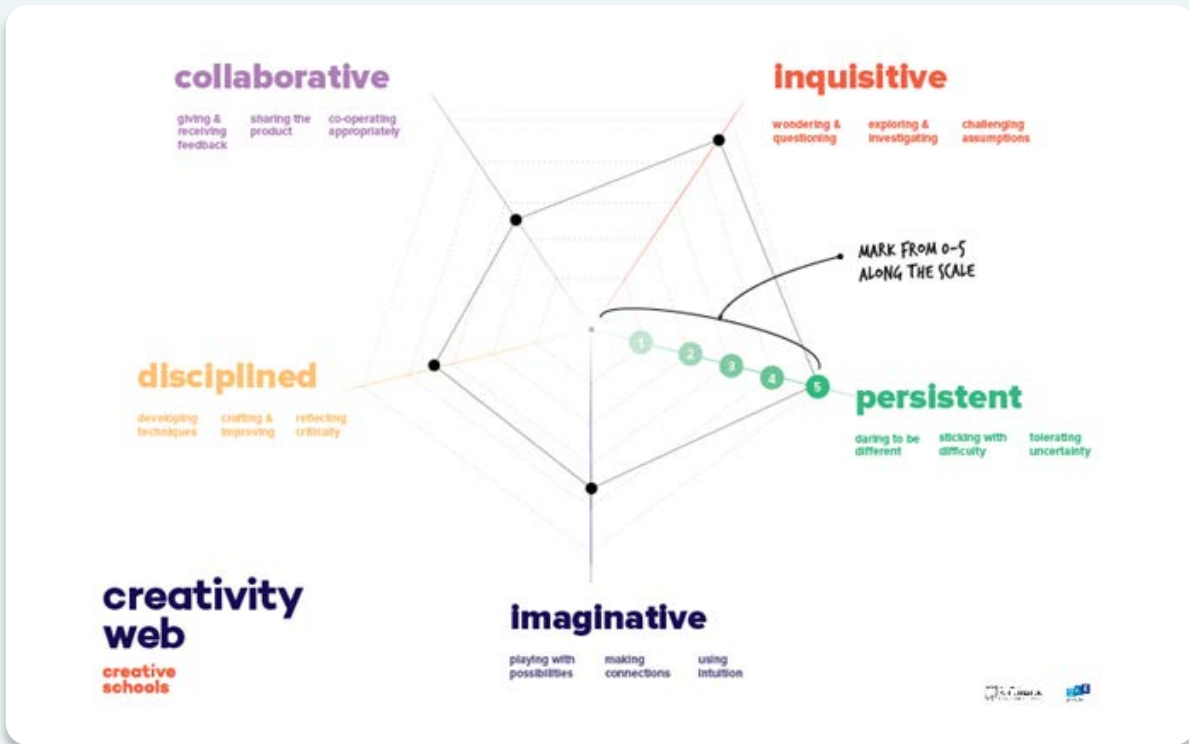
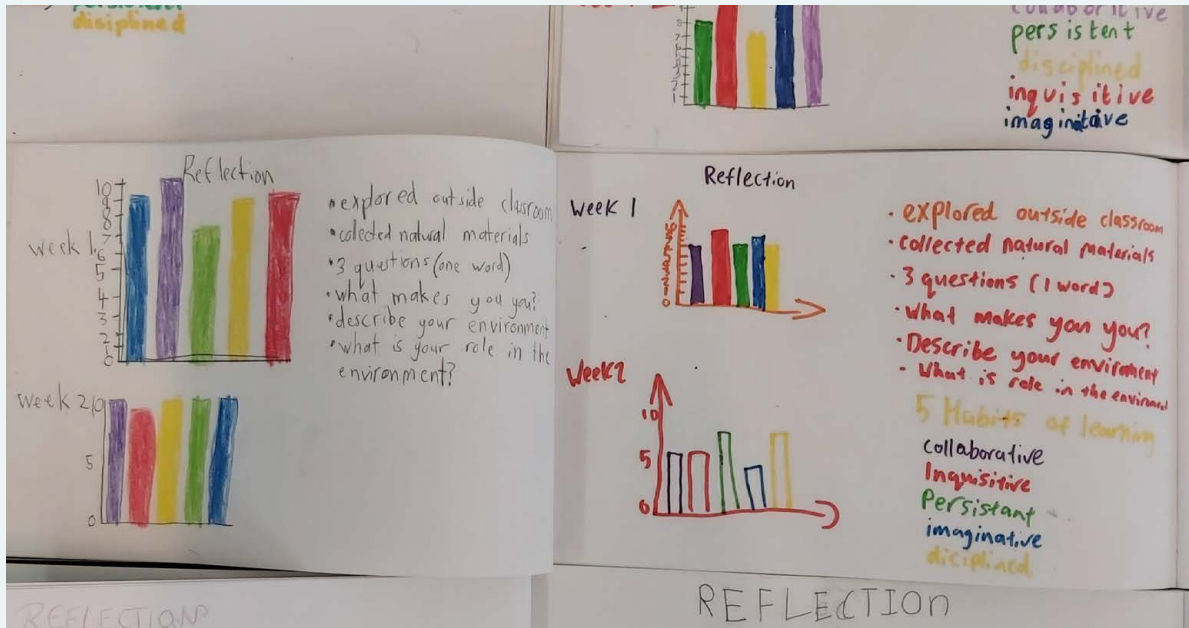
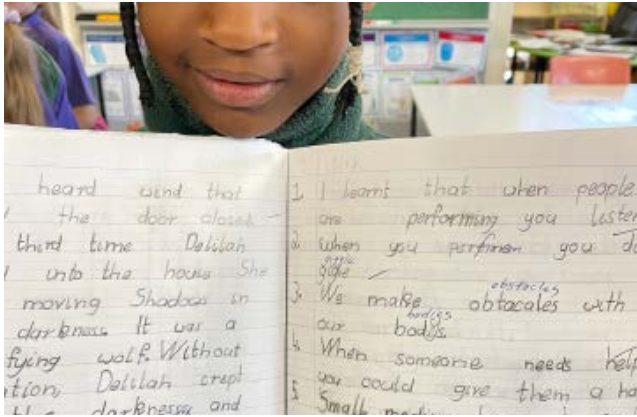


Figure 14. Visualising the development of creative thinking.

Schools may want to use or adapt a self-report questionnaire based on the five creative habits model, Appendix 2.



Logs/diaries/journals

Description

Reflective accounts of learning.

Benefits include:

- Improving understanding of processes
- Understanding what works well and less well
- Enhancing self-confidence.

How to

Reflective writing can be as simple as a short sentence routinely reflecting on progress in a class or more extended pieces of reflective writing. A really simple way of structuring end of session reflections on progress is to preform at slips of paper developing an idea from Edward De Bono¹:

Plus

Something that went well today was...

Minus

Something that did not go so well today was...

Interesting

Something that surprised me today was...

Project Disruption – Campbell Primary School

<https://www.creativeschools.com.au/blog-posts/project-disruption-2>

Design With A Purpose – Donnybrook District High School

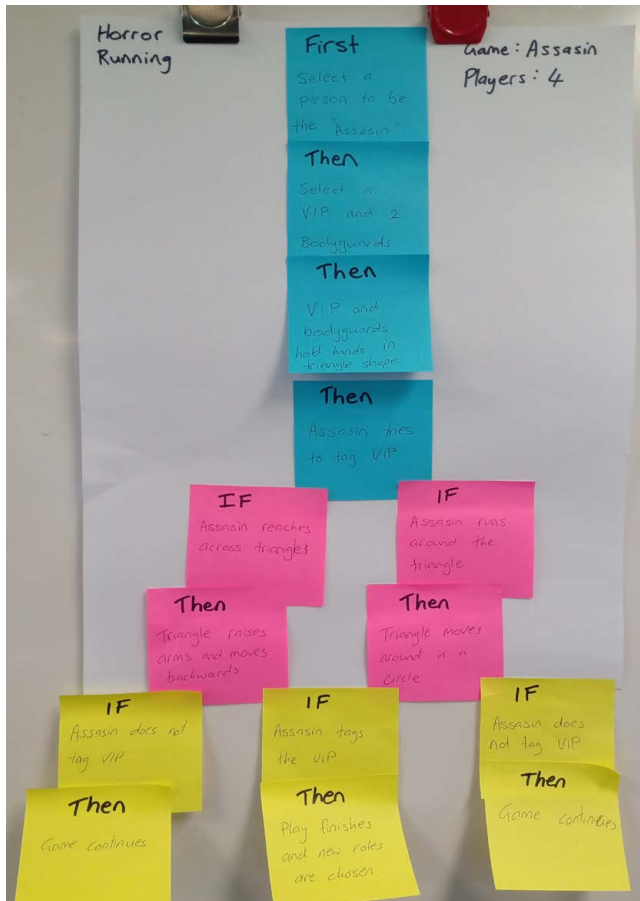
<https://www.creativeschools.com.au/blog-posts/design-with-purpose>



Campbell Primary School. Project Disruption.
Teacher Kellie Gibson and Daniel Kujawski. Creative Practitioners
Naomi West and Trudie Bennett

[Read full Case Study](#)

¹<https://app.education.nsw.gov.au/digital-learning-selector/LearningActivity/Card/551>



Camboon Primary School. Project – Here Be Dragons.
Teacher Sara Nguyen. Creative Practitioner Miles Openshaw

[Read full Case Study](#)

Tips

Make time regularly for students to write their reflections either on paper or digitally and, as a teacher, model your interest in keeping a journal or diary



Portfolios

Description

A portfolio is a compilation of a student's work along with other forms of evidence of their progress.

Benefits include:

- Developing pride in and ownership of achievements
- Creating an opportunity for self-reflection
- Providing a great starting point for goal setting
- Acting as a focus for conversations about progress
- Increasing home/school communication.

Wembley Primary School.
Project Casting Light. Teacher Hannah Cox. Creative Practitioner Anne Gee.

[Read full Case Study](#)

How to

Portfolios have a long history in Art, Design, Architecture and Creative Writing. They are a good way of encouraging learners to select their best work. They also enable learners to show how they have developed and progressed through different drafts developing their capabilities in being both Persistent and Disciplined. They are a really good way of charting the development of Creative Thinking. Increasingly portfolios are digital, see E-portfolios, page 74.

Portfolios have many uses including encouraging students to select their best work, inviting students to reflect on their work in progress, enabling sharing of work between school and home and creating an archive of a student's work. They are also a really good source of evidence of progress in creative thinking.

At their simplest, and especially for young children, a portfolio is a folder or binder into which students can keep their work. Students can be encouraged to include their own reflections on their progress as part of their portfolio.

Tip

Encourage and help students to include photographs of activities outside of school as well as copies of testimonials or references.

4.2.2 Teachers tracking progress

Knowing where your students are on their developmental journey is a key responsibility of all teachers. From a subject perspective this would typically be informed by a syllabus with content laid out over the years of formal schooling with knowledge and skills specified along the way. With creativity and creative thinking there is more flexibility but it is still important that teachers have an overview of what progression looks like along with indications of the kinds of evidence they might be looking for.

The ACARA model, Appendix 1, and the ACER framework are a good starting points. Or you could use the template derived from the five creative habits model as your starting point (Appendix 3).



Criterion-referenced rating of products and processes

Description

Using evidence to judge of a student's level of performance according to pre-agreed criteria

Benefits include:

- Developing a clear understanding of what progress looks like
- Encouraging goal-setting
- Encouraging conversations about what is going well and what could be done differently

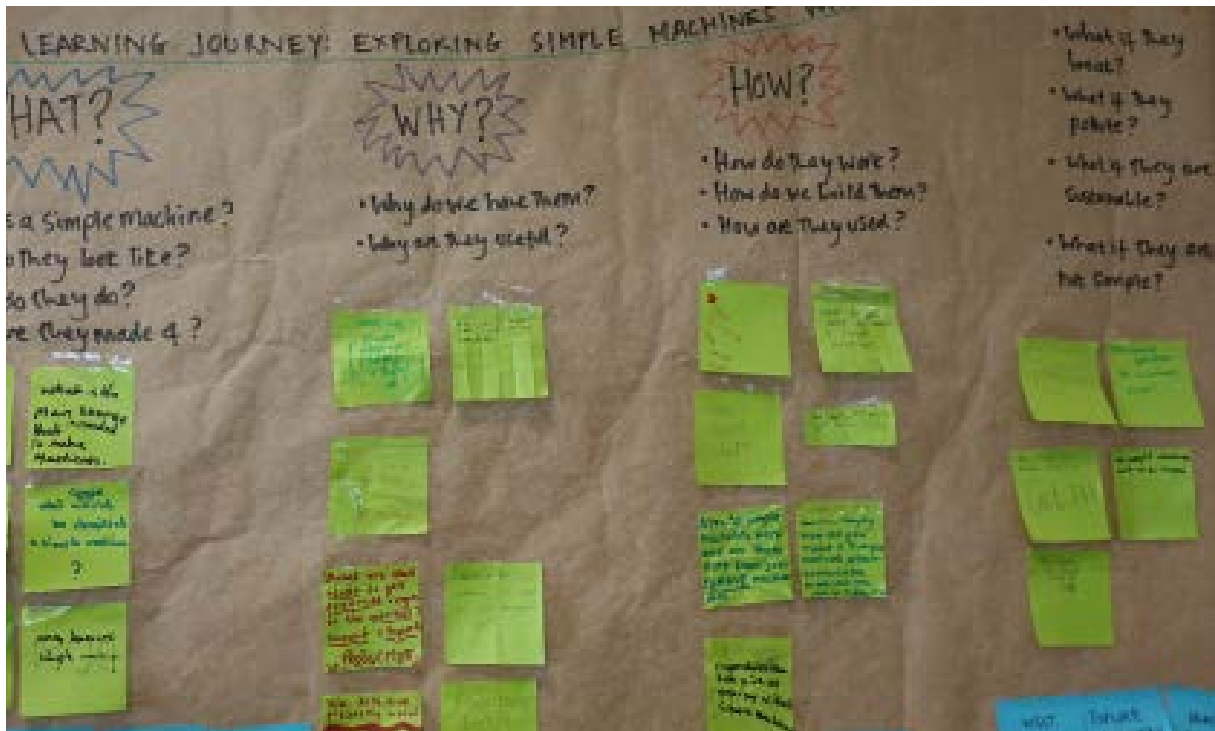
Wembley Primary School

[Read full Case Study](#)

How to

To rate the artefacts which students make and their creative thinking processes teachers need to develop a clear set of criteria for progress, a common understanding with colleagues as to what the criteria mean and how they might be demonstrated and opportunities to learn from each other through moderation meetings at which individual products and processes are reviewed collectively.

In Appendix 3 the first sub-habit has been completed as an indication as to how you might approach the development of criteria for creative thinking. You might like to start by focusing on just one creative habit.



	BEGINNING	DEVELOPING	CONFIDENT	EXPERT
INQUISITIVE				
1. Wondering and questioning	Shows genuine interest in surroundings Can ask simple questions with help	Beginning to express curiosity with self-generated questions Can ask simple questions without prompting	Expresses curiosity with range of why, who, where, how questions Can ask effective questions without help	Habitually curious about ideas people and places Can use a range of closed, open and more probing questions

Table 4. Criteria for progress in Wondering and Questioning

Rating students work in creativity is not straight forward. Context matters. It's not easy to fairly represent development in something like Daring to be Different where it is only the observable behaviour and not the internal struggle which can be judged. Progress does not happen evenly and can, as the teenage years arrive, even regress! But experience suggests that the process of developing clear criteria and then trying out a range of methods for evidencing them is in and of itself a useful one.

Tip

Start by focusing on a small number of criteria.

Structured progress interviews

Description

A set of questions designed to allow students to produce reliable evidence of a student's development.

Benefits include:

- Developing a clear understanding of what progress looks like
- Encouraging formative conversations
- Getting at the student's perspective
- Encouraging multi-modal assessment.

How to

As with the previous example of rating students' work, teachers will need an agreed model of creativity and some simple indications of what progression looks like as in Table 4.

Structure interviews using the questions below. The questions take one of the five creative habits - being persistent - as their example but can easily be adapted:

1. How well do you think you are able to persist in class, sticking with things you find difficult?
2. Tell me about a time when you persisted recently. What were you doing?
3. Can you show me any evidence of this?
4. What could you do even better next time?

Question 1 provides a general reflection on progress. Question 2 establishes the context. Question 3 invites a range of evidence such as photographs, what others have said, a portfolio. Question 4 encourages forward-looking goal-setting and more reflection.

Tips

Make these interviews a normal part of classroom activity and low-stress.



Performance tasks

Description

Any learning activity or assessment that asks students to demonstrate their knowledge, understanding, skill or capability.

Benefits include:

- Connecting assessment with curriculum and pedagogy by planning opportunities for students to demonstrate what they can do
- Providing opportunities for higher-order thinking
- Creating opportunities for collaborative learning
- Encouraging multi-modal assessment.

How to

The two main performances tasks in tests in much of school life are essays and answering pre-set questions, whether as multiple choice or as an opportunity for producing free text. These are hardly appropriate for Creative Thinking.

Designing a creative performance task requires teachers to start from the aspect of creative thinking they wish to focus on, then think of an activity which is likely to encourage it and then select the most appropriate assessment methods to use. A classic example of a simple performance test of, say, playing with possibilities as part of the imaginative creative habit is the alternate uses test¹ in which individuals are required to come up with as many alternative uses of, say, a paper clip as they can within a minute.

A helpful way of designing a performance task is to take the desired aspect of creative thinking, say challenging assumptions as part of being inquisitive, and brainstorm ways in which you might develop a lesson in which this skill could be learned.

You might take a thinking routine such as 'You say that, but I think...'

Or you could introduce the Five Whys tool. When faced with an explanation or problem students uncover its nature and source by asking "why" no fewer than five times. By sticking to this simple line of questioning you encourage imaginative root cause analysis.

(A student arrives late for a lesson. 1. Why? Because I missed the bus. 2. Why? Because I had an argument with my mum. 3. Why? Because I had not got my school bag ready and she wanted to leave the house. 4. Why? Because I went to bed too late. 5. Why? Because I was playing on my X-Box.)

A performance task could also be the assessment activity itself (see the real-world examples of displays, presentations, interviews, podcasts and films on page 66).

Tip

Start by focusing on one specific creative thinking skill and a particular subject.

¹<https://www.creativehuddle.co.uk/post/the-alternative-uses-test>



Capstone projects

Description

A multifaceted investigative project designed to give students the opportunity to demonstrate their capability over a period of time, often at the end of a course (so called because it represents a crowning achievement as a capstone does in architecture.)

Benefits include:

- Responding to real-world issues and problems
- Providing opportunities to learn in the wider community beyond school
- Presenting opportunities for collaborative learning.

How to

Capstone projects are really a series of performance tests embedded in a more extended inquiry often after a period of learning in a number of different disciplines.

Here are some examples from which projects could be developed:

- Plan, design and make a display showing three wildlife sites near your school
- Create a coat of arms for a character in a story you have read
- Design and produce a card game
- Investigate online gaming and make a short podcast for parents.

Once your project is designed you will need to identify which aspects of creative thinking you will want to evidence and which methods you will use to do this.

Tips

Capstone projects take time to prepare so run them occasionally!

4.2.3 Real-world options

This category and the next one are, arguably the ones where most innovation is now taking place. Although we have been focusing on the role of teachers in developing Creative Thinking, the concept is much bigger than school and, as such, can benefit from the input of many beyond school. Real-world assessment begins with the end in mind, thinking back from the desired real-world attribute to the kinds of assessment which would most fairly tell you that the goal had been accomplished. Real-world assessment techniques help us to see the difference between knowing something or being able to do something and actually applying knowledge or actually doing things skilfully in context.

Expert Reviews

Description

Any learning activity or assessment that asks students to demonstrate their knowledge, understanding, skill or capability.

Benefits include:

- Encouraging authentic assessment
- Developing oracy skills
- Developing relationships between parents, employers and schools
- Encouraging employers to contribute to school curricula
- Developing a pool of potential mentors for students.

How to

Think of all the subjects you currently teach and then consider who in the school community might be an expert. Consider who, for example, uses English for a living - journalists, publishers, editors, poets, song-writers. Or maths - accountants, designers, small business owners. Or science - ecologists, doctors, nurses, vets, pharmacists, engineers. Or the Art and Design - actors, musicians, painters, sculptors, gallery curators, web designers. Humanities - archaeologists, town-planners, travel agents museum workers. The list is endless.

Now make a mental connection between potential experts, possibly parents or local people, and the dimensions of Creative Thinking and imagine who might be the best people to act as expert assessors. Once you have identified a pool of experts the task is to design a task for your students which will be relevant to your experts and then brief your experts on how the experience might be organised. Expert reviews provide good opportunities for students to develop their oracy skills, learning how to think on their feet and choose language appropriate to their audience.

Donnybrook District High School

<https://www.creativeschools.com.au/blog-posts/design-with-purpose>

Ellenbrook Christian College

<https://www.creativeschools.com.au/blog-posts/cubbies-through-time>

Boyare Primary School

<https://www.creativeschools.com.au/blog-posts/home-life>

Tip

Expert reviews work well when the students have a clear role, for example, talking about something they have made or giving a presentation.

Engaging local experts, parents, and the local community



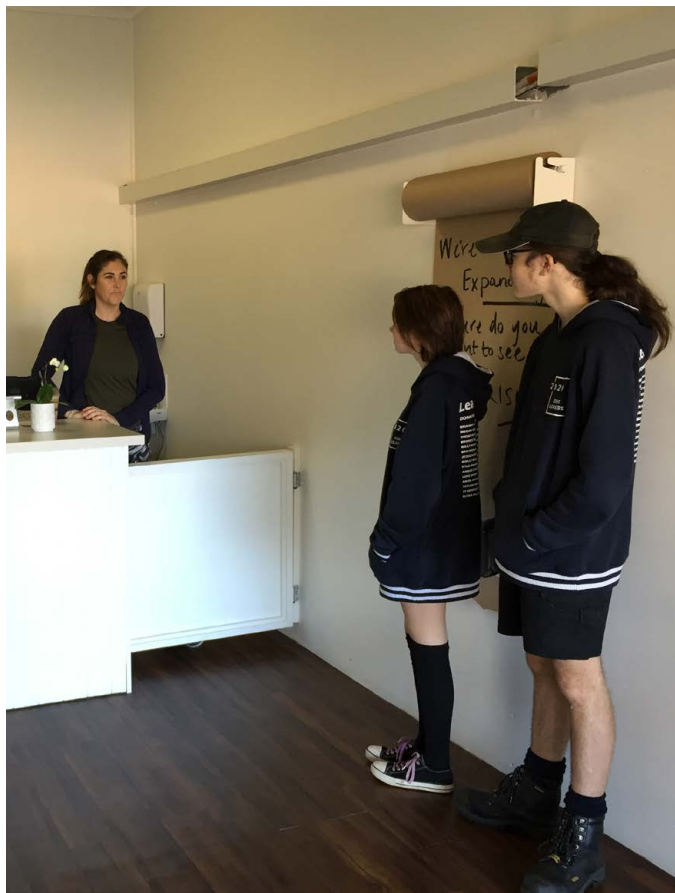
School: Ellenbrook Christian College
Teacher: Jessica Beasy
Creative Practitioner: Claire Davenhall

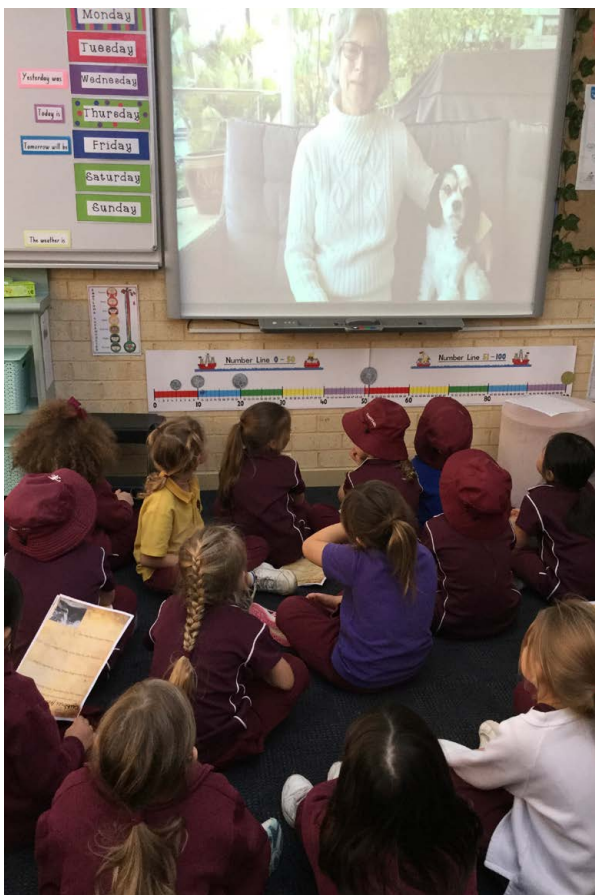
[Read full Case Study](#)

Donnybrook District High School is a small regional high school. As part of the Creative Schools program Year 10 students worked on a project where they engaged with downtown business owners as part of the Humanities and Social Sciences (HASS) and Sustainability curriculum.

School: Donnybrook District High School
Teacher: Neil Robertson
Year Group: 10
Creative Practitioner: Andrew Frazer

[Read full Case Study](#)





The goal of this project was to make connections between the Humanities and Social Sciences (HASS) curriculum, childhood play motivators and new areas of teaching and learning through a Cubbies Through Time project. Through video interviews with older women, the children learned how children in historical times built cubbies, what materials were available then for children, how cubbies were constructed and what games young girls played in them. The children also interviewed their parents or grandparents as part of a home research project to find out stories close to them of past ways to build and play in cubbies.

School: St Mary's Anglican Girls' School
Teacher: Deborah Scanlon
Year Group: Year 1
Creative Practitioner: Trudi Bennett

[Read full Case Study](#)





SHMICO – the Student Handmade Ink Company was first delivered in a Creative School setting, in 2021. Creative Practitioner Anne Gee worked with teachers and students at Yule Brook College Year 7 and Bunbury Regional Community College Year 10 across the year to create a range of inks berries, exotic fruits and vegetables bush nuts, bark and seedpods as part of the science curriculum. Students then research authors, artists, designers, tattooists and various creatives that appealed to them and wrote to them explaining SHMICO and asked if they might like to test their inks. In 2021 we had over 15 creatives from all over the world who agreed to test the student made inks and sent back their own artworks and feedback regarding the use of these inks. These creatives also wrote about their own beliefs around the creative process, the setbacks, problem solving, experimentation and not giving up.

[Watch Video](#)

[Read full Case Study](#)



School: Hillcrest Primary School
 Teacher: Siobhan Duggan
 Creative Practitioner: Elizabeth Marruffo

[Read full Case Study](#)

The key learning area for this project was Design and Technology (food and fibre production). In this project Year 3 students explored where food and fibres come from, developed their understanding of 5 Creative Habits of Mind and improved visual literacy and observational drawing which revolve around the beautiful bush tucker garden the school had recently planted. The project culminated in a celebration that included a miniature sculpture walk that had tiny characters and informative text and recipes hidden amongst the plants in the garden. The exhibition was an interesting way to observe how well the children had become masters of what they had learned and see if they were able to teach this information to others such as their peers, Year One buddies, and visitors to the exhibition. The students created multiple moments of surprise and discovery in the garden for their audience, which included parents and the wider community. The students were proud to have the City of Bayswater Mayor open the event for them.

Tips

Teach students (and others) how to give feedback.

Gallery critique

Description

A process of laying out student work in a gallery or on a table and inviting constructive feedback from experts, parents, teachers and students.

Benefits include:

- Learning how to give constructive feedback
- Developing ways of giving effective feedback
- Encouraging a culture of excellence, of doing your best work
- Being able to be organized at times suiting those giving feedback.







Displays, presentations, interviews, podcasts, films

Description

Authentic ways of students showing others what they have learned and what they can do

Benefits include:

- Developing pride in work
- Developing oracy skills
- Developing technical skills
- Developing confidence.

How to

These suggested ingredients may already be part of your school's approach to teaching, learning and assessment. If they are not you will need to identify times throughout a year when they will form part of the assessment process you will be using and work back from these dates to ensure students have adequate time to prepare.

These kinds of approaches provide two kinds of opportunity - authenticity and an opportunity not just to see final 'products' but also to see into the thinking which lies behind a student's work.

Displays of work or work in progress are perhaps the easiest to organise as they can be viewed at times to suit outside experts.

Presentations often form part of existing assessment practices but can be developed to offer specific opportunities to show creative thinking. An example would be Dragon's Den type pitching of ideas to local business people. Or it could simply be a short slide show in a subject to invited experts where the student has been invited to demonstrate specific knowledge, skill and capability.

Interviews are effective ways of seeing how a pupil is thinking about a topic and can work well both ways, i.e. student interviewing expert or expert interviewing student. Group interviews also provide opportunities to assess collaboration in practice. Podcasts, like talks, inject an additional opportunity to inject urgency (against a clock), authenticity (widely used on websites) and critical reflection (can be reviewed and learned from later).

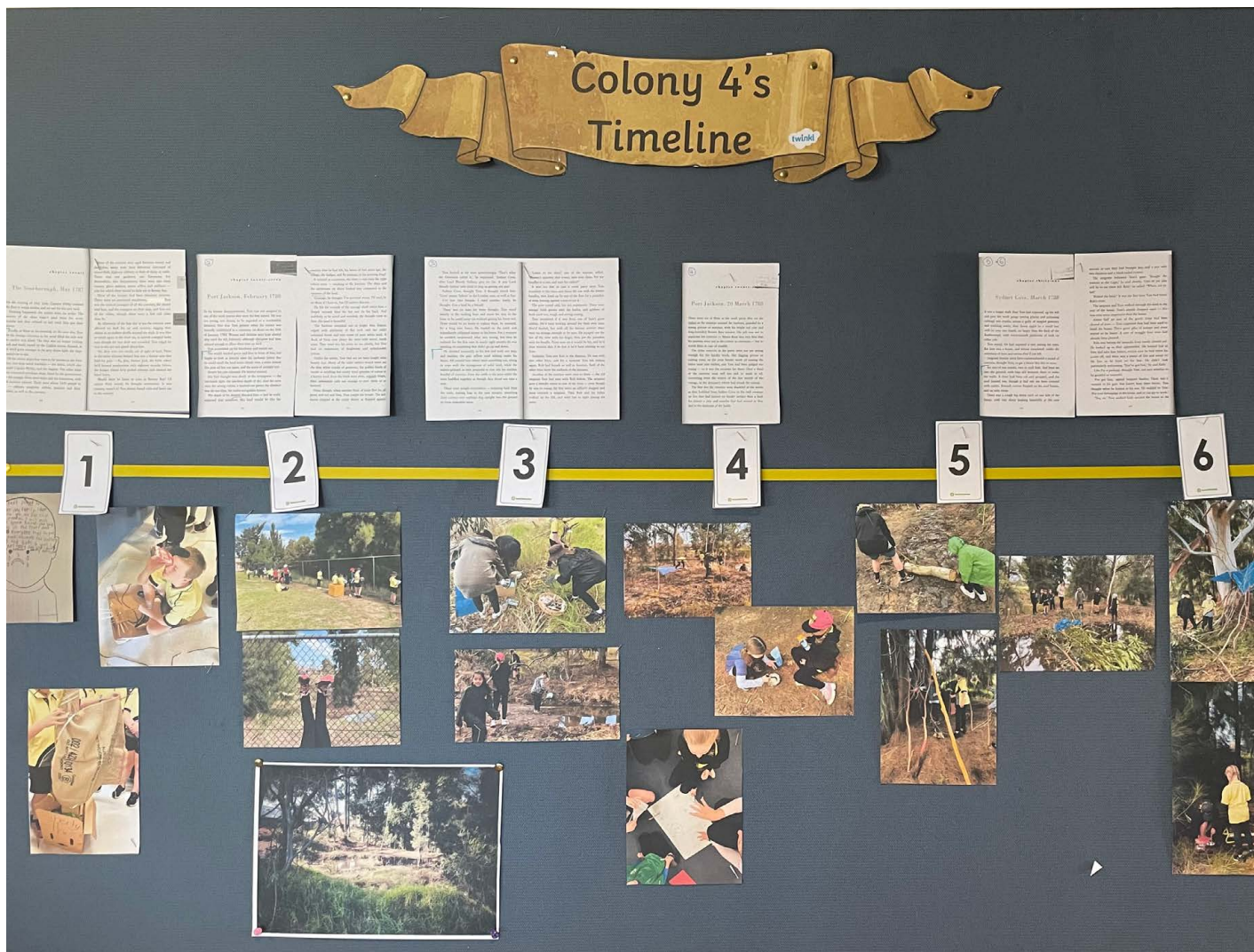
Other authentic assessment methods include

- blogs (giving audience, context and length); web pages (requiring connection-making to other aspects of a site or the web),
- case studies (requiring deep understanding and the ability to investigate, challenging assumptions and develop techniques),
- learning logs (an obvious chance to develop critical reflection) and
- field reports (requiring connection-making, collaboration).

Tip

Start slowly with one of these approaches!

¹<https://www.theconfidentteacher.com/2013/03/motivating-students-using-gallery-critique-blogsync/>



In the Colony 4 project HASS was explored as the main curriculum area with a focus on learning about the First Fleet – an English penal colony that left for Botany Bay in NSW in 1787 and became the first European settlement in Australia. Students activated and colonised the ‘swamp’ adjacent to the school. The students documented the project using field reports, learning logs and a timeline to document the learning outcomes.

School: Marri Grove Primary School
Teacher: Kelly Kleinjan
Creative Practitioner: Stephanie Reisch

[Read full Case Study](#)



Exhibitions

Description

Public presentations by students about what they have done and what they have learned

Benefits include:

- Developing pride in and ownership of achievements
- Providing a focus to a period of learning
- Enhancing oracy skills.

How to

It is a tenet of problem-based learning that exhibitions provide useful structure and motivation to students, especially when they know at the outset of a piece of investigation that there is a time and date set for the exhibition of their work. They offer a good opportunity to move into the real world by choosing a library or museum, or gallery or outside space or café or church as a location.

NOW / OWN was an outcome of the 2021 CSIA, which was a showcase celebrating the work of students from three CARE schools - Alta-1 College, Bunbury Regional Community College and Port School, who collaborated with four leading Western Australian artists - Claire Davenhall, Anne Gee, Stormie Mills and Andrea Tenger. The exhibition of students work provided a useful structure and motivation to students, to showcase their work as an exhibition in a gallery setting and look at creative learning through an innovative assessment model.

Tips

Here's some practical advice for teachers :

Give them structure for the event: specific locations, timelines and roles. Get them to make a programme for the event. Be sure to do a rehearsal in the days before. Do not attempt to assess student learning or oral communication during the actual exhibition event; your job is to celebrate all the learning in the room and your hard work when the actual exhibition comes! Teach students how to solicit interest from audience. Show them how to spark up a conversation and give them some sentence frames.

A really good resource exploring the logistics of problem-based learning in more detail is *Work that matters: The teacher's guide to project-based learning* (Patton, 2012) based on a collaboration with High Tech High School .

Tip

Unless your school is experienced with inter-disciplinary working



Download of copy of the Now I Own publication from the Creative Schools website:

[View Publication](#)

¹ Adapted from <https://craftedcurriculum.com/preparing-for-a-pbl-exhibition-of-learning/>
² <https://www.innovationunit.org/wp-content/uploads/2017/04/Work-That-Matters-Teachers-Guide-to-Project-based-Learning.pdf>
³ <http://www.hightechhigh.org/>
⁴ <https://www.oecd.org/pisa/innovation/collaborative-problem-solving/#:~:text=The%20PISA%202015%20Collaborative%20Problem,efforts%20to%20reach%20that%20solution.>

4.2.4 Online assessment

It was, arguably, the PISA 2015 decision to test Collaborative Problem-Solving largely online that paved the way for this mode of assessment becoming much more accepted, alongside, too, the growth of appropriate technologies. By the same token the PISA 2022 Test of Creative Thinking is likely to legitimate and promote the assessment of creativity.

The State of Victoria in Australia leads the world in developing online assignments which can provide reliable and valid snapshots of student progress, see Figure 14. The approach they have adopted is to create a bank of simulations where, as in computer games, the subject matter is so intrinsically interesting that students are motivated to complete the tasks. They are true examples of assessment as learning.



Figure 14. An example of a Victorian Curriculum and Assessment Authority online task.

Apps

Description

Software that can be installed and run on a tablet, smartphone or other electronic device

Benefits include:

- Giving real-time feedback
- Making complex things simpler
- Enabling visualising of concepts.

How to

There are any number of educational apps which could be used to provide feedback on aspects of creative thinking. Here are a few examples:

AnswerGarden¹

Mentimeter²

Quiziz³

Trello⁴

Padlet⁵

Tip

Think carefully about what you want the app to do that you can't do in other ways!

¹<https://answergarden.ch/>

²<https://www.mentimeter.com/>

³<https://www.educationalappstore.com/app/quizizz-play-to-learn>

⁴<https://trello.com/>

⁵<https://padlet.com/>

Habits of Learning Campaign

JOANNEKNIGHT1 MAY 27, 2021 03:15AM



Joby and Troy
PDF document
PADLET DRIVE



Torie and Amber
PDF document
PADLET DRIVE



Stay on track and improve what you're doing.

Tyler and Chad
Word document
PADLET DRIVE



Thomas and Will
Word document
PADLET DRIVE

School: Little Grove Primary School
Teacher: Joanne Knight
Creative Practitioner: Paul Gorman

[View Publication](#)

Digital badges

Description

A way of evidencing and validating students' accomplishments and skills, both acquired formally and informally

Benefits include:

- Motivating students by focusing on short episodes of learning
- Giving credibility to community activities
- Being building blocks for digital portfolios.

How to

Badges have been widely used in groups like scouts and guides. A student who is a scout, for example, might develop persistence by visiting and caring for an elderly resident in a local care home over a period of time and be given a badge to recognise this achievement once she or he had met certain criteria.

With advances in technology has come the opportunity to develop what are being called 'open badges', that is to say, online 'badges' which 'contain' evidence of a learner's capability.

Evidence can take many forms - photographs, scans of work, scans of testimonials, scans of certificates etc. An online badge is a kind of digital 'backpack' in which learners can keep examples of their work which demonstrate their capability. These badges are a kind of digital résumé or CV. As well as the obvious portability and transferability of an online badge, it has many other benefits. It directly involves the student in thinking about when they are ready for accreditation and what evidence they might select to evidence this. It can be customised to suit a specific desired outcome. Unlike the pre-made 'cloth' badge of a scout's uniform, these can be created relatively easily and quickly on demand.

There are a number of companies who provide digital badge making services in Australia and in the UK¹.

Tip

Spend time being sure that the digital badge company you have selected understands what you want and can do it at a reasonable cost!

¹<https://www.certifyskills.co.uk/digital-badges-for-schools>
<https://www.learningvault.com.au/digital-badging/>

Collaborative		
I listen to and act on feedback from others		
I do it with help	I do it on my own	I teach others how to do it
		

Disciplined		
I choose a range of appropriate ways to show my thinking		
I do it with help	I do it on my own	I teach others how to do it
		

'As a school leader, I can see the growth in our staff and students with this pedagogical model in place and a palpable shift in the culture of student learning. The question I found myself asking was how do we measure the impact? Considering our overall goal is to amplify student agency, the most important part of the puzzle for the school is to empower our students to understand the development of these skills and take ownership of their progression through formative self-assessment tools. The current qualitative model evidences a student's autonomy in achieving the skills for their year level, categorised by the creative habit of learning it is best aligned to. The trial in place is for students to self-assess prior to a unit of inquiry learning where this skill will be a focus followed by being explicitly taught and provided with opportunities to practice the skill. Following the unit of work or sequence of lessons, students can reflect on their progress with this skill again using the self-assessment model. Through an online learning journal platform already used by the school, students can share their self-assessments and show evidence through photos and videos to justify their thinking.'

Tamara Doig – Principal Wembley Primary School

E-portfolios

Description

A purposeful selection of evidence by a student to demonstrate progress and capability by at a point in time and with a particular audience in mind.

Benefits include:

- Developing pride in and ownership of achievements
- Creating an opportunity for self-reflection
- Recognising all round strengths of learners
- Acting as a focus for conversations about progress
- Enhancing home/school communication
- Improving transition from school to college and university.

How to

Like online badges, e-portfolios use the benefits of technology to take an established idea, the portfolio, online. An e-portfolio is a kind of online folder which can be organised to facilitate a focus on any aspect of learning that its owner wants. It is a repository of experiences, achievements, examples of work in any format that can be stored digitally.

Rooty Hill School in Sydney, Figure 15, has developed an innovative approach to assessing creative thinking using e-portfolios. It has created a digital Learning Hub on which each student has a space to record their progress. It is organised into the Australian capabilities, one of which is Critical and Creative Thinking.



Figure 15. Rooty Hill High School e-portfolio

The Rooty Hill Learning Hub enables students to:

1. Find out more about each a capability such as critical and creative thinking and upload evidence. Evidence of progress could be a document, a video, an audio recording or an image. Evidence is validated (or not) by a teacher. Formal school assessments and externally validated certificates are automatically validated.
2. Personalise their own learning and set goals. This section encourages students to describe challenges, identify strategies and identify people who might help them. It invites students to reflect on their hobbies, extra-curricular interests, university aspirations where appropriate, strengths, areas for development, additional responsibilities and career aspirations.
3. Showcase evidence on their Learning Hub This organises evidence into the different capabilities within the Australian curriculum.
4. Compare their progress with other students in the school. This introduces a mildly competitive opportunity for students to see who is the 'top' student within specific capabilities, within a year and within a faculty.

In the relatively near future it is likely that every student will have their own personal url, a website which is their portfolio for life or Learner Profile. See Figure 16 for an example of what a more holistic profile might look like:

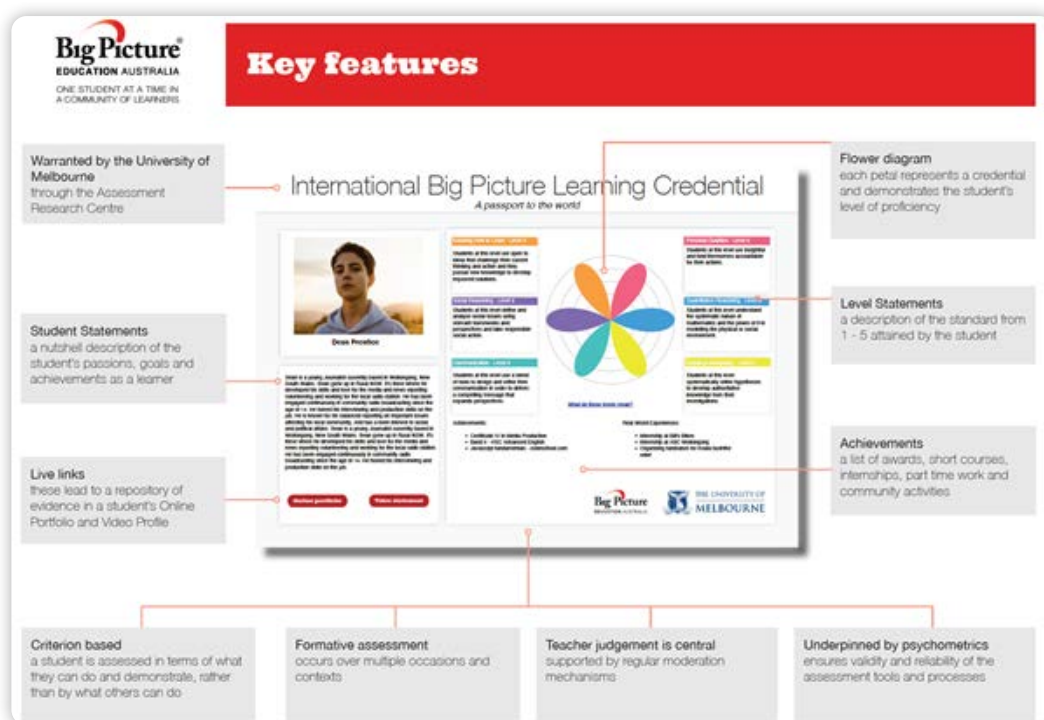


Figure 16. Big Picture Education Australia Profile.

Tip

Use existing technology such as Google Docs and Google Sheets to get started; it's the future!

5. Putting it all together

As educational jurisdictions wake up to the importance of dispositions such as Creative Thinking, schools will need to cultivate them more intentionally. They will need to become more systematic in providing opportunities for young people to develop them, more sophisticated in their choice of pedagogies and more rigorous in their assessment methods.

If you have made it through to this page and captured your reflections and ideas along the way, congratulations! You will have created your own field guide to the assessment of creative thinking in your school.

Please share your field notes with others!

Together we can build an evidence base for the power of creative thinking and how all young people can develop it in schools, wherever you are in the world.





Appendix 1 - Critical & Creative Thinking, ACARA

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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

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:
Reflecting on thinking and processes element						
Think about thinking (metacognition)	describe what they are thinking and give reasons why	describe the thinking strategies used in given situations and tasks	reflect on, explain and check the processes used to come to conclusions	reflect on assumptions made, consider reasonable criticism and adjust their thinking if necessary	assess assumptions in their thinking and invite alternative opinions	give reasons to support their thinking, and address opposing viewpoints and possible weaknesses in their own positions
Reflect on processes	identify the main elements of the steps in a thinking process	outline the details and sequence in a whole task and separate it into workable parts	identify pertinent information in an investigation and separate into smaller parts or ideas	identify and justify the thinking behind choices they have made	evaluate and justify the reasons behind choosing a particular problem-solving strategy	balance rational and irrational components of a complex or ambiguous problem to evaluate evidence
Transfer knowledge into new contexts	connect information from one setting to another	use information from a previous experience to inform a new idea	transfer and apply information in one setting to enrich another	apply knowledge gained from one context to another unrelated context and identify new meaning	justify reasons for decisions when transferring information to similar and different contexts	identify, plan and justify transference of knowledge to new contexts
Analysing, synthesising and evaluating reasoning and procedures element						
Apply logic and reasoning	identify the thinking used to solve problems in given situations	identify reasoning used in choices or actions in specific situations	identify and apply appropriate reasoning and thinking strategies for particular outcomes	assess whether there is adequate reasoning and evidence to justify a claim, conclusion or outcome	identify gaps in reasoning and missing elements in information	analyse reasoning used in finding and applying solutions, and in choice of resources
Draw conclusions and design a course of action	share their thinking about possible courses of action	identify alternative courses of action or possible conclusions when presented with new information	draw on prior knowledge and use evidence when choosing a course of action or drawing a conclusion	scrutinise ideas or concepts, test conclusions and modify actions when designing a course of action	differentiate the components of a designed course of action and tolerate ambiguities when drawing conclusions	use logical and abstract thinking to analyse and synthesise complex information to inform a course of action
Evaluate procedures and outcomes	check whether they are satisfied with the outcome of tasks or actions	evaluate whether they have accomplished what they set out to achieve	explain and justify ideas and outcomes	evaluate the effectiveness of ideas, products, performances, methods and courses of action against given criteria	explain intentions and justify ideas, methods and courses of action, and account for expected and unexpected outcomes against criteria they have identified	evaluate the effectiveness of ideas, products and performances and implement courses of action to achieve desired outcomes against criteria they have identified

Appendix 2 – Self-report questionnaire for CRL’s five creative habits model

	RARELY	SOMETIMES	OFTEN	ALWAYS
Inquisitive				
1. When I am learning something new, I am able to think of good questions				
2. I can challenge other people’s thinking in case there is a better way of doing them				
3. I am skilled at finding out about something new for myself				
Collaborative				
4. I know how to play different roles in a group depending on the task				
5. I am able to communicate to others what is good, and what could be improved about their ideas / work				
6. I can use feedback from others to improve my work and ideas				
7. I am able to show my finished ideas and work publicly				
Persistent				
8. I can tackle tricky challenges				
9. I am able to share views which are clearly different from other people’s				
10. I manage to work through problems even when I don’t have all the information I need				
Disciplined				
11. I can develop my work over various versions to make sure it is the best I can produce				
12. I find it easy to learn different creative techniques in different subjects				
13. I am skilled at evaluating my work to learn from it.				
Imaginative				
14. When I learn new things, I find it easy to think about how it fits with what I already know				
15. I know how to play with different ideas before deciding what to do				
16. I am able to use my gut-feel to help me develop my ideas				

Appendix 3 – Template for progression, CRL's five creative habits model

	BEGINNING	DEVELOPING	CONFIDENT	EXPERT
Inquisitive				
1. Wondering and questioning	Shows genuine interest in surroundings Can ask simple questions with help	Beginning to express curiosity with self-generated questions Can ask simple questions without prompting	Expresses curiosity with range of why, who, where, how questions Can ask effective questions without help	Habitually curious about ideas people and places Can use a range of closed, open and more probing questions
2. Exploring and investigating				
3. Challenging assumptions				
Collaborative				
4. Giving feedback				
5. Receiving feedback				
6. Sharing the product				
Persistent				
7. Sticking with difficulty				
8. Daring to be different				
9. Tolerating uncertainty				
Disciplined				
10. Crafting and improving				
11. Developing techniques				
12. Reflecting critically				
Imaginative				
13. Making connections				
14. Playing with possibilities				
15. Using intuition				

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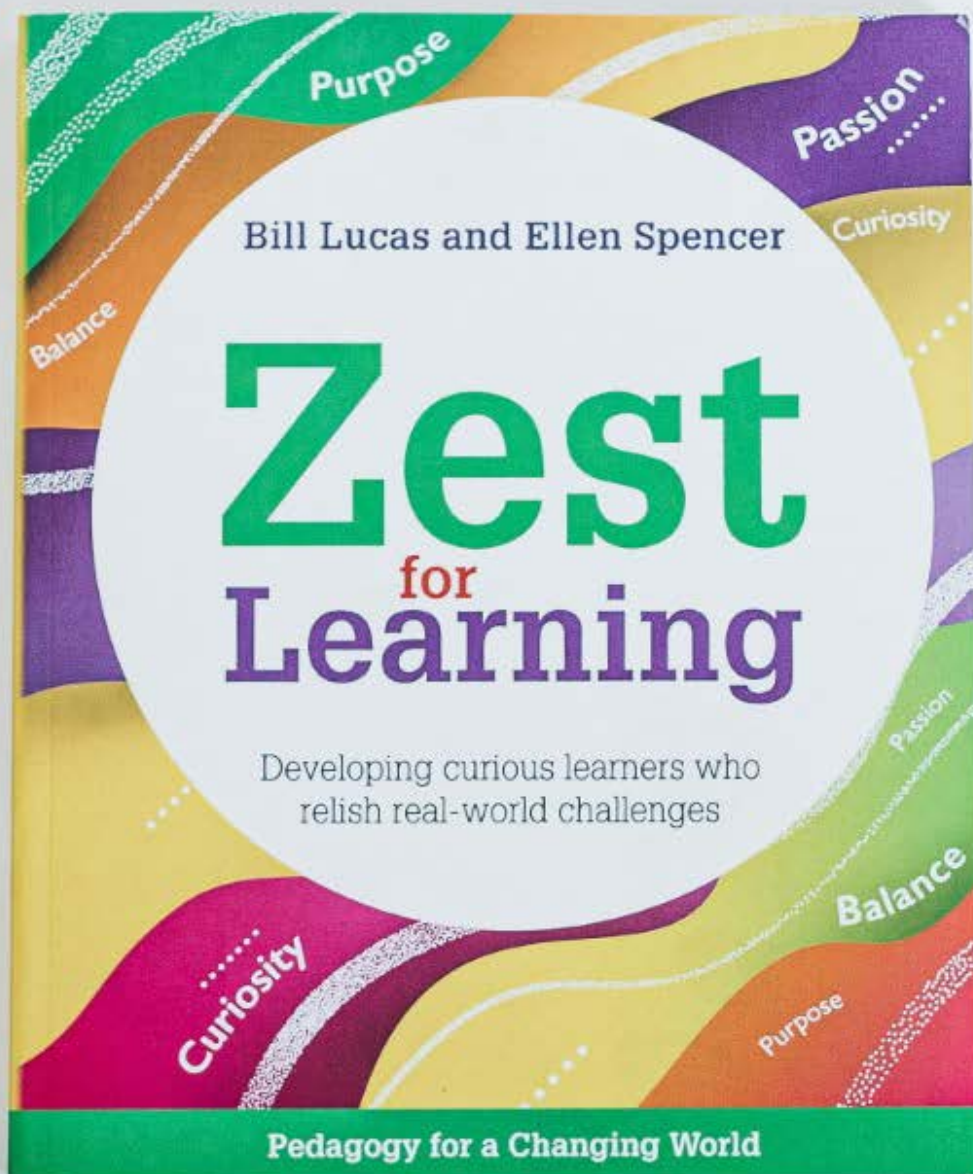
About the author

Bill Lucas is Professor of Learning and Director of the Centre for Real-World Learning (CRL) at the University of Winchester in the UK. He is also co-founder of a new movement in the UK, Rethinking Assessment and the curator of Creativity Exchange.

Bill is an expert in teaching and assessing creativity in schools. The five dimensional model of creativity he developed with colleagues at CRL is used in more than 30 countries across the world and in many states across Australia. Since 2014 Bill has advised the Victorian Curriculum and Assessment Authority on the development of their critical and creative thinking capability, on its associated pedagogies and on online assessment tasks for critical and creative thinking. He has been working with FORM for a number of years.

In 2015 Bill was appointed to the scientific advisory Board of the OECD's research into fostering students' creativity and critical thinking, now published. In 2017 Bill was appointed by the OECD as co-chair of the strategic advisory group for the 2022 PISA Creative Thinking Test. In 2018 he was invited to join the Durham Commission on Creativity in Education as an academic adviser and was subsequently co-author of its first report in 2019. In 2020 Bill was commissioned to undertake a review of national and state-wide frameworks for embedding creativity in schools for the European Joint Research Council.

In 2021 Bill co-designed and now curates a new website for teachers, Creativity Exchange, <https://www.creativityexchange.org.uk> and in the same year he was appointed to be a member of the Creativity Collaboratives advisory panel. The panel has distributed £2.5 million to schools across England to help them to embed creativity in their schools. To support the Creativity Collaboratives Bill recently published, with Ellen Spencer and Louise Stoll, Creative leadership to develop creativity and creative thinking in English schools: A review of the evidence.



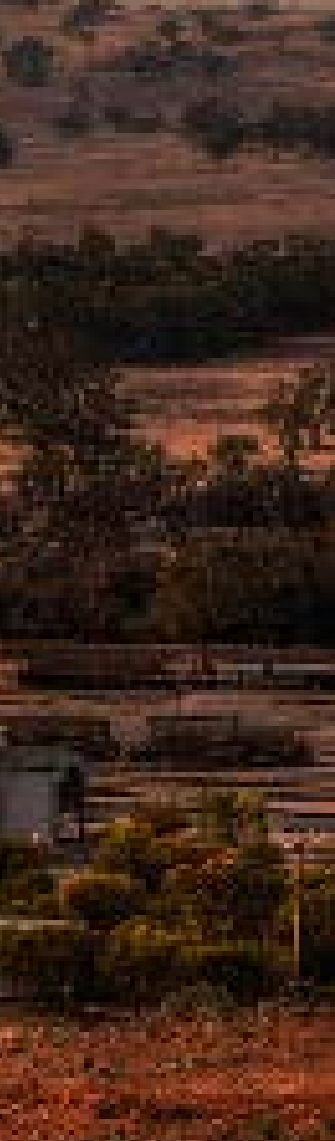
Bill Lucas and Ellen Spencer

Zest for Learning

Developing curious learners who
relish real-world challenges

Pedagogy for a Changing World





About FORM

FORM is an independent, non-profit cultural organisation that develops and advocates for excellence in creativity, collaboration and artistic practice in Western Australia. We work to build a cultural and creative ecology for Western Australia that improves access to arts and culture for all, and encourages the development of resilient and vibrant communities. Our aim is to explore and show how cultural activities and creativity can be catalysts for learning, sense of place, social wellbeing, income generation, and enjoyment. FORM focuses on demonstrating the value of creativity in making a difference to people's lives, which we do through a broad portfolio of artistic activities, thought leadership, strategy development and residency programs. We also manage and develop creative project spaces which combine professional and community amenity with artistic excellence: The Goods Shed in Perth, and Spinifex Hill Studio and Project Space in South Hedland.

At the core of our programming is a process of cocreation, whereby we facilitate relationships between diverse communities to enable outcomes that are mutually relevant, authentic and enduring. We also partner with organisations, businesses, schools and government, bringing local and international creative professionals to work with metropolitan areas, regional and remote communities.

FORM believes creativity drives positive change, and helps us achieve more fulfilling relationships with our environments, each other and the rest of the world. FORM started the Creative Schools program in 2016, to give children and young people in Western Australia the opportunity to experience creativity as an integral part of their life and learning. Creative Schools' vision is to ignite the creative potential of tomorrow's workforce 'today's young people' in order to build a better future for Western Australia. The program establishes meaningful partnerships between schools, artists/creative practitioners and students and aims to strengthen links between the school and the community. Each school participates in the program for a full academic year. Two Western Australian creative practitioners per school co-design and co-deliver engaging sustainable creative projects, and the Creative Schools learning team in each school is supported by internationally recognised creative learning experts, mentors and researchers.

**To find out more, contact Lamis Sabra,
Creative Learning Manager at learning@form.net.au.**



CRISTY BURR
AUTHOR
SCIENCE WRITER

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ols

Great
schools

I Wonder?

I wonder

I wonder if there are different symmetries

I wonder what happens when you...

would they have eaten wild berries?

I wonder if they were actually just playing on the rules...

I wonder if it is a healthy choice

I wonder what happens when you...

I wonder what happens when you...



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FORM.
building a state of creativity

Major Partners



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Education



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