Australia Implementation Toolkit

ITLresearch
Innovative Teaching and Learning

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Microsoft Partners in Learning

Rubrics designed by

Rubrics developed by Joan Dalton, Hands On Educational Consultancy Pty Ltd for Microsoft Australia Pty Ltd.
Foreword

Welcome to 21st Century Learning Design (21CLD) Australia!

Globally, there is a compelling need to develop transferable learning-how-to-learn capabilities in young people that enable them to thrive and contribute to ever-changing, new and challenging contexts.

Microsoft has a strong commitment to providing the highest quality Anytime, Anywhere Learning for All, and has been at the forefront of addressing this by undertaking a global research project in partnership with SRI International and Langworthy Research.

From this, 21st Century Learning Design (21CLD) emerged as a program that makes a powerful difference to learning by focusing on teachers as learning architects, and showing them how to design learning that actively develops these capabilities in students.

What also emerged was the need to ensure that these 21CLD program materials were relevant to our Australian context and aligned with the directions of the Australian National Curriculum. Joan Dalton, internationally respected Australian educator and writer, leads the content re-design, re-developing and writing new materials to ensure they are of the high standard our teachers and students deserve.

Each State and Territory in Australia has been involved in contributing to and supporting the re-design. Max Drummy, from the Department of Education Tasmania, has provided invaluable support in this regard.

We are excited to introduce you to 21CLD, and look forward to empowering young people with the capabilities and they need to thrive in our emerging and future world.

Sean

Academic Programs Manager
Microsoft Australia
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Innovative Teaching and Learning and Learning (ITL): Australia

Key Findings from the Global Study

The global study was conducted in 7 countries: Australia, England, Finland, Indonesia, Mexico, Russia and Senegal.

The global study found that:

• Innovative teaching does support the development of 21st century skills in students.
• Student opportunities to develop these skills are scarce and uneven in all countries.
• ICT use by students in their learning is not widespread.
• Innovative teaching is more likely to flourish where there is teacher collaboration, active and direct engagement of teachers in professional development and a school culture that offers a common vision of innovation and consistent support for teachers.
• Pockets of innovation were observed but a coherent and integrated set of conditions to support the adoption of innovative teaching is lacking in most schools and in all of the school systems in the study.

Innovative teaching in this study refers to three categories of practice:

1. Student-centered pedagogies
2. Extending learning beyond the classroom to include knowledge building and problem-solving in today's world
3. ICT integration in ways that support learning goals, not as a goal in itself

The Australian sample

679 NSW teachers completed the ITL survey.

<table>
<thead>
<tr>
<th>Age Distribution of teachers:</th>
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<tbody>
<tr>
<td>22 schools.</td>
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<tr>
<td>&lt;25</td>
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<tr>
<td>25-29</td>
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<tr>
<td>30-39</td>
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<tr>
<td>40-49</td>
</tr>
<tr>
<td>50-59</td>
</tr>
<tr>
<td>≥60</td>
</tr>
</tbody>
</table>

“While innovation is not yet commonplace in many settings, seeds are being sown.”

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Innovative Teaching Practice (ITP) Index

Responses to the teacher survey were used to develop an Innovative Teaching Practice (ITP) Index for each teacher in the sample. The ITP is an indication of the degree to which teachers incorporate each of the following three components:

- Student centered pedagogies: Knowledge building, Self-regulation and assessment; Small group work; personalized and individualized learning.
- Extension of learning beyond the classroom: extended classroom community, global awareness and cultural understanding.
- ICT integrated into teaching and learning: teacher ICT use and student ICT use.

“The latest ITL research is the clearest conceptual and empirical example of how technology and pedagogy can be effectively integrated.” Fullan (2011)

Teacher Age and Innovative Teaching

- Younger teachers scored significantly higher than older teachers on the ITP Index.
- Teachers’ years of teaching experience was negatively correlated with the ITP index, indicating that younger, less experienced teachers were more likely to engage in student-centered pedagogies which integrated ICT and extended learning beyond the classroom.

Teacher Qualifications and Innovative Teaching

- Teacher’s educational qualifications were significantly related to their scores on the Innovative Teaching Index. Teachers with qualifications beyond that of a Bachelor’s degree scored significantly higher on the ITP score.
Professional Culture in Schools—Collaboration

The teachers were asked about the degree to which teachers in their school had common goals and held similar views about teaching and learning. This factor was found to be unrelated to the ITP score for each teacher. In contrast, the frequency with which teachers reported that they collaborate with each other, was found to be significantly positively correlated (r = 0.375, p < 0.001) with the Innovative Teaching Practice Index.

Impact of professional development for teachers

Teachers were asked about the types of professional development that they have undertaken in the last 2 years. Their responses were examined in relation to their scores on the ITP index. In general, teachers who had participated in any type of professional development in the past two years scored more highly on the ITP than those that did not, and specifically:

- teachers who had undertaken a degree (either undergraduate or postgraduate) in the past two years scored significantly higher on the ITP than those that had not, and,
- teachers who had undertaken observation visits to other schools in the past two years scored significantly higher on the ITP than those that had not.

The most common forms of professional development that the teachers had undertaken were lectures and demonstrations, while the least common forms were one-on-one mentoring and observations of lessons.

Research indicates that professional development is more effective if it is taken over an extended time period. In this study we found that 60% of professional development opportunities are for short durations (< 1 week), with only 12% of teachers undertaking activities that lasted for more than 1 month.

Barriers to ICT Integration

Teachers said that the most significant barriers to ICT integration were:

1. Not enough computers for student use (24.6%)
2. Not enough time to plan for ICT integration (19.9%)
3. Not enough professional development involving ICT (9.7%)
4. Difficult to access computers in labs (7.3%)

The teachers who responded that 'not enough computers for students' was the most significant barrier had (on average) 6.3 computers in their classroom; and those that said 'not enough time to plan' had (on average) 17.7 computers. It appears that the availability of computing hardware is a significant barrier, but that when that barrier is removed, teachers do begin to focus on the importance of seeking out professional development opportunities with regard to ICT use.

73% of the teachers had undertaken professional development in ICT use for teaching and learning in the last two years.

33% of teachers wished to participate in more professional development, however, most of these said there was no professional development to match their needs, or that it was too expensive.
Site Visits to Schools

The ITL Research team conducted site studies with five of the schools which participated in Phase 1 of the study — three sites in Sydney and two in the Hunter regions. The schools which participated in site visits met a 50% response rate target for Teacher Surveys and 100% response rate target for School Leader Surveys.

The site visits to schools involved interviews with School Leaders and Teacher Case Studies. The Teacher Case Studies focused on teachers of Science and Humanities in Years 7-10.

Teachers involved in the study participated in an interview about their target class and a class observation. There were also focus groups of students from the target classes.

What do School Leaders say?

School Leaders of schools in the study shared an awareness of the importance of 21st Century learning.

On the whole, School Leaders had a collaborative approach to school planning.

Professional development was approached in ways where teachers shared innovative teaching and learning practices with faculty members and also at whole school meetings. At one school, staff rooms had been re-developed so that all teachers shared the same space. The School Leader reported a shared approach to curriculum and an increase in communication between Heads of Discipline.

All School Leaders discussed the challenges of embedding 21st Century Learning within the school community whilst also meeting school community expectations of ensuring high results in national (NAPLAN) and state (Higher School Certificate) testing.

A number of School Leaders talked of a community decision to focus on 2IC skills.

*We have a sustained focus on teaching and learning which involves innovative tailored opportunities to engage students in learning* (School Leader C)

Some communities benefited from extending learning outside the classroom and by exploring opportunities for learning activities to link to community, especially in the Sydney region.

What do Teachers Say?

Teachers selected to participate in the Case Study in the schools selected a target class to be in the study.

The target classes selected were from Years 7, 8, 9 and 10 classes. Two discipline areas were selected for the case studies—Science and Humanities.

Four staff members from each discipline participated in the study. The classes nominated covered a range of abilities — from Gifted and Talented classes, to mixed ability to life skills.

Each teacher was interviewed and participated in a class observation by the researcher.

*I am sorry that you didn’t see an innovative lesson today, we have exams tomorrow and I needed to do revision* (Teacher Humanities, D).

Teachers reinforced the tensions felt by schools in how to engage students in 2IC learning whilst also ensuring they were prepared for assessments and tests.

Most of the teachers nominated as innovative were younger staff members and in some cases they were not permanent staff members.
What do students say?

Student Focus Groups comprised of students from Years 7-10 talked about Innovative Teaching and Learning (ITL) in their schools. Each Student Focus Group had approximately 10 students participate.

Students were divided in the groups dependent on Year group. All Years 9 and 10 students in NSW high school have laptops whereas generally the younger students in Years 7 and 8 only have access to shared ICT in classrooms.

Most older students appreciated the opportunity to have laptops, but there were some inconsistencies across schools in how learning was integrated with the laptop program. In schools where all teachers bought in students were generally happy because they could do most of their learning on the laptop. Students in schools using programs, such as OneNote and Edmodo to organise class learning across KLAS, reported a positive experience with laptops.

Where there was no consistent approach, students were dissatisfied. They found there were too many passwords to remember for different Web2.0 tools and some preferred to use pen and paper to a laptop.

Students on the whole did not feel that they had opportunities to engage in learning beyond the classroom.

What next? LEAP21

LEAP 21 is a professional development program arising from the first phase of the ITL research.

LEAP21 asks teachers and school leaders to:

- Analyse and 'score' learning activities to see how deeply they integrate 21st century skills
- Collaborate in designing new learning activities that provide deeper 21st century skills development
- Examine the impact of these learning activities on students’ work
- Use ICT as part of the process

Report prepared by Prof Sid Bourke, Dr Kathryn Holmes, Mr Greg Preston, Dr Kylie Shaw and Prof Max Smith on behalf of SORTI, University of Newcastle, NSW, Australia.
1. 21st Century Learning Design Dimensions

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Innovative Teaching and Learning

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Rubrics designed by

SRI International

Rubrics developed by Joan Dalton, Hands On Educational Consultancy Pty Ltd for Microsoft Australia Pty Ltd.
21st Century Learning Design Rubrics

Introduction

Globally, there is a compelling need to develop transferable learning-how-to-learn capabilities in student learners, which are relevant and applicable to our digital, interconnected world and to ever-changing, new and challenging contexts.

The importance of this is recognised in the Australian curriculum:

‘In the Australian Curriculum ‘capability’ encompasses knowledge, skills, behaviours and dispositions. Students develop capability when they apply knowledge and skills confidently, effectively and appropriately in complex and changing circumstances, both in their learning at school and in their lives outside school.’¹

The purpose of the 21st Century Learning Design (21CLD) Rubrics in this guide is to assist teachers to identify, understand and design learning activities that support learners to develop essential capabilities in six key dimensions:

- Collaboration
- Knowledge Construction
- Self-Regulation
- Real-World Problem-Solving and Innovation
- ICT for Learning
- Skilful Communication

These rubrics were originally developed and tested internationally for the Innovative Teaching and Learning Research project; they have been further developed and localised for our Australian learning and educational context.

Each LD Rubric Dimension shares a consistent format:

- an Overview that provides context and introduces key concepts for that dimension
- a section that unpacks and clarifies the Big Ideas, with related examples
- a Rubric that defines success criteria to help you code Learning Activities from 0-4, depending how strongly it offers opportunities to develop capabilities in that dimension
- a Decision Steps flowchart that highlights what to base you’re coding on.

A Learning Activity can be any task that learners do as part of their school-related work. It might be completed in a single lesson period; equally it might occur over time, involving a unit of work or project that takes place both in and outside of school.

¹ http://www.australiancurriculum.edu.au/GeneralCapabilities/Overview/Nature-of-general-capabilities
# 21CLD Learning Dimensions Summary

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Key Questions</th>
</tr>
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</table>
| **Collaboration**                 | • Do learners have shared responsibility for a joint outcome and make substantive decisions together?  
                                   | • Is their work interdependent?  
| **Knowledge Construction**        | • Are learners required to engage in meaningful knowledge construction?  
                                   | • Do learners actively work with significant ideas, topics, questions and thinking processes?  
                                   | • Do learners make connections and identify patterns and relationships?  
                                   | • Is learning demonstrated or applied in a new context?  
| **Self-Regulation**               | • Does the learning activity offer substantive time and opportunity to develop self-regulation?  
                                   | • Do learners know the learning intentions and success criteria in advance, and plan their own work?  
                                   | • Do learners use feedback to improve their learning?  
| **Real-world Innovation & Problem-Solving** | • Does the learning activity offer substantive time and opportunity to develop self-regulation?  
                                   | • Do learners know the learning intentions and success criteria in advance, and plan their own work?  
                                   | • Do learners use feedback to improve their learning?  

<table>
<thead>
<tr>
<th>Use of ICT for Learning</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Does the learning activity offer substantive time and opportunity to develop self-regulation?</td>
<td></td>
</tr>
<tr>
<td>• Do learners know the learning intentions and success criteria in advance, and plan their own work?</td>
<td></td>
</tr>
<tr>
<td>• Do learners use feedback to improve their learning?</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Skilful Communication</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Does the learning activity require coherent communication using a range of forms?</td>
<td></td>
</tr>
<tr>
<td>• Do learners design and produce substantive, multi-modal communication for a particular audience?</td>
<td></td>
</tr>
<tr>
<td>• Do learners reflect and use the process of learning to improve their communication?</td>
<td></td>
</tr>
</tbody>
</table>

May 2013
Learning Activity Rubrics

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Collaboration

Do learners work together? Do they have shared responsibility for achieving a joint outcome? Do learners make substantive decisions together? Is their work interdependent?

Overview

Working collaboratively in partnership with others and in teams is essential for learning and life success in today’s interdependent world. Collaboration is the lynchpin for effective participation in families and workplaces, and in local and global communities.

Learners can collaborate face-to-face or online, within the classroom, across schools and with local and global communities. They can collaborate with peers, learners of all ages, and with community members and experts.

The Australian Curriculum highlights the personal and social capabilities learners develop through collaboration:

(Learners) ‘...perceive and understand other people’s emotions and viewpoints, show understanding and empathy for others, identify the strengths of team members, define and accept individual and group roles and responsibilities, be of service to others. (Social awareness)

...students who have developed solid social and emotional skills find it easier to... form positive relationships...cooperate and communicate effectively with others, work in teams, build leadership skills, make decisions, resolve conflict, resist inappropriate social pressure, (and) ... feel positive about themselves and the world around them.’ (Social management) ²

Moreover, there is a wealth of research confirming the dramatic difference collaboration can make to learning and achievement, particularly when collaboration is designed around the key principles of effective teamwork, including the development of learners’ capabilities and skills to learn to work constructively with others.

Effective collaboration occurs when learners work together to achieve results or outcomes that are too complex to do on their own, or that they could not do as well on their own. This rubric examines whether learners are working with others on the learning activity, and the quality of that collaboration.

While there can be much value in learners working informally together, learning and social gains are maximized when collaboration is structured so that learners have shared responsibility for achieving a joint outcome or product, and when the learning activity is designed in a way that requires learners to make substantive decisions together.

These features provide opportunities for learners to develop important collaborative skills, such as listening to the ideas of others, perspective-taking, communication, negotiation, conflict resolution, agreement on what must be done, task distribution, and the integration of individual expertise and ideas into a coherent whole.

The strongest learning activities are designed to help learners achieve a truly interdependent outcome or product that reflects both individual and team accountability. In this way, learners learn about interdependence: all must contribute in order for the team to succeed. And the outcomes are more powerful than any one of them could have achieved on their own.

**Big Ideas**

**Informal collaboration**

Learners collaborate informally when they help each other’s learning, or when one seeks learning assistance or information from another to benefit their learning work. As teachers, we can use these opportunities to scaffold learner’s understandings, reflections, and collaborative skills.

At times, informal collaboration may be a part of more formal collaboration, for example, a learner might informally seek information online from an expert to fulfil their individual role and task responsibilities as part of a team project. The immediate goal, however, is to help their individual learning.

Learners who collaborate informally do NOT have shared responsibility for a joint purpose or outcome.

<table>
<thead>
<tr>
<th><strong>Do learners collaborate informally?</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>YES</strong></td>
<td><strong>NO</strong></td>
</tr>
<tr>
<td>Pairs of learners give each other feedback on their individual learning work.</td>
<td>Learners do their work alone, and submit it to the teacher for feedback.</td>
</tr>
<tr>
<td>A small group brainstorms inquiry topics they would like to learn about; each learner then selects one to individually investigate.</td>
<td>Learners individually brainstorm inquiry topics they would like to learn about, and select one to investigate.</td>
</tr>
<tr>
<td>A learner uses Microsoft Lync or Skype online to interview and seek information from an expert to assist their research.</td>
<td>A learner searches the internet for information to assist their research.</td>
</tr>
</tbody>
</table>
A year 8 learner tutors a year 6 learner in maths, using a combination of face-to-face interaction and online tools. The teacher provides additional homework to help the year 6 learner improve in maths.

Shared responsibility for a joint outcome or product

Learners have shared responsibility when they work together to develop a common or joint outcome, product, design, response or decision. This gives them a reason and shared purpose for working together.

Shared responsibility is more than simply helping each other: learners must collectively own the work and be mutually responsible for its outcome. This might, for example, involve a partner or team conversation and joint decision about an important issue, investigating an authentic problem and developing a team solution, or creating a joint design and end product.

If the group work involves student learners or adults from outside the classroom, this qualifies as shared responsibility ONLY if learners and the outside participants are mutually responsible for the outcome of the work.

<table>
<thead>
<tr>
<th>Is this shared responsibility for a joint outcome or product?</th>
</tr>
</thead>
<tbody>
<tr>
<td>YES</td>
</tr>
<tr>
<td>Partners co-develop a letter to go to their local member of Parliament, raising a concern that is affecting their school. They review their writing together, each suggesting changes to improve it before the final letter is signed by both and sent.</td>
</tr>
<tr>
<td>Following individual maths problem-solving activities, learners work in teams of four to explain the strategies or processes they used to work out their solutions. Their subsequent team list contributes to a whole class Maths Problem-solving Resource in Microsoft OneNote, designed to enrich learners’ use of problem-solving strategies. They reflect in their teams on new strategies they might try, and commit to sharing their results and efforts with each other the following week.</td>
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</table>
Partners conduct a lab experiment together, with shared responsibility for carrying out the lab experiment: they must decide who will do what, and produce a joint report. Each partner must be able to explain their results and how they were obtained.

Learners conduct and write a report on their lab experiment individually, with a partner they can seek assistance from if they need help.

As part of investigating climate change and the causes and impact of severe flooding on their local community, a team of learners make contact with others in countries that have also been affected by floods.

They set up and co-manage a group wiki to share and compare their experiences and look for emerging patterns, with the intent of developing a representative group product online to raise awareness of climate change as a global issue.

Impacted by recent flooding in her own community, one learner interviews a peer online in another country about their own experiences, with the intent of contributing this to her group project on climate change.

### Substantive decision-making

It is one thing for learners to *have* or be *given* ‘shared responsibility’ by us as teachers, and quite another to be actively engaged in working out and making decisions about what that looks and sounds like in practice.

Learning and collaboration are both strengthened considerably when learners must make **substantive decisions** and resolve important issues that will guide their work together.

Substantive decisions are decisions that shape the goals, content, process, outcome or product of learners’ work:

- **Goals:** Effective collaboration begins with the end in mind: learners must clarify the topic, issue or learning work and its purpose to ensure shared goal clarity. When all team members are clear about goal intent, relevance or importance, and are involved in co-constructing shared goals, team understanding and commitment is enhanced.

- **Content:** Learners must decide which topic or aspects of a topic or issue they will pursue. They need to negotiate and decide on what needs to be done, the expertise available, strengths of team members, and distribute tasks, roles and responsibilities accordingly.

- **Process:** Learners must plan out how they will approach the learning work and how they will work together to achieve the joint outcome. This may include a plan of what
they will do, when, what tools they will use, and learning approaches or strategies to use.

Equally, the process may involve pro-actively examining how team members will communicate with each other, how they will reflect, critique and improve their work, how they will resolve conflict when it arises, check in with each other and work for agreement.

- **Product:** Learners must consider how they might integrate individual ideas and expertise into a coherent whole to achieve their joint outcome, and make fundamental design decisions together that affect the nature and usability of their product, performance or outcome they are working towards.

<table>
<thead>
<tr>
<th>Is this substantive decision-making?</th>
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<tbody>
<tr>
<td><strong>YES</strong></td>
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<tr>
<td>Partners investigate a given topic:</td>
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<tr>
<td>they clarify their shared goals and</td>
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<tr>
<td>decide together on the most</td>
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<tr>
<td>important aspects to investigate</td>
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<tr>
<td>to best achieve these goals.</td>
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<tr>
<td>They justify their decisions in their</td>
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<tr>
<td>final performance of understanding.</td>
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<tr>
<td>*This is a content decision that</td>
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<tr>
<td>shapes both their investigation and</td>
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<tr>
<td>joint outcome.*</td>
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<tr>
<td>Teams of learners prepare to</td>
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<td>critically examine an important</td>
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<td>controversial issue where there are</td>
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<tr>
<td>multiple viewpoints.</td>
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<td>They agree on how they will listen</td>
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<tr>
<td>to each other’s views and advocate</td>
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<tr>
<td>their own, they clarify the process</td>
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<tr>
<td>they will use, and decide on the</td>
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<tr>
<td>decision-making strategy they will</td>
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<tr>
<td>use to help resolve conflict and</td>
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<tr>
<td>reach agreement.</td>
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<tr>
<td>*These process decisions guide the</td>
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<td>team’s work in ways that develop</td>
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<tr>
<td>their dialogue and collaborative</td>
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<tr>
<td>skills for an enhanced joint</td>
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<tr>
<td>outcome.*</td>
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<tr>
<td>Team members work to conduct a</td>
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<tr>
<td>joint research project. They</td>
</tr>
<tr>
<td>negotiate and</td>
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Interdependent learning work

Learning work is **interdependent** when all learners must participate **equitably** in order for the team to succeed.

Too often, a group of learners may have shared responsibility for an outcome, but in practice the decisions made result in one or two learners doing most of the work for the team, or the work is not divided equitably and fairly.

**Fairness and equity** are key values that underpin interdependence. There must be equity, challenge and learning in the nature of the tasks, roles and responsibilities undertaken by all team members. For example, it can be highly appropriate to match tasks to the individual strengths and expertise of team members as long as the task builds on from and further develops their strengths, with opportunities for new learning to take place.

There must also be **equity of effort** from everyone. Imagine a team where there is a strong mix of difference in terms of experience, talents and abilities. A team member whose thinking and learning is advanced may need a complex and different learning challenge than a team member who has an intellectual or other disability. Learners may make very different contributions from working on differentiated or personalised tasks: what is important is that interdependence reflects an equitable and fair effort from each team member.

The strongest learning activities on this rubric are structured to require the equitable participation of all students. The work that each learner does must be a necessary contribution to the whole.

To meet this criterion, learners are required to produce an **interdependent product** (such as a presentation that they each must share in developing and presenting) or other **interdependent outcome** (such as a decision that requires information that is distributed across team members).
Most interdependent work involves two levels of accountability:

- **Individual accountability**: each individual’s role on the team is essential to the whole: each person is responsible for a task that he or she must complete in order for the group to achieve its work.

- **Group accountability**: team members must work together to produce the final product or outcome. Learners must negotiate and agree on the goals, content, process, design, and conclusions of their work.

It is important that collaborative learning work is structured to require a coherent outcome to which all members have contributed. It must take the work of all team members into account so that their outcome or product is complete and fits together.

For example, if each learner is responsible for one part of a presentation, and the final presentation simply assembles the parts together, this is NOT considered interdependent. The final presentation IS considered interdependent if the learners’ contributions must fit together to tell a story or communicate an overarching idea; in this case, learners’ individual parts must be designed as parts of a coherent whole.

<table>
<thead>
<tr>
<th>Is learners’ work interdependent?</th>
<th></th>
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<tbody>
<tr>
<td><strong>YES</strong></td>
<td><strong>NO</strong></td>
</tr>
<tr>
<td>Team members each research a different internal system of frogs (e.g. circulation, organs, digestion...) They then work together to dissect a frog and write a lab report about the dissection, identifying frog parts and the systems to which they belong. <strong>Students must rely on each other's work in order to successfully identify what they see during the dissection and write a joint lab report.</strong></td>
<td>Team members’ work together to research the internal systems of frogs, but each learner conducts their own dissection and writes their own lab report. <strong>Learners work together on the research component, but they do not need each other to complete their work.</strong></td>
</tr>
<tr>
<td>Four learners work together to create a website that attracts tourists to their local area. They clarify their shared goals and potential audiences, negotiate roles and responsibilities, determine their plan and schedule, and each team member researches a different aspect: history, culture, attractions and accommodations.</td>
<td>Learners each create a webpage about the history, culture, attractions, or accommodations of their local area that is then linked to their class homepage. <strong>Learners do not have shared responsibility and they are not required to strategize, plan or work together to complete the learning activity.</strong></td>
</tr>
</tbody>
</table>
They decide on how to organize and synthesize each person's research to create a coherent website design and product tailored to their potential audience.

Learners use Mouse Mischief to create a diagram showing the food chain in a vernal pond ecosystem. Each learner controls a particular species; they must work together to place each species in its appropriate niche in the food chain.

*They must work with each other to complete a comprehensive and accurate representation of the food chain.*

Learners use Mouse Mischief to identify which species in the vernal pond ecosystem are carnivores, herbivores, or omnivores, by placing each species in the appropriate list.

*Any learner can use their mouse to move any species to any list; they do not need to work together in any specific way.*

A team of learners across three schools are required to work together on a community proposal that will mutually benefit their schools.

They collaborate in OneNote, making changes to, and refining their proposal, as they simultaneously Skype and share screen information.

They integrate the different views and related issues each team member has researched into a coherent proposal that includes text, photographs and suggested designs.

*Real-time, multi-media communication and fluent collaboration that requires individual and team accountability.*

A team of learners across three schools are required to work together on a community proposal that will mutually benefit their schools.

They send their individual research to one member to collate and put together a coherent proposal that includes text, photographs and suggested designs.
Collaboration Rubric

0  • Learners DO NOT work informally together in pairs or groups: they work individually on the learning activity.

1  • Learners DO collaborate informally in pairs or groups
• BUT they DO NOT have shared responsibility for achieving a joint outcome or product.

2  • Learners DO work together in pairs or groups
• AND they DO have shared responsibility for achieving a joint outcome or product
• BUT they are NOT required to make substantive decisions together about the goals, content, process or product of their work.

3  • Learners DO work together in pairs or groups
• AND learners DO have shared responsibility for achieving a joint outcome or product
• AND they DO make substantive decisions together about the purpose, content, process, or product of their work
• BUT their work is NOT interdependent.

4  • Learners DO work together in pairs or groups
• AND they DO have shared responsibility
• AND they DO make substantive decisions together about the purpose, content, process, or product of their work
• AND their work is interdependent.
Collaboration: Decision Steps

- Learners collaborate informally?  
  - YES  
  - NO

- Learners have shared responsibility?  
  - YES  
  - NO

- Learners make substantive decisions together?  
  - YES  
  - NO

- Learners’ work is interdependent?  
  - YES  
  - NO
Knowledge Construction

Do learners engage in meaningful knowledge construction? Do learners actively work with significant ideas, topics, questions and thinking? Do learners make connections and identify patterns? Do learners apply their new knowledge to new contexts?

Overview

In a world where information is growing exponentially, the meaning of ‘knowing’ has shifted from being able to consume, remember and reproduce information to one where learners actively construct understanding to create knowledge that is new and usable to them. The Australian Curriculum recognizes that:

‘A curriculum for the twenty-first century will need to reflect and acknowledge the changing nature of young people as learners and the challenges and demands that will continue to shape their learning in the future.’

In this curriculum, meaningful knowledge construction and a focus on construction of deep understanding is paramount:

‘Deep knowledge, understanding, skills and values... ... will enable advanced learning and an ability to create new ideas and translate them into practical applications.’

Today we are educating a more complex and diverse learner population than ever before. Learners engage when they see meaning in what they are being asked to learn, when they connect what they already know to new knowledge, and when they can access learning in diverse ways.

Deep understanding is constructed when learners explore and actively work with significant ideas, topics and questions. Explicit opportunities to make connections, to identify patterns and see relationships among these enable learners to organize and synthesize new and coherent understandings. This is essential to effective knowledge navigation in today’s world.

The creative and critical thinking that takes place as learners do this is the process by which they construct deep understanding and generate and create new knowledge:

'Critical and creative thinking are integral to activities that require students to think broadly and deeply using skills, behaviours and dispositions such as reason, logic, resourcefulness, imagination and innovation in all learning areas at school and in their lives beyond school... Thinking that is productive, purposeful and intentional is at the centre of effective learning.'

A major goal of education is to help young people become lifelong learners who continually adapt to new situations, new challenges and new settings. A true test of deep understanding, and the strongest dimension in this rubric, is the extent to which learners can apply or use their new knowledge in new, different, and authentic contexts.

Big Ideas

Engage in meaningful knowledge construction

Learners are more likely to see meaning and make sense of learning when they understand its relevance and purpose.

This is enhanced when learning intentions and topics are explicitly connected to learners’ lives and experiences, and real-world contexts. When learners understand why the learning is important, and how this will help them now or in the future, they are more likely to commit to the learning work.

When we activate, assess, and build on learners’ existing knowledge and beliefs, and use this as the starting point for new learning, learners are more able to acquire coherent and thorough understanding because they can make meaningful connections between new ideas and their prior knowledge.

In fact, if learners’ initial understandings are not engaged, they may fail to grasp new ideas being taught. Recognition of prior learning is fundamental to meaningful knowledge construction and this is acknowledged in the Australian Curriculum:

‘The curriculum must value and build on students’ prior learning, experiences and goals.’

Our classrooms are microcosms of the world, in all its rich diversity. Although the actual process by which learners construct understanding is similar, their backgrounds, minds and learning preferences may be very different. The Australian Curriculum recognizes the importance of providing for diverse ways of knowing and our role as teachers in achieving inclusion and equity for the learners we teach:


‘Teachers understand the diversity of the students they teach and are responsible for organising learning opportunities to meet individual learning needs... the curriculum should reflect the diversity of knowledge, experience and cultural values of students.’

Learners’ diverse minds engage in constructing deep understanding when learning activities offer **multiple entry points** and **pathways** into topics and learning, and **multiple ways** to express and represent their learning. Here is an example of meaningful knowledge construction that highlights ‘what it is’ and ‘what it is not:’

### Diverse ways of knowing in practice

Imagine a group of young indigenous learners, where their teacher introduced the concept of object classification by modelling how coloured blocks could be grouped into colours, shapes and sizes. Teacher questions such as ‘How are these the same?’ and ‘Why do you think I have grouped them this way?’ met with silence from learners.

The teacher shared her frustration with visiting colleague, Dot Walker, ‘They just don’t get it! Why don’t you see what you can do with them?’ Dot agreed, and so they spent an enjoyable time outside with learners collecting a variety of grasses, leaves and blossoms. Sitting in circle, learners put their collections into the middle.

‘What families can you put them into?’ Dot asked. After some silent shuffling and grouping of the objects, twenty faces looked keenly at her: ‘You guess, miss.’

Dot ran through all the possibilities she could think of in her mind – colour, size, shape – and none seemed to fit. Puzzled, she told the group: ‘I give up.’ ‘It’s easy, miss,’ said Janice ‘ see these ones here, they got a real strong smell, these ones have a little bit of smell, and these ones, well they got no smell at all.’

‘I would never have guessed that!’ said Dot. ‘I wonder if you could trick me again?’ This time, learners sorted the objects into two piles. After several wrong guesses, Dot gave up. Joseph explained: ‘See this lot here, miss, they grow first in the wet season, and this lot here grow when the real heavy rains come.’

Learners repeated the process another five or six times, demonstrating highly developed classification skills that reflected connectedness with their way of life, rather than their teachers.

As you look at the classroom teacher’s initial questions, you will see they were closed, designed to ‘guess what’s in the teacher’s head’, the right answer. Dot’s question was open-ended, designed to find out what children thought and knew. As both teachers discovered, learners knew a lot!

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This one rich, open-ended question and learning activity provided learners with a range of opportunities and possibilities, using a differentiated entry point that learners could relate to – the natural environment. Both open-endedness and differentiated pathways are powerful tools that enable diverse learners to construct and develop understandings.

<table>
<thead>
<tr>
<th><strong>DO LEARNERS ENGAGE IN MEANINGFUL KNOWLEDGE CONSTRUCTION?</strong></th>
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<tbody>
<tr>
<td><strong>YES:</strong></td>
<td><strong>NO:</strong></td>
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<tr>
<td>Young learners use online calendars to find out and record all class members’ birthdays. As part of this, they learn the order of months in a year, find correct dates and the day of the week that the date corresponds to. With their teacher, they reflect on what they now know about calendars that they didn’t know before, and other ways that calendars might be of use to them.</td>
<td>Young learners use photocopied black-line masters to learn about the months and weeks of the year. The sheet requires learners to mark in responses to questions such as ‘What day of the week will it be one week after May 9th?’ As learners finish, the teacher marks their responses right or wrong.</td>
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<td>Beginning a maths unit on Percentages, junior secondary learners individually brainstorm all the things they know about percentages: what the term means to them, ways that percentages are around them in real-life, and why it might be important to understand how to use them. Teams of four then use OneNote or the SkyDrive Word App to create a concept map that pools their existing knowledge about percentages. For homework, teams gather more ideas from their families about real-life use of percentages, inserting voice or video recordings into their document.</td>
<td>Beginning a maths unit on Percentages, the teacher introduces junior secondary learners to what percentages are and how to work them out. Learners work individually through a dozen examples in their maths text to practise how to do them. Homework involves learners in working through six more percentages problems from their textbook.</td>
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<td>Conducting a unit on life and living, learners work in groups to investigate plant growth by growing seeds and experimenting with different variables that might affect growth (i.e. colour of light or amount of water). Learners monitor plant growth over time, recording measurements in a spreadsheet. At various time-spans they take digital photos to capture stages of growth.</td>
<td>Learners visit the library and view pictures of plants at different stages of development. They record the names of different stages of life, and what plants may look like at that stage of life. Learners are quizzed on the information to determine their level of understanding.</td>
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</table>
Learners use Moviemaker to create stop-motion film of the results, including narration and explanation of what they observe. Movies are compared to view the impact that the different variables have on growth. Learners use digital devices such as timers and reminders to help ensure fair test characteristics are observed.

Focus on significant ideas, topics, questions and thinking

In today’s complex, ever-changing world, a focus on conceptual and deep understanding is central to effective knowledge construction. ‘Covering the curriculum’ for breadth or addressing too many topics works against understanding because it is difficult for learners to make connections. What they are more likely to acquire is a set of disconnected facts.

Knowledge construction requires learning activities that engage learners in working with ‘big ideas’ such as these:

- rich concepts and significant topics
- real-world and controversial issues
- essential questions and provocations
- important thinking and learning—how-to-learn processes and skills
- significant human values, dispositions and attitudes

These offer a useful lens to assess and test out concepts and topics used in learning activity design. For example, a popular past topic such as ‘Pirates’ is inappropriate in today’s learning landscape. Shifting ‘Pirates’ to become ‘Piracy’ enables richer, deeper and more relevant learning in our technology-rich world, particularly around key concepts to do with ethics.

Even young learners benefit from and can grasp important conceptual ideas when they are presented in developmentally appropriate ways. Take a look at this example that highlights significant social-ethical values:

Our essential agreement in action

Imagine young learners working toward an essential agreement with their teacher about ways they would like to be treated in class. They share their ideas, for example: ‘I want my partner to share the computer.’ ‘If I can’t do the work, people will help me.’ ‘People should listen when the teacher is talking.’ ‘When I fall over, I don’t want people to make fun of me.’

The teacher then uses learners’ ideas to scaffold explicit connections to key values of respect, fairness, and helpfulness, extending their thinking by asking questions such as:
“What are some other ways we might we help each other?” “How else do we show respect in our classroom?” “Why do you think fairness might be important?”

By accessing learners’ existing ideas on how they want to be treated by others, learners see personal relevance, and the teacher then builds on these to help learners make connections to key human values that underpin them.

When learners actively work with and grapple to understand ‘big ideas’, they use a whole range of important thinking processes and skills to process, organize, make connections and internalize their thinking through analysis, synthesis, evaluation and ongoing reflection. When learning is organized into this kind of conceptual framework, learners are more able to apply or transfer their learning to new situations and contexts, and learn related information more quickly.

The following four elements from the Australian Curriculum’s Critical and Creative Thinking Capability provide a useful framework from which to select relevant skills and processes to help learners construct understanding. These are not a taxonomy of thinking; rather, learners will draw on relevant skills and processes in different contexts and at different points in their construction of knowledge.

**Critical and creative thinking capability: Australian Curriculum**

- **Inquiring – identifying, exploring and organizing information and ideas**

  Pose questions, identify and clarify information and ideas, organize and process information.

  *For example, learners might:* pose questions to clarify main ideas or central issues, explore information to sequence ideas and thoughts coherently or build meaningful interpretations. Learners may probe to identify causes and consequences, or take different viewpoints and perspectives.

  To organize information and identify big ideas, learners might sort, categorize, compare, or chunk learning content, steps and processes into workable parts. These kinds of strategies assist important connection-making and pattern-seeing.

- **Generating ideas, possibilities and actions**

  Imagine possibilities and generate ideas, consider alternatives, seek solutions and put ideas into action

  *For example, learners might:* generate possibilities, ideas, alternatives, implications or pathways to action; they may imagine and visualize, predict and speculate, and project into or empathise with another’s feelings or worldview.

- **Reflecting on thinking and processes**

  Think about thinking (metacognition), reflect on processes, and transfer knowledge into new contexts
For example, learners might: outline their thinking and reasons why, articulate their thinking process or strategies used, check and use self-knowledge to recognize own prejudice or assumptions, adjust/shift own thinking, self-assess or accept feedback.

Learners connect and use information from previous learning to inform new learning and ideas, and might apply knowledge from one setting to enrich a different setting.

- Analysing, synthesizing and evaluating reasoning and procedures

Apply logic and reasoning, draw conclusions and design a course of action, evaluate procedures and outcomes.

For example, learners might: analyse big ideas or evidence/data, identify flaws in reasoning, uncover bias, examine cause and effect, compare and contrast perspectives from multiple sources, or prioritise. To synthesize, learners make connections between big ideas and patterns within and across disciplines, across cultures, or across time; they may combine and integrate ideas to extract the essential and distil ideas down to their ‘essence.’

As part of evaluating procedures and outcomes, learners may draw conclusions, justify ideas, actions and outcomes, and evaluate their effectiveness against given criteria. They make decisions, plan and implement actions to achieve desired outcomes. As part of this, they may judge the quality, credibility and authenticity or importance of sources, data, ideas, program, project or events.

N.B. The examples in italics represent our thinking to further amplify these elements.

It is important to be clear about what counts as conceptual knowledge construction, and what DOES NOT. For example, it is quite common for learners to research information as part of an inquiry project. If learners look up information, and then describe what they found in writing or to others without taking this further, they are consuming and then reproducing information. Little real thinking, grappling, processing and internalization of understanding have taken place.

While there are legitimate times when learners do need to memorize or reproduce information, or follow the steps of a familiar process or procedure, we need to be clear that this is NOT knowledge construction. On the other hand, if an activity asks learners to devise a process or procedure themselves, then this DOES count as knowledge construction.

<table>
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<tr>
<th>YES:</th>
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<tbody>
<tr>
<td>Senior primary learners engage in an inquiry project on the topic of B.O.D.Y. i.e. Body, Options, Decisions, You. The key learning intention is ‘to develop knowledge and skills to make informed decisions about your physical, social, emotional and mental wellbeing.’ With their teacher, they co-construct key questions they want to explore, such as: What is resilience? How do we grow and develop? What might be major health issues for us in the future? What are some of the challenges and stressors young adolescents face? How do we make important decisions about our health? What support systems are available to us? As they inquire into such significant questions, they work with key concepts such as health, resilience, identity, self-regulation and decision-making, and relate them to what is important for their growth and lives as young adolescents. Learners use online journals for ongoing reflection on questions such as ‘How might I use what I am learning in my own life?’ ‘What are some of my strengths? What do I need to work on?’ ‘What sorts of things do I need to consider when making important decisions?’ Having viewed an animated short video about ‘raining cats and dogs,’ year 1 and 2 learners are asked by their teacher to reflect and consider whether the story is true or make believe. Children share their diverse ideas, perspectives and reasoning; the teacher listens and then engages children in partner and circle conversations about the meanings of imagination, real,</td>
<td>In teams of six, senior primary learners engage in a ‘Body Systems’ inquiry project, with six systems to be researched: Circulatory systems Digestive system Muscular system Nervous system Respiratory system Skeletal system The stated objective is ‘to learn about a particular body system you are individually assigned, and then teach the rest of your team what you have learned.’ Learners present and describe their findings to the rest of their team. The goal is for each individual to share enough information about their assigned body system so that their whole team can pass an end of topic test that addresses all six systems. Having viewed an animated short video about ‘raining cats and dogs,’ year 1 and 2 learners are asked by their teacher to orally recount the story to their partner and tell them what they most enjoyed about it.</td>
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false, and make-believe – key concepts and terms they used when sharing.

| Secondary learners use multiple sources to explore the question ‘What’s worth fighting for?’ The ANZAC story contributes to their inquiry, where they look at the question from a much broader perspective and make connections to ‘what’s worth fighting for’ in their own lives. This leads to other questions such as ‘What causes conflict?’ ‘Is it ever okay to use violence?’ ‘Where is there war in our lives?’ ‘How do we handle conflict?’ and working with significant concepts such as justice, equity, conflict, peace, negotiation, win-lose, win-win. | Secondary learners use multiple sources to learn about and record their understandings of the ANZAC story; the goal is to appreciate what the ANZACs fought for in the first world war. |

| Learners investigate how written communication has changed over time, hypothesising what has changed and why. Using a variety of resource examples such as cave paintings, hieroglyphs, old letters, postcards, telegrams, faxes, emails, twitter, social media posts and text messages, learners analyse similarities and differences between them, including how they were/are written, how they convey meaning and how they were/are delivered and interpreted. Learners communicate a message of their choice using several different forms to compare the value and integrity of the message in terms of conveying meaning. Learners research technological and social history to create a timeline that demonstrate probable causes influencing changes to written communication. | Learners view a timeline of changes to written communication, noting the technological and social influences that have impacted on the way communication has changed over time. Learners answer questions to communicate their understanding of the timeline. |
Make connections; identify patterns and relationships

Making connections, identifying patterns and seeing relationships among these is essential for construction of deep understanding and for navigating a massive sea of knowledge effectively in an inter-connected global word.

This is too important to be left to chance, and learners need pattern-recognition experiences from an early age. Whilst our brains are biologically designed to seek patterns, learners do not automatically realize that a concept, a learning process, or one curriculum area is connected to another in any shape or form.

Learning activity design must assist learners to make connections, helping them to see the whole, not just the parts, and our teaching must actively scaffold learners’ understandings and skills to do this effectively.

Learners learn about inter-connectedness and pattern-seeing when learning design prompts them to:

- seek, access, explore and learn from multiple sources, diverse perspectives and viewpoints to expand thinking toward greater understanding, coherence and appreciation of what collective minds offer
- make explicit connections between significant ideas, topics, questions, issues, and thinking and learning processes they are working with.
- make connections across artificial ‘boundaries’, such as:
  - classes, communities and cultures
  - time: past, present, future
  - one or more key learning areas
  - different disciplines

Connection-making across ‘artificial’ boundaries, especially across disciplines, is particularly important, as this reflects and strengthens learners’ understandings of the inter-connected nature of learning and of the world and how it works.

When learners are able to make important connections, they can then identify meaningful patterns, key themes, relationships and through-lines and make further links between these for impact, implications, relevance and significance.

For purposes of this rubric, connections made between subjects that are typically taught together as well as more disparate inter-disciplinary connections DO COUNT when these learning areas or disciplines are explicitly addressed in learning intentions and are assessable.

While ICT is NOT considered a separate discipline, it is considered a tool that enables, amplifies and enhances connection-making, for example, the use of ICT to research multiple perspectives for a history project can enable more powerful coherence and connection-making across cultures and time.

**DO LEARNERS MAKE IMPORTANT CONNECTIONS AND IDENTIFY PATTERNS?**
<table>
<thead>
<tr>
<th><strong>YES:</strong></th>
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<tr>
<td>As part of a science inquiry, year 2/3 learners visit the local pond, bringing back samples of pond life. They hypothesise, conduct experiments and examine their samples under microscopes. Discoveries of paramecia in the water promote learner conversations about systems and how things depend on each other.</td>
<td>As part of a science inquiry, year 2/3 learners visit the local pond, bringing back samples of pond life. They hypothesise, conduct experiments and examine their samples under microscopes. Discoveries of paramecia in the water promote learner conversations about how the pond is a system, with things that depend on each other.</td>
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<tr>
<td>To help learners make connections between dependence in a biological community and dependence in a social community, their teacher asks: ‘Who depends on you?’ Learner reflections include: ‘My parents depend on me to do the dishes.’ ‘My pets depend on me to feed them.’ ‘My partner depends on me to...’ Learners’ journal reflections offer further insights into connections made, for example: ‘The pond is like our classroom because pond animals depend on each other for food -we depend on each other for helping.’ ‘The pond has peaceful sounds like crickets and our class has peaceful music like Mozart.’</td>
<td>To test learners’ understandings, the teacher asks questions such as: ‘What do the frogs depend on?’ ‘What do the fish depend on?’</td>
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<tr>
<td>Undertaking the topic of ‘Popular Culture’ with adolescent learners, the key learning intention is: to understand how and why popular culture changes and evolves over time, and the impact of technology on this. Learners contribute to class Graffiti sheets to make visible their existing knowledge of key aspects of popular culture, and what the term means. As they review the data, the teacher asks ‘What patterns do you see here?’ Learners identify through-lines in their thinking. In teams, learners use guiding questions to research and analyse what made up popular culture in different Australian decades and key influences, comparing these with present day popular culture. Each team uses an online program, Museum Box, to present their findings to the rest of the class. Having watched carefully for emerging patterns and themes, learners talk about them and identify major influences affecting popular culture and the most influential factor in</td>
<td>In undertaking the topic of ‘Popular Culture’ with adolescent learners, the key learning intention is: to learn about popular culture in past Australian decades, and how it is the same or different now. Learners contribute to class Graffiti sheets to ascertain and make visible their existing understandings of key aspects of popular culture, and what the terms mean. Learner teams each choose a past Australian decade to research. They present their findings to the class based on what they discovered made up popular culture in their particular decade. Learners are asked to individually reflect on the similarities and differences between the decade they researched and popular culture today.</td>
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</table>
They make connections back to their initial knowledge, reflect individually on their new understandings, and on how and why popular culture changes and evolves over time.

Having investigated Probability with primary learners, their teacher draws attention to the ‘Toys’ Statistics Investigation they had undertaken a few weeks before, and the two posters they had created showing steps in each investigation. Asking learners to review these, she asks: ‘How are the steps we used in our Probability investigation like the steps we used in our Statistics study of Toys?’

As learners compare these, they readily see that both investigations required them to make a hypothesis, gather and organise information, and present their results in some sort of chart or graph. The teacher lists these steps visually, asking: ‘What other kinds of investigations might you carry out using this process?’

**Apply knowledge to new contexts**

While all learning involves transfer from previous experiences, a true test of effective knowledge construction is the extent to which learners can transfer or apply their new knowledge appropriately to new and authentic situations and settings.

Understanding is demonstrated when learners use their new knowledge to:
- adapt, extend or customise their new knowledge for new, specific situations/contexts
- apply what they have learned to real-world challenges or problems
- apply what they have learned to their own lives, both inside and outside of school

As a simple example, let’s return to the story where young learners created an essential agreement for classroom use and their teacher helped them connect their initial ideas to the key values that underpinned them. Here, the story continues:
Our essential agreement in action (continued)

Revisiting their key values of respect, fairness and helpfulness a week later, learners reflect on how their classroom agreement is working for them. To scaffold their learning into a different context, the teacher highlights each of their key values, and asks learners to apply these to a different context: the playground.

She begins with the concept of fairness: ‘We all think that being fair is important in our classroom. What might fairness look like when you are outside in the playground? What you might see or hear, what might you do to be fair, and why do you think this is important. Talk with your partner about your ideas.’

As learners share their thinking about each key value, their ideas demonstrate that they can indeed apply these key values to a different context, for example: ‘It’s fair when you take turns on the flying fox.’ ‘When someone is mean, you ask them to stop because they are not showing respect.’ ‘It’s helpful to put rubbish in the bin because it keeps our playground clean.’

Here is a more complex example from a physics class where learners apply their learning to a different situation:

Older learners in a physics class construct knowledge about heat principles from a study of the Earth’s inner core, and then apply what they learned to investigate the environment of Jupiter.

This learning work deepens learners’ understanding of core principles because they must abstract what they learned and look at it from a different perspective in order to apply it in a different situation.

Learners benefit significantly from explicit scaffolding to guide their thinking about the transfer of concepts, skills and processes into new and different contexts as well as opportunities to actually apply their knowledge in new situations.

Some sample question scaffolds:

- ‘Where else might you be able to use this?’
- ‘In what other situations might..........be important?’
- ‘How might this be useful to you in the future?’
- ‘Think of another subject (key learning area) where you could use this.’
- ‘Think of a past situation where you could have used this.’
- ‘How might you be able to use this with your family?’
- ‘What might be some real-world applications for this?’
## DO LEARNERS APPLY KNOWLEDGE TO NEW CONTEXTS?

<table>
<thead>
<tr>
<th>YES:</th>
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<tbody>
<tr>
<td>Year 6 learners produce a video on the history of their school as part of the school’s centennial celebrations. They use Padlet to reflect and document their processes and what they learned from the experience. Ideas span thinking and planning processes, technology, communication, personal responsibility and collaborative skills. ‘Where else might you be able to use what you have learned?’ their teacher asks. Learners each select one or two relevant ideas that will help them further at home or school and make a plan in their online journals. The following week, they reflect together on how/where they have used these. <em>The teacher actively scaffolds thinking about transfer uses for what they have learned, and learners are required to apply their learning in different contexts.</em></td>
<td>Year 6 learners produce a video on the history of their school as part of the school’s centennial celebrations. They use Padlet to reflect and document their process and what they learned from the experience. Ideas span thinking and planning processes, technology, communication, personal and collaborative skills. ‘Well done’ says their teacher ‘for all the valuable learning you have gained.’ No further reflection was undertaken with learners or consideration given to how they might use these skills and processes in new contexts.</td>
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<tr>
<td>Learners analyse demographic statistics from the town in which they live and use their understanding of population trends to develop a plan for an upcoming housing development project. <em>Learners apply their knowledge from analysing demographic statistics in order to develop a housing plan; this step requires further analysis.</em></td>
<td>Learners analyse demographic statistics from the town in which they live and analyse demographic statistics from a second location of their choice. <em>Learners do not apply their knowledge from analysing demographic statistics to any new activity; they simply repeat the same activity with a different dataset.</em></td>
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<tr>
<td>Learners in theatre class analyse the characters in a play to learn about character development; then they use Movie Maker to create their own one-act play demonstrating character development. <em>Learners apply their knowledge from their character analysis to create and develop their own characters; this step requires further interpretation and analysis.</em></td>
<td>Learners in theatre class analyse the characters in a play to learn about character development and then write an essay about what they learned. <em>Learners do not apply their knowledge from their character analysis to any new learning work; they simply articulate that knowledge.</em></td>
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</table>
Learners design and execute a process for testing the qualities of their school tap water. Once they have accurate data, they use that information to determine which water filtration system would be most appropriate for the school, and create an Infographic to visually represent their new understandings about water quality to help their school community make an appropriate decision.

*Learners apply their knowledge from designing and conducting water quality tests to select an appropriate water filtration system, which forces them to look at what they have learned in a new way and deepen their knowledge.*

Learners design and execute a process for testing the qualities of their school tap water. They test the water and redesign the procedure iteratively until they have accurate data. Although learners apply their knowledge from previous trials to refine the procedure, they are only applying knowledge within a single (repeated) context. They are deepening their knowledge, not extending it to a new type of application.
# Knowledge Construction: Rubric

<table>
<thead>
<tr>
<th>Level</th>
<th>Description</th>
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<tbody>
<tr>
<td>0</td>
<td>The learning activity does NOT require students to construct knowledge. Students can complete the activity by reproducing information or by using familiar procedures.</td>
</tr>
</tbody>
</table>
| 1     | Learners DO engage in **meaningful knowledge construction**: learners see relevance, purpose, connect new ideas to prior knowledge and access learning in diverse ways  
BUT learners DO NOT actively work with significant ideas, topics, questions and thinking processes. |
| 2     | Learners DO engage in **meaningful knowledge construction**: learners see relevance, purpose, connect new ideas to prior knowledge and access learning in diverse ways  
AND learners DO actively work with **significant ideas, topics, questions** and **thinking processes**  
BUT learners are NOT required to make connections and identify patterns and relationships among them. |
| 3     | Learners DO engage in **meaningful knowledge construction**: learners see relevance, purpose, connect new ideas to prior knowledge and access learning in diverse ways  
AND learners DO actively work with **significant ideas, topics, questions** and **thinking processes**  
AND learners ARE required to **make connections** and **identify patterns and relationships** among them  
BUT learners ARE NOT required to demonstrate and apply their new knowledge to a new context. |
| 4     | Learners DO engage in **meaningful knowledge construction**: learners see relevance, purpose, connect new ideas to prior knowledge and access learning in diverse ways  
AND learners DO actively work with **significant ideas, topics, questions** and **thinking processes**  
AND learners ARE required to **make connections and identify patterns** and **relationships** among them  
AND learners ARE required to **demonstrate and apply** their new knowledge to a new context. |
Knowledge Construction: Decision Steps

Learner engage in meaningful knowledge construction?

Yes ➔ 0

No ➔ Learners work with significant ideas, topics, questions and thinking?

Yes ➔ Learners make connections and identify patterns?

Yes ➔ Learners apply new knowledge in a new context?

Yes ➔ 4

No ➔ 2

No ➔ 1

No ➔ 0
Self-Regulation

Do learning activities offer substantive time and opportunity to develop learners’ self-regulation skills? Do learners know learning intentions and assessment criteria in advance of the work? Do they plan their own work? Do learners use feedback to improve their learning?

Overview

Today’s complex world demands self-regulated thinkers and learners who can take responsibility for their lives, their work, and their ongoing learning.

Self-regulation is an integral aspect of several key capabilities in the Australian Curriculum, particularly personal, social, ethical, critical and creative thinking capabilities, and contributes significantly to their development. 9

In past times, teaching was often viewed as ‘telling’; teachers would organize and direct student learning, tell learners what to do and expect compliance. Today, we recognise that this way of working produces dependency and compliance rather than self-regulation because learners’ abilities to think effectively, make decisions for themselves, and take ownership of their learning are diminished.

The development of self-regulation requires that we work with learners, guiding and empowering in ways that help them take increasing responsibility for their own learning, both as individuals and in groups. Our teaching roles are more complex than ever before: we are partners in learning, coaches and mentors.

Self-regulation involves a range of skills that become increasingly sophisticated as they develop over time. Therefore, learning activities must provide substantive time and ongoing opportunities for learners to develop these, with visibility into clear learning intentions or goals and success criteria that learners can use to plan, monitor, and assess their own learning work. In the most successful learning activities, learners receive and use feedback effectively to improve their learning and related work products.

This requires us to design, scaffold and provide learning activities that intentionally and deliberately develop learner self-understanding and self-regulation skills, with opportunity to learn both individually and in collaborative groups.

A key goal for us as teachers is to progressively increase learners’ responsibility for learning as they develop essential capabilities toward self-regulation.

**Big Ideas**

**Substantive time and opportunity**
Length of time is a basic pre-requisite for learning opportunities to develop self-regulation skills. Learning activities must offer student learners **ongoing opportunities** to work on and make progress with self-regulation skills over a **substantive period of time**.

For example, teachers might initially establish learning goals or intentions for learning activities; over time, this would show movement to co-construction and negotiation of goals with learners, through to learners being able to effectively set and monitor their own learning goals.

This kind of learning cannot be achieved in a single lesson or class period, or taught without multiple and ongoing opportunities for learners to practise and develop self-regulation skills.

If learning work is long-term BUT all decisions about learning are made by us as teachers, and learners follow our detailed instructions and plans, they do NOT have the opportunity to learn self-regulation skills.

<table>
<thead>
<tr>
<th>Does this offer substantive time and opportunity to develop self-regulation?</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>YES</strong></td>
</tr>
<tr>
<td>Learners record personal learning goals in their digital journal at the beginning of term; they regularly reflect and document learning progress against these, and plan next steps, over several weeks. They share and review these during their end of term student-led parent-teacher conference.</td>
</tr>
<tr>
<td><strong>NO</strong></td>
</tr>
<tr>
<td>Learners record personal learning goals in their digital journal at the beginning of term. These are not referred to again until learners reflect on whether they achieved these goals during their end of term parent-teacher conference.</td>
</tr>
</tbody>
</table>

**Learning intentions and success criteria in advance**
Learner understanding of the goals or **learning intentions** and associated **success criteria in advance of the learning work** to be done markedly enhances self-regulation by providing guidance that enables learners to plan, monitor, reflect on and improve the progress and quality of their work as they do it.
Learning intentions or goals define what is to be learned, their purpose, and how these fit with prior and future learning.

Success criteria are the factors to be considered in determining whether the learning intentions or goals have been met: the evidence of student progress and success in this learning activity.

Self-regulation is further enhanced when learners co-construct learning intentions and associated success criteria with their teachers and/or peers, and when they are involved in self-assessment.

If learners do not know or understand the learning intentions and assessment or success criteria in advance of the learning work, they are NOT able to plan effectively to achieve desired outcomes.

### Do learners understand learning intentions and success criteria in advance of the learning activity?

<table>
<thead>
<tr>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>The teacher provides a rubric that relates to how the learning activity will be assessed, and deconstructs this with learners to ensure understanding.</td>
<td>No assessment criteria are given to learners in advance of assessment tasks.</td>
</tr>
</tbody>
</table>
| Learners ask clarifying questions about the science learning intentions shared by their teacher. Together, they co-construct assessment criteria that shows what will count as success. Learners then use these to set personal learning goals for themselves, and to reflect on their progress against explicit success criteria. The teacher provides some concrete sentence starters as scaffolds that learners reflect on and respond to. For example:  
  - I am learning...  
  - My goal is...  
  - My next steps are...  
  - I will know I have achieved this when...  
  - I will know I am improving when... | Learners follow teacher instructions to complete the whole class science activity and submit their work to the teacher for assessment.  
The teacher does not make explicit the science learning intentions or purpose of the learning activity. No mention is made of how the teacher will assess them. |
Planning own work

Self-regulation develops when learners **plan** and **make choices** and **decisions** about their own work, and **reflect** on their learning effectiveness and progress. This requires us as teachers to provide both opportunity and conscious scaffolding and development of learners’ skills.

Planning their own work may involve some or all of these:

- **Deciding what**: the content or topic of the learning; involvement in what the assessment will look like.

- **Deciding how**: their approach to the learning - how they will learn, tools they will use, planning steps to take, learning processes or strategies to use, how learning will be assessed and how they will represent their learning.

- **Deciding when**: creating a schedule for their work, such as timelines for key steps and deadlines for completion.

- **Deciding who**: who will be involved in their learning or share responsibility with them, such as sub-dividing responsibility and tasks within a team, or who will be involved in their assessment.

- **Deciding where**: where learning or parts of the learning activity will take place: inside and/or outside of the classroom and the school day.

If a learning activity is long-term, but learners are given detailed instructions and timelines, they do NOT have the opportunity to plan their own work. Learners making decisions about small aspects of their learning work does NOT qualify as planning their own work.

### Are these learners planning their own work?

<table>
<thead>
<tr>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
</table>
| Beginning an inquiry unit, learners use mind-mapping software (or paper and pencil) to record what they:  
  *already know about a topic/issue*  
  *want to know and investigate about this– their key questions*  
  *how they might find out and approach their investigation*  
  At the end of their unit they reflect and compare their initial thinking with what they now know and have learned. | Beginning an inquiry unit, the teacher sets out the key question for investigation, and provides detailed instructions on how learners will explore this.  
  There is no recognition of what learners already know or opportunity to plan, reflect or follow their interests. |

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Learners create, develop and keep individual ePortfolios that represent their growth and learning journey.

What learners select and place into these includes:
- learning work samples
- draft work, plans and products
- their developing understandings
- strategies used
- reflections on learning
- feedback
- self-assessments
- goal-setting

These ePortfolios provide an ongoing and personalized bank of evidence that reflects their learning efforts, progress, and achievements.

Over the course of three weeks, learners work in teams to research and investigate a real-world issue of concern in their local community.

Team members decide who will research which aspects of the issue, plan their key questions, and negotiate where and when they will undertake their research, and set deadlines for team sharing of research results.

A teacher creates, develops and keeps individual ePortfolios that represent each learner in class and their learning journey.

The teacher selects and places into these what she considers relevant learner work samples and assessment results.

Over time a bank of evidence reflects learners’ efforts, progress and achievements.

Over the course of three weeks, learners work in teams to research and investigate a real-world issue of concern in their local community.

The teacher assigns each team member a different aspect of the issue to research, and provides detailed instructions on their research questions and schedule to be met.

Use of feedback to improve learning

Feedback, used effectively, is one of the most significant influences on improving learning. When learners receive feedback on their learning and use that feedback explicitly to improve their learning work, they can reflect on successes and mistakes made, build on from successes, plan improvement, set new goals and plan their next steps for learning.

Feedback may come from teachers, peers or relevant others. Learners can also engage in self-feedback through a deliberate process of self-reflection.

Feedback is not the same as praise. Comments such as ‘good job’ or ‘great work’ do little to help the learner know what constitutes great work. Effective feedback:

- tells the learner specifically what they are doing well and offers specific guidance to help move their learning forward
- is directly connected to the learning intentions or goals and success criteria
- acknowledges and raises awareness of progress and improvements needed
- leads to reflection and planning of next steps

<table>
<thead>
<tr>
<th><strong>Is feedback being used to improve learning?</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>YES</strong></td>
<td><strong>NO</strong></td>
</tr>
</tbody>
</table>
| Learners write persuasive essays that will be assessed against an explicit learning intention and assessment rubric shared with learners beforehand. As learners write their essays, the teacher monitors learning, offering scaffolds and prompts that encourage learners to use the rubric to reflect on their own drafts and make revisions. For example:  
‘Remember that your conclusion must...’  
‘How might you incorporate...?’  
‘Well done, because your essay shows evidence of these assessment criteria...’  
‘What might your next steps be?’  
Completed essays are published on a blog and further feedback sought from peers. | Learners write persuasive essays that will be assessed against an explicit learning intention and assessment rubric shared with learners beforehand. As learners write their essays, the teacher monitors learning, making comments on writing work such as:  
‘Good work!’  
‘Hey...this is so much better than your last essay!’  
‘I really like this paragraph.’  
Learners submit their essays for teacher assessment; he returns the essays and asks learners to look at the rubric to see why they received a certain assessment. |
| Having learned about environmental conservation, learners create games in Kodu where players make decisions to preserve the environment. Learners swap games with a partner, who use the learning intention and success criteria previously established to give each other feedback. They use this to revise their games before presenting them to the teacher and the rest of the class, who offer further feedback. | Having learned about environmental conservation, learners create games in Kodu where players make decisions to preserve the environment. Learners present their games to the teacher and their classmates, who give them a score from 1-4, 4 = Fabulous! 3=It works!, 2=Good, needs improvement, and 1=Needs a lot of work. |
Student film-makers video their peers working on ball handling skills in a physical education class; learners then analyse their own skills against the learning intention and success criteria, seek feedback from peers and teacher, and set personal goals and timelines for improvement.

Over the following month, they revise and set new goals as they practise their skills, reflect and use feedback for ongoing improvement.

Effective feedback ensures that learners reflect on what and how they are learning, so that, over time, they can become more meta-cognitively aware and monitor their thinking and approaches before, during and following completion of learning work.

If error is not welcomed as an opportunity to learn, and feedback is not specifically related to the learning work and what needs improvement, if learners are not actively involved in using feedback to reflect and plan their next learning steps, this does NOT count as effective feedback.
# Self-Regulation Rubric

<table>
<thead>
<tr>
<th>Score</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Learning activities DO NOT provide substantive time and opportunity for learners to develop self-regulation skills.</td>
</tr>
</tbody>
</table>
| 1     | Learning activities DO provide **substantive time and opportunity** for learners to develop self-regulation skills  
BUT learners DO NOT know the learning intentions and associated success criteria in advance of the learning work. |
| 2     | Learning activities DO provide **substantive time and opportunity** for learners to develop self-regulation skills  
AND learners DO know the **learning intentions** and associated **success criteria** in advance of the learning work  
BUT learners DO NOT have the opportunity to plan their own work. |
| 3     | Learning activities DO provide **substantive time and opportunity** for learners to develop self-regulation skills.  
AND learners DO know the **learning intentions** and associated **success criteria** in advance of the learning work  
AND learners DO have the opportunity to **plan their own work**  
BUT learners DO NOT have the opportunity to use feedback to improve their learning. |
| 4     | Learning activities provide **substantive time and opportunity** for learners to develop self-regulation skills  
AND learners DO know the **learning intentions** and associated **success criteria** in advance of the learning work  
AND learners DO have the opportunity to **plan their own work**  
AND learners DO **use feedback** to improve their learning. |
Self-Regulation: Decision Steps

Learning activity offers **substantive** time and opportunity?

- **YES**
- **NO**

Learners know **learning intentions and success criteria in advance**?

- **YES**
- **NO**

Learners **plan their own work**?

- **YES**
- **NO**

Learners **use feedback to improve learning**?

- **YES**
- **NO**
Real-World Innovation and Problem-Solving

Do learners work with real-world issues, opportunities, challenges and problems for authentic audiences and real life benefits? Do learners actively inquire and pose questions? Do they generate possibilities, design ideas and test them out? Do learners evaluate, reflect and take action on their ideas?

Overview

In a world characterized by exponential change and complex challenge, it is essential for learners to develop dynamic, innovative mind-frames and capabilities that enable them to continually adapt, create the ‘new,’ and actively contribute to making the world a better place for all.

In this Rubric, we define the term ‘innovation’ as something new, original or improved that creates or adds value. To be considered of value, the innovation must address an authentic need, issue, opportunity, challenge or problem to which there is no pre-determined solution or response that learners already know. Results or outcomes must have real-life benefits for specific audiences and situations.

This is very different than the kind of problem-solving sometimes seen in academic settings where learners engage in a classroom exercise with no real-world purpose or impact, or use textbook ‘problems’ to simply practise learned procedures.

In this rubric, learners must use data from the ‘real world’ to create ideas, solutions, processes, services or products for authentic situations and users. Creativity as well as logic are essential, and requires the kind of creative and critical thinking identified as a key capability in the Australian Curriculum:

‘Critical and creative thinking are integral to activities that require students to think broadly and deeply using skills, behaviours and dispositions such as reason, logic, resourcefulness, imagination and innovation in all learning areas at school and in their lives beyond school... Thinking that is productive, purposeful and intentional is at the centre of effective learning.’

Learners work as real-world innovators and problem-solvers when they engage with authentic issues, opportunities, challenges, and problems for authentic audiences and

**benefits.** They actively **inquire** into these and generate multiple ideas and options from which to **create, design** and **test** their solutions and ideas.

They take their thinking to **action** as they **implement, evaluate** and **reflect** on their outcome. This process is cyclical rather than linear, and each part is inter-connected.

**Big Ideas**

**Work with real-world issues, opportunities, challenges and problems for authentic audiences and benefits**

Real-world innovation and problem-solving occurs when learners use data and information from the real world to address authentic needs, opportunities, issues, problems and challenges for real people, specific situations or contexts, that have real value and benefits.

When learners see real usefulness in what they are doing they are more motivated and empowered to learn. Personal and social responsibility is developed when learners make a positive contribution to both their own and others' lives. This helps to shape their learning, their thinking and their world in ways that make a real difference.

Authentic opportunities to innovate and problem-solve abound within and beyond the classroom, the school, and across the local and global community. This might range, for example, from learners working together within the classroom to create a game to help them learn mathematics concepts more effectively through to working to address a real-life local community or global issue.

| **DO LEARNERS WORK WITH REAL-WORLD ISSUES, OPPORTUNITIES CHALLENGES AND PROBLEMS FOR AUTHENTIC AUDIENCES AND BENEFITS?** |
|---|---|
| **YES:** | **NO:** |
| Having identified classroom environment issues related to space, noise and storage that are impacting on learning and peer relationships, learners use the design-technology process to re-design their classroom to address these issues. *Learner innovation and problem-solving occurs in response to authentic learning issues and needs.* | Learners use the design-technology process to create plans for their ‘ideal’ classroom. *These plans are not created in response to authentic needs or issues.* |
| Learners rewrite a Shakespeare play for a teenage audience in another class in | Learners rewrite a Shakespeare play in a new rhyme scheme. |

Microsoft Partners in Learning
response to their feedback that Shakespeare lacks relevance in their lives. 
*This is done in response to an authentic need and teenagers are a real, specific audience.*

<table>
<thead>
<tr>
<th>This has no specific audience.</th>
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</table>

| Road safety data shows that pedestrian safety around current bus stops has become an issue in learners’ local community. Learners use their community’s bus route map to examine and propose where bus stops and pedestrian crossings should be altered or added in their town. 
Learners use *actual data to do this for a specific and authentic context.* |
| Learners use a bus map in a textbook to propose where pedestrian crossings should be added in a fictional town. 
*This does not involve actual data or an authentic situation.* |

| Air quality is identified as an issue in the classroom, and learners investigate whether growing plants in their classroom can improve this. 
*The context for this investigation represents a real issue.* |
| Learners investigate the interaction between green plants and carbon dioxide in the air. 
*There is no authentic need or explicit context for investigation.* |

### Actively inquire and pose questions

Real-world innovation and problem-solving requires learners to actively inquire, pose, and pursue questions in order to **understand** and **accurately identify** authentic needs, issues, opportunities, challenges and problems.

The following key element from the Australian Curriculum’s Critical and Creative Thinking Capability becomes especially important in this dimension:

| Inquiring – identifying, exploring and organizing information and ideas |
| Pose questions, identify and clarify information and ideas, organize and process information. |

Learners might inquire in several of these ways, according to the particular situation:

- Listen with empathy to uncover authentic needs, issues and opportunities
- Seek and understand different perspectives
- Discover the facts, evidence and data
- Observe or experience the situation or a similar context in which the need, problem or opportunity exists

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- pose questions and wonderings that open up thinking and possibilities
- ask questions that challenge and disrupt the ‘status quo’

Curiosity and open-mindedness are essential dispositions here as learners seek to discover important and relevant information that enables them to:

- achieve key insights and common understandings
- understand the context, parameters and any constraints
- identify, focus, and accurately frame the challenge, problem, opportunity, and/or key inquiry question

This dimension of the rubric is critical to helping learners **accurately target** the authentic and actual problem, issue or opportunity to work with, and invites creative solutions and ideas so important in the next rubric dimension.

### DO LEARNERS ACTIVELY INQUIRE AND POSE QUESTIONS?

<table>
<thead>
<tr>
<th>YES:</th>
<th>NO:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Using Lino.It to reflect and generate ideas and perspectives about ongoing classroom issues, noise, lack of working space and unsuitable storage are identified as key causes and issues. Learners pose and discuss two challenging questions: Why should adults design the environment we work in? What if we designed our own learning environments? They identify any constraints that might impact on their classroom re-design, and use the design-technology process to address identified issues. <em>Learners actively inquire and pose questions to accurately identify authentic issues, challenge the ‘status quo’ and any constraints on their re-design.</em></td>
<td>Learners use the design-technology process to create plans for their ‘ideal’ classroom. <em>These plans, and any wonderings or questions that may be posed, are not in response to authentic needs or issues.</em></td>
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<tbody>
<tr>
<td>Having heard complaints from teenagers in another class about Shakespeare’s plays, learners interview members of this class and their teacher to uncover their concerns. They re-write a Shakespeare play for this audience in response to their feedback and Students rewrite a Shakespeare play in a new rhyme scheme. <em>Learners do not actively inquire and pose questions for an authentic audience or purpose.</em></td>
<td></td>
</tr>
</tbody>
</table>


Generate possibilities, design and test out ideas and solutions

In this dimension, learners generate multiple possibilities, alternatives and solutions from which to create, design and test their ideas.

The thinking learners engage in as they do this is identified as a key element in the Australian Curriculum’s Creative and Critical Thinking Capability:
As learners generate a volume and variety of ideas and seek to organize them, they may use a range of thinking and creativity strategies, for example, brainstorming, SCAMPER, Synectics, cognitive organisers, attribute listing, and ‘What if’ possibility thinking (Dalton 2013). (*Search for these using Bing.)

Taking account of key themes, constraints and criteria, learners engage in a process of experimentation to develop rough plans and prototypes, and test them out. A critical aspect of the testing process is seeking and using feedback to develop next and improved iterations, and using error and mistake-making as opportunities to learn.

This process is an important part of conceptualizing, interpreting and abstracting, or, distilling ideas down to their essence.

When learners work as innovators, problem-solvers and designers, structure and process are both necessary and invaluable for learning. The process used will depend on the type of innovation or problem at hand, for example learners might use a full design-thinking process, such as that espoused by the Design School at Harvard University, a design-technology process, or a creative or other problem-solving process. (*Use Bing or Google to search for these.)

Even young learners can use simple steps such as Find the problem, Find ideas and Find a solution. Regardless of the specific process used, these usually have much in common and involve stages of:

- Inquiry/finding out/defining the challenge
- Generating ideas/solutions/alternatives
- Designing/experimenting/testing out ideas and solutions
- Evaluating and implementing/taking action

As learners conceptualise, interpret and abstract ideas to their essence, reflection on thinking and processes used is an integral and ongoing part of these stages, and is highlighted in the Australian Curriculum’s Creative and Critical Thinking Capability:

**Reflecting on thinking and processes**
Think about thinking, (metacognition) reflect on processes, and transfer knowledge into new contexts

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**DO LEARNERS GENERATE POSSIBILITIES, DESIGN AND TEST OUT IDEAS AND SOLUTIONS?**

<table>
<thead>
<tr>
<th>YES:</th>
<th>NO:</th>
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</thead>
<tbody>
<tr>
<td>Having inquired and accurately identified classroom environment issues related to space, noise and storage, learners use ‘What if’ thinking to generate and pose multiple wonderings such as: What if we got rid of all the tables? What if we created a safe mezzanine area? What if we designed new storage solutions? What if we set up quiet spaces? What if we used the corridor for learning as well?</td>
<td>Learners use the design-technology process to create plans for their ‘ideal’ classroom.</td>
</tr>
<tr>
<td>They use SketchUp Pro as an intuitive way to design, document and communicate their ideas in 3D. They test out rough prototypes, seeking and using feedback from peers, their teacher and principal to develop further iterations against agreed criteria. Ongoing reflection, learning from mistakes, and shifting their thinking and approach is integral to this process.</td>
<td></td>
</tr>
<tr>
<td>Learners rewrite a Shakespeare play for a teenage audience in another class in response to their feedback that Shakespeare lacks relevance in their lives. As part of this, learners use Attribute Listing to generate the play’s main characteristics and dimensions they might change, and brainstorm ways to make each of these more relevant to their audience’s lives. They test out ideas using key criteria identified from feedback.</td>
<td>Students rewrite a Shakespeare play in a new rhyme scheme.</td>
</tr>
<tr>
<td>As part of addressing a pedestrian safety issue in their local town, and having gathered relevant evidence and data, learners generate a range of possible changes to bus stops and construct 3D prototypes using Autodesk Homestyler. They test them out against agreed criteria and select the most promising solutions to photograph and email to relevant local</td>
<td>Learners use a bus map in a textbook to propose where pedestrian crossings should be added in a fictional town.</td>
</tr>
</tbody>
</table>
Air quality is identified as an issue in the classroom, and using data and ideas gathered from their earlier inquiries, it seems that growing plants in their classroom may improve this. They decide to experiment and test out which plants will best achieve this, monitoring and recording their results.

Learners investigate the interaction between green plants and carbon dioxide in the air.

Do learners evaluate, reflect, and take action on their ideas?
Real-world innovation and problem-solving is driven by authentic purpose: to make a difference that results in real and authentic benefits for specific audiences and situations.

To achieve this purpose, and to count in this dimension of the rubric, learners must evolve their plans to action in some way. This requires learners to reflect and make key decisions related to implementation and action. In so doing, they draw on the kind of thinking identified in this element of the Australian Curriculum’s Creative and Critical Thinking Capability:

<table>
<thead>
<tr>
<th>Analysing, synthesizing and evaluating reasoning and procedures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apply logic and reasoning, draw conclusions and design a course of action, evaluate procedures and outcomes.</td>
</tr>
</tbody>
</table>

Implementation requires learners to put their ideas and solutions into practice in the real world. For example, it DOES count as taking action if learners design and build a community garden in the grounds of their school; just designing the garden DOES NOT count.

In instances where learners do not have the authority to implement their own ideas, it counts as taking action ONLY if learners convey their ideas to people outside the classroom context who can implement them.

For example, it DOES count as taking action if learners present their ideas for building a community garden in their local public park to a local environmental group or to local council officials. It does NOT count if learners design a community garden for that public park and only share their plans with their teacher and classmates.

Real-world innovation and problem-solving usually involves the world outside the classroom, however, if this occurs as an authentic need that makes an authentic difference to learners’ lives and learning, implementation within the classroom DOES count in this dimension.

For instance, in the example where issues of space, noise and storage in a classroom environment were impacting on learners' relationships and effective learning, learners implemented their design solutions by creating a new classroom environment that addressed these issues. This had real-life value for learners and their teacher.

It DOES NOT count as taking action in the real world if learners had simply engaged in problem-solving these issues as a classroom exercise without implementing them.

It also counts as taking action if, for example, learners create an innovative project for an event such as a science fair, or submit an original poem to a regional poetry contest, because the fair and contest are real-world events with real audiences who are interested in and may benefit from learners’ contributions.

<table>
<thead>
<tr>
<th>DO LEARNERS EVALUATE, REFLECT AND TAKE ACTION?</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>YES:</strong></td>
</tr>
<tr>
<td>Learners rewrite and perform a Shakespeare play for a teenage audience in another class in response to feedback that Shakespeare lacks relevance in their lives. They seek feedback from this audience to identify its value to them, and use this feedback to improve the play and perform it for a youth audience at their local community centre.</td>
</tr>
<tr>
<td><em>Learners take their rewrite to action by performing the play for a specific audience, and evaluate its benefits to make changes for another, broader authentic audience.</em></td>
</tr>
<tr>
<td><strong>NO:</strong></td>
</tr>
<tr>
<td>Students rewrite a Shakespeare play in a new rhyme scheme.</td>
</tr>
<tr>
<td><em>This has no specific audience or authentic action with real-world benefits.</em></td>
</tr>
</tbody>
</table>

| In response to an authentic issue of pedestrian safety around bus stops in their local community, learners use data gathered and their community’s bus route map to examine and propose where bus stops and pedestrian crossings should be altered or added in their town. |
| Having sought and received feedback from local community members and official bodies on their most promising solutions, they now evaluate these, put together and |
| In response to an authentic issue of pedestrian safety around bus stops in their local community, learners use data gathered and their community’s bus route map to examine and propose where bus stops and pedestrian crossings should be altered or added in their town. |
| They write letters addressed to their local council BUT the letters are only given to their teacher for assessment. |
| Present a full proposal to their local council.  
*Learners cannot build new pedestrian crossings themselves but the local council can implement their ideas.* | *Learners do not take action on an authentic issue that exists.* |
|---|---|
| Following learners' investigations, they develop a presentation using Community Clips and Windows Live Moviemaker about safe and responsible online behaviours for parents and peers to be aware of, and present their product at their school parent's night.  
*Parents and learners who attend the parent's night presentation are an authentic audience for whom this has real-life benefits.* | Following learners' investigations, they develop a presentation using Community Clips and Windows Live Moviemaker about safe and responsible online behaviours for parents and students to be aware of. This is viewed and assessed by the teacher.  
*This has no specific audience and is not taken to action for real-life audience benefits.* |
| Learners analyse statistics on the basketball team's past performance and create mathematical models using Microsoft Excel for the coach, to illustrate targeted improvement needs for both team and individual performance. The coach uses learners' analysis to help players focus their training on skills that need improvement.  
*This has real-life benefits and value for the basketball coach and team members as they use the data to take action.* | Learners analyse data about the basketball team and use Microsoft Excel to graph performance patterns for the overall team and individual players.  
Learners' graphs are presented to the class as an academic exercise.  
*Learners do not take action on an authentic issue that exists.* |
# Real-World Innovation and Problem-Solving Rubric

<table>
<thead>
<tr>
<th>Level</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Learners do NOT work with real-world issues, opportunities, challenges and problems for authentic audiences and real-life benefits</td>
</tr>
</tbody>
</table>
| 1     | Learners DO work with **real-world issues, opportunities, challenges and problems for authentic purposes** and real-life benefits  
|       | BUT they DO NOT actively inquire and pose questions to identify authentic needs, opportunities and define problems. |
| 2     | Learners DO work with **real-world issues, opportunities, challenges and problems for authentic audiences** and real-life benefits  
|       | AND they DO **actively inquire and pose questions** to identify authentic needs, opportunities and define problems  
|       | BUT they DO NOT generate possibilities, design and test out ideas and solutions. |
| 3     | Learners DO work with **real-world issues, opportunities, challenges and problems for authentic audiences** and real-life benefits  
|       | AND they DO **actively inquire and pose questions** to identify authentic needs, opportunities and define problems  
|       | AND they DO **generate possibilities, design and test** out ideas and solutions  
|       | BUT they DO NOT evaluate, reflect and take action on their ideas in the real world. |
| 4     | Learners DO work with **real-world issues, opportunities, challenges and problems for authentic audiences** and real-life benefits  
|       | AND they DO **actively inquire and pose questions** to identify authentic needs, opportunities and define problems  
|       | AND they DO **generate possibilities, design and test** out ideas and solutions  
|       | AND they DO evaluate, reflect and take **action** on their ideas in the real world. |
Real-World Innovation and Problem-Solving: Decision Steps

Learners work with **real-world issues**, opportunities, challenges and problems?

Learners **actively inquire and pose questions**?

Learners **generate possibilities, design and test** out ideas and solutions?

Learners **evaluate, reflect and take action** on their ideas?
ICT for Learning

Do learners have opportunities to use ICT?
Do learners use ICT to construct knowledge and add value to learning?
Do learners use ICT to design and create new ideas, products and solutions for authentic audiences and users?
Does learner use of ICT demonstrate ethics, application of social-ethical protocols, and additional 21stC Capabilities?

Overview

We live in a connected, globalized world with unprecedented access to a vast array of digital information and experiences. The use of technology continues to transform the way we live and work. The importance of developing ICT capability is recognised in the Australian Curriculum:

'To participate in a knowledge-based economy and to be empowered within a technologically sophisticated society now and into the future, students need the knowledge, skills and confidence to make ICT work for them at school, at home, at work and in their communities.

...Students develop ICT capability as they learn to use ICT effectively and appropriately to access, create and communicate information and ideas, solve problems and work collaboratively in all learning areas at school, and in their lives beyond school.

The capability involves students in learning to make the most of the digital technologies available to them, adapting to new ways of doing things as technologies evolve and limiting the risks to themselves and others in a digital environment.' ¹⁵

While ICT is becoming increasingly common in classrooms and learning environments, it is often used to present or passively consume information. ICT has the potential to fundamentally transform learning experiences, to enable learning in ways that were not previously possible. ICT is a powerful tool to support the development of a wide range of 21st Century capabilities and skills, in particular the capabilities and skills outlined in other 21C Learning Design rubrics.

This ICT rubric examines how learners use ICT: whether it is used in more powerful ways to **construct knowledge**, to **create new ideas, products and solutions for authentic audiences and users**, whether it is used **ethically** and **develops other 21C capabilities**.

In this rubric, the term ‘ICT’ encompasses the full range of available digital tools, both hardware (computers and related electronic devices such as tablets and notebooks, e-readers, smart phones, personal digital assistants, camcorders, graphing calculators, and electronic whiteboards) and software (including everything from an Internet browser and multimedia development tools to engineering applications, social media, and collaborative editing platforms).

**Big ideas**

**Opportunities for learners to use ICT**

This rubric looks at the **opportunities** learners have to use ICT directly to complete all or part of the learning activity. While teacher use of ICT can significantly enhance teaching, this rubric focuses solely on how the learning activity requires **student learners** to use ICT in their learning.

Therefore, teacher use of ICT to present information to learners does NOT count as learner use: it is important that learners select which ICT tools to use, have control over and use ICT for themselves. It is considered ICT use if learners are required to or can use ICT for all or part of their learning work.

<table>
<thead>
<tr>
<th>Do these learners have opportunities to use ICT?</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>YES</strong></td>
</tr>
<tr>
<td>Learners use Microsoft OneNote or Word to edit their writing, tracking their changes as they go.</td>
</tr>
<tr>
<td>Learners complete a maths learning activity by using Excel spreadsheet software.</td>
</tr>
<tr>
<td>Learners learn about cell replication by using a software simulation to explore the process.</td>
</tr>
<tr>
<td><strong>NO</strong></td>
</tr>
<tr>
<td>The teacher reads and edits learners writing, noting suggested changes as he does so.</td>
</tr>
<tr>
<td>Learners complete a maths learning activity by using worksheets the teacher has printed out from the computer.</td>
</tr>
<tr>
<td>Learners learn about cell replication by watching the teacher demonstrate a software simulation of the process.</td>
</tr>
</tbody>
</table>
ICT use to construct knowledge and add value to learning

ICT offers a wealth of opportunities for learners to construct knowledge as they investigate, collaborate, communicate, innovate and engage in real-world problem solving in ways that support learner self-regulation.

In the past, ICT was often used to support practice of basic skills or to reproduce rather than construct new knowledge. For example, copying and pasting information retrieved by searching online is simply the reproduction of information that demands little real thinking of learners.

The Australian Curriculum highlights the need for active learner use of ICT:

‘Students... (need to)...develop knowledge, skills and dispositions around ICT and its use, and the ability to transfer these across environments and applications.’

Real knowledge construction happens when learners generate, construct, and actively create ideas and understandings that are new to them. This requires them to engage in complex, productive and intentional thinking, use critical and creative thinking skills and processes to support deep understanding, and apply or use their learning in other contexts.

The knowledge construction supported by ICT must connect to the learning goals of the activity AND it must add value to the learning work. The use of ICT as an end in itself does NOT qualify.

This dimension of the rubric examines whether the learning activity requires learners to use ICT in ways that support and add value to knowledge construction, either directly or indirectly.

For example, as part of an investigation on birds in their local area, primary aged learners might be asked to find information about Australian bird species with different kinds of beaks, diets and habitats, and make connections to why particular birds live in their local area.

If learners use the Internet for this activity, they are constructing knowledge, but ICT use is not actually required, nor does it add particular value to the learning. Learners could just as easily use printed books and resources from a library to achieve the learning goal.

ICT is required for knowledge construction when it enables learning that would be impossible or impractical without the use of ICT. Significantly, this can make learning more powerful than would be otherwise possible.

For example, imagine that Year 10 learners are researching the impact of nuclear bombing on Japan as part of their World War 2 studies. They use online forums to learn about the impact from the perspectives of students at Hiroshima High School, and firsthand from some of their elderly family members.

The use of ICT **adds direct value** to learners’ construction of knowledge because they experience and learn from diverse perspectives that otherwise would not have been easily available to them. The perspective-taking and inter-cultural empathy and understandings they are developing as a result of this enriches their learning and thinking significantly.

The use of ICT can also be required to support knowledge construction **indirectly**, as one aspect of or step in a learning activity, for example, when learners use a computer to analyse scientific information as part of a larger science inquiry.

<table>
<thead>
<tr>
<th>Does ICT use support knowledge-construction and add value to learning?</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>YES</strong></td>
<td><strong>NO</strong></td>
</tr>
<tr>
<td>Learners use AutoCollage to create a composite image that reflects the style and influences of an artist of their choice.</td>
<td>Learners use AutoCollage to create a composite image of art works by an artist of their choice.</td>
</tr>
<tr>
<td>Learners use Kinect (Xbox) Driving Games to research, apply and publish the effects of texting while driving.</td>
<td>Learners use Kinect (Xbox) Driving Games as an introduction to a new unit of work.</td>
</tr>
<tr>
<td>As part of an evaluation of internet resources to learn about social-ethical protocols, teams are required to find several sources on relevant topics, and analyse and evaluate their credibility. They synthesise and agree on key criteria before creating an online resource to help others become ethical users of internet resources.</td>
<td>As part of an evaluation of internet resources to learn about social-ethical protocols, teams watch a video presentation by an expert, and put together a summary of what they learned.</td>
</tr>
<tr>
<td>Learners video their peers working on ball handling skills in a physical education class; learners then analyse their own skills, seek feedback from peers and set goals for improvement.</td>
<td>Learners are filmed by a teacher as they work on ball handling skills in a physical education class – a clip from this is used to show parents at an information night the range of activities learners are involved in.</td>
</tr>
</tbody>
</table>

**ICT use to design and create multi-modal ideas, products and solutions for authentic audiences and users**

Learning is more powerful when learners use ICT to **design** and **create** new knowledge, understandings, solutions, ideas or products for **authentic audiences** and **users**. This challenges learners to think, learn and use ICT in more complex ways.

When learners have to teach or demonstrate learning to others in some way, they achieve deeper understanding themselves.
When they act as designers to create new products or solutions to real-world issues, problems or opportunities that others can use, they develop a sense of efficacy and empowerment that comes from learning they can make a difference to others and to their world.

For example, if learners record a podcast on disease prevention (such as diabetes) and make it available on the Internet, the product lasts beyond the learning activity and could be used or enjoyed by an outside audience. This, however, is not enough.

A key here is that learners must have an authentic use or audience in mind as they design and create multi-modal content. Learners who create a product with no particular audience in mind do NOT qualify as designers under this definition.

Learners must tailor their podcast design and information provided to the needs and preferences of an authentic audience or users. A podcast for younger learners might be very different than a podcast for use by members of their local community health care centre who are concerned about developing diabetes.

Part of the process might involve seeking feedback and comment from anticipated users. Ideally, but not necessarily, the product might actually be used by the intended audience.

<table>
<thead>
<tr>
<th>Do these learners use ICT to design and create multi-modal ideas, products and solutions for authentic audiences and users?</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>YES</strong></td>
</tr>
</tbody>
</table>
| In computer programming class, learners use TouchDevelop to design and program a mobile smart phone app to help senior citizens in their daily lives. As part of the process, they gather and use feedback from their audience and peers to refine their product to better meet the needs of users.  
**Learners construct knowledge of computer programming and must consider the needs of senior citizens in order to create an app that would be useful for that population.** |
| **NO**                                                      |
| In computer programming class, learners use TouchDevelop to program a mobile smart phone app that causes the phone to vibrate any time the user takes a photo.  
*The students construct knowledge of computer programming, but they do not consider any end users.* |
<table>
<thead>
<tr>
<th><strong>Learners use ICT tools to market research and survey other young people and community members to determine ideas for a new skate park/playground for the local community.</strong></th>
<th><strong>Learners use the design-technology process to practise planning and designing a new skate park/playground that they would love to play in.</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>They use CAD/Design software tools to develop their design, which is then shared with the local council, along with supporting evidence of need.</td>
<td>They seek further support from local Government and community to get the skate park/playground built.</td>
</tr>
<tr>
<td>They seek further support from local Government and community to get the skate park/playground built.</td>
<td>Learners use the Internet to research local food producers and write a report of their findings for assessment by their teacher.</td>
</tr>
<tr>
<td>Learners use the Internet to research and communicate with local food producers and then develop an app or online resource to help families in their community make more local choices when they buy their food.</td>
<td>Learners do not create an ICT product or consider the needs of any particular audience.</td>
</tr>
<tr>
<td>Learners pilot their app with local families to ensure it is both accessible and usable, and then refine as necessary.</td>
<td></td>
</tr>
</tbody>
</table>

**Use of ICT demonstrates ethics, social-ethical protocols and one or more additional 21C capabilities**

In the Australian Curriculum, ethical use of ICT is considered an integral and critical part of learners’ development:

> ‘...students develop ethical understanding as they identify and investigate the nature of ethical concepts, values and character traits, and understand how reasoning can assist ethical judgment.’

This requires learners to learn about ethical use of ICT, and to demonstrate strong application of social-ethical protocols in their work.

Moreover, ICT is used most powerfully when it enables and supports the development of **21st capabilities for deeper and richer learning** than was previously possible.

ICT has the power to transform the ways learners think and learn and can be instrumental in

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developing all other Learning Design rubrics in 21C – LD. For example, ICT gives learners greater control over what, how, where and when they learn, as well as who they learn with and from. ICT puts learners in the driver’s seat for self-responsible learning (Self-regulation), paving the way for lifelong, 24/7 learning, inside, outside and beyond school.

Learners can be designers and producers of knowledge (Knowledge Construction), they can collaborate, communicate, innovate and problem-solve as they use ICT to address real-life issues and projects that make a positive difference to learning and the world. (Skillful Communication, Collaboration, Use of ICT for learning, Real-world Problem-Solving and Innovation)

In addition to using ICT to construct knowledge in ways that add value to learning, and designing and creating multi-modal ICT content, solutions or products for authentic audiences and users, achieving this level requires learners to:

- demonstrate ethical use of ICT with strong application of social-ethical protocols

  AND

- demonstrate aspects of one or more 21st Century capabilities additional to ICT capability.

<table>
<thead>
<tr>
<th>Does learner use of ICT demonstrate ethics, social-ethical protocols and one or more additional 21C capabilities?</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>YES</strong></td>
</tr>
<tr>
<td>Learners of all ages connect together through social media platforms globally on a real-world project to stop deforestation in different countries through illegal logging. As part of this, learners use GPS satellite technologies to monitor the areas where logging is occurring and confirm this with peers in other countries when they see it happening. Their investigative reports to authorities alert them of a serious issue, leading to intervention when authorities travel to the area and stop the logging.</td>
</tr>
<tr>
<td>Year 11 learners’ research web 2.0 interactive technologies, explore students’ social networking habits, and identify related social and ethical issues. They use what they learn to create key social-ethical protocols surrounding social networking. These are submitted as part of their assessment in Interactive Digital Media Studies, published on their website, and shared with their state Education Department. As a result, this contributes to key information produced for all schools across the state.</td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td>Year 11 learners use ICT to research social networking habits and issues online. From information gained they create a presentation for their assessment in Interactive Media Studies to show what they have learned.</td>
</tr>
</tbody>
</table>
| Learners in a primary class work in small teams, choosing a favourite online space or game to investigate and create a presentation that shows:  
  - the good parts  
  - dangers to watch out for  
  - how you keep yourself safe  
  - key messages for younger users  
  - what parents should look out for  

Learners choose the presentation tools they feel are appropriate for their intended audience, and plan and lead a Parent Information Night for their parents and teachers. |
| The teacher of a primary class engages learners in brainstorming their favourite online space or game and then uses this list to teach them about online safety. |
Use of ICT: Rubric

0  •  Learners DO NOT have the opportunity to use ICT for this learning activity

1  •  Learners DO have opportunities to use ICT to practice basic skills or reproduce information

•  BUT they are NOT constructing knowledge.

2  •  Learners’ use of ICT is required to construct knowledge in ways that add value to learning

•  BUT they are not required to use ICT to design and create new ideas, products and solutions for authentic audiences and users.

3  •  Learners’ use of ICT is required to construct knowledge in ways that add value to learning

•  AND learners use ICT to design and create new ideas, products and solutions for authentic audiences and users

•  BUT ICT work does not demonstrate ethical use, social-ethical protocols, or any additional 21C capabilities.

4  •  Learners’ use of ICT is required to construct knowledge in ways that add value to learning

•  AND learners use ICT to design and create new ideas, products and solutions for authentic users

•  AND learners’ ICT work demonstrates ethical use with strong application of social-ethical protocols

•  AND ICT use demonstrates one or more additional 21C capabilities.
ICT for learning: Decision Steps

1. Learners have the opportunity to **use** ICT?
   - YES → 1
   - NO → 0

2. ICT is required **to construct** knowledge and **adds value to learning**?
   - YES → 2
   - NO → 1

3. Learners use ICT to create **new ideas and products** for **authentic users**?
   - YES → 3
   - NO → 2

4. ICT use demonstrates **ethical use and additional 21C capabilities**?
   - YES → 4
   - NO → 3
Skilful Communication

Are learners required to produce coherent communication using a range of communication modes?

Do learners design their communication for a particular audience?

Are learners required to produce substantive, multi-modal communication?

Do learners reflect on and use the process of their learning to further develop and improve their communication?

Overview

Communication is at the heart of all human interaction and 21st Century learning. The Melbourne Declaration on Educational Goals for Young Australians (MCEETYA 2008) and the National Curriculum both acknowledge the centrality of communication to learning:

‘The ability to communicate enables learning across the curriculum, the school day and life outside of school’ and identifies communication and literacy as ‘...an essential skill for students in becoming successful learners and as a foundation for success in all learning areas.’

Developing technologies have created new opportunities to enrich engagement, learning, and active participation in society with a whole range of contemporary communication modes and tools, and with broader reach and fewer barriers than ever before.

Communications can be spoken, written, visual or multimodal and in print or digital and online forms. Multimodal texts combine language with other systems for communicating such as visual images, soundtracks and spoken word, for example, in film or digital presentations.

These forms and conventions have developed to help us communicate effectively with a variety of audiences for different purposes in a range of contexts, and the language and other features of these might be used in different ways in different disciplines.

This rubric examines whether connected and coherent thought is evident in a range of communication modes, whether it achieves an authentic purpose for a particular audience, and whether the communication is substantive and multi-modal in nature.

Whilst outcomes, end products and performances of understanding are important,

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18 http://www.australiancurriculum.edu.au/GeneralCapabilities/Literacy/Introduction/Introduction
contemporary communication recognizes the power of the learning interactions and what occurs during the process of communication. Therefore, in its most sophisticated dimension, the rubric examines whether learners reflect on and use the process of their learning to increase meta-cognitive thought to monitor, manage and improve their communication capabilities and skills.

Big Ideas

Coherent communication
The links between language and thinking are significant; each develops the other. When learners are able to listen, read, view, write, record, and interact to express, exchange, explore and develop ideas with others, not only do they learn important communication skills, their thinking, comprehension and understanding is deepened.

This dimension requires that learners understand, select and use a range of communication modes and tools to produce coherent communication i.e. communication that makes sense and reflects coherent and connected ideas, not a single simple thought.

For example, a single text message or tweet is not considered coherent communication. Coherent communication is evident, for example, when a learner tells a story from which the listener can make meaning, or when a learner explains their reasoning and evidence for the idea or stance they are advocating, or when a podcast represents a sequence of thoughts and connected ideas around a topic.

No matter what the communication mode or tool, or whether the ideas represent logic or imagination, the communication itself must reflect evidence of coherent thinking.

<table>
<thead>
<tr>
<th>Does this learning activity require coherent communication?</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>YES</strong></td>
</tr>
<tr>
<td>Learners host a webinar where they present on different topics about their city to peers in their sister-city and then answer follow-up questions. The questions asked then form the basis for a revision/augmentation of their original presentation</td>
</tr>
<tr>
<td>Learners write an extended proof to demonstrate the solution to a geometry problem.</td>
</tr>
<tr>
<td>Learners write a letter to the editor in response to a recent news article of their choice.</td>
</tr>
</tbody>
</table>
Partners use their class blog to plan thoughtful questions, and then they interview a favourite author on Skype for the purpose of composing an article about what it means to be a writer. The article is intended for their online Classroom Newsletter that is sent home to parents.

Partners ask questions of a favourite author on Skype to find out more about them.

Communication for a particular audience

Skilful communication requires learners to be able to communicate effectively with a range of audiences for a range of purposes and in a wide variety of contexts.

When learners design and plan their communication for a particular audience, the learning is **authentic** because they apprentice to real life and work in the world: ‘becoming’ writers, film-makers, journalists, news presenters and so on adds purpose and meaning that results in deeper and richer learning for all.

When learners compose and produce communication for a particular audience, they must ensure that their communication is appropriately designed to achieve maximum understanding, relevance and meaning for that audience.

This requires learners to carefully select the content, communication style, language, modes and tools they will use to tailor their communication to the needs, preferences and context of that specific audience.

For example, in creating eBooks for children who are learning to read, older learners must the select topics, language and communication styles that young children will relate to and understand. They must consider children’s developing vision, fine motor skills, and attention span in the tools they select and in the overall design of the eBooks.

Creating a product for a general audience on the internet is NOT sufficient. To qualify for this dimension, learners must have in mind a specific group with specific needs in order to shape their communication appropriately. It is ideal, though not essential, that the communication created will be seen by that audience. The requirement is that the students must develop their communication with that audience in mind.

<table>
<thead>
<tr>
<th>Are learners required to design their communication for a particular audience?</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
</table>

Microsoft Partners in Learning
Secondary school learners create a video tutorial for year 6 learners to explain the concept of Pythagoras. When asked, most year 6 learners can briefly explain the theory back.

The audience has generally understood the concept, which suggests that the video communication was appropriately designed for them.

In learning about the lives of local elderly citizens in a retirement home, learners work in partnerships to orally interview them, capture photos and images from their lives, and use narrative to create a 'This is your life' Big Book for each person. These are then presented to them at a special afternoon tea organised and led by learners.

The development of large print books here was audience appropriate because many elderly citizens had failing eyesight and no access to online technology. The content of the book was tailored to what was most relevant to them: their own lives.

Learners have concerns about a new toy they consider unsuitable for young children and have ideas to improve this.

They research the maker company’s background, ascertaining their mission, values, range of products, what their competitors offer, and investigate legal mandates for toys before composing a letter to the Company Board of Directors with the concerns, arguments and perspectives that will be most compelling to the company.

Learners' research enabled them to shape their communication specifically to their target audience.

Secondary school learners create a video tutorial for year 6 learners to explain the concept of Pythagoras. When asked, most year 6 learners can NOT briefly explain the theory back.

This suggests that the video communication was not appropriately designed to the needs of these learners.

In learning about the need for good facilities for elderly citizens, learners go to a retirement home and work in partnerships to orally interview residents to create a 'Life in a Retirement Home' video that is then uploaded online into a shared space for viewing.

This communication was not designed with any particular audience in mind. It may be useful for an unknown audience for whom retirement facilities are relevant; it is not relevant to the elderly citizens interviewed since they are already there!

Learners have concerns about a new toy on the market they consider unsuitable for young children and have ideas to improve this.

They compose and write letters outlining their concerns and submit them to the teacher for assessment.
Substantive, multi-modal communication

Communication is multi-modal when it includes the use of more than one type of communication mode or tool to produce a coherent message. For example, learners might create a presentation that integrates video and text, or embed a photograph into a blog post. The communication is considered multi-modal only if the elements work together to produce a stronger message than any one element alone.

Multi-modal communication, by its very nature, requires more substantive thinking than using only one mode or tool, as learners must consider and select appropriate tools and weave the elements together to create an integrated whole.

In addition to the multi-modal nature of the communication, this dimension requires learners to demonstrate substantive thinking in the content of their communication. For example, when young learners work with the story of Little Red Riding Hood to prepare the wolf’s defence for a video ‘court case’ to be shown to their parents, it requires substantive thinking on their part to be able to step into the wolf’s mind and take his perspective.

When learners must consider and integrate multiple issues, components or perspectives into their content, their thinking is more substantive because they have to analyse, synthesize and integrate multiple ideas into a coherent whole.

To qualify for this dimension, communication must be multi-modal in nature AND demonstrate evidence of substantive thinking.

<table>
<thead>
<tr>
<th>Is this substantive, multi-modal communication?</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>YES</strong></td>
</tr>
<tr>
<td>Learners write lab reports about their science lab on density of matter, including narrative text and visual evidence of what they saw in their experiment (such as drawings or screen shots of real-time data displays).</td>
</tr>
</tbody>
</table>

The learning activity requires multiple modes of media that work together for a more complete description of the experimental outcomes.

| **NO**                                       |
| Learners write lab reports about their science lab on density of matter, including only narrative text. |

The learning activity requires use of only one communication mode.
Young learners use the design-technology process to make a new toy, and decide to create a television advertisement for it. They view a wide range of TV ads to analyse the persuasive marketing techniques used, and choose a strategy that is appropriate for their toy.

**Analysis of TV advertising techniques before deciding on an appropriate marketing strategy enriches learners’ thinking and decision-making.**

Learners compose a letter to the local paper that considers two diverse arguments regarding the proposed building of a poultry farm nearby. They analyse each of the arguments for evidence before drawing a measured conclusion. Visual evidence (photos and design plans) is included to support this.

**The use of visual evidence supports and enhances the written content of the letter; the analysis and consideration of multiple arguments for evidence before drawing a conclusion involves substantive thinking.**

Using Museum Box, or Voicethread, learners combine a variety of infographics, text, audio or video about the population of Australia, representing how it has grown in the past 100 years, paralleling population growth with GDP and showing the impact one has on the other.

**This requires substantive thinking as learners compare, contrast and synthesize multiple components into a coherent representation that is accessible by those with varied learning styles.**

Learners create an infographic about the population of Australia and how it has grown in the past 100 years.

Whilst thought does need to be given to layout, content and style when creating the infographic, the end product is not multi-modal.

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**Use of the learning process to improve communication**

What occurs **during the process of learning** - the interactions, processes, communication modes, language and skills used - are key to monitoring, assessing and explicitly developing learners’ communication skills.
In its most sophisticated dimension, the rubric examines whether learners reflect on and use the process of their learning to increase metacognitive thought to monitor, manage and improve their communication capabilities and skills.

While capturing this in the past has not been easy, current and emerging technologies are making this possible in powerful ways because learners can be more actively involved in reflecting and monitoring their own development and learning.

To qualify for this dimension, learners must be involved in reflecting on their interactions, processes and skills, and use their reflections to further develop and improve their communication processes and skills. It is NOT sufficient for the teacher to reflect on these.

| Do learners use the process of their learning to improve their communication? |
|---|---|
| **YES** | **NO** |
| Learners use Microsoft Community Clips to video themselves solving a mathematical problem, verbally explaining the steps they used and their reasoning. They use this and assessment criteria to reflect with their teacher (or learning partner) on their mathematical language, process and reasoning, and what they need to do to improve. | Learners use Microsoft Community Clips to video themselves solving a mathematical problem, verbally explaining the steps they used and their reasoning. The teacher uses this to assess learner’s work and suggest areas for improvement. The teacher uses the process of learning, rather than learners. |
Year 8 teams, about to engage in discussion and substantive decision-making on an issue where there are conflicting opinions, refer to their co-created list of conversational skills. They decide with their teacher that how they work for agreement and resolution needs to be the focus of assessment.

Using a video camera, audio or phone recorder to capture the decision-making part of their conversations, each Year 8 team then views and reflects on: What did we do well? What do we need to learn to do? How might we do this?

The use of technology captures the process to provide powerful and accurate data on learners' interactions that they use to reflect and improve their communication skills.

In a Year 2 class, a different ‘media team’ partnership is responsible each week for using their communication skills and multi-media tools to interview and capture their classmates’ insights, anecdotes and reflections on what they are doing, why, what they are learning, and how they are learning.

At the end of each week or two, these are combined into a short video clip that learners view with their teacher to reflect on class learning: What are we doing? What are we learning? Where are we going? How might we get there?

The clip is uploaded to their class blog for viewing by learners and their families, and sentence stems are offered to assist parents in providing feedback on the product and the underpinning learning.

Learners review the feedback and add their reflections about their learning journey.

Year 8 teams, about to engage in discussion and substantive decision-making on an issue where there are conflicting views, are reminded by their teacher that working for agreement will be important as they make their group decision.

There is no reflection at the end of their conversation about the outcome or process of their conversation.

In a Year 2 class, learners reflect in circle with their teacher at the end of each week, taking turns to share one thing about their week. The teacher has scaffolds visible such as:

I liked it when...
I found it hard to...
I have learned...

There is no reflection on the process of their learning, nor are learners' comments used to help them further develop and improve their communication.
<table>
<thead>
<tr>
<th>Learners are actively involved in capturing and reflecting on the process of their learning, and parents are also helped to understand this.</th>
<th>Working on a global collaborative project, learners take turns facilitating regular online meetings to share success, struggles and plan progress. They establish a protocol to help all members contribute fairly and respectfully, to resolve any conflict and come to agreement about next steps. Each Meeting Leader must re-view their meeting afterwards, and reflect on their facilitation skills and protocol use to improve their communication skills.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Working on a global collaborative project, learners take turns facilitating regular online meetings to share progress. They establish a shared protocol to help all members contribute fairly and respectfully, and come to agreement about next steps. Following each meeting, learners plan out their next steps.</td>
<td>There is no reflection on the process of their meeting facilitation to help them improve and further develop their communication skills.</td>
</tr>
</tbody>
</table>
Skilful Communication: Rubric

0  • Learners are NOT required to produce coherent communication using a range of communication modes

1  • Learners ARE required to produce coherent communication using a range of communication modes
   • BUT they are NOT required to design their communication for a particular audience

2  • Learners ARE required to produce coherent communication using a range of communication modes
   • AND they ARE required to design their communication for a particular audience
   • BUT learners are NOT required to produce substantive, multi-modal communication

3  • Learners ARE required to produce coherent communication using a range of communication modes
   • AND they ARE required to design their communication for a particular audience
   • AND learners ARE required to produce substantive, multi-modal communication
   • BUT learners are NOT required to reflect on and use the process of their learning to develop and improve their communication.

4  • Learners ARE required to produce coherent communication
   • AND they ARE required to design their communication for a particular audience
   • AND learners are required to produce substantive, multi-modal communication
   • AND learners are required to reflect on and use the process of their learning to develop and improve their communication.
Skilful Communication: Decision Steps

Requires coherent communication using a range of modes?

YES \rightarrow 0

NO \rightarrow 1

Learners design communication for a particular audience?

NO \rightarrow 2

YES \rightarrow 3

Requires substantive, multi-modal communication?

NO \rightarrow 4

YES \rightarrow 5

Learners reflect and use the process of learning to improve communication?

NO \rightarrow 6

YES \rightarrow 7
2. Learning Activity Exemplars

ITL research
Innovative Teaching and Learning

Sponsored by
Microsoft Partners in Learning

Rubrics designed by

Rubrics developed by Joan Dalton, Hands On Educational Consultancy Pty Ltd for Microsoft Australia Pty Ltd.
Learning Activity Exemplars and associated 21CLD Dimensions

**Learning Activity Exemplars** are moderated exemplars that act as scaffolds for teacher conversation and coding practice to build common understandings of each dimension.

<table>
<thead>
<tr>
<th>LA Dimension</th>
<th>LA Exemplars</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Collaboration</strong></td>
<td>House on Mango Street</td>
</tr>
<tr>
<td></td>
<td>Olympic Site Selection</td>
</tr>
<tr>
<td></td>
<td>Doing Business in Birmingham</td>
</tr>
<tr>
<td><strong>Knowledge Construction</strong></td>
<td>House on Mango Street</td>
</tr>
<tr>
<td></td>
<td>Design a Catapult</td>
</tr>
<tr>
<td></td>
<td>Indigenous Cultures</td>
</tr>
<tr>
<td><strong>Self-regulation</strong></td>
<td>Design a Catapult</td>
</tr>
<tr>
<td></td>
<td>Great Train Internet</td>
</tr>
<tr>
<td></td>
<td>Falklands War</td>
</tr>
<tr>
<td><strong>Real World Innovation and Problem-Solving</strong></td>
<td>School Change</td>
</tr>
<tr>
<td></td>
<td>House on Mango Street</td>
</tr>
<tr>
<td></td>
<td>Design a Catapult</td>
</tr>
<tr>
<td><strong>Use of ICT for Learning</strong></td>
<td>Great Train Internet</td>
</tr>
<tr>
<td></td>
<td>Falklands War</td>
</tr>
<tr>
<td></td>
<td>Munting Mungo</td>
</tr>
<tr>
<td><strong>Skilful Communication</strong></td>
<td>Indigenous Cultures</td>
</tr>
<tr>
<td></td>
<td>Design a Catapult</td>
</tr>
<tr>
<td></td>
<td>School Change</td>
</tr>
</tbody>
</table>
Please fill in one of these sheets and attach it to EVERY learning activity you submit. Choose the learning activities that you feel provided the best learning opportunities for students.

Title of Learning Activity & Average Age of Students

Title: House on Mango Street

Average Age of Students: 13 years

What did you hope your students would learn from this learning activity?

The goal is that students will gain an awareness of the immigrant experience and be able to communicate this to others using what they learned in our poetry lesson. They first read the book in order to gain an understanding of the challenges immigrants face. They will gather and synthesize information about a particular group of people. Interviewing a real immigrant and understanding his or her context will allow them to build a deeper connection that will help them to be more sensitive to others and give them something real to write about.

Did you have learning goals from more than one discipline (for example, literature and history, or science and math) for this learning activity?

This learning activity has learning goals in history and language arts.

The history goal for students is to synthesize information about the immigrant experience in the United States by researching online and interviewing an immigrant.

The language arts goal is for students to write a poem about the immigrant experience and build on their previous experiences with the genre of poetry.
Were students required to work in pairs or as a group on any part of this learning activity?

□ No  
□ Working in groups was optional. Please describe below the work that students did together.  
□ Working in groups was required. Please describe below the work that students did together.

Students shared their poem with another classmate to get feedback before submitting it to me. I also allowed the students to pair up during the interviews, if they wanted to, but each one had to submit his/her own poem.

Were students allowed to work with technology (ICT) such as computers or digital cameras for any part of this learning activity? Please describe.

□ No technology was used for this learning activity.  
□ Students could use technology for this activity  
□ Students were required to use technology for this activity

Students were required to use ICT for both research and typing their final product.

What criteria did you use to judge the quality of students’ work on this learning activity? Were students aware of the criteria in advance of completing the learning activity?

I checked for grammar and made sure they followed one of the patterns of poetry that we had learned. I checked for the quality of their writing and to see if the poem included details from the reading and what they may have learned from the interview.

How long did the learning activity take?

□ a. Completed in a single class period  
□ b. Completed in 2-4 days  
□ c. Required one week or more to complete

What verbal instructions did you give to students?

I reminded students about our past lesson on poetry patterns and that they should follow one of these patterns when they write their poem.
Is there any other information you would like to include to help another educator using this learning activity be successful?

**PLEASE REMEMBER TO INCLUDE:**

- Instructions for the learning activity
- Handouts and materials
- Grading rubrics

**The House on Mango Street** is a memoir written by Sandra Cisneros about her experiences growing up on a street in Chicago which is populated by impoverished immigrants from Latin America.

**Step 1.**
Read the book. Reflect on this question: “What are some of the important elements of the immigrant experience?”

**Step 2.**
Find someone in your neighbourhood or family who is an immigrant to the United States. You will interview this person to ask them, "Tell me two or three of the most important problems you faced when you first immigrated to the United States." Ask them to describe what the world they lived in was like and how their community treated them.

You can conduct your interview alone or with a friend, but you will still have to submit separate poems.

**Step 3.**
Based on all that you learned from the book and interview, write a poem about a real problem that immigrants face when they come to the United States and how that impacts their life. Reflect on the following: Why is it so hard? What can non-immigrants and others in the community do to make the transition easier for immigrants?

Think about people in your community who might not be aware of what immigrants’ experience. How can you communicate what you have learned to this audience? Use vivid
language to make the experience more real to your readers. Offer suggestions that are realistic so they might be useful to the reader.

**Step 4.**
Work in pairs with another student. Read your partner’s poem. Think about the following questions, and use them to provide feedback to help your partner edit and improve his or her poem:

- **Does the poem have enough detail?** Is it clear what you are describing? Mark places that are vague.
- **Is the poem written using correct conventions and grammar?** Does it follow one of the patterns that we learned about in class? Note any mistakes.
- **What would make the poem better?**

**Step 5.**
Use your partner’s comments to edit your poem. Fix all mistakes and consider your partner’s suggestions for improving the poem.

**Step 6.**
Put your poem into final form. It must be typed, using double spacing in Times New Roman, size 12.
21CLD Student Work Cover Sheet

Please complete one of these sheets for EACH student work artefact you submit.

1. Title of Learning Activity

House on Mango Street

2. Did students work in groups to produce this student work product?

☐ Yes       X No

3. Did the student use technology for this activity?

X Yes       ☐ No

4. If yes, please describe how this student used technology.

The poems were typed and edited using Word.

5. Is there anything else about the way this student approached the activity that was not in the instructions?


What I Bring...

You say I came to this country with nothing; nothing

in my hands, nothing in my pockets.

You say I came to take, to burden, to bleed away what you have.

But I do not come with nothing, I come with something.

I came with knowledge, joy, hope, and peace.

I bring the knowledge of another culture, of

ancient traditions, delicious foods, of

wondrous celebrations.

I bring the joy of the heritage and colours

and smells and tastes of my

country.

I bring the hope that together we can share this bountiful country, working

as a team, building a welcoming loving place where all people are

treated equally and with respect.

I bring peace, to share in the promise that this country offers.

You say I came with nothing. I came with something. I came with my life, my dreams,

and my love for my new country.
1. **Title of Learning Activity & Average Age of Students**

   **Title:** Olympics Site Selection  
   **Average Age of Students:** 13

2. **What did you hope your students would learn from this learning activity?**

   The theory of plate tectonics explains the formation, movement and destruction of the Earth’s surface. The Earth’s geosphere interacts with other Earth systems. Geologic events can occur quickly or over a long period of time.

   I also wanted students to practice logical thinking and writing a persuasive letter.

3. **Did you have learning goals from more than one discipline (for example, literature and history, or science and math) for this learning activity?**

   This activity has learning goals in science and language arts.

   For science, students compared and contrasted the geology, seismology and volcanology of three different sites, and based on their assessment they recommended a specific site.

   For language arts, students are asked to practice their skills for writing a business letter by writing a letter to the Olympic Committee which states their reasons for recommending a specific site.
4. **Were students required to work in pairs or as a group on any part of this learning activity?**

- □ No
- □ Working in groups was *optional*. Please describe below the work that students did together.
- ☑ Working in groups was *required*. Please describe below the work that students did together.

Each student took on a role within a small group: seismologist, volcanologist, and geologist. They had to work separately on researching their particular field and also come together to make conclusions based on the perspectives of all three scientists.

5. **Were students allowed to work with technology (ICT) such as computers or digital cameras for any part of this learning activity? Please describe.**

- □ No technology was used for this learning activity.
- □ Students *could* use technology for this activity
- ☑ Students were *required* to use technology for this activity

Students used the internet for research.

6. **What criteria did you use to judge the quality of students’ work on this learning activity? Were students aware of the criteria in advance of completing the learning activity?**

For this activity, I developed a rubric for each one of the scientist roles, which outlined what I expected the students to accomplish in their roles, including how well their letter of recommendation (from the perspective of their scientist role) is written. I also included a rubric about their team-work efforts.
7. **How long did their learning activity take?**

- ☐ a. Completed in a single class period
- ☐ b. Completed in 2-4 days
- ☑ c. Required one week or more to complete

8. **What verbal instructions did you give to students?**

The final product will be a business letter to the International Olympic Committee recommending a site for the 2030 Winter Games. Each team will also produce a chart showing the strengths and weaknesses of each of the four given locations.
• You are a member of a team comprised of a seismologist, a volcanologist, and a geologist which has been hired by the International Olympic Committee (IOC) to help them choose a safe site with appropriate geologic features for the 2030 Winter Olympic Games. Your choices are Tokyo, Japan; Sao Paolo, Brazil; Banff, Ontario, Canada; and Jacksonville, Florida.

• Each team member is a specialist in his field, and will research the four sites to determine the advantages and the disadvantages of each location. Be sure to find current information on the internet to make sure that current environmental trends are taken into account. The team will then compile its findings and determine the best location for the Olympic Games.

• The seismologist will report on any past and present earthquake activity, and determine the risk of any possible future earthquakes at each location.

• The volcanologist will report on any past and recent volcanic activity, and determine the risk of any possible future volcanic eruptions at each location.

• The geologist will report on the types of rocks and geologic landforms found near each location.

• The final product will be a business letter to the IOC recommending one site for the Games. The letter will discuss team findings with respect to all three sciences. The team will also produce a chart showing the strengths and weaknesses of each location.
<table>
<thead>
<tr>
<th></th>
<th>Tokyo, Japan</th>
<th>Sao, Paolo, Brazil</th>
<th>Banff, Alberta, Canada</th>
<th>Jacksonville, Florida</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Volcanologist</strong></td>
<td>Advantages</td>
<td>Advantages</td>
<td>Advantages</td>
<td>Advantages</td>
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<tr>
<td></td>
<td>Disadvantages</td>
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<td></td>
<td>Disadvantages</td>
<td>Disadvantages</td>
<td>Disadvantages</td>
<td>Disadvantages</td>
</tr>
<tr>
<td><strong>Seismologist</strong></td>
<td>Advantages</td>
<td>Advantages</td>
<td>Advantages</td>
<td>Advantages</td>
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<tr>
<td></td>
<td>Disadvantages</td>
<td>Disadvantages</td>
<td>Disadvantages</td>
<td>Disadvantages</td>
</tr>
<tr>
<td><strong>Geologist</strong></td>
<td>Advantages</td>
<td>Advantages</td>
<td>Advantages</td>
<td>Advantages</td>
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<tr>
<td></td>
<td>Disadvantages</td>
<td>Disadvantages</td>
<td>Disadvantages</td>
<td>Disadvantages</td>
</tr>
<tr>
<td>Criteria</td>
<td>Points</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
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</tr>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td><strong>Volcanologist</strong></td>
<td>Research shows no evidence of knowledge of volcanism</td>
<td>Research demonstrates some knowledge of volcanism, but leads to an incorrect recommendation</td>
<td>Research demonstrates solid knowledge of volcanism, and may or may not lead to a recommendation</td>
<td>Recommends a site than is safe according to volcanic activity</td>
</tr>
<tr>
<td><strong>Seismology</strong></td>
<td>Research shows no evidence of knowledge of seism</td>
<td>Research demonstrates some knowledge of seism, but leads to an incorrect recommendation</td>
<td>Research demonstrates solid knowledge of seism, and may or may not lead to a recommendation</td>
<td>Recommends a site than is safe according to seismic activity</td>
</tr>
<tr>
<td><strong>Geology</strong></td>
<td>Research shows no evidence of knowledge of geologic landforms</td>
<td>Research demonstrates some knowledge of geologic landforms, but leads to an incorrect recommendation</td>
<td>Research demonstrates solid knowledge of geologic landforms, and may or may not lead to a recommendation</td>
<td>Recommends a site than is safe according to geologic landforms</td>
</tr>
<tr>
<td><strong>Team Chart</strong></td>
<td>Chart is missing more than six boxes of information</td>
<td>Chart is missing between four and six boxes of information</td>
<td>Chart is missing no more than three boxes of information</td>
<td>Chart is completely and correctly filled out</td>
</tr>
<tr>
<td><strong>Recommendation Letter</strong></td>
<td>Letter is incoherent and doesn’t give a recommendation</td>
<td>Letter is not well written, and the site recommendation is inappropriate</td>
<td>Letter is well written, but the site recommendation is inappropriate</td>
<td>Letter is well written and clearly recommends a viable site</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Total</th>
</tr>
</thead>
</table>
21CLD Student Work Cover Sheet

*Please complete one of these sheets for EACH student work artefact you submit.*

1. Title of Learning Activity

Olympics Site Selection

2. Did students work in groups to produce this student work product?

☑ Yes ☐ No

3. Did the student make choices about using technology for this activity?

☑ Yes ☐ No

4. If yes, please describe the choices that this student made.

<table>
<thead>
<tr>
<th>The student conducted research on the different countries.</th>
</tr>
</thead>
<tbody>
<tr>
<td>This group also looked for references on geology, seismology and volcanology.</td>
</tr>
<tr>
<td>Students were not given a set of rules for where and how to conduct their research, but most searched the internet for relevant resources.</td>
</tr>
</tbody>
</table>

5. Is there anything else about the way this student approached the activity that was not in the instructions?

| Students typed their letter and filled out the table using the computer. |
To the members of the International Olympic Committee,

We are a team of scientists hired to research your list of finalists for the host of the 2030 Winter Olympics. We investigated each site for history of seismic waves and volcanic activity, and for the presence of desirable land form. Based on this research, we recommend that you select BANFF for the Olympics. Our discussion of the four candidate cities follows, along with reasons for selecting BANFF.

The information that we found out about Tokyo is that there was a major earthquake, magnitude 8.9, in March 2011. This ranked the fifth most powerful earthquake since 1900. Tokyo has a lot of active volcanoes. That happens to be because it is in the ring of fire, and they can erupt any day now. There are two bright sides: one is that there are mountains there but few, and it also snows.

The information that we found out about Sao Paolo is that it has no volcanic activity. That is because it isn't near the ring of fire or the edge of the plate boundary. It also has no faults or folds. That means no earthquakes which is the very good part. The bad part is that no mountains can form and there a lot of forests and tropical land.

The information that we found out about Jacksonville is that there are definitely no volcanoes. The reason is because it's nowhere near the ring of fire. In fact Jacksonville has no history of seismic waves or earthquakes. Jacksonville has very flat land that means no mountains. Here's the rest of the bad news ...it's in danger of ash dust and gases from other volcanoes in South America. It has a lot of woodland and it's very hot so it doesn't snow.

The one that we think is the best to hold the 2030 Winter Olympics is BANFF. We think that because it has no volcanic activity. Banff has mountains, it has snow, and it has no earthquakes. But one can occur. That is only because it's highly faulted and folded so it's - very possible one can happen.

Sincerely,

[Names of Students]
<table>
<thead>
<tr>
<th>Volcanologist</th>
<th>Tokyo, Japan</th>
<th>Sao, Paolo, Brazil</th>
<th>Banff, Alberta, Canada</th>
<th>Jacksonville, Florida</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advantages</td>
<td>Advantages</td>
<td>Advantages</td>
<td>Advantages</td>
<td></td>
</tr>
<tr>
<td>It snows</td>
<td></td>
<td>No volcanic activity</td>
<td>No snow</td>
<td></td>
</tr>
<tr>
<td>Disadvantages</td>
<td>Disadvantages</td>
<td>Disadvantages</td>
<td>Disadvantages</td>
<td></td>
</tr>
<tr>
<td>There are no active volcanoes</td>
<td>It’s close to the ring of fire</td>
<td>None</td>
<td>Smoke and ash from near volcanoes in South America</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Seismologist</th>
<th>Tokyo, Japan</th>
<th>Sao, Paolo, Brazil</th>
<th>Banff, Alberta, Canada</th>
<th>Jacksonville, Florida</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advantages</td>
<td>Advantages</td>
<td>Advantages</td>
<td>Advantages</td>
<td></td>
</tr>
<tr>
<td>There was a major earthquake in 2011</td>
<td>No faults</td>
<td>No Major earthquake recently</td>
<td>There have been no major earthquakes recently</td>
<td></td>
</tr>
<tr>
<td>Disadvantages</td>
<td>Disadvantages</td>
<td>Disadvantages</td>
<td>Disadvantages</td>
<td></td>
</tr>
<tr>
<td>There is a possibility of another earthquake to occur</td>
<td>No folds</td>
<td>It’s possible that an earthquake can occur</td>
<td>No faults and folds</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Geologist</th>
<th>Tokyo, Japan</th>
<th>Sao, Paolo, Brazil</th>
<th>Banff, Alberta, Canada</th>
<th>Jacksonville, Florida</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advantages</td>
<td>Advantages</td>
<td>Advantages</td>
<td>Advantages</td>
<td></td>
</tr>
<tr>
<td>Few mountains</td>
<td>It has very few mountains</td>
<td>Highly faulted or folded sedimentary rock. There are many mountains</td>
<td>flatlands</td>
<td></td>
</tr>
<tr>
<td>Disadvantages</td>
<td>Disadvantages</td>
<td>Disadvantages</td>
<td>Disadvantages</td>
<td></td>
</tr>
<tr>
<td>A lot of woodland</td>
<td>Tropical forests</td>
<td>Faulted, possible for earthquake</td>
<td>Hot, no mountains</td>
<td>A lot of woodlands</td>
</tr>
</tbody>
</table>
21CLD Learning Activity Cover Sheet

Please fill in one of these sheets and attach it to EVERY learning activity you submit. Choose the learning activities that you feel provided the best learning opportunities for students.

1. Title of Learning Activity & Age of Students

Title: Doing Business in Birmingham

Average Student Age: 11 years

2. What did you hope your students would learn from this learning activity?

Students will learn:

- about sustainable practices and how to effect change within their community
- how technology tools can enable them to make authentic connections beyond the classroom
- to synthesize their learning and generate creative solutions to real world problems

Students will also create a wiki as public evidence of what they learned and their contributions to the community.

I am attaching a lesson plan that I used to guide the activities, but this was not distributed to the students. I really wanted students to shape the project so I left details open for discussion, such as the rubrics and planning the wiki.

3. Did you have learning goals from more than one discipline (for example, literature and history, or science and math) for this learning activity?

Yes. See lesson.
4. Were students required to work in pairs or as a group on any part of this learning activity?
   □ No
   □ Working in groups was optional. Please describe below the work that students did together.
   X Working in groups was required. Please describe below the work that students did together.
   
   Students worked in teams throughout the project. Each student had specific roles and responsibilities, and contributed to the team’s work and the class wiki.

5. Were students allowed to work with technology (ICT) such as computers or digital cameras for any part of this learning activity? Please describe.
   □ No technology was used for this learning activity.
   □ Students could use technology for this activity
   X Students were required to use technology for this activity

   We used several technology products throughout the project such as Bing Maps and Photosynth. See lesson for complete list.

6. What criteria did you use to judge the quality of students’ work on this learning activity? Were students aware of the criteria in advance of completing the learning activity?
   The students and I worked together to create two rubrics for evaluating student work. One was used to grade their work on the project: grading their own work, the work of their teammates, and for me to grade their work. The second rubric was used to evaluate our wiki. We took an existing wiki rubric and adopted it for our needs. These rubrics are posted on the resources page of our class
Wiki: [http://doingbusinessinbirmingham.wikis.birmingham.k12.mi.us/Resources](http://doingbusinessinbirmingham.wikis.birmingham.k12.mi.us/Resources). I am also attaching them to this lesson for your convenience.

7. How long did the learning activity take?
   - [ ] Completed in a single class period
   - [ ] Completed in 2-4 days
   - [x] Required one week or more to complete

8. What verbal instructions did you give to students?
   Throughout the project we had class discussions about how to approach each task. This included assigning student roles on the team, creating a plan for visiting businesses and collecting the information (data) from the field. We had discussions to create the rubrics for evaluating the work students would do.

   Later, we developed evaluation criteria for the businesses as a way to describe their progress towards implementing sustainability practices.

   As a class, we determined how to create the wiki pages and design the entire wiki experience to be user-friendly and useful. The students have created wikis before, so we did a quick review of how to work in a wiki.

9. Is there any other information you would like to include to help another educator using this learning activity be successful?
   Students enjoyed being able to influence their community by learning about sustainability in business and sharing what they learned.

   They also liked having an opportunity to get out into the community to meet business owners, and creating a wiki to share their findings and their hard work.

   To view the wiki and resources we created, please visit: [http://doingbusinessinbirmingham.wikis.birmingham.k12.mi.us/](http://doingbusinessinbirmingham.wikis.birmingham.k12.mi.us/)

PLEASE INCLUDE THE FOLLOWING WITH THIS COVER SHEET:

- Instructions for the learning activity
- Handouts and materials
- Grading rubrics
Doing Business in Birmingham
A challenge to increase awareness about sustainability in our community

Objectives:

• Students will learn about sustainable practices and how to be effective change within their community
• Students will learn how technology tools can enable them to make authentic connections beyond the classroom
• Students will learn to synthesize their learning and generate creative solutions to real world problems
• Students will create a wiki as public evidence of what they learned and their contributions to the community

Materials:

• Equipment: PC, Tablet, Mobile phone, video camera etc.
• Software: Bing Maps, Microsoft Office, Microsoft Word, Photosynth, Clipart, Mobitags, Movie Maker

Standards:

• Citizenship
• Digital and Media Literacy
• Environmental Science
• Language Arts & Literacy
• Social Studies
• Technology and ICT
• 21st Century skills

Lesson Outline:
Day 1: PLANNING
1. Outline the project and lead class discussion on the goals, purpose and impact of the project.
2. Assign students to teams. Introduce roles, and brainstorm as a class how each role will contribute to the project. Students assign roles within their teams. (Some teams may require students to do two roles.)
Communications manager
- Materials Manager
- Photographer
- Project Manager
- Videographer

3. Lead a discussion to define rubrics for project grading and specify the success criteria for each role. Remind students that the rubrics will be used in 3 ways: for self-reflection on their own contribution, to rate fellow members of the team, and for your evaluation of their work.

Days 2-3: RESEARCH
1. Define “sustainability” as it relates to business practices. Students discuss within teams, then as a whole class.
2. Student teams plan and conduct their own research on sustainability practices. The teams will answer these questions:
   - What are the benefits of being a sustainable business?
   - Who are the stakeholders of sustainable business practices?
   - What is waste prevention?
   - How can a business recycle?
   - How does the use of energy and water affect sustainability?
   - How can businesses operate more sustainably?
   - How does the purchasing that a business does affect sustainability?
   - How does the use of transportation affect sustainability? Both for customers, and for getting materials to and from the business?

Days 4-6: PLANNING FOR DISSEMINATION
1. Facilitate a discussion on what students learned about sustainability and decide how the class can communicate their knowledge to local businesses and the
community. (Students decided to create two brochures: one about the project and one about sustainable practices, to be distributed to local businesses.)

2. Students plan and develop their materials, and plan their field trips. Some of this work is done in teams, and some is done in role groups (with all Materials Managers and Photographers working together to plan the brochure, for example).

- Materials Managers and Photographers plan the layout of the two brochures. Their goal is to create a pre-print for review. Photographers also use this time to become familiar with Photosynth so they can stitch photos together to create a 3D view of the area surrounding the business.
- Videographers plan how to obtain the photo and video equipment for every team. They also use this time to familiarize themselves with Movie Maker so they are ready to edit their footage.
- Communications Managers and Project Managers plan the field trips to the businesses. This includes using Bing maps to research the locations of the businesses.

Their plans should address the following:

- What area are we visiting? (Use Bing Maps and assign territories)
  - List the businesses.
  - Do searches on what the businesses do and produce.
  - Each team selects two businesses within their territory to visit.
  - Begin thinking about specific sustainable processes for those businesses.

- What can we learn in advance about each business?
  - Create tables with information on businesses.
  - Possible sustainable practices.
  - Who we might speak to? (Owners? Managers?) Try to get specific names.

- What can we do during the field trip?

**Days 7-8: REVIEW AND FINALIZE MATERIALS**

1. Group members change roles: Materials Managers, Photographers and Videographers review business maps and information while Project Managers and
Communications Managers edit the two brochures. Remind students to give detailed and specific feedback for improvement.

2. Students integrate the feedback they received.
3. Brochures are printed for distribution.

**Day 9: FIELD TRIP TO BUSINESSES!**

**Day 10: DEVELOP RUBRIC FOR RATING BUSINESSES**

1. Discuss the trip in teams, and what teams learned.
2. As a class, build a rubric for rating the sustainability of businesses.
   - How can we rate the businesses?
   - What indicators and descriptors can we use that people outside of the classroom will understand?
   - How can we illustrate the ratings?
3. Teams apply the rubric to the data they gathered and rate each business they visited. Each team has to provide evidence to support their rating.

**Days 11-15: PLAN & DEVELOP THE WIKI**

1. The class reviews an existing rubric for evaluating wikis and adapts it to our needs.
2. The class also defines proper wiki etiquette and rules for team members to ensure successful collaboration.
3. Students plan content and layout of the wiki.
   - What do we want on the wiki?
     - Contents of pages
     - Materials collected: videos and photos taken during field trips
     - Information that will be useful to the participating businesses?
     - Information that will help others in the community learn about sustainable practices?
   - What will the “feel” or layout look like?
     - Colours
     - How we layout our materials
     - How we layout our findings
     - What attachments/links do we want?
• How can each team document their research on days 2-3? What is a standard format that can be used across all research areas?
• How can users interact with the site? How can we encourage them to use it actively?

4. Remind students that there should be at least 1 review cycle for the wiki. Every student must review at least one other page they did not create and provide concrete feedback.

5. Provide time for students’ self-reflection on their role, and evaluation of fellow team members.

6. Student volunteers from each team complete the following tasks:
  • Write letters of appreciation to the participating businesses.
  • Create invitations for the wiki launch party. Invite the businesses and parents.
  • Plan the wiki launch party.
**Wiki Rubric**
We took an existing wiki rubric and edited it so that we could use it to assess the pages that we made for the wiki. Please edit it to meet your needs.

<table>
<thead>
<tr>
<th>ELEMENT</th>
<th>Exemplary 3</th>
<th>Proficient 2</th>
<th>Partially Proficient 1</th>
<th>Unsatisfactory 0</th>
<th>POINTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Content</td>
<td>Provides comprehensive insight, understanding, and useful tips for sustainability in your assigned aspect of business.</td>
<td>Provides a moderate amount of insight, understanding and useful tips for sustainability in your assigned aspect of business.</td>
<td>Provides only minimal understanding or few tips for sustainability in your assigned aspect of business.</td>
<td>Provides no understanding or useful tips for sustainability in your assigned aspect of business.</td>
<td>____/3</td>
</tr>
<tr>
<td></td>
<td>Explains all ideas clearly and concisely in a logical way.</td>
<td>Explains most ideas clearly and concisely in a logical way.</td>
<td>Incompletely explains ideas.</td>
<td>Fails to explain ideas clearly.</td>
<td>____/3</td>
</tr>
<tr>
<td></td>
<td>Presents all information in a style that is appealing and appropriate for the intended audience.</td>
<td>Presents information in a style that is generally appropriate for the intended audience.</td>
<td>Presents information in a style that is often inappropriate for the intended audience.</td>
<td>Presents information in a disjointed, unpolished style which is inappropriate for the intended audience.</td>
<td>____/3</td>
</tr>
<tr>
<td>Organization</td>
<td>Uses a consistent organizational structure that includes grouping related information.</td>
<td>Uses an organizational structure which groups some but not all related information.</td>
<td>Uses a loosely defined organizational structure which attempts to group similar items.</td>
<td>Fails to provide a consistent organizational structure, and information is difficult to locate.</td>
<td>____/3</td>
</tr>
<tr>
<td>Graphics and Multimedia</td>
<td>Includes high quality Photosynth that gives a comprehensive picture of your street.</td>
<td>Includes a good Photosynth that gives a clear picture of your street.</td>
<td>Includes a low quality Photosynth that gives an incomplete picture of your street.</td>
<td>Does not include a Photosynth and has no images of your street.</td>
<td>____/3</td>
</tr>
<tr>
<td>------------------------</td>
<td>------------------------------------------------------------------</td>
<td>-----------------------------------------------------------------</td>
<td>-----------------------------------------------------------------</td>
<td>-----------------------------------------------------------------</td>
<td>-----------</td>
</tr>
<tr>
<td></td>
<td>Includes a high quality Cliplet that portrays a significant moment from your trip.</td>
<td>Includes a good quality Cliplet that portrays a significant moment from your trip.</td>
<td>Includes a low quality Cliplet that portrays a moment from your trip.</td>
<td>Does not include a Cliplet to portray a significant moment from your trip.</td>
<td>____/3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ELEMENT</th>
<th>Exemplary 3</th>
<th>Proficient 2</th>
<th>Partially Proficient 1</th>
<th>Unsatisfactory 0</th>
<th>POINTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group/Partner Collaboration</td>
<td>Contributes equally with other group members in researching, writing and editing.</td>
<td>Assists group members with most of the researching, writing and editing.</td>
<td>Provides minimal assistance to group members in researching, writing and editing, and does not follow through with all tasks.</td>
<td>Provides no assistance to group members in any of the researching, writing and editing and does not follow through with any of the tasks.</td>
<td>____/3</td>
</tr>
<tr>
<td></td>
<td>Meets all goals and deadlines.</td>
<td>Usually meets goals and deadlines.</td>
<td>Occasionally meets goals and deadlines.</td>
<td>Does not meet goals and deadlines.</td>
<td>____/3</td>
</tr>
<tr>
<td></td>
<td>Exhibits appropriate wiki etiquette when editing and respects the work of others.</td>
<td>Exhibits appropriate wiki etiquette most of the time and generally respects the work of others.</td>
<td>Exhibits a minimal knowledge of wiki etiquette and often fails to respect the work of others.</td>
<td>Exhibits no knowledge of wiki etiquette and fails to respect the work of others.</td>
<td>____/3</td>
</tr>
<tr>
<td>Writing Mechanics</td>
<td>Edits the text with no errors in grammar, capitalization, punctuation or spelling.</td>
<td>Edits the text with minor additional editing required for grammar, capitalization, punctuation and spelling.</td>
<td>Edits the text, but errors in grammar, capitalization, punctuation and spelling distract or impair readability (3 or more errors).</td>
<td>Edits the text but numerous errors in grammar, capitalization, punctuation and spelling repeatedly distract the reader and major revision is required (more than 5 errors).</td>
<td>___/3</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td><strong>TOTAL POINTS</strong></td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>___/30</td>
</tr>
</tbody>
</table>
Here is an example of the Star Ranking we gave to businesses:

We are sustainable leaders in our community
# Student Work Rubric

We worked as a team to develop rubrics for the field trip team roles: Communications Manager, Materials Manager, Photographer, Project Manager and Videographer. Here is a rubric for the Project Manager’s role as an example.

<table>
<thead>
<tr>
<th>Needs Improvement (0-1)</th>
<th>Satisfactory (2-3)</th>
<th>Excellent (4-5)</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Responsibilities</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Rarely checked with the team to offer help and support</td>
<td>• Checked with the team to offer some help and support</td>
<td>• Checked constantly with the team to offer help and support</td>
<td></td>
</tr>
<tr>
<td>• Rarely checked work for quality</td>
<td>• Checked some work for quality</td>
<td>• Checked all work for quality</td>
<td></td>
</tr>
<tr>
<td>• Rarely encouraged or supported the team</td>
<td>• Was a supportive leader who helped guide the team</td>
<td>• Was a strong, encouraging leader who helped guide the team successfully</td>
<td></td>
</tr>
<tr>
<td><strong>Workload</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Often dominates, sits passively, or gets distracted.</td>
<td>• Sometimes dominates, sits passively, or gets distracted.</td>
<td>• Usually shares the workload equally, encourages others as needed, offers help as needed, and accepts direction from team members.</td>
<td></td>
</tr>
<tr>
<td>• Usually follows role assignments.</td>
<td></td>
<td>• Usually follows role assignments.</td>
<td></td>
</tr>
<tr>
<td><strong>Listening</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Talks most of the time, rarely allowing input from others - Or -</td>
<td>• Usually balances talking and listening, though tends a little more to one than the other</td>
<td>• Listens attentively to others’ ideas, asks questions when needed, offers ideas and encourages others’ input</td>
<td></td>
</tr>
<tr>
<td>• Occasionally able to read and manage their own motivations and behaviours</td>
<td>• Able to read and manage their own motivations and behaviours.</td>
<td>• Able to read and manage their own and others’ emotions, motivations and behaviours.</td>
<td></td>
</tr>
<tr>
<td><strong>Decision Making</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Dominates decision making - Or -</td>
<td>• Sometimes seeks to reach a consensus, but often goes with just a majority rule</td>
<td>• Seeks to reach a consensus for all decisions.</td>
<td></td>
</tr>
<tr>
<td>• Allows others to dominate decision making</td>
<td></td>
<td>• Uses appropriate conflict resolution skills as necessary.</td>
<td></td>
</tr>
</tbody>
</table>
## Interdependence

<table>
<thead>
<tr>
<th>• Rarely builds solutions or decisions from ideas of other team members.</th>
<th>• Sometimes builds solutions or decisions from ideas of other team members.</th>
<th>• Frequently builds solutions or makes decisions synthesizing ideas from all team members</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Sometimes builds solutions or decisions from ideas of other team members.</td>
<td>• Gives some thought to similarities and differences of members’ ideas.</td>
<td></td>
</tr>
</tbody>
</table>

## Flexibility

<table>
<thead>
<tr>
<th>• Has difficulty considering all others’ ideas, synthesizing, or compromising</th>
<th>• Generally considers all ideas, sometimes seeks to synthesize, and sometimes makes compromises.</th>
<th>• Carefully and respectfully considers all ideas, seeks to synthesize, and compromises when needed.</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Works to be part of the solution, not part of the problem.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## Comments:

Overall
21CLD Student Work Cover Sheet

Please complete one of these sheets for EACH student work artefact you submit.

1. Title of Learning Activity
   Doing Business in Birmingham

2. Did students work in groups to produce this student work product?
   X Yes □ No

3. Did the student use technology for this activity?
   X Yes □ No

4. If yes, please describe how this student used technology.
   This group created the Waste Prevention page, http://doingbusinessinbirmingham.wikis.birmingham.k12.mi.us/Waste+Prevention. They used Movie Maker and Photosynth to edit the photos and videos posted on this page. They also contributed to the creation of the class wiki overall, including writing, designing and editing the space.

5. Is there anything else about the way this student approached the activity that was not in the instructions?
   Members of this group participated in the creation of the recruitment brochures, and the class wiki.

   More specifically, the group worked with the local company, Tactical Allocation Group, which they featured on their Waste Prevention page, http://doingbusinessinbirmingham.wikis.birmingham.k12.mi.us/Waste+Prevention. They highlight this business on the Honour Roll and use the commitments made by the company as evidence for the rating, http://doingbusinessinbirmingham.wikis.birmingham.k12.mi.us/Tactical+Allocation+Group.
1. Title of Learning Activity & Average Age of Students

<table>
<thead>
<tr>
<th>Title: Design a Catapult</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Age of Students: 14 years</td>
</tr>
</tbody>
</table>

2. What did you hope your students would learn from this learning activity?

- Understand science terms such as fulcrum, effort, load and lever arm.
- Build a scientific model and conduct an experiment that tests specific variables.
- Consider how elements of design affect performance.

3. Did you have learning goals from more than one discipline (for example, literature and history, or science and math) for this learning activity?

No.

4. Were students required to work in pairs or as a group on any part of this learning activity?

- No
- Working in groups was **optional**. Please describe below the work that students did together.
  - Working in groups was **required**. Please describe below the work that students did together.

Students worked in groups to design and test the catapult, and to discuss their design improvements. Each student wrote a separate report to turn in for grading.

5. Were students allowed to work with technology (ICT) such as computers or digital cameras for any part of this learning activity? Please describe.

- No technology was used for this learning activity.
- Students **could** use technology for this activity
- Students were **required** to use technology for this activity
They used it for writing results of the experiments and making suggestions for future changes.

6. What criteria did you use to judge the quality of students’ work on this learning activity? Were students aware of the criteria in advance of completing the learning activity?

I graded students on the completeness of their experimental trials (4 redesigns, 3 tests each), their drawings, and the comprehensiveness of their analysis/final report. Written rubric not available.

7. How long did the learning activity take?

☐ a. Completed in a single class period
☐ b. Completed in 2-4 days
☐ c. Required one week or more to complete

8. What verbal instructions did you give to students?

Before students began designing, the entire class discussed what students would learn from this activity and how it fit with the unit about motion that they had just completed. We talked about what a catapult is and how changes in the design can change the distance an object will travel when launched. We discussed possible designs, and groups had some time to look up samples on the internet. I gave them instructions for their first model, and provided the materials they would use. Next they created their models and ran their tests.

Before they started work, I told students what I expected from them and showed them the rubric for their grade. I explained that they had to carefully track their design changes, as well as log the results of the experiments.

9. Is there any other information you would like to include to help another educator using this learning activity be successful?

Students love this assignment, and it gets them thinking and learning without them even realizing how much science is involved!
**Design a Catapult**

Each group must build a catapult, test it to see how far it makes the load fly, and then create new catapult designs that will make it fly even farther. Your group will be graded on how far your catapult can launch the ball, and on your explanations of the science of how a catapult works.

**Step 1:** Follow the pattern to create a catapult similar to the one shown in the picture.

![Catapult Image]

**Step 2:** At a launching station, test your catapult 3 times. Measure how far your object travelled by measuring from the tape to the spot where your object originally landed. Measure in centimetres and record the results below. Calculate the average measurement for the three launch attempts.

<table>
<thead>
<tr>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Launch #1</td>
</tr>
<tr>
<td>Launch #2</td>
</tr>
<tr>
<td>Launch #3</td>
</tr>
<tr>
<td>Average</td>
</tr>
</tbody>
</table>

**Step 3:** Redesign your catapult so that your object will travel even further. Build and test 4 redesigns before deciding which one is the best. Record measurement results of each design below.

<table>
<thead>
<tr>
<th>Redesign</th>
<th>Launch #1</th>
<th>Launch #2</th>
<th>Launch #3</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Redesign #1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Redesign #2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Redesign #3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Redesign #4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Draw a picture of your best catapult design.

Label the fulcrum, effort, load, and lever arm on your drawing.
What class lever is it?

How far, on average, did your object travel?

Explain, in scientific terms, why the changes you made work. Use your science journal and the facts about levers to help you with this.
21CLD Student Work Cover Sheet

*Please complete one of these sheets for EACH student work artefact you submit.*

1. Title of Learning Activity

   Design a Catapult – Sample 1

2. Did students work in groups to produce this student work product?

   - Yes
   - No (they worked in groups but completed worksheets individually)

3. Did the student make choices about using technology for this activity?

   - Yes
   - No

4. If yes, please describe the choices that this student made.

   The student decided to type up her responses and use the computer to draw the diagram of the catapult.

5. Is there anything else about the way this student approached the activity that was not in the instructions?


**Design a Catapult**

Each group must build a catapult, test it to see how far it makes the load fly, and then create new catapult designs that will make it fly even farther.

**Step 1:** Follow the pattern to create a catapult similar to the one shown in the picture.

![Catapult Image](image)

**Step 2:** At a launching station, test your catapult 3 times. Measure how far your object travelled by measuring from the tape to the spot where your object originally landed. Measure in centimetres and record below. Calculate the average measurement for the three launch attempts.

<table>
<thead>
<tr>
<th></th>
<th>Launch #1</th>
<th>Launch #2</th>
<th>Launch #3</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measurement</td>
<td>167 cm</td>
<td>184 cm</td>
<td>210 cm</td>
<td>187 cm</td>
</tr>
</tbody>
</table>

**Step 3:** Redesign your catapult so that your object will travel even further. To do this you must decide what materials you’ll need and get them from the back table. Build and test 4 redesigns before deciding which one is the best. Record measurement results of each design below.

<table>
<thead>
<tr>
<th></th>
<th>Launch #1</th>
<th>Launch #2</th>
<th>Launch #3</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Redesign #1</td>
<td>300 cm</td>
<td>320 cm</td>
<td>332 cm</td>
<td>317 cm</td>
</tr>
</tbody>
</table>
Draw a picture of your best catapult design.

Label the fulcrum, effort, load, and lever arm on your drawing.

What class lever is it? **Class 1**

How far, on average, did your object travel? **317 cm**

Explain, in scientific terms, why the changes you made work. Use your science journal and the facts about levers to help you with this.

Making the load far away from the fulcrum is bad, so we made it closer. We made the design so it was opposite of the original design. From our information in our journals, it says we would have improved our design if the load was even closer to the fulcrum. It kept at a balance at an angle that made the load fly higher. Before, it made the thing making the effort need more strength.
21CLD Student Work Cover Sheet

Please complete one of these sheets for EACH student work artefact you submit.

1. Title of Learning Activity

Design a Catapult – Sample 2

2. Did students work in groups to produce this student work product?

• Yes
• No (they worked in groups but completed worksheets individually)

3. Did the student make choices about using technology for this activity?

• Yes
• No

4. If yes, please describe the choices that this student made.

5. Is there anything else about the way this student approached the activity that was not in the instructions?

This student used examples of other catapults to help inform her design for the assignment.

This student did an excellent job of working with her group.
Design a Catapult

Each group must build a catapult, test it to see how far it makes the load fly, and then create new catapult designs that will make it fly even further.

**Step 1:** Follow the pattern to create a catapult similar to the one shown in the picture.

![Catapult Image]

<table>
<thead>
<tr>
<th>Measurement</th>
<th>Launch #1</th>
<th>Launch #2</th>
<th>Launch #3</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>135 cm</td>
<td>154 cm</td>
<td>147 cm</td>
<td>145 cm</td>
</tr>
</tbody>
</table>

**Step 3:** Redesign your catapult so that your object will travel even further. Build and test 4 redesigns before deciding which one is the best. Record measurement results of each design below.

<table>
<thead>
<tr>
<th>Redesign #1</th>
<th>Launch #1</th>
<th>Launch #2</th>
<th>Launch #3</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>121 cm</td>
<td>128 cm</td>
<td>107 cm</td>
<td>119 cm</td>
</tr>
<tr>
<td>Redesign #2</td>
<td>210 cm</td>
<td>267 cm</td>
<td>268 cm</td>
<td>248 cm</td>
</tr>
<tr>
<td>Redesign #3</td>
<td>293 cm</td>
<td>317 cm</td>
<td>303 cm</td>
<td>304 cm</td>
</tr>
<tr>
<td>Redesign #4</td>
<td>336 cm</td>
<td>307 cm</td>
<td>322 cm</td>
<td>322 cm</td>
</tr>
</tbody>
</table>

Draw a picture of your best catapult design.
Label the fulcrum, effort, load and lever arm on your drawing.

What class lever is it? **Class One**

How far, on average, did your object travel? **322 cm**

Explain, in scientific terms, why the changes you made worked. Use your science journal and the facts about levers to help you with this.

When we first designed our catapult, we followed the sample catapult. Our load did not travel very far. To fix that, we thought about the formula (Speed = Distance/Time). We realized that in order to launch our load further, we had to increase the speed, so that the distance that the load travelled would increase as well.

We redesigned our catapult to try to gain speed by increasing the distance of the load from the fulcrum. We did this by increasing the length of the lever, thinking that a longer distance would increase the speed, but we found instead that this decreased the distance.

Next we decided that we needed the effort to help us apply more force to the load, so we added weight to the effort. We did this by adding duct tape to our effort, and making it heavier. By increasing the weight and maintaining the extra distance from the fulcrum to the load, we were able to increase the distance somewhat.

For our next try, we increased the weight of the effort more, by adding small weights and taping them to the effort with duct tape. The distance travelled by our load increased. We
realized that the two key factors influencing the distance that our load would travel were weight of effort and distance of the load from the fulcrum. Too much distance from the fulcrum, and we think the lever would have been too heavy to launch the load. Too much weight on the effort and the load would fly up too high, and not launch far enough to gain distance. We adjusted our design to play with the balance, moving the lever up and down the fulcrum a bit, and making the effort a bit more rounded and smooth. We had our best results with our last design, and we increased the average distance from our first design by 177 cm.
21CLD Learning Activity Cover Sheet

1. Title of Learning Activity & Average Age of Students

**Title:** Indigenous Cultures Assignment

**Average Age of Students:** 11 years

2. What did you hope your students would learn from this learning activity?

Students will learn to find information on the internet.

Students will learn about indigenous cultures and how they lived.

Students will practice their artistic/creative skills. Students will practice writing.

3. Did you have learning goals from more than one discipline (for example, literature and history, or science and math) for this learning activity?

This activity has learning goals in history and language arts.

The goal for history is for students to learn about indigenous cultures through internet research and describe how indigenous peoples lived.

For language arts, student will demonstrate their oral speaking abilities during their presentation.

4. Were students required to work in pairs or as a group on any part of this learning activity?

- [ ] No
- [ ] Working in groups was optional. Please describe below the work that students did together.
- [ ] Working in groups was required. Please describe below the work that students did together.

Students worked in groups to think about their region and to make their posters.
5. Were students allowed to work with technology (ICT) such as computers or digital cameras for any part of this learning activity? Please describe.

- No technology was used for this learning activity.
- Students could use technology for this activity
- Students were required to use technology for this activity

Students needed computers to help them search for information.

6. What criteria did you use to judge the quality of students’ work on this learning activity? Were students aware of the criteria in advance of completing the learning activity?

I had a rubric scale for every aspect: the completeness of their descriptions of indigenous cultures, the group work, and the individual presentation.

7. How long did the learning activity take?

- a. Completed in a single class period
- b. Completed in 2-4 days
- c. Required one week or more to complete

8. What verbal instructions did you give to students?

I will grade you on accuracy and how well you work as a team. I expect you to be hard working and to use your time wisely. If you think you’re done, you can always add more details.
**Indigenous Cultures Assignment:**

You will work in groups of six. Within your group, you will select a region of the world (such as South America, the Pacific Islands, or Africa).

Day 1:

In your group, think together about what you already know about this region of the world. Then decide: if you were planning to visit this region, what do you think you should bring with you?

Days 2-3:

Looking at the lists on the whiteboard, each student in the group will select a different indigenous culture in your region.

Individually, use the internet to research your indigenous culture and the area where the people live. You have 3 kinds of information you need to find:

1) What are the features of the land and the climate the people live in?
2) What type of house or dwelling do the people use? 3) What kind of dress is typical for the people?

Day 4:

Make drawings of the land, the houses, and the style of dress of the people you are studying. Then make your drawings come to life by decorating them with the materials available in the art bin. Write a short paragraph about land, houses and dress.

Day 5:

Together with your group mates, find a map of your region on the internet. Put all your drawings on a poster board, together with the map. Draw a line from each drawing to the part of the region that it is from.

Day 6:

Each person in the group will present for 2-3 minutes on their chosen indigenous culture.
21CLD Student Work Cover Sheet

*Please complete one of these sheets for EACH student work artefact you submit.*

1. **Title of Learning Activity**

**Indigenous Cultures – Marshall Islands**

2. Did students work in groups to produce this student work product?

*Yes*  *No*

3. Did the student make choices about using technology for this activity?

*Yes*  *No*

4. If yes, please describe the choices that this student made.

<table>
<thead>
<tr>
<th>The student chose which internet sites she used to find facts about the people she chose to study.</th>
</tr>
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5. Is there anything else about the way this student approached the activity that was not in the instructions?

<p>| |</p>
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</tbody>
</table>
Indigenous Cultures—Individual Contribution

Marshall Islands

Clothes

House
Native Peoples of the Marshall Islands

by

Land and Climate
The Marshall Islands are in Micronesia in the Pacific Ocean. The whole country is made of lots of islands. Some of these islands are called atolls. They are in rings and are usually small. Some are too small for people to live on! Each group of atolls has a lagoon, which is like a lake. It is hot in the Marshall Islands because it is near the Equator. I researched people who live on the atolls.
Dress
People in the Marshall Islands wear loose clothing. I didn’t find out more.

Houses
I found out that people’s houses are small. They like to have solid roofs. People sleep on mats. People put their houses near the lagoon, not near the ocean. People put stones around their houses.

THE END
Native Peoples of the Marshall Islands

Land and Climate
The Marshall Islands are in Micronesia in the Pacific Ocean. The whole country is made of lots of islands. Some of these islands are called atolls. They are in rings and are usually small. Some are too small for people to live on! Each group of atolls has a lagoon, which is like a lake. It is hot in the Marshall Islands because it is near the equator. I researched people who live on the atolls.

Dress
People in the small islands in the Marshall Islands wear loose clothing. I didn’t find out more.

Houses
I found out that people’s houses are small. They like to have solid roofs. People sleep on mats. People put their houses near the lagoon, not near the ocean. People put stones around their houses.
21CLD Learning Activity Cover Sheet

Please fill in one of these sheets and attach it to EVERY learning activity you submit. Choose the learning activities that you feel **provided the best learning opportunities for students.**

1. **Title of Learning Activity & Average Age of Students**
   - Title: Great Train Internet
   - Average Age of Students: 14 years

2. **What did you hope your students would learn from this learning activity?**
   - Students will conduct research about the Victorian era in England and report their findings. Students will learn about the historical background of a piece of literature. Students will create and deliver oral presentations to improve their public speaking skills.

3. **Did you have learning goals from more than one discipline (for example, literature and history, or science and math) for this learning activity?**
   - Yes. Students had learning goals in both history and language arts.

   In history students will investigate and report their findings about the Victorian Era in England through searching on the internet. In language arts, students will analyse a piece of literature keeping in mind the historical context in which the literature is situated.

   As students integrate the information from their findings, they will need to interpret how the writing from the Victorian era reflects the ways that people from that time saw the world.
4. Were students required to work in pairs or as a group on any part of this learning activity?

- No
- Working in groups was optional. Please describe below the work that students did together.
- Working in groups was required. Please describe below the work that students did together.

Students did this project in pairs and they did their presentations together in pairs.

5. Were students allowed to work with technology (ICT) such as computers or digital cameras for any part of this learning activity? Please describe.

- No technology was used for this learning activity.
- Students could use technology for this activity
- Students were required to use technology for this activity

Students used the computer to research information online. I allowed them to use any software to create their presentations, e.g. PowerPoint, Movie Maker, AutoCollage.

6. What criteria did you use to judge the quality of students’ work on this learning activity? Were students aware of the criteria in advance of completing the learning activity?

I used a public-speaking rubric which the students have seen many times. I also graded students on the content of the presentations – depth and accuracy of the information presented.

7. How long did the learning activity take?

- a. Completed in a single class period
- b. Completed in 2-4 days
- c. Required one week or more to complete

8. What verbal instructions did you give to students?

Refer to the rubric as you prepare your presentation. Use the internet, PowerPoint, Word, and other technology tools of your choice.

As you read through the information, be thinking about how people in the Victorian era saw the world. Choose a topic which is interesting to you, but also shows what life was like in the Victorian era.

I will give you five class days to complete all your work. Make sure you plan your time wisely, and assign yourselves homework if there are tasks you can do at home. Use your time in class to coordinate your work.
9. Is there any other information which you would like to include to help another educator using this learning activity to be successful?

PLEASE REMEMBER TO INCLUDE:

• Instructions for the learning activity
• Handouts and materials
• Grading rubrics
The Great Train Robbery Internet Research Projects

Before reading *The Great Train Robbery* by Michael Crichton, you will embark upon a “web quest” (internet research project) about Victorian England. This is the era in which the novel is set. This project will help you to know more about the Victorian Era, to help you interpret the story. You will learn how to do historical research, and you will present what you learned in a presentation to the class so you develop public speaking skills.

Working in pairs on the computers, your task is to research one of the topics below about Victorian England on sites like [www.thevictorianweb.com](http://www.thevictorianweb.com) or [www.victorianlondon.org](http://www.victorianlondon.org). Decide what is most important for the class to understand about the topic, and work together to develop a PowerPoint presentation to teach them those things. You and your partner are responsible for creating a workplan that will outline who is doing what tasks in order to do the research and create your presentations over the next five days.

You will present your topic to the class on Friday. Remember the qualities of public speaking: eye contact, volume, rate, pronunciation, poise and maturity. Your presentation will be rated on the public speaking rubric we have used since last year. You will also be rated on the content of your presentation, including the depth and the accuracy of the information in your report.

You will choose one of the following topics to research:

- Queen Victoria
- Child Labour
- Fashion
- Art
- Health
- Science
- the Role of Women
- Crime
- Religion
- Manners
- The Workhouse
- the Gentleman
- Education
- Poor Laws
- Literature

Remember that you can use what you have learned in other classes in doing this project. What important historical events happened in the Victorian Era (1837 to 1901)?
21CLD Student Work Cover Sheet

Please complete one of these sheets for EACH student work artefact you submit.

1. Title of Learning Activity

Great Train Internet – Workhouse

2. Did students work in groups to produce this student work product?
   - Yes
   - No

3. Did the student make choices about using technology for this activity?
   - Yes
   - No

4. If yes, please describe the choices that this student made.

The students chose how to use PowerPoint (not whether to use it) and also what sites to visit to do their research.

5. Is there anything else about the way this student approached the activity that was not in the instructions?

SLIDES UPDATED
THE WORKHOUSE

The workhouses of Victorian England were set up as homes for poor families, widows, unwanted orphans, and tramps. They were also for people who could not work — old people, sick people, and the mentally ill. It was a cruel way for the government to deal with the poor people in the 19th Century.

LIFE INSIDE

Life was tough inside the workhouse.
- Buildings looked like prisons, and residents were called “inmates”
- It was cramped inside so there was a lot of illness and disease.
- New entrants were stripped, searched and washed.
- Everybody looked the same — cropped hair and wearing a prison-style uniform.
- Families torn apart as men, women and children were kept in separate areas.

HARD LABOR

Work was meant to keep everyone busy. Donors wanted inmates to “pay” for the “free living” they get in the workhouse.
- Inmates worked from 7:00 AM to 12:00 PM and then again from 1:00 to 6:00 PM
- It was difficult and hard. They were very tired.
- There was gardening, cooking, sewing, corn milling, sack making, oakum picking and stone crushing.

MEAL TIME

- Until 1842, all meals were taken in silence.
- Inmates had to use their fingers to eat.
- Meals were kept dull, predictable, and tasteless

DISCIPLINE

- Fighting and riots often broke out.
- Masters and matrons were mean and cruel.
- Whipping was common.
- Punishments were done in public to teach a lesson to everyone.
21CLD Student Work Cover Sheet

Please complete one of these sheets for EACH student work artefact you submit.

1. Title of Learning Activity

| Great Train Internet – Victorians |

2. Did students work in groups to produce this student work product?

- Yes  - No

3. Did the student make choices about using technology for this activity?

- Yes  - No

4. If yes, please describe the choices that this student made.

| These students visited the websites I gave them to find their information. |

5. Is there anything else about the way this student approached the activity that was not in the instructions?

| |
Victorian England

*English Class*
January 8, 2006

**Religion**
- Victorian England was a deeply religious country. A great number of people were habitual church-goers, at least once or maybe twice every Sunday. The Bible was frequently and widely read by people of every class.

**Education**
- Education in nineteenth-century was not equal—not between the sexes or the classes. Gentlemen would be educated at home by a governess or tutor until they were old enough to attend a school. Women's education was taken. There were boarding schools.

**Literature & Science**
- Literature played an important role in the Victorian England era. There were many great authors from this era. British scientist had Charles Darwin, who laid the foundation of modern evolutionary theory.

**Child Labor**
- Child labor in Victorian England was crucial. Children were chained, belted, harnessed like dogs, and saturated with wet, and more than half-naked while crawling on their hands and knees, dragging their heavy loads behind them.

**Men...Women...Children...**
- The father was the head of the household. He was always obeyed by all without question.
- The mother would often spend their time planning dinner parties, visiting their dressmaker, or calling on friends.
- The children in a middle class family saw very little of their parents and would spend most of their time in the nursery, and would be brought up by their nanny.
Servants

- All households except the very poorest had servants to do their day to day work. The cook and butler were the most important.
Please fill in one of these sheets and attach it to EVERY learning activity you submit. Choose the learning activities that you feel provided the best learning opportunities for students.

Title of Learning Activity & Average Age of Students

<table>
<thead>
<tr>
<th>Title: Falklands War</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Age of Students: 14 years</td>
</tr>
</tbody>
</table>

1. **What did you hope your students would learn from this learning activity?**
   I wanted students to learn about the war and the larger issues surrounding it so that they could think critically and form opinions, using methods that historians use.
   It was also important for them to learn to compare and evaluate a variety of news sources.
   I wanted students to make a class wiki, to learn how to present information for a broader audience than the educator or their classmates. By creating and launching the wiki for use by students in other countries, they will be thinking about users that have different needs than their own.

2. **Did you have learning goals from more than one discipline (for example, literature and history, or science and math) for this learning activity?**
   Yes. Students are learning how to research and report like historians. They are also learning how to create a webpage to be part of a class wiki, where they can present their findings to a broad audience.

3. **Were students required to work in pairs or as a group on any part of this learning activity?**
   - No
   - Working in groups was optional. Please describe below the work that students did together.
   - Working in groups was required. Please describe below the work that students did together.
Students worked in groups to discuss the questions about the war, and then students worked in groups to do research their topics. Each group created a webpage on their topics. All pages were integrated into one class wiki.

4. **Were students allowed to work with technology (ICT) such as computers or digital cameras for any part of this learning activity? Please describe.**
- No technology was used for this learning activity.
- Students could use technology for this activity
  - Students were required to use technology for this activity

Students used the internet to find news articles and then they created a wiki in the final stage of the project. Some students used Skype to communicate with classrooms in the UK and Argentina.

5. **What criteria did you use to judge the quality of students’ work on this learning activity? Were students aware of the criteria in advance of completing the learning activity?**

I graded my students on whether they had completed each step of the assignment, and on the quality of their research and written work. For their group work, students were asked to comment on their team members’ contributions.

6. **How long did the learning activity take?**
- a. Completed in a single class period
- b. Completed in 2-4 days
  - c. Required one week or more to complete

7. **What were verbal instructions did you give to students?**

I encouraged them to talk to their parents and other people outside of school while working on the project.

8. **Is there any other information you would like to include to help another educator using this learning activity be successful?**

Throughout the year, several of our big projects culminate in a classroom wiki.

**PLEASE REMEMBER TO INCLUDE:**

- Instructions for the learning activity
- Handouts and materials
- Grading rubrics
The Falklands War

On April 2, 1982, Argentina invaded and occupied the Falklands Islands. Both the Argentine Republic and the United Kingdom claimed ownership over these islands. The Argentine Republic characterized the offensive as the re-occupation of its own territory, but the UK saw it as an invasion on a British dependent territory. Margaret Thatcher, the Prime Minister of the UK at the time, launched a naval task force to engage the Argentine forces and retake the islands. The war lasted 74 days, and finally ended with the surrender of Argentine troops on June 14, 1982.

Our class will conduct a research project about the Falklands War. We will gather information about the conflict between the UK and the Argentine Republic and debate the question of whether Argentina’s actions were justified. Once we have compiled our facts and developed our arguments, we will put everything in a wiki (an interactive website) that will be linked to the class homepage.

1) Whole Class Discussion

- What are we going to learn about?
- What do we know so far about doing historical research? About this conflict?
- How can we evaluate each group’s contribution to the wiki? What criteria can we use? (Create a rubric for this project.)
- Who is the audience for the website? (It would be particularly interesting to get feedback and postings from people in Argentina and the UK.) How can we reach people in that audience?
- What design features for the website should we agree on?

2) Background: Reading and Discussion

On the internet, locate four newspaper articles from different international sources that might have different perspectives about the conflict between the UK and the Argentine Republic in the Falklands. As you read the articles, think about the following questions. Discuss the questions in your group.

a. What was Margaret Thatcher’s strategy and what were her goals?
b. How was Prime Minister Thatcher’s plan received by British citizens? How was it received by the international community?
c. Do you think Prime Minister Thatcher’s plan was a good one? Why or why not?

3) Group Research
Each group will research a specific topic that relates to the war in the Falklands, and develop the information into a webpage. Consider including in your research a conversation with someone in our target audience. It is your responsibility to assign tasks within your groups. The topics are:

- The history of the Falklands
- Events leading to the war in the Falklands
- The effects of the war in the Falklands
- The effects of the war in the UK
- Should the Argentine Republic have invaded the Falklands?
- Should the UK have retaliated?

4) As a group, build a webpage on your topic.

5) Ask another group to visit your webpage and review it based on the evaluation criteria we came up with as a class. If you contacted people in our target audience, you can also seek feedback from them.

6) All group pages will be integrated into one class wiki about the Falklands War. Make any changes to your webpage before integrating it into our class wiki.
21CLD Student Work Cover Sheet

Please complete one of these sheets for EACH student work artefact you submit.

1. Title of Learning Activity

Falklands War

2. Did students work in groups to produce this student work product?
   • Yes       • No

3. Did the student make choices about using technology for this activity?
   • Yes       • No

4. If yes, please describe the choices that this student made.

Students decided as a class what the website was going to look like. In their groups, students planned the use of images and text for their own pages.

5. Is there anything else about the way this student approached the activity that was not in the instructions?

This group of students emailed students in Argentina and solicited their comments, which the Argentinians posted on this group’s webpage.

Please go to http://falklands-class-wiki.wikispaces.com/
A screenshot of the homepage for the class wiki is below.

The screenshot below is the product of Group 6’s work.

Group 6 Writeup

Even if they lost, we think that Argentina should still invade Falklands because they were tired of Britain owning countries that don’t belong to them. Britain discovered the island but they left in 1774 because of the war with the rebels in America. Then Spain took over but they left also in 1811. That means that Argentina took it over in 1820. People from Argentina started living there. But then in 1833 Britain changed their minds because they wanted to use the islands as a strategy center for war. The history that we just wrote shows that Britain stole the island back. Because they stole it, and it is very far away from Britain and closer to Argentina they should have to give it back. But they didn’t so Argentina should have invaded. Britain shouldn’t be allowed to be an Empire everywhere in the world.

Dear visitors to the site: Please comment on our writeup by using the discussion button at the top.

hola

Hello I am Javier of Argentina. You have interesting article, but I do agree because this is the decade of 1900, not 1800. People should not use weapons in modern times. Sorry for my English ;)

hola
Group 6 Write-up (The researcher typed this copy based on the student work on the wiki page above)

Even if they lost, we think that Argentina should still invade Falklands because they were tired of Britain owning countries that don't belong to them. Britain discovered the island but they left in 1774 because of the war with the rebels in America. Then Spain took over but they left also in 1811. That means that Argentina took it over in 1820. People from Argentina started living there. But then in 1833 Britain changed their minds because they wanted to use the islands as a strategy centre for war. The history that we just wrote shows that Britain stole the island back. Because they stole it, and it is very far away from Britain and closer to Argentina, Britain should have to give it back. But they didn't so Argentina should have invaded. Britain should not be allowed to be an Empire everywhere in the world.

Comment posted on the Group 6 page. (The researcher typed the comment posted on the webpage and corrected the English.)

Hello, my name is Javier from Argentina. You have an interesting opinion, but I don't agree because we are talking about the 1900s and not the 1800s. People should not use weapons in modern times.
21CLD Learning Activity Cover Sheet

1. Title of Learning Activity & Average Age of Students

| Title: School Change | Average Age of Students: 11 |

2. What did you hope your students would learn from this learning activity?

Students are learning how to write a persuasive essay. They are learning how to frame an argument about something they think is important. I want students to learn that writing has power, so we are mailing our letters to the school leader.

3. Did you have learning goals from more than one discipline (for example, literature and history, or science and math) for this learning activity?

No.

4. Were students required to work in pairs or as a group on any part of this learning activity?

- No
- □ Working in groups was optional. Please describe below the work that students did together.
- □ Working in groups was required. Please describe below the work that students did together.

No.

5. Were students allowed to work with technology (ICT) such as computers or digital cameras for any part of this learning activity? Please describe.

- No technology was used for this learning activity.
- □ Students could use technology for this activity
- □ Students were required to use technology for this activity

No technology was used for this learning activity.

6. What criteria did you use to judge the quality of students’ work on this learning activity? Were students aware of the criteria in advance of completing the learning activity?
I used the six point writing rubric to grade their letters. This rubric was given to students prior to them submitting work.

7. **How long did the learning activity take?**
   - a. Completed in a single class period
   - b. Completed in 2-4 days
   - c. Required one week or more to complete

8. **What verbal instructions did you give to students?**
   Think about your audience: make sure the reasons you describe for making the change you propose will be compelling to the school leader. Start by creating pre-writing notes to organize your thoughts. Check carefully to be sure your sentences are complete, and your spelling and punctuation are correct.

9. **Is there any other information you would like to include to help another educator using this learning activity be successful?**
   For Part 1, I provided a set of letters **to the editor that have been published in the local newspaper**. Students analysed the letters, but I did not collect their work. Rather, the whole class discussed the strengths and weaknesses of each sample and came up with a list of the most important features.

   I ask students to use the six point rubrics to score their own work before I give them my score. I’m helping them to understand how the six points are applied, and how they can improve their own writing.
School Change: What Are Your Ideas?

PART 1. Analysing

Compare any two (2) sample letters from the set I provided. Does each letter convince you?

List the strengths and weaknesses of each. Try to develop two principles of good persuasive writing based on your analysis. Be prepared to share your answers during our class brainstorm.

PART 2. Letter Writing

The school leader is looking for ways to improve our school, without increasing cost. He has asked our class for ideas.

Choose something about the school that you would like to change, and figure out what you could say to the school leader to persuade him to make the change you want. Write a letter to the school leader explaining the change and giving three reasons to make that change. Write neatly and be careful with spelling and punctuation because we will give the letters to him so he can consider our ideas when he decides what to do.

Process:

1. Decide on a change you would like to make.

2. Generate reasons why the change you want would benefit the school.

3. Decide which 3 reasons would be most likely to persuade the school leader to do what you want.

4. Write a persuasive letter to the school leader using the principles of persuasive writing we generated as a class. You should devote one paragraph to each of your three reasons.
21CLD Student Work Cover Sheet

*Please complete one of these sheets for EACH student work artefact you submit.*

1. Title of Learning Activity

2. Did students work in groups to produce this student work product?
   • Yes
   • No

3. Did the student make choices about using technology for this activity?
   • Yes
   • No

4. If yes, please describe the choices that this student made.

5. Is there anything else about the way this student approached the activity that was not in the instructions?

Our school is located in Chicago’s inner city, where gang violence and crime are prevalent. Safe passage to and from school is an issue, especially for these younger students. Some high school kids have victimized the younger ones on the streets.
Dear Ms. [Name]

I think school should get out an hour earlier, because it would give us more time for homework, study, chores in the house. And getting out late may be dangerous.

When we get out of school at 15:30 some bad teenagers are around and could beat us up. The first reason to get out early is that it’s dangerous. Another reason is that some of our parents start work at 15:30 and can’t pick us up.

The next reason for letting us out early is that kids don’t have time to do homework and studying.

The third reason is that many children have chores to do around the house. The kids don’t have enough time to do the work.

In conclusion, I implore you to let the school out an hour earlier. I think school is too long, and that we learn enough especially the people who want to learn. Please shorten the school day for the reasons that I have stated, we don’t have time for homework, we have chores and it may be dangerous.

Sincerely,
Dear Ms. NAME OF PRINCIPAL,

I think school should get out an hour earlier, because it would give us more time for homework, study, chores in the house. And getting out late may be dangerous.

When we get out of school at 15:30 some bad teenagers are around and could beat us up. The first reason to get out early is that it’s dangerous. Another reason is that some of our parents start work at 15:30 and can’t pick us up.

The next reason for letting us out early is that kids don’t have time to do homework and studying.

The third reason is that many children have chores to do around the house. The kids don’t have enough time to do the work.

In conclusion, I implore you to let the school out an hour earlier. I think school is too long. And that we learn enough, especially the people who want to learn. Please shorten the school day for the three reasons that I have stated, we don’t have time for homework, we have chores, and it may be dangerous.

Sincerely,

NAME OF STUDENT
21CLD Learning Activity Cover Sheet

Please fill in one of these sheets and attach it to EVERY learning activity you submit. Choose the learning activities that you feel **provided the best learning opportunities for students**.

1. **Title of Learning Activity & Average Age of Students**
   
   | Title: SCIENCE LAB #8 - MUNTING MUNGO (tiny mung bean) |
   
   | Average Age of Students: 11 years |

2. **What did you hope your students would learn from this learning activity?**

   Students would learn to (a) conduct a simple experiment, (b) make and record observations, and (c) describe their results. They will do this experiment as preparation for our lesson on seed germination and the effects of liquids on the process.

3. **Did you have learning goals from more than one discipline (for example, literature and history, or science and math) for this learning activity?**

   No.

4. **Were students required to work in pairs or as a group on any part of this learning activity?**

   - No
   - Working in groups was optional. Please describe below the work that students did together.
   - Working in groups was required. Please describe below the work that students did together.

   At the beginning of the school year, students choose a lab partner. All the experiments in our science lab are conducted with their partner. They submit one worksheet per pair – like they did in this experiment.
5. **Were students allowed to work with technology (ICT) such as computers or digital cameras for any part of this learning activity? Please describe.**
   - No technology was used for this learning activity.
   - Students could use technology for this activity
   - Students were **required** to use technology for this activity

   I allowed students to type their answers to the final worksheet that they submit so it is neater.

6. **What criteria did you use to judge the quality of students’ work on this learning activity? Were students aware of the criteria in advance of completing the learning activity?**

   I checked to make sure that they completed the entire worksheet. I gave more credit for the completion of part B where they record their daily observations.

7. **How long did the learning activity take?**
   - a. Completed in a single class period
   - b. Completed in 2-4 days
   - c. Required one week or more to complete

8. **What verbal instructions did you give to students?**

   I reminded students that they should visit their stations every day to record their observations even if it is not a lab day.

9. **Is there any other information you would like to include to help another educator using this learning activity be successful?**

   I let students choose their partners at the start of the school year so they will like working with them. It has been working well in the last 3 months, and they are used to conducting their experiments together. They know that I will not give them credit if only 1 of them is doing all the work.

**PLEASE REMEMBER TO INCLUDE:**

- Instructions for the learning activity
- Handouts and materials
- Grading rubrics
Science Lab #8 – Munting Mungo

Objective:
To observe how liquids affect the growth (germination) of the mung bean

Materials:
Mongo beans, plastic cups, tissue paper, marker, water, vinegar, ruler.

Procedure:
1. Brainstorm the similarities and differences between water and vinegar. Write the answers in your worksheet part A.

2. Set up your two growth stations.
   a. Take a plastic cup, 5 mung beans and tissue paper for each one.
   b. For the water station, dip 3 sheets of tissue paper in 3 tablespoons of water from the faucet. Put this at the bottom of the cup. Place the mung beans on top of the wet paper. Label the cup “water.” Write your group number also.
   c. For the vinegar station, dip 3 sheets of tissue paper in 3 tablespoons of vinegar. Put this at the bottom of the cup. Place the mung beans on top of the wet paper. Label the cup “vinegar.” Write your group number also.
   d. Put both stations side-by-side along the window of our lab room to make sure it gets enough sunlight.

3. Record your observations for the next 4 days. Write this on worksheet part B. If you see any growth, measure it using a ruler. Also check if the tissue paper is still moist. If it is dry, add a little water or vinegar. Add the same amount of liquid to each station.

4. At the end of Day 4, summarize what happened to the mung bean in each station. By Friday, submit your worksheet to your lab educator.

SCIENCE LAB #8 – MUNTING MUNGGO
GROUP NUMBER: _____

STUDENT NAMES: _________________  +   _________________

A. SIMILARITIES & DIFFERENCES OF WATER & VINEGAR

<table>
<thead>
<tr>
<th>WATER</th>
<th>VINEGAR</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

B. OUR OBSERVATIONS

<table>
<thead>
<tr>
<th>WATER</th>
<th>VINEGAR</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Day 1</td>
<td></td>
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<tr>
<td>Day 2</td>
<td></td>
</tr>
<tr>
<td>Day 3</td>
<td></td>
</tr>
</tbody>
</table>

C. SUMMARY
21CLD Student Work Cover Sheet

Please complete one of these sheets for EACH student work artefact you submit.

10. Title of Learning Activity

<table>
<thead>
<tr>
<th>SCIENCE LAB #8 – MUNTING MUNGO (tiny mung bean)</th>
</tr>
</thead>
</table>

11. Did students work in groups to produce this student work product?

- Yes  
- No

12. Did the student use technology for this activity?

- Yes  
- No

13. If yes, please describe how this student used technology.

This student pair typed their answers in the worksheet that they submitted

14. Is there anything else about the way this student approached the activity that was not in the instructions?

- No
A. SIMILARITIES & DIFFERENCES OF WATER & VINEGAR

<table>
<thead>
<tr>
<th>WATER</th>
<th>VINEGAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>- No taste; no smell</td>
<td>- Tastes and smells sour</td>
</tr>
<tr>
<td>- Our mommies use it to cook</td>
<td>- Our mommies use it to cook</td>
</tr>
<tr>
<td>- We use it to take a bath and clean things</td>
<td>- We do not use it to take a bath. But I think my mommy uses it to clean sometimes</td>
</tr>
<tr>
<td>- Easy to spell</td>
<td>- ___ doesn’t know how to spell it</td>
</tr>
</tbody>
</table>

B. OUR OBSERVATIONS

<table>
<thead>
<tr>
<th>WATER</th>
<th>VINEGAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Day 1</td>
<td>No Change</td>
</tr>
<tr>
<td>There is a small hole in the seed; white stuff is peeking out but it is too small to measure</td>
<td>It's stinky. We added 1 Tbsp vinegar.</td>
</tr>
<tr>
<td>Day 2</td>
<td></td>
</tr>
<tr>
<td>2 cm of white. We added 2 Tbsp water.</td>
<td></td>
</tr>
<tr>
<td>Day 3</td>
<td>No change. We think it's dead. But we need to add 2 more Tbsp of vinegar because we are adding water to the other station.</td>
</tr>
<tr>
<td>3 cm of white. It's getting dry. We added 2 Tbsp water.</td>
<td></td>
</tr>
<tr>
<td>Day 4</td>
<td>No change. It is dead.</td>
</tr>
<tr>
<td>6 cm of white</td>
<td></td>
</tr>
</tbody>
</table>

C. SUMMARY

The munggo grew 6 cm in only 4 days. The munggo likes water because it grew longer when we added water. Celine says her grandma puts the munggo beans in water 2 days before she cooks chop suey so they have fresh bean sprouts! Her grandma cooks well.

The munggo did not grow in vinegar. The vinegar killed the other munggo station. Maybe it died from the bad smell. We would not like it if we had to swim in that bad smell for 4 days.

Like us, water helps the munggo grow.
## Collaboration

<table>
<thead>
<tr>
<th>TITLE</th>
<th>code</th>
<th>RATIONALE</th>
</tr>
</thead>
<tbody>
<tr>
<td>House on Mango Street</td>
<td>1</td>
<td>Students work in pairs to give each other feedback, but there is no shared ownership of the task: one student still &quot;owns&quot; the poem that the other student is helping to improve.</td>
</tr>
<tr>
<td>Olympics Site Selection</td>
<td>4</td>
<td>Students work together in groups to do this activity, and they share responsibility for the work. The students are making substantive decisions together that require negotiation: in particular, the &quot;seismologist,&quot; &quot;volcanologist,&quot; and &quot;geologist&quot; must integrate what they learned to reach a group decision about which country to recommend. Information from each group member is required to make their letter to the IOC complete.</td>
</tr>
<tr>
<td>Doing Business in Birmingham</td>
<td>4</td>
<td>Students work together in groups, and share responsibility for their work. The students make substantive decisions together throughout the project (e.g., to plan their visit to the businesses, or negotiate which of the evidence collected can best illustrate key ideas about sustainability on the class wiki). Each student also assumes a specific role (e.g., photographer, communications manager) that is essential for the team to complete its work together.</td>
</tr>
<tr>
<td>TITLE</td>
<td>RATIONALE</td>
<td></td>
</tr>
<tr>
<td>-----------------------</td>
<td>------------------------------------------------------------------------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>Indigenous Cultures</td>
<td>This activity required some knowledge construction on Day 1 when students used their prior knowledge of the region to decide what to bring with them. However, the main requirement of the activity is to find information on the Internet and paraphrase it without any requirement to interpret, analyse, synthesize, or evaluate the information they found.</td>
<td></td>
</tr>
<tr>
<td>Design a Catapult</td>
<td>Students are learning about the law of levers. Their lab experiment requires them to complete multiple trials within the same context. They write down findings from each trial and draw conclusions, but they do not apply it to a different context.</td>
<td></td>
</tr>
<tr>
<td>House on Mango Street</td>
<td>Students synthesize their knowledge from multiple sources (novel, online research, and interviews). They analyse general principles about the immigrant experience then apply them when they write a poem about an element of the immigrant experience for a non-immigrant audience (which requires further analysis). The work is interdisciplinary because it has learning goals in history and language arts.</td>
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</tr>
</tbody>
</table>
# Self-Regulation

<table>
<thead>
<tr>
<th>TITLE</th>
<th>code</th>
<th>RATIONALE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Design a Catapult</td>
<td>2</td>
<td>The students received the learning goals and associated grading criteria in advance, but they did not have the opportunity to plan their own work. The teacher provided detailed instructions.</td>
</tr>
<tr>
<td>Great Train Internet</td>
<td>3</td>
<td>Students received the grading rubric in advance and had to plan their own timeline for accomplishing the work. The activity did not provide students the opportunity to revise their work based on feedback.</td>
</tr>
<tr>
<td>Falklands War</td>
<td>4</td>
<td>The class discussed the learning goals and developed grading criteria on the first day. Students were required to plan their approach and assign roles among group members. Groups exchanged drafts of their webpages to collect feedback. Then, they integrated revisions before pages were compiled into the class wiki.</td>
</tr>
</tbody>
</table>
### Real World Innovation & Problem Solving

<table>
<thead>
<tr>
<th>TITLE</th>
<th>code</th>
<th>RATIONALE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Design a Catapult</td>
<td>0</td>
<td>Students investigate which catapult design makes the load fly farthest as an academic exercise. They are not solving a real-world problem with a particular audience.</td>
</tr>
<tr>
<td>House on Mango Street</td>
<td>3</td>
<td>Students work on two real-world problems. First, they conceptualize the immigrant experience by interviewing an immigrant in their community (in addition to reading the novel). Then they write a poem aimed at increasing awareness of people in their community. But they do not share the poem outside the classroom.</td>
</tr>
<tr>
<td>School Change</td>
<td>4</td>
<td>The main part of the activity was problem solving: students thought of ways to improve the school without adding costs, and ways to persuade the school leader that this would be a good decision. This was a real-world problem; they were making suggestions about a real school (their own). Finally, the students' letters were actually sent to an authentic audience—a school leader who would consider the students' ideas.</td>
</tr>
</tbody>
</table>
Use of ICT for Learning

<table>
<thead>
<tr>
<th>TITLE</th>
<th>Code</th>
<th>RATIONALE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Munting Munggo/ Tiny Mung Bean</td>
<td>1</td>
<td>Students typed the final worksheet that they submitted, but the ICT was not used to construct knowledge.</td>
</tr>
<tr>
<td>Great Train Internet</td>
<td>1</td>
<td>Students used ICT (websites and other computer resources) to learn about the Victorian era. They had to analyse the information they found in order to decide what was most important to present to their classmates, so the activity counts as knowledge building. However, ICT was not pedagogically necessary because students could have built the same knowledge using books in a library or a print encyclopaedia.</td>
</tr>
<tr>
<td>Falklands War</td>
<td>3</td>
<td>The activity required students to use the Internet to collect and review multiple international sources of information about the Falklands War. Since this is a very specialized topic, it would have been difficult to access the content needed for knowledge construction without ICT use. Students created an interactive website to disseminate their learning to a specific audience.</td>
</tr>
</tbody>
</table>

Skilful Communication

<table>
<thead>
<tr>
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<th>Code</th>
<th>RATIONALE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indigenous Cultures</td>
<td>1</td>
<td>Coherent communication is required and students use a range of modes. They do not have to design their work for a particular audience.</td>
</tr>
<tr>
<td>Design a Catapult</td>
<td>1</td>
<td>The laboratory report requires coherent thinking and students use a range of modes of communication. There is no specified audience other than the teacher as assessor.</td>
</tr>
<tr>
<td>School Change</td>
<td>2</td>
<td>The letter requires coherent thinking and communication. They design this for a specific audience - the principal.</td>
</tr>
</tbody>
</table>
## Summary of LA Examples

<table>
<thead>
<tr>
<th>Title</th>
<th>AGE</th>
<th>Collaboration</th>
<th>Knowledge Construction</th>
<th>Self-Regulation</th>
<th>RWPSI</th>
<th>Use of ICT</th>
<th>Skilful Communication</th>
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<tbody>
<tr>
<td>Great Train Internet</td>
<td>14</td>
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<td>3</td>
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<td>1</td>
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<tr>
<td>Indigenous Cultures</td>
<td>12</td>
<td>1</td>
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<td></td>
<td>1</td>
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<tr>
<td>House on Mango Street</td>
<td>13</td>
<td>1</td>
<td></td>
<td>4</td>
<td>2</td>
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<tr>
<td>School Change</td>
<td>11</td>
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<td>4</td>
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<tr>
<td>Erosional Landforms</td>
<td>13</td>
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<td>Design a Catapult</td>
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<td>1</td>
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<tr>
<td>Tree Word Scramble</td>
<td>11</td>
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<tr>
<td>Mr. Sun E. Day</td>
<td>11</td>
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<td>Olympics Site Selection</td>
<td>13</td>
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<td></td>
<td>4</td>
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3. Your Learning Activities

Sponsored by

Microsoft Partners in Learning

Rubrics designed by

Rubrics developed by Joan Dalton, Hands On Educational Consultancy Pty Ltd for Microsoft Australia Pty Ltd.
Name: 
School: 
Learning Activity Title: 

Pre Coding: 
Please code your own Learning activity on the rubric below AS IT EXISTS WHEN YOU WROTE IT. 

*NB There is NO expectation that all 21CLD Dimensions will be addressed in your Learning Activity*

<table>
<thead>
<tr>
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Post Coding: 
Please code your own Learning activity on the rubric below after you have revised and strengthened it in light of your work with the 21CLD framework. *NB There is NO expectation that all 21CLD Dimensions will be addressed in your Learning Activity.*

<table>
<thead>
<tr>
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What were the major shifts that strengthened this LA?
21CLD Learning Activity Description Template

Please describe your learning activity through the elements below. Please provide one of these for EVERY learning activity you document for sharing. Choose the learning activities that you feel provided the best learning opportunities for learners.

1. **Title of learning activity**

   

2. **What did you hope learners would gain from this learning activity? What were your learning intentions or goals? Did learners know these in advance of the learning work to be done?**

   

3. **Were the learning intentions or goals drawn from more than one discipline (for example, literature and history, or science and mathematics) for this learning activity?**

   

4. **Were learners required to work collaboratively in pairs or groups on any part of this learning activity?**
   - No
   - Working in groups was *optional*. Please describe below the work that learners did together.
• Working in groups was *required*. Please describe below the work that learners did together.

5. Did learners work with technology (ICT) for any part of this learning activity? Please go into more detail in the box below.
   • No technology was used for this learning activity
   • Learners *could* use technology for this activity
   • Learners were *required* to use technology for this activity

6. What criteria did you use to judge the quality of learners’ work on this learning activity? Were learners aware of the criteria in advance of the learning work to be done?

7. How long did the learning activity take?
   • Completed in a single class period
   • Completed in 2-4 days
   • Required one week or more to complete
8. What verbal instructions did you give to learners?


9. What other information (if any) would you like to include that may help other teachers using this learning activity be successful?


PLEASE INCLUDE THE FOLLOWING WITH THIS LEARNING ACTIVITY DESCRIPTION TEMPLATE:

- Instructions for the learning activity
- Handouts and materials
- Assessment rubrics
**PRE AND POST CODING:**

**Pre Coding:**
Please code your own Learning activity on the rubric below **AS IT EXISTS WHEN YOU WROTE IT.**
NB There is **NO** expectation that all LEAP21 Dimensions will be addressed in your Learning Activity

<table>
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**Post Coding:**
Please code your own Learning activity on the rubric below after you have revised it in light of the Pilot and LeEAP21 framework.
NB There is **NO** expectation that all LEAP21 Dimensions will be addressed in your Learning Activity.

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<tr>
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<tbody>
<tr>
<td>Collaboration</td>
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<td>Knowledge Building</td>
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<td>Real World Problem Solving</td>
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<td>Self-regulation</td>
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<td>Use of ICT for learning</td>
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<tr>
<td>Skilled Communication</td>
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</table>
21st Century Learning Design Innovation Template

Use this template to re-design your existing Learning Activities, or to create new Learning Activities.

**Title of learning activity:**

<table>
<thead>
<tr>
<th>Learning intentions or goals:</th>
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**Describe the key elements of this learning activity.**

<p>| |</p>
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**Which one (or two) of the 21st Century Learning Design rubrics would best fit with this learning activity; explain your reasoning.**

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**Which aspects will you incorporate from the Learning Design Rubrics to help learners develop and improve 21C capabilities and skills, and how will you embed them as part of the Learning Activity?**

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</table>
What will your success criteria be? For your own reflection? For learners’ work?
4. Reflection

Rubrics designed by Joan Dalton, Hands On Educational Consultancy Pty Ltd for Microsoft Australia Pty Ltd.
Personal Reflection Journal

This reflection journal is designed to help capture thinking important to you from the 21CLD Dimensions sessions. Use the related prompts and questions only if they are relevant to your reflection.

Clarity of purpose

‘If you do not know to which port you are sailing, no wind is favourable.’

*Lucius Annaeus Seneca, Rome 5 BC-65 AD*

<table>
<thead>
<tr>
<th>What is the essence of your purpose with 21CLD? How might you communicate this with clarity to others at school?</th>
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</table>

Collaboration dimension

‘Collective intelligence and connectivity are essential for our futures in a networked world, where people work collaboratively to create the new together.’ George Siemens 2006

<table>
<thead>
<tr>
<th>Ideas gained from conversation about the Collaboration Rubric? Realisations? Wonderings? Challenges?</th>
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</tbody>
</table>
Knowledge Construction Dimension

‘Knowledge construction creates the new rather than reproduces what is already known.’
Dalton

Connections made? New ideas gained? How might you apply and use your learning?

Self-Regulation Dimension

‘We have a key teaching responsibility to actively develop self-regulation capabilities in learners, and to progressively increase learner self-responsibility as we do so.’
Dalton 2013

What implications might there be for teaching practice? What’s one thing I will do?
Real-World Problem-Solving and Innovation

‘Given that one of our criteria for maximizing learning is “steeped in real-life problem-solving,”
...the whole raison d’etre of schooling becomes a single expanded entity called “learning about
and for life” and doing it in a passionate and purposeful manner.’
Fullan 2013

Real-life challenges? Opportunities to innovate?

ICT for Learning

‘Don’t focus on technology - focus on its use.’
Fullan 2013

How might I focus on the use of technology for more powerful learning?
Skilful Communication

‘Communication is at the heart of all human interaction and 21st C learning. Both the outcome/product and the process of communication are central to improving learning and communication capabilities.’
Dalton 2013

How skilful was my own communication during this session? What might be some implications for teaching practice?
Coding My Learning Activities

‘No one can persuade another to change. Each of us guards a gate of change that can only be opened from the inside.’ Ferguson 1980

What realisations? What shifts in your own thinking and understanding? What key actions might you now take?

Reflection strategies to use with your team

21CLD prompts and questions
The reflection prompts, quotes and question scaffolds provided in your Personal Reflection Journal connect to important ideas from each 21CLD dimension. For example, the Knowledge Construction questions relate to new ideas, connections made, and application to your own context – key concepts in that dimension.

Use powerful quotes to provoke reflection and conversation
‘If a picture is worth a thousand words’, the same is true of a well-chosen quotation. Find, select and use relevant quotes that capture ‘gems of wisdom’ as a thought-provoking way to scaffold reflection and dialogue with your team.

Within the context of the 21CLD Dimensions, consider:

- the use of quotes for personal or team reflection before reading the Rubric/s to ascertain existing understandings. This models knowledge construction and provides a hook that enables people to connect their own thinking to new information.
the use of relevant quotes from experts in the field, current literature and short ‘gems’ taken from the LD Rubrics themselves.

Continue Start Stop!
Invite people to individually reflect, record and share their thinking after reading and conversation around one (or more) 21CLD Rubric Dimension/s:

- What is something that affirms what you already do, that you will continue to do?
- What is something of importance you have learned that you will start doing?
- What is something you will stop doing?

‘3-2-1’ Reflection
Following work with one or more 21CLD Rubric Dimensions, have team members reflect, record and share their thinking in relation to the following:

3 insights gained
2 strategies or ideas
1 action I will take

‘Continue Start Stop’ and ‘3-2-1’ reflections
These strategies work well when combined with a physical activity such as Give One, Get One, where team members move to as many people in the room as possible, sharing one of their ideas and getting one idea, before moving to the next person.

Circle Reflection
Toward the end of a session, have team members sit in circle to reflect and comment in turn. You might like to select and use one of these scaffolds relevant to your focus and the conversation that has taken place:

- ‘One thing that’s going through my mind is...’
- ‘One thing I feel affirmed by is...’
- ‘A question I have is...’
- ‘One thing I’m grappling/struggling with is...’
- ‘One thing I’m taking away from this session is...’
- ‘One thing I will do as a result of this... is...’
‘Before-During-After’ Reflection

This seemingly simple reflection strategy helps learners to monitor their thinking before, during, and at the end of a learning session, toward becoming more meta-cognitively aware and self regulatory in terms of what and how they are thinking and learning.

**Before the session:**
Refer to the learning intentions or goals of the session; ask team members to individually reflect and record, in their **Before** ‘think bubble,’ relevant thoughts, questions or wonderings going through their mind about the session.

**During the session:**
At an appropriate stage in the session, ask people to stop, reflect and record their thinking in their **During** ‘think bubble’. You might like to select and use one or two of these scaffolds:

- What relevant thoughts are going through your mind now?
- What shifts are taking place in your thinking?
- What are you discovering?
- What questions or wonderings are being answered for you?
- What new questions are emerging?

**After the session:**
Ask people to reflect and record their final thoughts in the **After** ‘bubble’. You might like to select and use one or two of these scaffolds:

- What’s something you now understand that you were unclear about before?
- What’s something you have gained from this session?
- What’s something you have learned about yourself as a result of this session?
- What’s one thing you will do as a result of this session?
5. Workshops

ITL research
Innovative Teaching and Learning

Sponsored by

Microsoft Partners in Learning

Rubrics designed by

SRI International

Rubrics developed by Joan Dalton, Hands On Educational Consultancy Pty Ltd for Microsoft Australia Pty Ltd.
Leading 21CLD Workshops

These guidelines are designed to support you in leading successful 21CLD workshops in your own school.

21CLD Dimensions: order and flow

Whether you are facilitating professional learning of one or two days in length, or introducing each dimension in separate sessions, it’s important to work with the dimensions in this order:

1. Collaboration
2. Knowledge Construction
3. Self-Regulation
4. Real-World Problem-Solving and Innovation
5. ICT for Learning
6. Skilful Communication

This assists the flow of sessions so that teachers can continually build on their understandings as they work with each dimension.

21CLD Dimension sessions: a consistent format

For consistency, activities undertaken within each 21C Dimension session follow a predictable format:

**Tuning In:** introduces the Dimension and immerses participants in an activity that helps them connect to it.

**Read and tag the Rubric:** reading and dialogue with others constructs shared clarity and important common understandings in the particular 21C Dimension.

**Read and rank Learning Activity Exemplars:** provide concrete practice opportunities to make judgments about and code Learning Activities against the Rubric according to how strongly the activity develops 21C capabilities in learners.

**Strengthen a Learning Activity Exemplar:** opportunity to improve a designated Learning Activity Exemplar strengthens understanding of how to use the Rubric and use the Decision Steps to design strong learning activities. NB This activity is not used across all Dimensions.

**Reflection:** provides opportunities to process what has been learned, and consider implications and application to one’s own context.
21CLD Brisbane Forum: National Pilot Workshop Program

The two-day workshop program from the National Pilot workshop, May 30th-June 1st 2013, is included (Section 5 21CLD Workshops) for your reference and use.

The workshop program (with slides aligned and numbered) provides you with a ‘big picture’ of the two-day workshop, and a sense of flow and timing for each Dimension. The accompanying Slide Decks for days one and two are comprehensive and contain more specific notes to assist you in leading your own workshop sessions.

Adapt and tailor them to suit your purpose, school context, and the needs of the team/s you are working with.

Leading your own sessions: some strategies and tips

1 Align the purpose of 21CLD

‘If people don’t understand why, they won’t commit.’

When teachers see relevance to what they care about – young people, learning, and teaching - they are more likely to commit. When introducing 21CLD to your team, take time to align its purpose with:

- importance for student learners
- how it integrates with and can support current teaching practice (not as something extra!)
- your school vision
- school-wide learning goals, priorities and strategic directions

The ‘Compelling Case’ introductory workshop session in Brisbane was designed to build on from your existing expertise and commitment as a 21CLD leader. In your own school setting, you may wish to introduce 21CLD by directly aligning it with your school vision and school-wide strategic learning goals and directions. To that end, a practical workshop process is provided at the end of this article for your use.

2 Explicitly state learning intentions and goals

‘If you do not know to which port you are sailing, no wind is favourable.’

Just as effective teachers make learning intentions and goals explicit to student learners, so do effective leaders of adult learning. This enhances learner understanding and models a key concept from the Learning Design Rubric on Self-Regulation.
3 Create relevant Tuning In Activities

‘Making strong connections between what is already known and the ‘new’ is critical to learning and effective construction of understanding.’

The intent of Tuning In activities is to immerse or ‘hook’ adult learners into the dimension being introduced. Many Tuning In activities in the National Pilot workshop will be appropriate for use with your team. If not, create your own. The important thing is to ensure they are relevant, learning-focused, engaging, and relatively short.

You might pose a question before showing a video clip to focus people’s minds on the topic, or engage people in a concrete experience that draws out what they already know and do, or have questions about in this Dimension.

For example, as a lead into the Collaboration Dimension in the National Pilot workshop, we engaged you in a Collaborating with Purpose partner interview and team activity designed to help you achieve clarity of your intent with 21CLD.

We connected your reflections on this practical experience to key elements of collaboration as a ‘hook’ into introducing the 21CLD Collaboration Rubric. (The activity modelled key elements of Collaboration and also Knowledge Construction in action.)

You could use a similar Tuning In activity for Collaboration: simply change the questions so they are relevant to your team and your purpose.

4 Model 21CLD in action

‘If teaching were the same as telling, we’d all be so smart we could hardly stand it.’

Mark Twain

When you model, make explicit, and have adult learners experience 21C Capabilities as they work together, not only do they achieve deeper understanding of what they mean in practice, there is a much stronger likelihood they will transfer these to their own teaching practice.

For example, in the National Pilot session on Real-World Problem-Solving and Innovation, you used a Contributions Chart to address an identified, authentic challenge facing you in your role as a 21CLD leader. From this, we introduced the rubric elements of RWPSI so you could connect these to your concrete problem-solving experience.

5 Be transparent: negotiate your purpose and role

‘Transparency builds trust; co-construction builds understanding and commitment.’

Whether you are working with your school leader or team, don’t assume that others will understand your purpose or role with 21CLD. Be transparent and seek input:

‘I see my purpose as... and I see my role is to...’ ‘How do you see it?’ ‘What expectations do you have?’ ‘How do you see I might best support you?’

Negotiate agreement so that all have clear, mutual expectations.
6 Use 21st Century language
The language you use has a significant impact on how the brain receives and interprets messages, and on the quality of relationships, learning and collective intelligence that emerges. Effective facilitators share power and use pro-active language that reflects 21C capabilities in action. Here are some practical examples:

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<thead>
<tr>
<th>Instead of...</th>
<th>Say...</th>
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<tbody>
<tr>
<td>‘I want you to...’ (voice of authority)</td>
<td>‘We need to...’ or ‘Our work now is...’ (Shares power; inclusive and collaborative)</td>
</tr>
<tr>
<td>‘I’m going to give you 15 minutes to read...’ (retains power and control)</td>
<td>‘Take the next 15 minutes to read...’ (offers power and control to the group)</td>
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<tr>
<td>‘We’ve run out of time to...’ (refers to time as lost)</td>
<td>‘In the short time we have left, let’s...’ (focuses on using the time that is left)</td>
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<tr>
<td>‘Do you have any questions?’ ‘Does anyone disagree?’ (closed, yes/no questions)</td>
<td>‘What questions are going through your mind?’ ‘What concerns do you have?’ (open-ended; surfaces questions and concerns)</td>
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<tr>
<td>‘Please make sure you follow up before our next meeting.’ (‘tells’ and assumes everyone is clear and will follow through.)</td>
<td>‘What have we each agreed to do before our next meeting?’ (A pro-active reminder that seeks commitment from each person.)</td>
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7 Offer balance and variety
In the same way that student learners are diverse, so, too, are adult learners, with different needs, backgrounds, preferences and styles.

Some practical tips:

- Offer a variety of practical tools, processes and strategies to engage all learners.
- Provide experiences and activities that are open-ended: where appropriate provide options and choices to cater for diverse needs.
- Balance individual thinking time and learning work with teamwork and collaboration.
- Use multi-modal, diverse learning and communication strategies and tools to enable adult learners to access, process and represent their thinking in multiple ways.
- Use a variety of grouping strategies to maximise collaborative learning across the team.

Grouping strategies for success
Group size, membership and team duration all play a critical role in the effective functioning of collaborative partnerships and teams. Carefully design your groupings according to their
purpose, what you want to achieve, the nature of the learning work, and the needs of your group.

**Group size**

- **Use partnerships:**
  - to build trust, learning-focused relationships, safety, support, and low key risk-taking
  - when you have a short time (the bigger the group, the more time it takes)

- **Use teams of 3-6:**
  - to stretch thinking and learning
  - to provide multiple perspectives
  - when the learning work is complex or needs to be sub-divided

Teams of 4 are generally an ideal size for equity and effective communication. Teams larger than this need to be focused, skilful, with a clear team goal/joint outcome that they each contribute to.

**Group formation**

To maximise learning and team effectiveness, use a balance of random, self-selected and nominated groupings across the whole team.

**Self-selected teams:** Within a whole school team, cliques, friendship groups and judgments of others can be well established. If team members choose who they work with, these can be reinforced. Friendship groupings are usually the least effective means of collaboration. In some instances, individuals may feel excluded.

When using self-selected groupings, focus on common goals, interests or job-alike groups, for example, maths teachers who work together to apply the Collaboration Dimension to their year 8 maths curriculum; early childhood teachers who plan out what RWPSI will look like with prep/1/2 learners.

**Random selection:** random groupings can provide an active fun element, and are particularly useful for helping team members get to know and work with others across the school. They enable people to learn from multiple perspectives, and help to build a strong sense of inclusion, community, and collective understanding.

Best used for short-term learning activities, here are some random grouping strategies:

- Stickers on cards, or playing cards to find matching partner or team
- Computer generated random groups
- Jigsaw pieces, perhaps with an image or quote written on them related to the learning work to be done
- Continuums based, for example, on birthdays, current hair colour, a career individuals might have pursued if they hadn’t become a teacher. (Choice of topic for the continuum needs to be sensitive to the cohort you are working with.)
**Nominated groupings:** These work best when people are going to be working together long-term with a common purpose or goal, for example, a team of teachers who work collaboratively over the year to plan for their year six learners.

Pre-nominated groupings can also be important when the learning work is multi-faceted, requiring different capabilities, skills, personalities and so on. In this instance, the mix of difference is what makes the learning more powerful.
Aligning 21CLD with school vision and priorities

Introductory school-based session to align purpose

1 Introduce learning intentions for the session

- to understand the compelling case for developing 21st capabilities in learners
- to align 21C capabilities with our school learning goals and strategic directions

2 Pose a provocation: gather group’s ideas

- Pose provocation: ‘As you watch this video, what kinds of capabilities, characteristics, dispositions and skills might learners need to thrive in the future/this world?’
- Show a relevant short video clip to highlight the changing world with a futures focus.
- Revisit and add to provocation: What kinds of capabilities, characteristics, dispositions and skills might learners need to thrive in this world? Why might these be so important?
- If working with a small team, have partnerships brainstorm and share ideas with each other, agree on the 3-6 that are most important, and post up ideas.
- Use a technology tool such as padlet to electronically collect group thoughts, or Wordle, so people can see how strongly represented different ideas are. Alternatively, use paper strips with markers to record each idea separately, and bundle together those that are the same or similar so people can see themes.

NB If working with your whole school team, consider a strategy such as Inside-Outside Circle or Give One, Get One, so that people access a range of ideas before working with a final partner to select and agree on the most important to post.

3 Align national and school directions and research

- Show the ACARA 21C capabilities, and invite group to make connections between their ideas and these. ‘What similarities do you see?’ ‘What differences?’
‘How do all of these connect to our school vision?’ ‘What alignment do you see between these and our school-wide learning priorities and strategic directions?’ Engage in team and/or whole group conversation as appropriate.

- Use relevant slides from A Compelling Case in the 21CLD deck and/or from the ITL research slide deck to highlight the critical importance of explicitly developing 21st Century capabilities in learners.

4 21CLD Rubrics: introduction and purpose

- Introduce the six 21CLD Capability Dimensions: invite people to contribute their thinking. ‘What connections do you see here... to our ideas? ...to ACARA? ...to our school vision and priorities?’
- Highlight purpose of 21CLD Rubrics and how they can support our work as teachers to understand and design learning activities that help learners to develop 21stC capabilities.
Learning intentions:
- to understand the importance of developing 21st Century capabilities in learners
- to construct shared understandings of 21CLD Rubrics
- to use the Rubrics to effectively design learning activities that develop 21st capabilities in learners
- to experience 21CLD capabilities in action as we work together

<table>
<thead>
<tr>
<th>Timing</th>
<th>Workshop sessions</th>
<th>Slides and notes</th>
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<tbody>
<tr>
<td><strong>DAY 1</strong></td>
<td><strong>Friday, 30th May</strong></td>
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<tr>
<td>11 am</td>
<td><strong>21CLD: Rhetoric to reality: a shared context</strong></td>
<td><strong>A Compelling case slides 2 to 14</strong></td>
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<tr>
<td><strong>(60mins)</strong></td>
<td><strong>Create a compelling case for 21st Century capabilities</strong></td>
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<td>• Use images to focus attention on why we are here.</td>
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<td>• Highlight shifts taking place, ACARA national directions, what employers want, and school visions for 21st Capabilities</td>
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<td>• Innovative Teaching and Learning (ITL) and Fullan international research shows lack of progress and need to develop 21st C capabilities in learners.</td>
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<td>• Checkpoint 2013: How does the rhetoric translate into reality?</td>
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<td></td>
<td>• This is what Microsoft’s six 21C capabilities and 21c Learning Design are about.</td>
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<td>• Link to research quote: how learning design influences development of 21C capabilities.</td>
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<td><strong>Introduce learning intentions and agenda</strong></td>
<td><strong>Intentions/agenda slides 15 to 16</strong></td>
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<td></td>
<td>Introduce visible workshop Learning Intentions and Agenda</td>
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<tr>
<td></td>
<td><strong>Collaborate with purpose</strong></td>
<td><strong>Collaborating with purpose slides 17 to 20</strong></td>
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<tr>
<td></td>
<td>• Highlight learning intention with quote</td>
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<td></td>
<td>• <em>Find pre-ordained ‘perfect match’ partner</em></td>
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<td></td>
<td>• Outline 3 step process</td>
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<td>• Explain partner interview process with questions and time limit.</td>
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<td>• <em>Find ‘matching sticker’ partnership to make teams of 4.</em></td>
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<td><strong>Journal reflection slide 21</strong></td>
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<tr>
<td>Time</td>
<td>Activity/Event</td>
<td>Details</td>
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<td>12noon (90mins)</td>
<td><strong>Collaboration: dimension one</strong>&lt;br&gt;<strong>Tune in</strong></td>
<td>• Highlight 21CLD six dimensions; Collaboration work already begun with <em>Collaborating with purpose</em> activity.  &lt;br&gt;• Pose reflection question for collaboration in activity experienced.  &lt;br&gt;• Teams reflect, brief whole group sharing and ideas recorded.  &lt;br&gt;• Lead from group’s ideas into <strong>Collaboration Rubric</strong>: clarify <strong>key terms</strong> and <strong>overview</strong> of process used with each dimension.</td>
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<td></td>
<td><strong>Read and tag Collaboration Rubric</strong></td>
<td>• Team members read individually, highlight/tag key points, <strong>dialogue</strong> for shared clarity and mutual understanding. (20 minutes)  &lt;br&gt;• Revisit overview of Collaborating with Purpose activity.  &lt;br&gt;• Team <strong>discussion</strong> to rank their collaboration experience.  &lt;br&gt;• Teams use <strong>Poll Everywhere</strong> to vote: briefly share reasoning.  &lt;br&gt;• Highlight <strong>Four key Learning Talk pathways</strong>, purposes of dialogue and discussion: awareness increases success.</td>
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<td></td>
<td><strong>Read and rank Learning Activity Exemplars</strong></td>
<td>• Introduce purpose: explain layout of Exemplars.  &lt;br&gt;• Team members individually read and code three Exemplars.  &lt;br&gt;• Table <strong>discussion</strong> to moderate and form team coding score.  &lt;br&gt;• Show Decision-tree; use <strong>surveymonkey</strong> to make coding visible to whole group.  &lt;br&gt;• Share judgments and reasoning from global team.</td>
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<td></td>
<td>21CLD – Rhetoric to Reality slide 22</td>
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<td></td>
<td>21CLD Dimension 1: Collaboration slides 23 to 31</td>
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<tr>
<td></td>
<td>21CLD Dimension 1: Collaboration slides 27 to 31</td>
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<td></td>
<td>Four key Learning Talk pathways slide 32</td>
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<td></td>
<td>21CLD Dimension 1: Collaboration slides 33 to 36</td>
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<tr>
<td></td>
<td>Learning Talk Covenant slide 37</td>
<td>Learning Talk Covenant in binder: part of <strong>Facilitating professional</strong></td>
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</tbody>
</table>
• Highlight critical power of conversation; importance of using norms for respectful, rigorous professional conversations.
• Teams use Learning Talk Covenant to reflect on their conversation.

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
<th>Notes</th>
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<tbody>
<tr>
<td>1pm</td>
<td>Lunch</td>
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</table>
| 1.45pm | **Collaboration: dimension one (continued)**  
**Strengthen a Learning Activity**  
• Teams work to improve House on Mango Street from a 2 to a 4.  
**Reflect**  
• Personal reflection in Collaboration section of Personal Journal. | 21CLD Dimension 1: Collaboration slide 39  
Refer to 21st C LD Innovation Template  
Reflection slide 40 |
| 2.15pm | **Knowledge Construction: dimension two**  
**Tune in**  
• Introduce dimension 2; pose question on slide.  
• Explain process: Team brainstorm, whole group **Give one Get one**, new ideas brought back to team and shared.  
• Teams decide and hold key ideas for later feedback to assist KC re-development.  
**Read and tag Knowledge Construction Rubric**  
• Introduce KC Rubric: team members read individually, highlight/tag key points, **dialogue** for shared clarity and mutual understanding.  
**Read and rank Learning Activity Exemplars**  
• Team members individually read and code three Exemplars.  
• Team **discussion** to moderate and form team coding score  
• Show Decision-tree: use surveymonkey to make coding visible to whole group.  
• Show judgments from global team; explain reasoning.  
**Seek group feedback**  
• Teams use **padlet** for feedback on ideas to be included or changed.  
**Reflect**  
• Personal reflection in KC section of Personal Journal. | Knowledge Construction slides 41 through 52  
• Give one, get one strategy in binder |
<p>| 3.15pm | <strong>Short break</strong> |       |</p>
<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.30pm</td>
<td><strong>Self-Regulation: dimension three</strong> &lt;br&gt;Tune in &lt;br&gt;• Cartoon lead into Self-Regulation Dimension; form new teams of 4. &lt;br&gt;• Use Hattie video clip to introduce S-R.</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Read and tag Self-Regulation Rubric</strong> &lt;br&gt;• Introduce S-R Rubric: team members read individually, highlight/tag key points, <strong>dialogue</strong> for shared clarity and mutual understanding.</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Read and rank Learning Activity Exemplars</strong> &lt;br&gt;• Team members individually read and code three Exemplars. &lt;br&gt;• Team <strong>discussion</strong> to moderate and form team coding score. &lt;br&gt;• Show Decision-tree: use <strong>surveymonky</strong> for group’s visible coding. &lt;br&gt;• Share judgments and reasoning from global team.</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Strengthen a Learning Activity</strong> &lt;br&gt;• Teams work to improve Design a Catapult from a 2 to a 4.</td>
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<tr>
<td></td>
<td><strong>Reflect</strong> &lt;br&gt;• Use Personal Journal to reflect on s-r questions in rubric.</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Coding Learning Activities</strong> &lt;br&gt;• Explain pre-coding purpose and how it works. &lt;br&gt;• School partners (or self-chosen partners/groups) pre-code their Learning Activities against the three Rubrics worked with so far. (Self-regulation in action)</td>
<td></td>
</tr>
<tr>
<td>4.15pm</td>
<td><strong>Pre-coding slides 64-65</strong></td>
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<tr>
<td>4.40pm</td>
<td><strong>Reflections and implications for your school</strong> &lt;br&gt;• School partners refer to journals; reflect on implications for their school and role as a 21CLD leader. &lt;br&gt;• In preparation for tomorrow morning, partners identify some of their real challenges in making this work.</td>
<td></td>
</tr>
<tr>
<td>5pm</td>
<td><strong>Closure</strong> &lt;br&gt;Highlight agenda for next day; conclude with quote.</td>
<td><strong>Ashleigh Brilliant quote slide 67</strong></td>
</tr>
<tr>
<td>Time</td>
<td>Session Title</td>
<td>Activities</td>
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</tr>
<tr>
<td>8.30am</td>
<td><strong>Real-World Problem-Solving &amp; Innovation: dimension four</strong></td>
<td><strong>Tune in</strong></td>
</tr>
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<td></td>
<td>• Pose question to introduce dimension four: share story to highlight possibility thinking, authentic need, challenge and innovation.</td>
<td>• Leaders who influence focus on contribution, not blame.  &lt;br&gt;• Introduce Contributions Chart process as a tool for addressing an authentic challenge.  &lt;br&gt;• School partners (or self-chosen) work on an identified challenge; share with another partnership.  &lt;br&gt;• Highlight RWPSI Decision Steps; connect to Contributions Charts.</td>
</tr>
<tr>
<td></td>
<td><strong>Read and tag RWPSI Rubric</strong></td>
<td>• Introduce RWPSI Rubric: team members read individually, highlight/tag key points, <em>dialogue</em> for shared clarity and mutual understanding.</td>
</tr>
<tr>
<td></td>
<td><strong>Read and rank Learning Activity Exemplars</strong></td>
<td>• Team members individually read and code three Exemplars.  &lt;br&gt;• Team discussion to moderate and form team coding score.  &lt;br&gt;• Show Decision-tree: use <em>surveymonkey</em> for visible group coding.  &lt;br&gt;• Share judgments and reasoning from global team.</td>
</tr>
<tr>
<td></td>
<td><strong>Seek group feedback</strong></td>
<td>• Have teams use <em>padlet</em> to record feedback on ideas to be included.</td>
</tr>
<tr>
<td>10.30am</td>
<td><strong>Morning tea</strong></td>
<td></td>
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<tr>
<td>11am</td>
<td><strong>ICT for learning: dimension five</strong></td>
<td><strong>Tune in</strong></td>
</tr>
<tr>
<td></td>
<td>• Use cartoon and video clip to introduce ICT for Learning.</td>
<td>• Use Rubric/Decision Tree to highlight power of ICT and differences between ‘finding info on the internet’ as opposed to creating and enabling <em>more powerful learning</em>.  &lt;br&gt;• Show Barriers to using ICT and most common uses of ICT.</td>
</tr>
</tbody>
</table>

*If time, begin next session before morning tea.*
**Read and tag ICT for Learning Rubric**
- Introduce ICT for Learning Rubric: team members read individually, highlight/tag key points, **dialogue** for shared clarity and mutual understanding.

**Read and rank Learning Activity Exemplars**
- Team members individually read and code three Exemplars.
- Team discussion to moderate and form team coding score.
- Show Decision-tree: use surveymonkey for visible group coding.
- Show judgments and reasoning from global team.

**Strengthen a Learning Activity**
- Teams work to improve Munting Mungo from a 1 to a 3 or 4.

**Reflect**
- Reflection in Personal journal

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
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</thead>
<tbody>
<tr>
<td>12 noon</td>
<td><strong>Skilful communication: dimension six</strong></td>
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<tr>
<td></td>
<td><strong>Tune in</strong></td>
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<tr>
<td></td>
<td>- Use 2 video clips to highlight need for skilful communication.</td>
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<tr>
<td></td>
<td>- Highlight centrality to human interaction and learning in 21stC.</td>
</tr>
<tr>
<td></td>
<td><strong>Read and tag Skilful Communication Rubric</strong></td>
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<tr>
<td></td>
<td>- Introduce SC Rubric and Decision Steps: team members read individually, highlight/tag key points, <strong>dialogue</strong> for shared clarity and mutual understanding.</td>
</tr>
<tr>
<td></td>
<td><strong>Read and rank Learning Activity Exemplars</strong></td>
</tr>
<tr>
<td></td>
<td>- Team members individually read and code three Exemplars.</td>
</tr>
<tr>
<td></td>
<td>- Team discussion to moderate and form team coding score.</td>
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<td></td>
<td>- Show Decision-tree: use surveymonkey for visible group coding.</td>
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<tr>
<td></td>
<td>- Share judgments and reasoning from global team.</td>
</tr>
<tr>
<td></td>
<td><strong>Strengthen a Learning Activity</strong> (if time)</td>
</tr>
<tr>
<td></td>
<td>- Teams work to improve Munting Mungo from a 1 to a 3 or 4.</td>
</tr>
<tr>
<td></td>
<td><strong>Reflect</strong></td>
</tr>
</tbody>
</table>

**Skilful Communication slides 30 through 41**
<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>12.45pm</td>
<td><strong>Lunch</strong></td>
<td></td>
</tr>
<tr>
<td>1.30pm</td>
<td><strong>Coding your Learning Activities</strong></td>
<td>School partners (or self-chosen partners/groups) work together to pre-code their Learning Activities against the final three Rubrics.</td>
</tr>
<tr>
<td>1.50pm</td>
<td><strong>Leading 21CLD implementation in your school</strong></td>
<td>What will it take to achieve 21CLD success in your school?</td>
</tr>
<tr>
<td></td>
<td><strong>Implementation for success</strong></td>
<td>• Key elements to consider</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Introducing 21CLD</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Your role</td>
</tr>
<tr>
<td></td>
<td><strong>Developing a ‘skinny’ plan</strong></td>
<td>School partners build a skinny plan; share and seek feedback from others</td>
</tr>
<tr>
<td>3.45-4pm</td>
<td><strong>Reflection and looking ahead</strong></td>
<td>• Feedback</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Looking ahead</td>
</tr>
</tbody>
</table>
6. Implementation for success

Sponsored by

Microsoft Partners in Learning

Rubrics designed by

Rubrics developed by Joan Dalton, Hands On Educational Consultancy Pty Ltd for Microsoft Australia Pty Ltd.
COMPLEXITIES OF MANAGING CHANGE

- Vision + Skills + Incentives + Resources + Action Plan + Evaluation → Change
- Skills + Incentives + Resources + Action Plan + Evaluation → Confusion
- Vision + Incentives + Resources + Action Plan + Evaluation → Anxiety
- Vision + Skills + Resources + Action Plan + Evaluation → Gradual Change
- Vision + Skills + Incentives + Action Plan + Evaluation → Frustration
- Vision + Skills + Incentives + Resources → False Starts
- Vision + Skills + Incentives + Resources + Action Plan → Unknown Impact

Reference: Dr. Mary Lippitt Enterprise Management Ltd 1987
This summary document has been extracted from a longer article by Michael Fullan entitled The Moral Imperative Realized, presented at the PARTNERS IN LEARNING Schools Leadership Forum. UK January 2012.

Change Leadership Revisited

(Ready)-Fire-Aim

Focus on the right priorities
Attend to relationships, but get action sooner and treat it as a learning period
Go light on judgment

9 Insights

1. Relationships first (too fast/too slow)*
2. Honour the implementation dip
3. Beware of fat plans*
4. Behaviours before beliefs
5. Communication during implementation is paramount*
6. Learn about implementation during implementation
7. Excitement prior to implementation is fragile*
8. Take risks and learn
9. It is okay to be assertive*
*These are ones that have proven to be the most valuable to know.

Relationships First (too fast/too slow)

If the leader comes on too strong, the culture will rebel. If the leader is overly respectful of the existing culture, he or she will become absorbed into the status quo.
**Change Savvy Leadership**

- Careful entry into the new setting
- Listening to and learning from those who have been there longer
- Engaging in fact finding and joint problem solving
- Carefully (rather than rashly) diagnosing the situation
- Forthrightly addressing people’s concerns
- Being enthusiastic, genuine, and sincere about the change circumstances
- Obtaining buy-in for what needs fixing; and
- Developing a credible plan for making that fix

---

**Myth of Change**

Those who introduce the change (usually far removed from the implementation scene) assume that there will be some immediate gains. It can’t be thus—by definition.

**Depth of Decline**

If you are an implementer, the costs to you are immediate and concrete, while the benefits are distant and theoretical. Thus the cost-benefit ratio is out of whack in favour of the negative.
Don’t Expect Compliments
Remember your job is to help people get through the dip. Change-savvy leadership works to increase the upward slope of the bottom line of the triangle (decreasing the duration of recovery) so that the breakthrough line to the plus side occurs sooner—within six months in our best efforts.

Resolute Leadership
Change leaders are parsimonious in using a small number of powerful forces that get breakthrough results—such as having immense moral commitment to a cause along with a clump of empathy with those they are dealing with. This combination of resolute leadership and empathy enables leaders to find alternative ways when they get stuck. They demonstrate persistence with flexibility but never stray from the core purpose.

Beware of Fat Plans
The size and the prettiness of the plan is inversely related to the quality of action and the impact on student learning.

—Reeves, 2009

Early Implementation
Early planning/implementation is more like ‘strategizing’ than it is like ‘strategy’.

—Mintzberg, 2004

One-Page Plans
There is evidence that schools are well served by one-page plans that are clearly focused and sufficiently simple so that all participants in the process understand their role in executing the plans.

—Reeves, 2009

Behaviours Before Beliefs
Research on attitudinal change has long found that most of us change our behaviours somewhat before we get insights into new beliefs. The implication for approaching new change is clear. Do not load up on vision, evidence, and sense of urgency. Rather, give people new experiences in relatively non-threatening circumstances, and build on it, especially through interaction with trusted peers.
Communication during implementation is far more important than communication prior to implementation because communication in the abstract, in the absence of action, means almost nothing.

Ready-(Fire)-Aim
The change savvy leader accomplishes several critical things at this stage:
- Problems get identified through constant two-way communication
- Information is based on the specific happenings
- Leaders have multiple opportunities to communicate and refine the vision in relation to concrete implementation
- Problems get solved, a we-we identity around a common vision gets strengthened, and people come to know the implementation strategy

Learn About Implementation During Implementation
One of the most powerful strategies we have employed is to find different ways for implementers to learn from other implementers, especially those in similar circumstances who are further down the line.

Draw on the Wisdom of the Crowd
Effective leaders realize that many of the answers are out there. This is not a ‘why can’t you be more like your brother’ strategy but rather a recognition that this is very hard work, some are figuring it out, and we can learn from them.

Excitement Prior to Implementation is Fragile
- Excitement in advance of doing something is understandable, but it does not have much of a foundation. Indeed, the fall in the implementation dip will be even if high aspirations precede it.
- Excitement during implementation when it occurs is solidly based on substance.

Change Knowledgeable Leaders
These leaders strive for small early success, acknowledge real problems, admit mistakes, protect their people, and celebrate success along the way. They avoid phony pep rallies. They love genuine results that generate great pride in the organisation. They have their finger on the energy pulse of people, knowing
that it will ebb and flow but will be spurred by positive results.

**Take Risks and Learn**

The skinny on risk taking is for leaders to create a climate that encourages action and learning from mistakes.

**It’s Okay to be Assertive**

Many of the potentially best leaders in these democratic times are often reticent to assert themselves. To know about change is to know about inertia, which is to say that sometimes the status quo needs a wakeup call. You can’t wait for success, you have to kick start it.

**Three Conditions of Assertive Leadership**

1. When leaders have built trusted relationships
2. When it turns out leaders have a good idea, and
3. When they empower people from day one to help assess and shape the idea

**Change Savvy Leaders**

- Know a great deal because they are learners
- Respect complexity and live by the definition of wisdom (using your knowledge while doubting what you know (Pfeffer & Sutton, 2008))
- Combine assertiveness and humility
### Motion Leadership Rating Form

On a scale of 1 to 5 with 5 being the highest, rate your Motion Leadership on each of the 9 qualities:

<table>
<thead>
<tr>
<th></th>
<th>(1) Weak</th>
<th>(2) Okay</th>
<th>(3) Middling</th>
<th>(4) Strong</th>
<th>(5) Very Strong</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Relationships First</td>
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<tr>
<td>2. Implementation Dip</td>
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<td>3. Beware of Fat Plans</td>
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<td>4. Behaviour Before Beliefs</td>
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<td>5. Communication During Implementation</td>
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<tr>
<td>6. Learn During Implementation</td>
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<tr>
<td>7. Prior Excitement is Fragile</td>
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<td>8. Take Risks and Learn</td>
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<tr>
<td>9. Be Assertive</td>
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<td><em>Total Score:</em></td>
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</table>

*Your total score will be in the range of 9-45. If your score is 35 or above you are on the right track. If 35 or below you should worry. Appreciate your strengths (the items on which you scored 5). Work on your weaknesses (items where you scored 1 or 2). —Fullan, 2011(a)
21C Capabilities and the Australian Curriculum General Capabilities

21st Century Capabilities:
- Collaboration
- Knowledge construction
- Self-regulation
- Real world problem solving and innovation
- Use of ICT for learning
- Skilled communication

Innovative teaching is about transforming the practice of teaching and the process of learning from a focus on the transfer of information and concepts to an orientation centred in creating new ideas, solutions and “knowledge-based products”. Innovative teaching is about building teaching practices that foster knowledge creation and collaboration among both teachers and learners in ways that develop the capabilities and skills they need for the 21st century.

General capabilities comprise an integrated and interconnected set of knowledge, skills, behaviours and dispositions that students develop and use in their learning across the curriculum, in co-curricular programs and in their lives outside school.
<table>
<thead>
<tr>
<th>Organising Elements</th>
<th>Links to 21st Century Capabilities</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Literacy</strong></td>
<td>✓ Knowledge Construction</td>
</tr>
<tr>
<td>• Comprehending texts through</td>
<td>✓ Skilful Communication</td>
</tr>
<tr>
<td>listening, reading and viewing</td>
<td>✓ Self-Regulation</td>
</tr>
<tr>
<td>• Composing texts through</td>
<td>✓ Collaboration</td>
</tr>
<tr>
<td>speaking, writing and creating.</td>
<td>✓ ICT for Learning</td>
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<tr>
<td>• Text knowledge</td>
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<td>• Grammar knowledge</td>
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<td>• Word knowledge</td>
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<td>• Visual knowledge</td>
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<tr>
<td><strong>Numeracy</strong></td>
<td>✓ Knowledge Construction</td>
</tr>
<tr>
<td>• Calculating and estimating</td>
<td>✓ ICT for Learning</td>
</tr>
<tr>
<td>• Recognising and using patterns</td>
<td>✓ Skilful Communication</td>
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<tr>
<td>and relationships</td>
<td>✓ Self-Regulation</td>
</tr>
<tr>
<td>• Using fractions, decimals,</td>
<td>✓ Collaboration</td>
</tr>
<tr>
<td>percentages, ratios and rates</td>
<td>✓ Real-World Problem solving and Innovation</td>
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<tr>
<td>• Using spatial reasoning</td>
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<tr>
<td>• Interpreting and drawing</td>
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<tr>
<td>conclusions from statistical</td>
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<tr>
<td>information</td>
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<tr>
<td>• Using measurement</td>
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<tr>
<td><strong>ICT</strong></td>
<td>✓ Knowledge Construction</td>
</tr>
<tr>
<td>• Applying social and ethical</td>
<td>✓ ICT for Learning</td>
</tr>
<tr>
<td>protocols and practices when using</td>
<td>✓ Skilful Communication</td>
</tr>
<tr>
<td>ICT</td>
<td>✓ Collaboration</td>
</tr>
<tr>
<td>• Investigating with ICT</td>
<td>✓ Real-World Problem solving and Innovation</td>
</tr>
<tr>
<td>• Creating with ICT</td>
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<tr>
<td>• Communicating with ICT</td>
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<tr>
<td>• Managing and operating ICT</td>
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<tr>
<td><strong>Critical and Creative thinking</strong></td>
<td>✓ Knowledge Construction</td>
</tr>
<tr>
<td>• Inquiring –identifying, exploring</td>
<td>✓ Real-World Problem-Solving and Innovation</td>
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<tr>
<td>and clarifying information</td>
<td>✓ Self-Regulation</td>
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<tr>
<td>• Generating innovative ideas and</td>
<td></td>
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<tr>
<td>possibilities</td>
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<tr>
<td>• Reflecting on thinking, actions</td>
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<tr>
<td>and processes</td>
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<tr>
<td>• Analysing, synthesising and</td>
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<tr>
<td>evaluating information</td>
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<td><strong>Personal and Social capability</strong></td>
<td>✓ Collaboration</td>
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<td>• Self-awareness</td>
<td>✓ ICT for Learning</td>
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<td>• Self-management</td>
<td>✓ Self-Regulation</td>
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<td>• Social awareness</td>
<td>✓ Skilful Communication</td>
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<td>• Social management</td>
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<td><strong>Ethical Behaviour</strong></td>
<td>✓ ICT for Learning</td>
</tr>
<tr>
<td>• Understanding ethical concepts</td>
<td>✓ Collaboration</td>
</tr>
<tr>
<td>and issues</td>
<td>✓ Self-Regulation</td>
</tr>
<tr>
<td>• Reflecting on personal ethics in</td>
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<tr>
<td>experiences and decision making</td>
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<tr>
<td>• Exploring values, rights and</td>
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<tr>
<td>ethical principles</td>
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<tr>
<td><strong>Intercultural understanding</strong></td>
<td>✓ Collaboration</td>
</tr>
<tr>
<td>• Recognising</td>
<td>✓ Self-Regulation</td>
</tr>
<tr>
<td>• Interacting</td>
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<tr>
<td>Reflecting</td>
<td>Empathy</td>
</tr>
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</tr>
</tbody>
</table>

- Reflecting
- Empathy
- Respect
- Responsibility

✔ Skilful Communication
<table>
<thead>
<tr>
<th>21st Century Capabilities</th>
<th>Scientific Inquiry Skills</th>
</tr>
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<tbody>
<tr>
<td>- Knowledge Construction</td>
<td>- Questioning and predicting</td>
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<tr>
<td>- Real-World Problem-Solving and Innovation</td>
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</tr>
<tr>
<td>- Self-Regulation</td>
<td>- Planning and conducting</td>
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<tr>
<td>- Knowledge Construction</td>
<td>- Processing and analysing data and information</td>
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<tr>
<td>- Knowledge Construction</td>
<td>- Evaluating</td>
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<tr>
<td>- Skilful Communication</td>
<td>- Communicating</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>21st Century Capabilities</th>
<th>Historical Skills</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Knowledge Construction</td>
<td>- Chronology, terms and concepts</td>
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<tr>
<td>- Knowledge Construction</td>
<td>- Historical questions and research</td>
</tr>
<tr>
<td>- Real-World Problem Solving and Innovation</td>
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</tr>
<tr>
<td>- Knowledge Construction</td>
<td>- Analysis and use of sources</td>
</tr>
<tr>
<td>- Real-World Problem Solving and Innovation</td>
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<tr>
<td>- Knowledge Construction</td>
<td>- Perspectives and interpretations</td>
</tr>
<tr>
<td>- Knowledge Construction</td>
<td>- Explanation and communication</td>
</tr>
<tr>
<td>- Skilful Communication</td>
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</tbody>
</table>
Facilitating effective professional conversations

The quality of the professional conversations you engage in and the ways you talk with others in your team and school will make a critical difference to what you achieve with 21CLD. Powerful, learning-focused conversations are designed and built around some key premises:

1. Conscious use of Learning Talk Pathways
2. Use of norms and protocols
3. Skilful use of key capabilities

1. Conscious use of Learning Talk pathways

There are four pathways especially important to educators working to address complex challenges and improve and transform learning. Before engaging in a learning-focused conversation, ask yourself: **What’s my purpose or intent?** Is it to:

- build or strengthen learning-focused relationships?
- construct common understandings?
- generate possibilities?
- make decisions and take action?

<table>
<thead>
<tr>
<th>Conversations for relationship-building</th>
<th>Dialogue conversations</th>
</tr>
</thead>
<tbody>
<tr>
<td>• learn about each other</td>
<td>• mutual/common</td>
</tr>
<tr>
<td>• surface and acknowledge expertise,</td>
<td>• foster inquiry and</td>
</tr>
<tr>
<td>experience, what people value in a</td>
<td>openness</td>
</tr>
<tr>
<td>low-risk way</td>
<td>• use diversity to</td>
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<tr>
<td></td>
<td>enrich learning</td>
</tr>
<tr>
<td></td>
<td>• grow collective</td>
</tr>
<tr>
<td></td>
<td>wisdom, ownership &amp;</td>
</tr>
<tr>
<td></td>
<td>commitment</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Conversations for possibility thinking</th>
<th>Discussion conversations for decision-making and action</th>
</tr>
</thead>
<tbody>
<tr>
<td>• foster innovation and transformation</td>
<td>• make decisions</td>
</tr>
<tr>
<td>• release creativity, open up new</td>
<td>• use strategy and logic to narrow ideas and bring to</td>
</tr>
<tr>
<td>possibilities</td>
<td>convergence</td>
</tr>
<tr>
<td>• forward and future-focused thinking</td>
<td>• reach resolution/agreement</td>
</tr>
<tr>
<td></td>
<td>• take action</td>
</tr>
</tbody>
</table>

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*Four key Learning Talk pathways*

*What's your purpose?*
When you are clear about your intent, you can name it. Here are some examples in regard to the Collaboration Dimension of 21C Learning Design:

- ‘Let’s take a few minutes to **learn from each other** what we are already doing to develop Collaboration capabilities in our students.’
- ‘As we read this 21CLD Rubric, our **dialogue** will help us build some shared understandings of what we mean by Collaboration.’
- ‘Let’s brainstorm some **possibilities** for richer student Collaboration in the unit of work we are planning.’
- ‘Now that we’ve done all this thinking, we need to **decide** how we will incorporate more effective student Collaboration into our plan.’

Here’s another practical example from Robusta High School, where a school-wide priority goal was to co-construct a clear vision for using virtual pedagogies for more powerful learning, and to plan for action. Their school team used all four pathways at different times to achieve different purposes:

<table>
<thead>
<tr>
<th>Conversations for relationship-building:</th>
<th>Dialogue for mutual understanding:</th>
</tr>
</thead>
<tbody>
<tr>
<td>‘Taking time to learn about the expertise and resources we each bring has meant effective use of each other’s strengths in our team.’</td>
<td>‘Our dialogue has ensured we have built common understandings of contemporary pedagogies across our school.’</td>
</tr>
<tr>
<td><strong>Possibility thinking conversations</strong></td>
<td><strong>Discussion for decision-making &amp; action</strong></td>
</tr>
<tr>
<td>‘Our possibility thinking has opened up new ways we might use virtual pedagogies for more powerful learning.’</td>
<td>‘We are now in a position to make decisions about contemporary pedagogies we will implement in our school, and plan for action.’</td>
</tr>
</tbody>
</table>

*From Dalton, J. in Tierney, S. **Innovate!** Microsoft 2012*

Traditionally, professional conversations in schools primarily focused on discussion; this is still prevalent as a default position when people aren’t aware of other key ways of talking. This awareness helps to build new skills and understandings, and can act as a reminder when people fall back into old habits: ‘Let’s stop for a moment - we’re shifting into judgment here – we need to look at all possibilities before making decisions about them.’

Each Learning Talk or conversational pathway is important in its own right. The relationships between them enable more powerful and productive learning and innovation.

### 2. Use of norms and protocols

Skilful, rigorous conversations are essential to support and challenge thinking, contradict outdated beliefs and mental models, and innovate to make a real difference.

Co-created team norms and protocols provide the safety and parameters within which authentic Learning Talk can grow and flourish. Any agreement or protocol, however, is only as good as how you explicitly use it.
A sample Learning Talk Covenant is provided on the next page. Whether you use this or an existing essential agreement, DO:

- take the time to introduce or revisit its purpose
- involve team members in talking about its value in supporting skilful, rigorous conversations
- collectively clarify and unpack what each norm means
- use it over time for reflection and as a reminder when norms are off track.
Sample Learning Talk Covenant

Make it safe
Make it safe for team members to reveal their honest thinking their strengths and weaknesses, and ask for help from others. Use humour appropriately; when used to cover conflict or avoid tackling real issues, it weakens dialogue and learning. Discomfort and conflict are necessary for real learning and growth to take place.

Explain the purpose
Name the intent or purpose of the conversation and make its relevance explicit.

Listen to understand
Reflect, pause, paraphrase and inquire to understand. Listen without interrupting. Listen to ‘think, to understand, to learn’.

Show care
Value and validate contributions. Acknowledge and deal with others’ feelings as well as their thoughts. Demonstrate genuine interest in others’ thoughts and goals.

Demonstrate respect and honesty
Seriously support and challenge ideas; respectfully challenge information, reasoning and assumptions on which ideas are based. Saying nothing when you disagree is not respectful to yourself or others.

Remain open
Transparency share (non-confidential) information rather than withhold parts; focus on higher moral purpose, not positional or self interests. Invite feedback, probing questions and critique. Transparently explain thinking and reasoning behind it.

Actively inquire
Reflect on and inquiry into your own practice and ideas; check out your own assumptions. Actively inquire into the ideas and perspectives of others; seek evidence, new and useful information. Explore agreement and disagreement; make connections and synthesize ideas.

Model inclusion, equity, and value diversity
Make a contribution. Ensure opportunity for all to contribute; encourage all voices to be heard. Surface, understand and honour diverse perspectives; use diverse groupings to increase interactions. It is the mix of difference that makes learning powerful.

Suspend judgment
Refrain from verbal ‘put-downs’ and judging or criticising ideas as ‘right’ or ‘wrong.’ View situations through the lens of contribution rather than blame. Making such judgments affects how we hear and relate to others. Blame looks backward; contribution looks forward.

Use evidence to inform
Seek and make available valid, relevant quality information (e.g. test results, observations, research . . . ) to inform thinking, conversation, resolution and action.

Reference: Learning Talk: build the culture
Order from: www.leadingadultlearners.com
Two practical protocols
The two protocols may be especially useful in 21CLD focused conversations:

**Final Word Protocol**
Use this protocol to increase relational trust, ensure each voice is heard, and to safely practise and build deep listening and dialogue skills. You can use it with scaffolds such as video clips or reading material (see example below), or simply as a safe way to raise and respond to relevant ideas, issues and questions. Works best in teams of 4-6.

**Final Word steps**
1. Sample scaffold: Team members read the Collaboration Rubric individually and highlight important items they believe need more clarity or conversation.
2. The first word person shares one of their items; they simply read it out and do not comment on it.
3. Each team member makes a succinct comment in round-robin order about the item. (No cross-talk – this de-rails the purpose of the protocol)
4. The person who named the item then summarizes the trends and key ideas heard. Then, he or she shares their thinking about the item and gets - the final word.
5. The pattern repeats until all team members have named their item and had it commented on.

**Critical Friends’ protocol**
This protocol offers a safe and non-judgmental way for team members to:
- share challenges and issues related to their 21CLD work
- seek assistance and support from their team

**Facilitator’s role:** to facilitate process, ensure protocol and goals of session are adhered to, intervene to re-focus or re-direct when appropriate, keep on track with agreed time.

**Step one: Introduce the purpose (5 minutes)**
- Facilitator briefly reviews the purpose of the group, the protocol, agreed norms and time limit for the meeting.
- ‘Presenting’ teacher introduces his or her goal in bringing the issue or challenge to the group. For example:

‘My collaboration goal is to have students do their fair share of work, and currently, one or two are doing most of the work in their teams of four. I’d like some ideas to help with this.’

**Step two: Present the issue (15 -20 minutes)**
- Teacher presents the issue, sharing background information and context.
- Teacher poses one or two relevant key questions for the group to address.
- Group members are silent: they listen and take notes.
- Group members review any written notes or student work presented by teacher.
Step three: Ask clarifying questions (5 mins)

- Team members ask clarifying questions to seek more information.
- No judgmental or evaluative questions or comments.

Step four: Group members reflect (5 minutes)

- Silently revisit teacher’s key questions.
- Group members write silently, reflecting on thoughts they would like to contribute.
- Teacher moves physically out from the circle; stays close enough to hear, and makes no eye contact.

Step five: Group members’ conversation (15 minutes)

- Group members acknowledge teacher’s issue; share both ‘warm’ and ‘cool’ feedback.
- Teacher silently takes notes; no interaction with the group.

Warm feedback: pinpoints what’s working and what should be continued.
Cool feedback: does not criticize. It suggests, through questions and wonderings, what could be improved.

Step six: Teacher reflects to the group (10 minutes)

- Teacher chooses pertinent information; reflects back to group comments heard, questions, realisations, and possible strategies and ideas to try.
- Team members are silent.

Step seven: De-brief the session (10 minutes)

- Facilitator validates teacher and group contributions.
- Review learning experience, process and protocol used: What was effective? What might we need to watch/do differently next time?
3. Skilful use of key capabilities

To enhance your own conversational skills and those of the team you lead, establish a clear picture of key Learning Talk capabilities, and consciously work on developing them.

As a 21CLD leader and influencer, you and your team will use all of these capabilities and skills at different times during your professional conversations. Two capabilities that will be especially important as you explore and use 21CLD material are Inquiry and Advocacy.

‘Inquiry seeks to understand; advocacy seeks to be understood. Achieving a balance of both is central to effective Learning Talk.’ Dalton 2013

To that end, Advocacy and Inquiry Templates with accompanying sentence scaffolds are provided on the following two pages. They are designed to support your own skills development and that of your team and will help to guide your conversations toward more effective dialogue and mutual understanding.

You are welcome to copy these templates for use within your school. As always, how you introduce them to your team will make all the difference to understanding, commitment and effective use. DO:

- take the time to introduce their purpose
- involve team members in talking about their value in supporting skilful, rigorous conversations
- collectively clarify each key skill
- use them over time and reflect on their use
Inquiry

Listen

Self-check
• What is my listening intent?
• What am I doing to listen fully and without judgment?
• How am I using pause before responding?
• How is my body language modeling openness?

Paraphrase
• So, you’re suggesting …
• You’re thinking …
• You’re feeling …
• In essence, you’re wanting …
• There seems to be two key issues here, … and …
• So, you believe …
• Your goal is …

Inquire

Clarify
• Explain a bit more about …
• Help me understand what you mean when you say …
• I’m curious to know more about …
• What is the actual issue you want to address here?

Probe
• What is your purpose here?
• What do you believe …?
• As you think about … how might you …?
• What possibilities do you see …?
• What might be a concrete example of …?
• Given your experience in this area, how …?

Test assumptions: check evidence
• What might be some assumptions here?
• Help me understand how you came to that conclusion.
• When you say …, are you supposing that …?
• What evidence suggests …? (data, research, examples)
• What might need further investigation?

Explore different perspectives and implications
• How might … view this?
• What other perspectives might need to be considered?
• What might be some different ways to approach this?
• How might this affect …?
• What implications might there be for …?
• What might happen if you didn’t take that pathway?
• What might your next steps be in relation to this?
Advocacy

State your ideas
- My intent here is to share …
- One idea might be …
- Here’s one suggestion …
- One possibility might be …
- A concern I have is …

Explain your reasoning
- I came to this conclusion because …
- My thinking is based on this evidence …
- Here’s a concrete example of what I mean by …
- I feel … because …
- I think … and my reasoning is …
- Here are some implications I see …
- Those will affect … in these ways …

Test your thinking: invite critique
- What’s your thinking about what I’ve just said?
- From what I’ve shared, what gaps or inaccuracies do you see?
- What might I be missing here?
- What assumptions might I be making?
- What concerns or wonderings do you have about this …?

Seek diverse perspectives & feedback
- What different thoughts do you have?
- How else might I look at this?
- What other perspectives might need to be considered?
- What implications do you see for …?
- I’m feeling unsure on this aspect … and would value your thoughts.

Use feedback to learn
- Thank you; that suggestion will help me to …
- As a result of our conversation, I now realise …
- Having listened to your feedback my thinking has shifted from … to ….
- I will think through what you’ve raised; let’s talk further about this on …
References:
Dalton, Joan (2013) 4 Learning Talk: develop the art of inquiry Hands On Educational Consultancy Pty Ltd.
Learning Talk series available as eBooks and as print copies, order from: www.leadingadultlearners.com
7. 21st Century Learning Design and the Australian Context

ITL research
Innovative Teaching and Learning

Sponsored by

Microsoft Partners in Learning

Rubrics designed by

SRI International

Rubrics developed by Joan Dalton, Hands On Educational Consultancy Pty Ltd for Microsoft Australia Pty Ltd.
21C Capabilities and the Australian Curriculum General Capabilities

Innovative teaching is about transforming the practice of teaching and the process of learning from a focus on the transfer of information and concepts to an orientation centred in creating new ideas, solutions and “knowledge-based products”. Innovative teaching is about building teaching practices that foster knowledge creation and collaboration among both teachers and learners in ways that develop the capabilities and skills they need for the 21st century. General capabilities comprise an integrated and interconnected set of knowledge, skills, behaviours and dispositions that students develop and use in their learning across the curriculum, in co-curricular programs and in their lives outside school.

21st Century Capabilities:
- Collaboration
- Knowledge construction
- Self-regulation
- Real world problem solving and innovation
- Use of ICT for learning
- Skilled communication
<table>
<thead>
<tr>
<th>Organising Elements</th>
<th>Links to 21st Century Capabilities</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Literacy</strong></td>
<td>✓ Knowledge Construction</td>
</tr>
<tr>
<td></td>
<td>✓ Skilful Communication</td>
</tr>
<tr>
<td></td>
<td>✓ Self-Regulation</td>
</tr>
<tr>
<td></td>
<td>✓ Collaboration</td>
</tr>
<tr>
<td></td>
<td>✓ ICT for Learning</td>
</tr>
<tr>
<td>• Comprehending texts through listening, reading and viewing</td>
<td></td>
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<tr>
<td>• Composing texts through speaking, writing and creating.</td>
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</tr>
<tr>
<td>• Text knowledge</td>
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<tr>
<td>• Grammar knowledge</td>
<td></td>
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<tr>
<td>• Word knowledge</td>
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<tr>
<td>• Visual knowledge</td>
<td></td>
</tr>
<tr>
<td><strong>Numeracy</strong></td>
<td>✓ Knowledge Construction</td>
</tr>
<tr>
<td></td>
<td>✓ ICT for Learning</td>
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<tr>
<td></td>
<td>✓ Skilful Communication</td>
</tr>
<tr>
<td></td>
<td>✓ Real-World Problem solving and Innovation</td>
</tr>
<tr>
<td>• Calculating and estimating</td>
<td></td>
</tr>
<tr>
<td>• Recognising and using patterns and relationships</td>
<td></td>
</tr>
<tr>
<td>• Using fractions, decimals, percentages, ratios and rates</td>
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</tr>
<tr>
<td>• Using spatial reasoning</td>
<td></td>
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<tr>
<td>• Interpreting and drawing conclusions from statistical information</td>
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<tr>
<td>• Using measurement</td>
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<tr>
<td><strong>ICT</strong></td>
<td>✓ Knowledge Construction</td>
</tr>
<tr>
<td></td>
<td>✓ Self-Regulation</td>
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<tr>
<td></td>
<td>✓ Collaboration</td>
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<tr>
<td></td>
<td>✓ Real-World Problem solving and Innovation</td>
</tr>
<tr>
<td></td>
<td>✓ ICT for Learning</td>
</tr>
<tr>
<td>• Applying social and ethical protocols and practices when using ICT</td>
<td></td>
</tr>
<tr>
<td>• Investigating with ICT</td>
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<tr>
<td>• Creating with ICT</td>
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<tr>
<td>• Communicating with ICT</td>
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<tr>
<td>• Managing and operating ICT</td>
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<tr>
<td><strong>Critical and Creative thinking</strong></td>
<td>✓ Knowledge Construction</td>
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<tr>
<td></td>
<td>✓ Real-World Problem-solving and Innovation</td>
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<tr>
<td></td>
<td>✓ Self-Regulation</td>
</tr>
<tr>
<td>• Inquiring—identifying, exploring and clarifying information</td>
<td></td>
</tr>
<tr>
<td>• Generating innovative ideas and possibilities</td>
<td></td>
</tr>
<tr>
<td>• Reflecting on thinking, actions and processes</td>
<td></td>
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<tr>
<td>• Analysing, synthesising and evaluating information</td>
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<tr>
<td><strong>Personal and Social capability</strong></td>
<td>✓ Collaboration</td>
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<tr>
<td></td>
<td>✓ ICT for Learning</td>
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<tr>
<td></td>
<td>✓ Self-Regulation</td>
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<tr>
<td></td>
<td>✓ Skilful Communication</td>
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<tr>
<td>• Self-awareness</td>
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<td>• Self-management</td>
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<tr>
<td>• Social awareness</td>
<td></td>
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<tr>
<td>• Social management</td>
<td></td>
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<tr>
<td><strong>Ethical Behaviour</strong></td>
<td>✓ ICT for Learning</td>
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<tr>
<td></td>
<td>✓ Collaboration</td>
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<tr>
<td></td>
<td>✓ Self-Regulation</td>
</tr>
<tr>
<td>• Understanding ethical concepts and issues</td>
<td></td>
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<tr>
<td>• Reflecting on personal ethics in experiences and decision making</td>
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<tr>
<td>• Exploring values, rights and ethical principles</td>
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<td><strong>Intercultural understanding</strong></td>
<td>✓ Collaboration</td>
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<tr>
<td></td>
<td>✓ Self-Regulation</td>
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<tr>
<td></td>
<td>✓ Skilful Communication</td>
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<tr>
<td>• Recognising</td>
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<td>• Interacting</td>
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<td>• Reflecting</td>
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<td>• Empathy</td>
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<td>• Respect</td>
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<td>• Responsibility</td>
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<tr>
<td>21st Century Capabilities</td>
<td>Scientific Inquiry Skills</td>
</tr>
<tr>
<td>---------------------------------------------------------------</td>
<td>----------------------------------------------------------------</td>
</tr>
<tr>
<td>• Knowledge Construction</td>
<td>• Questioning and predicting</td>
</tr>
<tr>
<td>• Real-World Problem-Solving and Innovation</td>
<td>• Planning and conducting</td>
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<tr>
<td>• Self-Regulation</td>
<td>• Processing and analysing data and information</td>
</tr>
<tr>
<td>• Knowledge Construction</td>
<td>• Evaluating</td>
</tr>
<tr>
<td>• Knowledge Construction</td>
<td>• Communicating</td>
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<tr>
<td>• Skilful Communication</td>
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<table>
<thead>
<tr>
<th>21st Century Capabilities</th>
<th>Historical Skills</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Knowledge Construction</td>
<td>• Chronology, terms and concepts</td>
</tr>
<tr>
<td>• Knowledge Construction</td>
<td>• Historical questions and research</td>
</tr>
<tr>
<td>• Real-World Problem Solving and Innovation</td>
<td>• Analysis and use of sources</td>
</tr>
<tr>
<td>• Knowledge Construction</td>
<td>• Perspectives and interpretations</td>
</tr>
<tr>
<td>• Real-World Problem Solving and Innovation</td>
<td>• Explanation and communication</td>
</tr>
<tr>
<td>• Knowledge Construction</td>
<td></td>
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<tr>
<td>• Skilful Communication</td>
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</table>
21st Century Learning Design and the Australian Professional Teaching Standards

This program maps to the Australian Professional Standards for Teachers at the three levels of Proficient Teacher, Highly Accomplished Teacher and Lead Teacher.

When alignment to the standards is considered, a distinction needs to be made between being acting as a 21CLD Practitioner and a 21CLD Facilitator. As a 21CLD practitioner, you are focusing on your own practice and working with colleagues to implement concepts and strategy of the program in your own classroom. As a 21CLD Facilitator you are both a practitioner and leader of training and professional dialogue to promote and embed 21CLD into your school. The alignment of 21CLD to therefore has two distinctly different levels. Practitioner and Facilitator.

Summary of aligned Australian Professional Standards for Teachers:

<table>
<thead>
<tr>
<th>Level</th>
<th>Practitioner</th>
<th>Facilitator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proficient Teacher</td>
<td>1.2, 2.2, 2.3, 2.6, 3.2, 3.3, 3.4, 3.6, 4.5, 5.1, 6.3, 7.4</td>
<td>2.3, 2.6, 3.2, 3.3, 3.4, 3.6, 4.2, 4.5, 5.1, 6.2, 6.3, 6.4, 7.4</td>
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<tr>
<td>Highly Accomplished Teacher</td>
<td>1.2, 2.2, 2.6, 4.2, 4.5, 5.1, 6.3</td>
<td>2.3, 2.6, 3.2, 3.3, 3.4, 3.6, 4.2, 4.5, 5.1, 6.2, 6.3, 6.4, 7.4</td>
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<tr>
<td>Lead Teacher</td>
<td>3.2, 3.4</td>
<td>1.1, 1.2, 2.2, 2.3, 2.6, 3.2, 3.3, 3.4, 3.6, 4.2, 4.5, 5.1, 6.2, 6.3, 6.4, 7.4</td>
</tr>
</tbody>
</table>

Detailed Information of aligned Australian Professional Standards for Teachers:
Below is more detail of the standards as they align. Take note of the differentiation of practitioner and facilitator especially in the Highly Accomplished and Lead level.

<table>
<thead>
<tr>
<th>Focus Area</th>
<th>Proficient</th>
<th>Highly Accomplished</th>
<th>Lead</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1 1.1 Physical, social and intellectual development and characteristics of students</td>
<td>Highly Accomplished 1.1 Physical, social and intellectual development and characteristics of students</td>
<td>Lead facilitator 1.1 Physical, social and intellectual development and characteristics of students</td>
<td>Lead facilitator 1.1 Physical, social and intellectual development and characteristics of students</td>
</tr>
<tr>
<td>1.2 Understand how students learn</td>
<td>Practitioner 1.2 Understand how students learn</td>
<td>Practitioner 1.2 Understand how students learn</td>
<td>Lead facilitator 1.2 Understand how students learn</td>
</tr>
<tr>
<td>2.2 Content selection and organisation</td>
<td>Practitioner 2.2 Content selection and organisation</td>
<td>Practitioner 2.2 Content selection and organisation</td>
<td>Lead facilitator 2.2 Content selection and organisation</td>
</tr>
</tbody>
</table>

<p>| Focus Area                                                                 | Proficient                                                                 | Highly Accomplished                                                                 | Lead                                                                 |
|---|---------------------------------------------------------------------------|----------------------------------------------------------------------------|------------------------------------------------------------------------------------|---------------------------------------------------------------------|
| 1.1 1.1 Physical, social and intellectual development and characteristics of students | Highly Accomplished 1.1 Physical, social and intellectual development and characteristics of students | Lead facilitator 1.1 Physical, social and intellectual development and characteristics of students | Lead facilitator 1.1 Physical, social and intellectual development and characteristics of students |
| 1.2 Understand how students learn                                          | Practitioner 1.2 Understand how students learn | Practitioner 1.2 Understand how students learn | Lead facilitator 1.2 Understand how students learn |
| 2.2 Content selection and organisation                                     | Practitioner 2.2 Content selection and organisation | Practitioner 2.2 Content selection and organisation | Lead facilitator 2.2 Content selection and organisation |</p>
<table>
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</thead>
<tbody>
<tr>
<td><strong>2.3 Curriculum, assessment and reporting</strong></td>
<td>Design and implement learning and teaching programs using knowledge of curriculum, assessment and reporting requirements.</td>
<td>Support colleagues to plan and implement leading and teaching programs using contemporary knowledge and understanding of curriculum, assessment and reporting requirements.</td>
<td>Lead colleagues to develop learning and teaching programs using comprehensive knowledge of curriculum, assessment and reporting requirements.</td>
</tr>
<tr>
<td><strong>2.6 Information and Communication Technology</strong></td>
<td>Practitioner Use effective teaching strategies to integrate ICT into learning and teaching programs to make selected content relevant and meaningful.</td>
<td>Model high-level teaching knowledge and skills and work with colleagues to use current ICT to improve their teaching practice and make content relevant and meaningful.</td>
<td>Lead and support colleagues within the school to select and use ICT with effective teaching strategies to expand learning opportunities and content knowledge for all students.</td>
</tr>
<tr>
<td><strong>3.2 Plan, structure and sequence learning programs</strong></td>
<td>Practitioner Plan and implement well-structured learning and teaching programs of lesson sequences that engage students and promote learning.</td>
<td>Work with colleagues to plan, evaluate and modify learning and teaching programs to create productive learning environments that engage all students.</td>
<td>Exhibit exemplary practice and lead colleagues to plan, implement and review the effectiveness of their learning and teaching programs to develop students’ knowledge, understanding and skills.</td>
</tr>
<tr>
<td>3.3 Use teaching strategies</td>
<td>Practitioner</td>
<td>Facilitator</td>
<td>Facilitator</td>
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<td></td>
<td>Select and use relevant teaching strategies to develop knowledge, skills, problems solving and critical and creative thinking.</td>
<td>Work with colleagues to select and apply effective teaching strategies to develop knowledge, skills, problem solving and critical thinking.</td>
<td>Work with colleagues to review, modify and expand their repertoire of teaching strategies to enable students to use knowledge, skills, problem solving and critical thinking.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3.4 Select and use resources</th>
<th>Practitioner</th>
<th>Facilitator</th>
<th>Practitioner / Facilitator</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Select and/or create and use a range of resources, including ICT, to engage students in their learning.</td>
<td>Assist Colleagues to create, select, and use a wide range of resources, including ICT, to engage students in their learning.</td>
<td>Model exemplary skills and lead colleagues in selecting, creating and evaluating resources, including ICT, for application by teachers within or beyond the school.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3.6 Evaluate and Improve Teaching Programs</th>
<th>Practitioner</th>
<th>Facilitator</th>
<th>Facilitator</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Evaluate personal teaching and learning programs using evidence, including feedback from students and student assessment data, to inform planning</td>
<td>Work with colleagues to review current teaching and learning programs using student feedback, student assessment data, knowledge of curriculum and workplace practices.</td>
<td>Conduct regular reviews of teaching and learning programs using multiple sources of evidence including: student assessment data, curriculum documents, teaching practices and feedback from parents/carers, students and colleagues.</td>
</tr>
<tr>
<td>Focus Area</td>
<td>Proficient</td>
<td>Highly Accomplished</td>
<td>Lead</td>
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<tr>
<td>4.2 Manage Classroom Activities</td>
<td>Practitioner / Facilitator</td>
<td>Model and share with colleagues a flexible repertoire or strategies for classroom management to ensure all students are engaged in purposeful activities.</td>
<td>Initiate strategies and lead colleagues to implement effective classroom management and promote student responsibility for learning.</td>
</tr>
<tr>
<td>4.5 Use ICT safely, responsibly and ethically</td>
<td>Practitioner</td>
<td>Practitioner / Facilitator</td>
<td>Facilitator</td>
</tr>
<tr>
<td></td>
<td>Incorporate strategies to promote responsible and ethical use of ICT in learning and teaching.</td>
<td>Model and support colleagues to develop strategies to promote the safe, responsible and ethical use of ICT in learning and teaching.</td>
<td>Review or implement new policies and strategies to ensure the safe, responsible and ethical use of ICT in learning and teaching.</td>
</tr>
<tr>
<td>5.1 Assess student learning</td>
<td>Practitioner</td>
<td>Practitioner / Facilitator</td>
<td>Facilitator</td>
</tr>
<tr>
<td></td>
<td>Develop, select and use informal and formal diagnostic, formative and summative assessment strategies to assess student learning</td>
<td>Develop and apply a comprehensive range of assessment strategies to diagnose learning needs, comply with curriculum requirements and support colleagues to evaluate the effectiveness of their approaches to assessment.</td>
<td>Evaluate school assessment policies and strategies to support colleagues with: using assessment data to diagnose learning needs, complying with curriculum, system and/or school assessment requirements and using a range of assessment strategies.</td>
</tr>
<tr>
<td>Focus Area</td>
<td>Proficient</td>
<td>Highly Accomplished</td>
<td>Lead</td>
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<tr>
<td>6.2 Engage in professional learning and improve practice</td>
<td>Facilitator</td>
<td>Plan for professional learning by accessing and critiquing relevant research, engage in high quality targeted opportunities to improve practice and offer quality placements for pre service teachers.</td>
<td>Initiate collaborative relationships to expand professional learning opportunities engage in research, and provide quality opportunities and placements for pre-service teachers.</td>
</tr>
<tr>
<td>6.3 Engage with colleagues and improve practice</td>
<td>Practitioner</td>
<td>Initiate and engage in professional discussions with colleagues in a range of forums to evaluate practice directed at improving professional knowledge and practice, and the educational outcomes of students.</td>
<td>Implement professional dialogue within school or professional network(s) that is informed by feedback, analysis of current research and practice to improve the educational outcomes of students.</td>
</tr>
<tr>
<td>6.4 Apply professional learning and improve student learning</td>
<td>Facilitator</td>
<td>Engage with colleagues to evaluate the effectiveness of teacher professional learning activities to address student learning needs.</td>
<td>Advocate, participate in and lead strategies to support high-quality professional learning opportunities for colleagues that focus on improved student learning.</td>
</tr>
<tr>
<td>7.4 Engage with professional teaching networks and broader communities</td>
<td>Practitioner</td>
<td>Contribute to professional networks and associations and build productive links with the wider community to improve teaching and learning</td>
<td>Take a leadership role in professional and community networks and support the involvement of colleagues in external learning opportunities</td>
</tr>
</tbody>
</table>
Specific Alignment of 21CLD Dimensions

Focus on development of skills in some dimensions can also align with some of the standards. When working with the standards and dimensions, only the practitioner level can be considered. When we are practitioners of 21CLD we are looking for and providing opportunity for development of that specific dimension or 21st Century skill in students. This cannot be done at the facilitator level.

<table>
<thead>
<tr>
<th>21CLD Dimension</th>
<th>Teaching Standard</th>
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</thead>
<tbody>
<tr>
<td>Collaboration</td>
<td>2.6 Information and Communication Technology</td>
</tr>
<tr>
<td></td>
<td>4.5 Use ICT Safely, responsibly and ethically</td>
</tr>
<tr>
<td>Knowledge Construction</td>
<td>2.6 Information and Communication Technology</td>
</tr>
<tr>
<td></td>
<td>3.3 Use of Teaching Strategies</td>
</tr>
<tr>
<td></td>
<td>3.4 Select and use resources</td>
</tr>
<tr>
<td>Self Regulation</td>
<td>2.6 Information and Communication Technology</td>
</tr>
<tr>
<td></td>
<td>4.2 Manage Classroom activities</td>
</tr>
<tr>
<td></td>
<td>4.5 Use ICT Safely, responsibly and ethically</td>
</tr>
<tr>
<td>Real World Problem Solving and Innovation</td>
<td>2.6 Information and Communication Technology</td>
</tr>
<tr>
<td></td>
<td>3.3 Use of Teaching Strategies</td>
</tr>
<tr>
<td>ICT for Learning</td>
<td>2.6 Information and Communication Technology</td>
</tr>
<tr>
<td></td>
<td>3.4 Select and use resources</td>
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<tr>
<td></td>
<td>4.5 Use ICT Safely, responsibly and ethically</td>
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<tr>
<td>Skilful Communication</td>
<td>2.6 Information and Communication Technology</td>
</tr>
<tr>
<td></td>
<td>3.4 Select and use resources</td>
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<tr>
<td></td>
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