Australian CURRICULUM Review

GENERAL CAPABILITIES

CRITICAL AND CREATIVE THINKING

Consultation – introductory information and learning continua

AUSTRALIAN CURRICULUM, ASSESSMENT AND REPORTING AUTHORITY

acara

REVIEW OF THE AUSTRALIAN CURRICULUM F–10: GENERAL CAPABILITIES

Critical and Creative Thinking

Introduction

The terms of reference for the Review of the Australian Curriculum F–10 (the Review), require the Australian Curriculum, Assessment and Reporting Authority (ACARA), to "revisit and improve where necessary, the learning continua for the general capabilities with reference to current research".[1]

General capabilities equip young Australians with the knowledge, skills, behaviours and dispositions to live and work successfully in the twenty-first century. General capabilities are developed through learning area content; they are not separate learning areas, subjects or isolated skills.

The F–10 Australian Curriculum includes seven general capabilities:

- Literacy
- Numeracy
- Critical and Creative Thinking
- Digital Literacy (formerly Information and Communication Technology (ICT) capability)
- Personal and Social capability
- Ethical Understanding
- Intercultural Understanding.

General capabilities are addressed through the content of the learning areas; discipline-based content knowledge is important for the development of general capabilities. The teaching of learning area content will be strengthened by the application of relevant general capabilities, as will the development of the general capabilities through appropriate learning area contexts.

Opportunities to develop general capabilities in learning area content vary. Some general capabilities are essential to, and best developed within specific learning areas; others support learning in any learning area. General capabilities are identified in content descriptions where they are developed or applied through learning area content. They are also identified in content elaborations where they offer opportunities to add depth and richness to student learning.

[1] Australian Curriculum, Assessment and Reporting Authority (ACARA), 2020, *Terms of reference: Review of the Australian Curriculum F–10*, p. 4.

Organisation of the general capabilities

Each general capability has an introduction that provides a description of the capability and a rationale for its inclusion in the Australian Curriculum.

Each general capability is presented as either a learning continuum or a learning progression and is structured around elements and sub-elements.

A learning continuum has been developed for five of the seven general capabilities, and describes the knowledge, skills and behaviours that students can reasonably be expected to develop from Foundation to Year 10. The continua map common paths for the development of knowledge, skills and behaviours in each of the elements and sub-elements across six levels for Critical and Creative Thinking, Digital Literacy, Personal and Social capability, Ethical Understanding and Intercultural Understanding.

For the Literacy and Numeracy capabilities, more detailed learning progressions have been developed to describe the learning pathway(s) along which students typically progress regardless of age or year level. The National Literacy and Numeracy Learning Progressions describe the skills, understandings and capabilities students typically acquire as their proficiency increases in a particular aspect of the curriculum over time, and help teachers ascertain the stage of learning reached, identify any gaps in skills and knowledge, and plan for the next step to progress learning.

Review of the Critical and Creative Thinking capability

The Review of the Critical and Creative Thinking capability followed a similar process to that of the other general capabilities:

a) Research related to critical and creative thinking was sourced and reviewed.

b) An analysis of the learning continuum was undertaken for horizontal and vertical alignment.

c) The continuum was compared with a range of learning area content descriptions to ensure the alignment of concepts and expectations.

d) The continuum was compared to the continua of the other general capabilities to identify commonalities and align language and ‘at level’ descriptions across continua.

e) An external expert panel was convened to critique and provide input into drafting improvements to the continuum.

f) Evidence gathered in the research, analysis and comparison phases was used to refine and propose revisions of the continuum for consultation and feedback through ACARA’s reference groups, advisory groups and expert panels.

The Review of the Critical and Creative Thinking capability was also informed by research into critical and creative thinking as part of the alpha phase for the Online Formative Assessment Initiative.

The Review of the Critical and Creative Thinking learning continuum found:

- sub-elements that change focus or intent from level one to level six
- misalignment of sequences or descriptions of skills across levels
- sub-elements that describe multiple skills
- sub-elements that do not provide clear links to content or context
- co-identified skills across learning area content.

The Review identified the following opportunities to improve the Critical and Creative Thinking learning continuum:

- revisit and improve where necessary the element and sub-element descriptions and developmental sequence
- improve the relationship of the Critical and Creative Thinking continuum to learning area content.

As a result of the Review, the following key changes were made to the Critical and Creative Thinking learning continuum:

a) Three structural changes were made to the organisation of the continuum:
    - 'Identify and clarify information and ideas' and 'Organise and process information' sub-elements were combined into one sub-element 'Identify and process information'.
    - 'Reflect on processes' was removed from the 'Reflecting on thinking and processes' element, renamed 'Interpret problems and concepts' and placed in the 'Analysing' element, as it describes the process of interpreting and analysing a problem or concept.
    - 'Apply logic and reasoning' and 'Draw conclusions and design a course of action' were combined into one sub-element 'Draw conclusions and provide reasons', to strengthen the description of reasoning in the continuum and to limit duplication across the continuum.

b) The sub-element descriptions were refined to improve the development sequence across levels one to six, and to more clearly describe the knowledge, skills and behaviours identified within the sub-elements.

c) Names of the elements and sub-elements in the continuum were revised to simplify language across the continuum and to use titles that more appropriately reflect the skill described within the element or sub-element.

A comparison of the structure of the current to revised learning continuum follows in Table 1.

Table 1: Comparison of the current and revised elements and sub-elements of the Critical and Creative Thinking learning continuum

Current elements	Current sub-elements	Revised elements	Revised sub-elements
Inquiring, identifying, exploring, and organising information and ideas	Pose Questions	Inquiring	Develop questions
	Identify and clarify information and ideas		Identify and process information
	Organise and process information		
Generating ideas, possibilities, and actions	Imagine possibilities and connect ideas	Generating	Connect ideas and create possibilities
	Consider alternatives		Consider alternatives
	Seek solutions and put ideas into action		Put ideas into action
Analysing, synthesising and evaluating reasoning and procedures	Apply logic and reasoning	Analysing	Interpret concepts and problems
			Draw conclusions and provide reasons
	Draw conclusions and design a course of action		
	Evaluate procedures and outcomes		Evaluate actions and outcomes
Reflecting on thinking and processes	Think about thinking (metacognition)	Reflecting	Think about thinking (metacognition)
	Transfer knowledge		Transfer knowledge
	Reflect on processes		

Attachment 1 presents the updated description and learning continuum for the Critical and Creative Thinking capability**.**

Attachment 2 presents the current learning continuum as a comparison.

Attachment 1. Critical and Creative Thinking – revised consultation version

Description

Critical and creative thinking represent two important ways of thinking that work together to help people inquire into the world around them.

Critical thinking involves students analysing and assessing possibilities against criteria for judgment, constructing and evaluating arguments, and using information, evidence and logic to draw reasoned conclusions and to solve problems.

Creative thinking involves students learning to generate and apply new ideas, see existing situations in new ways, identify alternative explanations and possibilities, and create new links to generate successful outcomes.

Critical and creative thinking are developed through being attentive to the concerns and questions that arise during the course of an inquiry within and across learning areas.

Structure

The Critical and Creative Thinking learning continuum is organised into four elements:

- Inquiring
- Generating
- Analysing
- Reflecting.

Figure 1: Organising elements for Critical and Creative Thinking

Each element comprises a set of sub-elements to describe the key skills and knowledge reflected in the element, as shown in Table 2.

Table 2: Elements and sub-elements of the Critical and Creative Thinking learning continuum

Element	Sub-elements
Inquiring	Develop questions
	Identify and process information
Generating	Connect ideas and create possibilities
	Consider alternatives
	Put ideas into action
Analysing	Interpret concepts and problems
	Draw conclusions and provide reasons
	Evaluate actions and outcomes
Reflecting	Think about thinking (metacognition)
	Transfer knowledge

Inquiring

This element is organised into two sub-elements:

- 'Develop questions' – students narrow or expand the focus of their thinking and explore ideas and concepts critically and creatively. When they develop different kinds of questions, students can further their inquiry by finding more information about a topic and forming a better understanding of how something works or why something is the way it is.
- 'Identify and process information' – students seek information from a range of sources, make decisions about expert or personal opinion and understand which sources are trustworthy, relevant and useful.

Generating

This element is organised into three sub-elements:

- 'Connect ideas and create possibilities' – students explore and combine ideas to create innovative solutions, and adapt and present ideas in new ways as they engage with learning area content
- 'Consider alternatives' – students examine different and creative ways to approach tasks and make recommendations on preferred options and actions

- ‘Put ideas into action’ – students experiment with ideas, modify and adapt approaches and evaluate options and actions in a range of situations.

Analysing

This element is organised into three sub-elements:

- ‘Interpret concepts and problems’ – students interpret concepts, ideas, theories and problems and deconstruct them into their component parts to gain a deeper understanding of the context or situation
- ‘Draw conclusions and provide reasons’ – students reach a conclusion or make a choice for action by connecting to learning area knowledge and understanding. The act of justifying a conclusion also requires the provision of a reason or the development of an argument in support of the conclusion or action.
- ‘Evaluate actions and outcomes’ – students consider the choices made when they solve problems or attempt learning area tasks, and use a set of criteria to evaluate solutions and outcomes and help plan for future action.

Reflecting

This element is organised into two sub-elements:

- ‘Think about thinking (metacognition)’ – students identify and describe the thinking and learning strategies that they use to complete tasks, so that they learn to make more purposeful choices and evaluate their effectiveness for the task at hand. Students reflect on the ways that their thinking, and the approaches they take to complete learning area tasks and activities, may be influenced by external contributions or viewpoints.
- ‘Transfer knowledge’ – students make connections between their current knowledge and skills and new contexts where they can adapt and use what they already know and can do. Both critical and creative thinking are involved, and new contexts can include other learning areas of the curriculum.

	Sub-element	Level 1 (Foundation)	Level 2 (Years 1–2)	Level 3 (Years 3–4)	Level 4 (Years 5–6)	Level 5 (Years 7–8)	Level 6 (Years 9–10)
INQUIRING	**Develop questions**	develop questions to explore a familiar idea or topic; questions developed reflect their curiosity about the world	develop questions to explore a familiar idea or topic; questions developed are fit for the purpose of the investigation	develop questions to examine unfamiliar ideas and topics; questions developed support the process of improving knowledge and understanding about a topic	develop questions to examine unfamiliar ideas and topics; questions developed focus on clarifying information about processes and/or procedures	develop questions to investigate complex issues and topics; questions developed assist forming an understanding of why phenomena or issues arise	develop questions to investigate complex issues and topics; questions developed facilitate increasing understanding of abstract ideas and concepts
	Identify and process information	identify and explore relevant points in information provided on a topic; prioritise the information that is most relevant to the topic of study	identify and explore relevant information from a range of sources; identify similarities and differences in selected information	identify and examine relevant information and opinion from a range of sources; condense and combine selected information related to the topic of study	identify and examine relevant information and opinion from a range of sources; compare information and opinion that can be verified to claims based on personal preference	identify and clarify significant information and opinion from a range of sources; evaluate the validity and relevance of the information and opinion to the topic of study	identify and clarify significant information and opinion from a range of sources; evaluate the information selected to determine bias and reliability
GENERATING	**Connect ideas and create possibilities**	create possibilities by exploring and connecting ideas in ways that are new to them	create possibilities by connecting or expanding on ideas in ways that are new to them	create possibilities by connecting or expanding on new and known ideas in a variety of ways	create possibilities by adapting, combining, or elaborating new and known ideas in a variety of ways	create possibilities by adapting, combining, or elaborating new and known ideas and proposing a range of different combinations	create possibilities by connecting complex ideas and proposing innovative and detailed adaptations or combinations
	Consider alternatives	consider alternatives by suggesting a different way to approach a given task or problem	consider alternatives and explore different or creative ways to approach a task or problem	consider alternatives by comparing different or creative ways to approach a task or problem and recommend a preferred option	consider alternatives by challenging existing ideas in situations where current approaches do not work and recommend a preferred option	consider alternatives and adapt ideas when information is limited or conflicting and recommend a preferred option	consider alternatives, revise and modify ideas and recommendations when circumstances change
	Put ideas into action	put ideas into action through trial and error experiences	put ideas into action by experimenting with options and predicting possible results	put ideas into action by trialling options and assessing their effectiveness	put ideas into action by systematically testing a range of options and hypothesising about potential or future outcomes	put ideas into action by testing and evaluating options and reconsidering approaches in complex or unfamiliar situations	put ideas into action by testing and evaluating options, proposing modifications and adapting approaches in complex or unfamiliar situations
ANALYSING	**Interpret concepts and problems**	identify the main parts of a concept or problem. Concepts may include ideas, theories, designs, models, views, patterns and beliefs	identify the main parts of concept or problem and describe how these relate to each other	identify and prioritise significant elements and relationships within a concept or problem	identify the relevant and significant aspects of a concept or problem by understanding that approaches may change depending on the subject or learning area	identify gaps and missing elements necessary for understanding a concept or problem by using approaches and strategies suitable for the context	identify the objective and subjective aspects of a complex concept or problem with sensitivity to context
	Draw conclusions and provide reasons	draw conclusions and make choices when completing tasks and identify the reasons for choices	draw conclusions and make choices when completing tasks and explain the reasons for choices	draw conclusions and make choices when completing tasks using observation and prior	draw conclusions and make choices when completing tasks using discipline knowledge to provide reasons	draw conclusions and make choices when completing tasks by connecting evidence from across discipline areas to provide	draw conclusions and make choices when completing tasks using analysis of complex

	Sub-element	Level 1 (Foundation)	Level 2 (Years 1–2)	Level 3 (Years 3–4)	Level 4 (Years 5–6)	Level 5 (Years 7–8)	Level 6 (Years 9–10)
				knowledge to provide reasons and construct arguments for choices	and evaluate arguments for choices	reasons and evaluate arguments for choices	evidence and arguments when making recommendations
	Evaluate actions and outcomes	evaluate whether they are satisfied with the outcome of tasks or actions	evaluate whether they have accomplished what they set out to achieve using a given set of criteria	evaluate the outcome of a task by explaining ideas, conclusions and actions using a given set of criteria	evaluate the effectiveness of a course of action or the outcome of a task using a given or co-developed set of criteria	evaluate the effectiveness of a course of action or the outcome of a task and account for expected and unexpected results using a given or co-developed set of criteria	evaluate the effectiveness of a course of action to achieve desired outcomes and suggest improvements using a personally developed set of criteria
REFLECTING	**Think about thinking (metacogniti on)**	identify thinking and learning strategies used when completing tasks and drawing conclusions	identify and describe thinking and learning strategies used when completing tasks and drawing conclusions	identify, describe, and reflect on the thinking and learning strategies and processes used when completing tasks and drawing conclusions	identify and reflect on thinking and assumptions when completing a task or drawing a conclusion; consider reasonable criticism and adjust thinking if necessary	reflect on the thinking and processes used when completing tasks or drawing conclusions and invite alternative perspectives	reflect on the thinking and processes used when completing tasks or drawing conclusions and identify possible limitations in their own positions by considering opposing viewpoints
	Transfer knowledge	connect ideas and information between familiar learning experiences	use ideas and information from a previous experience to inform similar learning experiences	use aspects of knowledge gained in one setting to inform learning in a new setting or context	apply aspects of knowledge gained from one context to another unrelated context to achieve a specific purpose	transfer knowledge gained in previous experiences to similar and different contexts and explain reasons for decisions and choices	identify, plan and justify opportunities to transfer knowledge into new contexts

Attachment 2

Critical and Creative Thinking learning continuum – current version

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

Sub-element	Level 1 Typically, by the end of F	Level 2 Typically, by the end of Year 2	Level 3 Typically, by the end of Year 4	Level 4 Typically, by the end of Year 6	Level 5 Typically, by the end of Year 8	Level 6 Typically, by the end of Year 10
Reflect on processes	identify the main elements of the steps in a thinking process	outline the details and sequence in a whole task and separate it into workable parts	identify pertinent information in an investigation and separate into smaller parts or ideas	identify and justify the thinking behind choices they have made	evaluate and justify the reasons behind choosing a particular problem-solving strategy	balance rational and irrational components of a complex or ambiguous problem to evaluate evidence
Transfer knowledge into new contexts	connect information from one setting to another	use information from a previous experience to inform a new idea	transfer and apply information in one setting to enrich another	apply knowledge gained from one context to another unrelated context and identify new meaning	justify reasons for decisions when transferring information to similar and different contexts	identify, plan and justify transference of knowledge to new contexts
Analysing, synthesising and evaluating reasoning and procedures element						
Apply logic and reasoning	identify the thinking used to solve problems in given situations	identify reasoning used in choices or actions in specific situations	identify and apply appropriate reasoning and thinking strategies for particular outcomes	assess whether there is adequate reasoning and evidence to justify a claim, conclusion or outcome	identify gaps in reasoning and missing elements in information	analyse reasoning used in finding and applying solutions, and in choice of resources
Draw conclusions and design a course of action	share their thinking about possible courses of action	identify alternative courses of action or possible conclusions when presented with new information	draw on prior knowledge and use evidence when choosing a course of action or drawing a conclusion	scrutinise ideas or concepts, test conclusions and modify actions when designing a course of action	differentiate the components of a designed course of action and tolerate ambiguities when drawing conclusions	use logical and abstract thinking to analyse and synthesise complex information to inform a course of action
Evaluate procedures and outcomes	check whether they are satisfied with the outcome of tasks or actions	evaluate whether they have accomplished what they set out to achieve	explain and justify ideas and outcomes	evaluate the effectiveness of ideas, products, performances, methods and courses of action against given criteria	explain intentions and justify ideas, methods and courses of action, and account for expected and unexpected outcomes against criteria they have identified	evaluate the effectiveness of ideas, products and performances and implement courses of action to achieve desired outcomes against criteria they have identified