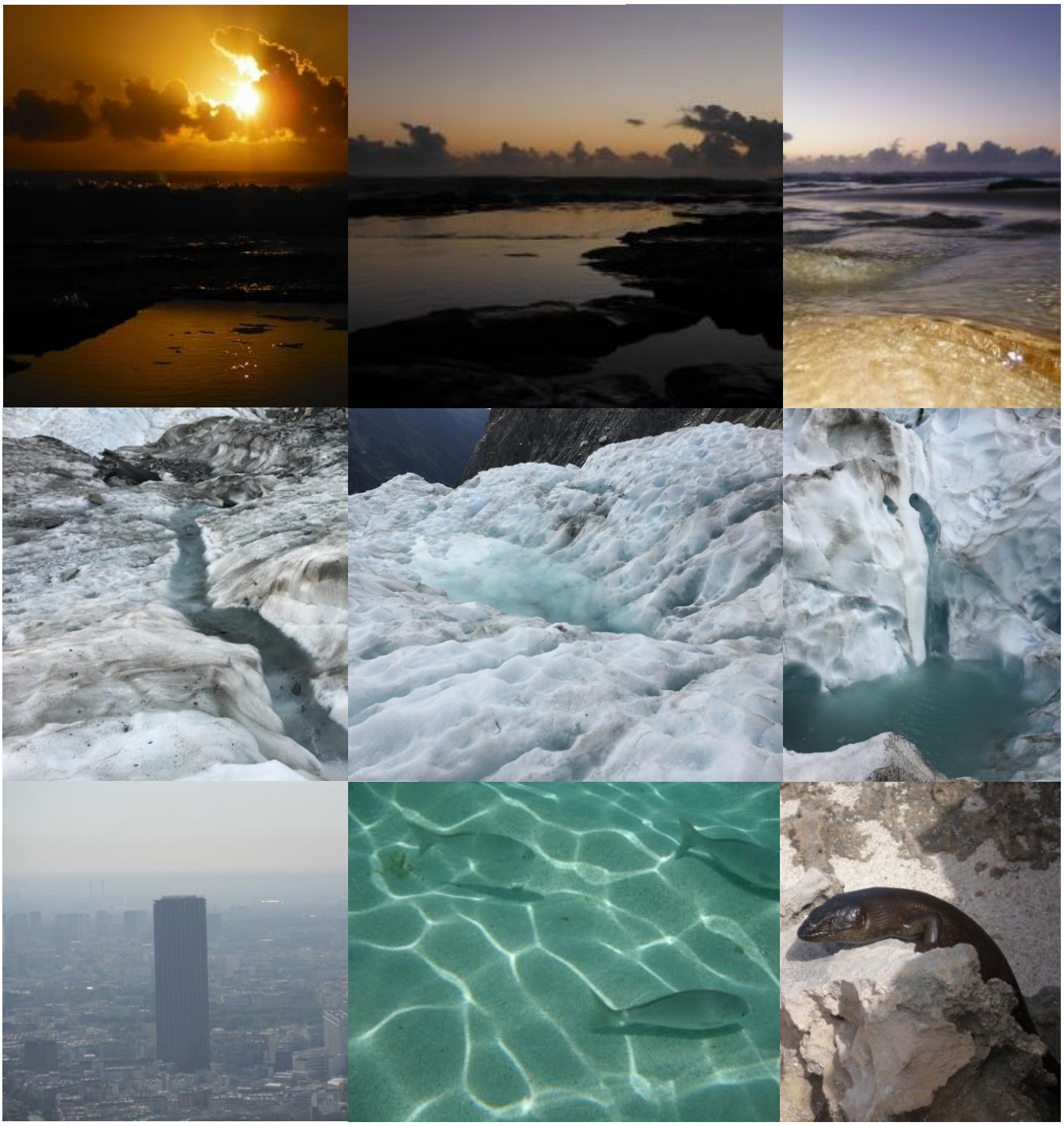
Climate Change and Me: Stage 2/3 Curriculum



Climate Change and Me: Stage 2/3 Curriculum (Version 1)

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The Climate Change and Me Stage 2/3 Curriculum

Introduction: The *Climate Change and Me* Stage 2/3 curriculum allows students to conduct personal, group and whole-class research into climate change and its impacts on their lives. The curriculum is designed as a term-length unit of work which operates across 7 distinct phases of a *collective inquiry process* which emphasises project-based learning, creativity and collaboration. Each phase of the process links directly into key learning outcomes in Science, English, Creative Arts, and HSIE (History/Geography) in the Australian National curriculum. The Stage 2/3 curriculum is based on research undertaken with 135 children and young people as co-researchers in the *Climate Change and Me* project in 2014-2015. The findings from the *Climate Change and Me* research have directly informed the design of the Stage 2/3 curriculum, including the formulation of the collective inquiry process and supporting resources. Central to the curriculum are personal research journals, which allow students to keep a record of their individual learning as they progress through a series of 'assessment for learning' activities. This allows teachers to easily track the achievement of key learning outcomes as the students progress through each phase of the curriculum. The Stage 2/3 curriculum also emphasises public engagement as an important platform for students to express their ideas and findings about climate change through exhibitions, assembly presentations, school newsletters and school websites, performances or other public communication venues. Educational researchers from the *Climate Change and Me* project team are available to support teachers with the integration, implementation and evaluation of the Stage 2/3 curriculum as it is trialled in Northern NSW public schools.

Rationale: Today's children and young people require new kinds of knowledge, skills and experience in order to effectively respond to rapidly accelerating social and environmental changes. The *Climate Change and Me* Stage 2/3 curriculum addresses this pressing need for a research-based and student-driven climate change curriculum in Australian primary schools. As it stands, climate change has been cut from the Australian National Curriculum for children under 14 years of age. International studies have also indicated that didactic, science-based approaches to climate change education have not been effective in changing the environmental attitudes and behaviours of students. The *Climate Change and Me* research found that students were much more likely to engage with the topic of climate change through creative, student-driven and experiential project-based learning activities which were structured into a collective inquiry . The *Climate Change and Me* Stage 2/3 curriculum is the first climate change education resource to be developed in direct collaboration with children and young people as co-researchers into their own education. Central to the curriculum is the development of students as researchers and creative practitioners who are able to effectively respond to the challenges of climate change, and also communicate their own findings to a wider audience. The responses of teachers and students to the curriculum are also critical to the ongoing evaluation and dissemination of the *Climate Change and Me* Stage 2/3 curriculum across New South Wales.

The Collective Inquiry Process

Phase 1: What is Climate Change? (p. 3)

Introduce the unit of work as a collective inquiry into climate change and begin a research journal. Explore students' personal ideas, knowledge and experiences of climate change. Learn about the science behind climate change, as well as its social and environmental effects.

Phase 2: Connecting with Climate Change (p. 5)

Relate climate change to the everyday lives of students. Students bring in an object, household product, story, song, video, photograph, news article, or other artefact that speaks to them about climate change. Students analyse the artefacts in groups and record in their journals.

Phase 3: Imagining Climate Change

Engage students with the topic of climate change through their imaginations. Explore different climate change scenarios and future possibilities. Students create their own stories, characters, poems, or future imaginings in response to the support resources provided.

Phase 4: Becoming a Researcher (p. 7)

Explore different ways of doing climate change research. Experiment with research methods such as online research, surveys, interviews, essays, and photography. Use examples of student research in the support resources as starting points.

Phase 5: Working with Your Research (p. 13)

Bring together all the research you have done about Climate Change. Consider different meanings and themes, and how you might put your research together into an exhibition, performance, book, or other presentation.

Phase 6: Communicating Your Research (p. 15)

Plan and develop engaging and sustainable ways to present your research to the community.

Phase 7: Reflecting on Your Process (p. 17)

Evaluate and reflect on the collective inquiry process and what students have learned.

Phase 1: What is climate change?

Questions: What do I know and think about climate change? What are some of the social and environmental impacts of climate change? What is the science behind climate change?

Objectives: *Complete the CC + Me Challenge (survey) on the project website.* Introduce the unit of work as a collective inquiry into climate change. Explore the interconnections between social and environmental issues. Begin a research journal.

Activities

Science	English	Creative arts	HSIE
Explore various sources of information about climate change, including CC and Me resources. Create a mind map, drawing or diagram on the board of how climate change works. Explore the history of the earth, and how humans are changing it in the Anthropocene era. Have students create an earth-history timeline up to the Anthropocene. Create a cover page and/or mindmap about climate change in students' research journals.	Explore and discuss various books and movies associated with climate change, including CC and Me resources. Create a mind map of popular books and movies which students associate with climate change.	Discuss various artworks, plays or songs which engage with aspects of climate change, including CC and Me resources. Create a mind map about the creative arts and climate change in your research journal.	Focus on maps and the history of industrialisation, and its impacts on environments and biodiversity. Discuss the connection between social and environmental issues in the Anthropocene. Consider social justice issues, such as poor working conditions and child labour. Create a cover page and/or mind map which link social and environmental issues in your research journal.

Resources

Science	English	Creative arts	HSIE
PowerPoint for whole-class discussion (videos, artworks, discussion questions, CC + Me examples). Accompanying resource book for students.	PowerPoint for whole-class discussion (videos, artworks, discussion questions, CC + Me examples). Accompanying resource book for students.	PowerPoint for whole-class discussion (videos, artworks, discussion questions, CC + Me examples). Accompanying resource book for students.	PowerPoint for whole-class discussion (videos, artworks, discussion questions, CC + Me examples). Accompanying resource book for students.

Concepts: climate change, social, environmental, Anthropocene epoch, earth history

Assessment for Learning

Science	English	Creative arts	HSIE
Has the student started a research journal? Cover page? Mindmap? Has the student participated in discussion?	Has the student started a research journal? Cover page? Mindmap? Has the student participated in discussion?	Has the student started a research journal? Cover page? Mindmap? Has the student participated in discussion?	Has the student started a research journal? Cover page? Mindmap? Has the student participated in discussion?

Key Learning Outcomes

Science	English	Creative arts	HSIE
ST2/3-9ES Explains rapid change at the Earth's surface, using evidence provided by technology and scientific understandings	EN2/3-C thinks imaginatively, creatively, and critically about information, ideas, and arguments to respond to and compose texts	VAS 2.3/3.3 Acknowledges that artists make artworks for different reasons, and that multiple audience interpretations are possible.	GE2/3-2 explains the interactions and connections between people, places and environments HT2/3-3 Identifies change and continuity, events and actions related to world exploration

Phase 2: Connecting with Climate Change

Questions: What do artefacts from our everyday lives have to do with climate change? What social and environmental issues do students associate with these artefacts?

Objectives: Relate climate change to the everyday lives of students. Analyse an object, household product, story, song, video, photograph, environment, article, issue or event in relation to climate change. Teachers can choose to focus on artefacts, texts, songs, or images depending on KLA focus.

Activities:

Science	English	Creative Arts	HSIE
Bring in an object that says something about climate change. Share your object with the class. Analyse the object like a scientist: What is it made from? How is it made? What technologies are used? How does it impact on climate change? Students can use online research to find out. Create a mindmap about the object in your research journal.	Bring in a text such as a book, story, poem, image, song or film that says something about climate change. Interpret the text in terms of its meaning to you, and its social meaning. What does the text say about the environment, society and culture? Write a short story or poem about your artefact.	Bring in an object that says something about climate change. Share your object with the class, and describe why you chose it. Draw your object, then assemble your objects together in groups and draw them together. Then discuss in groups. How does the meaning change when you put objects together?	Bring in an object that says something about climate change. Share your object with the class. Analyse the objects from historical and geographical perspectives: map where they came from, how far they have travelled, the working conditions involved with production, energy costs, pollution. Explore social justice issues, environmental degradation, human wellbeing and interconnections.

Resources

Science	English	Creative Arts	HSIE
Objects from home, computers for online research mindmapping tools research journals, Story of Stuff video.	Research journals, texts brought in from home.	Object from home, visual journal, drawing materials, watercolour or other art materials.	Research journals, computers for online research and Google maps, the Story of Stuff youtube video.

Concepts: artefact; meaning; inquiry; cultural; personal; material; everyday.

Assessment for Learning

Science	English	Creative Arts	HSIE
Did the student bring in and share an artefact? Did the student record observations about the artefact in their journal?	Did the student bring in and share an artefact? Did the student write a story about the artefact in their journal?	Did the student bring in and share an artefact? Did the student record observations about the artefact in their journal?	Did the student bring in and share an artefact? Did the student record observations about the artefact and its history in their journal?

Key Learning Outcomes

Science	English	Creative Arts	HSIE
ST2-16P Describes how products are designed and produced ST3-16P Describes how systems are used to manufacture products, social and environmental impacts.	EN2/3-D Identifies and considers how different viewpoints of their world, including aspects of culture, are represented in texts.	VAS 2.1/3.1 Represents the qualities of experiences or things which are beautiful or interesting/ Investigates subject matter in an attempt to represent likenesses of things in the world.	GE2/3-2 Explains the interactions and connections between people, places and environments HT2/3-5 Applies skills of historical inquiry and communication.

Phase 3: Imagining Climate Change

Questions: How do we imagine the effects of climate change? How do we think it will affect our lives in the future?

Objectives: Use imaginative thinking and creative activities to connect students with the issue of climate change. Explore creative ways of doing research about climate change.

Activities

Science	English	Creative Arts	HSIE
Explore a number of different climate change scenarios which scientists have predicted for the future. Consider what life would be like to for people and animals under these different scenarios. Imagine different ways that more positive scenarios could be made possible, including scientific and technological interventions, as well as social and behavioural changes.	Discuss the use of poetry and fiction to explore the topic of climate change. Use examples from the student resource book as starting points: write a poem or acrostic about climate change; write a short story about your life ten years from now; read the *Beginning of the Change* and create a character for yourself; read and discuss 'A Coffin Made of Wood', then write your own climate change fairy tale.	Discuss the use of drawing, sculpture, video, drama and music to explore environmental issues such as climate change. Create a drawing about climate change, or a sculpture using found materials. Watch creative videos made by student researchers. Use iPads to make your own creative videos which explore a certain aspect of climate change, such as pollution, loss of biodiversity, consumption of resources.	Discuss the environmental and social aspects of climate change, such as industrialisation, overpopulation, loss of habitat, resource depletion and over consumption. Explore the effects of climate change on Pacific Island peoples, as well as animals who are losing their habitats. Create maps that show what climate change might do to different groups of people and animals. Write about what it would be like to lose your home.

Resources

Science	English	Creative Arts	HSIE
PowerPoint on climate change scenarios, youtube clips, online resources. Research journals.	Student resource books, and research journals.	PowerPoint on environmental art, drama and music. PowerPoint with creative videos by student researchers. iPads and journals.	PowerPoint on loss of habitat due to climate change, including youtube clips. Materials for creating maps. Research journals.

Concepts: creativity; imagination; scenarios; future thinking.

Assessment for Learning

Science	English	Creative Arts	HSIE
Did the student explore different climate change scenarios? Did the student imagine ways to create more positive scenarios?	Did the student engage with the poetry and stories in the student resource book? Did the student create a poem, story or other text?	Did the student engage with the work of environmental artists? Did the student make their own video, drawing, song or other artwork?	Did the student engage with human and animal habitat loss? Did the student create a map and write about losing their home?

Key Learning Outcomes

Science	English	Creative Arts	HSIE
ST2/3-3VA Develops informed attitudes about the current and future use and influence of science and technology based on reason.	EN2/3-C thinks imaginatively, creatively, and critically about information, ideas, and arguments to respond to and compose texts.	VAS 2.2 Uses the forms to suggest the qualities of subject matter. VAS 3.2 makes artworks for different audiences, assembling materials in a variety of ways.	GE2/3-1 examines features and characteristics of places and environments HT2/3-5 Applies skills of historical inquiry and communication.

Phase 4: Becoming a Researcher

Questions: What is research? What do researchers do? What is fieldwork? How do they do it?

Objectives: Understand different ways of doing research. Explore research methods which are relevant to different Key Learning Areas.

Activities

Science	English	Creative Arts	HSIE
Discuss qualitative and quantitative research methods and fieldwork. Discuss ethical issues in research. Students develop a series of interview questions in their journals about scientific understandings of climate change. Students interview their classmates about their scientific understandings of climate change. Alternatively, they can use Survey Monkey to design a survey for their class to complete.	Discuss visual methods of doing research, using the student researchers' "Visions" as examples. Students bring in their own photos or magazine clippings with images related to climate change. Write about what your photo says about climate change in you journals. Create a 'photo-voice' or visual essay about climate change.	Discuss arts-based methods of doing research. Students bring in their own photos, objects, materials, or magazine clippings related to climate change. Students work in groups or as a whole-class to create a large collage, mural, or installation using these materials. Can incorporate drawing, text, tracing, assemblage, layering, deconstruction, or other artistic methods.	Discuss qualitative and quantitative research methods and fieldwork. Discuss ethical issues in research. Students develop interview questions in their journals about cultural understandings of climate change. Students interview their classmates about cultural awareness, attitudes and actions towards climate change. Alternatively, they can use Survey Monkey to design a survey for their class to complete.

Resources

Science	English	Creative Arts	HSIE
Powerpoint on qualitative and quantitative research. Computers for designing surveys and recording device for interviews.	Powerpoint on visual methods (CC and Me resources). Printed photos and clippings from home, some drawing supplies.	Powerpoint on arts-based research (CC and Me resources). Visual journals, drawing supplies, printed photos and clippings.	Powerpoint on qualitative and quantitative research, Computers for designing surveys and recording device for interviews.

Concepts: research; method; qualitative; arts-based research; visual research; photo-voice; ethics.

Assessment for Learning

Science	English	Creative Arts	HSIE
Did the student formulate interview questions in their journal? Did the student conduct an interview or design a survey?	Did the student create a photovoice or visual essay in response to climate change?	Did the student create an artwork, collage, or other creative work in response to climate change?	Did the student formulate interview or survey questions in their journal? Did the student conduct an interview or design a survey?

Key Learning Outcomes

Science	English	Creative Arts	HSIE
ST2/3-4WS Investigates by posing questions, suggesting explanations for findings, and communicating and reflecting on processes undertaken.	EN2/3-C thinks imaginatively, creatively, and critically about information, ideas, and arguments to respond to and compose texts.	VAS 2.2 Uses the forms to suggest the qualities of subject matter. VAS 3.2 Makes artworks for different audiences, assembling materials in a variety of ways.	GE2/3-4 Acquires and communicates geographical information using geographical tools for inquiry. HT2/3-5 Applies skills of historical inquiry and communication.

Phase 5: Working With Your Research

Questions: What does your research say? What did you learn from your creativity, research and fieldwork? How can you package your research together?

Objectives: To explore and reflect on possible meanings in your research; to package your research for public communication.

Activities

Science	English	Creative Arts	HSIE
Create a PowerPoint using the video interviews the students have produced. Use "Voices from the Anthropocene" as an example. If you have survey data, you can create tables and graphs as PowerPoint slides.	Discuss what your texts say about climate change and how they relate to each other. Explore ways of bringing your photo-voices, poems and stories together into a book. Design the cover for the book and organise the texts into sections or chapters, using student resource book as an example.	Explore ways of bringing the artworks together for an exhibition. Discuss what your artworks say about climate change and how they relate to each other. Can also consider the use of the artefacts and drawings from Phase 2. Write an artist statement and title for your artworks and exhibition.	Create a PowerPoint using the video interviews the students have produced. Use "Voices from the Anthropocene" as an example. If you have survey data, you can create tables and graphs as PowerPoint slides. Students could also consider turning the interviews into a skit, or performance.

Resources

Science	English	Creative Arts	HSIE
Computers with Word, PowerPoint and Excel.	Computers with Microsoft Word template for book.	Visual journals and drawing materials, space for assemblage of murals and installations.	Computers with Word, PowerPoint and Excel, camera images.

Concepts: communication; meaning; visualisation; interpretation; multiple perspectives.

Assessment for Learning

Science	English	Creative Arts	HSIE
Did the student identify key themes in the research? Did the student visualise their findings using Excel and PowerPoint?	Did the student contribute to group discussion about the book? Did the student contribute a piece of writing or photo-voice to the book?	Did the student contribute to group discussion about the exhibition? Did the student write an artist statement in their journal?	Did the student identify key themes in the research? Did the student visualise their findings using Excel and PowerPoint?

Key Learning Outcomes

Science	English	Creative Arts	HSIE
ST 2/3-5WT Plans and implements a design process and uses a range of tools and techniques to produce solutions that address specific criteria and constraints.	EN2-3A Use effective handwriting and publishes texts using digital technologies. EN3-2A Composes, edits, and presents well-structured and coherent texts.	VAS 2.3/3.3 Acknowledges that artists make artworks for different reasons, and that multiple audience interpretations are possible.	GE2/3-2 Explains the interactions and connections between people, places and environments. . HT2/3-5 Applies skills of historical inquiry and communication.

Phase 6: Communicate your research

Questions: How will you communicate and connect your research to the community?

Objectives: To develop engaging and sustainable ways to present your research to the community and contribute to social change. Work in groups or as a whole class.

Activities

Science	English	Creative Arts	HSIE
Stage an event to present your research to the public, such as a research showcase, assembly presentation, workshop, science expo, article or website. Consider ways to showcase your research, such as installing a PowerPoint presentation in a public space.	Stage a book launch to release your book to the public. Consider the school or local library as a venue for your launch. Design a poster to promote your launch. Print copies of your book for the community to read. Have a feedback form for people to respond to your book.	Work together as a class to stage a public exhibition of the works you've produced. This can include final works as well as process works (visual journals, photos, reflections, etc.) Design a poster to promote your exhibition. Have a feedback form for people to respond to your exhibition.	Stage an event to present your research to the public, such as a research showcase, assembly presentation, skit, workshop, science expo, article or website. Consider ways to showcase and connect your research to the community, such as a website, video, skit PowerPoint slides, maps, graphs and interactive features.

Resources

Science	English	Creative Arts	HSIE
Computers for producing videos, PowerPoints and other research findings.	Computers to design poster. Printed copies of the book. Feedback forms.	Computers to design poster. Materials for hanging the exhibition. Feedback forms.	Computers for producing websites, videos, skit scripts, PowerPoints, maps, and research findings.

Concepts: change; social justice; engagement; communication; participation; community; sustainable research.

Assessment for Learning

Science	English	Creative Arts	HSIE
Did the student visualise their research for a public audience? Did the student contribute to the planning of a public event?	Did the student contribute to the book as a final product? Did the student contribute to the planning of a public event?	Did the student contribute work for the final exhibition? Did the student contribute to the planning of a public event?	Did the student visualise/perform or make accessible their research for a public audience? Did the student help to plan a public event or social change action?

Key Learning Outcomes

Science	English	Creative Arts	HSIE
ST2/3-2VA Shows a willingness to engage responsibly with local, national and global issues relevant to their lives, and to shaping sustainable futures.	EN26-B Discuss how language is used to achieve a widening range of purposes for a widening range of contexts and audiences.	VAS 2.3/3.3 Acknowledges that artists make artworks for different reasons, and that multiple audience interpretations are possible.	GE2/3-4 acquires and communicates geographical information using geographical tools for inquiry. HT2/3-5 Applies skills of historical inquiry and communication.

Phase 7: Reflect on Your Process

Questions: What have you learned through this research process? What would you do differently next time?

Aim: Evaluate and reflect on the collective inquiry process using a variety of methods.
Complete the CC + Me Challenge (survey) on the project website

Activities

Science	English	Creative Arts	HSIE
Write a reflection on your process in your journal. How did your CC + Me challenge results change? How have you increased your scientific knowledge about climate change? How did your participants respond in your interviews? What did you enjoy? What would you do differently next time?	Reflect on your process of writing about climate change, creating a photo-voice, and making a book with your classmates. What did you enjoy the most? What do you feel proud of? What would you differently? Why do you think writing and photos are important for thinking about climate change?	Reflect on your process of creating an artwork about climate change, and making an exhibition with your classmates. What did you enjoy the most? What do you feel proud of? What would you differently? Why do you think artworks are important for thinking about climate change?	Write a reflection on your process in your journal. How did your CC + Me challenge results change? How have you increased your cultural knowledge about climate change? How did your participants respond in your interviews? How much do you think other kids care about climate change? What did you enjoy? What would you do differently next time? Can research like this change how people feel about climate change?

Resources

Science	English	Creative Arts	HSIE
Research journals.	Research journals.	Visual journals.	Research journals.

Concepts: reflection; evaluation; self-assessment.

Assessment for Learning

Science	English	Creative Arts	HSIE
Did the student write a reflection about their research process? Did the student identify areas for growth and improvement? Did the student identify purpose or meaning for the activity in a broad context?	Did the student write a reflection about their research process? Did the student identify areas for growth and improvement? Did the student identify purpose or meaning for the activity in a broad context?	Did the student write a reflection about their research process? Did the student identify areas for growth and improvement? Did the student identify purpose or meaning for the activity in a broad context?	Did the student write a reflection about their research process? Did the student identify areas for their own growth and improvement? Did the student identify purpose or meaning for the activity in a broad context?

Key Learning Outcomes

Science	English	Creative Arts	HSIE
ST2/3-11LW Describes ways that science knowledge helps people understand the effect of their actions on the environment and the survival of living things.	EN3-9E Recognises, reflects on and assesses their strengths as a learner.	VAS 2.3/3.3 Acknowledges that artists make artworks for different reasons, and that multiple audience interpretations are possible.	GE2/3-2 explains the interactions and connections between people, places and environments. HT2/3-5 Applies skills of historical inquiry and communication.