The Rhythm of Life | Years 5/6 | English – with links to Science and Technology

Summary	Duration
This unit is primarily an English unit which focuses on building students' skills, understandings, values and attitudes in English. This will be achieved through the close study of a range of texts, particularly a picture book, *Mechanica*, by Lance Balchin, and communicating through speaking, listening, reading, writing, viewing and representing. It addresses Year 5 and 6 content in the Australian Curriculum: English. This unit also authentically links to the Science and Technologies curricula for Years 5 and 6 in the Australian Curriculum. It fosters in students a sense of wonder and curiosity about the world around them and our collective responsibility in caring for it. The cross-curriculum priorities of Aboriginal and Torres Strait Islander histories & cultures and sustainability, and the general capabilities of critical & creative thinking, ethical understanding, literacy and information & communication technology, are also addressed throughout the unit in the contexts of English, Science and Technology.	Sample term 10 weeks Detail: 160 minutes per week (eg 4 x 40 minute lessons)

Unit overview	Objectives
The unit draws on a range of quality texts, including a dystopian picture book for older readers, and a variety of websites, digital texts and software. Students engage with the concept of genre, developing an understanding how texts combine genres or use genre creatively to achieve their purpose. The essential question that underpins the learning in this unit is: *How can composers, including students, use genre in flexible ways to help achieve their purposes?* Other concepts such as narrative, code and convention, intertextuality and point of view are also addressed in the unit. The unit focuses on our collective responsibility to care for our planet. Through interacting with a range of quality texts, students will increase their knowledge and understanding of the absolute	**English objectives:** Students develop: ▪ skills in reading and viewing through engagement with a range of rich texts ▪ skills in writing and representing as they develop their own texts ▪ knowledge and understanding of how forms and features of texts enhance their power and apply this knowledge in the composition of their own texts. **Science objectives:** Students develop: ▪ knowledge and understanding of the natural world including living things, the environment and the Earth ▪ knowledge and understanding of the built environment including

importance of caring for our world for future generations to enjoy, and the possible dire consequences of leaving this to chance.	engineering principles, material technologies and utilisation of energy sources ▪ skills in working technologically and scientifically, including explaining how digital systems represent data, connect together to form networks and transmit data.

ACE content descriptions	Assessment overview
Year 5 English – Language › Understand that the pronunciation, spelling and meanings of words have histories and change over time (ACELA1500) › Understand that patterns of language interaction vary across social contexts and types of texts and that they help to signal social roles and relationships (ACELA1501) › Understand how to move beyond making bare assertions and take account of differing perspectives and points of view (ACELA1502) › Understand how texts vary in purpose, structure and topic as well as the degree of formality (ACELA1504) › Investigate how the organisation of texts into chapters, headings, subheadings, home pages and sub pages for online texts and according to chronology or topic can be used to predict content and assist navigation (ACELA1797) › Understand the difference between main and subordinate clauses and that a complex sentence involves at least one subordinate clause (ACELA1507) › Understand how noun groups/phrases and adjective groups/phrases can be expanded in a variety of ways to provide a fuller description of the person, place, thing or idea (ACELA1508) › Explain sequences of images in print texts and compare these to the ways hyperlinked digital texts are organised, explaining their effect on viewers' interpretations (ACELA1511) › Understand the use of vocabulary to express greater precision of meaning, and know that words can have different meanings in different contexts (ACELA1512) › Understand how to use knowledge of known words, base words, prefixes and suffixes, word origins, letter patterns and spelling generalisations to spell new words (ACELA1513) Year 5 English - Literature › Identify aspects of literary texts that convey details or information about particular social, cultural and historical contexts (ACELT1608)	*Assessment for learning* The unit begins with a pre-test: writing on the theme of 'Why we should care for our environment'. Feedback from this assessment informs teaching and learning intentions throughout the unit. Subsequent class tasks assess developing knowledge, understanding and skills for both English and Science & Technology. These tasks provide opportunities for teacher, peer and self-assessment which can guide future teaching and learning. English: ▪ Collect data re timing of events in picture book and represent in timeline ▪ Plot route of Liberty Crisp's journey ▪ Explain genre of science fiction ▪ Read self-selected science fiction or speculative fiction texts ▪ Present and discuss a steampunk image ▪ Analyse scientific language and its uses in picture book ▪ Investigate intertextuality in picture book ▪ Maintain reading log and write summary of story ▪ Write imaginative description of mechanica using figurative language ▪ Explain effectiveness of an illustration from picture book ▪ Write diary entry representing an imagined episode from Liberty Crisp's journey ▪ Give informal oral presentation on wide reading Science: ▪ Develop class database of examples of artificial intelligence ▪ Investigate artificial intelligence through role-

- Use metalanguage to describe the effects of ideas, text structures and language features on particular audiences (ACELT1795)
- Recognise that ideas in literary texts can be conveyed from different viewpoints, which can lead to different kinds of interpretations and responses (ACELT1610)
- Understand, interpret and experiment with sound devices and imagery, including simile, metaphor and personification, in narratives, shape poetry, songs, anthems and odes (ACELT1611)
- Create literary texts using realistic and fantasy settings and characters that draw on the worlds represented in texts students have experienced (ACELT1612)
- Create literary texts that experiment with structures, ideas and stylistic features of selected authors (ACELT1798)

Year 5 English - Literacy

- Show how ideas and points of view in texts are conveyed through the use of vocabulary, including idiomatic expressions, objective and subjective language, and that these can change according to context (ACELY1698)
- Use interaction skills, for example paraphrasing, questioning and interpreting non-verbal cues and choose vocabulary and vocal effects appropriate for different audiences and purposes (ACELY1796)
- Plan, rehearse and deliver presentations for defined audiences and purposes incorporating accurate and sequenced content and multimodal elements (ACELY1700)
- Identify and explain characteristic text structures and language features used in imaginative, informative and persuasive texts to meet the purpose of the text (ACELY1701)
- Navigate and read texts for specific purposes applying appropriate text processing strategies, for example predicting and confirming, monitoring meaning, skimming and scanning (ACELY1702)
- Plan, draft and publish imaginative, informative and persuasive print and multimodal texts, choosing text structures, language features, images and sound appropriate to purpose and audience (ACELY1704)
- Re-read and edit student's own and others' work using agreed criteria for text structures and language features (ACELY1705)

play
- Compile data about local species and present in a field guide
- Research and write information report about Darwin and his theory of evolution
- Research and write information report about a threatened or endangered species
- Design and conduct an experiment to demonstrate an energy source

Assessment as learning

There are ample opportunities for students to play a pro-active role in assessment throughout this unit.
In particular, the teacher guides students in using the Creating Texts strand of the Literacy Learning Progression to construct an assessment rubric for the pre-test. Students use this rubric in peer and self-assessment of the pre-test writing. They then re-use this rubric to peer and self-assess writing in the main assessment task near the end of the unit, charting the improvement they have made since the pre-test and setting the course for further development of writing.

Assessment of learning

The main 'post-test' task at the end of the unit requires students to write science fiction narratives based on their original mechanicas to revisit the topic of 'Why we should care for our environment'. The narratives must include a particular form and point of view and may include figurative language, intertextuality and illustrations, all elements of narrative writing investigated across the course of the unit. However, this 'assessment of learning' includes elements of assessment 'for' and 'as' learning because it uses peer and self-assessment in the

Year 6 English - Language › Understand the uses of objective and subjective language and bias (ACELA1517) › Understand how authors often innovate on text structures and play with language features to achieve particular aesthetic, humorous and persuasive purposes and effects (ACELA1518) › Investigate how complex sentences can be used in a variety of ways to elaborate, extend and explain ideas (ACELA1522) › Identify and explain how analytical images like figures, tables, diagrams, maps and graphs contribute to our understanding of verbal information in factual and persuasive texts (ACELA1524) › Investigate how vocabulary choices, including evaluative language can express shades of meaning, feeling and opinion (ACELA1525) › Understand how to use knowledge of known words, word origins including some Latin and Greek roots, base words, prefixes, suffixes, letter patterns and spelling generalisations to spell new words including technical words (ACELA1526) Year 6 English - Literature › Make connections between students' own experiences and those of characters and events represented in texts drawn from different historical, social and cultural contexts (ACELT1613) › Analyse and evaluate similarities and differences in texts on similar topics, themes or plots (ACELT1614) › Identify and explain how choices in language, for example modality, emphasis, repetition and metaphor, influence personal response to different texts (ACELT1615) › Identify, describe, and discuss similarities and differences between texts, including those by the same author or illustrator, and evaluate characteristics that define an author's individual style (ACELT1616) › Identify the relationship between words, sounds, imagery and language patterns in narratives and poetry such as ballads, limericks and free verse (ACELT1617) › Create literary texts that adapt or combine aspects of texts students have experienced in innovative ways (ACELT1618) › Experiment with text structures and language features and their effects in creating literary	processing of writing and requires students to reflect on their writing and improvements made since the pre-test.

texts, for example, using imagery, sentence variation, metaphor and word choice (ACELT1800)

Year 6 English - Literacy

- Participate in and contribute to discussions, clarifying and interrogating ideas, developing and supporting arguments, sharing and evaluating information, experiences and opinions (ACELY1709)
- Plan, rehearse and deliver presentations, selecting and sequencing appropriate content and multimodal elements for defined audiences and purposes, making appropriate choices for modality and emphasis (ACELY1710)
- Analyse how text structures and language features work together to meet the purpose of a text (ACELY1711)
- Select, navigate and read texts for a range of purposes, applying appropriate text processing strategies and interpreting structural features, for example table of contents, glossary, chapters, headings and subheadings (ACELY1712)
- Analyse strategies authors use to influence readers (ACELY1801)
- Plan, draft and publish imaginative, informative and persuasive texts, choosing and experimenting with text structures, language features, images and digital resources appropriate to purpose and audience (ACELY1714)
- Re-read and edit students' own and others' work using agreed criteria and explaining editing choices (ACELY1715)

Year 5 Science – Science understanding

- Living things have structural features and adaptations that help them to survive in their environment (ACSSU043)

Year 6 Science - Science understanding

- The growth and survival of living things are affected by physical conditions of their environment (ACSSU094)
- Electrical energy can be transferred and transformed in electrical circuits and can be generated from a range of sources (ACSSU097)

Year 5/6 Science - Science as a human endeavour

- Science involves testing predictions by gathering data and using evidence to develop explanations of events and phenomena and reflects historical and cultural contributions (ACSHE081)
- Scientific knowledge is used to solve problems and inform personal and community decisions (ACSHE083)

Year 5/6 Science - Science inquiry skills

- With guidance, pose clarifying questions and make predictions about scientific investigations (ACSIS231)
- Identify, plan and apply the elements of scientific investigations to answer questions and solve problems using equipment and materials safely and identifying potential risks (ACSIS086)
- Decide variables to be changed and measured in fair tests, and observe measure and record data with accuracy using digital technologies as appropriate (ACSIS087)
- Construct and use a range of representations, including tables and graphs, to represent and describe observations, patterns or relationships in data using digital technologies as appropriate (ACSIS090)
- Compare data with predictions and use as evidence in developing explanations (ACSIS218)
- Reflect on and suggest improvements to scientific investigations (ACSIS091)
- Communicate ideas, explanations and processes using scientific representations in a variety of ways, including multi-modal texts (ACSIS093)

Year 5/6 Technologies – Design and technologies

- Investigate how electrical energy can control movement, sound or light in a designed product or system (ACTDEK020)
- Investigate characteristics and properties of a range of materials, systems, components, tools and equipment and evaluate the impact of their use (ACTDEK023)
- Generate, develop and communicate design ideas and processes for audiences using appropriate technical terms and graphical representation techniques (ACTDEP025)
- Select appropriate materials, components, tools, equipment and techniques and apply safe

procedures to make designed solutions (ACTDEP026) › Develop project plans that include consideration of resources when making designed solutions individually and collaboratively (ACTDEP028) Year 5/6 Technologies – Digital technologies › Explain how student solutions and existing information systems are sustainable and meet current and future local community needs (ACTDIP021)	

ACE content descriptions	Teaching, learning and assessment	Resources
Year 5 English - Literature › Recognise that ideas in literary texts can be conveyed from different viewpoints, which can lead to different kinds of interpretations and responses (ACELT1610) Year 5 English - Literacy › Re-read and edit student's own and others' work using agreed criteria for text structures and language features (ACELY1705) Year 6 English – Literature › Analyse and evaluate similarities and differences in texts on similar topics, themes or plots (ACELT1614) Year 6 English – Literacy › Re-read and edit students' own and others' work using agreed criteria and explaining editing choices (ACELY1715)	**Pre-test: narrative writing** Talk about the purpose of a pre-test activity: to determine a starting point to measure skills and to tailor learning to address identified needs. Eg: "In this case we are measuring the English skills of Creating texts (CrT) including Spelling (SpG). However, the unit we've planned is also about science, so we want to know what you know about the topic at the outset to ensure that what we do in the unit links to what you already know and is new knowledge". Jointly construct a rubric which will be used to assess student writing samples, using the Literacy Learning Progressions (CrT 8 p. 37). Aim for a simple Likert scale, so it's quick and easy for students to use to assess their peers' writing, their own writing and identify future learning intentions. Developing the rubric should occur before students attempt the pre-test to support their task completion. In a mind map, brainstorm ideas around the central notion of 'caring for the environment'. Around these ideas, add suggestions for stories that could illustrate these ideas. Use Blog post "Why We Should Care About Our Environment", as a discussion starter. Groups present possible stories as readers' theatre. For each of these narratives, suggest different forms (eg. legend, short story, scientific report, a public information brochure, a letter to a relevant agency, news article, etc) and points of view (eg a scientist, a zookeeper, a developer, a tourist, etc). Pre-test writing task: Write a story with the underlying theme, "*Why we should care about our environment".* Choose an appropriate *form* and *point of view* for your story. After completing the story, use the rubric in peer and self-assessment to identify strengths and weaknesses in writing and identify personal goals for this unit.	Blogpost, *Why we should care about our environment*: https://bit.ly/2PLYnEp
Year 5 English – Literacy › Use interaction skills, for example paraphrasing, questioning and interpreting non-verbal cues and choose vocabulary and vocal	**Learning hook: Artificial Intelligence (AI)** Relate anecdote to show how the fiction of yesteryear has become reality today, eg. *When my grandmother was a child, her comic books were about humans landing on the moon. When I was in Year 4, this happened.* Discuss this anecdote in relation to the famous quote by William Arthur Ward, an American motivational speaker, who said, *"If you can imagine it, you can*	Motivational quote slide (image/text): https://twitter.com/tim_fargo/status/768780243595296768 -How does the image and text work together to create meaning in this

ACE content descriptions	Teaching, learning and assessment	Resources
effects appropriate for different audiences and purposes (ACELY1796) Year 6 English – Literature › Analyse and evaluate similarities and differences in texts on similar topics, themes or plots (ACELT1614) Year 6 English – Literacy › Participate in and contribute to discussions, clarifying and interrogating ideas, developing and supporting arguments, sharing and evaluating information, experiences and opinions (ACELY1709) Year 5/6 Technologies – Digital technologies › Explain how student solutions and existing information systems are sustainable and meet current and future local community needs (ACTDIP021)	*create it; if you dream it, you can become it".* https://twitter.com/tim_fargo/status/768780243595296768 Throughout history, humankind have moved forward by creating an imagined future. The pace of technological change in all human history has never been so fast as it is today. Discuss with the class the commonly held belief by futurists that the jobs that students will occupy have not yet been created (possibly not even imagined). Begin a class database of examples of technological change, and how we have improved our lives (or not!) through technological advancement. What is artificial intelligence (AI)? AI = computer technology that can do things humans can do. Peruse the *Good Morning Britain* interview of Silvia the robot, and possible future implications of *humans verses machines*. Notice what she can and cannot do. Write down a list of questions that you wish to ask Silvia. Role-play in pairs. Pretend that one of you is Silvia and respond appropriately to your partner's questions based on the interview that you watched. Swap. Reflection: class discussion of what was learned during this activity.	visual text/poster? How does it shape our feelings and actions? -Lines. Diagonal lines suggest energy, horizontal lines suggest calm. Possibly the man is currently at peace, contemplating an exciting future. -Framing. The man is framed by the bench. Is he the salient feature of the visual text? Does he attract our attention first? Does the reading path begin here? -Setting. Making sense of what is viewed. Looking to the future Ref: Callow (2016). *The Shape of Texts To Come.* Sydney: PETAA. Current examples of how AI is changing our lives: ▪ Japanese robot hotel ▪ https://bit.ly/2otZdtX (video clip) ▪ https://twitter.com/tim_fargo/status/768780243595296768 ▪ *Silvia* Hanson robot: Good morning Britain (interview): ▪ https://www.youtube.com/watch?v=kWlL4KjIP4M ▪ Einstein robot: Silvia's brother (advertisement): ▪ https://www.youtube.com/watch?v=oY2qdZ6oL20 ▪ Drone technology https://bit.ly/2Ct95hh ▪ Driverless cars (LIDAR) https://bit.ly/2Q8L1Dc

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		Introduce *audience* and *purpose* in relation to texts we have drawn on so far: eg: motivational poster, Silvia robot interview, Einstein robot advertisement, Drone news videos, LIDAR technology website.

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Year 5 English - Literature › Identify aspects of literary texts that convey details or information about particular social, cultural and historical contexts (ACELT1608) Year 6 English – Literature › Make connections between students' own experiences and those of characters and events represented in texts drawn from different historical, social and cultural contexts (ACELT1613)	**Context** Discuss the notion of context. Work towards a definition, eg. the circumstances in which an event/statement/idea occurs - and in terms of which it can be understood. In what contexts might it be appropriate to make a lot of noise? In what contexts might it not be appropriate? Look at examples of words that can have different meanings in different contexts. For example, 'set' as a noun can refer to a group of similar things in Maths, the stage set-up for a play, a part of a game of sport such as tennis; as a verb it can refer to the locating of a story in English, the way in which glue congeals or the solidifying of a liquid as in jelly. Can you think of other examples? What do we mean when we say that a statement has been taken out of context? Consider the context of communication. Any text is created in a context, or particular circumstances. For every text there is a composer, who has a purpose in composing the text, and an audience. These two parties (the composer and audience) have their own separate contexts which influence the way in which they make meaning of the text. Consider examples of texts and who might be the composer and the audience in each case, eg a text message, a phone call, an announcement at assembly, a school newsletter, a book, a film. Think about the context of the text we are studying, *Mechanica*. Who is the composer of this picture book? Who is the intended audience? How do you know? Find out three facts about Lance Balchin, the composer, through his website about *Mechanica*: https://www.mechanica.com.au How is his context different to your context as audience? Can you explain why you might read the text differently to the way he sees it?	Students keep an individual reading log in their books to reflect on the text and unit as it develops. Reading log could take the form of a 3 column table: • Time/date • Content • Comments/reflection The audience and purpose of *Mechanica*: *Mechanica* is a dystopian picture book for older children and adults. We need to stress it is fiction, and outlines one possible future, not a preferred one. At one level the composer's purpose is to entertain and engage our imaginations. However, he also seems to be warning us to take care, and beware, as our actions today may influence the future of our planet. Author website: https://www.mechanica.com.au
Year 5 English - Literacy › Navigate and read texts for specific purposes applying appropriate text processing strategies, for example	**Imaginative context and setting** After a first reading of the book, discuss the context of events *within* the text. This is different to the *real-world* context that exists outside of the text, ie Lance Balchin communicating to readers through a picture book in the early	

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predicting and confirming, monitoring meaning, skimming and scanning (ACELY1702) Year 6 English – Literacy › Select, navigate and read texts for a range of purposes, applying appropriate text processing strategies and interpreting structural features, for example table of contents, glossary, chapters, headings and subheadings (ACELY1712)	21st century. In the *imaginative* context, Balchin has invented a person living in the future, an expert with an interest in science and history who has produced a field guide about mechanica for beginners, ie people with a budding interest in mechanica, perhaps amateur scientists. He is writing a couple of centuries after the journey of Liberty Crisp in 2250, which provides most of the material for the book. How do we know that the expert writing the field guide is doing so some time after 2435? This is an inferential comprehension question. The answer is in the beginning narrative, "A Brief History", from the text and can be elicited through discussion. While much of the text is providing information about mechanica, there is a narrative happening in the text as well. This story is mainly told in the introduction, 'A Brief History', but further details are added in the pages devoted to 'species' of mechanica. The journey of Liberty Crisp is central to this narrative. Like all narratives, this one has a setting. One aspect of setting is *when* the story occurs. Clearly this one is set in the future. Why has Lance Balchin chosen to set his story in the future? Why not just set it in the reader's present-day context? What time period does the story cover? Students begin an Excel Spreadsheet showing the major events in the text, including: the years that the various Mechanica were discovered, the Human-Mechanica wars and Liberty Crisp's adventures around the globe. Draw a timeline depicting the major events in the narrative. Another aspect of setting is *where* the story occurs. On a map of the world, mark all the countries where mechanica originated. Then mark all the places we know were visited by Liberty Crisp. Can you plot a possible route for her journey as you progress through the text?	Use Excel spreadsheet to collect data re timing of main events in the text. Show the data pictorially. Time line proformas for students to use (if they wish): http://www.criticaltosuccess.com/creating-dynamic-excel-timelines-that-scroll/ Plotting the route of Liberty Crisp's journey: This activity can be completed in many ways, depending on the STEM resources available in your school. The route can be plotted on a world map in a traditional way or digitally. If the school has access to Ozobots and Ozobot pens, students could trace the journey of Liberty Crisp from the text onto a world map. Through simple coding, students can direct the Ozobot robot ball to follow her path around the world.

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Year 5 English - Literature › Recognise that ideas in literary texts can be conveyed from different viewpoints, which can lead to different kinds of interpretations and responses (ACELT1610) Year 5 English – Literacy › Identify and explain characteristic text structures and language features used in imaginative, informative and persuasive texts to meet the purpose of the text (ACELY1701) Year 6 English – Literature › Identify, describe, and discuss similarities and differences between texts, including those by the same author or illustrator, and evaluate characteristics that define an author's individual style (ACELT1616) Year 6 English – Literacy › Analyse how text structures and language features work together to meet the purpose of a text (ACELY1711)	**Science fiction genre** *Mechanica* is an example of the science fiction genre, or sci fi. A genre is simply a certain kind of text, identified by particular characteristics. What do we know about this genre? Students watch video compilation and record the science fiction movies/songs they recognise in the video compilation (8 minutes). Record titles identified on coloured strips to display in classroom. Add any additional sci fi titles that students identify. What are the characteristics of sci fi as a genre? Examples: ▪ future setting, usually (but not always) high-tech ▪ uses scientific knowledge and language in creative ways ▪ problems in this future world often relate to issues in the world today ▪ noise, colour, excitement, conflict eg: *Star Wars* ▪ calmness, galactic cooperation, happiness, problem-solving, utopian future eg: Interstellar (in parts) Note that there can be many variations within a genre. Also, genre is a very fluid concept and innovative composers are often breaking the "rules" of a genre or combining it with other genres in fascinating ways. Who is the intended audience for the science fiction texts you have identified? Discuss the possible purposes of sci-fi: ▪ preventing and inventing ▪ what if? ▪ escapism ▪ suggests ways to save the world (utopia/ dystopia) ▪ the role of intelligence and imagination ▪ if you can imagine it, you can create it ▪ change is exponential and it's hard to predict the future Students write an explanation of what is science fiction. Refer to p37 National Literacy Learning Progressions (NLLP): informative text indicators (present tense, complex noun groups, technical language). Share explanations. Peruse the layout, written text and illustrations of *Mechanica*. In what ways is *Mechanica* similar or different to other sci fi that you have read or seen? Wide reading:	Sci fi video compilation: https://www.youtube.com/watch?v=hbJrqZaB4oI Star Wars 2019 trailer: https://www.youtube.com/watch?v=5QJGb55KGOg Interstellar trailer: https://www.youtube.com/watch?v=zSWdZVtXT7E NLLP CrT 8 p. 37 Informative Texts *Mechanica*

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	Students choose a sci fi text from the school library for their own wide reading. Read this text during the course of the unit. At the end of the unit, students give a short informal presentation to the class about what they enjoyed about their sci fi text and how it was similar or different to *Mechanica*. This would be a good activity to do in the final week of the unit. Note that if the library does not have sufficient copies of appropriate sci fi stories, consider speculative fiction.	Students select a sci fi text from school library, or speculative fiction eg: *The Chronicles of Narnia*.

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Year 5 English – Literacy › Identify and explain characteristic text structures and language features used in imaginative, informative and persuasive texts to meet the purpose of the text (ACELY1701) Year 6 English – Literacy › Analyse how text structures and language features work together to meet the purpose of a text (ACELY1711)	**Sub-genre of steampunk** Introduce concept of "steampunk" and how this style influenced the author in creating the illustrations in the text. It is a sub-genre, or particular type**,** of science fiction that has an historical setting and typically features steam-powered machinery rather than the latest technology. Illustrations in text are made from junk in the steampunk style. How does this illustrative style fit with the science fiction genre? Students locate a steampunk image and tell why they chose it to the class and explain how it fits within the sub-genre. Print out illustrations for class display. Watch/read the steampunk introductory video. Discuss and write a half page summary about the sub-genre. Can you explain why Lance Balchin might have decided to use elements of the steampunk sub-genre in his illustrations?	Steampunk introductory video with text: https://www.youtube.com/watch?v=QbDvmG3uqK8 Steampunk images for students to choose from: https://bit.ly/2xthNGH Human steampunk image from Newtown Café: https://bit.ly/2xz8A0t Steampunk jewellery from Berrima markets: https://bit.ly/2I9qpX Steampunk sculptures constructed from tin cans: https://bit.ly/2NwCnAX
Year 5 English – Language › Understand that patterns of language interaction vary across social contexts and types of texts and that they help to signal social roles and relationships (ACELA1501) › Understand how texts vary in purpose, structure and topic as well as the degree of formality (ACELA1504) › Understand the difference between main and subordinate clauses and that a complex sentence involves at least one subordinate clause (ACELA1507) › Understand how noun groups/phrases and adjective groups/phrases can be expanded in a variety of ways to provide a fuller description of the person, place, thing or idea (ACELA1508)	**Scientific writing genre** Another genre which the text taps into is scientific writing, specifically the field guide. In the imaginative context in which it is created, *Mechanica* is set up as a 'field guide' for the 'beginner'. It is a kind of 'scientific' text book for those interested in finding out more about mechanica and perhaps observing those that have survived in the wild. Traditionally field guides provide details of living things (such as birds, insects, plants and mammals) and they include descriptions using scientific language, supported by illustrations. They are based on the work of biologists and naturalists working in the field, observing species in their environment and recording these observations in notebooks. In the case of *Mechanica*, the 'species' that are the subjects of scientific interest are mechanica, man-made animal-like entities, some of which have developed the capacity to breed and interbreed, producing unexpected hybrids. The field guide is based on the journals of Liberty Crisp, who undertook a famous journey through the Orient in 2050. Questions for students to answer, perhaps working in pairs:	Note how the tone of the text is authoritative because of the scientific language chosen by the composer. The *field guide* emulates scientific writing, whereas the *Brief History* is a narrative, which is interwoven throughout the remainder of the text. Images of field guides to elicit class discussion: https://bit.ly/2D8tEQB Focus question: What is a species?

ACE content descriptions	Teaching, learning and assessment	Resources
› Understand the use of vocabulary to express greater precision of meaning, and know that words can have different meanings in different contexts (ACELA1512) **Year 5 English - Literacy** › Identify and explain characteristic text structures and language features used in imaginative, informative and persuasive texts to meet the purpose of the text (ACELY1701) › Plan, draft and publish imaginative, informative and persuasive print and multimodal texts, choosing text structures, language features, images and sound appropriate to purpose and audience (ACELY1704) **Year 6 English – Language** › Understand the uses of objective and subjective language and bias (ACELA1517) › Investigate how complex sentences can be used in a variety of ways to elaborate, extend and explain ideas (ACELA1522) › Identify and explain how analytical images like figures, tables, diagrams, maps and graphs contribute to our understanding of verbal information in factual and persuasive texts (ACELA1524)	▪ Notice the subtitle on the book cover: 'a beginner's field guide'. What is a field guide? Search online for examples. ▪ Who would write a field guide? Why? ▪ Who would read or use a field guide? Why? ▪ Note that this field guide is for the 'beginner'. What does that mean? Activity for students to create individual field journals and compile into a class field guide: (While students are engaged in this activity, mostly out of class, the teacher should investigate with students in class the use of the genre of scientific writing in *Mechanica* - see below). Ask students to choose an animal or plant that they would like to observe and write a report about. It needs to be one they can find in their local environment, such as a backyard or local park or bushland, eg a type of bird, bee or other insect, a plant, a lizard, a possum or bat, etc. Identify the exact species, both the common name and the scientific name (in Latin). Use a chart with the following columns to help record observations in a notebook: ▪ Date/time of observation ▪ Locality ▪ Weather ▪ Habitat ▪ Notes on appearance, food, behaviour or any other aspect of species Take photographs and/or add drawings in the notebook. After a week of observations, record any conclusions reached or any questions still unanswered. Then transfer information from the notebook into a double-page spread for a field journal about the particular species observed. Ensure writing is concise and scientific. Include a diagram, labelling important features, and a photograph. Students could use information on the *How to make a field journal* site to	Notebook, pens and pencils, digital cameras/phones. Revising simple, compound, complex sentences to scaffold students in their report writing. Use examples from text eg: (p.2) Simple: *These damaged drones became known as "Broken Arrows"* Compound: *It is hard to believe now, but there was a time when the Earth was bountiful.* Complex: *As the planet became more polluted, many Earth species began to disappear. (from p.2)* How to make a field journal: http://cemarin.ucanr.edu/files/220523.pdf

ACE content descriptions	Teaching, learning and assessment	Resources
Year 6 English – Literacy › Analyse how text structures and language features work together to meet the purpose of a text (ACELY1711) › Plan, draft and publish imaginative, informative and persuasive texts, choosing and experimenting with text structures, language features, images and digital resources appropriate to purpose and audience (ACELY1714) Year 5 Science – Science understanding › Living things have structural features and adaptations that help them to survive in their environment (ACSSU043) Year 6 Science - Science understanding › The growth and survival of living things are affected by physical conditions of their environment (ACSSU094) Year 5/6 Science - Science inquiry skills › Identify, plan and apply the elements of scientific investigations to answer questions and solve problems using equipment and materials safely and identifying potential risks (ACSIS086) › Decide variables to be changed and measured in fair tests, and observe	guide them in making their field journal double-page spread. The double pages contributed by individual students could be compiled into a whole-class field guide for living things in the local area.	

ACE content descriptions	Teaching, learning and assessment	Resources
measure and record data with accuracy using digital technologies as appropriate (ACSIS087) › Communicate ideas, explanations and processes using scientific representations in a variety of ways, including multi-modal texts (ACSIS093)		

ACE content descriptions	Teaching, learning and assessment	Resources
Year 5 English – Language › Understand that the pronunciation, spelling and meanings of words have histories and change over time (ACELA1500) › Understand that patterns of language interaction vary across social contexts and types of texts and that they help to signal social roles and relationships (ACELA1501) › Investigate how the organisation of texts into chapters, headings, subheadings, home pages and sub pages for online texts and according to chronology or topic can be used to predict content and assist navigation (ACELA1797) › Understand how noun groups/phrases and adjective groups/phrases can be expanded in a variety of ways to provide a fuller description of the person, place, thing or idea (ACELA1508) › Understand the use of vocabulary to express greater precision of meaning, and know that words can have different meanings in different contexts (ACELA1512) › Understand how to use knowledge of known words, base words, prefixes and suffixes, word origins, letter patterns and spelling generalisations to spell new words (ACELA1513) Year 5 English - Literature › Use metalanguage to describe the effects	**Use of scientific writing genre in *Mechanica*** While students are undertaking the above activity, consider how Lance Balchin draws upon the genre of scientific writing, specifically the field guide, in *Mechanica*. Search online for images of field guides. Make a copy of one of these and use labels to draw attention to its features. What typical features of field guides are evident in *Mechanica?* Investigate the origins of scientific words. View the newsreel: *History of the English Language* (1920). Whilst viewing newsreel, make a list of words and their origin from the newsreel to share/ discuss with the group. Identify common English morphemes from list. Begin a list of new vocabulary/ scientific words from the text. Add to this list during the reading of the text. Investigate the use of scientific language in *Mechanica.* Undertake some or all of the activities on etymology, morphology, word building and noun groups in the Resources column at right. Allocate one double page from the text to pairs of students and answer these questions. It will probably be necessary for the teacher to model this approach by analysing the first double page on the Rex Draco Musca, King Dragonfly, on pp 6-7, drawing on students' contributions to answer the questions. 1. Note the common name and the 'scientific' name (in Latin) for the mechanica used as a heading. Can you see how Lance Balchin worked out an appropriate 'scientific' name? 2. Identify examples of scientific or technical vocabulary in the description of the mechanica. Explain the meaning of these words. 3. What verb tense is used in the description of the mechanica? 4. Find examples of nouns or noun groups used to identify species or their features, places of origin etc. 5. Identify any adjectives or adjectival phrases or clauses used to add detail to the description. 6. Some sentences might not be describing the mechanica, but rather adding to the narrative set up in the introduction of the book, ‘A Brief History’, about three characters: Chen Sue, Reginald P. Prescott and Liberty Crisp. Write	Why is Latin used in the scientific naming of species? The names of the creatures are in Latin, reflecting some of our English language roots. eg: Rex (Latin meaning *king*), Draco (Latin meaning *dragon*), Musca (Latin meaning *flying*). Briefly outline the history of the English language. Newsreel, *History of the English Language* (1920): http://film.britishcouncil.org/history-of-the-english-language Talk about the etymology of the English language. Identify on a map the countries from which English originated. Use dictionaries to check the origin of words such as *species, hybrid, laboratory, technology.* Discuss the idea of English as a morphonemic language: *morpho* (meaning) + *phonemic* (sound). We can use morphemes to piece together the meaning of words. We also get spelling clues from the sounds of morphemes. Demonstrate how to break common words into their morphemes (meaningful parts of words): eg. *discontinued* = *dis* (Latin prefix meaning *apart,*

ACE content descriptions	Teaching, learning and assessment	Resources
of ideas, text structures and language features on particular audiences (ACELT1795) › Recognise that ideas in literary texts can be conveyed from different viewpoints, which can lead to different kinds of interpretations and responses (ACELT1610) **Year 6 English – Language** › Understand the uses of objective and subjective language and bias (ACELA1517) › Understand how authors often innovate on text structures and play with language features to achieve particular aesthetic, humorous and persuasive purposes and effects (ACELA1518) › Identify and explain how analytical images like figures, tables, diagrams, maps and graphs contribute to our understanding of verbal information in factual and persuasive texts (ACELA1524) › Understand how to use knowledge of known words, word origins including some Latin and Greek roots, base words, prefixes, suffixes, letter patterns and spelling generalisations to spell new words including technical words (ACELA1526) **Year 6 English – Literacy** › Analyse how text structures	down one example of such a sentence. What verb tense is used when the sentence has the job of narrating? 7. How does the illustration add to the written information? Discuss the notion of nominalisation, the process of making nouns and noun groups from verbs and adjectives. Eg. instead of saying that *the wing structure is refined*, the author refers to the refinement of the wing structure (p7). Nominalisation is a common feature of texts that present abstract ideas, such as scientific writing. Can you explain why Lance Balchin might have used the genre of scientific writing, specifically the field guide, as the form for his picture book? In what ways does he appropriate scientific writing for creative purposes?	suggesting *reverse* or *opposite*) + *continue* (from Latin word meaning *persist*) + *ed* (forms adjectives, past tense) Identify as many common English morphemes as you can. Find examples of words containing these morphemes. Ref: Adoniou (2016) *Spelling It Out*, p101-110 ▪ prefixes: eg *bi, di, en/em, hemi, hex, hyper* ▪ suffixes: *-hood, -ic, -ify, -ing, -ion, -ish, -ism* ▪ base words: *andr-, anthrop-, aqua-, arch-, atmos-*. More morphological chunking of *Mechanica* words: https://bit.ly/2MR0FoG Discuss how new words are sometimes formed from existing words, eg: ▪ *phishing*: the fraudulent act of obtaining others' online passwords - derived from *fishing* and *phreaking* (another new word, meaning hacking into telecommunications systems to get free phone calls, formed from *freaking* and *phone*!). *F* sound represented by *Ph* from Greek, giving it a scientific boost. ▪ *Bluetooth*: connecting device -

ACE content descriptions	Teaching, learning and assessment	Resources
and language features work together to meet the purpose of a text (ACELY1711) › Analyse strategies authors use to influence readers (ACELY1801)		named after *C*10th King of Denmark (Bluetooth) who brought together Denmark and Norway. Sometimes new words are made from blending letters from different words (called portmanteaus), eg: ▪ sci fi (science, fiction) ▪ brunch (breakfast, lunch) ▪ chortle (chuckle, snort) ▪ modem (modulator, demodulator) ▪ mechapets (mechanical pets). The last example is a term made up by Lance Balchin to sound scientific, ie. *pseudo-science*. Can you find other examples of pseudo-scientific terms in the text? Noun groups play an important role in scientific writing. Identify noun groups in 'A Brief history' (p.2,3). In pairs, students identify/ highlight the noun groups in text. Share student responses and unpack some noun groups together (article, adjective/s, noun) eg: *the Homo-Mechanica Wars***.** Revise articles: *are, an, the.* Their role is to point to the noun.

ACE content descriptions	Teaching, learning and assessment	Resources
Year 5 English - Literature › Identify aspects of literary texts that convey details or information about particular social, cultural and historical contexts (ACELT1608) Year 6 English – Literature › Analyse and evaluate similarities and differences in texts on similar topics, themes or plots (ACELT1614) › Identify, describe, and discuss similarities and differences between texts, including those by the same author or illustrator, and evaluate characteristics that define an author's individual style (ACELT1616)	**Intertextuality** Information for the teacher: In the introduction, 'A Brief History', we learn that Liberty Crisp completed her journey in 2250 on a vessel called HMS Beagle. This detail is important because HMS Beagle was also the name of the ship which carried Charles Darwin on his epic journey around the world from 1831 to 1836. This is considered by many to be the greatest scientific journey undertaken. Just like Liberty Crisp, the young Darwin observed and recorded information about many species in field journals. Eventually these journals were published as a book, commonly referred to as *The Voyage of the Beagle* (although that particular title was not used until 1905), the equivalent of Liberty Crisp's *Mechanica Chronicles*. The field journals were the basis of another book Darwin published in 1859 called *On the Origin of Species*, in which he set out his famous theory of evolution, ie. the idea that species evolve to adapt to their changing environment over the course of many generations. Interestingly, in *Mechanica* we learn that the mechanica have developed the capacity to evolve, sometimes in ways that make them even more dangerous to humans. These kinds of links between texts are called intertextuality. Lance Balchin, the composer of *Mechanica*, has used intertextuality by indirectly referring to scientific texts like *The Voyage of the Beagle* and *On the Origin of Species*. In pairs, students undertake research to answer these questions: 1. Find a reference in the text to Charles Darwin. 2. Who was Charles Darwin? When did he live? 3. What important books did he write? 4. Explain in simple language his theory of evolution. How did the idea of 'survival of the fittest' fit into this theory? 5. What is adaptation? Can you give an example of a species that has survived by adapting to its environment? 6. In 1831, Darwin set off on an important scientific voyage. What was the name of the ship on which he travelled? What places did he visit? 7. How did the knowledge he gained on this journey help Darwin to develop the theory of evolution?	Images *The Voyage of the Beagle*: https://bit.ly/2xifwPp Virtual tour of Australian Museum to investigate evolution: https://bit.ly/2NlrWjt In *Mechanica*, research journals are drawn on to revisit the past, as outlined in *A Brief History*, pp 2-5. Discuss the role of logs, diaries help us to keep abreast of tasks and record and reflect on learning eg. Richard Branson's *The importance of "To do Lists":* https://bit.ly/2NTYQXR

ACE content descriptions	Teaching, learning and assessment	Resources
	Report back to group (ie *Think-pair-share strategy*). Write an informative text about Charles Darwin. Consider the scientific concept of adaptation. Discuss how, through evolution, humans have adjusted and transformed over time, resulting in the human race moving forward. Discuss how the various mechanica adapted and changed throughout the text and the results of their adaptation/s. In pairs/ small groups, students select one mechanica and prepare a short one minute talk on how this particular mechanica evolved and changed as result of its adaptation. Questions for group/class discussion: 1. Why was the theory of evolution an important development in human thinking? 2. What similarities can you see between the story of Liberty Crisp and the story of Charles Darwin? 3. What strange twist on the idea of evolution does Lance Balchin present in *Mechanica?* Introduce to students the concept of intertextuality. Clearly there are links between *Mechanica* and *The Voyage of the Beagle* (and the story of Charles Darwin). How does this intertextuality deepen the meaning of the text?	Text forms and features of informative texts: -cohesive devices used accurately/ to signpost sections of text eg: *first, next, and, but, for example, in conclusion, also, therefore, however* -present, timeless present tense eg: *Nicolas Baudin is famous because...* -interesting noun groups to identify people, places, things of interest. eg: *Sir Joseph Banks is a famous British botanist who sailed with Captain James Cook on his voyage of discovery to the Great South Land.* - write ideas that are relevant in addressing the specific questions asked - support points with evidence (write elaborated responses). ref: NLLP CrT 8 (p. 36, 37)

ACE content descriptions	Teaching, learning and assessment	Resources
Year 5 English – Language › Investigate how the organisation of texts into chapters, headings, subheadings, home pages and sub pages for online texts and according to chronology or topic can be used to predict content and assist navigation (ACELA1797) **Year 5 English - Literature** › Recognise that ideas in literary texts can be conveyed from different viewpoints, which can lead to different kinds of interpretations and responses (ACELT1610) **Year 5 English - Literacy** › Navigate and read texts for specific purposes applying appropriate text processing strategies, for example predicting and confirming, monitoring meaning, skimming and scanning (ACELY1702) **Year 6 English – Language** › Understand how authors often innovate on text structures and play with language features to achieve particular aesthetic, humorous and persuasive purposes and effects (ACELA1518)	**Narrative of *Mechanica*** Watch Liberty Crisp video. Whilst watching, students identify the elements of narrative including *who, what, where, when* and *why* in relation to the text. Discuss how stories are often interpreted through action, character and setting, and how these elements are combined to present a view of the world. How important are these elements in *Mechanica*? As noted above, in the section on Imaginative Context and Setting, there is a narrative that sits behind the information about mechanica that the field guide provides. Re-read 'A Brief History', p1-5. This is where most of the narrative is told. Then skim through the following pages and find further details that add to the narrative. The teacher could read some sections to the class; other sections could be read aloud in small groups or quietly by individuals. Keep a log of reading, recording pages read, what is happening in the story, and student's response to the story. Use log entries to write a brief summary of the story behind *Mechanica.* In what ways is the story of a man-made invention going horribly wrong familiar to us in the world today? View animation retelling the story of *Frankenstein*, by Mary Shelley. Do you know of any other stories that have this theme? In what ways are the creatures in *Mechanica* similar to the monster in *Frankenstein*?	In the video, we are viewing the narrative through the lens of a main character, Liberty Crisp. It is her *point of view*, retold by her in first person/past tense: https://www.youtube.com/watch?v=lNfBQtZw-E4 Note that *Mechanica* is written from the point of view of a scientist living long after Liberty Crisp. Reading logs. View and discuss this video about how human inventions sometimes go wrong: https://www.youtube.com/watch?v=0SMNYivhGsc View and discuss animation retelling story of *Frankenstein*: https://www.youtube.com/watch?v=XRppXdKDY_c

ACE content descriptions	Teaching, learning and assessment	Resources
Year 6 English – Literature › Analyse and evaluate similarities and differences in texts on similar topics, themes or plots (ACELT1614) Year 6 English – Literacy › Select, navigate and read texts for a range of purposes, applying appropriate text processing strategies and interpreting structural features, for example table of contents, glossary, chapters, headings and subheadings (ACELY1712)		
Year 5 English - Literature › Understand, interpret and experiment with sound devices and imagery, including simile, metaphor and personification, in narratives, shape poetry, songs, anthems and odes (ACELT1611) Year 6 English – Literature › Identify and explain how choices in language, for example modality, emphasis, repetition and metaphor, influence personal response to different texts (ACELT1615) › Identify the relationship between words, sounds, imagery and language patterns in narratives and poetry such as ballads, limericks and free	**Feature of narrative: Figurative language** Identify and discuss types of figurative language. Watch one or both of the explanatory videos. Pause video at key points for students to discuss/record definition of each key term eg: simile, metaphor, personification, symbolism, idiom Locate and discuss figurative language in *Mechanica* eg: "twinkle in a scientist's eye", "turn a blind eye". What is the use of figurative language in a text that mostly consists of scientific language? Students practise using figurative language in pairs. Record students' examples of figurative language for display in the classroom. In small groups, students play figurative language card game. Students explain the figurative meaning of illustrations on palm cards. Students select one of the mechanica presented in the book and write a description using figurative language. Compare these imaginative descriptions with the scientific descriptions of mechanica in the text. What differences do you notice? Peruse and discuss imaginative text indicators (NLLP p37, 38) to scaffold students in completion of imaginative descriptions.	Explanatory videos on figurative language: https://www.youtube.com/watch?v=rW4DtZGxjq0 https://www.youtube.com/watch?v=VOrcxEUw9WE Teacher-made figurative language laminated palm cards speaking game, drawing on pictures of common metaphors and similes. Figurative language websites, eg: https://bit.ly/2pnPK85 Students take a card, explain what it means and give examples. Use Speaking indicators from NLLP to peer assess student oral responses. (NLLP p12-13)

ACE content descriptions	Teaching, learning and assessment	Resources
verse (ACELT1617)		NLLP Imaginative texts indicators p37, 38

ACE content descriptions	Teaching, learning and assessment	Resources
Year 5 English – Language › Explain sequences of images in print texts and compare these to the ways hyperlinked digital texts are organised, explaining their effect on viewers' interpretations (ACELA1511) Year 6 English – Language › Identify and explain how analytical images like figures, tables, diagrams, maps and graphs contribute to our understanding of verbal information in factual and persuasive texts (ACELA1524)	**Investigating the illustrations** The illustrations featured in the *Mechanica* series of books are created in Adobe Photoshop™ from photographs of machinery and other real world objects. Each image takes up to 70 hours to create and consists of thousands of individual layers. In pairs, peruse the illustrations webpage: (https://www.mechanica.com.au/illustrations). Notice that Balchin's illustrations are not all drawn to the same scale. How would they compare if they were drawn to the same scale? Draw students' attention to the descriptive data linked to each mechanica as a basis of comparison. Find an illustration that you particularly like. Explain why you think it is so effective. Make your own drawing of it. How do Balchin's illustrations add to the meaning of the text?	Author website explaining how the illustrations were made: https://www.mechanica.com.au/illustrations The OS Mechanica webpage, provided by the author for student use and used with Photoshop, may be helpful here. This is how Lance Balchin created his mechanica. He shared this with us on his webpage. https://www.mechanica.com.au/os-mechanica-main Photoshop computer software
Year 5 English - Literature › Create literary texts using realistic and fantasy settings and characters that draw on the worlds represented in texts students have experienced (ACELT1612) Year 5 English - Literacy › Plan, draft and publish imaginative, informative and persuasive print and multimodal texts, choosing text structures, language features, images and sound appropriate to purpose and audience (ACELY1704) › Re-read and edit student's own and others' work using agreed criteria for text structures and language features	**Narrative beyond the text** Note the reference to the *Mechanica Chronicles* in the last paragraph of 'A Brief History', p5. What is a chronicle? Who might have written the *Mechanica Chronicles*? When would this text have been written? What is it about? Note that a chronicle is a factual and detailed recount of an event, but some writers have used this form to present imaginative narratives, eg *The Chronicles of Narnia*, by C. S. Lewis. Formative assessment: Divide class into pairs. For each pair, allocate a particular place and date on Liberty Crisp's journey. Each pair will compose an imaginative diary entry about an event that occurred at that particular place and time. Drawings can be added to the diary as appropriate. Use the NLLP to revise writing narrative texts (CrT8) Collate the diary entries into an electronic text, *Mechanica Chronicles*, using *OneNote.* Share with a wider audience (possibly the author - note that Lance Balchin can be contacted via his website).	A chronicle is a usually continuous historical account of events arranged in order of time without analysis or interpretation. Examples of chronicles date from Greek and Roman times, but the best-known chronicles were written or compiled in the Middle Ages and the Renaissance. These were composed in prose or verse and provide valuable information about the period they covered. Chronicles were used as sources by William Shakespeare and other playwrights. The word is from the Middle English *chronicle*, which is thought to have been ultimately derived from the

ACE content descriptions	Teaching, learning and assessment	Resources
(ACELY1705) Year 6 English – Literature › Create literary texts that adapt or combine aspects of texts students have experienced in innovative ways (ACELT1618) Year 6 English – Literacy › Plan, draft and publish imaginative, informative and persuasive texts, choosing and experimenting with text structures, language features, images and digital resources appropriate to purpose and audience (ACELY1714) › Re-read and edit students' own and others' work using agreed criteria and explaining editing choices (ACELY1715)		Greek word *chrónos*, meaning “ time.” https://www.britannica.com/art/chronicle-literature NLLP p. 35-37 Imaginative texts Record student chronicles into one cloud-based text using *Microsoft OneNote* for ease of sharing. Students place any pictures, videos, websites they used in their chronicle inside the class *OneNote* file. ttps://intheirownwrite.wordpress.com/2016/08/26/meet-the-authorillustrator-lance-balchin/

ACE content descriptions	Teaching, learning and assessment	Resources
Year 5 Science – Science understanding › Living things have structural features and adaptations that help them to survive in their environment (ACSSU043) **Year 6 Science - Science understanding** › The growth and survival of living things are affected by physical conditions of their environment (ACSSU094) **Year 5/6 Science - Science inquiry skills** › Communicate ideas, explanations and processes using scientific representations in a variety of ways, including multi-modal texts (ACSIS093) **Year 5 English – Language** › Explain sequences of images in print texts and compare these to the ways hyperlinked digital texts are organised, explaining their effect on viewers' interpretations (ACELA1511) **Year 5 English - Literacy** › Plan, draft and publish imaginative, informative and persuasive print and multimodal texts,	**Report on a threatened or endangered species** Distinguish the terms: threatened, endangered and extinct. Discuss threatened and endangered species and extinction in real life. Students share what they know about extinct creatures and why they became extinct eg: dinosaurs and the Big Bang Theory. Peruse *Thylacine* by Ron Brooks together. Discuss the visual grammar in the text that supports inferential comprehension eg: salience, demand/offer, framing and how the text and images interact to support meaning. Students read Killer Bee page silently: Interfectorum Apis, p.23. Class discuss main points during brainstorm following. Students write a summary of information presented. Compare the killer bee with the Australian native honey bee. Are there any similarities? Read articles about numbers of honey bees declining and wild bee species being threatened. Why is this happening? Why is this such an urgent problem? Why might Balchin have based his design of the Killer Bee on an animal currently under threat? Are there any other examples of mechanica profiled in the picture book that might be based on threatened or endangered species? Students research an example of a threatened or endangered species. Write down 10 interesting facts about the species. Create a simple line drawing of the animal and label with key features. Why is the animal threatened or endangered? What, if anything, is being done to save it from extinction? Students choose how to present their work to the class (eg. powerpoint presentation or other multimedia text, poster, field guide entry). Formative assessment task: Compose information report on an endangered species. Use the NLLP to revise writing informative texts (CrT8). Start a class blog to publish reports on endangered species to a wider audience.	Range of texts from school library on threatened, endangered and extinct animals eg: Brooks, R. (2011) *The Dream of the Thylacine*, Cossins, J. (2017) *A to Z of Endangered Animals*. Range of multimodal texts and webpages sourced by students on threatened, endangered and extinct animals could be used to complete this research task. Use the glossary in the back of English K-6 syllabus as an authoritative source to unpack visual grammar terms eg: reading path, salience, setting, vectors, semiotics, angle, social distance, demand and offer, gaze, colour. Read ABC article about the decline of honey bee numbers and the threat to wild bees worldwide: http://www.abc.net.au/news/2017-05-08/colony-collapse-ten-years-after-crisis-what-is-happening-to-bees/8507408 Read and discuss the Australian Geographic article about the bee problem in Australia: https://www.australiangeographic.com.au/topics/wildlife/2018/02/how-we-can-still-save-our-bees/ NLLP CrT8.

ACE content descriptions	Teaching, learning and assessment	Resources
choosing text structures, language features, images and sound appropriate to purpose and audience (ACELY1704) Year 6 English – Language › Identify and explain how analytical images like figures, tables, diagrams, maps and graphs contribute to our understanding of verbal information in factual and persuasive texts (ACELA1524) Year 6 English – Literacy › Plan, draft and publish imaginative, informative and persuasive texts, choosing and experimenting with text structures, language features, images and digital resources appropriate to purpose and audience (ACELY1714)		Alternatively, students may wish to add their reports to their class NoteBook file in MS Office.

ACE content descriptions	Teaching, learning and assessment	Resources
Year 5/6 Technologies – Design and technologies › Investigate how electrical energy can control movement, sound or light in a designed product or system (ACTDEK020) › Investigate characteristics and properties of a range of materials, systems, components, tools and equipment and evaluate the impact of their use (ACTDEK023) › Generate, develop and communicate design ideas and processes for audiences using appropriate technical terms and graphical representation techniques (ACTDEP025) › Select appropriate materials, components, tools, equipment and techniques and apply safe procedures to make designed solutions (ACTDEP026) › Develop project plans that include consideration of resources when making designed solutions individually and collaboratively (ACTDEP028)	**Designing and making original mechanica** Students design a prototype for their own mechanica based on the threatened or endangered species they researched. In the design they should indicate the types of materials that they wish to use to create their own creature. If resources are available in the school, students could use their design to create a robotic mechanica: a functional, programmable creature with moving parts. Alternatively, they could build their creature from junk that has been collected. If students have succeeded in making robotic mechanica, they could make a video of their creation and add a voiceover describing it, using appropriate concise and scientific language. Or if students have made a mechanica out of junk, they could provide photographs of it, then add a paragraph describing their creation, again using appropriate concise and scientific language. The pages produced by students could be compiled into an online field guide showing the class's original mechanica.	Schools will have a range of robotics kits and coding software programs and resources. Any type of kits and software will do to complete this task, eg. LegoWeDo 2.0 kits. Alternatively (or additionally), students may choose to construct their mechanica through design and make using a range of reverse garbage materials. Students could investigate Lance Balchin's website *OS Mechanica* for ideas about making a mechanica: https://www.mechanica.com.au/os-mechanica-main
Year 6 Science - Science understanding › Electrical energy can be transferred and transformed in electrical circuits and can be generated from a range of sources (ACSSU097) Year 5/6 Science - Science as a	**Energy sources** With a peer, locate all the energy sources mentioned in the text. Make a list and discuss new vocabulary and its meaning. Choose one energy source to learn more about eg: ▪ wind power ▪ hydroelectric power ▪ solar power Design and conduct a simple experiment that demonstrates how the energy	Science experiments: energy sources https://bit.ly/2MHnGWc https://www.youtube.com/watch?v=hB8Wv_iHrd8 https://bit.ly/2MK6EXq

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human endeavour › Science involves testing predictions by gathering data and using evidence to develop explanations of events and phenomena and reflects historical and cultural contributions (ACSHE081) Year 5/6 Science - Science inquiry skills › With guidance, pose clarifying questions and make predictions about scientific investigations (ACSIS231) › Identify, plan and apply the elements of scientific investigations to answer questions and solve problems using equipment and materials safely and identifying potential risks (ACSIS086) › Decide variables to be changed and measured in fair tests, and observe measure and record data with accuracy using digital technologies as appropriate (ACSIS087) › Compare data with predictions and use as evidence in developing explanations (ACSIS218)	source that you selected works. Share experiments with each other students.	
Year 5 English - Literature › Recognise that ideas in literary texts can be conveyed from different viewpoints, which can lead to different kinds of interpretations and responses (ACELT1610) › Create literary texts using realistic and fantasy settings and characters that draw	**Main assessment task: 'post-test'** Write an imaginative and engaging science fiction narrative based on the mechanica you have created to re-visit the topic 'Why we should care for our environment'. Remember that your mechanica was based on a threatened or endangered species. Look back over your report on this species. Are you able to include any of this information in your narrative? Perhaps the backstory about why the mechanica was created? Most science fiction is based on projections of current issues.	Student created rubrics from pre-test writing task.

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on the worlds represented in texts students have experienced (ACELT1612) › Create literary texts that experiment with structures, ideas and stylistic features of selected authors (ACELT1798) Year 5 English - Literacy › Show how ideas and points of view in texts are conveyed through the use of vocabulary, including idiomatic expressions, objective and subjective language, and that these can change according to context (ACELY1698) › Plan, draft and publish imaginative, informative and persuasive print and multimodal texts, choosing text structures, language features, images and sound appropriate to purpose and audience (ACELY1704) › Re-read and edit student's own and others' work using agreed criteria for text structures and language features (ACELY1705) Year 6 English – Literature › Create literary texts that adapt or combine aspects of texts students have experienced in innovative ways (ACELT1618) › Experiment with text structures and language features and their effects in creating literary texts, for example, using imagery, sentence variation,	Choose an appropriate form for your narrative. You might choose to write in the form of a scientific report, like a field guide (as in *Mechanica*), or another form, such as a short story, a diary, a communique from the future, a chronicle, etc. Choose an appropriate point of view for your story, such as a scientific expert, an amateur naturalist, an adventurer, a mechanica 'hunter', the mechanica itself (assuming it has developed the capacity to communicate in human language), etc. Consider using any of the following features to enhance your narrative: ▪ Intertextuality (eg. *The Voyage of the Beagle*, *Mechanica*, *Mechanica Chronicles*, the sci fi text you read for wide reading, etc) ▪ Figurative language (eg. similes, metaphors, personification, etc) ▪ Visual representation (eg. photos of your mechanica, annotated diagram, drawings, etc). Take the time to plan and process your writing. When you have completed a good draft, evaluate your writing using the criteria you developed at the start of this unit. Seek feedback through peer assessment. Make improvements, then edit for final presentation. When you have completed your narrative, write a reflection statement in answer to these questions: ▪ Explain your decision to write your narrative in a particular form. ▪ Explain your decision to write your story from a particular point of view. ▪ What features of your writing help your narrative to be engaging and effective? ▪ Compare your narrative with the report you wrote on a threatened or endangered species. What differences do you notice in structure and use of language in the two texts? How can you explain any differences?	

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metaphor and word choice (ACELT1800) Year 6 English – Literacy › Plan, draft and publish imaginative, informative and persuasive texts, choosing and experimenting with text structures, language features, images and digital resources appropriate to purpose and audience (ACELY1714) › Re-read and edit students' own and others' work using agreed criteria and explaining editing choices (ACELY1715)		
Year 5 English – Literacy › Plan, rehearse and deliver presentations for defined audiences and purposes incorporating accurate and sequenced content and multimodal elements (ACELY1700) Year 6 English – Literacy › Plan, rehearse and deliver presentations, selecting and sequencing appropriate content and multimodal elements for defined audiences and purposes, making appropriate choices for modality and emphasis (ACELY1710)	**Wrap-up** Near the end of the unit, students could present short, informal talks on the sci fi (or perhaps speculative fiction) texts they chose and read for wide reading - see Science Fiction Genre above. Reflect on learning through group/whole class discussion and individual writing: ▪ Did you enjoy the unit? Which parts did you like best? Which parts did you like least? Can you suggest any improvements for the unit? ▪ This unit included learning about two subjects: English and Science. What did you learn for English that you didn't know before? What new things did you learn for science? Have any unanswered questions arisen for either subject? ▪ The unit covered a lot of communication skills important for English and science, but especially writing. In what ways did your writing improve in this unit? In what areas does your writing still need to improve? How can you make these improvements?	Tools for reflection: Students may choose to use the indicators of the NLLP Crt 7, 8, 9 to reflect on their writing skills, where they are at currently based on the evidence provided in their post-test writing sample and where they need to focus their energy in order to move forward in their writing development. Students may also choose to represent their reflection on the unit visually using an organiser of their choice from Project Zero: https://bit.ly/1oRxDxe