(no-code)

compare the role of body in regulating and coordinating the body's response to a stimulus, and describe the operation of a

•

Elaborations

• exploring the body's responses to external stimuli (such as changes in light or temperature, or presence of danger or pathogens) or internal stimuli (such as dehydration or hunger)

• using , flow diagrams and virtual to explore and represent the between body that are necessary to coordinate a response to stimuli

• comparing the role and function of electrical impulses and hormones in the body's responses to external stimuli

• modelling how the process of regulation is monitored and adjusted by connections between the receptor, command centre and effector

• examining the effects of a disorder in a feedback , such as diabetes-induced blindness or hypothermia

• considering how understanding of feedback mechanisms has enabled the development of pharmaceuticals and other products to address issues or enhance performance, such as insulin or electrolytes in sports drinks

Students learn to:

compare the role of body systems in regulating and coordinating the body's respon and describe the operation of a negative feedback mechanism

(AC9S9U01)

General capabilities and cross-curriculum priorities

This content description connects to the following general capabilities and cross-curriculum priorities.

Analysing

• Interpret concepts and problems

Inquiring

• Identify, process and evaluate information

Elaborations

Content elaborations provide suggestions of ways to teach the content description and connect it to general capabilities and cross-curriculum priorities. Content elaborations are optional .

Inquiring

• Identify, process and evaluate information

Analysing

• Interpret concepts and problems

Inquiring

• Identify, process and evaluate information

Investigating

• Interpret data

Analysing

• Interpret concepts and problems

• Draw conclusions and provide reasons

Inquiring

• Identify, process and evaluate information

Analysing

• Interpret concepts and problems

Inquiring

• Identify, process and evaluate information

Analysing

• Interpret concepts and problems

• Draw conclusions and provide reasons

Inquiring

• Identify, process and evaluate information

Analysing

• Interpret concepts and problems

• Draw conclusions and provide reasons

Inquiring

• Identify, process and evaluate information

Related content

This content description can be taught with the following content descriptions from other learning areas.

AC9HP10M04

Snapshot – Interpret concepts and problems

Critical and Creative Thinking: Analysing: Interpret concepts and problems

Content description

AC9S9U01

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.

• identify the relevant aspects of a concept or problem, recognising gaps or missing elements necessary for understanding by using approaches and strategies suitable for the context

• identify the objective and subjective aspects of a complex concept or problem, with sensitivity to context

Snapshot – Identify, process and evaluate information

Critical and Creative Thinking: Inquiring: Identify, process and evaluate informatic

Content description

AC9S9U01

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.

• identify and clarify significant information and opinion from a range of sources, including visual information and digital sources

• evaluate the accuracy, validity and relevance of the information and opinion to the topic of study

• identify and clarify significant information and opinion from a range of sources, including visual information and digital sources

• evaluate the information selected to determine bias and reliability

Snapshot – Identify, process and evaluate information

Critical and Creative Thinking: Inquiring: Identify, process and evaluate informatic

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Snapshot – Interpret concepts and problems

Critical and Creative Thinking: Analysing: Interpret concepts and problems

Content description

AC9S9U01

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Snapshot – Identify, process and evaluate information
Critical and Creative Thinking: Inquiring: Identify, process and evaluate informati

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Snapshot – Interpret data
Digital Literacy: Investigating: Interpret data

Content description

AC9S9U01

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
• analyse and visualise data by selecting and using a range of digital tools to infer relationships and make predictions
• analyse and visualise multidimensional data by selecting and using a range of interactive tools to draw conclusions and make predictions

Snapshot – Interpret concepts and problems
Critical and Creative Thinking: Analysing: Interpret concepts and problems

Content description

AC9S9U01

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• identify the objective and subjective aspects of a complex concept or problem, with sensitivity to context

Snapshot – Draw conclusions and provide reasons
Critical and Creative Thinking: Analysing: Draw conclusions and provide reasons

Content description

AC9S9U01

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
• draw conclusions and make choices when completing tasks by connecting evidence from within and across discipline areas to provide reasons and evaluate arguments for choices made
• draw conclusions and make choices when completing tasks, using analysis of complex evidence and arguments before making recommendations

Snapshot – Identify, process and evaluate information
Critical and Creative Thinking: Inquiring: Identify, process and evaluate informati

Content description

AC9S9U01

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Snapshot – Interpret concepts and problems

Critical and Creative Thinking: Analysing: Interpret concepts and problems

Content description

AC9S9U01

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Snapshot – Identify, process and evaluate information

Critical and Creative Thinking: Inquiring: Identify, process and evaluate informatio

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Snapshot – Interpret concepts and problems

Critical and Creative Thinking: Analysing: Interpret concepts and problems

Content description

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Snapshot – Draw conclusions and provide reasons

Critical and Creative Thinking: Analysing: Draw conclusions and provide reasons

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Snapshot – Identify, process and evaluate information

Critical and Creative Thinking: Inquiring: Identify, process and evaluate informatio

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Snapshot – Interpret concepts and problems

Critical and Creative Thinking: Analysing: Interpret concepts and problems

Content description

AC9S9U01

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Snapshot – Draw conclusions and provide reasons

Critical and Creative Thinking: Analysing: Draw conclusions and provide reasons

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Snapshot – Identify, process and evaluate information

Critical and Creative Thinking: Inquiring: Identify, process and evaluate information

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AC9S9U02

describe the form and function of reproductive cells and organs in animals and plants, and analyse how the processes of sexual and asexual reproduction enable survival of the species

-

Elaborations

- examining how the male and female reproductive organ structures work collectively as a
- explaining how the forms of male and female gametes relate to their specific function
- identifying and comparing sexual and asexual reproductive strategies in plants
- exploring how sexual reproduction creates a greater rate of variation among offspring compared with asexual reproduction
- examining how the reproductive strategies of multicellular animals are related to their and the complexity of the organism
- examining how the number of offspring produced by animals is related to the amount of parental care

Students learn to:

describe the form and function of reproductive cells and organs in animals and plan how the processes of sexual and asexual reproduction enable survival of the specie

(AC9S9U02)
General capabilities and cross-curriculum priorities
This content description connects to the following general capabilities and cross-curriculum priorities.
Analysing
• Interpret concepts and problems
Inquiring
• Identify, process and evaluate information
Elaborations
Content elaborations provide suggestions of ways to teach the content description and connect it to general capabilities and cross-curriculum priorities. Content elaborations are optional .
Analysing
• Interpret concepts and problems
Inquiring
• Identify, process and evaluate information
Analysing
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Analysing
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• Interpret concepts and problems
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Inquiring
• Identify, process and evaluate information
Inquiring
• Identify, process and evaluate information
Snapshot – Interpret concepts and problems
Critical and Creative Thinking: Analysing: Interpret concepts and problems
Content description
AC9S9U02
Continuum extract
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Snapshot – Identify, process and evaluate information
Critical and Creative Thinking: Inquiring: Identify, process and evaluate informati
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AC9S9U02
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Snapshot – Interpret concepts and problems
Critical and Creative Thinking: Analysing: Interpret concepts and problems
Content description
AC9S9U02
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Snapshot – Identify, process and evaluate information
Critical and Creative Thinking: Inquiring: Identify, process and evaluate informati
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AC9S9U02
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Snapshot – Interpret concepts and problems
Critical and Creative Thinking: Analysing: Interpret concepts and problems
Content description
AC9S9U02
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Critical and Creative Thinking: Inquiring: Identify, process and evaluate informati
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Critical and Creative Thinking: Analysing: Interpret concepts and problems
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AC9S9U02
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context

Snapshot – Draw conclusions and provide reasons

Critical and Creative Thinking: Analysing: Draw conclusions and provide reasons

Content description

AC9S9U02

Continuum extract

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- draw conclusions and make choices when completing tasks by connecting evidence from within and
across discipline areas to provide reasons and evaluate arguments for choices made
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arguments before making recommendations

Snapshot – Identify, process and evaluate information

Critical and Creative Thinking: Inquiring: Identify, process and evaluate information

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Snapshot – Interpret concepts and problems

Critical and Creative Thinking: Analysing: Interpret concepts and problems

Content description

AC9S9U02

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Snapshot – Draw conclusions and provide reasons

Critical and Creative Thinking: Analysing: Draw conclusions and provide reasons

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Critical and Creative Thinking: Inquiring: Identify, process and evaluate informati

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AC9S9U03

represent the carbon cycle and examine how key processes including combustion, photosynthesis and respiration rely on interactions between Earth's spheres (the geosphere, biosphere, hydrosphere and atmosphere)

•
•

Elaborations

• identifying Earth as a , describing Earth's spheres and discussing examples of interactions between different spheres
• examining the carbon cycle using diagrams, animations or and explaining the role of photosynthesis and respiration in that cycle
• identifying the impact of combustion reactions as a result of human activity on the carbon cycle
• investigating the greenhouse effect and relating it to the role carbon dioxide plays in maintaining temperatures that support life on Earth
• conducting a field to evaluate carbon sequestration in an ecosystem, such as measuring tree biomass, deadwood, leaf litter and soil depth, and using formulas to calculate approximate carbon storage
• investigating how First Nations Australians use fire-mediated chemical reactions to facilitate energy and nutrient transfer through the practice of firestick farming
• investigating how First Nations Australians are reducing Australia's greenhouse gas emissions through the reinstatement of traditional fire management regimes
• identifying how carbon dioxide is captured and stored naturally or through the use of technologies
• calculating an individual's carbon footprint, examining the impact of human activities and suggesting strategies to reduce carbon dioxide emissions

Students learn to:

represent the carbon cycle and examine how key processes including combustion, respiration rely on interactions between Earth's spheres (the geosphere, biosphere, atmosphere)

(AC9S9U03)

General capabilities and cross-curriculum priorities

This content description connects to the following general capabilities and cross-curriculum priorities.

Analysing

• Interpret concepts and problems

Inquiring

• Identify, process and evaluate information

Systems

• All life forms, including human life, are connected through Earth's systems (geosphere, biosphere, hydrosphere and atmosphere) on which they depend for their wellbeing and survival.

Elaborations

Content elaborations provide suggestions of ways to teach the content description and connect it to general capabilities and cross-curriculum priorities. Content elaborations are optional .

Inquiring

• Identify, process and evaluate information

Systems

• All life forms, including human life, are connected through Earth's systems (geosphere, biosphere, hydrosphere and atmosphere) on which they depend for their wellbeing and survival.

Systems

• All life forms, including human life, are connected through Earth's systems (geosphere, biosphere, hydrosphere and atmosphere) on which they depend for their wellbeing and survival.

• Sustainable patterns of living require the responsible use of resources, maintenance of clean air, water and soils, and preservation or restoration of healthy environments.

Analysing

• Interpret concepts and problems

• Draw conclusions and provide reasons

Inquiring

• Identify, process and evaluate information

Systems

• Social, economic and political systems influence the sustainability of Earth's systems.

Analysing

• Interpret concepts and problems

• Draw conclusions and provide reasons

Inquiring

• Identify, process and evaluate information

Systems

• All life forms, including human life, are connected through Earth's systems (geosphere, biosphere, hydrosphere and atmosphere) on which they depend for their wellbeing and survival.

Analysing

• Interpret concepts and problems

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Inquiring

• Identify, process and evaluate information

Systems

• All life forms, including human life, are connected through Earth's systems (geosphere, biosphere, hydrosphere and atmosphere) on which they depend for their wellbeing and survival.

Culture

• First Nations Australians' ways of life reflect unique ways of being, knowing, thinking and doing.

People

• The significant and ongoing contributions of First Nations Australians and their histories and cultures are acknowledged locally, nationally and globally.

Design

• Sustainably designed products, environments and services aim to minimise the impact on or restore the quality and diversity of environmental, social and economic systems.

Engaging with cultural and linguistic diversity

• Develop multiple perspectives

Culture

• First Nations Australians' ways of life reflect unique ways of being, knowing, thinking and doing.

People

• The significant and ongoing contributions of First Nations Australians and their histories and cultures are acknowledged locally, nationally and globally.

Analysing

• Interpret concepts and problems

Inquiring

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Design

• Sustainably designed products, environments and services aim to minimise the impact on or restore the quality and diversity of environmental, social and economic systems.

Systems

• All life forms, including human life, are connected through Earth's systems (geosphere, biosphere, hydrosphere and atmosphere) on which they depend for their wellbeing and survival.

Analysing

• Interpret concepts and problems

Inquiring

• Identify, process and evaluate information

Reflecting

• Transfer knowledge

Design

• Sustainable design requires an awareness of place, past practices, research and technological developments, and balanced judgements based on projected environmental, social and economic impacts.

Snapshot – Interpret concepts and problems

Critical and Creative Thinking: Analysing: Interpret concepts and problems

Content description

AC9S9U03

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
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Snapshot – Identify, process and evaluate information

Critical and Creative Thinking: Inquiring: Identify, process and evaluate informatic

Content description

AC9S9U03

Continuum extract

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Critical and Creative Thinking: Inquiring: Identify, process and evaluate informatic

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Snapshot – Interpret concepts and problems

Critical and Creative Thinking: Analysing: Interpret concepts and problems

Content description

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Snapshot – Draw conclusions and provide reasons

Critical and Creative Thinking: Analysing: Draw conclusions and provide reasons

Content description

AC9S9U03

Continuum extract

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• draw conclusions and make choices when completing tasks by connecting evidence from within and across discipline areas to provide reasons and evaluate arguments for choices made

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Critical and Creative Thinking: Inquiring: Identify, process and evaluate informatic

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Snapshot – Interpret concepts and problems

Critical and Creative Thinking: Analysing: Interpret concepts and problems

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Critical and Creative Thinking: Inquiring: Identify, process and evaluate information

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Snapshot – Interpret concepts and problems
Critical and Creative Thinking: Analysing: Interpret concepts and problems

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Critical and Creative Thinking: Analysing: Draw conclusions and provide reasons

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Snapshot – Identify, process and evaluate information
Critical and Creative Thinking: Inquiring: Identify, process and evaluate information

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Snapshot – Develop multiple perspectives

Intercultural Understanding: Engaging with cultural and linguistic diversity: Deve
perspectives

Content description

AC9S9U03

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
• consider multiple perspectives held on unfamiliar topics, identifying commonality and difference,
and describe how perspectives may be influenced by cultural beliefs and practices
• analyse unfamiliar topics and develop respectful responses, reconciling different cultural
perspectives

Snapshot – Interpret concepts and problems

Critical and Creative Thinking: Analysing: Interpret concepts and problems

Content description

AC9S9U03

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Snapshot – Identify, process and evaluate information

Critical and Creative Thinking: Inquiring: Identify, process and evaluate informatic

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Snapshot – Interpret concepts and problems

Critical and Creative Thinking: Analysing: Interpret concepts and problems

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Critical and Creative Thinking: Inquiring: Identify, process and evaluate informatic

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Snapshot – Transfer knowledge

Critical and Creative Thinking: Reflecting: Transfer knowledge

Content description

AC9S9U03

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
• transfer knowledge and skills gained in previous experiences to both similar and different contexts, and explain reasons for decisions and choices made
• identify, plan and justify opportunities to transfer knowledge into new contexts

AC9S9U04

use wave and particle to describe energy transfer through different mediums and examine the usefulness of each for explaining phenomena

•

Elaborations

• describing the processes underlying convection and conduction of heat in terms of the particle
• modelling the transfer of sound energy as waves using slinky springs and relating to the medium through which the sound is transferred
• examining how the particle of electricity explains static electricity and electrical current and relating this to voltage, and
• discussing the wave and particle of energy transfer, including the concept of photons, and how they are useful for understanding aspects of light and other forms of electromagnetic radiation
• investigating aspects of heat transfer and conservation in the design of First Nations Australians' bedding and clothing in the various climatic regions of Australia
• investigating the impact of selection on the transfer of sound energy in First Nations Australians' traditional musical, hunting and communication instruments
• examining the forms of electromagnetic radiation that are used in different modern communication technologies and identifying any limitations
Students learn to:

use wave and particle models to describe energy transfer through different medium usefulness of each model for explaining phenomena

(AC9S9U04)

General capabilities and cross-curriculum priorities

This content description connects to the following general capabilities and cross-curriculum priorities.

Analysing

• Interpret concepts and problems

Inquiring

• Identify, process and evaluate information

Elaborations

Content elaborations provide suggestions of ways to teach the content description and connect it to general capabilities and cross-curriculum priorities. Content elaborations are optional .

Inquiring

• Identify, process and evaluate information

Analysing

• Interpret concepts and problems

Inquiring

• Identify, process and evaluate information

Analysing

• Interpret concepts and problems
Inquiring

• Identify, process and evaluate information
Analysing

• Interpret concepts and problems
Inquiring

• Identify, process and evaluate information
Reflecting

• Transfer knowledge
Engaging with cultural and linguistic diversity

• Develop multiple perspectives
Culture

• First Nations Australians' ways of life reflect unique ways of being, knowing, thinking and doing.
People

• Australia has 2 distinct First Nations Peoples; each encompasses a diversity of nations across Australia. Aboriginal Peoples are the first peoples of Australia and have occupied the Australian continent for more than 60,000 years. Torres Strait Islander Peoples are the First Nations Peoples of the Torres Strait and have occupied the region for over 4,000 years.
Engaging with cultural and linguistic diversity

• Develop multiple perspectives
Culture

• First Nations Australians' ways of life reflect unique ways of being, knowing, thinking and doing.
Analysing

• Interpret concepts and problems
• Draw conclusions and provide reasons
Inquiring

• Identify, process and evaluate information
Snapshot – Interpret concepts and problems

Critical and Creative Thinking: Analysing: Interpret concepts and problems

Content description

AC9S9U04
Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
• identify the relevant aspects of a concept or problem, recognising gaps or missing elements necessary for understanding by using approaches and strategies suitable for the context
• identify the objective and subjective aspects of a complex concept or problem, with sensitivity to context
Snapshot – Identify, process and evaluate information

Critical and Creative Thinking: Inquiring: Identify, process and evaluate informatic

Content description

AC9S9U04
Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
• identify and clarify significant information and opinion from a range of sources, including visual information and digital sources
• evaluate the accuracy, validity and relevance of the information and opinion to the topic of study
• identify and clarify significant information and opinion from a range of sources, including visual information and digital sources
• evaluate the information selected to determine bias and reliability
Snapshot – Identify, process and evaluate information

Critical and Creative Thinking: Inquiring: Identify, process and evaluate informatic

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Snapshot – Interpret concepts and problems

Critical and Creative Thinking: Analysing: Interpret concepts and problems

Content description

AC9S9U04

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Snapshot – Identify, process and evaluate information

Critical and Creative Thinking: Inquiring: Identify, process and evaluate informati

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Snapshot – Interpret concepts and problems

Critical and Creative Thinking: Analysing: Interpret concepts and problems

Content description

AC9S9U04

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Critical and Creative Thinking: Inquiring: Identify, process and evaluate informati

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Snapshot – Interpret concepts and problems

Critical and Creative Thinking: Analysing: Interpret concepts and problems

Content description

AC9S9U04

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Critical and Creative Thinking: Inquiring: Identify, process and evaluate informati

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• evaluate the accuracy, validity and relevance of the information and opinion to the topic of study

• identify and clarify significant information and opinion from a range of sources, including visual information and digital sources

• evaluate the information selected to determine bias and reliability

Snapshot – Transfer knowledge

Critical and Creative Thinking: Reflecting: Transfer knowledge

Content description

AC9S9U04

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.

• transfer knowledge and skills gained in previous experiences to both similar and different contexts, and explain reasons for decisions and choices made

• identify, plan and justify opportunities to transfer knowledge into new contexts

Snapshot – Develop multiple perspectives

Intercultural Understanding: Engaging with cultural and linguistic diversity: Deve perspectives

Content description

AC9S9U04

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.

• consider multiple perspectives held on unfamiliar topics, identifying commonality and difference, and describe how perspectives may be influenced by cultural beliefs and practices

• analyse unfamiliar topics and develop respectful responses, reconciling different cultural perspectives

Snapshot – Develop multiple perspectives

Intercultural Understanding: Engaging with cultural and linguistic diversity: Deve perspectives

Content description

AC9S9U04

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.

• consider multiple perspectives held on unfamiliar topics, identifying commonality and difference, and describe how perspectives may be influenced by cultural beliefs and practices

• analyse unfamiliar topics and develop respectful responses, reconciling different cultural

perspectives

Snapshot – Interpret concepts and problems

Critical and Creative Thinking: Analysing: Interpret concepts and problems

Content description

AC9S9U04

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
• identify the relevant aspects of a concept or problem, recognising gaps or missing elements necessary for understanding by using approaches and strategies suitable for the context
• identify the objective and subjective aspects of a complex concept or problem, with sensitivity to context

Snapshot – Draw conclusions and provide reasons

Critical and Creative Thinking: Analysing: Draw conclusions and provide reasons

Content description

AC9S9U04

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
• draw conclusions and make choices when completing tasks by connecting evidence from within and across discipline areas to provide reasons and evaluate arguments for choices made
• draw conclusions and make choices when completing tasks, using analysis of complex evidence and arguments before making recommendations

Snapshot – Identify, process and evaluate information

Critical and Creative Thinking: Inquiring: Identify, process and evaluate information

Content description

AC9S9U04

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
• identify and clarify significant information and opinion from a range of sources, including visual information and digital sources
• evaluate the accuracy, validity and relevance of the information and opinion to the topic of study
• identify and clarify significant information and opinion from a range of sources, including visual information and digital sources
• evaluate the information selected to determine bias and reliability

AC9S9U05

apply the of conservation of energy to analyse efficiency in terms of energy inputs, outputs, transfers and transformations

•

Elaborations

• explaining that the of conservation of energy explains that total energy is maintained in energy transfer and transformation in a
• explaining efficiency and recognising that in energy transfer and transformation a variety of processes can occur, so that the amount of usable energy is reduced and the is not 100% efficient
• using and critiquing such as Sankey diagrams to show energy inputs, changes and outputs in a
• investigating the efficiency of ground ovens used by First Nations Australians
• comparing the efficiency of electricity generation from coal and other sources such as nuclear, hydroelectricity, gas, solar and wind
• examining the meaning of energy star ratings given to appliances such as refrigerators and washing machines and criteria used to determine these ratings
• examining how improving efficiency in energy transfer and transformations in sporting activities such as pole vaulting or archery improves athletic performance

Students learn to:

apply the law of conservation of energy to analyse system efficiency in terms of ene outputs, transfers and transformations

(AC9S9U05)
General capabilities and cross-curriculum priorities

This content description connects to the following general capabilities and cross-curriculum priorities.

Analysing

• Interpret concepts and problems

Inquiring

• Identify, process and evaluate information

Elaborations

Content elaborations provide suggestions of ways to teach the content description and connect it to general capabilities and cross-curriculum priorities. Content elaborations are optional .

Inquiring

• Identify, process and evaluate information

Analysing

• Interpret concepts and problems

Inquiring

• Identify, process and evaluate information

Analysing

• Interpret concepts and problems

Inquiring

• Identify, process and evaluate information

Inquiring

• Identify, process and evaluate information

Culture

• First Nations Australians' ways of life reflect unique ways of being, knowing, thinking and doing.

Analysing

• Interpret concepts and problems
• Draw conclusions and provide reasons

Inquiring

• Identify, process and evaluate information

Analysing

• Interpret concepts and problems

Inquiring

• Identify, process and evaluate information

Reflecting

• Transfer knowledge

Design

• Sustainably designed products, environments and services aim to minimise the impact on or restore the quality and diversity of environmental, social and economic systems.

Analysing

• Interpret concepts and problems

Generating

• Put ideas into action

Inquiring

• Identify, process and evaluate information

Reflecting

• Transfer knowledge

Related content

This content description can be taught with the following content descriptions from other learning areas.

AC9TDE10K03

Snapshot – Interpret concepts and problems

Critical and Creative Thinking: Analysing: Interpret concepts and problems

Content description

AC9S9U05
Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
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necessary for understanding by using approaches and strategies suitable for the context
• identify the objective and subjective aspects of a complex concept or problem, with sensitivity to
context

Snapshot – Identify, process and evaluate information
Critical and Creative Thinking: Inquiring: Identify, process and evaluate informati

Content description

AC9S9U05
Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
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information and digital sources
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Critical and Creative Thinking: Inquiring: Identify, process and evaluate informati

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Snapshot – Interpret concepts and problems
Critical and Creative Thinking: Analysing: Interpret concepts and problems

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Critical and Creative Thinking: Inquiring: Identify, process and evaluate informati

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Snapshot – Interpret concepts and problems
Critical and Creative Thinking: Analysing: Interpret concepts and problems
Content description
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Critical and Creative Thinking: Inquiring: Identify, process and evaluate informati
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Critical and Creative Thinking: Inquiring: Identify, process and evaluate informati
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Snapshot – Interpret concepts and problems
Critical and Creative Thinking: Analysing: Interpret concepts and problems
Content description
AC9S9U05
Continuum extract
The following continuum extract shows the alignment of the continuum with this content.
• identify the relevant aspects of a concept or problem, recognising gaps or missing elements
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• identify the objective and subjective aspects of a complex concept or problem, with sensitivity to
context

Snapshot – Draw conclusions and provide reasons
Critical and Creative Thinking: Analysing: Draw conclusions and provide reasons
Content description
AC9S9U05
Continuum extract
The following continuum extract shows the alignment of the continuum with this content.
• draw conclusions and make choices when completing tasks by connecting evidence from within and
across discipline areas to provide reasons and evaluate arguments for choices made

• draw conclusions and make choices when completing tasks, using analysis of complex evidence and arguments before making recommendations

Snapshot – Identify, process and evaluate information

Critical and Creative Thinking: Inquiring: Identify, process and evaluate informati

Content description

AC9S9U05

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
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Snapshot – Interpret concepts and problems

Critical and Creative Thinking: Analysing: Interpret concepts and problems

Content description

AC9S9U05

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
• identify the relevant aspects of a concept or problem, recognising gaps or missing elements necessary for understanding by using approaches and strategies suitable for the context
• identify the objective and subjective aspects of a complex concept or problem, with sensitivity to context

Snapshot – Identify, process and evaluate information

Critical and Creative Thinking: Inquiring: Identify, process and evaluate informati

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• evaluate the information selected to determine bias and reliability

Snapshot – Transfer knowledge

Critical and Creative Thinking: Reflecting: Transfer knowledge

Content description

AC9S9U05

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
• transfer knowledge and skills gained in previous experiences to both similar and different contexts, and explain reasons for decisions and choices made
• identify, plan and justify opportunities to transfer knowledge into new contexts

Snapshot – Interpret concepts and problems

Critical and Creative Thinking: Analysing: Interpret concepts and problems

Content description

AC9S9U05

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
• identify the relevant aspects of a concept or problem, recognising gaps or missing elements

necessary for understanding by using approaches and strategies suitable for the context
• identify the objective and subjective aspects of a complex concept or problem, with sensitivity to context

Snapshot – Put ideas into action

Critical and Creative Thinking: Generating: Put ideas into action

Content description

AC9S9U05

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
• put ideas into action by making predictions, testing and evaluating options, and reconsidering approaches in complex or unfamiliar situations
• put ideas into action by making predictions, testing and evaluating options, proposing modifications and adapting approaches in complex or unfamiliar situations

Snapshot – Identify, process and evaluate information

Critical and Creative Thinking: Inquiring: Identify, process and evaluate informati

Content description

AC9S9U05

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
• identify and clarify significant information and opinion from a range of sources, including visual information and digital sources
• evaluate the accuracy, validity and relevance of the information and opinion to the topic of study
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• evaluate the information selected to determine bias and reliability

Snapshot – Transfer knowledge

Critical and Creative Thinking: Reflecting: Transfer knowledge

Content description

AC9S9U05

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
• transfer knowledge and skills gained in previous experiences to both similar and different contexts, and explain reasons for decisions and choices made
• identify, plan and justify opportunities to transfer knowledge into new contexts

AC9S9U06

explain how the of the atom changed following the discovery of electrons, protons and neutrons and describe how natural radioactive decay results in stable atoms

•

Elaborations

• comparing the and charge of protons, neutrons and electrons
• examining how the discovery of electrons, protons and neutrons resulted from experimental and answered questions related to and behaviours of atoms
• explaining that differences in the number of neutrons in atoms of the same element results in isotopes and that naturally occurring isotopes of some elements are unstable
• describing in simple terms how different unstable isotopes decay such as radon-222 releasing an alpha particle, iodine-131 releasing a beta particle and cobalt-60 releasing gamma radiation to form stable atoms
• defining half-life, examining the timescales of decay of different elements such as carbon-14 and uranium-238 and simulating or using digital to examine radioactive decay including half-life
• investigating how radiocarbon and other dating methods have been used to establish that First Peoples of Australia have been present on the Australian continent for more than 60,000 years
• identifying where applications of radioactivity are used in medicine and industry such as diagnosing and treating cancer and checking for faults in used in aircraft and spacecraft

• discussing how and energy are connected at all scales and energy conversion processes within atomic nuclei

Students learn to:

explain how the model of the atom changed following the discovery of electrons, pr and describe how natural radioactive decay results in stable atoms

(AC9S9U06)

General capabilities and cross-curriculum priorities

This content description connects to the following general capabilities and cross-curriculum priorities.

Analysing

• Interpret concepts and problems

Inquiring

• Identify, process and evaluate information

Elaborations

Content elaborations provide suggestions of ways to teach the content description and connect it to general capabilities and cross-curriculum priorities. Content elaborations are optional .

Inquiring

• Identify, process and evaluate information

Inquiring

• Identify, process and evaluate information

Analysing

• Interpret concepts and problems

Inquiring

• Identify, process and evaluate information

Analysing

• Interpret concepts and problems

Inquiring

• Identify, process and evaluate information

Writing

• Creating texts

Writing

• Creating texts

Engaging with cultural and linguistic diversity

• Develop multiple perspectives

Culture

• The First Peoples of Australia (Aboriginal Peoples) belong to the world's oldest continuous cultures. First Nations Australians demonstrate resilience in the maintenance, practice and revitalisation of culture despite the many historic and enduring impacts of colonisation, and continue to celebrate and share the past, present and future manifestations of their cultures.

Analysing

• Interpret concepts and problems
• Draw conclusions and provide reasons

Inquiring

• Identify, process and evaluate information

Analysing

• Interpret concepts and problems

Inquiring

• Identify, process and evaluate information

Reflecting

• Transfer knowledge

Speaking and listening

• Interacting

Resources

Work Samples

WS01 - Radioactivity

Snapshot – Interpret concepts and problems

Critical and Creative Thinking: Analysing: Interpret concepts and problems

Content description

AC9S9U06

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
• identify the relevant aspects of a concept or problem, recognising gaps or missing elements
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• identify the objective and subjective aspects of a complex concept or problem, with sensitivity to
context

Snapshot – Identify, process and evaluate information

Critical and Creative Thinking: Inquiring: Identify, process and evaluate informatic

Content description

AC9S9U06

Continuum extract

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Snapshot – Identify, process and evaluate information

Critical and Creative Thinking: Inquiring: Identify, process and evaluate informatic

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Snapshot – Interpret concepts and problems

Critical and Creative Thinking: Analysing: Interpret concepts and problems

Content description

AC9S9U06

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Snapshot – Interpret concepts and problems

Critical and Creative Thinking: Analysing: Interpret concepts and problems

Content description

AC9S9U06

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Critical and Creative Thinking: Inquiring: Identify, process and evaluate informatic

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information and digital sources

• evaluate the information selected to determine bias and reliability

Snapshot – Creating texts

Literacy: Writing: Creating texts

Content description

AC9S9U06

Learning progression extract

The following learning progression extract shows the alignment of the learning progression with this
content.

Crafting ideas

• creates informative texts that describe, explain and document (e.g. describe an artwork, document
the materials and explain why it was created)

• selects structural elements to comprehensively and accurately represent the information (e.g. a
fact sheet includes an opening statement, labelled diagrams and text boxes)

• orients the reader to the topic or concept using a definition or classification

• develops ideas with details and examples

• uses ideas derived from research
• uses written and visual supporting evidence

Text forms and features

• uses cohesive devices to link concepts across texts (e.g. uses lexical cohesion such as word associations and synonyms)
• uses cohesive devices to express cause and effect (e.g. uses text connectives such as "therefore", "subsequently")
• includes salient visual and audio features to expand on written information (e.g. creates graphs and other technical diagrams from authentic data)
• uses language to compare (e.g. "alternatively", "whereas")
• uses formatting appropriately to reference and label graphics

Vocabulary

• uses a range of learnt, technical and discipline-specific terms (e.g. "adapt", "survive")
• uses more sophisticated words to express cause and effect (e.g. "therefore", "subsequently")

Crafting ideas

• creates informative texts to explain and analyse (e.g. analyses how artists use visual conventions in artworks)
• creates texts to compare and contrast phenomena (e.g. identify the similarities and differences between species of animals)
• orients the reader clearly to the topic or concept (e.g. using a definition or classification in the opening paragraph)
• intentionally selects structural elements for effect (e.g. includes an effective conclusion that synthesises complex ideas)
• uses evidence and research including digital resources to expand upon information and elaborate concepts

Text forms and features

• varies sentence structure for effect (see Grammar)
• judiciously uses language, visual and audio features to emotionally or intellectually affect the reader
• uses more elaborate noun groups/phrases that include classifying adjectives and specific nouns (e.g. "mineral component of sedimentary rocks")
• creates cohesive flow by condensing previous information into a summarising noun (e.g. "A series of tumultuous events culminated in the outbreak of WWI - modern history's turning point.")
• uses passive voice and nominalisation to write succinctly (e.g. "the results were analysed") (see Grammar)

Vocabulary

• uses discipline-specific terminology to provide accurate and explicit information (e.g. "discipline metalanguage")
• uses a range of synonyms for frequently occurring words, in a longer text (e.g. "repair", "fix", "remedy")
• uses vocabulary to indicate and describe relationships (e.g. "additionally", "similarly")

Crafting ideas

• creates sustained, informative texts that precisely explain, analyse and evaluate concepts or abstract entities
• uses structural features flexibly to organise ideas strategically (e.g. includes a defined, cogent conclusion or summation)
• creates texts with forms and features combined strategically for purpose (e.g. describes a historical event from the perspective of a secondary source)
• uses evidence and references
• creates succinct short-answer explanatory texts as well as complex, multi-staged extended texts

Text forms and features

• maintains tone appropriate to the audience
• uses extended noun groups/phrases including adjectival phrases (e.g. "a sturdy construction with modern design features") (see Grammar)

Vocabulary

• uses complex abstractions (e.g. "economic", "sociocultural")

Snapshot – Creating texts

Literacy: Writing: Creating texts

Content description

AC9S9U06

Learning progression extract

The following learning progression extract shows the alignment of the learning progression with this content.

Crafting ideas

• creates informative texts that describe, explain and document (e.g. describe an artwork, document the materials and explain why it was created)

• selects structural elements to comprehensively and accurately represent the information (e.g. a fact sheet includes an opening statement, labelled diagrams and text boxes)

• orients the reader to the topic or concept using a definition or classification

• develops ideas with details and examples

• uses ideas derived from research

• uses written and visual supporting evidence

Text forms and features

• uses cohesive devices to link concepts across texts (e.g. uses lexical cohesion such as word associations and synonyms)

• uses cohesive devices to express cause and effect (e.g. uses text connectives such as "therefore", "subsequently")

• includes salient visual and audio features to expand on written information (e.g. creates graphs and other technical diagrams from authentic data)

• uses language to compare (e.g. "alternatively", "whereas")

• uses formatting appropriately to reference and label graphics

Vocabulary

• uses a range of learnt, technical and discipline-specific terms (e.g. "adapt", "survive")

• uses more sophisticated words to express cause and effect (e.g. "therefore", "subsequently")

Crafting ideas

• creates informative texts to explain and analyse (e.g. analyses how artists use visual conventions in artworks)

• creates texts to compare and contrast phenomena (e.g. identify the similarities and differences between species of animals)

• orients the reader clearly to the topic or concept (e.g. using a definition or classification in the opening paragraph)

• intentionally selects structural elements for effect (e.g. includes an effective conclusion that synthesises complex ideas)

• uses evidence and research including digital resources to expand upon information and elaborate concepts

Text forms and features

• varies sentence structure for effect (see Grammar)

• judiciously uses language, visual and audio features to emotionally or intellectually affect the reader

• uses more elaborate noun groups/phrases that include classifying adjectives and specific nouns (e.g. "mineral component of sedimentary rocks")

• creates cohesive flow by condensing previous information into a summarising noun (e.g. "A series of tumultuous events culminated in the outbreak of WWI - modern history's turning point.")

• uses passive voice and nominalisation to write succinctly (e.g. "the results were analysed") (see Grammar)

Vocabulary

• uses discipline-specific terminology to provide accurate and explicit information (e.g. "discipline metalanguage")

• uses a range of synonyms for frequently occurring words, in a longer text (e.g. "repair", "fix", "remedy")

• uses vocabulary to indicate and describe relationships (e.g. "additionally", "similarly")

Crafting ideas

• creates sustained, informative texts that precisely explain, analyse and evaluate concepts or abstract entities
• uses structural features flexibly to organise ideas strategically (e.g. includes a defined, cogent conclusion or summation)
• creates texts with forms and features combined strategically for purpose (e.g. describes a historical event from the perspective of a secondary source)
• uses evidence and references
• creates succinct short-answer explanatory texts as well as complex, multi-staged extended texts

Text forms and features

• maintains tone appropriate to the audience
• uses extended noun groups/phrases including adjectival phrases (e.g. "a sturdy construction with modern design features") (see Grammar)

Vocabulary

• uses complex abstractions (e.g. "economic", "sociocultural")

Snapshot – Develop multiple perspectives

Intercultural Understanding: Engaging with cultural and linguistic diversity: Deve perspectives

Content description

AC9S9U06

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
• consider multiple perspectives held on unfamiliar topics, identifying commonality and difference, and describe how perspectives may be influenced by cultural beliefs and practices
• analyse unfamiliar topics and develop respectful responses, reconciling different cultural perspectives

Snapshot – Interpret concepts and problems

Critical and Creative Thinking: Analysing: Interpret concepts and problems

Content description

AC9S9U06

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
• identify the relevant aspects of a concept or problem, recognising gaps or missing elements necessary for understanding by using approaches and strategies suitable for the context
• identify the objective and subjective aspects of a complex concept or problem, with sensitivity to context

Snapshot – Draw conclusions and provide reasons

Critical and Creative Thinking: Analysing: Draw conclusions and provide reasons

Content description

AC9S9U06

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
• draw conclusions and make choices when completing tasks by connecting evidence from within and across discipline areas to provide reasons and evaluate arguments for choices made
• draw conclusions and make choices when completing tasks, using analysis of complex evidence and arguments before making recommendations

Snapshot – Identify, process and evaluate information

Critical and Creative Thinking: Inquiring: Identify, process and evaluate informatic

Content description

AC9S9U06

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.

• identify and clarify significant information and opinion from a range of sources, including visual information and digital sources
• evaluate the accuracy, validity and relevance of the information and opinion to the topic of study
• identify and clarify significant information and opinion from a range of sources, including visual information and digital sources
• evaluate the information selected to determine bias and reliability

Snapshot – Interpret concepts and problems

Critical and Creative Thinking: Analysing: Interpret concepts and problems

Content description

AC9S9U06

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
• identify the relevant aspects of a concept or problem, recognising gaps or missing elements necessary for understanding by using approaches and strategies suitable for the context
• identify the objective and subjective aspects of a complex concept or problem, with sensitivity to context

Snapshot – Identify, process and evaluate information

Critical and Creative Thinking: Inquiring: Identify, process and evaluate informatie

Content description

AC9S9U06

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The following continuum extract shows the alignment of the continuum with this content.
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• evaluate the accuracy, validity and relevance of the information and opinion to the topic of study
• identify and clarify significant information and opinion from a range of sources, including visual information and digital sources
• evaluate the information selected to determine bias and reliability

Snapshot – Transfer knowledge

Critical and Creative Thinking: Reflecting: Transfer knowledge

Content description

AC9S9U06

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
• transfer knowledge and skills gained in previous experiences to both similar and different contexts, and explain reasons for decisions and choices made
• identify, plan and justify opportunities to transfer knowledge into new contexts

Snapshot – Interacting

Literacy: Speaking and listening: Interacting

Content description

AC9S9U06

Learning progression extract

The following learning progression extract shows the alignment of the learning progression with this content.
• interacts within school context or the broader community, adjusting language and responses to suit purpose and audience
• synthesises ideas from group discussion into a common theme or hypothesis
• poses problems, hypothesises and formulates questions about abstract ideas in group situations
• restates different views and makes suggestions to negotiate agreement
• poses questions to clarify assumptions made by the speaker
• questions others to evaluate accuracy of thinking or problem-solving processes
• uses language to align the listener with personal position (e.g. "of course", "as you can imagine", "obviously")

- interacts strategically and confidently with a broad range of interactional partners
- gives an extended explanation and evaluation of a complex concept, issue or process
- justifies a personal stance, after analysis of arguments on a particular issue, using evidence and elaboration in a group situation
- uses language strategically to subtly align others to own perspective as appropriate to audience and purpose

Resource – WS01 - Radioactivity

By the end of Year 9 students explain how body systems provide a coordinated response to stimuli. They describe how the processes of sexual and asexual reproduction enable survival of the species. They explain how interactions within and between Earth's spheres affect the carbon cycle. They analyse energy conservation in simple systems and apply wave and particle models to describe energy transfer. They explain observable chemical processes in terms of changes in atomic structure, atomic rearrangement and mass. Students explain the role of publication and peer review in the development of scientific knowledge and explain the relationship between science, technologies and engineering. They analyse the different ways in which science and society are interconnected.

Students plan and conduct safe, reproducible investigations to test or identify relationships and models. They describe how they have addressed any ethical and intercultural considerations when generating or using primary and secondary data. They select and use equipment to generate and record replicable data with precision. They select and construct appropriate representations to organise, process and summarise data and information. They analyse and connect data and information to identify and explain patterns, trends, relationships and anomalies. They analyse the impact of assumptions and sources of error in methods and evaluate the validity of conclusions and claims. They construct logical arguments based on evidence to support conclusions and evaluate claims. They select and use content, language and text features effectively to achieve their purpose when communicating their ideas, findings and arguments to specific audiences.

AC9S9U06

explain how the model of the atom changed following the discovery of electrons, protons and neutrons and describe how natural radioactive decay results in stable atoms

AC9S9I08

write and create texts to communicate ideas, findings and arguments effectively for identified purposes and audiences, including selection of appropriate content, language and text features, using digital tools as appropriate

AC9S9U07

the rearrangement of atoms in chemical reactions using a range of , including word and simple balanced chemical equations, and use these to demonstrate the of conservation of

•

Elaborations

- identifying reactants and products in chemical reactions
- using and to show the rearrangement of atoms in chemical reactions
- investigating chemical reactions in closed and open and relating obtained to the of conservation of
- writing symbolic equations that are easy to balance and explaining, using the of conservation of , and atoms, the rationale for balancing chemical equations
- investigating why most elements are not found in their elemental state and processes which are used to obtain the element
- predicting how ideas of green chemistry such as minimising the amount of unusable waste products, energy use and using more environmentally friendly chemical processes will affect the

Students learn to:

model the rearrangement of atoms in chemical reactions using a range of represent word and simple balanced chemical equations, and use these to demonstrate the la mass

(AC9S9U07)
General capabilities and cross-curriculum priorities

This content description connects to the following general capabilities and cross-curriculum priorities.

Analysing

• Interpret concepts and problems

Inquiring

• Identify, process and evaluate information

Elaborations

Content elaborations provide suggestions of ways to teach the content description and connect it to general capabilities and cross-curriculum priorities. Content elaborations are optional .

Inquiring

• Identify, process and evaluate information

Inquiring

• Identify, process and evaluate information

Analysing

• Draw conclusions and provide reasons

Inquiring

• Identify, process and evaluate information

Analysing

• Interpret concepts and problems

Inquiring

• Identify, process and evaluate information

Analysing

• Interpret concepts and problems

Inquiring

• Identify, process and evaluate information

Analysing

• Interpret concepts and problems

Inquiring

• Identify, process and evaluate information

Design

• Sustainably designed products, environments and services aim to minimise the impact on or restore the quality and diversity of environmental, social and economic systems.

Resources

Work Samples

WS01 - Radioactivity

Snapshot – Interpret concepts and problems

Critical and Creative Thinking: Analysing: Interpret concepts and problems

Content description

AC9S9U07

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.

• identify the relevant aspects of a concept or problem, recognising gaps or missing elements necessary for understanding by using approaches and strategies suitable for the context

• identify the objective and subjective aspects of a complex concept or problem, with sensitivity to context

Snapshot – Identify, process and evaluate information

Critical and Creative Thinking: Inquiring: Identify, process and evaluate informatio

Content description

AC9S9U07

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
• identify and clarify significant information and opinion from a range of sources, including visual information and digital sources
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Snapshot – Identify, process and evaluate information

Critical and Creative Thinking: Inquiring: Identify, process and evaluate informati

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Snapshot – Identify, process and evaluate information

Critical and Creative Thinking: Inquiring: Identify, process and evaluate informati

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Snapshot – Draw conclusions and provide reasons

Critical and Creative Thinking: Analysing: Draw conclusions and provide reasons

Content description

AC9S9U07

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
• draw conclusions and make choices when completing tasks by connecting evidence from within and across discipline areas to provide reasons and evaluate arguments for choices made
• draw conclusions and make choices when completing tasks, using analysis of complex evidence and arguments before making recommendations

Snapshot – Identify, process and evaluate information

Critical and Creative Thinking: Inquiring: Identify, process and evaluate informati

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Snapshot – Interpret concepts and problems

Critical and Creative Thinking: Analysing: Interpret concepts and problems

Content description

AC9S9U07

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Snapshot – Identify, process and evaluate information

Critical and Creative Thinking: Inquiring: Identify, process and evaluate informati

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Snapshot – Interpret concepts and problems

Critical and Creative Thinking: Analysing: Interpret concepts and problems

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Critical and Creative Thinking: Inquiring: Identify, process and evaluate informati

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Snapshot – Interpret concepts and problems

Critical and Creative Thinking: Analysing: Interpret concepts and problems

Content description

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Critical and Creative Thinking: Inquiring: Identify, process and evaluate information

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• identify and clarify significant information and opinion from a range of sources, including visual
information and digital sources
• evaluate the information selected to determine bias and reliability

AC9S9H01

explain■how scientific knowledge is validated and refined, including the role of publication and peer review

•

•

Elaborations

• investigating the process of publishing a paper in a scientific journal such as Science , which
receives about 12,000 submissions per year, and considering how editors evaluate submitted papers
• investigating how the publication of and findings related to the reintroduction of First Nations
Australians' traditional fire regimes has informed more effective fire-reduction strategies and
policies
• exploring why the work of Professor Barry Marshall and Dr Robin Warren related to the cause of
peptic ulcers was first rejected for publication then later validated
• examining the scientific consensus supporting global warming
• researching how JJ Thomson's discovery of the electron, Robert Millikan's oil drop experiment, and
Ernest Rutherford's gold foil experiment provide consistency of for the particle of electricity
• examining how Marie and Pierre Curie's discovery of new elements was validated
Students learn to:

explain■how scientific knowledge is validated and refined, including the role of pub

peer review

(AC9S9H01)
General capabilities and cross-curriculum priorities

This content description connects to the following general capabilities and cross-curriculum
priorities.
Analysing

• Interpret concepts and problems
Inquiring

• Identify, process and evaluate information
Reading and viewing

• Understanding texts
Elaborations

Content elaborations provide suggestions of ways to teach the content description and connect it to
general capabilities and cross-curriculum priorities. Content elaborations are optional .
Inquiring

• Identify, process and evaluate information
Engaging with cultural and linguistic diversity

• Develop multiple perspectives
Culture

• First Nations Australians' ways of life reflect unique ways of being, knowing, thinking and doing.

Country/Place

• The First Peoples of Australia are the Traditional Owners of Country/Place, protected in Australian Law by the Native Title Act 1993 which recognises pre-existing sovereignty, continuing■systems of law and customs, and connection to Country/Place. This recognised legal right provides for economic sustainability and a voice into the development■and management of Country/Place.

People

• Australia has 2 distinct First Nations Peoples; each encompasses a diversity of nations across Australia. Aboriginal Peoples are the first peoples of Australia and have occupied the Australian continent for more than 60,000 years. Torres Strait Islander Peoples are the First Nations Peoples of the Torres Strait and have occupied the region for over 4,000 years.

Analysing

• Interpret concepts and problems
• Draw conclusions and provide reasons

Inquiring

• Identify, process and evaluate information

Inquiring

• Identify, process and evaluate information

Reading and viewing

• Understanding texts

Analysing

• Interpret concepts and problems
• Draw conclusions and provide reasons

Inquiring

• Identify, process and evaluate information

Reading and viewing

• Understanding texts

Inquiring

• Identify, process and evaluate information

Snapshot – Interpret concepts and problems

Critical and Creative Thinking: Analysing: Interpret concepts and problems

Content description

AC9S9H01

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
• identify the relevant aspects of a concept or problem, recognising gaps or missing elements necessary for understanding by using approaches and strategies suitable for the context
• identify the objective and subjective aspects of a complex concept or problem, with sensitivity to context

Snapshot – Identify, process and evaluate information

Critical and Creative Thinking: Inquiring: Identify, process and evaluate informatic

Content description

AC9S9H01

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
• identify and clarify significant information and opinion from a range of sources, including visual information and digital sources
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• evaluate the information selected to determine bias and reliability

Snapshot – Understanding texts

Literacy: Reading and viewing: Understanding texts

Content description

AC9S9H01

Learning progression extract

The following learning progression extract shows the alignment of the learning progression with this content.

Comprehension

• reads and views complex texts (see Text complexity)
• identifies the main themes or concepts in complex texts by synthesising key ideas or information
• summarises the text, identifying key details only
• draws inferences, synthesising clues and evidence across a text
• builds meaning by actively linking ideas from a number of texts or a range of digital sources
• distils information from a number of texts according to task and purpose (e.g. uses graphic organisers)
• identifies different interpretations of the text citing evidence from a text
• evaluates language features for relevance to purpose and audience
• analyses texts that have more than one purpose and explains how parts of the text support a particular purpose
• analyses the use of language appropriate to different types of texts (e.g. compare the use of pun in imaginative and persuasive texts)
• identifies techniques used to obscure author's purpose (e.g. inclusion or omission of content)

Processes

• uses processes such as predicting, confirming predictions, monitoring, and connecting relevant elements of the text to build or repair meaning
• uses knowledge of a broader range of cohesive devices to track meaning (e.g. word associations) (see Grammar)
• selects reading or viewing strategies appropriate to reading purpose (e.g. scans text for evidence)
• judiciously selects texts for learning area tasks and purposes

Vocabulary

• identifies language used to create tone or atmosphere
• analyses language and visual features in texts using metalanguage (e.g. cohesion, interpretation, figurative)
• applies knowledge of base words and word origins to understand the meaning of unfamiliar, discipline-specific words
• uses a range of context and grammatical cues to understand unfamiliar words
• interprets complex figurative language (e.g. euphemisms, hyperbole)

Comprehension

• reads and views complex or some highly complex texts (see Text complexity)
• interprets abstract concepts integrating complex ideas
• analyses how language features are used to support the point of view in a text (e.g. the strategic use of images such as a cartoon in an editorial)
• draws inferences using evidence from the text and discounting possible inferences that are not supported by the text
• applies and articulates criteria to evaluate the language structures and features for relevance to purpose and audience
• evaluates the reasoning and evidence in a persuasive text
• explains how context (e.g. time, place, situation) influences interpretations of a text
• analyses the author's perspectives in complex or some highly complex texts
• analyses the techniques authors use to position readers
• recognises when ideas or evidence have been omitted from a text to position the reader

Processes

• automatically integrates a range of processes such as predicting, confirming predictions, monitoring and connecting relevant elements of the text, to build meaning
• describes how sophisticated cohesive devices establish patterns of meaning (e.g. "class" – "subclass")
• navigates extended texts including complex digital texts

Vocabulary

• demonstrates an understanding of nuances and subtleties in words of similar meaning (e.g. "frustrated", "discouraged", "baffled")

• verifies interpretations of unfamiliar words using grammatical and contextual cues

Comprehension

• reads and views highly complex texts (see Text complexity)

• interprets symbolism in texts, providing evidence to justify interpretation

• judiciously selects and synthesises evidence from multiple texts to support ideas and arguments

• analyses the credibility and validity of primary and secondary sources

• evaluates the use of devices such as analogy, irony, rhetoric and satire, and how they contribute to an author's individual style

• analyses the cumulative impact of use of language features and vocabulary across texts

• explains assumptions, beliefs and implicit values in texts (e.g. "economic growth is always desirable")

• evaluates the social, moral and ethical positions taken in texts

Processes

• strategically adjusts the processes of reading and viewing to build meaning according to the demands of tasks and texts

• identifies subtle contradictions and inconsistencies in texts

Vocabulary

• interprets complex, formal and impersonal language in academic texts

• uses lexical cues to interpret unfamiliar vocabulary

• demonstrates self-reliance in exploration and application of word learning strategies

Snapshot – Identify, process and evaluate information

Critical and Creative Thinking: Inquiring: Identify, process and evaluate informatic

Content description

AC9S9H01

investigating the process of publishing a paper in a scientific journal such as Science , which receives about 12,000 submissions per year, and considering how editors evaluate submitted papers

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The following continuum extract shows the alignment of the continuum with this content.

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• evaluate the information selected to determine bias and reliability

Snapshot – Develop multiple perspectives

Intercultural Understanding: Engaging with cultural and linguistic diversity: Deve perspectives

Content description

AC9S9H01

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.

• consider multiple perspectives held on unfamiliar topics, identifying commonality and difference, and describe how perspectives may be influenced by cultural beliefs and practices

• analyse unfamiliar topics and develop respectful responses, reconciling different cultural perspectives

Snapshot – Interpret concepts and problems

Critical and Creative Thinking: Analysing: Interpret concepts and problems

Content description

AC9S9H01

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.

• identify the relevant aspects of a concept or problem, recognising gaps or missing elements necessary for understanding by using approaches and strategies suitable for the context

• identify the objective and subjective aspects of a complex concept or problem, with sensitivity to context

Snapshot – Draw conclusions and provide reasons

Critical and Creative Thinking: Analysing: Draw conclusions and provide reasons

Content description

AC9S9H01

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.

• draw conclusions and make choices when completing tasks by connecting evidence from within and across discipline areas to provide reasons and evaluate arguments for choices made

• draw conclusions and make choices when completing tasks, using analysis of complex evidence and arguments before making recommendations

Snapshot – Identify, process and evaluate information

Critical and Creative Thinking: Inquiring: Identify, process and evaluate information

Content description

AC9S9H01

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Snapshot – Identify, process and evaluate information

Critical and Creative Thinking: Inquiring: Identify, process and evaluate information

Content description

AC9S9H01

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• evaluate the information selected to determine bias and reliability

Snapshot – Understanding texts

Literacy: Reading and viewing: Understanding texts

Content description

AC9S9H01

Learning progression extract

The following learning progression extract shows the alignment of the learning progression with this content.

Comprehension

• reads and views complex texts (see Text complexity)

• identifies the main themes or concepts in complex texts by synthesising key ideas or information

• summarises the text, identifying key details only

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• builds meaning by actively linking ideas from a number of texts or a range of digital sources

• distils information from a number of texts according to task and purpose (e.g. uses graphic

organisers)
• identifies different interpretations of the text citing evidence from a text
• evaluates language features for relevance to purpose and audience
• analyses texts that have more than one purpose and explains how parts of the text support a particular purpose
• analyses the use of language appropriate to different types of texts (e.g. compare the use of pun in imaginative and persuasive texts)
• identifies techniques used to obscure author's purpose (e.g. inclusion or omission of content)

Processes

• uses processes such as predicting, confirming predictions, monitoring, and connecting relevant elements of the text to build or repair meaning
• uses knowledge of a broader range of cohesive devices to track meaning (e.g. word associations) (see Grammar)
• selects reading or viewing strategies appropriate to reading purpose (e.g. scans text for evidence)
• judiciously selects texts for learning area tasks and purposes

Vocabulary

• identifies language used to create tone or atmosphere
• analyses language and visual features in texts using metalanguage (e.g. cohesion, interpretation, figurative)
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Comprehension

• reads and views complex or some highly complex texts (see Text complexity)
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• recognises when ideas or evidence have been omitted from a text to position the reader

Processes

• automatically integrates a range of processes such as predicting, confirming predictions, monitoring and connecting relevant elements of the text, to build meaning
• describes how sophisticated cohesive devices establish patterns of meaning (e.g. "class" – "subclass")
• navigates extended texts including complex digital texts

Vocabulary

• demonstrates an understanding of nuances and subtleties in words of similar meaning (e.g. "frustrated", "discouraged", "baffled")
• verifies interpretations of unfamiliar words using grammatical and contextual cues

Comprehension

• reads and views highly complex texts (see Text complexity)
• interprets symbolism in texts, providing evidence to justify interpretation
• judiciously selects and synthesises evidence from multiple texts to support ideas and arguments
• analyses the credibility and validity of primary and secondary sources
• evaluates the use of devices such as analogy, irony, rhetoric and satire, and how they contribute to an author's individual style
• analyses the cumulative impact of use of language features and vocabulary across texts

- explains assumptions, beliefs and implicit values in texts (e.g. "economic growth is always desirable")
- evaluates the social, moral and ethical positions taken in texts

Processes

- strategically adjusts the processes of reading and viewing to build meaning according to the demands of tasks and texts
- identifies subtle contradictions and inconsistencies in texts

Vocabulary

- interprets complex, formal and impersonal language in academic texts
- uses lexical cues to interpret unfamiliar vocabulary
- demonstrates self-reliance in exploration and application of word learning strategies

Snapshot – Interpret concepts and problems

Critical and Creative Thinking: Analysing: Interpret concepts and problems

Content description

AC9S9H01

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.

- identify the relevant aspects of a concept or problem, recognising gaps or missing elements necessary for understanding by using approaches and strategies suitable for the context
- identify the objective and subjective aspects of a complex concept or problem, with sensitivity to context

Snapshot – Draw conclusions and provide reasons

Critical and Creative Thinking: Analysing: Draw conclusions and provide reasons

Content description

AC9S9H01

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.

- draw conclusions and make choices when completing tasks by connecting evidence from within and across discipline areas to provide reasons and evaluate arguments for choices made
- draw conclusions and make choices when completing tasks, using analysis of complex evidence and arguments before making recommendations

Snapshot – Identify, process and evaluate information

Critical and Creative Thinking: Inquiring: Identify, process and evaluate information

Content description

AC9S9H01

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.

- identify and clarify significant information and opinion from a range of sources, including visual information and digital sources
- evaluate the accuracy, validity and relevance of the information and opinion to the topic of study
- identify and clarify significant information and opinion from a range of sources, including visual information and digital sources
- evaluate the information selected to determine bias and reliability

Snapshot – Understanding texts

Literacy: Reading and viewing: Understanding texts

Content description

AC9S9H01

Learning progression extract

The following learning progression extract shows the alignment of the learning progression with this content.

Comprehension

- reads and views complex texts (see Text complexity)
- identifies the main themes or concepts in complex texts by synthesising key ideas or information

- summarises the text, identifying key details only
- draws inferences, synthesising clues and evidence across a text
- builds meaning by actively linking ideas from a number of texts or a range of digital sources
- distils information from a number of texts according to task and purpose (e.g. uses graphic organisers)
- identifies different interpretations of the text citing evidence from a text
- evaluates language features for relevance to purpose and audience
- analyses texts that have more than one purpose and explains how parts of the text support a particular purpose
- analyses the use of language appropriate to different types of texts (e.g. compare the use of pun in imaginative and persuasive texts)
- identifies techniques used to obscure author's purpose (e.g. inclusion or omission of content)

Processes

- uses processes such as predicting, confirming predictions, monitoring, and connecting relevant elements of the text to build or repair meaning
- uses knowledge of a broader range of cohesive devices to track meaning (e.g. word associations) (see Grammar)
- selects reading or viewing strategies appropriate to reading purpose (e.g. scans text for evidence)
- judiciously selects texts for learning area tasks and purposes

Vocabulary

- identifies language used to create tone or atmosphere
- analyses language and visual features in texts using metalanguage (e.g. cohesion, interpretation, figurative)
- applies knowledge of base words and word origins to understand the meaning of unfamiliar, discipline-specific words
- uses a range of context and grammatical cues to understand unfamiliar words
- interprets complex figurative language (e.g. euphemisms, hyperbole)

Comprehension

- reads and views complex or some highly complex texts (see Text complexity)
- interprets abstract concepts integrating complex ideas
- analyses how language features are used to support the point of view in a text (e.g. the strategic use of images such as a cartoon in an editorial)
- draws inferences using evidence from the text and discounting possible inferences that are not supported by the text
- applies and articulates criteria to evaluate the language structures and features for relevance to purpose and audience
- evaluates the reasoning and evidence in a persuasive text
- explains how context (e.g. time, place, situation) influences interpretations of a text
- analyses the author's perspectives in complex or some highly complex texts
- analyses the techniques authors use to position readers
- recognises when ideas or evidence have been omitted from a text to position the reader

Processes

- automatically integrates a range of processes such as predicting, confirming predictions, monitoring and connecting relevant elements of the text, to build meaning
- describes how sophisticated cohesive devices establish patterns of meaning (e.g. "class" – "subclass")
- navigates extended texts including complex digital texts

Vocabulary

- demonstrates an understanding of nuances and subtleties in words of similar meaning (e.g. "frustrated", "discouraged", "baffled")
- verifies interpretations of unfamiliar words using grammatical and contextual cues

Comprehension

- reads and views highly complex texts (see Text complexity)
- interprets symbolism in texts, providing evidence to justify interpretation
- judiciously selects and synthesises evidence from multiple texts to support ideas and arguments

- analyses the credibility and validity of primary and secondary sources
- evaluates the use of devices such as analogy, irony, rhetoric and satire, and how they contribute to an author's individual style
- analyses the cumulative impact of use of language features and vocabulary across texts
- explains assumptions, beliefs and implicit values in texts (e.g. "economic growth is always desirable")
- evaluates the social, moral and ethical positions taken in texts

Processes

- strategically adjusts the processes of reading and viewing to build meaning according to the demands of tasks and texts
- identifies subtle contradictions and inconsistencies in texts

Vocabulary

- interprets complex, formal and impersonal language in academic texts
- uses lexical cues to interpret unfamiliar vocabulary
- demonstrates self-reliance in exploration and application of word learning strategies

Snapshot – Identify, process and evaluate information

Critical and Creative Thinking: Inquiring: Identify, process and evaluate informatio

Content description

AC9S9H01

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.

- identify and clarify significant information and opinion from a range of sources, including visual information and digital sources
- evaluate the accuracy, validity and relevance of the information and opinion to the topic of study
- identify and clarify significant information and opinion from a range of sources, including visual information and digital sources
- evaluate the information selected to determine bias and reliability

AC9S9H02

investigate how advances in technologies enable advances in science, and how science has contributed to developments in technologies and engineering

-

Elaborations

- analysing how the development of imaging technologies has improved our understanding of the functions and interactions of body
- considering the impact of technological advances developed in Australia such as the cochlear implant pioneered by Professor Graeme Clark, the Monash Vison Group's work on a bionic eye, Professor Fiona Woods's development of spray-on skin and Doctor John O'Sullivan and CSIRO's invention of wi-fi
- researching how technological advances in monitoring greenhouse gas emissions and other environmental factors have contributed to the reinstatement of traditional fire management practices as a strategy to reduce atmospheric pollution
- examining how of electromagnetic radiation relate to its uses, such as radar, medicine, mobile phone communications, remote sensing and microwave cooking
- exploring how scientists and engineers make machines more energy efficient
- exploring how understanding of the nature of and energy has changed over time, and how modern technology has enabled exploration of energy conversion processes at all scales, from black holes to atoms to sub-atomic particles
- examining how advances in understanding of radioactivity and radioisotopes have led to new applications and technologies

Students learn to:

investigate how advances in technologies enable advances in science, and how sci to developments in technologies and engineering

(AC9S9H02)
General capabilities and cross-curriculum priorities

This content description connects to the following general capabilities and cross-curriculum priorities.

Analysing

• Interpret concepts and problems

Inquiring

• Identify, process and evaluate information

Elaborations

Content elaborations provide suggestions of ways to teach the content description and connect it to general capabilities and cross-curriculum priorities. Content elaborations are optional .

Analysing

• Draw conclusions and provide reasons

Inquiring

• Identify, process and evaluate information

Reading and viewing

• Understanding texts

Analysing

• Interpret concepts and problems

• Draw conclusions and provide reasons

Culture

• The First Peoples of Australia (Aboriginal Peoples) belong to the world's oldest continuous cultures. First Nations Australians demonstrate resilience in the maintenance, practice and revitalisation of culture despite the many historic and enduring impacts of colonisation, and continue to celebrate and share the past, present and future manifestations of their cultures.

People

• The significant and ongoing contributions of First Nations Australians and their histories and cultures are acknowledged locally, nationally and globally.

Design

• Sustainable design requires an awareness of place, past practices, research and technological developments, and balanced judgements based on projected environmental, social and economic impacts.

Inquiring

• Identify, process and evaluate information

Reflecting

• Transfer knowledge

Inquiring

• Identify, process and evaluate information

Inquiring

• Identify, process and evaluate information

Inquiring

• Identify, process and evaluate information

Reflecting

• Transfer knowledge

Snapshot – Interpret concepts and problems

Critical and Creative Thinking: Analysing: Interpret concepts and problems

Content description

AC9S9H02

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.

• identify the relevant aspects of a concept or problem, recognising gaps or missing elements necessary for understanding by using approaches and strategies suitable for the context

• identify the objective and subjective aspects of a complex concept or problem, with sensitivity to context

Snapshot – Identify, process and evaluate information

Critical and Creative Thinking: Inquiring: Identify, process and evaluate informati

Content description

AC9S9H02
Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
• identify and clarify significant information and opinion from a range of sources, including visual information and digital sources
• evaluate the accuracy, validity and relevance of the information and opinion to the topic of study
• identify and clarify significant information and opinion from a range of sources, including visual information and digital sources
• evaluate the information selected to determine bias and reliability

Snapshot – Draw conclusions and provide reasons
Critical and Creative Thinking: Analysing: Draw conclusions and provide reasons

Content description

AC9S9H02
Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
• draw conclusions and make choices when completing tasks by connecting evidence from within and across discipline areas to provide reasons and evaluate arguments for choices made
• draw conclusions and make choices when completing tasks, using analysis of complex evidence and arguments before making recommendations

Snapshot – Identify, process and evaluate information
Critical and Creative Thinking: Inquiring: Identify, process and evaluate information

Content description

AC9S9H02
Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
• identify and clarify significant information and opinion from a range of sources, including visual information and digital sources
• evaluate the accuracy, validity and relevance of the information and opinion to the topic of study
• identify and clarify significant information and opinion from a range of sources, including visual information and digital sources
• evaluate the information selected to determine bias and reliability

Snapshot – Understanding texts
Literacy: Reading and viewing: Understanding texts

Content description

AC9S9H02
Learning progression extract

The following learning progression extract shows the alignment of the learning progression with this content.
Comprehension
• reads and views complex texts (see Text complexity)
• identifies the main themes or concepts in complex texts by synthesising key ideas or information
• summarises the text, identifying key details only
• draws inferences, synthesising clues and evidence across a text
• builds meaning by actively linking ideas from a number of texts or a range of digital sources
• distils information from a number of texts according to task and purpose (e.g. uses graphic organisers)
• identifies different interpretations of the text citing evidence from a text
• evaluates language features for relevance to purpose and audience
• analyses texts that have more than one purpose and explains how parts of the text support a particular purpose
• analyses the use of language appropriate to different types of texts (e.g. compare the use of pun in imaginative and persuasive texts)
• identifies techniques used to obscure author's purpose (e.g. inclusion or omission of content)
Processes

• uses processes such as predicting, confirming predictions, monitoring, and connecting relevant elements of the text to build or repair meaning
• uses knowledge of a broader range of cohesive devices to track meaning (e.g. word associations) (see Grammar)
• selects reading or viewing strategies appropriate to reading purpose (e.g. scans text for evidence)
• judiciously selects texts for learning area tasks and purposes

Vocabulary

• identifies language used to create tone or atmosphere
• analyses language and visual features in texts using metalanguage (e.g. cohesion, interpretation, figurative)
• applies knowledge of base words and word origins to understand the meaning of unfamiliar, discipline-specific words
• uses a range of context and grammatical cues to understand unfamiliar words
• interprets complex figurative language (e.g. euphemisms, hyperbole)

Comprehension

• reads and views complex or some highly complex texts (see Text complexity)
• interprets abstract concepts integrating complex ideas
• analyses how language features are used to support the point of view in a text (e.g. the strategic use of images such as a cartoon in an editorial)
• draws inferences using evidence from the text and discounting possible inferences that are not supported by the text
• applies and articulates criteria to evaluate the language structures and features for relevance to purpose and audience
• evaluates the reasoning and evidence in a persuasive text
• explains how context (e.g. time, place, situation) influences interpretations of a text
• analyses the author's perspectives in complex or some highly complex texts
• analyses the techniques authors use to position readers
• recognises when ideas or evidence have been omitted from a text to position the reader

Processes

• automatically integrates a range of processes such as predicting, confirming predictions, monitoring and connecting relevant elements of the text, to build meaning
• describes how sophisticated cohesive devices establish patterns of meaning (e.g. "class" – "subclass")
• navigates extended texts including complex digital texts

Vocabulary

• demonstrates an understanding of nuances and subtleties in words of similar meaning (e.g. "frustrated", "discouraged", "baffled")
• verifies interpretations of unfamiliar words using grammatical and contextual cues

Comprehension

• reads and views highly complex texts (see Text complexity)
• interprets symbolism in texts, providing evidence to justify interpretation
• judiciously selects and synthesises evidence from multiple texts to support ideas and arguments
• analyses the credibility and validity of primary and secondary sources
• evaluates the use of devices such as analogy, irony, rhetoric and satire, and how they contribute to an author's individual style
• analyses the cumulative impact of use of language features and vocabulary across texts
• explains assumptions, beliefs and implicit values in texts (e.g. "economic growth is always desirable")
• evaluates the social, moral and ethical positions taken in texts

Processes

• strategically adjusts the processes of reading and viewing to build meaning according to the demands of tasks and texts
• identifies subtle contradictions and inconsistencies in texts

Vocabulary

• interprets complex, formal and impersonal language in academic texts

• uses lexical cues to interpret unfamiliar vocabulary
• demonstrates self-reliance in exploration and application of word learning strategies

Snapshot – Interpret concepts and problems

Critical and Creative Thinking: Analysing: Interpret concepts and problems

Content description

AC9S9H02

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
• identify the relevant aspects of a concept or problem, recognising gaps or missing elements
necessary for understanding by using approaches and strategies suitable for the context
• identify the objective and subjective aspects of a complex concept or problem, with sensitivity to
context

Snapshot – Draw conclusions and provide reasons

Critical and Creative Thinking: Analysing: Draw conclusions and provide reasons

Content description

AC9S9H02

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
• draw conclusions and make choices when completing tasks by connecting evidence from within and
across discipline areas to provide reasons and evaluate arguments for choices made
• draw conclusions and make choices when completing tasks, using analysis of complex evidence and
arguments before making recommendations

Snapshot – Identify, process and evaluate information

Critical and Creative Thinking: Inquiring: Identify, process and evaluate information

Content description

AC9S9H02

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
• identify and clarify significant information and opinion from a range of sources, including visual
information and digital sources
• evaluate the accuracy, validity and relevance of the information and opinion to the topic of study
• identify and clarify significant information and opinion from a range of sources, including visual
information and digital sources
• evaluate the information selected to determine bias and reliability

Snapshot – Transfer knowledge

Critical and Creative Thinking: Reflecting: Transfer knowledge

Content description

AC9S9H02

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
• transfer knowledge and skills gained in previous experiences to both similar and different
contexts, and explain reasons for decisions and choices made
• identify, plan and justify opportunities to transfer knowledge into new contexts

Snapshot – Identify, process and evaluate information

Critical and Creative Thinking: Inquiring: Identify, process and evaluate information

Content description

AC9S9H02

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
• identify and clarify significant information and opinion from a range of sources, including visual
information and digital sources
• evaluate the accuracy, validity and relevance of the information and opinion to the topic of study

• identify and clarify significant information and opinion from a range of sources, including visual information and digital sources
• evaluate the information selected to determine bias and reliability

Snapshot – Identify, process and evaluate information

Critical and Creative Thinking: Inquiring: Identify, process and evaluate informati

Content description

AC9S9H02

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
• identify and clarify significant information and opinion from a range of sources, including visual information and digital sources
• evaluate the accuracy, validity and relevance of the information and opinion to the topic of study
• identify and clarify significant information and opinion from a range of sources, including visual information and digital sources
• evaluate the information selected to determine bias and reliability

Snapshot – Identify, process and evaluate information

Critical and Creative Thinking: Inquiring: Identify, process and evaluate informati

Content description

AC9S9H02

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
• identify and clarify significant information and opinion from a range of sources, including visual information and digital sources
• evaluate the accuracy, validity and relevance of the information and opinion to the topic of study
• identify and clarify significant information and opinion from a range of sources, including visual information and digital sources
• evaluate the information selected to determine bias and reliability

Snapshot – Transfer knowledge

Critical and Creative Thinking: Reflecting: Transfer knowledge

Content description

AC9S9H02

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
• transfer knowledge and skills gained in previous experiences to both similar and different contexts, and explain reasons for decisions and choices made
• identify, plan and justify opportunities to transfer knowledge into new contexts

AC9S9H03

analyse the key factors that contribute to science knowledge and practices being adopted more broadly by society

•

•

Elaborations

• researching citizen science projects related to public health and examining why people would choose to be involved
• investigating how the practices adopted by society based on research by Australian Dr Helen Mayo led to a reduction in infant mortality
• examining how assisted reproductive technologies have become widely used since their initial development
• examining how government initiatives such as Landcare support adoption of effective land restoration practices that improve soil quality and increase carbon sequestration in soils
• investigating how First Nations Australians' fire management practices are informing and being adopted in contemporary fire management
• analysing factors that have led to the adoption of solar panels and battery storage by

individuals, industries and communities

• investigating how an understanding of and concern for the have led to the adoption of widespread recycling practices

Students learn to:

analyse the key factors that contribute to science knowledge and practices being ac broadly by society

(AC9S9H03)

General capabilities and cross-curriculum priorities

This content description connects to the following general capabilities and cross-curriculum priorities.

Responding to ethical issues

• Making and reflecting on ethical decisions

Understanding ethical concepts and perspectives

• Explore ethical concepts

Social management

• Leadership

Elaborations

Content elaborations provide suggestions of ways to teach the content description and connect it to general capabilities and cross-curriculum priorities. Content elaborations are optional .

Analysing

• Draw conclusions and provide reasons

Social awareness

• Community awareness

Inquiring

• Identify, process and evaluate information

Social awareness

• Community awareness

Reading and viewing

• Understanding texts

Social awareness

• Community awareness

Reading and viewing

• Understanding texts

Futures

• Sustainable futures are achieved through informed individual, community, business and political action that values local, national and global equity and fairness across generations into the future.

Systems

• Sustainable patterns of living require the responsible use of resources, maintenance of clean air, water and soils, and preservation or restoration of healthy environments.

Culture

• First Nations Australians' ways of life reflect unique ways of being, knowing, thinking and doing.

• The First Peoples of Australia (Aboriginal Peoples) belong to the world's oldest continuous cultures. First Nations Australians demonstrate resilience in the maintenance, practice and revitalisation of culture despite the many historic and enduring impacts of colonisation, and continue to celebrate and share the past, present and future manifestations of their cultures.

Country/Place

• First Nations communities of Australia maintain a deep connection to, and responsibility for, Country/Place and have holistic values and belief systems that are connected to the land, sea, sky and waterways.

• The First Peoples of Australia are the Traditional Owners of Country/Place, protected in Australian Law by the Native Title Act 1993 which recognises pre-existing sovereignty, continuing■systems of law and customs, and connection to Country/Place. This recognised legal right provides for economic sustainability and a voice into the development■and management of

Country/Place.

People

• The significant and ongoing contributions of First Nations Australians and their histories and cultures are acknowledged locally, nationally and globally.

Design

• Sustainable design requires an awareness of place, past practices, research and technological developments, and balanced judgements based on projected environmental, social and economic impacts.

Social awareness

• Community awareness

Futures

• Sustainable futures are achieved through informed individual, community, business and political action that values local, national and global equity and fairness across generations into the future.

World views

• World views are formed by experiences at personal, local, national and global levels, and are linked to individual, community, business and political actions for sustainability.

Design

• Sustainably designed products, environments and services aim to minimise the impact on or restore the quality and diversity of environmental, social and economic systems.

World views

• World views are formed by experiences at personal, local, national and global levels, and are linked to individual, community, business and political actions for sustainability.

Snapshot – Making and reflecting on ethical decisions

Ethical Understanding: Responding to ethical issues: Making and reflecting on et

Content description

AC9S9H03

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.

• consider how values and beliefs influence approaches to ethical issues, and■analyse■how these affect■outcomes

• analyse■biases■when applying ethical concepts,■values■and ethical frameworks,■in order to explore and evaluate ethical decisions

Snapshot – Explore ethical concepts

Ethical Understanding: Understanding ethical concepts and perspectives: Explor

Content description

AC9S9H03

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.

• analyse■the similarities and differences between ethical concepts, such as integrity, loyalty and equality, in a range of situations and contexts

• evaluate■the consistency in meaning of ethical concepts, such as trust, freedom and rights and responsibilities, in a range of situations and contexts

Snapshot – Leadership

Personal and Social capability: Social management: Leadership

Content description

AC9S9H03

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.

• devise a plan for leading action and evaluate the appropriateness of various leadership approaches in the process

• propose, implement and evaluate strategies to address needs at local, regional, national or global levels

Snapshot – Draw conclusions and provide reasons

Critical and Creative Thinking: Analysing: Draw conclusions and provide reasons

Content description

AC9S9H03

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
• draw conclusions and make choices when completing tasks by connecting evidence from within and across discipline areas to provide reasons and evaluate arguments for choices made
• draw conclusions and make choices when completing tasks, using analysis of complex evidence and arguments before making recommendations

Snapshot – Community awareness

Personal and Social capability: Social awareness: Community awareness

Content description

AC9S9H03

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
• analyse roles and responsibilities of citizens within communities
• evaluate ways of contributing to communities at local, regional, national and global levels

Snapshot – Identify, process and evaluate information

Critical and Creative Thinking: Inquiring: Identify, process and evaluate information

Content description

AC9S9H03

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
• identify and clarify significant information and opinion from a range of sources, including visual information and digital sources
• evaluate the accuracy, validity and relevance of the information and opinion to the topic of study
• identify and clarify significant information and opinion from a range of sources, including visual information and digital sources
• evaluate the information selected to determine bias and reliability

Snapshot – Community awareness

Personal and Social capability: Social awareness: Community awareness

Content description

AC9S9H03

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
• analyse roles and responsibilities of citizens within communities
• evaluate ways of contributing to communities at local, regional, national and global levels

Snapshot – Understanding texts

Literacy: Reading and viewing: Understanding texts

Content description

AC9S9H03

Learning progression extract

The following learning progression extract shows the alignment of the learning progression with this content.

Comprehension

• reads and views complex texts (see Text complexity)
• identifies the main themes or concepts in complex texts by synthesising key ideas or information
• summarises the text, identifying key details only
• draws inferences, synthesising clues and evidence across a text
• builds meaning by actively linking ideas from a number of texts or a range of digital sources
• distils information from a number of texts according to task and purpose (e.g. uses graphic organisers)

• identifies different interpretations of the text citing evidence from a text
• evaluates language features for relevance to purpose and audience
• analyses texts that have more than one purpose and explains how parts of the text support a particular purpose
• analyses the use of language appropriate to different types of texts (e.g. compare the use of pun in imaginative and persuasive texts)
• identifies techniques used to obscure author's purpose (e.g. inclusion or omission of content)

Processes

• uses processes such as predicting, confirming predictions, monitoring, and connecting relevant elements of the text to build or repair meaning
• uses knowledge of a broader range of cohesive devices to track meaning (e.g. word associations) (see Grammar)
• selects reading or viewing strategies appropriate to reading purpose (e.g. scans text for evidence)
• judiciously selects texts for learning area tasks and purposes

Vocabulary

• identifies language used to create tone or atmosphere
• analyses language and visual features in texts using metalanguage (e.g. cohesion, interpretation, figurative)
• applies knowledge of base words and word origins to understand the meaning of unfamiliar, discipline-specific words
• uses a range of context and grammatical cues to understand unfamiliar words
• interprets complex figurative language (e.g. euphemisms, hyperbole)

Comprehension

• reads and views complex or some highly complex texts (see Text complexity)
• interprets abstract concepts integrating complex ideas
• analyses how language features are used to support the point of view in a text (e.g. the strategic use of images such as a cartoon in an editorial)
• draws inferences using evidence from the text and discounting possible inferences that are not supported by the text
• applies and articulates criteria to evaluate the language structures and features for relevance to purpose and audience
• evaluates the reasoning and evidence in a persuasive text
• explains how context (e.g. time, place, situation) influences interpretations of a text
• analyses the author's perspectives in complex or some highly complex texts
• analyses the techniques authors use to position readers
• recognises when ideas or evidence have been omitted from a text to position the reader

Processes

• automatically integrates a range of processes such as predicting, confirming predictions, monitoring and connecting relevant elements of the text, to build meaning
• describes how sophisticated cohesive devices establish patterns of meaning (e.g. "class" – "subclass")
• navigates extended texts including complex digital texts

Vocabulary

• demonstrates an understanding of nuances and subtleties in words of similar meaning (e.g. "frustrated", "discouraged", "baffled")
• verifies interpretations of unfamiliar words using grammatical and contextual cues

Comprehension

• reads and views highly complex texts (see Text complexity)
• interprets symbolism in texts, providing evidence to justify interpretation
• judiciously selects and synthesises evidence from multiple texts to support ideas and arguments
• analyses the credibility and validity of primary and secondary sources
• evaluates the use of devices such as analogy, irony, rhetoric and satire, and how they contribute to an author's individual style
• analyses the cumulative impact of use of language features and vocabulary across texts
• explains assumptions, beliefs and implicit values in texts (e.g. "economic growth is always

desirable")
• evaluates the social, moral and ethical positions taken in texts

Processes

• strategically adjusts the processes of reading and viewing to build meaning according to the demands of tasks and texts
• identifies subtle contradictions and inconsistencies in texts

Vocabulary

• interprets complex, formal and impersonal language in academic texts
• uses lexical cues to interpret unfamiliar vocabulary
• demonstrates self-reliance in exploration and application of word learning strategies

Snapshot – Community awareness

Personal and Social capability: Social awareness: Community awareness

Content description

AC9S9H03

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
• analyse roles and responsibilities of citizens within communities
• evaluate ways of contributing to communities at local, regional, national and global levels

Snapshot – Understanding texts

Literacy: Reading and viewing: Understanding texts

Content description

AC9S9H03

Learning progression extract

The following learning progression extract shows the alignment of the learning progression with this content.

Comprehension

• reads and views complex texts (see Text complexity)
• identifies the main themes or concepts in complex texts by synthesising key ideas or information
• summarises the text, identifying key details only
• draws inferences, synthesising clues and evidence across a text
• builds meaning by actively linking ideas from a number of texts or a range of digital sources
• distils information from a number of texts according to task and purpose (e.g. uses graphic organisers)
• identifies different interpretations of the text citing evidence from a text
• evaluates language features for relevance to purpose and audience
• analyses texts that have more than one purpose and explains how parts of the text support a particular purpose
• analyses the use of language appropriate to different types of texts (e.g. compare the use of pun in imaginative and persuasive texts)
• identifies techniques used to obscure author's purpose (e.g. inclusion or omission of content)

Processes

• uses processes such as predicting, confirming predictions, monitoring, and connecting relevant elements of the text to build or repair meaning
• uses knowledge of a broader range of cohesive devices to track meaning (e.g. word associations) (see Grammar)
• selects reading or viewing strategies appropriate to reading purpose (e.g. scans text for evidence)
• judiciously selects texts for learning area tasks and purposes

Vocabulary

• identifies language used to create tone or atmosphere
• analyses language and visual features in texts using metalanguage (e.g. cohesion, interpretation, figurative)
• applies knowledge of base words and word origins to understand the meaning of unfamiliar, discipline-specific words

- uses a range of context and grammatical cues to understand unfamiliar words
- interprets complex figurative language (e.g. euphemisms, hyperbole)

Comprehension
- reads and views complex or some highly complex texts (see Text complexity)
- interprets abstract concepts integrating complex ideas
- analyses how language features are used to support the point of view in a text (e.g. the strategic use of images such as a cartoon in an editorial)
- draws inferences using evidence from the text and discounting possible inferences that are not supported by the text
- applies and articulates criteria to evaluate the language structures and features for relevance to purpose and audience
- evaluates the reasoning and evidence in a persuasive text
- explains how context (e.g. time, place, situation) influences interpretations of a text
- analyses the author's perspectives in complex or some highly complex texts
- analyses the techniques authors use to position readers
- recognises when ideas or evidence have been omitted from a text to position the reader

Processes
- automatically integrates a range of processes such as predicting, confirming predictions, monitoring and connecting relevant elements of the text, to build meaning
- describes how sophisticated cohesive devices establish patterns of meaning (e.g. "class" – "subclass")
- navigates extended texts including complex digital texts

Vocabulary
- demonstrates an understanding of nuances and subtleties in words of similar meaning (e.g. "frustrated", "discouraged", "baffled")
- verifies interpretations of unfamiliar words using grammatical and contextual cues

Comprehension
- reads and views highly complex texts (see Text complexity)
- interprets symbolism in texts, providing evidence to justify interpretation
- judiciously selects and synthesises evidence from multiple texts to support ideas and arguments
- analyses the credibility and validity of primary and secondary sources
- evaluates the use of devices such as analogy, irony, rhetoric and satire, and how they contribute to an author's individual style
- analyses the cumulative impact of use of language features and vocabulary across texts
- explains assumptions, beliefs and implicit values in texts (e.g. "economic growth is always desirable")
- evaluates the social, moral and ethical positions taken in texts

Processes
- strategically adjusts the processes of reading and viewing to build meaning according to the demands of tasks and texts
- identifies subtle contradictions and inconsistencies in texts

Vocabulary
- interprets complex, formal and impersonal language in academic texts
- uses lexical cues to interpret unfamiliar vocabulary
- demonstrates self-reliance in exploration and application of word learning strategies

Snapshot – Community awareness

Personal and Social capability: Social awareness: Community awareness

Content description

AC9S9H03

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
- analyse roles and responsibilities of citizens within communities
- evaluate ways of contributing to communities at local, regional, national and global levels

AC9S9H04

examine how the values and needs of society influence the focus of scientific research

-
-

Elaborations

• exploring how governments determine which scientific research projects should be funded

• exploring how Australia has developed an artificial intelligence which is used to predict the likelihood of a viable pregnancy from transfer of a single embryo to a woman undergoing in-vitro fertilisation

• researching how First Nations Peoples of the Torres Strait are at the forefront of the development of scientific measures to prevent the transfer of certain infectious diseases and pests to the Australian continent

• investigating how the need to minimise greenhouse gas production has led to scientific and technological advances

• considering innovative energy transfer devices, including those used in transport and communication

• considering how the development of new and procedures has contributed to safe sound levels for humans in the workplace and leisure activities

• examining why many manufacturers are adopting green chemistry processes

Students learn to:

examine how the values and needs of society influence the focus of scientific resea

(AC9S9H04)

General capabilities and cross-curriculum priorities

This content description connects to the following general capabilities and cross-curriculum priorities.

Responding to ethical issues

• Making and reflecting on ethical decisions

Understanding ethical concepts and perspectives

• Explore ethical concepts

Social management

• Leadership

Elaborations

Content elaborations provide suggestions of ways to teach the content description and connect it to general capabilities and cross-curriculum priorities. Content elaborations are optional .

Inquiring

• Identify, process and evaluate information

Reading and viewing

• Understanding texts

Inquiring

• Identify, process and evaluate information

Social awareness

• Community awareness

Reflecting on culture and cultural diversity

• Examine cultural perspectives and world views

People

• The significant and ongoing contributions of First Nations Australians and their histories and cultures are acknowledged locally, nationally and globally.

Inquiring

• Identify, process and evaluate information

Design

• Creative and innovative design is integral to the identification of new ways of sustainable living.

Reflecting

• Transfer knowledge

Reading and viewing

• Understanding texts

Reading and viewing

• Understanding texts
Social awareness
• Community awareness
Social management
• Communication
Futures
• Sustainable futures are achieved through informed individual, community, business and political action that values local, national and global equity and fairness across generations into the future.
World views
• World views are formed by experiences at personal, local, national and global levels, and are linked to individual, community, business and political actions for sustainability.

Snapshot – Making and reflecting on ethical decisions

Ethical Understanding: Responding to ethical issues: Making and reflecting on et

Content description
AC9S9H04
Continuum extract
The following continuum extract shows the alignment of the continuum with this content.
• consider how values and beliefs influence approaches to ethical issues, and■analyse■how these affect■outcomes
• analyse■biases■when applying ethical concepts,■values■and ethical frameworks,■in order to explore and evaluate ethical decisions

Snapshot – Explore ethical concepts

Ethical Understanding: Understanding ethical concepts and perspectives: Explor

Content description
AC9S9H04
Continuum extract
The following continuum extract shows the alignment of the continuum with this content.
• analyse■the similarities and differences between ethical concepts, such as integrity, loyalty and equality, in a range of situations and contexts
• evaluate■the consistency in meaning of ethical concepts, such as trust, freedom and rights and responsibilities, in a range of situations and contexts

Snapshot – Leadership

Personal and Social capability: Social management: Leadership

Content description
AC9S9H04
Continuum extract
The following continuum extract shows the alignment of the continuum with this content.
• devise a plan for leading action and evaluate the appropriateness of various leadership approaches in the process
• propose, implement and evaluate strategies to address needs at local, regional, national or global levels

Snapshot – Identify, process and evaluate information

Critical and Creative Thinking: Inquiring: Identify, process and evaluate informati

Content description
AC9S9H04
Continuum extract
The following continuum extract shows the alignment of the continuum with this content.
• identify and clarify significant information and opinion from a range of sources, including visual information and digital sources
• evaluate the accuracy, validity and relevance of the information and opinion to the topic of study
• identify and clarify significant information and opinion from a range of sources, including visual information and digital sources

• evaluate the information selected to determine bias and reliability

Snapshot – Understanding texts

Literacy: Reading and viewing: Understanding texts

Content description

AC9S9H04

Learning progression extract

The following learning progression extract shows the alignment of the learning progression with this content.

Comprehension

• reads and views complex texts (see Text complexity)
• identifies the main themes or concepts in complex texts by synthesising key ideas or information
• summarises the text, identifying key details only
• draws inferences, synthesising clues and evidence across a text
• builds meaning by actively linking ideas from a number of texts or a range of digital sources
• distils information from a number of texts according to task and purpose (e.g. uses graphic organisers)
• identifies different interpretations of the text citing evidence from a text
• evaluates language features for relevance to purpose and audience
• analyses texts that have more than one purpose and explains how parts of the text support a particular purpose
• analyses the use of language appropriate to different types of texts (e.g. compare the use of pun in imaginative and persuasive texts)
• identifies techniques used to obscure author's purpose (e.g. inclusion or omission of content)

Processes

• uses processes such as predicting, confirming predictions, monitoring, and connecting relevant elements of the text to build or repair meaning
• uses knowledge of a broader range of cohesive devices to track meaning (e.g. word associations) (see Grammar)
• selects reading or viewing strategies appropriate to reading purpose (e.g. scans text for evidence)
• judiciously selects texts for learning area tasks and purposes

Vocabulary

• identifies language used to create tone or atmosphere
• analyses language and visual features in texts using metalanguage (e.g. cohesion, interpretation, figurative)
• applies knowledge of base words and word origins to understand the meaning of unfamiliar, discipline-specific words
• uses a range of context and grammatical cues to understand unfamiliar words
• interprets complex figurative language (e.g. euphemisms, hyperbole)

Comprehension

• reads and views complex or some highly complex texts (see Text complexity)
• interprets abstract concepts integrating complex ideas
• analyses how language features are used to support the point of view in a text (e.g. the strategic use of images such as a cartoon in an editorial)
• draws inferences using evidence from the text and discounting possible inferences that are not supported by the text
• applies and articulates criteria to evaluate the language structures and features for relevance to purpose and audience
• evaluates the reasoning and evidence in a persuasive text
• explains how context (e.g. time, place, situation) influences interpretations of a text
• analyses the author's perspectives in complex or some highly complex texts
• analyses the techniques authors use to position readers
• recognises when ideas or evidence have been omitted from a text to position the reader

Processes

• automatically integrates a range of processes such as predicting, confirming predictions,

monitoring and connecting relevant elements of the text, to build meaning

• describes how sophisticated cohesive devices establish patterns of meaning (e.g. "class" – "subclass")

• navigates extended texts including complex digital texts

Vocabulary

• demonstrates an understanding of nuances and subtleties in words of similar meaning (e.g. "frustrated", "discouraged", "baffled")

• verifies interpretations of unfamiliar words using grammatical and contextual cues

Comprehension

• reads and views highly complex texts (see Text complexity)

• interprets symbolism in texts, providing evidence to justify interpretation

• judiciously selects and synthesises evidence from multiple texts to support ideas and arguments

• analyses the credibility and validity of primary and secondary sources

• evaluates the use of devices such as analogy, irony, rhetoric and satire, and how they contribute to an author's individual style

• analyses the cumulative impact of use of language features and vocabulary across texts

• explains assumptions, beliefs and implicit values in texts (e.g. "economic growth is always desirable")

• evaluates the social, moral and ethical positions taken in texts

Processes

• strategically adjusts the processes of reading and viewing to build meaning according to the demands of tasks and texts

• identifies subtle contradictions and inconsistencies in texts

Vocabulary

• interprets complex, formal and impersonal language in academic texts

• uses lexical cues to interpret unfamiliar vocabulary

• demonstrates self-reliance in exploration and application of word learning strategies

Snapshot – Identify, process and evaluate information

Critical and Creative Thinking: Inquiring: Identify, process and evaluate informatic

Content description

AC9S9H04

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.

• identify and clarify significant information and opinion from a range of sources, including visual information and digital sources

• evaluate the accuracy, validity and relevance of the information and opinion to the topic of study

• identify and clarify significant information and opinion from a range of sources, including visual information and digital sources

• evaluate the information selected to determine bias and reliability

Snapshot – Community awareness

Personal and Social capability: Social awareness: Community awareness

Content description

AC9S9H04

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.

• analyse roles and responsibilities of citizens within communities

• evaluate ways of contributing to communities at local, regional, national and global levels

Snapshot – Examine cultural perspectives and world views

Intercultural Understanding: Reflecting on culture and cultural diversity: Examine
perspectives and world views

Content description

AC9S9H04

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
• analyse the reasons, experiences and understandings that inform diverse cultural perspectives and world views in a range of intercultural contexts
• evaluate how common and conflicting values within and across cultural and linguistic groups affect the presentation of cultural perspectives and world views

Snapshot – Identify, process and evaluate information

Critical and Creative Thinking: Inquiring: Identify, process and evaluate informatic

Content description

AC9S9H04

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
• identify and clarify significant information and opinion from a range of sources, including visual information and digital sources
• evaluate the accuracy, validity and relevance of the information and opinion to the topic of study
• identify and clarify significant information and opinion from a range of sources, including visual information and digital sources
• evaluate the information selected to determine bias and reliability

Snapshot – Transfer knowledge

Critical and Creative Thinking: Reflecting: Transfer knowledge

Content description

AC9S9H04

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
• transfer knowledge and skills gained in previous experiences to both similar and different contexts, and explain reasons for decisions and choices made
• identify, plan and justify opportunities to transfer knowledge into new contexts

Snapshot – Understanding texts

Literacy: Reading and viewing: Understanding texts

Content description

AC9S9H04

Learning progression extract

The following learning progression extract shows the alignment of the learning progression with this content.

Comprehension

• reads and views complex texts (see Text complexity)
• identifies the main themes or concepts in complex texts by synthesising key ideas or information
• summarises the text, identifying key details only
• draws inferences, synthesising clues and evidence across a text
• builds meaning by actively linking ideas from a number of texts or a range of digital sources
• distils information from a number of texts according to task and purpose (e.g. uses graphic organisers)
• identifies different interpretations of the text citing evidence from a text
• evaluates language features for relevance to purpose and audience
• analyses texts that have more than one purpose and explains how parts of the text support a particular purpose
• analyses the use of language appropriate to different types of texts (e.g. compare the use of pun in imaginative and persuasive texts)
• identifies techniques used to obscure author's purpose (e.g. inclusion or omission of content)

Processes

• uses processes such as predicting, confirming predictions, monitoring, and connecting relevant elements of the text to build or repair meaning
• uses knowledge of a broader range of cohesive devices to track meaning (e.g. word associations) (see Grammar)
• selects reading or viewing strategies appropriate to reading purpose (e.g. scans text for

evidence)

• judiciously selects texts for learning area tasks and purposes

Vocabulary

• identifies language used to create tone or atmosphere

• analyses language and visual features in texts using metalanguage (e.g. cohesion, interpretation, figurative)

• applies knowledge of base words and word origins to understand the meaning of unfamiliar, discipline-specific words

• uses a range of context and grammatical cues to understand unfamiliar words

• interprets complex figurative language (e.g. euphemisms, hyperbole)

Comprehension

• reads and views complex or some highly complex texts (see Text complexity)

• interprets abstract concepts integrating complex ideas

• analyses how language features are used to support the point of view in a text (e.g. the strategic use of images such as a cartoon in an editorial)

• draws inferences using evidence from the text and discounting possible inferences that are not supported by the text

• applies and articulates criteria to evaluate the language structures and features for relevance to purpose and audience

• evaluates the reasoning and evidence in a persuasive text

• explains how context (e.g. time, place, situation) influences interpretations of a text

• analyses the author's perspectives in complex or some highly complex texts

• analyses the techniques authors use to position readers

• recognises when ideas or evidence have been omitted from a text to position the reader

Processes

• automatically integrates a range of processes such as predicting, confirming predictions, monitoring and connecting relevant elements of the text, to build meaning

• describes how sophisticated cohesive devices establish patterns of meaning (e.g. "class" – "subclass")

• navigates extended texts including complex digital texts

Vocabulary

• demonstrates an understanding of nuances and subtleties in words of similar meaning (e.g. "frustrated", "discouraged", "baffled")

• verifies interpretations of unfamiliar words using grammatical and contextual cues

Comprehension

• reads and views highly complex texts (see Text complexity)

• interprets symbolism in texts, providing evidence to justify interpretation

• judiciously selects and synthesises evidence from multiple texts to support ideas and arguments

• analyses the credibility and validity of primary and secondary sources

• evaluates the use of devices such as analogy, irony, rhetoric and satire, and how they contribute to an author's individual style

• analyses the cumulative impact of use of language features and vocabulary across texts

• explains assumptions, beliefs and implicit values in texts (e.g. "economic growth is always desirable")

• evaluates the social, moral and ethical positions taken in texts

Processes

• strategically adjusts the processes of reading and viewing to build meaning according to the demands of tasks and texts

• identifies subtle contradictions and inconsistencies in texts

Vocabulary

• interprets complex, formal and impersonal language in academic texts

• uses lexical cues to interpret unfamiliar vocabulary

• demonstrates self-reliance in exploration and application of word learning strategies

Snapshot – Understanding texts

Literacy: Reading and viewing: Understanding texts

Content description

Learning progression extract

The following learning progression extract shows the alignment of the learning progression with this content.

Comprehension

• reads and views complex texts (see Text complexity)
• identifies the main themes or concepts in complex texts by synthesising key ideas or information
• summarises the text, identifying key details only
• draws inferences, synthesising clues and evidence across a text
• builds meaning by actively linking ideas from a number of texts or a range of digital sources
• distils information from a number of texts according to task and purpose (e.g. uses graphic organisers)
• identifies different interpretations of the text citing evidence from a text
• evaluates language features for relevance to purpose and audience
• analyses texts that have more than one purpose and explains how parts of the text support a particular purpose
• analyses the use of language appropriate to different types of texts (e.g. compare the use of pun in imaginative and persuasive texts)
• identifies techniques used to obscure author's purpose (e.g. inclusion or omission of content)

Processes

• uses processes such as predicting, confirming predictions, monitoring, and connecting relevant elements of the text to build or repair meaning
• uses knowledge of a broader range of cohesive devices to track meaning (e.g. word associations) (see Grammar)
• selects reading or viewing strategies appropriate to reading purpose (e.g. scans text for evidence)
• judiciously selects texts for learning area tasks and purposes

Vocabulary

• identifies language used to create tone or atmosphere
• analyses language and visual features in texts using metalanguage (e.g. cohesion, interpretation, figurative)
• applies knowledge of base words and word origins to understand the meaning of unfamiliar, discipline-specific words
• uses a range of context and grammatical cues to understand unfamiliar words
• interprets complex figurative language (e.g. euphemisms, hyperbole)

Comprehension

• reads and views complex or some highly complex texts (see Text complexity)
• interprets abstract concepts integrating complex ideas
• analyses how language features are used to support the point of view in a text (e.g. the strategic use of images such as a cartoon in an editorial)
• draws inferences using evidence from the text and discounting possible inferences that are not supported by the text
• applies and articulates criteria to evaluate the language structures and features for relevance to purpose and audience
• evaluates the reasoning and evidence in a persuasive text
• explains how context (e.g. time, place, situation) influences interpretations of a text
• analyses the author's perspectives in complex or some highly complex texts
• analyses the techniques authors use to position readers
• recognises when ideas or evidence have been omitted from a text to position the reader

Processes

• automatically integrates a range of processes such as predicting, confirming predictions, monitoring and connecting relevant elements of the text, to build meaning
• describes how sophisticated cohesive devices establish patterns of meaning (e.g. "class" – "subclass")
• navigates extended texts including complex digital texts

Vocabulary

• demonstrates an understanding of nuances and subtleties in words of similar meaning (e.g. "frustrated", "discouraged", "baffled")
• verifies interpretations of unfamiliar words using grammatical and contextual cues

Comprehension

• reads and views highly complex texts (see Text complexity)
• interprets symbolism in texts, providing evidence to justify interpretation
• judiciously selects and synthesises evidence from multiple texts to support ideas and arguments
• analyses the credibility and validity of primary and secondary sources
• evaluates the use of devices such as analogy, irony, rhetoric and satire, and how they contribute to an author's individual style
• analyses the cumulative impact of use of language features and vocabulary across texts
• explains assumptions, beliefs and implicit values in texts (e.g. "economic growth is always desirable")
• evaluates the social, moral and ethical positions taken in texts

Processes

• strategically adjusts the processes of reading and viewing to build meaning according to the demands of tasks and texts
• identifies subtle contradictions and inconsistencies in texts

Vocabulary

• interprets complex, formal and impersonal language in academic texts
• uses lexical cues to interpret unfamiliar vocabulary
• demonstrates self-reliance in exploration and application of word learning strategies

Snapshot – Community awareness

Personal and Social capability: Social awareness: Community awareness

Content description

AC9S9H04

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
• analyse roles and responsibilities of citizens within communities
• evaluate ways of contributing to communities at local, regional, national and global levels

Snapshot – Communication

Personal and Social capability: Social management: Communication

Content description

AC9S9H04

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
• demonstrate communication skills in a range of contexts, responding to the enablers of, and barriers to, effective verbal and non-verbal communication
• devise strategies that apply effective verbal and non-verbal communication in response to feedback

AC9S9I01

develop investigable questions, reasoned predictions and hypotheses to test and develop

•
•

Elaborations

• discussing what is needed for a question to be investigable or a prediction to be reasoned
• generating investigable questions about the between human body and everyday events, such as: 'How does the intensity of exercise affect heart rate and breathing rate?'
• developing investigable questions to explore an , such as: 'How is sound wave transfer affected by the density of the medium through which it travels? What causes our body temperature to rise when we are ill?'
• discussing why a scientific has to be able to be supported or refuted through
• proposing a to test an identified , such as: 'If objects of different temperatures are placed in contact, heat energy will transfer from an object of higher temperature to an object of lower temperature until both objects reach the same temperature'

Students learn to:

develop investigable questions, reasoned predictions and hypotheses to test relatio

develop explanatory models

(AC9S9I01)
General capabilities and cross-curriculum priorities

This content description connects to the following general capabilities and cross-curriculum priorities.

Generating

• Put ideas into action

Inquiring

• Develop questions

Speaking and listening

• Interacting

Elaborations

Content elaborations provide suggestions of ways to teach the content description and connect it to general capabilities and cross-curriculum priorities. Content elaborations are optional .

Inquiring

• Develop questions

Inquiring

• Develop questions

Inquiring

• Develop questions

Generating

• Put ideas into action

Speaking and listening

• Interacting

Generating

• Put ideas into action

Speaking and listening

• Interacting

Snapshot – Put ideas into action

Critical and Creative Thinking: Generating: Put ideas into action

Content description

AC9S9I01

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
• put ideas into action by making predictions, testing and evaluating options, and reconsidering approaches in complex or unfamiliar situations
• put ideas into action by making predictions, testing and evaluating options, proposing modifications and adapting approaches in complex or unfamiliar situations

Snapshot – Develop questions

Critical and Creative Thinking: Inquiring: Develop questions

Content description

AC9S9I01

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
• develop questions to investigate complex issues and topics
• questions developed assist in forming an understanding of why phenomena or issues arise
• develop questions to investigate complex issues and topics
• questions developed facilitate increasing understanding of abstract ideas and concepts

Snapshot – Interacting

Literacy: Speaking and listening: Interacting

Content description

AC9S9I01

Learning progression extract

The following learning progression extract shows the alignment of the learning progression with this content.
• interacts within school context or the broader community, adjusting language and responses to suit purpose and audience
• synthesises ideas from group discussion into a common theme or hypothesis
• poses problems, hypothesises and formulates questions about abstract ideas in group situations
• restates different views and makes suggestions to negotiate agreement
• poses questions to clarify assumptions made by the speaker
• questions others to evaluate accuracy of thinking or problem-solving processes
• uses language to align the listener with personal position (e.g. "of course", "as you can imagine", "obviously")
• interacts strategically and confidently with a broad range of interactional partners
• gives an extended explanation and evaluation of a complex concept, issue or process
• justifies a personal stance, after analysis of arguments on a particular issue, using evidence and elaboration in a group situation
• uses language strategically to subtly align others to own perspective as appropriate to audience and purpose

Snapshot – Develop questions

Critical and Creative Thinking: Inquiring: Develop questions

Content description

AC9S9I01

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
• develop questions to investigate complex issues and topics
• questions developed assist in forming an understanding of why phenomena or issues arise
• develop questions to investigate complex issues and topics
• questions developed facilitate increasing understanding of abstract ideas and concepts

Snapshot – Develop questions

Critical and Creative Thinking: Inquiring: Develop questions

Content description

AC9S9I01

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
• develop questions to investigate complex issues and topics
• questions developed assist in forming an understanding of why phenomena or issues arise
• develop questions to investigate complex issues and topics
• questions developed facilitate increasing understanding of abstract ideas and concepts

Snapshot – Develop questions

Critical and Creative Thinking: Inquiring: Develop questions

Content description

AC9S9I01

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
• develop questions to investigate complex issues and topics
• questions developed assist in forming an understanding of why phenomena or issues arise
• develop questions to investigate complex issues and topics
• questions developed facilitate increasing understanding of abstract ideas and concepts

Snapshot – Put ideas into action

Critical and Creative Thinking: Generating: Put ideas into action

Content description

AC9S9I01

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
• put ideas into action by making predictions, testing and evaluating options, and reconsidering approaches in complex or unfamiliar situations
• put ideas into action by making predictions, testing and evaluating options, proposing modifications and adapting approaches in complex or unfamiliar situations

Snapshot – Interacting

Literacy: Speaking and listening: Interacting

Content description

AC9S9I01

Learning progression extract

The following learning progression extract shows the alignment of the learning progression with this content.
• interacts within school context or the broader community, adjusting language and responses to suit purpose and audience
• synthesises ideas from group discussion into a common theme or hypothesis
• poses problems, hypothesises and formulates questions about abstract ideas in group situations
• restates different views and makes suggestions to negotiate agreement
• poses questions to clarify assumptions made by the speaker
• questions others to evaluate accuracy of thinking or problem-solving processes
• uses language to align the listener with personal position (e.g. "of course", "as you can imagine", "obviously")
• interacts strategically and confidently with a broad range of interactional partners
• gives an extended explanation and evaluation of a complex concept, issue or process
• justifies a personal stance, after analysis of arguments on a particular issue, using evidence and elaboration in a group situation
• uses language strategically to subtly align others to own perspective as appropriate to audience and purpose

Snapshot – Put ideas into action

Critical and Creative Thinking: Generating: Put ideas into action

Content description

AC9S9I01

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
• put ideas into action by making predictions, testing and evaluating options, and reconsidering approaches in complex or unfamiliar situations
• put ideas into action by making predictions, testing and evaluating options, proposing modifications and adapting approaches in complex or unfamiliar situations

Snapshot – Interacting

Literacy: Speaking and listening: Interacting

Content description

AC9S9I01

Learning progression extract

The following learning progression extract shows the alignment of the learning progression with this content.
• interacts within school context or the broader community, adjusting language and responses to suit purpose and audience
• synthesises ideas from group discussion into a common theme or hypothesis
• poses problems, hypothesises and formulates questions about abstract ideas in group situations
• restates different views and makes suggestions to negotiate agreement
• poses questions to clarify assumptions made by the speaker
• questions others to evaluate accuracy of thinking or problem-solving processes
• uses language to align the listener with personal position (e.g. "of course", "as you can

imagine", "obviously")
- interacts strategically and confidently with a broad range of interactional partners
- gives an extended explanation and evaluation of a complex concept, issue or process
- justifies a personal stance, after analysis of arguments on a particular issue, using evidence and elaboration in a group situation
- uses language strategically to subtly align others to own perspective as appropriate to audience and purpose

AC9S9I02

plan and conduct valid, to answer questions and test hypotheses, including identifying and controlling for possible sources of error and, as appropriate, developing and following risk assessments, considering ethical issues, and addressing key considerations regarding heritage sites and artefacts on

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-

Elaborations

- discussing what is meant by and reproducibility and how they relate to the method used in an
- determining the reproducibility of a field using survey techniques that seek to answer a question such as: 'How much traffic passes the school during a designated period of time?'
- identifying possible sources of error in methods then examining if further testing or extra control is needed
- identifying the potential hazards of chemicals or biological and processes used in experimental and identifying how these should be addressed
- discussing the ethical and social issues involved in the care and use of animals for scientific purposes before starting an involving animals
- recognising First Nations Australians' heritage and public responsibilities to report new sites or artefacts, and developing awareness of the consequences for disturbing heritage sites on, above or below the land surface, or in waters
Students learn to:

plan and conduct valid, reproducible investigations to answer questions and test hy including identifying and controlling for possible sources of error and, as appropria and following risk assessments, considering ethical issues, and addressing key con regarding heritage sites and artefacts on Country/Place

(AC9S9I02)
General capabilities and cross-curriculum priorities

This content description connects to the following general capabilities and cross-curriculum priorities.
Responding to ethical issues

- Explore ethical perspectives and frameworks
- Explore ethical issues
Understanding ethical concepts and perspectives

- Explore ethical concepts
- Recognise influences on ethical behaviour and perspectives
Culture

- The First Peoples of Australia (Aboriginal Peoples) belong to the world's oldest continuous cultures. First Nations Australians demonstrate resilience in the maintenance, practice and revitalisation of culture despite the many historic and enduring impacts of colonisation, and continue to celebrate and share the past, present and future manifestations of their cultures.
Country/Place

- First Nations communities of Australia maintain a deep connection to, and responsibility for, Country/Place and have holistic values and belief systems that are connected to the land, sea, sky and waterways.
People

- The significant and ongoing contributions of First Nations Australians and their histories and cultures are acknowledged locally, nationally and globally.

Elaborations

Content elaborations provide suggestions of ways to teach the content description and connect it to general capabilities and cross-curriculum priorities. Content elaborations are optional .

Generating

• Put ideas into action

Statistics and probability

• Interpreting and representing data

Analysing

• Evaluate actions and outcomes

Analysing

• Evaluate actions and outcomes

Reading and viewing

• Understanding texts

Generating

• Put ideas into action

Responding to ethical issues

• Explore ethical issues

Understanding ethical concepts and perspectives

• Examine values, rights and responsibilities and ethical norms

Speaking and listening

• Interacting

Responding to ethical issues

• Explore ethical issues

Understanding ethical concepts and perspectives

• Examine values, rights and responsibilities and ethical norms

Country/Place

• First Nations communities of Australia maintain a deep connection to, and responsibility for, Country/Place and have holistic values and belief systems that are connected to the land, sea, sky and waterways.

• The First Peoples of Australia are the Traditional Owners of Country/Place, protected in Australian Law by the Native Title Act 1993 which recognises pre-existing sovereignty, continuing■systems of law and customs, and connection to Country/Place. This recognised legal right provides for economic sustainability and a voice into the development■and management of Country/Place.

People

• The significant and ongoing contributions of First Nations Australians and their histories and cultures are acknowledged locally, nationally and globally.

Related content

This content description can be taught with the following content descriptions from other learning areas.

AC9M9ST05

Snapshot – Explore ethical perspectives and frameworks

Ethical Understanding: Responding to ethical issues: Explore ethical perspective

Content description

AC9S9I02

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.

• explain how different ethical frameworks support developing ethical perspectives and inform ethical decision-making

• analyse and utilise different ethical frameworks when responding to ethical issues and making ethical decisions

Snapshot – Explore ethical issues

Ethical Understanding: Responding to ethical issues: Explore ethical issues

Content description

AC9S9I02

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
• analyse■the relationships between values, ethical perspectives■and ethical frameworks when responding to ethical issues
• apply knowledge of ethical concepts, values, perspectives and frameworks when responding to ethical issues

Snapshot – Explore ethical concepts

Ethical Understanding: Understanding ethical concepts and perspectives: Explor

Content description

AC9S9I02

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
• analyse■the similarities and differences between ethical concepts, such as integrity, loyalty and equality, in a range of situations and contexts
• evaluate■the consistency in meaning of ethical concepts, such as trust, freedom and rights and responsibilities, in a range of situations and contexts

Snapshot – Recognise influences on ethical behaviour and perspectives

Ethical Understanding: Understanding ethical concepts and perspectives: Recogn ethical behaviour and perspectives

Content description

AC9S9I02

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
• explain how different traits, such as■honesty, trust, courage and selfishness interact with responsibilities or duties to determine ethically appropriate responses
• explore and analyse examples of the tensions between conflicting positions on issues of personal, social and global importance

Snapshot – Put ideas into action

Critical and Creative Thinking: Generating: Put ideas into action

Content description

AC9S9I02

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
• put ideas into action by making predictions, testing and evaluating options, and reconsidering approaches in complex or unfamiliar situations
• put ideas into action by making predictions, testing and evaluating options, proposing modifications and adapting approaches in complex or unfamiliar situations

Snapshot – Interpreting and representing data

Numeracy: Statistics and probability: Interpreting and representing data

Content description

AC9S9I02

Learning progression extract

The following learning progression extract shows the alignment of the learning progression with this content.

Interpreting graphical representations

• uses features of graphical representations to make predictions (e.g. predicts audience numbers based on historical data; interprets a range of graphs to identify possible trends and make predictions such as economic growth, stock prices, interest rates, population growth)
• summarises data using fractions, percentages and decimals (e.g. 2 3 \frac23 3 2 ■ of a class live in the same suburb; represents road safety and sun safety statistics as a percentage of the Australian population)

• explains that continuous variables depicting growth or change often vary over time (e.g. creates growth charts to illustrate impacts of financial decisions; describes patterns in inflation rates, employment rates, migration rates over time; represents changes to fitness levels following the implementation of a personal fitness plan; interprets temperature charts)
• interprets graphs depicting motion such as distance–time and velocity–time graphs
• interprets and describes patterns in graphical representations of data from real-life situations such as the motion of a rollercoaster, flight trajectory of a basketball shot and the spread of disease
• investigates the association of 2 2 2 numerical variables through the representation and interpretation of bivariate data (e.g. uses scatter plots to represent bivariate data when investigating the relationship between 2 2 2 variables, such as income per capita, population density and life expectancy for different socio-economic groups)
• investigates, represents and interprets time series data (e.g. interrogates a time series graph showing the change in costs over time; uses a maximum daily temperature chart to determine the average temperature for the month)
• interprets the impact of changes to data (e.g. recognises the impact of outliers on a data set such as the income of a world-class professional athlete on the average income of players at the state/territory level; uses digital tools to enhance the quality of data in a science investigation)

Sampling

• considers the context when determining whether to use data from a sample or a population
• determines what type of sample to use from a population (e.g. decides to use a representative sample when conducting targeted market research or when researching beliefs about a health-related issue)
• makes reasonable statements about a population based on evidence from samples (e.g. considers accuracy of representation of marginalised individuals or population groups)
• plans, executes and reports on sampling-based investigations, taking into account validity of methodology and consistency of data, to answer questions formulated by the student

Recognising bias

• applies an understanding of distributions to evaluate claims based on data (e.g. recognises that the accuracy of using a sample for predicting population values depends on both the relative size of the sample and how well the characteristics of the sample reflect the characteristics of the population; critically analyses statistics that reinforce stereotypes; evaluates claims made by the media regarding young people in relation to drugs and/or risk-taking behaviours)
• identifies and explains bias as a possible source of error in media reports of survey data (e.g. uses data to evaluate veracity of review headlines such as "everybody's favourite game"; investigates media claims on attitudes to government responses to market failure or income redistribution)
• justifies criticisms of data sources that include biased statistical elements (e.g. inappropriate sampling from populations; identifying sources of uncertainty in a scientific investigation; checks the authenticity of a data set)

Snapshot – Evaluate actions and outcomes

Critical and Creative Thinking: Analysing: Evaluate actions and outcomes

Content description

AC9S9I02

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
• evaluate the effectiveness of a course of action or the outcome of a task and account for expected and unexpected results, including using a given or co-developed set of criteria to support decisions
• evaluate the effectiveness of a course of action to achieve desired outcomes and suggest improvements, including using a personally developed set of criteria to support judgements and decisions

Snapshot – Evaluate actions and outcomes

Critical and Creative Thinking: Analysing: Evaluate actions and outcomes

Content description

AC9S9I02

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.

• evaluate the effectiveness of a course of action or the outcome of a task and account for expected and unexpected results, including using a given or co-developed set of criteria to support decisions

• evaluate the effectiveness of a course of action to achieve desired outcomes and suggest improvements, including using a personally developed set of criteria to support judgements and decisions

Snapshot – Understanding texts

Literacy: Reading and viewing: Understanding texts

Content description

AC9S9I02

Learning progression extract

The following learning progression extract shows the alignment of the learning progression with this content.

Comprehension

• reads and views complex texts (see Text complexity)

• identifies the main themes or concepts in complex texts by synthesising key ideas or information

• summarises the text, identifying key details only

• draws inferences, synthesising clues and evidence across a text

• builds meaning by actively linking ideas from a number of texts or a range of digital sources

• distils information from a number of texts according to task and purpose (e.g. uses graphic organisers)

• identifies different interpretations of the text citing evidence from a text

• evaluates language features for relevance to purpose and audience

• analyses texts that have more than one purpose and explains how parts of the text support a particular purpose

• analyses the use of language appropriate to different types of texts (e.g. compare the use of pun in imaginative and persuasive texts)

• identifies techniques used to obscure author's purpose (e.g. inclusion or omission of content)

Processes

• uses processes such as predicting, confirming predictions, monitoring, and connecting relevant elements of the text to build or repair meaning

• uses knowledge of a broader range of cohesive devices to track meaning (e.g. word associations) (see Grammar)

• selects reading or viewing strategies appropriate to reading purpose (e.g. scans text for evidence)

• judiciously selects texts for learning area tasks and purposes

Vocabulary

• identifies language used to create tone or atmosphere

• analyses language and visual features in texts using metalanguage (e.g. cohesion, interpretation, figurative)

• applies knowledge of base words and word origins to understand the meaning of unfamiliar, discipline-specific words

• uses a range of context and grammatical cues to understand unfamiliar words

• interprets complex figurative language (e.g. euphemisms, hyperbole)

Comprehension

• reads and views complex or some highly complex texts (see Text complexity)

• interprets abstract concepts integrating complex ideas

• analyses how language features are used to support the point of view in a text (e.g. the strategic use of images such as a cartoon in an editorial)

• draws inferences using evidence from the text and discounting possible inferences that are not supported by the text

• applies and articulates criteria to evaluate the language structures and features for relevance to purpose and audience

• evaluates the reasoning and evidence in a persuasive text

- explains how context (e.g. time, place, situation) influences interpretations of a text
- analyses the author's perspectives in complex or some highly complex texts
- analyses the techniques authors use to position readers
- recognises when ideas or evidence have been omitted from a text to position the reader

Processes

- automatically integrates a range of processes such as predicting, confirming predictions, monitoring and connecting relevant elements of the text, to build meaning
- describes how sophisticated cohesive devices establish patterns of meaning (e.g. "class" – "subclass")
- navigates extended texts including complex digital texts

Vocabulary

- demonstrates an understanding of nuances and subtleties in words of similar meaning (e.g. "frustrated", "discouraged", "baffled")
- verifies interpretations of unfamiliar words using grammatical and contextual cues

Comprehension

- reads and views highly complex texts (see Text complexity)
- interprets symbolism in texts, providing evidence to justify interpretation
- judiciously selects and synthesises evidence from multiple texts to support ideas and arguments
- analyses the credibility and validity of primary and secondary sources
- evaluates the use of devices such as analogy, irony, rhetoric and satire, and how they contribute to an author's individual style
- analyses the cumulative impact of use of language features and vocabulary across texts
- explains assumptions, beliefs and implicit values in texts (e.g. "economic growth is always desirable")
- evaluates the social, moral and ethical positions taken in texts

Processes

- strategically adjusts the processes of reading and viewing to build meaning according to the demands of tasks and texts
- identifies subtle contradictions and inconsistencies in texts

Vocabulary

- interprets complex, formal and impersonal language in academic texts
- uses lexical cues to interpret unfamiliar vocabulary
- demonstrates self-reliance in exploration and application of word learning strategies

Snapshot – Put ideas into action

Critical and Creative Thinking: Generating: Put ideas into action

Content description

AC9S9I02

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
- put ideas into action by making predictions, testing and evaluating options, and reconsidering approaches in complex or unfamiliar situations
- put ideas into action by making predictions, testing and evaluating options, proposing modifications and adapting approaches in complex or unfamiliar situations

Snapshot – Explore ethical issues

Ethical Understanding: Responding to ethical issues: Explore ethical issues

Content description

AC9S9I02

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
- analyse■the relationships between values, ethical perspectives■and ethical frameworks when responding to ethical issues
- apply knowledge of ethical concepts, values, perspectives and frameworks when responding to ethical issues

Snapshot – Examine values, rights and responsibilities and ethical norms

Ethical Understanding: Understanding ethical concepts and perspectives: Exami responsibilities and ethical norms

Content description

AC9S9I02

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
• describe the relationship between the role of individual and community values, rights and responsibilities, and ethical norms when responding to ethical issues
• describe the importance of values, rights and responsibilities when reaching a position on an ethical issue, and evaluate their role in challenging and defending ethical norms

Snapshot – Interacting

Literacy: Speaking and listening: Interacting

Content description

AC9S9I02

Learning progression extract

The following learning progression extract shows the alignment of the learning progression with this content.
• interacts within school context or the broader community, adjusting language and responses to suit purpose and audience
• synthesises ideas from group discussion into a common theme or hypothesis
• poses problems, hypothesises and formulates questions about abstract ideas in group situations
• restates different views and makes suggestions to negotiate agreement
• poses questions to clarify assumptions made by the speaker
• questions others to evaluate accuracy of thinking or problem-solving processes
• uses language to align the listener with personal position (e.g. "of course", "as you can imagine", "obviously")
• interacts strategically and confidently with a broad range of interactional partners
• gives an extended explanation and evaluation of a complex concept, issue or process
• justifies a personal stance, after analysis of arguments on a particular issue, using evidence and elaboration in a group situation
• uses language strategically to subtly align others to own perspective as appropriate to audience and purpose

Snapshot – Explore ethical issues

Ethical Understanding: Responding to ethical issues: Explore ethical issues

Content description

AC9S9I02

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
• analyse■the relationships between values, ethical perspectives■and ethical frameworks when responding to ethical issues
• apply knowledge of ethical concepts, values, perspectives and frameworks when responding to ethical issues

Snapshot – Examine values, rights and responsibilities and ethical norms

Ethical Understanding: Understanding ethical concepts and perspectives: Exami responsibilities and ethical norms

Content description

AC9S9I02

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
• describe the relationship between the role of individual and community values, rights and responsibilities, and ethical norms when responding to ethical issues
• describe the importance of values, rights and responsibilities when reaching a position on an

ethical issue, and evaluate their role in challenging and defending ethical norms

AC9S9I03

select and use equipment to generate and record with to obtain useful sample sizes and replicable , using as appropriate

•

•

Elaborations

• using an electronic balance that measures within the parameters of the required , and recording to the correct number of significant figures using correct units

• using loggers and choosing correct scale and appropriate output

• examining the degree of that different instruments provide, such as a measuring cylinder compared with a pipette, and recording values to the correct degree of using appropriate scientific notation

• considering the replicability of collected using different instruments, including the inaccuracies that may be introduced when taking measurements

• discussing the amount of needed to produce a useful sample size and why sample size is important

• considering an appropriate sample size for the , and how the use of might enable more-efficient collection for larger sample sizes

Students learn to:

select and use equipment to generate and record data with precision to obtain usef and replicable data, using digital tools as appropriate

(AC9S9I03)

General capabilities and cross-curriculum priorities

This content description connects to the following general capabilities and cross-curriculum priorities.

Investigating

• Acquire and collate data

Statistics and probability

• Interpreting and representing data

Elaborations

Content elaborations provide suggestions of ways to teach the content description and connect it to general capabilities and cross-curriculum priorities. Content elaborations are optional .

Investigating

• Acquire and collate data

Statistics and probability

• Interpreting and representing data

Investigating

• Acquire and collate data

Measurement and geometry

• Understanding units of measurement

Number sense and algebra

• Multiplicative strategies

• Number and place value

Statistics and probability

• Interpreting and representing data

Inquiring

• Identify, process and evaluate information

Statistics and probability

• Interpreting and representing data

Investigating

• Acquire and collate data

Statistics and probability

• Interpreting and representing data

Related content

This content description can be taught with the following content descriptions from other learning

areas.
AC9M9M02
AC9M9N01

Snapshot – Acquire and collate data

Digital Literacy: Investigating: Acquire and collate data

Content description

AC9S9I03

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
• collect and access data from a range of sources, using specialised digital tools in response to problems, and evaluate it for relevance
• collect and evaluate quantitative and qualitative data using specialised digital tools and processes in the context of identified problems

Snapshot – Interpreting and representing data

Numeracy: Statistics and probability: Interpreting and representing data

Content description

AC9S9I03

Learning progression extract

The following learning progression extract shows the alignment of the learning progression with this content.

Interpreting graphical representations

• uses features of graphical representations to make predictions (e.g. predicts audience numbers based on historical data; interprets a range of graphs to identify possible trends and make predictions such as economic growth, stock prices, interest rates, population growth)
• summarises data using fractions, percentages and decimals (e.g. 2 3 \frac23 3 2 ■ of a class live in the same suburb; represents road safety and sun safety statistics as a percentage of the Australian population)
• explains that continuous variables depicting growth or change often vary over time (e.g. creates growth charts to illustrate impacts of financial decisions; describes patterns in inflation rates, employment rates, migration rates over time; represents changes to fitness levels following the implementation of a personal fitness plan; interprets temperature charts)
• interprets graphs depicting motion such as distance–time and velocity–time graphs
• interprets and describes patterns in graphical representations of data from real-life situations such as the motion of a rollercoaster, flight trajectory of a basketball shot and the spread of disease
• investigates the association of 2 2 2 numerical variables through the representation and interpretation of bivariate data (e.g. uses scatter plots to represent bivariate data when investigating the relationship between 2 2 2 variables, such as income per capita, population density and life expectancy for different socio-economic groups)
• investigates, represents and interprets time series data (e.g. interrogates a time series graph showing the change in costs over time; uses a maximum daily temperature chart to determine the average temperature for the month)
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Sampling

• considers the context when determining whether to use data from a sample or a population
• determines what type of sample to use from a population (e.g. decides to use a representative sample when conducting targeted market research or when researching beliefs about a health-related issue)
• makes reasonable statements about a population based on evidence from samples (e.g. considers accuracy of representation of marginalised individuals or population groups)
• plans, executes and reports on sampling-based investigations, taking into account validity of methodology and consistency of data, to answer questions formulated by the student

Recognising bias

• applies an understanding of distributions to evaluate claims based on data (e.g. recognises that the accuracy of using a sample for predicting population values depends on both the relative size of the sample and how well the characteristics of the sample reflect the characteristics of the population; critically analyses statistics that reinforce stereotypes; evaluates claims made by the media regarding young people in relation to drugs and/or risk-taking behaviours)
• identifies and explains bias as a possible source of error in media reports of survey data (e.g. uses data to evaluate veracity of review headlines such as "everybody's favourite game"; investigates media claims on attitudes to government responses to market failure or income redistribution)
• justifies criticisms of data sources that include biased statistical elements (e.g. inappropriate sampling from populations; identifying sources of uncertainty in a scientific investigation; checks the authenticity of a data set)

Snapshot – Acquire and collate data

Digital Literacy: Investigating: Acquire and collate data

Content description

AC9S9I03

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
• collect and access data from a range of sources, using specialised digital tools in response to problems, and evaluate it for relevance
• collect and evaluate quantitative and qualitative data using specialised digital tools and processes in the context of identified problems

Snapshot – Interpreting and representing data

Numeracy: Statistics and probability: Interpreting and representing data

Content description

AC9S9I03

Learning progression extract

The following learning progression extract shows the alignment of the learning progression with this content.

Interpreting graphical representations

• uses features of graphical representations to make predictions (e.g. predicts audience numbers based on historical data; interprets a range of graphs to identify possible trends and make predictions such as economic growth, stock prices, interest rates, population growth)
• summarises data using fractions, percentages and decimals (e.g. 2 3 \frac23 3 2 ■ of a class live in the same suburb; represents road safety and sun safety statistics as a percentage of the Australian population)
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Sampling

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• determines what type of sample to use from a population (e.g. decides to use a representative sample when conducting targeted market research or when researching beliefs about a health-related issue)
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Recognising bias

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• identifies and explains bias as a possible source of error in media reports of survey data (e.g. uses data to evaluate veracity of review headlines such as "everybody's favourite game"; investigates media claims on attitudes to government responses to market failure or income redistribution)
• justifies criticisms of data sources that include biased statistical elements (e.g. inappropriate sampling from populations; identifying sources of uncertainty in a scientific investigation; checks the authenticity of a data set)

Snapshot – Acquire and collate data

Digital Literacy: Investigating: Acquire and collate data

Content description

AC9S9I03

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
• collect and access data from a range of sources, using specialised digital tools in response to problems, and evaluate it for relevance
• collect and evaluate quantitative and qualitative data using specialised digital tools and processes in the context of identified problems

Snapshot – Understanding units of measurement

Numeracy: Measurement and geometry: Understanding units of measurement

Content description

AC9S9I03

Learning progression extract

The following learning progression extract shows the alignment of the learning progression with this content.

Using metric units and formulas

• establishes and uses formulas for calculating the area of parallelograms, trapeziums, rhombuses and kites
• establishes and uses formulas for calculating the volume and surface area of a range of right prisms

Circle measurements

• informally estimates the circumference of a circle using the radius or diameter
• establishes the relationship between the circumference and the diameter of a circle as the constant π \pi π
• calculates the circumference and the area of a circle using π \pi π and a known diameter or radius

Using metric units and formulas

• uses dissection, rearrangement and estimation to calculate or approximate the area and volume of composite shapes and objects
• uses metric units and formulas to calculate the volume and surface area of right prisms, cylinders, cones and pyramids
• uses the conversion between units of volume and capacity to calculate the capacity of objects based on the internal volume and vice versa

• identifies appropriate metric units to use according to the level of precision required (e.g. building plans show measurements in millimetres, but to purchase enough carpet you need to measure the length and width of the room and round up to the nearest whole metre)

• uses and applies Pythagoras' theorem to authentic contexts (e.g. determines the length of a cross brace given the width of a gate is 1050 1050 1 0 5 0 millimetres and its height is 1450 1450 1 4 5 0 millimetres)

• uses and applies properties of congruent and similar triangles to authentic contexts to determine the size of unknown angles and lengths of sides

• uses trigonometry to calculate the unknown lengths or angles in authentic problems

• chooses an appropriate method to solve problems involving right triangles in authentic contexts

Snapshot – Multiplicative strategies

Numeracy: Number sense and algebra: Multiplicative strategies

Content description

AC9S9I03

Learning progression extract

The following learning progression extract shows the alignment of the learning progression with this content.

Flexible strategies for multiplication and division of rational numbers

• expresses a number as a product of its prime factors for a purpose

• expresses repeated factors of the same number in exponent form (e.g. $2 \times 2 \times 2 \times 3 \times 3 = 2^3 \times 3^2$)

• identifies and describes products of the same number as square or cube numbers (e.g. 3×3 is the same as 3^2 which is read as 3 squared)

• describes the effect of multiplication by a decimal or fraction less than one (e.g. when multiplying natural numbers by a fraction or decimal less than one such as $15 \times \frac{1}{2} = 7.5$)

• connects and converts decimals to fractions to assist in mental computation involving multiplication or division (e.g. to calculate 16×0.25, recognises 0.25 as a quarter, and determines a quarter of 16 or determines $0.5 \div 0.25$, by reading this as "one half, how many quarters?" and gives the answer as 2)

• calculates the percentage of a quantity flexibly using multiplication and division (e.g. to calculate 13 % of 1600 uses 0.13×1600 or $1600 \div 100 \times 13$)

• uses multiplicative strategies efficiently to solve problems involving rational numbers including integers (e.g. calculates the average temperature for Mt Wellington for July to be ■ 1.6 ■C)

Flexible strategies for working multiplicatively

• uses knowledge of place value and multiplicative partitioning to multiply and divide decimals efficiently (e.g. $0.461 \times 200 = 0.461 \times 100 \times 2 = 46.1 \times 2 = 92.2$)

• flexibly operates multiplicatively with extremely large or very small numbers expressed in scientific notation (e.g. calculates the area of a computer chip measuring 2.56×10^{-6} m in width by 1.4×10^{-7} m in length)

• chooses and uses appropriate strategies to solve multi-step problems and model situations involving rational numbers

• represents and solves multifaceted problems in a wide range of multiplicative situations including scientific notation for those involving very small or very large numbers (e.g. chooses to calculate the percentage of a percentage to determine successive discounts; determines the time it takes for sunlight to reach the earth)

Snapshot – Number and place value

Numeracy: Number sense and algebra: Number and place value

Content description

AC9S9I03

Learning progression extract

The following learning progression extract shows the alignment of the learning progression with this content.

Numeral recognition and identification

• reads, represents, interprets and uses negative numbers in computation (e.g. explains that the temperature -10 °C is colder than the temperature -2.5 °C; recognises that negative numbers are less than zero; locates -12 on a number line)

Place value

• identifies that negative numbers are integers that represent both size and direction (e.g. uses a number line to represent position and order negative numbers; uses negative numbers in financial contexts such as to model an overdrawn account)

• understands that multiplying and dividing numbers by $10, 100, 1000$ changes the positional value of the digits (e.g. explains that 100 times 0.125 is 12.5 because each digit value in 0.125 is multiplied by 100, so 100×0.1 is 10, 100×0.02 is 2 and 100×0.005 is 0.5; converts between units of centimetres and millimetres when planning, measuring and marking materials for cutting)

• rounds decimals to a specified number of decimal places for a purpose (e.g. the mean distance thrown in a school javelin competition was rounded to 2 decimal places; if the percentage profit was calculated as 12.467921 %, rounds the calculation to 12.5 %)

Numeral recognition and identification

• identifies, reads and interprets very large numbers and very small numbers (e.g. reads that the world population is estimated to be seven billion and interprets this to mean $7\ 000\ 000\ 000$ or 7×10^9; interprets the approximate mass of protons and neutrons as 1.67×10^{-24} g; identifies and interprets the value of national government debt)

Place value

• compares and orders very large numbers and very small numbers (e.g. understands the relative size of very large time scales such as a millennium)

• relates place value parts to exponents (e.g. 1000 is 100 times greater than 10, and that is why $10 \times 10^2 = 10^3$ and why 10^3 divided by 10 is equal to 10^2)

• expresses numbers in scientific notation (e.g. when calculating the distance of the Earth from the sun uses 1.5×10^8 as an approximation; a nanometre has an order of magnitude of -9 and is represented as 10^{-9})

Snapshot – Interpreting and representing data

Numeracy: Statistics and probability: Interpreting and representing data

Content description

AC9S9I03

Learning progression extract

The following learning progression extract shows the alignment of the learning progression with this content.

Interpreting graphical representations

• uses features of graphical representations to make predictions (e.g. predicts audience numbers based on historical data; interprets a range of graphs to identify possible trends and make predictions such as economic growth, stock prices, interest rates, population growth)

• summarises data using fractions, percentages and decimals (e.g. $\frac{2}{3}$ ■ of a class live in the same suburb; represents road safety and sun safety statistics as a percentage of the Australian population)

• explains that continuous variables depicting growth or change often vary over time (e.g. creates growth charts to illustrate impacts of financial decisions; describes patterns in inflation rates, employment rates, migration rates over time; represents changes to fitness levels following the

implementation of a personal fitness plan; interprets temperature charts)
• interprets graphs depicting motion such as distance–time and velocity–time graphs
• interprets and describes patterns in graphical representations of data from real-life situations such as the motion of a rollercoaster, flight trajectory of a basketball shot and the spread of disease
• investigates the association of 2 2 2 numerical variables through the representation and interpretation of bivariate data (e.g. uses scatter plots to represent bivariate data when investigating the relationship between 2 2 2 variables, such as income per capita, population density and life expectancy for different socio-economic groups)
• investigates, represents and interprets time series data (e.g. interrogates a time series graph showing the change in costs over time; uses a maximum daily temperature chart to determine the average temperature for the month)
• interprets the impact of changes to data (e.g. recognises the impact of outliers on a data set such as the income of a world-class professional athlete on the average income of players at the state/territory level; uses digital tools to enhance the quality of data in a science investigation)

Sampling

• considers the context when determining whether to use data from a sample or a population
• determines what type of sample to use from a population (e.g. decides to use a representative sample when conducting targeted market research or when researching beliefs about a health-related issue)
• makes reasonable statements about a population based on evidence from samples (e.g. considers accuracy of representation of marginalised individuals or population groups)
• plans, executes and reports on sampling-based investigations, taking into account validity of methodology and consistency of data, to answer questions formulated by the student

Recognising bias

• applies an understanding of distributions to evaluate claims based on data (e.g. recognises that the accuracy of using a sample for predicting population values depends on both the relative size of the sample and how well the characteristics of the sample reflect the characteristics of the population; critically analyses statistics that reinforce stereotypes; evaluates claims made by the media regarding young people in relation to drugs and/or risk-taking behaviours)
• identifies and explains bias as a possible source of error in media reports of survey data (e.g. uses data to evaluate veracity of review headlines such as "everybody's favourite game"; investigates media claims on attitudes to government responses to market failure or income redistribution)
• justifies criticisms of data sources that include biased statistical elements (e.g. inappropriate sampling from populations; identifying sources of uncertainty in a scientific investigation; checks the authenticity of a data set)

Snapshot – Identify, process and evaluate information

Critical and Creative Thinking: Inquiring: Identify, process and evaluate informati

Content description

AC9S9I03

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
• identify and clarify significant information and opinion from a range of sources, including visual information and digital sources
• evaluate the accuracy, validity and relevance of the information and opinion to the topic of study
• identify and clarify significant information and opinion from a range of sources, including visual information and digital sources
• evaluate the information selected to determine bias and reliability

Snapshot – Interpreting and representing data

Numeracy: Statistics and probability: Interpreting and representing data

Content description

AC9S9I03

Learning progression extract

The following learning progression extract shows the alignment of the learning progression with this

content.
Interpreting graphical representations
• uses features of graphical representations to make predictions (e.g. predicts audience numbers based on historical data; interprets a range of graphs to identify possible trends and make predictions such as economic growth, stock prices, interest rates, population growth)
• summarises data using fractions, percentages and decimals (e.g. 2 3 \frac23 3 2 ■ of a class live in the same suburb; represents road safety and sun safety statistics as a percentage of the Australian population)
• explains that continuous variables depicting growth or change often vary over time (e.g. creates growth charts to illustrate impacts of financial decisions; describes patterns in inflation rates, employment rates, migration rates over time; represents changes to fitness levels following the implementation of a personal fitness plan; interprets temperature charts)
• interprets graphs depicting motion such as distance–time and velocity–time graphs
• interprets and describes patterns in graphical representations of data from real-life situations such as the motion of a rollercoaster, flight trajectory of a basketball shot and the spread of disease
• investigates the association of 2 2 2 numerical variables through the representation and interpretation of bivariate data (e.g. uses scatter plots to represent bivariate data when investigating the relationship between 2 2 2 variables, such as income per capita, population density and life expectancy for different socio-economic groups)
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• interprets the impact of changes to data (e.g. recognises the impact of outliers on a data set such as the income of a world-class professional athlete on the average income of players at the state/territory level; uses digital tools to enhance the quality of data in a science investigation)
Sampling
• considers the context when determining whether to use data from a sample or a population
• determines what type of sample to use from a population (e.g. decides to use a representative sample when conducting targeted market research or when researching beliefs about a health-related issue)
• makes reasonable statements about a population based on evidence from samples (e.g. considers accuracy of representation of marginalised individuals or population groups)
• plans, executes and reports on sampling-based investigations, taking into account validity of methodology and consistency of data, to answer questions formulated by the student
Recognising bias
• applies an understanding of distributions to evaluate claims based on data (e.g. recognises that the accuracy of using a sample for predicting population values depends on both the relative size of the sample and how well the characteristics of the sample reflect the characteristics of the population; critically analyses statistics that reinforce stereotypes; evaluates claims made by the media regarding young people in relation to drugs and/or risk-taking behaviours)
• identifies and explains bias as a possible source of error in media reports of survey data (e.g. uses data to evaluate veracity of review headlines such as "everybody's favourite game"; investigates media claims on attitudes to government responses to market failure or income redistribution)
• justifies criticisms of data sources that include biased statistical elements (e.g. inappropriate sampling from populations; identifying sources of uncertainty in a scientific investigation; checks the authenticity of a data set)
Snapshot – Acquire and collate data
Digital Literacy: Investigating: Acquire and collate data
Content description
AC9S9I03
Continuum extract
The following continuum extract shows the alignment of the continuum with this content.
• collect and access data from a range of sources, using specialised digital tools in response to problems, and evaluate it for relevance

• collect and evaluate quantitative and qualitative data using specialised digital tools and processes in the context of identified problems

Snapshot – Interpreting and representing data

Numeracy: Statistics and probability: Interpreting and representing data

Content description

AC9S9I03

Learning progression extract

The following learning progression extract shows the alignment of the learning progression with this content.

Interpreting graphical representations

• uses features of graphical representations to make predictions (e.g. predicts audience numbers based on historical data; interprets a range of graphs to identify possible trends and make predictions such as economic growth, stock prices, interest rates, population growth)

• summarises data using fractions, percentages and decimals (e.g. 2 3 \frac23 3 2 ■ of a class live in the same suburb; represents road safety and sun safety statistics as a percentage of the Australian population)

• explains that continuous variables depicting growth or change often vary over time (e.g. creates growth charts to illustrate impacts of financial decisions; describes patterns in inflation rates, employment rates, migration rates over time; represents changes to fitness levels following the implementation of a personal fitness plan; interprets temperature charts)

• interprets graphs depicting motion such as distance–time and velocity–time graphs

• interprets and describes patterns in graphical representations of data from real-life situations such as the motion of a rollercoaster, flight trajectory of a basketball shot and the spread of disease

• investigates the association of 2 2 2 numerical variables through the representation and interpretation of bivariate data (e.g. uses scatter plots to represent bivariate data when investigating the relationship between 2 2 2 variables, such as income per capita, population density and life expectancy for different socio-economic groups)

• investigates, represents and interprets time series data (e.g. interrogates a time series graph showing the change in costs over time; uses a maximum daily temperature chart to determine the average temperature for the month)

• interprets the impact of changes to data (e.g. recognises the impact of outliers on a data set such as the income of a world-class professional athlete on the average income of players at the state/territory level; uses digital tools to enhance the quality of data in a science investigation)

Sampling

• considers the context when determining whether to use data from a sample or a population

• determines what type of sample to use from a population (e.g. decides to use a representative sample when conducting targeted market research or when researching beliefs about a health-related issue)

• makes reasonable statements about a population based on evidence from samples (e.g. considers accuracy of representation of marginalised individuals or population groups)

• plans, executes and reports on sampling-based investigations, taking into account validity of methodology and consistency of data, to answer questions formulated by the student

Recognising bias

• applies an understanding of distributions to evaluate claims based on data (e.g. recognises that the accuracy of using a sample for predicting population values depends on both the relative size of the sample and how well the characteristics of the sample reflect the characteristics of the population; critically analyses statistics that reinforce stereotypes; evaluates claims made by the media regarding young people in relation to drugs and/or risk-taking behaviours)

• identifies and explains bias as a possible source of error in media reports of survey data (e.g. uses data to evaluate veracity of review headlines such as "everybody's favourite game"; investigates media claims on attitudes to government responses to market failure or income redistribution)

• justifies criticisms of data sources that include biased statistical elements (e.g. inappropriate sampling from populations; identifying sources of uncertainty in a scientific investigation; checks the authenticity of a data set)

AC9S9I04

select and construct appropriate , including tables, , descriptive statistics, and mathematical , to organise and process and information

•

•

Elaborations

• using spreadsheet software to present in tabular and graphical forms

• identifying which sample , such as mean, median and range, are the most appropriate to use to make generalisations

• applying algorithms to measure carbon storage of different vegetation types

• applying ratios to accurately represent usable and waste energy in transfer and transformation diagrams such as Sankey diagrams

• comparing the information provided by molecular and word and balanced symbolic chemical equations when examining the of conservation of

Students learn to:

select and construct appropriate representations, including tables, graphs, descript models and mathematical relationships, to organise and process data and informati

(AC9S9I04)

General capabilities and cross-curriculum priorities

This content description connects to the following general capabilities and cross-curriculum priorities.

Investigating

• Interpret data

Number sense and algebra

• Number patterns and algebraic thinking

• Number and place value

Statistics and probability

• Interpreting and representing data

Elaborations

Content elaborations provide suggestions of ways to teach the content description and connect it to general capabilities and cross-curriculum priorities. Content elaborations are optional .

Investigating

• Interpret data

Statistics and probability

• Interpreting and representing data

Statistics and probability

• Interpreting and representing data

Number sense and algebra

• Number patterns and algebraic thinking

Number sense and algebra

• Proportional thinking

Analysing

• Interpret concepts and problems

Related content

This content description can be taught with the following content descriptions from other learning areas.

AC9HG9S02

AC9M9A05

AC9M9M02

AC9M9P03

AC9M9ST04

Snapshot – Interpret data

Digital Literacy: Investigating: Interpret data

Content description

AC9S9I04

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.

• analyse and visualise data by selecting and using a range of digital tools to infer relationships and make predictions

• analyse and visualise multidimensional data by selecting and using a range of interactive tools to draw conclusions and make predictions

Snapshot – Number patterns and algebraic thinking

Numeracy: Number sense and algebra: Number patterns and algebraic thinking

Content description

AC9S9I04

Learning progression extract

The following learning progression extract shows the alignment of the learning progression with this content.

Algebraic expressions

• creates and identifies algebraic equations from word problems involving one or more operations (e.g. if a taxi charges $\$5$ call out fee then a flat rate of $\$2.30$ per km travelled, represents this algebraically as $C = 5 + 2.3d$ where d is the distance travelled in km and C is the total cost of the trip)

• identifies and justifies equivalent algebraic expressions

• interprets a table of values in order to plot points on a graph

Algebraic relationships

• interprets and uses formulas and algebraic equations that describe relationships in various contexts (e.g. uses $\mathrm{A}=\mathrm{\pi r}^2$ to calculate the area of a circular space; uses $\mathrm{A}=\mathrm{P}(1+\frac{\mathrm r}{\mathrm n})^{\mathrm{nt}}$ when working with compound interest; uses $v=u+at$ to calculate the velocity of an object

• plots relationships on a graph using a table of values representing authentic data (e.g. uses data recorded in a spreadsheet to plot results of a science experiment)

Linear and non-linear relationships

• identifies the difference between linear and non-linear relationships in everyday contexts (e.g. explains that in a linear relationship, the rate of change is constant such as the cost of babysitting by the hour, whereas in a non-linear relationship the rate of change will vary and it could grow multiplicatively or exponentially such as a social media post going viral)

• describes and interprets the graphical features of linear and non-linear growth in authentic problems (e.g. compares simple and compound interest graphs; describes the relationship between scientific data plotted on a graph; analyses a graph to identify the inverse relationship between price and quantity demanded or the relationship between Human Development Index (HDI) and standards of living)

Snapshot – Number and place value

Numeracy: Number sense and algebra: Number and place value

Content description

AC9S9I04

Learning progression extract

The following learning progression extract shows the alignment of the learning progression with this content.

Numeral recognition and identification

• reads, represents, interprets and uses negative numbers in computation (e.g. explains that the temperature $-10\ °C$ is colder than the temperature $-2.5\ °C$; recognises that negative numbers are less than zero; locates -12 on a number line)

Place value

• identifies that negative numbers are integers that represent both size and direction (e.g. uses a number line to represent position and order negative numbers; uses negative numbers in financial

contexts such as to model an overdrawn account)

• understands that multiplying and dividing numbers by 10, 100, 1000 changes the positional value of the digits (e.g. explains that 100 times 0.125 is 12.5 because each digit value in 0.125 is multiplied by 100, so 100×0.1 is 10, 100×0.02 is 2 and 100×0.005 is 0.5; converts between units of centimetres and millimetres when planning, measuring and marking materials for cutting)

• rounds decimals to a specified number of decimal places for a purpose (e.g. the mean distance thrown in a school javelin competition was rounded to 2 decimal places; if the percentage profit was calculated as 12.467921%, rounds the calculation to 12.5%)

Numeral recognition and identification

• identifies, reads and interprets very large numbers and very small numbers (e.g. reads that the world population is estimated to be seven billion and interprets this to mean $7\,000\,000\,000\,000\,000$ or 7×10^9; interprets the approximate mass of protons and neutrons as 1.67×10^{-24} g; identifies and interprets the value of national government debt)

Place value

• compares and orders very large numbers and very small numbers (e.g. understands the relative size of very large time scales such as a millennium)

• relates place value parts to exponents (e.g. 1000 is 100 times greater than 10, and that is why $10 \times 10^2 = 10^3$ and why 10^3 divided by 10 is equal to 10^2)

• expresses numbers in scientific notation (e.g. when calculating the distance of the Earth from the sun uses 1.5×10^8 as an approximation; a nanometre has an order of magnitude of -9 and is represented as 10^{-9})

Snapshot – Interpreting and representing data

Numeracy: Statistics and probability: Interpreting and representing data

Content description

AC9S9I04

Learning progression extract

The following learning progression extract shows the alignment of the learning progression with this content.

Collecting, displaying, interpreting and analysing numerical data

• poses questions based on variations in continuous numerical data and chooses the appropriate method to collect and record data (e.g. collects information on the heights of buildings or daily temperatures, tabulates the results and represents these graphically; uses a survey to collect primary data or secondary data extracted from census data)

• uses numerical and graphical representations relevant to the purpose of the collection of the data and explains their reasoning (e.g. "I can't use a frequency histogram for categorical data because there is no numerical connection between the categories"; converts their data to percentages in order to compare the girls' results to those of the boys, as the total number of boys and girls who participated in the survey was different)

• determines and calculates the most appropriate statistic to describe the spread of data (e.g. when creating an infographic, uses the mean of the data to describe household income and the median of the data for house prices)

• calculates simple descriptive statistics such as mode, mean or median as measures to represent typical values of a distribution (e.g. describes the mean kilojoule intake and median hours of exercise of a sample population when investigating community health and wellbeing; describes central tendency when analysing road safety statistics)

• compares the usefulness of different representations of the same data (e.g. chooses to use a line graph to illustrate trends, a bar graph to compare the living standards of different economies and a histogram to show income distribution)

• describes the spread of a data distribution in terms of the range, clusters, skewness and symmetry of the graphical display, and determines and makes connections to the mode, median and mean of the

data
Interpreting graphical representations
• uses features of graphical representations to make predictions (e.g. predicts audience numbers based on historical data; interprets a range of graphs to identify possible trends and make predictions such as economic growth, stock prices, interest rates, population growth)
• summarises data using fractions, percentages and decimals (e.g. 2 3 \frac23 3 2 ■ of a class live in the same suburb; represents road safety and sun safety statistics as a percentage of the Australian population)
• explains that continuous variables depicting growth or change often vary over time (e.g. creates growth charts to illustrate impacts of financial decisions; describes patterns in inflation rates, employment rates, migration rates over time; represents changes to fitness levels following the implementation of a personal fitness plan; interprets temperature charts)
• interprets graphs depicting motion such as distance–time and velocity–time graphs
• interprets and describes patterns in graphical representations of data from real-life situations such as the motion of a rollercoaster, flight trajectory of a basketball shot and the spread of disease
• investigates the association of 2 2 2 numerical variables through the representation and interpretation of bivariate data (e.g. uses scatter plots to represent bivariate data when investigating the relationship between 2 2 2 variables, such as income per capita, population density and life expectancy for different socio-economic groups)
• investigates, represents and interprets time series data (e.g. interrogates a time series graph showing the change in costs over time; uses a maximum daily temperature chart to determine the average temperature for the month)
• interprets the impact of changes to data (e.g. recognises the impact of outliers on a data set such as the income of a world-class professional athlete on the average income of players at the state/territory level; uses digital tools to enhance the quality of data in a science investigation)
Sampling
• considers the context when determining whether to use data from a sample or a population
• determines what type of sample to use from a population (e.g. decides to use a representative sample when conducting targeted market research or when researching beliefs about a health-related issue)
• makes reasonable statements about a population based on evidence from samples (e.g. considers accuracy of representation of marginalised individuals or population groups)
• plans, executes and reports on sampling-based investigations, taking into account validity of methodology and consistency of data, to answer questions formulated by the student

Snapshot – Interpret data

Digital Literacy: Investigating: Interpret data

Content description

AC9S9I04

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
• analyse and visualise data by selecting and using a range of digital tools to infer relationships and make predictions
• analyse and visualise multidimensional data by selecting and using a range of interactive tools to draw conclusions and make predictions

Snapshot – Interpreting and representing data

Numeracy: Statistics and probability: Interpreting and representing data

Content description

AC9S9I04

Learning progression extract

The following learning progression extract shows the alignment of the learning progression with this content.
Collecting, displaying, interpreting and analysing numerical data
• poses questions based on variations in continuous numerical data and chooses the appropriate method to collect and record data (e.g. collects information on the heights of buildings or daily

temperatures, tabulates the results and represents these graphically; uses a survey to collect primary data or secondary data extracted from census data)
• uses numerical and graphical representations relevant to the purpose of the collection of the data and explains their reasoning (e.g. "I can't use a frequency histogram for categorical data because there is no numerical connection between the categories"; converts their data to percentages in order to compare the girls' results to those of the boys, as the total number of boys and girls who participated in the survey was different)
• determines and calculates the most appropriate statistic to describe the spread of data (e.g. when creating an infographic, uses the mean of the data to describe household income and the median of the data for house prices)
• calculates simple descriptive statistics such as mode, mean or median as measures to represent typical values of a distribution (e.g. describes the mean kilojoule intake and median hours of exercise of a sample population when investigating community health and wellbeing; describes central tendency when analysing road safety statistics)
• compares the usefulness of different representations of the same data (e.g. chooses to use a line graph to illustrate trends, a bar graph to compare the living standards of different economies and a histogram to show income distribution)
• describes the spread of a data distribution in terms of the range, clusters, skewness and symmetry of the graphical display, and determines and makes connections to the mode, median and mean of the data

Interpreting graphical representations
• uses features of graphical representations to make predictions (e.g. predicts audience numbers based on historical data; interprets a range of graphs to identify possible trends and make predictions such as economic growth, stock prices, interest rates, population growth)
• summarises data using fractions, percentages and decimals (e.g. $\frac{2}{3}$ ■ of a class live in the same suburb; represents road safety and sun safety statistics as a percentage of the Australian population)
• explains that continuous variables depicting growth or change often vary over time (e.g. creates growth charts to illustrate impacts of financial decisions; describes patterns in inflation rates, employment rates, migration rates over time; represents changes to fitness levels following the implementation of a personal fitness plan; interprets temperature charts)
• interprets graphs depicting motion such as distance–time and velocity–time graphs
• interprets and describes patterns in graphical representations of data from real-life situations such as the motion of a rollercoaster, flight trajectory of a basketball shot and the spread of disease
• investigates the association of 2 numerical variables through the representation and interpretation of bivariate data (e.g. uses scatter plots to represent bivariate data when investigating the relationship between 2 variables, such as income per capita, population density and life expectancy for different socio-economic groups)
• investigates, represents and interprets time series data (e.g. interrogates a time series graph showing the change in costs over time; uses a maximum daily temperature chart to determine the average temperature for the month)
• interprets the impact of changes to data (e.g. recognises the impact of outliers on a data set such as the income of a world-class professional athlete on the average income of players at the state/territory level; uses digital tools to enhance the quality of data in a science investigation)

Sampling
• considers the context when determining whether to use data from a sample or a population
• determines what type of sample to use from a population (e.g. decides to use a representative sample when conducting targeted market research or when researching beliefs about a health-related issue)
• makes reasonable statements about a population based on evidence from samples (e.g. considers accuracy of representation of marginalised individuals or population groups)
• plans, executes and reports on sampling-based investigations, taking into account validity of methodology and consistency of data, to answer questions formulated by the student

Snapshot – Interpreting and representing data
Numeracy: Statistics and probability: Interpreting and representing data

Content description

AC9S9I04

Learning progression extract

The following learning progression extract shows the alignment of the learning progression with this content.

Interpreting graphical representations

• uses features of graphical representations to make predictions (e.g. predicts audience numbers based on historical data; interprets a range of graphs to identify possible trends and make predictions such as economic growth, stock prices, interest rates, population growth)

• summarises data using fractions, percentages and decimals (e.g. 2 3 \frac23 3 2 ■ of a class live in the same suburb; represents road safety and sun safety statistics as a percentage of the Australian population)

• explains that continuous variables depicting growth or change often vary over time (e.g. creates growth charts to illustrate impacts of financial decisions; describes patterns in inflation rates, employment rates, migration rates over time; represents changes to fitness levels following the implementation of a personal fitness plan; interprets temperature charts)

• interprets graphs depicting motion such as distance–time and velocity–time graphs

• interprets and describes patterns in graphical representations of data from real-life situations such as the motion of a rollercoaster, flight trajectory of a basketball shot and the spread of disease

• investigates the association of 2 2 2 numerical variables through the representation and interpretation of bivariate data (e.g. uses scatter plots to represent bivariate data when investigating the relationship between 2 2 2 variables, such as income per capita, population density and life expectancy for different socio-economic groups)

• investigates, represents and interprets time series data (e.g. interrogates a time series graph showing the change in costs over time; uses a maximum daily temperature chart to determine the average temperature for the month)

• interprets the impact of changes to data (e.g. recognises the impact of outliers on a data set such as the income of a world-class professional athlete on the average income of players at the state/territory level; uses digital tools to enhance the quality of data in a science investigation)

Sampling

• considers the context when determining whether to use data from a sample or a population

• determines what type of sample to use from a population (e.g. decides to use a representative sample when conducting targeted market research or when researching beliefs about a health-related issue)

• makes reasonable statements about a population based on evidence from samples (e.g. considers accuracy of representation of marginalised individuals or population groups)

• plans, executes and reports on sampling-based investigations, taking into account validity of methodology and consistency of data, to answer questions formulated by the student

Recognising bias

• applies an understanding of distributions to evaluate claims based on data (e.g. recognises that the accuracy of using a sample for predicting population values depends on both the relative size of the sample and how well the characteristics of the sample reflect the characteristics of the population; critically analyses statistics that reinforce stereotypes; evaluates claims made by the media regarding young people in relation to drugs and/or risk-taking behaviours)

• identifies and explains bias as a possible source of error in media reports of survey data (e.g. uses data to evaluate veracity of review headlines such as "everybody's favourite game"; investigates media claims on attitudes to government responses to market failure or income redistribution)

• justifies criticisms of data sources that include biased statistical elements (e.g. inappropriate sampling from populations; identifying sources of uncertainty in a scientific investigation; checks the authenticity of a data set)

Snapshot – Number patterns and algebraic thinking

Numeracy: Number sense and algebra: Number patterns and algebraic thinking

Content description

AC9S9I04
Learning progression extract

The following learning progression extract shows the alignment of the learning progression with this content.

Algebraic expressions

• creates and identifies algebraic equations from word problems involving one or more operations (e.g. if a taxi charges $ 5 \$5 $ 5 call out fee then a flat rate of $ 2.30 \$2.30 $ 2 . 3 0 per km travelled, represents this algebraically as C = 5 + 2.3 d C=5+2.3d C = 5 + 2 . 3 d where d d d is the distance travelled in km and C C C is the total cost of the trip)

• identifies and justifies equivalent algebraic expressions

• interprets a table of values in order to plot points on a graph

Algebraic relationships

• interprets and uses formulas and algebraic equations that describe relationships in various contexts (e.g. uses A = π r 2 \mathrm A=\mathrm{πr}^2 A = π r 2 to calculate the area of a circular space; uses A = P (1 + r n) n t \mathrm A=\mathrm P(1+\frac{\mathrm r}{\mathrm n})^{\mathrm{nt}} A = P (1 + n r ■) n t when working with compound interest; uses v = u + a t v=u+at v = u + a t to calculate the velocity of an object

• plots relationships on a graph using a table of values representing authentic data (e.g. uses data recorded in a spreadsheet to plot results of a science experiment)

Linear and non-linear relationships

• identifies the difference between linear and non-linear relationships in everyday contexts (e.g. explains that in a linear relationship, the rate of change is constant such as the cost of babysitting by the hour, whereas in a non-linear relationship the rate of change will vary and it could grow multiplicatively or exponentially such as a social media post going viral)

• describes and interprets the graphical features of linear and non-linear growth in authentic problems (e.g. compares simple and compound interest graphs; describes the relationship between scientific data plotted on a graph; analyses a graph to identify the inverse relationship between price and quantity demanded or the relationship between Human Development Index (HDI) and standards of living)

Snapshot – Proportional thinking

Numeracy: Number sense and algebra: Proportional thinking

Content description

AC9S9I04

Learning progression extract

The following learning progression extract shows the alignment of the learning progression with this content.

Identifies ratios as a part-to-part comparison

• represents ratios using diagrams, physical or virtual materials (e.g. in a ratio 1 : 4 1:4 1 : 4 of red to blue counters, for each red counter there are 4 4 4 blue counters; uses physical or virtual materials to represent the ratio of hydrogen atoms to oxygen atoms in water molecules as 2 : 1 2:1 2 : 1 , 2 2 2 hydrogen atoms for every oxygen atom)

• interprets ratios as a comparison between 2 2 2 like quantities (e.g. ratio of students to teachers in a school is 20 : 1 20:1 2 0 : 1 ; ratio of carbohydrates to fat to protein in a food; interprets ratios such as debt equity ratio or savings-income ratio)

• interprets a rate as a comparison between 2 2 2 different types of quantities (e.g. water flow can be measured at a rate of 5 5 5 litres per second; change of concentration of reactants per time; the relationship between beats per minute and the pulse/rhythm of a dance phrase)

• expresses a ratio as equivalent fractions or percentages (e.g. the ratio of rainy days to fine days in Albany is 1 : 2 1:2 1 : 2 and so 1 3 \frac13 3 1 ■ of the days are rainy; in a ratio of 1 : 1 1:1 1 : 1 each part represents one 1 2 \frac12 2 1 ■ or 50 50 5 0 % of the whole; when interpreting food labels and making healthy eating choices)

Using ratios and rates

• uses a ratio to create, increase or decrease quantities to maintain a given proportion (e.g. creates mixtures such as adhesives, finishes, salad dressings; scales a recipe up or down; makes 100 100 1 0 0 litres of cordial given instructions for making 5 5 5 litres using one part cordial to 6 6

6 parts water)
• uses rates to determine how quantities change (e.g. when travelling at a constant speed of 60 60 6 0 km/h, determines the distance travelled in 30 30 3 0 minutes; uses price rate of change to measure the direction and speed of a financial trend, such as an upward momentum in stock prices; compares the effect of different frame rates, frames per second, when producing a slow-motion sequence)

Proportionality and the whole

• determines the whole given a percentage (e.g. given 20 20 2 0 % is 13 13 1 3 millilitres, determines the whole is 65 65 6 5 millilitres; given 20 20 2 0 % is 1300 1300 1 3 0 0 kilojoules, determines the whole is 6500 6500 6 5 0 0 kilojoules when calculating the amount of energy consumed as part of a daily recommended intake)

• identifies the common unit rate to compare rates expressed in different units (e.g. calculates best buys; compares the relative speed of 2 2 2 vehicles)

• identifies, compares, represents and solves problems involving different rates in real world contexts (e.g. measures heart rate and breathing rate to monitor the body's reaction to a range of physical activities)

• determines the equivalence between 2 2 2 rates or ratios by expressing them in their simplest form

• describes how the proportion is preserved when using a ratio (e.g. uses the ratio 1 : 4 : 15 1:4:15 1 : 4 : 1 5 for the composition of silver, copper and gold to determine the mass of copper in a rose gold ring that weighs 8 8 8 grams; applies an aspect ratio when resizing images of an artwork such as if the aspect ratio is 3 : 2 3:2 3 : 2 then a picture that is 600 600 6 0 0 pixels wide would be 400 400 4 0 0 pixels tall)

Snapshot – Interpret concepts and problems

Critical and Creative Thinking: Analysing: Interpret concepts and problems

Content description

AC9S9I04

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.

• identify the relevant aspects of a concept or problem, recognising gaps or missing elements necessary for understanding by using approaches and strategies suitable for the context

• identify the objective and subjective aspects of a complex concept or problem, with sensitivity to context

AC9S9I05

analyse and connect a variety of and information to identify and explain , , and anomalies

•

•

Elaborations

• discussing the of the when extrapolating from a

• analysing of from atmospheric monitoring and ice cores to identify and in the amount of carbon dioxide in the atmosphere, highlighting inconsistencies

• comparing published with experimental such as the sound-insulating levels of different and identifying any or in differences, such as: 'The published sound levels are usually higher than the experimentally determined levels'

• analysing on heat transfer through multiple layers of an insulating and identifying and proportional , such as: 'When the thickness of the is doubled the amount of heat transferred is halved'

• examining tables, and digital of radioactive decay half-life to predict changes in over time

Students learn to:

analyse and connect a variety of data and information to identify and explain patterr relationships and anomalies

(AC9S9I05)

General capabilities and cross-curriculum priorities

This content description connects to the following general capabilities and cross-curriculum priorities.

Analysing

• Interpret concepts and problems
Inquiring

• Identify, process and evaluate information
Statistics and probability

• Interpreting and representing data

Elaborations

Content elaborations provide suggestions of ways to teach the content description and connect it to general capabilities and cross-curriculum priorities. Content elaborations are optional .
Inquiring

• Identify, process and evaluate information
Speaking and listening

• Interacting
Statistics and probability

• Interpreting and representing data
• Interpreting and representing data
Reading and viewing

• Understanding texts
Statistics and probability

• Interpreting and representing data
Reading and viewing

• Understanding texts
Number sense and algebra

• Proportional thinking
Investigating

• Acquire and collate data
Number sense and algebra

• Number patterns and algebraic thinking
• Proportional thinking
Related content

This content description can be taught with the following content descriptions from other learning areas.
AC9M9ST03
AC9M9ST05
Snapshot – Interpret concepts and problems

Critical and Creative Thinking: Analysing: Interpret concepts and problems

Content description

AC9S9I05
Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
• identify the relevant aspects of a concept or problem, recognising gaps or missing elements necessary for understanding by using approaches and strategies suitable for the context
• identify the objective and subjective aspects of a complex concept or problem, with sensitivity to context
Snapshot – Identify, process and evaluate information

Critical and Creative Thinking: Inquiring: Identify, process and evaluate informatic

Content description

AC9S9I05
Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
• identify and clarify significant information and opinion from a range of sources, including visual information and digital sources
• evaluate the accuracy, validity and relevance of the information and opinion to the topic of study
• identify and clarify significant information and opinion from a range of sources, including visual

information and digital sources
• evaluate the information selected to determine bias and reliability

Snapshot – Interpreting and representing data

Numeracy: Statistics and probability: Interpreting and representing data

Content description

AC9S9I05

Learning progression extract

The following learning progression extract shows the alignment of the learning progression with this content.

Sampling

• considers the context when determining whether to use data from a sample or a population
• determines what type of sample to use from a population (e.g. decides to use a representative sample when conducting targeted market research or when researching beliefs about a health-related issue)
• makes reasonable statements about a population based on evidence from samples (e.g. considers accuracy of representation of marginalised individuals or population groups)
• plans, executes and reports on sampling-based investigations, taking into account validity of methodology and consistency of data, to answer questions formulated by the student

Recognising bias

• applies an understanding of distributions to evaluate claims based on data (e.g. recognises that the accuracy of using a sample for predicting population values depends on both the relative size of the sample and how well the characteristics of the sample reflect the characteristics of the population; critically analyses statistics that reinforce stereotypes; evaluates claims made by the media regarding young people in relation to drugs and/or risk-taking behaviours)
• identifies and explains bias as a possible source of error in media reports of survey data (e.g. uses data to evaluate veracity of review headlines such as "everybody's favourite game"; investigates media claims on attitudes to government responses to market failure or income redistribution)
• justifies criticisms of data sources that include biased statistical elements (e.g. inappropriate sampling from populations; identifying sources of uncertainty in a scientific investigation; checks the authenticity of a data set)

Snapshot – Identify, process and evaluate information

Critical and Creative Thinking: Inquiring: Identify, process and evaluate informati

Content description

AC9S9I05

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
• identify and clarify significant information and opinion from a range of sources, including visual information and digital sources
• evaluate the accuracy, validity and relevance of the information and opinion to the topic of study
• identify and clarify significant information and opinion from a range of sources, including visual information and digital sources
• evaluate the information selected to determine bias and reliability

Snapshot – Interacting

Literacy: Speaking and listening: Interacting

Content description

AC9S9I05

Learning progression extract

The following learning progression extract shows the alignment of the learning progression with this content.
• interacts within school context or the broader community, adjusting language and responses to suit purpose and audience
• synthesises ideas from group discussion into a common theme or hypothesis
• poses problems, hypothesises and formulates questions about abstract ideas in group situations

- restates different views and makes suggestions to negotiate agreement
- poses questions to clarify assumptions made by the speaker
- questions others to evaluate accuracy of thinking or problem-solving processes
- uses language to align the listener with personal position (e.g. "of course", "as you can imagine", "obviously")
- interacts strategically and confidently with a broad range of interactional partners
- gives an extended explanation and evaluation of a complex concept, issue or process
- justifies a personal stance, after analysis of arguments on a particular issue, using evidence and elaboration in a group situation
- uses language strategically to subtly align others to own perspective as appropriate to audience and purpose

Snapshot – Interpreting and representing data

Numeracy: Statistics and probability: Interpreting and representing data

Content description

AC9S9I05

Learning progression extract

The following learning progression extract shows the alignment of the learning progression with this content.

Interpreting graphical representations

- uses features of graphical representations to make predictions (e.g. predicts audience numbers based on historical data; interprets a range of graphs to identify possible trends and make predictions such as economic growth, stock prices, interest rates, population growth)
- summarises data using fractions, percentages and decimals (e.g. 2 3 \frac23 3 2 ■ of a class live in the same suburb; represents road safety and sun safety statistics as a percentage of the Australian population)
- explains that continuous variables depicting growth or change often vary over time (e.g. creates growth charts to illustrate impacts of financial decisions; describes patterns in inflation rates, employment rates, migration rates over time; represents changes to fitness levels following the implementation of a personal fitness plan; interprets temperature charts)
- interprets graphs depicting motion such as distance–time and velocity–time graphs
- interprets and describes patterns in graphical representations of data from real-life situations such as the motion of a rollercoaster, flight trajectory of a basketball shot and the spread of disease
- investigates the association of 2 2 2 numerical variables through the representation and interpretation of bivariate data (e.g. uses scatter plots to represent bivariate data when investigating the relationship between 2 2 2 variables, such as income per capita, population density and life expectancy for different socio-economic groups)
- investigates, represents and interprets time series data (e.g. interrogates a time series graph showing the change in costs over time; uses a maximum daily temperature chart to determine the average temperature for the month)
- interprets the impact of changes to data (e.g. recognises the impact of outliers on a data set such as the income of a world-class professional athlete on the average income of players at the state/territory level; uses digital tools to enhance the quality of data in a science investigation)

Sampling

- considers the context when determining whether to use data from a sample or a population
- determines what type of sample to use from a population (e.g. decides to use a representative sample when conducting targeted market research or when researching beliefs about a health-related issue)
- makes reasonable statements about a population based on evidence from samples (e.g. considers accuracy of representation of marginalised individuals or population groups)
- plans, executes and reports on sampling-based investigations, taking into account validity of methodology and consistency of data, to answer questions formulated by the student

Recognising bias

- applies an understanding of distributions to evaluate claims based on data (e.g. recognises that the accuracy of using a sample for predicting population values depends on both the relative size of the sample and how well the characteristics of the sample reflect the characteristics of the

population; critically analyses statistics that reinforce stereotypes; evaluates claims made by the media regarding young people in relation to drugs and/or risk-taking behaviours)

• identifies and explains bias as a possible source of error in media reports of survey data (e.g. uses data to evaluate veracity of review headlines such as "everybody's favourite game"; investigates media claims on attitudes to government responses to market failure or income redistribution)

• justifies criticisms of data sources that include biased statistical elements (e.g. inappropriate sampling from populations; identifying sources of uncertainty in a scientific investigation; checks the authenticity of a data set)

Snapshot – Interpreting and representing data

Numeracy: Statistics and probability: Interpreting and representing data

Content description

AC9S9I05

Learning progression extract

The following learning progression extract shows the alignment of the learning progression with this content.

Sampling

• considers the context when determining whether to use data from a sample or a population

• determines what type of sample to use from a population (e.g. decides to use a representative sample when conducting targeted market research or when researching beliefs about a health-related issue)

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• identifies and explains bias as a possible source of error in media reports of survey data (e.g. uses data to evaluate veracity of review headlines such as "everybody's favourite game"; investigates media claims on attitudes to government responses to market failure or income redistribution)

• justifies criticisms of data sources that include biased statistical elements (e.g. inappropriate sampling from populations; identifying sources of uncertainty in a scientific investigation; checks the authenticity of a data set)

Snapshot – Understanding texts

Literacy: Reading and viewing: Understanding texts

Content description

AC9S9I05

Learning progression extract

The following learning progression extract shows the alignment of the learning progression with this content.

Comprehension

• reads and views complex texts (see Text complexity)

• identifies the main themes or concepts in complex texts by synthesising key ideas or information

• summarises the text, identifying key details only

• draws inferences, synthesising clues and evidence across a text

• builds meaning by actively linking ideas from a number of texts or a range of digital sources

• distils information from a number of texts according to task and purpose (e.g. uses graphic organisers)

• identifies different interpretations of the text citing evidence from a text

• evaluates language features for relevance to purpose and audience

• analyses texts that have more than one purpose and explains how parts of the text support a particular purpose

• analyses the use of language appropriate to different types of texts (e.g. compare the use of pun in imaginative and persuasive texts)

• identifies techniques used to obscure author's purpose (e.g. inclusion or omission of content)

Processes

• uses processes such as predicting, confirming predictions, monitoring, and connecting relevant elements of the text to build or repair meaning

• uses knowledge of a broader range of cohesive devices to track meaning (e.g. word associations) (see Grammar)

• selects reading or viewing strategies appropriate to reading purpose (e.g. scans text for evidence)

• judiciously selects texts for learning area tasks and purposes

Vocabulary

• identifies language used to create tone or atmosphere

• analyses language and visual features in texts using metalanguage (e.g. cohesion, interpretation, figurative)

• applies knowledge of base words and word origins to understand the meaning of unfamiliar, discipline-specific words

• uses a range of context and grammatical cues to understand unfamiliar words

• interprets complex figurative language (e.g. euphemisms, hyperbole)

Comprehension

• reads and views complex or some highly complex texts (see Text complexity)

• interprets abstract concepts integrating complex ideas

• analyses how language features are used to support the point of view in a text (e.g. the strategic use of images such as a cartoon in an editorial)

• draws inferences using evidence from the text and discounting possible inferences that are not supported by the text

• applies and articulates criteria to evaluate the language structures and features for relevance to purpose and audience

• evaluates the reasoning and evidence in a persuasive text

• explains how context (e.g. time, place, situation) influences interpretations of a text

• analyses the author's perspectives in complex or some highly complex texts

• analyses the techniques authors use to position readers

• recognises when ideas or evidence have been omitted from a text to position the reader

Processes

• automatically integrates a range of processes such as predicting, confirming predictions, monitoring and connecting relevant elements of the text, to build meaning

• describes how sophisticated cohesive devices establish patterns of meaning (e.g. "class" – "subclass")

• navigates extended texts including complex digital texts

Vocabulary

• demonstrates an understanding of nuances and subtleties in words of similar meaning (e.g. "frustrated", "discouraged", "baffled")

• verifies interpretations of unfamiliar words using grammatical and contextual cues

Comprehension

• reads and views highly complex texts (see Text complexity)

• interprets symbolism in texts, providing evidence to justify interpretation

• judiciously selects and synthesises evidence from multiple texts to support ideas and arguments

• analyses the credibility and validity of primary and secondary sources

• evaluates the use of devices such as analogy, irony, rhetoric and satire, and how they contribute to an author's individual style

• analyses the cumulative impact of use of language features and vocabulary across texts

• explains assumptions, beliefs and implicit values in texts (e.g. "economic growth is always desirable")

• evaluates the social, moral and ethical positions taken in texts

Processes

• strategically adjusts the processes of reading and viewing to build meaning according to the demands of tasks and texts
• identifies subtle contradictions and inconsistencies in texts

Vocabulary

• interprets complex, formal and impersonal language in academic texts
• uses lexical cues to interpret unfamiliar vocabulary
• demonstrates self-reliance in exploration and application of word learning strategies

Snapshot – Interpreting and representing data

Numeracy: Statistics and probability: Interpreting and representing data

Content description

AC9S9I05

Learning progression extract

The following learning progression extract shows the alignment of the learning progression with this content.

Sampling

• considers the context when determining whether to use data from a sample or a population
• determines what type of sample to use from a population (e.g. decides to use a representative sample when conducting targeted market research or when researching beliefs about a health-related issue)
• makes reasonable statements about a population based on evidence from samples (e.g. considers accuracy of representation of marginalised individuals or population groups)
• plans, executes and reports on sampling-based investigations, taking into account validity of methodology and consistency of data, to answer questions formulated by the student

Recognising bias

• applies an understanding of distributions to evaluate claims based on data (e.g. recognises that the accuracy of using a sample for predicting population values depends on both the relative size of the sample and how well the characteristics of the sample reflect the characteristics of the population; critically analyses statistics that reinforce stereotypes; evaluates claims made by the media regarding young people in relation to drugs and/or risk-taking behaviours)
• identifies and explains bias as a possible source of error in media reports of survey data (e.g. uses data to evaluate veracity of review headlines such as "everybody's favourite game"; investigates media claims on attitudes to government responses to market failure or income redistribution)
• justifies criticisms of data sources that include biased statistical elements (e.g. inappropriate sampling from populations; identifying sources of uncertainty in a scientific investigation; checks the authenticity of a data set)

Snapshot – Understanding texts

Literacy: Reading and viewing: Understanding texts

Content description

AC9S9I05

Learning progression extract

The following learning progression extract shows the alignment of the learning progression with this content.

Comprehension

• reads and views complex texts (see Text complexity)
• identifies the main themes or concepts in complex texts by synthesising key ideas or information
• summarises the text, identifying key details only
• draws inferences, synthesising clues and evidence across a text
• builds meaning by actively linking ideas from a number of texts or a range of digital sources
• distils information from a number of texts according to task and purpose (e.g. uses graphic organisers)
• identifies different interpretations of the text citing evidence from a text
• evaluates language features for relevance to purpose and audience

• analyses texts that have more than one purpose and explains how parts of the text support a particular purpose
• analyses the use of language appropriate to different types of texts (e.g. compare the use of pun in imaginative and persuasive texts)
• identifies techniques used to obscure author's purpose (e.g. inclusion or omission of content)

Processes

• uses processes such as predicting, confirming predictions, monitoring, and connecting relevant elements of the text to build or repair meaning
• uses knowledge of a broader range of cohesive devices to track meaning (e.g. word associations) (see Grammar)
• selects reading or viewing strategies appropriate to reading purpose (e.g. scans text for evidence)
• judiciously selects texts for learning area tasks and purposes

Vocabulary

• identifies language used to create tone or atmosphere
• analyses language and visual features in texts using metalanguage (e.g. cohesion, interpretation, figurative)
• applies knowledge of base words and word origins to understand the meaning of unfamiliar, discipline-specific words
• uses a range of context and grammatical cues to understand unfamiliar words
• interprets complex figurative language (e.g. euphemisms, hyperbole)

Comprehension

• reads and views complex or some highly complex texts (see Text complexity)
• interprets abstract concepts integrating complex ideas
• analyses how language features are used to support the point of view in a text (e.g. the strategic use of images such as a cartoon in an editorial)
• draws inferences using evidence from the text and discounting possible inferences that are not supported by the text
• applies and articulates criteria to evaluate the language structures and features for relevance to purpose and audience
• evaluates the reasoning and evidence in a persuasive text
• explains how context (e.g. time, place, situation) influences interpretations of a text
• analyses the author's perspectives in complex or some highly complex texts
• analyses the techniques authors use to position readers
• recognises when ideas or evidence have been omitted from a text to position the reader

Processes

• automatically integrates a range of processes such as predicting, confirming predictions, monitoring and connecting relevant elements of the text, to build meaning
• describes how sophisticated cohesive devices establish patterns of meaning (e.g. "class" – "subclass")
• navigates extended texts including complex digital texts

Vocabulary

• demonstrates an understanding of nuances and subtleties in words of similar meaning (e.g. "frustrated", "discouraged", "baffled")
• verifies interpretations of unfamiliar words using grammatical and contextual cues

Comprehension

• reads and views highly complex texts (see Text complexity)
• interprets symbolism in texts, providing evidence to justify interpretation
• judiciously selects and synthesises evidence from multiple texts to support ideas and arguments
• analyses the credibility and validity of primary and secondary sources
• evaluates the use of devices such as analogy, irony, rhetoric and satire, and how they contribute to an author's individual style
• analyses the cumulative impact of use of language features and vocabulary across texts
• explains assumptions, beliefs and implicit values in texts (e.g. "economic growth is always desirable")
• evaluates the social, moral and ethical positions taken in texts

Processes

• strategically adjusts the processes of reading and viewing to build meaning according to the demands of tasks and texts
• identifies subtle contradictions and inconsistencies in texts

Vocabulary

• interprets complex, formal and impersonal language in academic texts
• uses lexical cues to interpret unfamiliar vocabulary
• demonstrates self-reliance in exploration and application of word learning strategies

Snapshot – Proportional thinking

Numeracy: Number sense and algebra: Proportional thinking

Content description

AC9S9I05

Learning progression extract

The following learning progression extract shows the alignment of the learning progression with this content.

Identifies ratios as a part-to-part comparison

• represents ratios using diagrams, physical or virtual materials (e.g. in a ratio 1 : 4 1:4 1 : 4 of red to blue counters, for each red counter there are 4 4 4 blue counters; uses physical or virtual materials to represent the ratio of hydrogen atoms to oxygen atoms in water molecules as 2 : 1 2:1 2 : 1 , 2 2 2 hydrogen atoms for every oxygen atom)
• interprets ratios as a comparison between 2 2 2 like quantities (e.g. ratio of students to teachers in a school is 20 : 1 20:1 2 0 : 1 ; ratio of carbohydrates to fat to protein in a food; interprets ratios such as debt equity ratio or savings-income ratio)
• interprets a rate as a comparison between 2 2 2 different types of quantities (e.g. water flow can be measured at a rate of 5 5 5 litres per second; change of concentration of reactants per time; the relationship between beats per minute and the pulse/rhythm of a dance phrase)
• expresses a ratio as equivalent fractions or percentages (e.g. the ratio of rainy days to fine days in Albany is 1 : 2 1:2 1 : 2 and so 1 3 \frac13 3 1 ■ of the days are rainy; in a ratio of 1 : 1 1:1 1 : 1 each part represents one 1 2 \frac12 2 1 ■ or 50 50 5 0 % of the whole; when interpreting food labels and making healthy eating choices)

Using ratios and rates

• uses a ratio to create, increase or decrease quantities to maintain a given proportion (e.g. creates mixtures such as adhesives, finishes, salad dressings; scales a recipe up or down; makes 100 100 1 0 0 litres of cordial given instructions for making 5 5 5 litres using one part cordial to 6 6 6 parts water)
• uses rates to determine how quantities change (e.g. when travelling at a constant speed of 60 60 6 0 km/h, determines the distance travelled in 30 30 3 0 minutes; uses price rate of change to measure the direction and speed of a financial trend, such as an upward momentum in stock prices; compares the effect of different frame rates, frames per second, when producing a slow-motion sequence)

Proportionality and the whole

• determines the whole given a percentage (e.g. given 20 20 2 0 % is 13 13 1 3 millilitres, determines the whole is 65 65 6 5 millilitres; given 20 20 2 0 % is 1300 1300 1 3 0 0 kilojoules, determines the whole is 6500 6500 6 5 0 0 kilojoules when calculating the amount of energy consumed as part of a daily recommended intake)
• identifies the common unit rate to compare rates expressed in different units (e.g. calculates best buys; compares the relative speed of 2 2 2 vehicles)
• identifies, compares, represents and solves problems involving different rates in real world contexts (e.g. measures heart rate and breathing rate to monitor the body's reaction to a range of physical activities)
• determines the equivalence between 2 2 2 rates or ratios by expressing them in their simplest form
• describes how the proportion is preserved when using a ratio (e.g. uses the ratio 1 : 4 : 15 1:4:15 1 : 4 : 1 5 for the composition of silver, copper and gold to determine the mass of copper in a rose gold ring that weighs 8 8 8 grams; applies an aspect ratio when resizing images of an artwork such as if the aspect ratio is 3 : 2 3:2 3 : 2 then a picture that is 600 600 6 0 0 pixels wide would be 400 400 4 0 0 pixels tall)

Snapshot – Acquire and collate data

Digital Literacy: Investigating: Acquire and collate data

Content description

AC9S9I05

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.

• collect and access data from a range of sources, using specialised digital tools in response to problems, and evaluate it for relevance

• collect and evaluate quantitative and qualitative data using specialised digital tools and processes in the context of identified problems

Snapshot – Number patterns and algebraic thinking

Numeracy: Number sense and algebra: Number patterns and algebraic thinking

Content description

AC9S9I05

Learning progression extract

The following learning progression extract shows the alignment of the learning progression with this content.

Algebraic relationships

• interprets and uses formulas and algebraic equations that describe relationships in various contexts (e.g. uses $A = \pi r^2$ to calculate the area of a circular space; uses $A = P(1+\frac{r}{n})^{nt}$ when working with compound interest; uses $v = u + at$ to calculate the velocity of an object

• plots relationships on a graph using a table of values representing authentic data (e.g. uses data recorded in a spreadsheet to plot results of a science experiment)

Linear and non-linear relationships

• identifies the difference between linear and non-linear relationships in everyday contexts (e.g. explains that in a linear relationship, the rate of change is constant such as the cost of babysitting by the hour, whereas in a non-linear relationship the rate of change will vary and it could grow multiplicatively or exponentially such as a social media post going viral)

• describes and interprets the graphical features of linear and non-linear growth in authentic problems (e.g. compares simple and compound interest graphs; describes the relationship between scientific data plotted on a graph; analyses a graph to identify the inverse relationship between price and quantity demanded or the relationship between Human Development Index (HDI) and standards of living)

Snapshot – Proportional thinking

Numeracy: Number sense and algebra: Proportional thinking

Content description

AC9S9I05

Learning progression extract

The following learning progression extract shows the alignment of the learning progression with this content.

Identifies ratios as a part-to-part comparison

• represents ratios using diagrams, physical or virtual materials (e.g. in a ratio $1 : 4$ of red to blue counters, for each red counter there are 4 blue counters; uses physical or virtual materials to represent the ratio of hydrogen atoms to oxygen atoms in water molecules as $2 : 1$, 2 hydrogen atoms for every oxygen atom)

• interprets ratios as a comparison between 2 like quantities (e.g. ratio of students to teachers in a school is $20 : 1$; ratio of carbohydrates to fat to protein in a food; interprets ratios such as debt equity ratio or savings-income ratio)

• interprets a rate as a comparison between 2 different types of quantities (e.g. water flow can be measured at a rate of 5 litres per second; change of concentration of reactants per time; the relationship between beats per minute and the pulse/rhythm of a dance phrase)

• expresses a ratio as equivalent fractions or percentages (e.g. the ratio of rainy days to fine

days in Albany is 1 : 2 1:2 1 : 2 and so 1 3 \frac13 3 1 ■ of the days are rainy; in a ratio of 1 : 1 1:1 1 : 1 each part represents one 1 2 \frac12 2 1 ■ or 50 50 5 0 % of the whole; when interpreting food labels and making healthy eating choices)

Using ratios and rates

• uses a ratio to create, increase or decrease quantities to maintain a given proportion (e.g. creates mixtures such as adhesives, finishes, salad dressings; scales a recipe up or down; makes 100 100 1 0 0 litres of cordial given instructions for making 5 5 5 litres using one part cordial to 6 6 6 parts water)

• uses rates to determine how quantities change (e.g. when travelling at a constant speed of 60 60 6 0 km/h, determines the distance travelled in 30 30 3 0 minutes; uses price rate of change to measure the direction and speed of a financial trend, such as an upward momentum in stock prices; compares the effect of different frame rates, frames per second, when producing a slow-motion sequence)

Proportionality and the whole

• determines the whole given a percentage (e.g. given 20 20 2 0 % is 13 13 1 3 millilitres, determines the whole is 65 65 6 5 millilitres; given 20 20 2 0 % is 1300 1300 1 3 0 0 kilojoules, determines the whole is 6500 6500 6 5 0 0 kilojoules when calculating the amount of energy consumed as part of a daily recommended intake)

• identifies the common unit rate to compare rates expressed in different units (e.g. calculates best buys; compares the relative speed of 2 2 2 vehicles)

• identifies, compares, represents and solves problems involving different rates in real world contexts (e.g. measures heart rate and breathing rate to monitor the body's reaction to a range of physical activities)

• determines the equivalence between 2 2 2 rates or ratios by expressing them in their simplest form

• describes how the proportion is preserved when using a ratio (e.g. uses the ratio 1 : 4 : 15 1:4:15 1 : 4 : 1 5 for the composition of silver, copper and gold to determine the mass of copper in a rose gold ring that weighs 8 8 8 grams; applies an aspect ratio when resizing images of an artwork such as if the aspect ratio is 3 : 2 3:2 3 : 2 then a picture that is 600 600 6 0 0 pixels wide would be 400 400 4 0 0 pixels tall)

AC9S9I06

assess the and reproducibility of methods and evaluate the of and , including by identifying , conflicting and areas of

•

•

Elaborations

• discussing what is meant by ' and how the of information in secondary sources can be evaluated

• identifying gaps or weaknesses in and relating these to the and reproducibility of the method

• identifying in methods and determining the impact these could have on the of the

• analysing methods and to identify facts or premises that are taken for granted to be true, and evaluating the reasonableness of those

• considering if areas of could lead to a viable alternative

• considering how general practitioners manage conflicting to diagnose illness

Students learn to:

assess the validity and reproducibility of methods and evaluate the validity of concl claims, including by identifying assumptions, conflicting evidence and areas of unc

(AC9S9I06)

General capabilities and cross-curriculum priorities

This content description connects to the following general capabilities and cross-curriculum priorities.

Analysing

• Draw conclusions and provide reasons

• Evaluate actions and outcomes

Reading and viewing

• Understanding texts

Elaborations

Content elaborations provide suggestions of ways to teach the content description and connect it to

general capabilities and cross-curriculum priorities. Content elaborations are optional .

Analysing

• Evaluate actions and outcomes

Speaking and listening

• Interacting

Analysing

• Evaluate actions and outcomes

Statistics and probability

• Interpreting and representing data

Analysing

• Draw conclusions and provide reasons

Reading and viewing

• Understanding texts

Analysing

• Draw conclusions and provide reasons
• Evaluate actions and outcomes

Reading and viewing

• Understanding texts

Analysing

• Draw conclusions and provide reasons

Analysing

• Draw conclusions and provide reasons

Related content

This content description can be taught with the following content descriptions from other learning
areas.

AC9M9M04

AC9M9ST01

AC9M9ST02

Snapshot – Draw conclusions and provide reasons

Critical and Creative Thinking: Analysing: Draw conclusions and provide reasons

Content description

AC9S9I06

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.

• draw conclusions and make choices when completing tasks by connecting evidence from within and
across discipline areas to provide reasons and evaluate arguments for choices made
• draw conclusions and make choices when completing tasks, using analysis of complex evidence and
arguments before making recommendations

Snapshot – Evaluate actions and outcomes

Critical and Creative Thinking: Analysing: Evaluate actions and outcomes

Content description

AC9S9I06

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.

• evaluate the effectiveness of a course of action or the outcome of a task and account for expected
and unexpected results, including using a given or co-developed set of criteria to support decisions
• evaluate the effectiveness of a course of action to achieve desired outcomes and suggest
improvements, including using a personally developed set of criteria to support judgements and
decisions

Snapshot – Understanding texts

Literacy: Reading and viewing: Understanding texts

Content description

AC9S9I06

Learning progression extract

The following learning progression extract shows the alignment of the learning progression with this content.

Comprehension

• reads and views some moderately complex texts (see Text complexity)

• accurately retells a text including most relevant details

• identifies main idea and related or supporting ideas in moderately complex texts (see Text complexity)

• evaluates the accuracy within and across texts on the same topic

• explains how authors use evidence and supporting detail to build and verify ideas

• draws inferences and verifies using textual evidence

Processes

• monitors reading for meaning using grammatical and contextual knowledge (see Fluency)

• explains how textual features support the text's purpose

• identifies and explains techniques used to present perspective (e.g. emotive or descriptive language, order in which ideas are presented)

• predicts the development of ideas based on a partial read (e.g. predicts the final chapter of a narrative, drawing on understanding of the textual features in the previous chapters)

• uses prior knowledge and context to read unknown words (e.g. uses morphemic knowledge of "explosion" to decode "explosive" and uses context and knowledge of metaphorical use of language to understand "explosive outburst")

• uses knowledge of cohesive devices to track meaning throughout a text (e.g. connectives such as "however", "on the other hand") (see Grammar)

• uses knowledge of the features and conventions of the type of text to build meaning (e.g. recognises that the beginning of a persuasive text may introduce the topic and the line of argument)

• identifies language features used to present opinions or points of view

• skims and scans texts for key words to track the development of ideas

• uses sophisticated punctuation to support meaning (e.g. commas to separate clauses in complex sentences)

Vocabulary

• uses knowledge of prefixes and suffixes to read and interpret unfamiliar words

• identifies how technical and discipline-specific words develop meaning in texts

• analyses the effect of antonyms, synonyms and idiomatic language

• understands precise meaning of words with similar connotations (e.g. "generous", "kind-hearted", "charitable")

Comprehension

• reads and views complex texts (see Text complexity)

• identifies the main themes or concepts in complex texts by synthesising key ideas or information

• summarises the text, identifying key details only

• draws inferences, synthesising clues and evidence across a text

• builds meaning by actively linking ideas from a number of texts or a range of digital sources

• distils information from a number of texts according to task and purpose (e.g. uses graphic organisers)

• identifies different interpretations of the text citing evidence from a text

• evaluates language features for relevance to purpose and audience

• analyses texts that have more than one purpose and explains how parts of the text support a particular purpose

• analyses the use of language appropriate to different types of texts (e.g. compare the use of pun in imaginative and persuasive texts)

• identifies techniques used to obscure author's purpose (e.g. inclusion or omission of content)

Processes

• uses processes such as predicting, confirming predictions, monitoring, and connecting relevant elements of the text to build or repair meaning

• uses knowledge of a broader range of cohesive devices to track meaning (e.g. word associations) (see Grammar)

• selects reading or viewing strategies appropriate to reading purpose (e.g. scans text for

evidence)

• judiciously selects texts for learning area tasks and purposes

Vocabulary

• identifies language used to create tone or atmosphere

• analyses language and visual features in texts using metalanguage (e.g. cohesion, interpretation, figurative)

• applies knowledge of base words and word origins to understand the meaning of unfamiliar, discipline-specific words

• uses a range of context and grammatical cues to understand unfamiliar words

• interprets complex figurative language (e.g. euphemisms, hyperbole)

Comprehension

• reads and views complex or some highly complex texts (see Text complexity)

• interprets abstract concepts integrating complex ideas

• analyses how language features are used to support the point of view in a text (e.g. the strategic use of images such as a cartoon in an editorial)

• draws inferences using evidence from the text and discounting possible inferences that are not supported by the text

• applies and articulates criteria to evaluate the language structures and features for relevance to purpose and audience

• evaluates the reasoning and evidence in a persuasive text

• explains how context (e.g. time, place, situation) influences interpretations of a text

• analyses the author's perspectives in complex or some highly complex texts

• analyses the techniques authors use to position readers

• recognises when ideas or evidence have been omitted from a text to position the reader

Processes

• automatically integrates a range of processes such as predicting, confirming predictions, monitoring and connecting relevant elements of the text, to build meaning

• describes how sophisticated cohesive devices establish patterns of meaning (e.g. "class" – "subclass")

• navigates extended texts including complex digital texts

Vocabulary

• demonstrates an understanding of nuances and subtleties in words of similar meaning (e.g. "frustrated", "discouraged", "baffled")

• verifies interpretations of unfamiliar words using grammatical and contextual cues

Snapshot – Evaluate actions and outcomes

Critical and Creative Thinking: Analysing: Evaluate actions and outcomes

Content description

AC9S9I06

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.

• evaluate the effectiveness of a course of action or the outcome of a task and account for expected and unexpected results, including using a given or co-developed set of criteria to support decisions

• evaluate the effectiveness of a course of action to achieve desired outcomes and suggest improvements, including using a personally developed set of criteria to support judgements and decisions

Snapshot – Interacting

Literacy: Speaking and listening: Interacting

Content description

AC9S9I06

Learning progression extract

The following learning progression extract shows the alignment of the learning progression with this content.

• interacts within school context or the broader community, adjusting language and responses to suit purpose and audience

• synthesises ideas from group discussion into a common theme or hypothesis

- poses problems, hypothesises and formulates questions about abstract ideas in group situations
- restates different views and makes suggestions to negotiate agreement
- poses questions to clarify assumptions made by the speaker
- questions others to evaluate accuracy of thinking or problem-solving processes
- uses language to align the listener with personal position (e.g. "of course", "as you can imagine", "obviously")
- interacts strategically and confidently with a broad range of interactional partners
- gives an extended explanation and evaluation of a complex concept, issue or process
- justifies a personal stance, after analysis of arguments on a particular issue, using evidence and elaboration in a group situation
- uses language strategically to subtly align others to own perspective as appropriate to audience and purpose

Snapshot – Evaluate actions and outcomes

Critical and Creative Thinking: Analysing: Evaluate actions and outcomes

Content description

AC9S9I06

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
- evaluate the effectiveness of a course of action or the outcome of a task and account for expected and unexpected results, including using a given or co-developed set of criteria to support decisions
- evaluate the effectiveness of a course of action to achieve desired outcomes and suggest improvements, including using a personally developed set of criteria to support judgements and decisions

Snapshot – Interpreting and representing data

Numeracy: Statistics and probability: Interpreting and representing data

Content description

AC9S9I06

Learning progression extract

The following learning progression extract shows the alignment of the learning progression with this content.

Interpreting graphical representations

- uses features of graphical representations to make predictions (e.g. predicts audience numbers based on historical data; interprets a range of graphs to identify possible trends and make predictions such as economic growth, stock prices, interest rates, population growth)
- summarises data using fractions, percentages and decimals (e.g. 2 3 $\frac{2}{3}$ 3 2 ■ of a class live in the same suburb; represents road safety and sun safety statistics as a percentage of the Australian population)
- explains that continuous variables depicting growth or change often vary over time (e.g. creates growth charts to illustrate impacts of financial decisions; describes patterns in inflation rates, employment rates, migration rates over time; represents changes to fitness levels following the implementation of a personal fitness plan; interprets temperature charts)
- interprets graphs depicting motion such as distance–time and velocity–time graphs
- interprets and describes patterns in graphical representations of data from real-life situations such as the motion of a rollercoaster, flight trajectory of a basketball shot and the spread of disease
- investigates the association of 2 2 2 numerical variables through the representation and interpretation of bivariate data (e.g. uses scatter plots to represent bivariate data when investigating the relationship between 2 2 2 variables, such as income per capita, population density and life expectancy for different socio-economic groups)
- investigates, represents and interprets time series data (e.g. interrogates a time series graph showing the change in costs over time; uses a maximum daily temperature chart to determine the average temperature for the month)
- interprets the impact of changes to data (e.g. recognises the impact of outliers on a data set such as the income of a world-class professional athlete on the average income of players at the state/territory level; uses digital tools to enhance the quality of data in a science investigation)

Sampling

• considers the context when determining whether to use data from a sample or a population
• determines what type of sample to use from a population (e.g. decides to use a representative sample when conducting targeted market research or when researching beliefs about a health-related issue)
• makes reasonable statements about a population based on evidence from samples (e.g. considers accuracy of representation of marginalised individuals or population groups)
• plans, executes and reports on sampling-based investigations, taking into account validity of methodology and consistency of data, to answer questions formulated by the student

Recognising bias

• applies an understanding of distributions to evaluate claims based on data (e.g. recognises that the accuracy of using a sample for predicting population values depends on both the relative size of the sample and how well the characteristics of the sample reflect the characteristics of the population; critically analyses statistics that reinforce stereotypes; evaluates claims made by the media regarding young people in relation to drugs and/or risk-taking behaviours)
• identifies and explains bias as a possible source of error in media reports of survey data (e.g. uses data to evaluate veracity of review headlines such as "everybody's favourite game"; investigates media claims on attitudes to government responses to market failure or income redistribution)
• justifies criticisms of data sources that include biased statistical elements (e.g. inappropriate sampling from populations; identifying sources of uncertainty in a scientific investigation; checks the authenticity of a data set)

Snapshot – Draw conclusions and provide reasons

Critical and Creative Thinking: Analysing: Draw conclusions and provide reasons

Content description

AC9S9I06

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.

• draw conclusions and make choices when completing tasks by connecting evidence from within and across discipline areas to provide reasons and evaluate arguments for choices made
• draw conclusions and make choices when completing tasks, using analysis of complex evidence and arguments before making recommendations

Snapshot – Understanding texts

Literacy: Reading and viewing: Understanding texts

Content description

AC9S9I06

Learning progression extract

The following learning progression extract shows the alignment of the learning progression with this content.

Comprehension

• reads and views complex texts (see Text complexity)
• identifies the main themes or concepts in complex texts by synthesising key ideas or information
• summarises the text, identifying key details only
• draws inferences, synthesising clues and evidence across a text
• builds meaning by actively linking ideas from a number of texts or a range of digital sources
• distils information from a number of texts according to task and purpose (e.g. uses graphic organisers)
• identifies different interpretations of the text citing evidence from a text
• evaluates language features for relevance to purpose and audience
• analyses texts that have more than one purpose and explains how parts of the text support a particular purpose
• analyses the use of language appropriate to different types of texts (e.g. compare the use of pun in imaginative and persuasive texts)
• identifies techniques used to obscure author's purpose (e.g. inclusion or omission of content)

Processes

• uses processes such as predicting, confirming predictions, monitoring, and connecting relevant elements of the text to build or repair meaning

• uses knowledge of a broader range of cohesive devices to track meaning (e.g. word associations) (see Grammar)

• selects reading or viewing strategies appropriate to reading purpose (e.g. scans text for evidence)

• judiciously selects texts for learning area tasks and purposes

Vocabulary

• identifies language used to create tone or atmosphere

• analyses language and visual features in texts using metalanguage (e.g. cohesion, interpretation, figurative)

• applies knowledge of base words and word origins to understand the meaning of unfamiliar, discipline-specific words

• uses a range of context and grammatical cues to understand unfamiliar words

• interprets complex figurative language (e.g. euphemisms, hyperbole)

Comprehension

• reads and views complex or some highly complex texts (see Text complexity)

• interprets abstract concepts integrating complex ideas

• analyses how language features are used to support the point of view in a text (e.g. the strategic use of images such as a cartoon in an editorial)

• draws inferences using evidence from the text and discounting possible inferences that are not supported by the text

• applies and articulates criteria to evaluate the language structures and features for relevance to purpose and audience

• evaluates the reasoning and evidence in a persuasive text

• explains how context (e.g. time, place, situation) influences interpretations of a text

• analyses the author's perspectives in complex or some highly complex texts

• analyses the techniques authors use to position readers

• recognises when ideas or evidence have been omitted from a text to position the reader

Processes

• automatically integrates a range of processes such as predicting, confirming predictions, monitoring and connecting relevant elements of the text, to build meaning

• describes how sophisticated cohesive devices establish patterns of meaning (e.g. "class" – "subclass")

• navigates extended texts including complex digital texts

Vocabulary

• demonstrates an understanding of nuances and subtleties in words of similar meaning (e.g. "frustrated", "discouraged", "baffled")

• verifies interpretations of unfamiliar words using grammatical and contextual cues

Comprehension

• reads and views highly complex texts (see Text complexity)

• interprets symbolism in texts, providing evidence to justify interpretation

• judiciously selects and synthesises evidence from multiple texts to support ideas and arguments

• analyses the credibility and validity of primary and secondary sources

• evaluates the use of devices such as analogy, irony, rhetoric and satire, and how they contribute to an author's individual style

• analyses the cumulative impact of use of language features and vocabulary across texts

• explains assumptions, beliefs and implicit values in texts (e.g. "economic growth is always desirable")

• evaluates the social, moral and ethical positions taken in texts

Processes

• strategically adjusts the processes of reading and viewing to build meaning according to the demands of tasks and texts

• identifies subtle contradictions and inconsistencies in texts

Vocabulary

• interprets complex, formal and impersonal language in academic texts

• uses lexical cues to interpret unfamiliar vocabulary
• demonstrates self-reliance in exploration and application of word learning strategies

Snapshot – Draw conclusions and provide reasons

Critical and Creative Thinking: Analysing: Draw conclusions and provide reasons

Content description

AC9S9I06

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
• draw conclusions and make choices when completing tasks by connecting evidence from within and across discipline areas to provide reasons and evaluate arguments for choices made
• draw conclusions and make choices when completing tasks, using analysis of complex evidence and arguments before making recommendations

Snapshot – Evaluate actions and outcomes

Critical and Creative Thinking: Analysing: Evaluate actions and outcomes

Content description

AC9S9I06

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
• evaluate the effectiveness of a course of action or the outcome of a task and account for expected and unexpected results, including using a given or co-developed set of criteria to support decisions
• evaluate the effectiveness of a course of action to achieve desired outcomes and suggest improvements, including using a personally developed set of criteria to support judgements and decisions

Snapshot – Understanding texts

Literacy: Reading and viewing: Understanding texts

Content description

AC9S9I06

Learning progression extract

The following learning progression extract shows the alignment of the learning progression with this content.

Comprehension

• reads and views complex texts (see Text complexity)
• identifies the main themes or concepts in complex texts by synthesising key ideas or information
• summarises the text, identifying key details only
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• identifies techniques used to obscure author's purpose (e.g. inclusion or omission of content)

Processes

• uses processes such as predicting, confirming predictions, monitoring, and connecting relevant elements of the text to build or repair meaning
• uses knowledge of a broader range of cohesive devices to track meaning (e.g. word associations) (see Grammar)
• selects reading or viewing strategies appropriate to reading purpose (e.g. scans text for evidence)
• judiciously selects texts for learning area tasks and purposes

Vocabulary

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Processes

- strategically adjusts the processes of reading and viewing to build meaning according to the demands of tasks and texts
- identifies subtle contradictions and inconsistencies in texts

Vocabulary

- interprets complex, formal and impersonal language in academic texts
- uses lexical cues to interpret unfamiliar vocabulary
- demonstrates self-reliance in exploration and application of word learning strategies

Snapshot – Draw conclusions and provide reasons

Critical and Creative Thinking: Analysing: Draw conclusions and provide reasons

Content description

AC9S9I06

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
• draw conclusions and make choices when completing tasks by connecting evidence from within and
across discipline areas to provide reasons and evaluate arguments for choices made
• draw conclusions and make choices when completing tasks, using analysis of complex evidence and
arguments before making recommendations

Snapshot – Draw conclusions and provide reasons

Critical and Creative Thinking: Analysing: Draw conclusions and provide reasons

Content description

AC9S9I06

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
• draw conclusions and make choices when completing tasks by connecting evidence from within and
across discipline areas to provide reasons and evaluate arguments for choices made
• draw conclusions and make choices when completing tasks, using analysis of complex evidence and
arguments before making recommendations

AC9S9I07

**construct based on analysis of a variety of to support or evaluate , and consider any ethical issues
and cultural protocols associated with accessing, using or citing secondary or information**

•

•

Elaborations

• examining secondary to determine the of the source and the and reproducibility of the
• identifying multiple sources of that are consistent with a such as the effectiveness of a vaccine
• interrogating the and reasoning used to justify regarding the age of ancient artefacts
• researching the methods used by scientists in studies reported in the media to evaluate the of the
headlines
• examining secondary to ensure it does not contain personal information which could potentially
harm individuals, is correctly cited and is relevant to the question or
• acknowledging and identifying the between First Peoples' knowledges and contemporary science and
the co-contributions in arriving at shared understandings when working 'both ways'
• acknowledging and constructing an for the contributions to medicine of First Nations Australians'
knowledges of physiological pathways and contemporary medicinal delivery
Students learn to:

construct arguments based on analysis of a variety of evidence to support conclusi
claims, and consider any ethical issues and cultural protocols associated with acce
citing secondary data or information

(AC9S9I07)

General capabilities and cross-curriculum priorities

This content description connects to the following general capabilities and cross-curriculum
priorities.

Analysing

• Draw conclusions and provide reasons
• Evaluate actions and outcomes

Country/Place

• The First Peoples of Australia are the Traditional Owners of Country/Place, protected in
Australian Law by the Native Title Act 1993 which recognises pre-existing sovereignty,
continuing■systems of law and customs, and connection to Country/Place. This recognised legal right
provides for economic sustainability and a voice into the development■and management of
Country/Place.

People

• The significant and ongoing contributions of First Nations Australians and their histories and
cultures are acknowledged locally, nationally and globally.

Elaborations

Content elaborations provide suggestions of ways to teach the content description and connect it to general capabilities and cross-curriculum priorities. Content elaborations are optional .

Analysing

• Draw conclusions and provide reasons

Inquiring

• Identify, process and evaluate information

Reading and viewing

• Understanding texts

Analysing

• Draw conclusions and provide reasons

Inquiring

• Identify, process and evaluate information

Reading and viewing

• Understanding texts

Reading and viewing

• Understanding texts

Statistics and probability

• Interpreting and representing data

Analysing

• Draw conclusions and provide reasons

Inquiring

• Identify, process and evaluate information

Reading and viewing

• Understanding texts

Analysing

• Evaluate actions and outcomes

Inquiring

• Identify, process and evaluate information

Responding to ethical issues

• Making and reflecting on ethical decisions

Understanding ethical concepts and perspectives

• Explore ethical concepts

Responding to ethical issues

• Explore ethical issues

Understanding ethical concepts and perspectives

• Examine values, rights and responsibilities and ethical norms

Culture

• First Nations Australians' ways of life reflect unique ways of being, knowing, thinking and doing.

People

• The significant and ongoing contributions of First Nations Australians and their histories and cultures are acknowledged locally, nationally and globally.

Responding to ethical issues

• Explore ethical issues

Understanding ethical concepts and perspectives

• Examine values, rights and responsibilities and ethical norms

Culture

• First Nations Australians' ways of life reflect unique ways of being, knowing, thinking and doing.

People

• The significant and ongoing contributions of First Nations Australians and their histories and cultures are acknowledged locally, nationally and globally.

Snapshot – Draw conclusions and provide reasons

Critical and Creative Thinking: Analysing: Draw conclusions and provide reasons

Content description

AC9S9I07

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.

• draw conclusions and make choices when completing tasks by connecting evidence from within and across discipline areas to provide reasons and evaluate arguments for choices made

• draw conclusions and make choices when completing tasks, using analysis of complex evidence and arguments before making recommendations

Snapshot – Evaluate actions and outcomes

Critical and Creative Thinking: Analysing: Evaluate actions and outcomes

Content description

AC9S9I07

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.

• evaluate the effectiveness of a course of action or the outcome of a task and account for expected and unexpected results, including using a given or co-developed set of criteria to support decisions

• evaluate the effectiveness of a course of action to achieve desired outcomes and suggest improvements, including using a personally developed set of criteria to support judgements and decisions

Snapshot – Draw conclusions and provide reasons

Critical and Creative Thinking: Analysing: Draw conclusions and provide reasons

Content description

AC9S9I07

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.

• draw conclusions and make choices when completing tasks by connecting evidence from within and across discipline areas to provide reasons and evaluate arguments for choices made

• draw conclusions and make choices when completing tasks, using analysis of complex evidence and arguments before making recommendations

Snapshot – Identify, process and evaluate information

Critical and Creative Thinking: Inquiring: Identify, process and evaluate information

Content description

AC9S9I07

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.

• identify and clarify significant information and opinion from a range of sources, including visual information and digital sources

• evaluate the accuracy, validity and relevance of the information and opinion to the topic of study

• identify and clarify significant information and opinion from a range of sources, including visual information and digital sources

• evaluate the information selected to determine bias and reliability

Snapshot – Understanding texts

Literacy: Reading and viewing: Understanding texts

Content description

AC9S9I07

Learning progression extract

The following learning progression extract shows the alignment of the learning progression with this content.

Comprehension

• reads and views complex texts (see Text complexity)

• identifies the main themes or concepts in complex texts by synthesising key ideas or information

• summarises the text, identifying key details only

• draws inferences, synthesising clues and evidence across a text

• builds meaning by actively linking ideas from a number of texts or a range of digital sources

• distils information from a number of texts according to task and purpose (e.g. uses graphic

organisers)
- identifies different interpretations of the text citing evidence from a text
- evaluates language features for relevance to purpose and audience
- analyses texts that have more than one purpose and explains how parts of the text support a particular purpose
- analyses the use of language appropriate to different types of texts (e.g. compare the use of pun in imaginative and persuasive texts)
- identifies techniques used to obscure author's purpose (e.g. inclusion or omission of content)

Processes

- uses processes such as predicting, confirming predictions, monitoring, and connecting relevant elements of the text to build or repair meaning
- uses knowledge of a broader range of cohesive devices to track meaning (e.g. word associations) (see Grammar)
- selects reading or viewing strategies appropriate to reading purpose (e.g. scans text for evidence)
- judiciously selects texts for learning area tasks and purposes

Vocabulary

- identifies language used to create tone or atmosphere
- analyses language and visual features in texts using metalanguage (e.g. cohesion, interpretation, figurative)
- applies knowledge of base words and word origins to understand the meaning of unfamiliar, discipline-specific words
- uses a range of context and grammatical cues to understand unfamiliar words
- interprets complex figurative language (e.g. euphemisms, hyperbole)

Comprehension

- reads and views complex or some highly complex texts (see Text complexity)
- interprets abstract concepts integrating complex ideas
- analyses how language features are used to support the point of view in a text (e.g. the strategic use of images such as a cartoon in an editorial)
- draws inferences using evidence from the text and discounting possible inferences that are not supported by the text
- applies and articulates criteria to evaluate the language structures and features for relevance to purpose and audience
- evaluates the reasoning and evidence in a persuasive text
- explains how context (e.g. time, place, situation) influences interpretations of a text
- analyses the author's perspectives in complex or some highly complex texts
- analyses the techniques authors use to position readers
- recognises when ideas or evidence have been omitted from a text to position the reader

Processes

- automatically integrates a range of processes such as predicting, confirming predictions, monitoring and connecting relevant elements of the text, to build meaning
- describes how sophisticated cohesive devices establish patterns of meaning (e.g. "class" – "subclass")
- navigates extended texts including complex digital texts

Vocabulary

- demonstrates an understanding of nuances and subtleties in words of similar meaning (e.g. "frustrated", "discouraged", "baffled")
- verifies interpretations of unfamiliar words using grammatical and contextual cues

Comprehension

- reads and views highly complex texts (see Text complexity)
- interprets symbolism in texts, providing evidence to justify interpretation
- judiciously selects and synthesises evidence from multiple texts to support ideas and arguments
- analyses the credibility and validity of primary and secondary sources
- evaluates the use of devices such as analogy, irony, rhetoric and satire, and how they contribute to an author's individual style
- analyses the cumulative impact of use of language features and vocabulary across texts

• explains assumptions, beliefs and implicit values in texts (e.g. "economic growth is always desirable")

• evaluates the social, moral and ethical positions taken in texts

Processes

• strategically adjusts the processes of reading and viewing to build meaning according to the demands of tasks and texts

• identifies subtle contradictions and inconsistencies in texts

Vocabulary

• interprets complex, formal and impersonal language in academic texts

• uses lexical cues to interpret unfamiliar vocabulary

• demonstrates self-reliance in exploration and application of word learning strategies

Snapshot – Draw conclusions and provide reasons

Critical and Creative Thinking: Analysing: Draw conclusions and provide reasons

Content description

AC9S9I07

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.

• draw conclusions and make choices when completing tasks by connecting evidence from within and across discipline areas to provide reasons and evaluate arguments for choices made

• draw conclusions and make choices when completing tasks, using analysis of complex evidence and arguments before making recommendations

Snapshot – Identify, process and evaluate information

Critical and Creative Thinking: Inquiring: Identify, process and evaluate information

Content description

AC9S9I07

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.

• identify and clarify significant information and opinion from a range of sources, including visual information and digital sources

• evaluate the accuracy, validity and relevance of the information and opinion to the topic of study

• identify and clarify significant information and opinion from a range of sources, including visual information and digital sources

• evaluate the information selected to determine bias and reliability

Snapshot – Understanding texts

Literacy: Reading and viewing: Understanding texts

Content description

AC9S9I07

Learning progression extract

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Comprehension

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• uses processes such as predicting, confirming predictions, monitoring, and connecting relevant elements of the text to build or repair meaning

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• strategically adjusts the processes of reading and viewing to build meaning according to the demands of tasks and texts

• identifies subtle contradictions and inconsistencies in texts

Vocabulary

• interprets complex, formal and impersonal language in academic texts

• uses lexical cues to interpret unfamiliar vocabulary

• demonstrates self-reliance in exploration and application of word learning strategies

Snapshot – Understanding texts

Literacy: Reading and viewing: Understanding texts

Content description

AC9S9I07

Learning progression extract

The following learning progression extract shows the alignment of the learning progression with this content.

Comprehension

• reads and views complex texts (see Text complexity)

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Processes

• uses processes such as predicting, confirming predictions, monitoring, and connecting relevant elements of the text to build or repair meaning

• uses knowledge of a broader range of cohesive devices to track meaning (e.g. word associations) (see Grammar)

• selects reading or viewing strategies appropriate to reading purpose (e.g. scans text for evidence)

• judiciously selects texts for learning area tasks and purposes

Vocabulary

• identifies language used to create tone or atmosphere

• analyses language and visual features in texts using metalanguage (e.g. cohesion, interpretation, figurative)

• applies knowledge of base words and word origins to understand the meaning of unfamiliar, discipline-specific words

• uses a range of context and grammatical cues to understand unfamiliar words

• interprets complex figurative language (e.g. euphemisms, hyperbole)

Comprehension

• reads and views complex or some highly complex texts (see Text complexity)

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• applies and articulates criteria to evaluate the language structures and features for relevance to purpose and audience

• evaluates the reasoning and evidence in a persuasive text

• explains how context (e.g. time, place, situation) influences interpretations of a text

• analyses the author's perspectives in complex or some highly complex texts

• analyses the techniques authors use to position readers

• recognises when ideas or evidence have been omitted from a text to position the reader

Processes

• automatically integrates a range of processes such as predicting, confirming predictions, monitoring and connecting relevant elements of the text, to build meaning
• describes how sophisticated cohesive devices establish patterns of meaning (e.g. "class" – "subclass")
• navigates extended texts including complex digital texts

Vocabulary

• demonstrates an understanding of nuances and subtleties in words of similar meaning (e.g. "frustrated", "discouraged", "baffled")
• verifies interpretations of unfamiliar words using grammatical and contextual cues

Comprehension

• reads and views highly complex texts (see Text complexity)
• interprets symbolism in texts, providing evidence to justify interpretation
• judiciously selects and synthesises evidence from multiple texts to support ideas and arguments
• analyses the credibility and validity of primary and secondary sources
• evaluates the use of devices such as analogy, irony, rhetoric and satire, and how they contribute to an author's individual style
• analyses the cumulative impact of use of language features and vocabulary across texts
• explains assumptions, beliefs and implicit values in texts (e.g. "economic growth is always desirable")
• evaluates the social, moral and ethical positions taken in texts

Processes

• strategically adjusts the processes of reading and viewing to build meaning according to the demands of tasks and texts
• identifies subtle contradictions and inconsistencies in texts

Vocabulary

• interprets complex, formal and impersonal language in academic texts
• uses lexical cues to interpret unfamiliar vocabulary
• demonstrates self-reliance in exploration and application of word learning strategies

Snapshot – Interpreting and representing data

Numeracy: Statistics and probability: Interpreting and representing data

Content description

AC9S9I07

Learning progression extract

The following learning progression extract shows the alignment of the learning progression with this content.

Sampling

• considers the context when determining whether to use data from a sample or a population
• determines what type of sample to use from a population (e.g. decides to use a representative sample when conducting targeted market research or when researching beliefs about a health-related issue)
• makes reasonable statements about a population based on evidence from samples (e.g. considers accuracy of representation of marginalised individuals or population groups)
• plans, executes and reports on sampling-based investigations, taking into account validity of methodology and consistency of data, to answer questions formulated by the student

Recognising bias

• applies an understanding of distributions to evaluate claims based on data (e.g. recognises that the accuracy of using a sample for predicting population values depends on both the relative size of the sample and how well the characteristics of the sample reflect the characteristics of the population; critically analyses statistics that reinforce stereotypes; evaluates claims made by the media regarding young people in relation to drugs and/or risk-taking behaviours)
• identifies and explains bias as a possible source of error in media reports of survey data (e.g. uses data to evaluate veracity of review headlines such as "everybody's favourite game"; investigates media claims on attitudes to government responses to market failure or income

redistribution)

• justifies criticisms of data sources that include biased statistical elements (e.g. inappropriate sampling from populations; identifying sources of uncertainty in a scientific investigation; checks the authenticity of a data set)

Snapshot – Draw conclusions and provide reasons

Critical and Creative Thinking: Analysing: Draw conclusions and provide reasons

Content description

AC9S9I07

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.

• draw conclusions and make choices when completing tasks by connecting evidence from within and across discipline areas to provide reasons and evaluate arguments for choices made

• draw conclusions and make choices when completing tasks, using analysis of complex evidence and arguments before making recommendations

Snapshot – Identify, process and evaluate information

Critical and Creative Thinking: Inquiring: Identify, process and evaluate information

Content description

AC9S9I07

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.

• identify and clarify significant information and opinion from a range of sources, including visual information and digital sources

• evaluate the accuracy, validity and relevance of the information and opinion to the topic of study

• identify and clarify significant information and opinion from a range of sources, including visual information and digital sources

• evaluate the information selected to determine bias and reliability

Snapshot – Understanding texts

Literacy: Reading and viewing: Understanding texts

Content description

AC9S9I07

Learning progression extract

The following learning progression extract shows the alignment of the learning progression with this content.

Comprehension

• reads and views complex texts (see Text complexity)

• identifies the main themes or concepts in complex texts by synthesising key ideas or information

• summarises the text, identifying key details only

• draws inferences, synthesising clues and evidence across a text

• builds meaning by actively linking ideas from a number of texts or a range of digital sources

• distils information from a number of texts according to task and purpose (e.g. uses graphic organisers)

• identifies different interpretations of the text citing evidence from a text

• evaluates language features for relevance to purpose and audience

• analyses texts that have more than one purpose and explains how parts of the text support a particular purpose

• analyses the use of language appropriate to different types of texts (e.g. compare the use of pun in imaginative and persuasive texts)

• identifies techniques used to obscure author's purpose (e.g. inclusion or omission of content)

Processes

• uses processes such as predicting, confirming predictions, monitoring, and connecting relevant elements of the text to build or repair meaning

• uses knowledge of a broader range of cohesive devices to track meaning (e.g. word associations) (see Grammar)

• selects reading or viewing strategies appropriate to reading purpose (e.g. scans text for

evidence)

• judiciously selects texts for learning area tasks and purposes

Vocabulary

• identifies language used to create tone or atmosphere

• analyses language and visual features in texts using metalanguage (e.g. cohesion, interpretation, figurative)

• applies knowledge of base words and word origins to understand the meaning of unfamiliar, discipline-specific words

• uses a range of context and grammatical cues to understand unfamiliar words

• interprets complex figurative language (e.g. euphemisms, hyperbole)

Comprehension

• reads and views complex or some highly complex texts (see Text complexity)

• interprets abstract concepts integrating complex ideas

• analyses how language features are used to support the point of view in a text (e.g. the strategic use of images such as a cartoon in an editorial)

• draws inferences using evidence from the text and discounting possible inferences that are not supported by the text

• applies and articulates criteria to evaluate the language structures and features for relevance to purpose and audience

• evaluates the reasoning and evidence in a persuasive text

• explains how context (e.g. time, place, situation) influences interpretations of a text

• analyses the author's perspectives in complex or some highly complex texts

• analyses the techniques authors use to position readers

• recognises when ideas or evidence have been omitted from a text to position the reader

Processes

• automatically integrates a range of processes such as predicting, confirming predictions, monitoring and connecting relevant elements of the text, to build meaning

• describes how sophisticated cohesive devices establish patterns of meaning (e.g. "class" – "subclass")

• navigates extended texts including complex digital texts

Vocabulary

• demonstrates an understanding of nuances and subtleties in words of similar meaning (e.g. "frustrated", "discouraged", "baffled")

• verifies interpretations of unfamiliar words using grammatical and contextual cues

Comprehension

• reads and views highly complex texts (see Text complexity)

• interprets symbolism in texts, providing evidence to justify interpretation

• judiciously selects and synthesises evidence from multiple texts to support ideas and arguments

• analyses the credibility and validity of primary and secondary sources

• evaluates the use of devices such as analogy, irony, rhetoric and satire, and how they contribute to an author's individual style

• analyses the cumulative impact of use of language features and vocabulary across texts

• explains assumptions, beliefs and implicit values in texts (e.g. "economic growth is always desirable")

• evaluates the social, moral and ethical positions taken in texts

Processes

• strategically adjusts the processes of reading and viewing to build meaning according to the demands of tasks and texts

• identifies subtle contradictions and inconsistencies in texts

Vocabulary

• interprets complex, formal and impersonal language in academic texts

• uses lexical cues to interpret unfamiliar vocabulary

• demonstrates self-reliance in exploration and application of word learning strategies

Snapshot – Evaluate actions and outcomes

Critical and Creative Thinking: Analysing: Evaluate actions and outcomes

Content description

AC9S9I07

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
• evaluate the effectiveness of a course of action or the outcome of a task and account for expected
and unexpected results, including using a given or co-developed set of criteria to support decisions
• evaluate the effectiveness of a course of action to achieve desired outcomes and suggest
improvements, including using a personally developed set of criteria to support judgements and
decisions

Snapshot – Identify, process and evaluate information

Critical and Creative Thinking: Inquiring: Identify, process and evaluate informati

Content description

AC9S9I07

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
• identify and clarify significant information and opinion from a range of sources, including visual
information and digital sources
• evaluate the accuracy, validity and relevance of the information and opinion to the topic of study
• identify and clarify significant information and opinion from a range of sources, including visual
information and digital sources
• evaluate the information selected to determine bias and reliability

Snapshot – Making and reflecting on ethical decisions

Ethical Understanding: Responding to ethical issues: Making and reflecting on et

Content description

AC9S9I07

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
• consider how values and beliefs influence approaches to ethical issues, and■analyse■how these
affect■outcomes
• analyse■biases■when applying ethical concepts,■values■and ethical frameworks,■in order to explore
and evaluate ethical decisions

Snapshot – Explore ethical concepts

Ethical Understanding: Understanding ethical concepts and perspectives: Explor

Content description

AC9S9I07

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
• analyse■the similarities and differences between ethical concepts, such as integrity, loyalty and
equality, in a range of situations and contexts
• evaluate■the consistency in meaning of ethical concepts, such as trust, freedom and rights and
responsibilities, in a range of situations and contexts

Snapshot – Explore ethical issues

Ethical Understanding: Responding to ethical issues: Explore ethical issues

Content description

AC9S9I07

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
• analyse■the relationships between values, ethical perspectives■and ethical frameworks when
responding to ethical issues
• apply knowledge of ethical concepts, values, perspectives and frameworks when responding to
ethical issues

Snapshot – Examine values, rights and responsibilities and ethical norms

Ethical Understanding: Understanding ethical concepts and perspectives: Exami

responsibilities and ethical norms

Content description

AC9S9I07

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
• describe the relationship between the role of individual and community values, rights and responsibilities, and ethical norms when responding to ethical issues
• describe the importance of values, rights and responsibilities when reaching a position on an ethical issue, and evaluate their role in challenging and defending ethical norms

Snapshot – Explore ethical issues

Ethical Understanding: Responding to ethical issues: Explore ethical issues

Content description

AC9S9I07

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
• analyse■the relationships between values, ethical perspectives■and ethical frameworks when responding to ethical issues
• apply knowledge of ethical concepts, values, perspectives and frameworks when responding to ethical issues

Snapshot – Examine values, rights and responsibilities and ethical norms

Ethical Understanding: Understanding ethical concepts and perspectives: Examir responsibilities and ethical norms

Content description

AC9S9I07

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
• describe the relationship between the role of individual and community values, rights and responsibilities, and ethical norms when responding to ethical issues
• describe the importance of values, rights and responsibilities when reaching a position on an ethical issue, and evaluate their role in challenging and defending ethical norms

AC9S9I08

write and create texts to communicate ideas, findings and effectively for identified purposes and audiences, including selection of appropriate content, language and text features, using as appropriate

•
•

Elaborations

• comparing and contrasting scientific texts addressing similar topics for different purposes or audiences, and analysing the author's (or authors') selection of content or use of language and text features
• selecting appropriate content and language which is culturally responsive and maintains cultural protocols, considering sensitivities in communicating First Nations Australians' knowledges and managing risks of offensive narratives, language, images and attributions
• writing a report on a scientific including: an introductory paragraph that explains or references scientific theories, processes or other related knowledge that gives background information to the ; an of the results obtained using scientific knowledge; and a discussion that considers and reproducibility
• developing an interactive presentation that shows feedback loops in human body
• planning a social media campaign to encourage young people to reduce their carbon footprint
• collaborating to prepare a written report for local government on estimated carbon storage across different local ecosystems and proposals to increase carbon storage across the area

Students learn to:

write and create texts to communicate ideas, findings and arguments effectively for

**purposes and audiences, including selection of appropriate content, language and t
using digital tools as appropriate**

(AC9S9I08)
General capabilities and cross-curriculum priorities
This content description connects to the following general capabilities and cross-curriculum priorities.
Creating and exchanging
• Create, communicate and collaborate
• Respect intellectual property
Social management
• Communication
Elaborations
Content elaborations provide suggestions of ways to teach the content description and connect it to general capabilities and cross-curriculum priorities. Content elaborations are optional .
Analysing
• Evaluate actions and outcomes
Inquiring
• Identify, process and evaluate information
Reading and viewing
• Understanding texts
Engaging with cultural and linguistic diversity
• Communicate responsively
• Develop multiple perspectives
Culture
• The First Peoples of Australia (Aboriginal Peoples) belong to the world's oldest continuous cultures. First Nations Australians demonstrate resilience in the maintenance, practice and revitalisation of culture despite the many historic and enduring impacts of colonisation, and continue to celebrate and share the past, present and future manifestations of their cultures.
People
• The significant and ongoing contributions of First Nations Australians and their histories and cultures are acknowledged locally, nationally and globally.
Writing
• Creating texts
• Creating texts
Creating and exchanging
• Create, communicate and collaborate
• Respect intellectual property
Social management
• Communication
Creating and exchanging
• Create, communicate and collaborate
• Respect intellectual property
Practising digital safety and wellbeing
• Manage online safety
• Manage digital privacy and identity
Futures
• Sustainable futures require individuals to seek information, identify solutions, reflect on and evaluate past actions, and collaborate with and influence others as they work towards a desired change.
Statistics and probability
• Interpreting and representing data
Futures
• Sustainable futures require individuals to seek information, identify solutions, reflect on and evaluate past actions, and collaborate with and influence others as they work towards a desired

change.

Resources

Work Samples

WS01 - Radioactivity

Snapshot – Create, communicate and collaborate

Digital Literacy: Creating and exchanging: Create, communicate and collaborate

Content description

AC9S9I08

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
• select and control advanced features of appropriate digital tools to independently create content
and effectively communicate and collaborate with wider groups
• select and control the features of digital tools to purposefully create content and effectively
communicate and collaborate, inclusive of diverse groups

Snapshot – Respect intellectual property

Digital Literacy: Creating and exchanging: Respect intellectual property

Content description

AC9S9I08

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
• respect intellectual property by applying practices that comply with ethical and legal
obligations, referencing conventions and copyright protocols
• respect intellectual property by identifying and applying practices that meet legal and ethical
obligations, referencing conventions, copyright and trademark protocols

Snapshot – Communication

Personal and Social capability: Social management: Communication

Content description

AC9S9I08

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
• demonstrate communication skills in a range of contexts, responding to the enablers of, and
barriers to, effective verbal and non-verbal communication
• devise strategies that apply effective verbal and non-verbal communication in response to feedback

Snapshot – Evaluate actions and outcomes

Critical and Creative Thinking: Analysing: Evaluate actions and outcomes

Content description

AC9S9I08

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
• evaluate the effectiveness of a course of action or the outcome of a task and account for expected
and unexpected results, including using a given or co-developed set of criteria to support decisions
• evaluate the effectiveness of a course of action to achieve desired outcomes and suggest
improvements, including using a personally developed set of criteria to support judgements and
decisions

Snapshot – Identify, process and evaluate information

Critical and Creative Thinking: Inquiring: Identify, process and evaluate informatic

Content description

AC9S9I08

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
• identify and clarify significant information and opinion from a range of sources, including visual

information and digital sources
• evaluate the accuracy, validity and relevance of the information and opinion to the topic of study
• identify and clarify significant information and opinion from a range of sources, including visual information and digital sources
• evaluate the information selected to determine bias and reliability

Snapshot – Understanding texts

Literacy: Reading and viewing: Understanding texts

Content description

AC9S9I08

Learning progression extract

The following learning progression extract shows the alignment of the learning progression with this content.

Comprehension

• reads and views complex texts (see Text complexity)
• identifies the main themes or concepts in complex texts by synthesising key ideas or information
• summarises the text, identifying key details only
• draws inferences, synthesising clues and evidence across a text
• builds meaning by actively linking ideas from a number of texts or a range of digital sources
• distils information from a number of texts according to task and purpose (e.g. uses graphic organisers)
• identifies different interpretations of the text citing evidence from a text
• evaluates language features for relevance to purpose and audience
• analyses texts that have more than one purpose and explains how parts of the text support a particular purpose
• analyses the use of language appropriate to different types of texts (e.g. compare the use of pun in imaginative and persuasive texts)
• identifies techniques used to obscure author's purpose (e.g. inclusion or omission of content)

Processes

• uses processes such as predicting, confirming predictions, monitoring, and connecting relevant elements of the text to build or repair meaning
• uses knowledge of a broader range of cohesive devices to track meaning (e.g. word associations) (see Grammar)
• selects reading or viewing strategies appropriate to reading purpose (e.g. scans text for evidence)
• judiciously selects texts for learning area tasks and purposes

Vocabulary

• identifies language used to create tone or atmosphere
• analyses language and visual features in texts using metalanguage (e.g. cohesion, interpretation, figurative)
• applies knowledge of base words and word origins to understand the meaning of unfamiliar, discipline-specific words
• uses a range of context and grammatical cues to understand unfamiliar words
• interprets complex figurative language (e.g. euphemisms, hyperbole)

Comprehension

• reads and views complex or some highly complex texts (see Text complexity)
• interprets abstract concepts integrating complex ideas
• analyses how language features are used to support the point of view in a text (e.g. the strategic use of images such as a cartoon in an editorial)
• draws inferences using evidence from the text and discounting possible inferences that are not supported by the text
• applies and articulates criteria to evaluate the language structures and features for relevance to purpose and audience
• evaluates the reasoning and evidence in a persuasive text
• explains how context (e.g. time, place, situation) influences interpretations of a text
• analyses the author's perspectives in complex or some highly complex texts
• analyses the techniques authors use to position readers

• recognises when ideas or evidence have been omitted from a text to position the reader
Processes

• automatically integrates a range of processes such as predicting, confirming predictions, monitoring and connecting relevant elements of the text, to build meaning
• describes how sophisticated cohesive devices establish patterns of meaning (e.g. "class" – "subclass")
• navigates extended texts including complex digital texts
Vocabulary

• demonstrates an understanding of nuances and subtleties in words of similar meaning (e.g. "frustrated", "discouraged", "baffled")
• verifies interpretations of unfamiliar words using grammatical and contextual cues
Comprehension

• reads and views highly complex texts (see Text complexity)
• interprets symbolism in texts, providing evidence to justify interpretation
• judiciously selects and synthesises evidence from multiple texts to support ideas and arguments
• analyses the credibility and validity of primary and secondary sources
• evaluates the use of devices such as analogy, irony, rhetoric and satire, and how they contribute to an author's individual style
• analyses the cumulative impact of use of language features and vocabulary across texts
• explains assumptions, beliefs and implicit values in texts (e.g. "economic growth is always desirable")
• evaluates the social, moral and ethical positions taken in texts
Processes

• strategically adjusts the processes of reading and viewing to build meaning according to the demands of tasks and texts
• identifies subtle contradictions and inconsistencies in texts
Vocabulary

• interprets complex, formal and impersonal language in academic texts
• uses lexical cues to interpret unfamiliar vocabulary
• demonstrates self-reliance in exploration and application of word learning strategies

Snapshot – Communicate responsively

Intercultural Understanding: Engaging with cultural and linguistic diversity: Communicate responsively

Content description

AC9S9I08
Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
• select and use strategies for open, flexible and focused communication, including understanding how cultural perspectives and world views affect communication within, between and across cultural and linguistic groups
• apply communication strategies in culturally and linguistically diverse contexts, understanding how language and culture are interrelated or connected

Snapshot – Develop multiple perspectives

Intercultural Understanding: Engaging with cultural and linguistic diversity: Develop multiple perspectives

Content description

AC9S9I08
Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
• consider multiple perspectives held on unfamiliar topics, identifying commonality and difference, and describe how perspectives may be influenced by cultural beliefs and practices
• analyse unfamiliar topics and develop respectful responses, reconciling different cultural perspectives

Snapshot – Creating texts

Literacy: Writing: Creating texts

Content description

AC9S9I08

Learning progression extract

The following learning progression extract shows the alignment of the learning progression with this content.

Crafting ideas

• creates informative texts to explain and analyse (e.g. analyses how artists use visual conventions in artworks)

• creates texts to compare and contrast phenomena (e.g. identify the similarities and differences between species of animals)

• orients the reader clearly to the topic or concept (e.g. using a definition or classification in the opening paragraph)

• intentionally selects structural elements for effect (e.g. includes an effective conclusion that synthesises complex ideas)

• uses evidence and research including digital resources to expand upon information and elaborate concepts

Text forms and features

• varies sentence structure for effect (see Grammar)

• judiciously uses language, visual and audio features to emotionally or intellectually affect the reader

• uses more elaborate noun groups/phrases that include classifying adjectives and specific nouns (e.g. "mineral component of sedimentary rocks")

• creates cohesive flow by condensing previous information into a summarising noun (e.g. "A series of tumultuous events culminated in the outbreak of WWI - modern history's turning point.")

• uses passive voice and nominalisation to write succinctly (e.g. "the results were analysed") (see Grammar)

Vocabulary

• uses discipline-specific terminology to provide accurate and explicit information (e.g. "discipline metalanguage")

• uses a range of synonyms for frequently occurring words, in a longer text (e.g. "repair", "fix", "remedy")

• uses vocabulary to indicate and describe relationships (e.g. "additionally", "similarly")

Crafting ideas

• creates sustained, informative texts that precisely explain, analyse and evaluate concepts or abstract entities

• uses structural features flexibly to organise ideas strategically (e.g. includes a defined, cogent conclusion or summation)

• creates texts with forms and features combined strategically for purpose (e.g. describes a historical event from the perspective of a secondary source)

• uses evidence and references

• creates succinct short-answer explanatory texts as well as complex, multi-staged extended texts

Text forms and features

• maintains tone appropriate to the audience

• uses extended noun groups/phrases including adjectival phrases (e.g. "a sturdy construction with modern design features") (see Grammar)

Vocabulary

• uses complex abstractions (e.g. "economic", "sociocultural")

Snapshot – Creating texts

Literacy: Writing: Creating texts

Content description

AC9S9I08

Learning progression extract

The following learning progression extract shows the alignment of the learning progression with this content.

Crafting ideas
• creates persuasive texts to discuss, evaluate and review (e.g. evaluates and reviews design ideas)
• includes persuasive points with effective elaborations and supporting evidence
• intentionally selects structural elements for effect (e.g. includes an appropriate conclusion that sums up, recommends or reiterates)
• includes counter argument or refutation if appropriate
• uses evidence and research including digital resources to expand upon information and elaborate concepts

Text forms and features
• uses rhetorical devices such as rhetorical questions
• varies sentence structure for effect (see Grammar)
• judiciously uses language, visual and audio features to emotionally or intellectually affect the audience
• skilfully uses a range of cohesive devices to make connections between arguments (e.g. foreshadows key points in introduction and reinforces key points in topic sentences)
• judiciously selects evidence and language to strengthen arguments
• uses passive voice and nominalisation strategically to avoid stating the actor in the sentence (e.g. "an expectation of failure became common")

Vocabulary
• uses a range of synonyms for frequently occurring words, in a longer text (e.g. "impact", "consequence", "result")
• uses topic-specific vocabulary to add credibility and weight to arguments (e.g. "cadence", "interplanetary", "silt")
• uses language that evokes an emotional response (e.g. "Although they faced relentless opposition, the netballers triumphed.")
• uses words that create connotations (e.g. "miserly", "frugal")

Crafting ideas
• creates sustained, robust arguments on complex learning area topics (e.g. "Should bushrangers be afforded hero status?")
• uses structural features flexibly to organise ideas strategically (e.g. includes a defined, cogent summation or call to action)
• uses citation and referencing from authoritative sources
• anticipates reader knowledge and possible bias and accommodates these in development of arguments (e.g. "you may have thought that …")
• positions the reader effectively by providing a clear thesis and relevant context (e.g. by previewing the arguments)
• strategically selects visual and audio resources to position the reader/viewer (e.g. a video clip of an authoritative source)

Text forms and features
• uses sophisticated evaluative language devices such as allusion, evocative vocabulary and extended metaphor

Vocabulary
• uses vocabulary for precision (e.g. "the underwhelming performance of the opening batters")

Snapshot – Create, communicate and collaborate

Digital Literacy: Creating and exchanging: Create, communicate and collaborate

Content description
AC9S9I08

Continuum extract
The following continuum extract shows the alignment of the continuum with this content.
• select and control advanced features of appropriate digital tools to independently create content and effectively communicate and collaborate with wider groups
• select and control the features of digital tools to purposefully create content and effectively communicate and collaborate, inclusive of diverse groups

Snapshot – Respect intellectual property

Digital Literacy: Creating and exchanging: Respect intellectual property

Content description

AC9S9I08

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
• respect intellectual property by applying practices that comply with ethical and legal
obligations, referencing conventions and copyright protocols
• respect intellectual property by identifying and applying practices that meet legal and ethical
obligations, referencing conventions, copyright and trademark protocols

Snapshot – Communication

Personal and Social capability: Social management: Communication

Content description

AC9S9I08

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
• demonstrate communication skills in a range of contexts, responding to the enablers of, and
barriers to, effective verbal and non-verbal communication
• devise strategies that apply effective verbal and non-verbal communication in response to feedback

Snapshot – Create, communicate and collaborate

Digital Literacy: Creating and exchanging: Create, communicate and collaborate

Content description

AC9S9I08

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
• select and control advanced features of appropriate digital tools to independently create content
and effectively communicate and collaborate with wider groups
• select and control the features of digital tools to purposefully create content and effectively
communicate and collaborate, inclusive of diverse groups

Snapshot – Respect intellectual property

Digital Literacy: Creating and exchanging: Respect intellectual property

Content description

AC9S9I08

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
• respect intellectual property by applying practices that comply with ethical and legal
obligations, referencing conventions and copyright protocols
• respect intellectual property by identifying and applying practices that meet legal and ethical
obligations, referencing conventions, copyright and trademark protocols

Snapshot – Manage online safety

Digital Literacy: Practising digital safety and wellbeing: Manage online safety

Content description

AC9S9I08

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.
• identify online abuse and bullying and report them to trusted adults, appropriate authorities and
in online tools
• stop engaging in negative online social interactions
• engage in safe, legal and ethical online behaviour and defuse negative online social interactions
• recognise the benefits and risks of anonymity online

Snapshot – Manage digital privacy and identity

Digital Literacy: Practising digital safety and wellbeing: Manage digital privacy an

Content description

AC9S9I08

Continuum extract

The following continuum extract shows the alignment of the continuum with this content.

• recognise their digital footprint is valuable, used by online tools for targeting, and that data shared online is no longer under their control
• consider who they trust with their data and review privacy policies before giving consent, and seek consent before sharing online
• recognise their actions contribute to their passive digital footprint
• manage their digital identity by controlling privacy, connections and group settings, and curating posts
• consent selectively to data collection after assessing the benefits and risks of an online tool privacy policy

Snapshot – Interpreting and representing data

Numeracy: Statistics and probability: Interpreting and representing data

Content description

AC9S9I08

Learning progression extract

The following learning progression extract shows the alignment of the learning progression with this content.

Collecting, displaying, interpreting and analysing numerical data

• poses questions based on variations in continuous numerical data and chooses the appropriate method to collect and record data (e.g. collects information on the heights of buildings or daily temperatures, tabulates the results and represents these graphically; uses a survey to collect primary data or secondary data extracted from census data)
• uses numerical and graphical representations relevant to the purpose of the collection of the data and explains their reasoning (e.g. "I can't use a frequency histogram for categorical data because there is no numerical connection between the categories"; converts their data to percentages in order to compare the girls' results to those of the boys, as the total number of boys and girls who participated in the survey was different)
• determines and calculates the most appropriate statistic to describe the spread of data (e.g. when creating an infographic, uses the mean of the data to describe household income and the median of the data for house prices)
• calculates simple descriptive statistics such as mode, mean or median as measures to represent typical values of a distribution (e.g. describes the mean kilojoule intake and median hours of exercise of a sample population when investigating community health and wellbeing; describes central tendency when analysing road safety statistics)
• compares the usefulness of different representations of the same data (e.g. chooses to use a line graph to illustrate trends, a bar graph to compare the living standards of different economies and a histogram to show income distribution)
• describes the spread of a data distribution in terms of the range, clusters, skewness and symmetry of the graphical display, and determines and makes connections to the mode, median and mean of the data

Interpreting graphical representations

• uses features of graphical representations to make predictions (e.g. predicts audience numbers based on historical data; interprets a range of graphs to identify possible trends and make predictions such as economic growth, stock prices, interest rates, population growth)
• summarises data using fractions, percentages and decimals (e.g. 2 3 $\frac{2}{3}$ 3 2 ■ of a class live in the same suburb; represents road safety and sun safety statistics as a percentage of the Australian population)
• explains that continuous variables depicting growth or change often vary over time (e.g. creates growth charts to illustrate impacts of financial decisions; describes patterns in inflation rates, employment rates, migration rates over time; represents changes to fitness levels following the implementation of a personal fitness plan; interprets temperature charts)
• interprets graphs depicting motion such as distance–time and velocity–time graphs
• interprets and describes patterns in graphical representations of data from real-life situations such as the motion of a rollercoaster, flight trajectory of a basketball shot and the spread of disease

• investigates the association of 2 2 2 numerical variables through the representation and interpretation of bivariate data (e.g. uses scatter plots to represent bivariate data when investigating the relationship between 2 2 2 variables, such as income per capita, population density and life expectancy for different socio-economic groups)
• investigates, represents and interprets time series data (e.g. interrogates a time series graph showing the change in costs over time; uses a maximum daily temperature chart to determine the average temperature for the month)
• interprets the impact of changes to data (e.g. recognises the impact of outliers on a data set such as the income of a world-class professional athlete on the average income of players at the state/territory level; uses digital tools to enhance the quality of data in a science investigation)

Sampling

• considers the context when determining whether to use data from a sample or a population
• determines what type of sample to use from a population (e.g. decides to use a representative sample when conducting targeted market research or when researching beliefs about a health-related issue)
• makes reasonable statements about a population based on evidence from samples (e.g. considers accuracy of representation of marginalised individuals or population groups)
• plans, executes and reports on sampling-based investigations, taking into account validity of methodology and consistency of data, to answer questions formulated by the student

Resource – WS01 - Radioactivity

By the end of Year 9 students explain how body systems provide a coordinated response to stimuli. They describe how the processes of sexual and asexual reproduction enable survival of the species. They explain how interactions within and between Earth's spheres affect the carbon cycle. They analyse energy conservation in simple systems and apply wave and particle models to describe energy transfer. They explain observable chemical processes in terms of changes in atomic structure, atomic rearrangement and mass. Students explain the role of publication and peer review in the development of scientific knowledge and explain the relationship between science, technologies and engineering. They analyse the different ways in which science and society are interconnected.

Students plan and conduct safe, reproducible investigations to test or identify relationships and models. They describe how they have addressed any ethical and intercultural considerations when generating or using primary and secondary data. They select and use equipment to generate and record replicable data with precision. They select and construct appropriate representations to organise, process and summarise data and information. They analyse and connect data and information to identify and explain patterns, trends, relationships and anomalies. They analyse the impact of assumptions and sources of error in methods and evaluate the validity of conclusions and claims. They construct logical arguments based on evidence to support conclusions and evaluate claims. They select and use content, language and text features effectively to achieve their purpose when communicating their ideas, findings and arguments to specific audiences.

AC9S9U06

explain how the model of the atom changed following the discovery of electrons, protons and neutrons and describe how natural radioactive decay results in stable atoms

AC9S9I08

write and create texts to communicate ideas, findings and arguments effectively for identified purposes and audiences, including selection of appropriate content, language and text features, using digital tools as appropriate