My Space Career

Australian Curriculum links

Communicating in Space

Science Year 9-10

Question 2, 3, 4, 5, 6
Use wave and particle models to describe energy transfer through different mediums and examine the usefulness of each model for explaining phenomena (AC9S9U04)

Question 6, 7
Investigate how advances in technologies enable advances in science, and how science has contributed to developments in technologies and engineering (AC9S9H02), (AC9S10H02)

Question 7
Examine how the values and needs of society influence the focus of scientific research (AC9S9H04), (AC9S10H04)

Question 6, 7
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 (AC9S9I08), (AC9S9I08)

Mathematics Year 9-10

Question 1, 2, 3, 4, 5, 7
Recognise that the real number system includes the rational numbers and the irrational numbers, and solve problems involving real numbers using digital tools (AC9M9N01)

Question 2, 3, 4, 5, 7
Solve problems involving very small and very large measurements, time scales and intervals expressed in scientific notation (AC9M9M02)

Question 1
Solve spatial problems, applying angle properties, scale, similarity, Pythagoras' theorem and trigonometry in right-angled triangles (AC9M9M03)

Solve practical problems applying Pythagoras' theorem and trigonometry of right-angled triangles, including problems involving direction and angles of elevation and depression (AC9M10M03)

My Space Career

Australian Curriculum links

Communicating in Space continued

Design and Technologies Year 9-10

Question 6, 7

Analyse how people in design and technologies occupations consider ethical, security and sustainability factors to innovate and improve products, services and environments (AC9TDE10K01)

Analyse the impact of innovation, enterprise and emerging technologies on designed solutions for global preferred futures (AC9TDE10K02)

Analyse and make judgements on how characteristics and properties of materials, systems, components, tools and equipment can be combined to create designed solutions (AC9TDE10K06)

My Space Career

Australian Curriculum links

Pulling it Together

Science Year 9-10

Research Task 1,2

Model the rearrangement of atoms in chemical reactions using a range of representations, including word and simple balanced chemical equations, and use these to demonstrate the law of conservation of mass (AC9S9U07)

Identify patterns in synthesis, decomposition and displacement reactions and investigate the factors that affect reaction rates (AC9S10U07)

Part A a), b)

Investigate how advances in technologies enable advances in science, and how science has contributed to developments in technologies and engineering (AC9S9H02), (AC9S10H02)

Research Task 2

Examine how the values and needs of society influence the focus of scientific research (AC9S9H04), (AC9S10H04)

Part B 1, 2, 3, 4, 5

Analyse and connect a variety of data and information to identify and explain patterns, trends, relationships and anomalies (AC9S10I05)

Mathematics Year 9-10

Part B 1, 2, 3, 4, 5

Recognise that the real number system includes the rational numbers and the irrational numbers, and solve problems involving real numbers using digital tools (AC9M9N01)

Apply the exponent laws to numerical expressions with integer exponents and extend to variables (AC9M9A01)

Continued on next page.

My Space Career

Australian Curriculum links

Pulling it Together continued

Mathematics Year 9-10 continued

Part B 1, 2, 3, 4, 5

Solve problems involving very small and very large measurements, time scales and intervals expressed in scientific notation (AC9M9M02)

Use mathematical modelling to solve practical problems involving direct proportion, rates, ratio and scale, including financial contexts; formulate the problems and interpret solutions in terms of the situation; evaluate the model and report methods and findings (AC9M9M05)

Design and Technologies Year 9-10

Part A a), b)

Analyse the impact of innovation, enterprise and emerging technologies on designed solutions for global preferred futures (AC9TDE10K02)

Analyse and make judgements on how characteristics and properties of materials, systems, components, tools and equipment can be combined to create designed solutions (AC9TDE10K06)

My Space Career

Australian Curriculum links

Space: The legal, the ethical and the moral

History Year 9-10

Task – Outer Space Treaty and Task – Mining the Moon
Changing social, political, economic, cultural, environmental and technological conditions, and the causes of a major global influence in Australia (AC9HH10K17)

Task – Outer Space Treaty
The effects of global influences on Australia's changing identity as a nation and its international relationships (AC9HH10K19)

Civics and Citizenship Year 9-10

Task – Outer Space Treaty and Task – Mining the Moon
The Australian Government's role and responsibilities at a regional and global level (AC9HC10K02)

Task – Legal, ethical, moral and Task – Mining the Moon
Analyse information, data and ideas about political, legal or civic issues to identify and evaluate differences in perspectives and interpretations (AC9HC9S03), (AC9HC10S03)

Create descriptions, explanations and arguments using civics and citizenship knowledge, concepts and terms that incorporate evidence (AC9HC9S05), (AC9HC10S05)

Geography Year 9-10

Task – Outer Space Treaty
The environmental world views of people and their implications for environmental management (AC9HG10K02)

My Space Career

Australian Curriculum links

Design new exhibition

Digital Technologies Year 9-10

This is an integrated group activity with delegated tasks at the discretion of the educator

Define and decompose real-world problems with design criteria and by interviewing stakeholders to create user stories (AC9TDI10P04)

Select and use emerging digital tools and advanced features to create and communicate interactive content for a diverse audience (AC9TDI10P11)

Use simple project management tools to plan and manage individual and collaborative agile projects, accounting for risks and responsibilities (AC9TDI10P12)

Design Technologies Year 9-10

This is an integrated group activity with delegated tasks at the discretion of the educator

Analyse how people in design and technologies occupations consider ethical, security and sustainability factors to innovate and improve products, services and environments (AC9TDE10K01)

Analyse and make judgements on how characteristics and properties of materials, systems, components, tools and equipment can be combined to create designed solutions (AC9TDE10K06)

Analyse needs or opportunities for designing; develop design briefs; and investigate, analyse and select materials, systems, components, tools and equipment to create designed solutions (AC9TDE10P01)

Apply innovation and enterprise skills to generate, test, iterate and communicate design ideas, processes and solutions, including using digital tools (AC9TDE10P02)

Develop design criteria independently including sustainability to evaluate design ideas, processes and solutions (AC9TDE10P04)

Develop project plans for intended purposes and audiences to individually and collaboratively manage projects, taking into consideration time, cost, risk, processes and production of designed solutions (AC9TDE10P05)

My Space Career

Australian Curriculum links

Design new exhibition continued

Media Arts Year 9-10
This is an integrated group activity with delegated tasks at the discretion of the educator

Investigate the ways that media artists use media arts concepts to construct representations in media arts works and practices across cultures, times, places and/or other contexts (AC9AMA10E01)

Mathematics Year 9-10
This is an integrated group activity with delegated tasks at the discretion of the educator

Solve problems involving the surface area and volume of composite objects using appropriate units (AC9M10M01)

Solve spatial problems, applying angle properties, scale, similarity, Pythagoras' theorem and trigonometry in right-angled triangles (AC9M9M03)

Economics and Business Year 9-10
This is an integrated group activity with delegated tasks at the discretion of the educator

Processes that businesses use to create and maintain competitive advantage, including the role of entrepreneurs (AC9HE9K04), (AC9HE10K05)

Create descriptions, explanations and arguments, using economic and business knowledge, concepts and terms that incorporate and acknowledge research findings (AC9HE9S05), (AC9HE10S05)

My Space Career

Australian Curriculum links

Forces and Newton's Laws

Science Year 9-10

Question 6 and Hands-on activities
Apply the law of conservation of energy to analyse system efficiency in terms of energy inputs, outputs, transfers and transformations (AC9S9U05)

Questions 1-6
Investigate Newton's laws of motion and quantitatively analyse the relationship between force, mass and acceleration of objects (AC9S10U05)

Mathematics Year 9-10

Hands-on activities
Solve problems involving the surface area and volume of composite objects using appropriate units (AC9M10M01)

Solve spatial problems, applying angle properties, scale, similarity, Pythagoras' theorem and trigonometry in right-angled triangles (AC9M9M03)

Economics and Business Year 9-10

Reference to Neumann Space in resource introduction and associated video case study of Dr Neumann
Processes that businesses use to create and maintain competitive advantage, including the role of entrepreneurs (AC9HE9K04), (AC9HE10K05)

Create descriptions, explanations and arguments, using economic and business knowledge, concepts and terms that incorporate and acknowledge research findings (AC9HE9S05), (AC9HE10S05)

My Space Career

Australian Curriculum links

Getting off the ground

Science Year 9-10

Introductory velocity calculation and Questions 1-5

Investigate Newton's laws of motion and quantitatively analyse the relationship between force, mass and acceleration of objects (AC9S10U05)

Mathematics Year 9-10

Questions 1-5

Recognise that the real number system includes the rational numbers and the irrational numbers, and solve problems involving real numbers using digital tools (AC9M9N01)

Apply the exponent laws to numerical expressions with integer exponents and extend to variables (AC9M9A01)

Solve problems involving very small and very large measurements, time scales and intervals expressed in scientific notation (AC9M9M02)

Use mathematical modelling to solve practical problems involving direct proportion, rates, ratio and scale, including financial contexts; formulate the problems and interpret solutions in terms of the situation; evaluate the model and report methods and findings (AC9M9M05)

Choose appropriate forms of display or visualisation for a given type of data; justify selections and interpret displays for a given context (AC9M9ST04)

My Space Career

Australian Curriculum links

Engineering Solutions | Hayley

Science Year 9-10

This is an integrated hands-on activity with an optional individual research task
Investigate how advances in technologies enable advances in science, and how science has contributed to developments in technologies and engineering (AC9S10H02)

Select and use equipment to generate and record data with precision to obtain useful sample sizes and replicable data, using digital tools as appropriate (AC9S9I03), (AC9S10I03)

Select and construct appropriate representations, including tables, graphs, descriptive statistics, models and mathematical relationships, to organise and process data and information (AC9S9I04), (AC9S10I04)
Analyse and connect a variety of data and information to identify and explain patterns, trends, relationships and anomalies (AC9S9I05), (AC9S10I05)

Assess the validity and reproducibility of methods and evaluate the validity of conclusions and claims, including by identifying assumptions, conflicting evidence and areas of uncertainty (AC9S9I06), (AC9S10I06)
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 (AC9S9I08), (AC9S10I08)

Design and Technologies Year 9-10

This is an integrated hands-on activity with an optional individual research task
Analyse and make judgements on how the characteristics and properties of materials are combined with force, motion and energy to control engineered systems (AC9TDE10K03)

Analyse and make judgements on how characteristics and properties of materials, systems, components, tools and equipment can be combined to create designed solutions (AC9TDE10K06)

Analyse needs or opportunities for designing; develop design briefs; and investigate, analyse and select materials, systems, components, tools and equipment to create designed solutions (AC9TDE10P01)

My Space Career

Australian Curriculum links

Identifying Your Market

Science Year 9-10

Questions 5 - Strong reference to pivoting in the video case study of Dr Feain

Investigate how advances in technologies enable advances in science, and how science has contributed to developments in technologies and engineering (AC9S9H02), (AC9S10H02)

Economics and Business Year 9-10

Question 2, 3, 6

Processes that businesses use to create and maintain competitive advantage, including the role of entrepreneurs (AC9HE9K04)

Questions 1, 4

Locate, select and analyse information and data from a range of sources (AC9HE9S02), (AC9HE10S02)

Questions 6, 7, 8

Create descriptions, explanations and arguments, using economic and business knowledge, concepts and terms that incorporate and acknowledge research findings (AC9HE9S05), (AC9HE10S05)

My Space Career

Australian Curriculum links

Humans in Deep Space

Science Year 9-10

Task 1, 2

Compare the role of body systems in regulating and coordinating the body's response to a stimulus, and describe the operation of a negative feedback mechanism (AC9S9U01)

Investigate how advances in technologies enable advances in science, and how science has contributed to developments in technologies and engineering (AC9S9H02), (AC9S10H02)

Examine how the values and needs of society influence the focus of scientific research (AC9S9H04), (AC9S10H04)

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 (AC9S9I08), (AC9S10I08)

My Space Career

Australian Curriculum links

Engineering Solutions | Joice

Science Year 9-10

This is an integrated hands-on activity with an optional individual research task
Investigate how advances in technologies enable advances in science, and how science has contributed to developments in technologies and engineering (AC9S10H02)

Select and use equipment to generate and record data with precision to obtain useful sample sizes and replicable data, using digital tools as appropriate (AC9S9I03), (AC9S10I03)

Select and construct appropriate representations, including tables, graphs, descriptive statistics, models and mathematical relationships, to organise and process data and information (AC9S9I04), (AC9S10I04)

Analyse and connect a variety of data and information to identify and explain patterns, trends, relationships and anomalies (AC9S9I05), (AC9S10I05)

Assess the validity and reproducibility of methods and evaluate the validity of conclusions and claims, including by identifying assumptions, conflicting evidence and areas of uncertainty (AC9S9I06), (AC9S10I06)

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 (AC9S9I08), (AC9S10I08)

Design and Technologies Year 9-10

This is an integrated hands-on activity with an optional individual research task
Analyse and make judgements on how the characteristics and properties of materials are combined with force, motion and energy to control engineered systems (AC9TDE10K03)

Analyse and make judgements on how characteristics and properties of materials, systems, components, tools and equipment can be combined to create designed solutions (AC9TDE10K06)

Analyse needs or opportunities for designing; develop design briefs; and investigate, analyse and select materials, systems, components, tools and equipment to create designed solutions (AC9TDE10P01)

My Space Career

Australian Curriculum links

Iterative Design Process

Science Year 9-10

This is an integrated hands-on activity with optional individual research tasks
Develop investigable questions, reasoned predictions and hypotheses to test relationships and develop explanatory models (AC9S10I01)

Plan and conduct valid, reproducible investigations 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 Country/Place (AC9S10I02)

Select and construct appropriate representations, including tables, graphs, descriptive statistics, models and mathematical relationships, to organise and process data and information (AC9S10I04)

Research task 1-4
Analyse and connect a variety of data and information to identify and explain patterns, trends, relationships and anomalies (AC9S10I05)

Design and Technologies Year 9-10

This is an integrated hands-on activity with optional individual research tasks
Apply innovation and enterprise skills to generate, test, iterate and communicate design ideas, processes and solutions, including using digital tools (AC9TDE10P02)

My Space Career

Australian Curriculum links

Satellites the eyes in the sky

Science Year 9-10

Part B 1, 2
Investigate how advances in technologies enable advances in science, and how science has contributed to developments in technologies and engineering (AC9S9H02), (AC9S10H02)

Mathematics Year 9-10
Part A 1, 3
Choose appropriate forms of display or visualisation for a given type of data; justify selections and interpret displays for a given context (AC9M9ST04)

Plan and conduct statistical investigations of situations that involve bivariate data; evaluate and report findings with consideration of limitations of any inferences (AC9M10ST05)

Part A 1, 2, 3
Plan and conduct statistical investigations involving the collection and analysis of different kinds of data; report findings and discuss the strength of evidence to support any conclusions (AC9M9ST05)

Geography Year 9-10

Part B 1, 2
The methods used to measure spatial variations in human wellbeing and development, and how these can be applied to determine differences between places at the global scale (AC9HG10K05)

Develop a range of questions for a geographical inquiry related to a phenomenon or challenge (AC9HG9S01), (AC9HG10S01)

Collect, represent and compare data and information from primary research methods, including fieldwork and secondary research materials, using geospatial technologies and digital tools as appropriate (AC9HG9S02), (AC9HG10S02)

Evaluate geographical data and information to make generalisations and predictions, explain patterns and trends and infer relationships (AC9HG9S03), (AC9HG10S03)

Evaluate data and information to justify conclusions (AC9HG9S04), (AC9HG10S04)

My Space Career

Australian Curriculum links

Satellites the eyes in the sky continued

Geography Year 9-10

Part B 1, 2

Develop and evaluate strategies using environmental, economic or social criteria; recommend a strategy and explain the predicted impacts (AC9HG9S05), (AC9HG10S05)

Create descriptions, explanations and responses, using geographical knowledge and geographical tools as appropriate, and concepts and terms that incorporate and acknowledge research findings (AC9HG9S06), (AC9HG10S06)