

# Space Careers Wayfinder

## Design new exhibition

### Exhibition – Artemis Program

In this activity students are invited to develop an exhibition space which features NASA's Artemis Program.

The Artemis Program is a collaboration between commercial and international space industry partners, and currently has three missions planned. The first mission was a test flight of the Space Launch System (SLS) rocket and the Orion capsule which will carry the astronauts. The second mission will carry four astronauts in the capsule and will complete a lunar orbit before returning to Earth. Finally in the third mission, NASA and their partners will land the first woman and first person of colour on the Moon. The astronauts will spend a week exploring the Moon's surface, conducting scientific studies before returning to Earth.

### Background

The guidelines set out in the task are intended to reflect the main components of a contract submission. Information gathered through discussions with the client are used to develop the proposal. To control/limit the amount of information students are likely to include in the proposal a number of confines are made for each of the components. This is not a comprehensive list as a project of this scale would likely run into several months.

Students are given background information regarding the facility to be utilised for the exhibition. Along with a cap on the value of the project, which is to include a target profit margin of around 20%.

In the considerations, students are given individual costs for items they might include in their proposal. Costings are also supplied for different types of exhibits and the associated labour, items such as display screens, AR and VR, and on-site daily labour costs.

---

<sup>1</sup> <https://youtu.be/ODC-0kh0Gg>  
<https://youtu.be/bmC-FwibsZg>

## Questions / Where to start

A range of questions rather than suggestions are used to provoke discussion and/or ideas regarding the look and feel of the exhibition. The scenario itself includes a number of individual roles. These roles would typically make up the team undertaking the design and implementation of such a project. Ideally students will collaborate, agreeing on which role/s they will fill. By pre-selecting specific roles or reducing the number of roles available to students the activity could be undertaken as an individual task if this is the preference.

It's anticipated that students would familiarise themselves with the [Artemis Project](#) before commencing the activity. It's most likely students will bring a plethora of ideas and suggestions to the table and active debate is encouraged within and between groups.

Tight teaching schedules are often a consideration when giving what could potentially be an open task. If time constraints are a factor, restricting the initial ideas (questions) for the look and feel of the exhibition to a more structured option should go some way to addressing any time constraints. Providing students with a precise number and type of exhibit, along with the number of onsite labour days and other information will also offer a high degree of structure to the activity. The following table is an example of the extra detail that might be included in the information section and presented as supplied by the client (minus costs!).

Item	Quantity	Item cost	Total (\$)
Video wall	1	90 000	90 000
55inch displays	3	4500	13 500
Free standing exhibits	6	4000	21 000
Labour cost free standing exhibits	6	1000	15 000
Hands-on/interactive exhibits	12	11 000	132 000
Labour cost hands-on/interactive exhibits	12	3000	54 000
AR/VR	1	35 000	35 000
software	1	115 000	115 000
Profit (20% min)	1	250 000	250 000
Fit out materials	1	175 000	175 000
Labour (days)	100	5000	500 000
Incidental costs (5%)	1	75 000	75 000
		<b>Total</b>	<b>1 451 500</b>

# Australian Curriculum

## Digital Technologies

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

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)

## Media Arts

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

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)

## Science

Use wave and particle models to describe energy transfer through different mediums and examine the usefulness of each model for explaining phenomena (AC9S9U04)

Apply the law of conservation of energy to analyse system efficiency in terms of energy inputs, outputs, transfers and transformations (AC9S9U05)

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

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)

## Economics and Business

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

Develop and modify questions to investigate a contemporary economic and business issue (AC9HE9S01), (AC9HE10S01)

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

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