

PLANET PIONEERS

EXHIBITION GUIDE



CREATED BY

scitech

PERTH • AUSTRALIA



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EXHIBITION OVERVIEW

Leave Earth behind and travel interspace for an experience unlike any other...Do you have what it takes to survive in a completely different environment?

Scitech's Planet Pioneers exhibition will challenge visitors to explore, adapt and survive on another planet.

Comprised of 17 hands-on exhibits, Planet Pioneers will put budding astronauts and space explorers to the test when they attempt to source their own food, shelter and solve problems in an unknown land.

Before arriving at the planet, visitors will need to successfully pack the right equipment for the voyage, select the perfect crew and learn about the surrounding planets in the solar system.

Once landed, visitors will be challenged to find sources of water and oxygen, grow food to feed their colony and build shelter to survive the elements.

The exhibition engages visitors with exciting hands-on and full-body experiences such as driving a 4-D Surface Exploration Vehicle, flying a virtual drone to solve environmental issues and experiencing G-Force in the spinning capsule.



VISITOR APPEAL

Planet Pioneers has been developed to engage children aged between 5 and 12 years old and their families. The exhibition also lends itself to school groups who will enjoy the practical applications of teamwork, leadership and problem solving needed in space exploration.

Exhibits such as the G-Force Capsule and projectile launch will capture the attention of primary school groups as they experience the challenges of landing on another planet. Secondary school students will enjoy challenging exhibits such as flying a virtual drone to explore environments and locate problems. They will also learn about balancing oxygen, power and water in their planetary habitat.

High impact graphic panels have been designed to relate science, technology and engineering to the visitors' daily lives as well as to life on another planet. Concepts covered include plant biology, psychology, physics, engineering, human biology, and earth and space science.

VISITORS WILL

- Understand the needs and limitations of the human body
- Explore the challenges of living on another planet
- Experience how technology can help to overcome these challenges
- Imagine what life might be like on another planet
- Imagine and understand how technologies designed for space can have applications on Earth
- Recognise that careers in STEM can be inspiring, fulfilling, and life changing

KEY MESSAGES

- The resourcing and planning needed to settle on another planet
- The difference between Earth and other planets and the challenges humans will be faced with
- How science, technology and engineering can help us survive and conduct research in a new environment

EXHIBITS



1. SURFACE EXPLORATION VEHICLE

Exploring the surface of another planet gives us useful information about our new home. Climb into our Surface Exploration Vehicle and take a virtual drive to see what you can find.

Key Messages

- Vehicles will be needed to explore the surface of a planet
- Different vehicles are needed for different terrains and atmospheres

2. FIX THE PROBLEM

Drones can be used to explore environments which could be dangerous for humans. Fly a virtual drone around a planetary habitat to locate the problems for your team to fix.

Key Messages

- Drones allow us to explore hostile environments
- Identifying problems quickly helps to maintain a healthy habitat

3. BUILD A HABITAT

We will need protection from extreme temperatures and radiation to live on another planet. Construct a scale model of a habitat for your new home.

Key Message

- Protection from heat, cold and radiation is essential for life on another planet



4. SPACE POTATOES

Longer space missions will need astronauts to grow their own food. Can you find the right combination of ingredients to grow the most potatoes?

Key Messages

- Growing plants for food needs water, light and minerals
- A self-sufficient colony will need to grow its own food

5. BOTTLE ROCKET

Putting a rocket into orbit needs a lot of thrust. Pump the 'fuel' to launch the bottle rocket.

Key Message

- Rockets need thrust to launch

6. PLANET BASE

Living on another planet will require access to the essentials of life. Can you balance your resources to ensure you have enough power, water and oxygen?

Key Messages

- Living on another planet means building a self-sustaining habitat
- We need oxygen to breathe, water to drink and grow plants and power to produce heat

7. EXAMINE ROCKS

We find lots of useful resources in rocks. Examine the kind of rocks you might find on other planets and investigate the differences.

Key Messages

- Analysis of rocks can give us information about a planet
- Rocks may contain valuable resources





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8. WHO WANTS TO BE A PIONEER?

Planet pioneers must be prepared with skills and knowledge. Have a go at our quiz and see how much you know about living on another planet.

Key Messages

- Mission specialists will have specific knowledge
- Being able to solve problems is essential in an isolated colony

9. LAND THE ROCKET

Landing a rocket is a complex and difficult task. Being able to take off and land are essential for reusable spacecraft. Try landing a rocket on another planet.

Key Message

- Landing a spacecraft on a planet is a challenging process

10. LIFE IN A VACUUM

Planets all have different atmospheres, some of which are much thinner than ours. Investigate how familiar effects change when you remove the air.

Key Messages

- Sound needs a medium to travel through
- The atmosphere on other planets may be very different from Earth



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11. PROJECTILE LAUNCH

Engineering landing mechanisms for different planets is a challenge. Can you use one of these to land a spacecraft on target?

Key Messages

- Different planets will need different landing technologies
- Plotting an accurate trajectory enables explorers and supplies to land at a suitable location

12. EXPERIENCE G-FORCE

Training on a centrifuge helps astronauts cope with the effects of low gravity on their bodies. Climb into our 'centrifuge' capsule, increase the speed of rotation and see how many Gs you can spin.

Key Messages

- Landing on a planet involves large forces
- Forces affect the human body

13. SCAN THE PLANET

Finding resources such as water will be essential to the success of any mission. Put yourself in a low planetary orbit and scan the surface for ice and water.

Key Messages

- Satellites give us a view of a planet from above
- Different sensors allow us to gather different information

14. TIMING IS EVERYTHING

Plotting a path through the solar system requires knowledge of the positions and gravitational pull of the other planets. Time your launch correctly to get the correct trajectory.

Key Message

- Navigating to a new planet requires careful planning of your trajectory





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15. DRONES

View video footage of current and future planetary exploration.

16. PHOTO OPPORTUNITY 'HEAD IN THE HOLE'

Put yourself in the picture as a planet pioneer and imagine how life would be different.

17. WHAT TO PACK

With weight and volume limitations, choosing what equipment to take to another planet is essential. Can you choose what to pack to succeed in your mission?

Key Messages

- Settling on, and exploring, another planet will require you to take many resources and equipment
- Some technologies will not work in the same way as on Earth

18. PICK YOUR CREW

Living on another planet is likely to be psychologically challenging. Find out what type of personality you have and try to put together a good combination of team members to work with.

Key Messages

- Psychology plays an important part in a successful colony
- Planetary explorers will need the right combination of skills and personalities



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EDUCATIONAL RESOURCES

Planet Pioneers is accompanied by a School and Visitor Guide to assist teachers and family groups visiting the exhibition.

The exhibition covers the following areas of science:

- Earth and Space Sciences
- Biology
- Physics
- Engineering
- Psychology

Scitech will provide each venue with a sample program to run with visiting schools. Venues are free to use and modify this material to suit the curriculum in their area or the target audience, providing due acknowledgment is made of Scitech as the producer of the exhibition.

MARKETING

Planet Pioneers has been designed specifically for children aged between 5 and 12 years old and their families, although the subject material and exhibit content will have broad appeal for both younger and older audiences.

Scitech will provide the following marketing materials to help each venue promote the exhibition:

- Exhibition photos and videos
- Exhibition logos
- Examples of advertising and promotional artwork
- Example of a media release

Planet Pioneers will tour to other venues free of any specific sponsorship agreements, enabling host venues to link with a wide range of sponsors in the local market

TOURING ARRANGEMENTS

Planet Pioneers consists of 17 interactive exhibits with accompanying inbuilt, durable graphic panels that outline instructions for the visitor and relate interesting science facts in everyday terms.

SPACE AND HEIGHT

- Fits an exhibition space of approximately 4,300-6,500 square feet (400-600 square meters) in flexible configurations
- Minimum ceiling height requirement for the exhibition is 10 feet (3 meters), although 13 feet (4 meters) is optimal
- Minimum entry and exit points for installation is 9 x 9 feet (2.7 x 2.7 meters)
- The exhibition will travel in two 40-foot sea containers, inclusive of spare parts and equipment

POWER AND AIR

- Exhibits are powered by a standard 120V/240V electricity supply and are designed to accept power from the ceiling or the floor
- Some exhibits require 24 hour power to prevent damage to the projectors
- A licensed electrician will need to be supplied by the host venue to assist with the exhibition installation
- The exhibition is completely self-contained



FEES

Negotiations with individual venues will be conducted to determine the appropriate fee structure for the exhibition period.

TRAINING AND MAINTENANCE

As part of the exhibition installation, Scitech will provide the host venue's exhibition and visitor staff with a full briefing on exhibit operation and maintenance. The exhibition does require some simple maintenance which needs to be carried out on a daily basis. A full list will be provided in the exhibition manual.

Scitech will provide:

- The exhibition as outlined in the Contract
- Transit insurance
- An exhibition supervisor to coordinate the installation and dismantling of the exhibition
- Replacement parts through normal wear and tear
- Education and marketing material

The host venue will provide:

- A team to assist the installation and dismantling of the exhibition
- Replacement exhibit consumables as required
- 24 hour physical and/or electronic security of the exhibition
- Any special requirements (scaffolding, forklifts, trolleys etc.) specified in the Contract

CONTACT DETAILS

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Information contained in this guide was correct at the time of printing.





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