



FOR EDUCATION



# INTERPLANETARY CYCLE TRAIL PLAN

## Level 2 - 6,

## New Zealand Science Curriculum

**SPACECRAFT OF THE FUTURE**

What will spacecraft look like in the future? Design a futuristic spacecraft. Label the parts and describe why you have made it this way.

**NAME THE PLANETS OF THE SOLAR SYSTEM**

Interplanetary Cycle Trail Overall Question

Go to [www.nztales.co.nz/interplanetary-cycle-trail](http://www.nztales.co.nz/interplanetary-cycle-trail) and select 'A Sense of Scale' to discover the Rail Trail Interplanetary Conversation. From there you will be able to calculate the answers below.

Can you create a Space conversation school poster?

Distance from the Sun	Biking Distance	Walking Distance
1. _____	1. _____	1. _____
2. _____	2. _____	2. _____
3. _____	3. _____	3. _____
4. _____	4. _____	4. _____
5. _____	5. _____	5. _____
6. _____	6. _____	6. _____
7. _____	7. _____	7. _____
8. _____	8. _____	8. _____

**INTERPLANETARY INQUIRY PLAN**

Science Achievement Objectives: Planet Earth and beyond and Physical

Level 2	Level 3-5	Level 4	Level 5	Level 6
<p><b>Level 2</b></p> <p>Understand systems. Investigate the components of the system and the interactions between the components.</p>	<p><b>Level 3-5</b></p> <p>Understand systems. Investigate the components of the system and the interactions between the components.</p>	<p><b>Level 4</b></p> <p>Understand systems. Investigate the components of the system and the interactions between the components.</p>	<p><b>Level 5</b></p> <p>Understand systems. Investigate the components of the system and the interactions between the components.</p>	<p><b>Level 6</b></p> <p>Understand systems. Investigate the components of the system and the interactions between the components.</p>

**Possible Activities**

- **Make the Otago Central Rail Trail and compare the Interplanetary Trail**
- **Name the planets** Name the planets, describe the planets between planets and create the distance on the Otago Central Rail Trail.
- **Story Planet** Write stories using the planets only. The Interplanetary Conversation about the planets of the solar system.
- **Design Your Spacecraft** Design a futuristic spacecraft and label the parts. Use real life and evidence to back up your parts and design.
- **Watch the Interplanetary Video** and take notes on the different planets of the solar system.
- **Space Video Design** Create a short film to explain.

**Design and create your own Interplanetary Trail** using your school using a trail cycle.

**Complete a research project** using the trail cycle and present to all students. Such as:

- Create a presentation video using Google Slides, Powtoon or Keynote.
- Create a book video or website with key information of the research completed.
- Create a board game incorporating the planets of the solar system.

**Home to Mars**

- In groups, plan a trip to Mars. What would you need to take. Building about space in the school, what you research and learn respectively you will need to travel on Mars by 2030.
- In groups, design a Mars Space Station and build it in Marsland or other 1st or 2nd house. Discuss what you are going to need to survive on Mars such as air, water, food, space, health, energy.

**Rail Tales Education**

Click on the PDF's below and print to complete the activity.

Name the Planets [PDF](#)

Story Planet [PDF](#) [PDF](#) [PDF](#) [PDF](#)

Design Your Spacecraft [PDF](#)

**INTERPLANETARY CYCLE TRAIL**

Discover and experience the scale of our solar system by watching the video before riding the Otago Rail Trail. The solar system has been shrunk by a factor of 100,000,000 to one and mapped onto the Otago Rail Trail. The centre of the solar system begins in Ranfurly and each planet is based on its

# INTERPLANETARY INQUIRY PLAN

## Interplanetary Cycle Trail Overall Question

"How large is our Solar System?"

### Links to the Curriculum

Social Sciences | Science | English | Mathematics | Arts | (Digital) Technology

Key Competencies: Thinking | Using Language, Symbols and Text | Managing Self

### Key Concepts and Understandings

- There are very large distances between planets.
- Living things are dependent on the sun.
- Planets are made up of different elements to Earth.

### Possible Learning Intentions

- Our position in space enables life
- Explain the elements that sustain life
- Compare earths elements to those of another planet.
- Research a chosen planet in our solar system to present to an audience.
- Demonstrate an understanding of the distances between our planets and the scale of our solar system
- Make comparisons between the distances on the Otago Central Interplanetary Trail and our Solar System.
- Discuss and describe the elements that make up each planet in our solar system.
- Conduct an in-depth practical Earth and Space Science investigation on a planet.
- Use the design process to develop a spacecraft to travel our solar system.

## Science Achievement Objectives: Planet Earth and beyond and Physical

### Level 2

Astronomical systems

Share ideas and observations about the Sun and the Moon and their physical effects on the heat and light available to Earth.

### Level 3 - 5

Astronomical systems

Investigate the components of the solar system, developing an appreciation of the distances between them

### Level 4

Astronomical systems

Investigate the components of the solar system, developing an appreciation of the distances between them.

### Level 5

Astronomical systems

Investigate the components of the solar system, developing an appreciation of the distances between them.

### Level 6

Astronomical systems  
Investigate the interactions between the solar, lunar, and Earth cycles and the effect of these on Earth.

## Possible Activities

- **Ride the Otago Central Rail Trail** and complete the Interplanetary Trail
- **Name the planets:** Name the planets, discover the distances between planets and relate this to the distances on the Otago Central Rail Trail.
- **Story Planet:** Write stories using the templates using the information discovered about the planets of the solar system.
- **Design Your Spacecraft:** Design a futuristic spacecraft and label the parts. Use real facts and evidence to back up your parts and design.
- **Watch the Interplanetary video** and take notes on the different planets of the solar system.
- **Use a Venn diagram** to compare a chosen planet to earth.
- **Design and create your own interplanetary map** within your school using a larger scale.
- **Complete a research project** using the inquiry process and present it to an audience. Such as:
  - Create a explanation video using Google Sheets, Powerpoint or Keynote,
  - Create a Green-screen documentary using iMovie or similar.
  - Create a book, ebook or website with key information of the research completed.
  - Create a scratch game incorporating the elements of a planet you have researched.
- **Mission to Mars:**
  - In groups, plan a trip to Mars. What would you need to take, thinking about space in the aircraft, weight, any resources and basic necessities you will need to survive on Mars for 19 months.
  - In groups, design a Mars Space Station and build it in Minecraft or draw it up in a book. Discuss what you are going to need to survive on Mars such as air, water, food, plants, toilets, sleeping area...

