**ACTIVITY: Creating a space treaty**

**Activity idea**

In this activity, students work through a series of questions and provocative statements to create a space treaty.

By the end of this activity, younger students should be able to:

* discuss why we might need rules or agreements on how we use space
* consider some issues they think are important for regulating space
* describe and explain the expectations that might appear in a space treaty.

In addition, older students should be able to:

* devise their own space treaty features
* critically examine features of a space treaty.

**For teachers**

***Background information for teachers***

New Zealand’s space industry is young but growing all the time. This means we haven’t made many laws around how space above the motu is used. Having a clear set of guidelines and rules about using space above the motu is going to be very important in the future.

This activity is suitable for primary and secondary students – build on the complexity of treaty and space fundamentals to meet students’ needs.

The activity can be structured around five questions:

1. What do we already know about treaties?
2. What principles of te ao Māori should we consider?
3. What science knowledge do we need to have?
4. Are there ethical questions that we should consider?
5. Are there existing space treaties that might suit Aotearoa?

The design aspect is up to teacher discretion. Choose questions that are of interest or appropriate to ākonga. Resources, suggested actions and prompts to support the five questions are located [here](#ResourcesForQuestions).

***Using ethical approaches***

It’s important to establish a classroom environment that supports students in sharing their perspectives and listening to others with respect so students feel free to openly evaluate ideas, weigh up evidence, detect bias and justify their decisions.

Information and prompting questions about two approaches – consequentialism and rights and responsibilities – are located [here](#EthicalConsiderations).

***What you need***

* Two A4 signs: ‘strongly agree’ and ‘strongly disagree’
* Optional: chalk or string/ribbon
* Pens and paper
* 6 [PMI worksheets](#PMI) (A3 size)
* Sticky notes
* Access to the web resources within the activity

***What to do***

1. Use a continuum line as a warm-up.
* Set up a continuum line – you can use chalk or string/ribbon to make the line clear if necessary – and place one A4 sign at each end.
* Explain that students will hear a statement. When they have thought carefully about the statement, they should move to a position on the line that represents their view. For example, if they agree strongly, they should move to that end of the line and stand as close to the sign as possible. If they disagree, they might position themselves a couple of metres away from the ‘strongly disagree’ sign. If students are unsure or don’t know, they should stand in the middle. Make it clear to the students that there is no right or wrong answer and they should make up their own mind. If appropriate, demonstrate by moving along the line and discussing different positions with the students.
* Read out the statement: Anyone should be able to go to space.
* Give students time to position themselves on the line.
* Ask students to share their reasons for their place on the line and explain how they made their decision.
1. Watch the video [Regulating space](https://www.sciencelearn.org.nz/videos/2116-regulating-space). If appropriate, use this quote by David Perenara-O’Connell as a discussion point:

“*We’re going on a journey to understand what activities are compatible with the values that we hold dear – whether the values of our hapū and a whānau, or the values of New Zealand society at large. This is a journey for New Zealand Aotearoa, as a whole. And it is an unfolding conversation.*”

1. Discuss the goal of creating a space treaty for Aotearoa. Choose which of the five questions you would like to explore, making use of appropriate resources, suggested actions and prompts provided [here](#ResourcesForQuestions).
2. While working through various questions and aspects of the treaty design, create a list of provocations or statements for further exploration. The statements may arise during discussions or be explicitly generated by small groups.
3. Consider using the continuum line to elicit initial student thinking and engagement regarding some of the statements.
4. Choose six statements for more critical analysis. These might be the most popular in the class or the statements with the most agreement. You could even choose the top three and the three least popular or controversial statements.
5. Label each [Plus-minus-interesting (PMI) worksheet](#PMI) with one of the statements and place them around the classroom.
6. Working in pairs, ask the students to add a sticky note to each section of the PMI (positive, negative, interesting/ideas) so that the pair contributes three responses to each PMI sheet.
7. Ask groups to choose a completed PMI sheet to summarise the responses for the class.
8. Return to the full list of statements and provocations generated during the activity. Ask students to choose from the statements to create a space treaty for Aotearoa.

**Extension ideas/prompting questions for teachers**

* This activity is about participating and contributing. How can students bring a scientific perspective to decisions and suggest actions as appropriate?
* Why are we creating a space treaty? Why can’t we just use space however we want?
* What happens when a country or a group decide they don’t agree with the space treaty?
* How can the voices of Māori be included in all stages of a space treaty design?
* What treaties or agreements do other countries have about space?
* Older students could engage with the [ethics thinking toolkit activity](https://www.sciencelearn.org.nz/resources/2363-ethics-thinking-toolkit), which provides a structured framework for scaffolding students’ thinking about an ethical issue.
* Older students can explore the process by which the New Zealand Government enters into or withdraws from treaties – located [here](#bookmark=id.1t3h5sf).

**Resources to support the five questions**

This section contains resources, suggestions and prompting questions to support thinking for developing a space treaty for Aotearoa New Zealand.

1. What do we already know about treaties?

Use the Treaty of Waitangi and/or a classroom treaty already in place.

* Why do we have this?
* How was it created?
* What expectations does it place on people?
1. What te ao Māori principles should we consider?

Discuss space using a te ao Māori context.

* Explore ideas about [kaitiakitanga](https://www.sciencelearn.org.nz/resources/2544-understanding-kaitiakitanga) especially in terms of keeping the night sky clear.
* Read about the [Tāwhaki – ecosystems restoration and aerospace opportunities](https://www.sciencelearn.org.nz/resources/3157-tawhaki-ecosystems-restoration-and-aerospace-opportunities).
* Explore [space whakapapa](https://www.sciencelearn.org.nz/resources/3155-te-ao-maori-space-whakapapa).
* Explore [tātai arorangi](https://www.sciencelearn.org.nz/videos/563-tatai-arorangi) – traditional astronomical knowledge used to navigate the ocean, plant crops, harvest kaimoana and tell the time.
* Read about the [Society of Māori Astronomy Research and Traditions (SMART)](https://www.sciencelearn.org.nz/resources/3153-smart-maori-astronomy) and its mahi.
1. What science knowledge do we need to have?

Use ‘Engage with science’ and ‘Participating and contributing’ competencies to include science perspectives in the discussion.

* Explore the layers of the atmosphere with information from the [National Institute of Water and Atmospheric Research (NIWA)](https://niwa.co.nz/education-and-training/schools/students/layers) and [Te Ara](https://teara.govt.nz/en/diagram/6132/layers-of-the-atmosphere).
* Where does space start? Observe and interpret the image [Vertical structure of the atmosphere](https://www.sciencelearn.org.nz/images/240-vertical-structure-of-the-atmosphere) (the Kármán line – an imaginary line that sits at 100 km above the surface of the Earth and is used to define the boundary between the Earth’s atmosphere and outer space).
1. Are there ethical questions that we should consider?

The video [Using space – ethics and responsibilities](https://www.sciencelearn.org.nz/videos/2117-using-space-ethics-and-responsibilities) includes this quote by Dr Philipp Sueltrop: “*Colonising Mars only makes sense if people figure out how to take care of this planet first, because otherwise it’s like telling your child, ‘You don’t have to clean up your room today. You just get a new one tomorrow. So don’t worry.*’”

* Consider the ethical considerations involved with:
	+ requirements for living in space
	+ [space debris](https://www.sciencelearn.org.nz/resources/3154-space-debris)
	+ environmental impacts of getting to and from space
	+ cooperation and collaboration with people who might be from different countries.
* Older students can also be given research challenges.
1. Are there existing space treaties that might suit Aotearoa?

There are several international space agreements. Would these suit New Zealand? Why or why not?

* [Outer Space Treaty](https://www.unoosa.org/oosa/en/ourwork/spacelaw/treaties/introouterspacetreaty.html), which came into force in 1967 between the Russian Federation, the United Kingdom and the United States of America.
* [International Space Station Intergovernmental Agreement](https://www.esa.int/Science_Exploration/Human_and_Robotic_Exploration/International_Space_Station/International_Space_Station_legal_framework).
* New Zealand Space Agency’s current [regulations](https://www.mbie.govt.nz/science-and-technology/space/our-regulatory-regime/).

**Ethical considerations**

Consequentialism: Consequentialism is to do with the consequences of actions. Using this ethical approach, we weigh the benefits and harms resulting from our actions.

* Who/what is affected by this issue?
* What are possible benefits for those affected?
* What are possible harms for those affected?
* Which option(s) can you consider that will produce the most good and the least harm?
* If one stakeholder is harmed and another stakeholder benefits, how do you decide who or what matters most?

Rights and responsibilities: Rights and responsibilities are closely related – the rights of one imply the responsibilities (or duties) of another to ensure those rights.

* Who/what is affected by this issue?
* What groups have rights associated with this issue?
* What are their rights?
* Do these same groups also have responsibilities?
* What are their responsibilities?
* Do we value some rights more than others?
* Whose rights do we want to protect?
* Do any codes, declarations and/or conventions relate to this issue?

**New Zealand Foreign Affairs and Trade – treaties**

The [Ministry of Foreign Affairs and Trade's Legal Division](https://www.mfat.govt.nz/en/about-us/who-we-are/treaties/) (MFAT) oversees the process by which the New Zealand Government enters into or withdraws from treaties:

* Negotiation: New Zealand officials participate in international negotiations resulting in the text of an agreement being finalised.
* National Interest Analysis: the lead government agency prepares a Cabinet paper and a National Interest Analysis (NIA), which sets out the advantages and disadvantages for New Zealand of becoming a party to the agreement or deciding to withdraw.
* Signing: Cabinet approves the final text of the agreement – giving authority to sign the agreement – and also approves the NIA. At this stage, the treaty is agreed but not yet legally binding.
* Presentation: MFAT presents the treaty and its corresponding NIA to the House of Representatives.
* Consideration: a select committee considers the treaty and the NIA. The committee has 15 sitting days in which to report back to the House. If it has recommendations to Government, a Government response to these must be tabled within 90 days of the report.
* Ratification: formal documents are exchanged with the other countries or organisations involved to bring the treaty into force for New Zealand. These documents confirm domestic procedures have been completed and that the treaty is now in force.

**Plus-minus-interesting (PMI) worksheet**

**Statement: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

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| **Positives (PLUS)** |  | **Negatives (MINUS)** |
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| **Interesting/Ideas** |