

teach with space

→ MOON CONSTITUTION

How would a future lunar community be organised?





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→ MOON CONSTITUTION

How would a future lunar community be organised?

Fast facts

Subject: Science, Social Studies

Age range: 8-12 years old

Type: Student activity

Complexity: Easy

Lesson time required: 45 minutes

Cost: low (0-10 euros)

Location: Classroom

Keywords: Science, Social Studies, Moon, Citizenship, Community, Society

Brief description

In this resource, pupils will debate some organisational and social characteristics of a future settlement on the Moon and relate it to their local community. The students will be guided through the activity using a set of debate questions, to which the students can respond with their opinions on whether they agree or not using a smiley or sad card.

Learning objectives

- Form opinions and justify their viewpoints.
- Listen to and learn from others.
- Take part in democratic decision-making.
- Understand the role of different institutions in society.
- Associate how scientific knowledge and technology can influence social organisation.

→ Summary of activities

activity	title	description	outcome	requirements	time
1	Building a community on the Moon	Debate how a future community on the Moon would be organised.	Understand how a society is organised.	None	45 minutes



→ Introduction

Establishing a settlement on the Moon is an idea that seems like science fiction, but it may actually become a reality in the next century.

On Earth, communities have created mechanisms that regulate the use of common spaces and goods. Each country has their own political structure that creates laws and regulates fair access to important resources, such as health and education.

The Outer Space Treaty, which came into force in 1967, forms the basis of international space law and regulates important aspects of space exploration. It has been signed by over 120 countries. This treaty defines that Outer Space is free for exploration and use by all countries, that its national appropriation is prohibited and that the Moon and other celestial bodies shall be used for exclusively peaceful purposes. There are also four other treaties, including the Moon Agreement which is envisioned to regulate activities on the Moon and other celestial bodies; however, only 18 countries are parties to this last treaty.

Astronauts have visited the Moon, but only for very short missions. In the future, if astronauts are going to stay on the Moon for long periods of time, new infrastructures would have to be created and this community would have to organise itself.

The Moon is a very different place from Earth. Astronauts will be living in an environment with basically no atmosphere and no protection from radiation or meteorites. There will be constraints regarding communication with Earth and social interaction will be more complex. In situ resources are also very limited and access to Earth may be difficult.

This activity invites students to imagine a future Moon community and debate which would be the main topics in their “Moon Constitution”. Students should consider for example, who should be allowed to decide what is in the Moon Constitution; all countries on Earth or those who go to the Moon first? Students should also debate about the public/shared infrastructures the Moon inhabitants should have access to and for example how to divide the resources available on the Moon.

Encourage students to discuss the services they use in their daily lives. Do they go to the park, the library, community centre, sports centre, etc.? Have they ever needed to use a health service? How could these things be set up and organised on the Moon?

→ Activity 1: Building a community on the Moon

In this activity students will debate and research some of the issues that a future settlement on the Moon may face. They will then write their version of the “Moon Constitution”.

Equipment

- 1 smiley and 1 sad card per group
- Debate cards (available in the Annex)

Preparation

To initiate the debate each group is presented with a set of 5 debate cards. The debate cards should have statements linked to the Moon exploration context that can be controversial, for example:

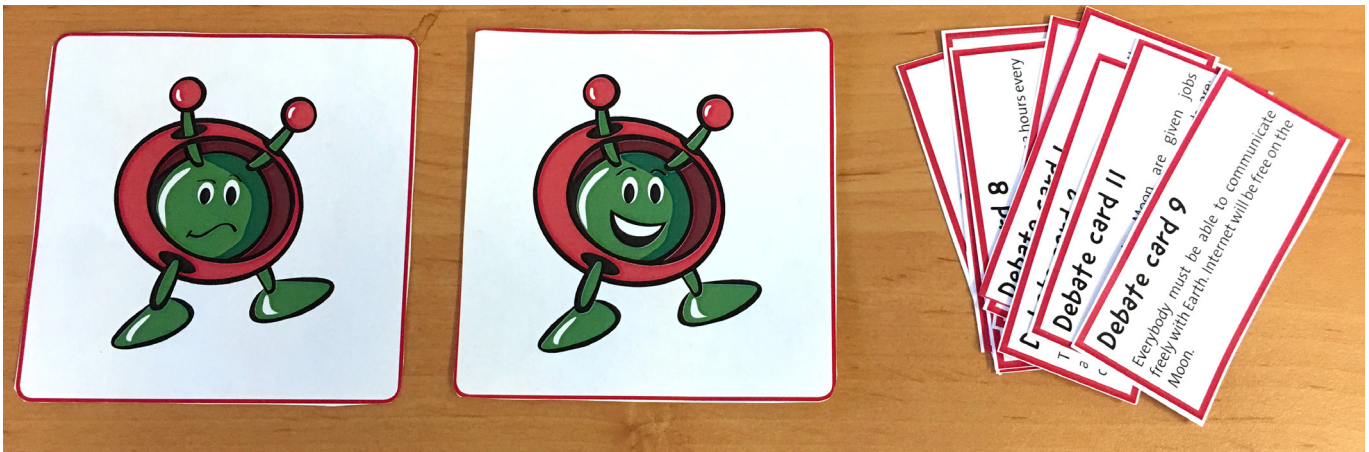
- A medical system is not important on the Moon because everybody there must be healthy to be able to live there. Sick people must return to Earth.
- The Moon community must be run by a democracy. Moon inhabitants need to choose their president.
- Everybody must be able to communicate freely with Earth. Internet will be free on the Moon.
- Water is a precious and very expensive resource. People can only have a shower once per month.
- All Moon inhabitants should be over the age of 18, and under the age of 40. Children are not allowed.
- Only the original inhabitants of the Moon can make decisions about the future of the Moon.
- Anyone who breaks the rules is sent back to Earth and never allowed to return.
- All food must be rationed and everyone gets the same.
- Citizens of the Moon are given jobs depending on what the local needs are; they don't get a choice.
- There will be a maximum population allowed to live on the Moon.
- Every person must exercise for 2 hours every day.
- Everyone will be paid the same amount regardless of their job.

These statements are presented as debate cards in the Annex. These are only examples, they can be adapted depending on the students age range and ability. During the debate students should also come up with their own ideas as well.



Exercise

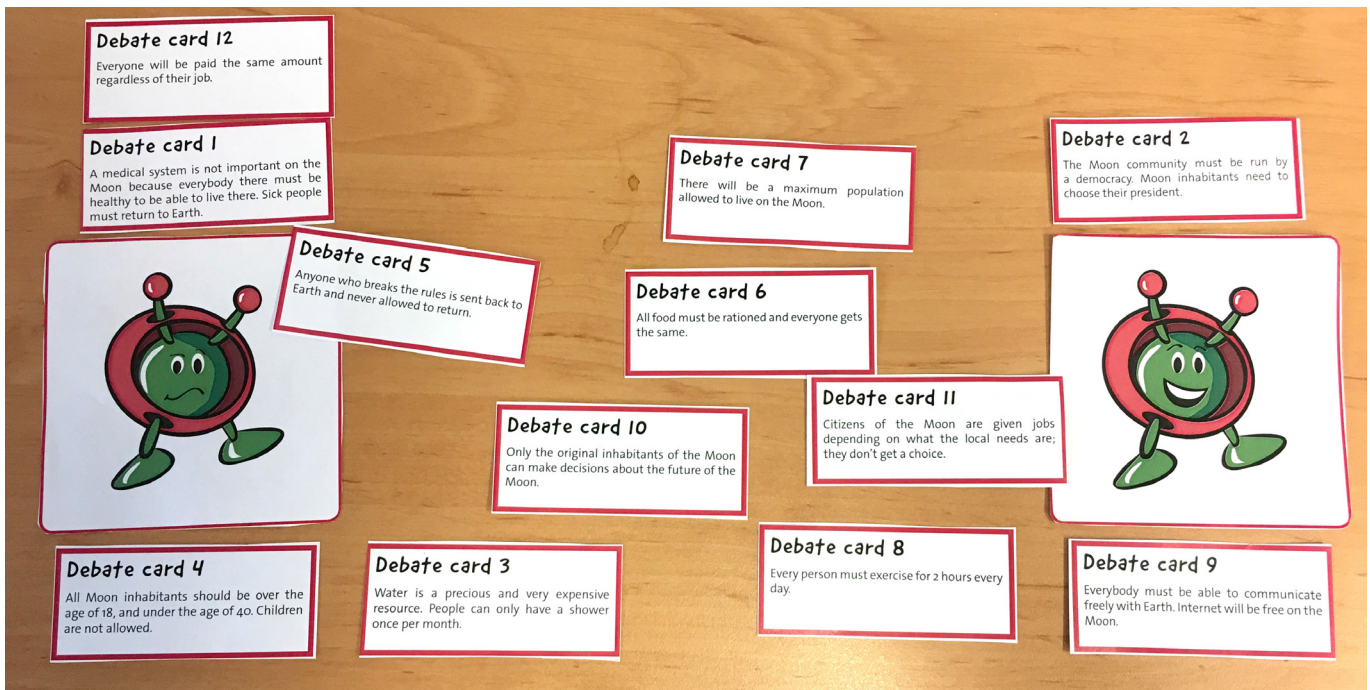
Divide the class into small groups of 4 to 6 students. Give a smiley face card and a sad face card, along with 5 debate cards with different statements, to each group.



Ask the students to place the two faces apart on a table or on the floor. Throughout the debate they will need to place all the debate cards in between them; their proximity to the smiley or sad card will show how much the group agrees or disagrees with each statement.

The group should read each debate card separately and discuss whether they agree or disagree. If the group agrees with the statement on the card, they should place the card next to the smiley face. On the other hand, if they disagree with the statement on the card, they should place it on the sad side.

Students can also put a card in the middle or in any intermediate position depending on the number of group members that agree or disagree.



Results

After the group debates all cards, they should share and compare their results with the rest of the class. Together the whole class should write the “Moon Constitution” with the basic rules for this community.



Discussion

During this activity students will work in groups to debate and decide the best solution for some of these issues:

- Communication
- Political management
- Relation with Earth
- Medical system (physical and mental health)
- Security, rules and regulations
- Environmental protection and waste management
- Resources management (water, food, minerals, etc.)
- Soil distribution
- Leisure and sports
- ...

These are only a few examples of the topics that can be chosen for the debate.

How do we communicate on the Moon? Due to the lack of atmosphere on the Moon, communication based on sound waves is unviable. One of the problems a future Moon community will face is managing communications locally and with Earth. Should people be allowed open access communication channels?

How should a Moon society be organised? Students can debate what political management system they think is the most appropriate for the Moon. Some examples are a democracy, a monarchy or a dependant relationship with Earth. Are the Moon inhabitants citizens of countries on Earth, or will they be citizens of the Moon? Will the Moon become a sovereign territory?

What governmental, legal and legislative systems could work for this settlement? Students need to define the basic rules, duties and obligations and the rights of citizens.

Trips between the Earth and Moon are very expensive. Who should pay for this? Who should finance the services needed by the Moon dwellers? Should a basic medical service exist to solve small accidents and illness? Should the health system be accessible by everyone? What happens to people who become seriously ill?

Relate the debate to examples the students know on Earth and ask the students if there are any laws or policies that they don't think are fair. You can also discuss the idea of equality and whether the Moon would provide humanity with a fresh start to establish a more equal society.

After the "Moon Constitution" has been written, ask the students if it should be possible to change the constitution in the future and how this could be done.



→ LINKS

ESA resources

Moon Camp Challenge

esa.int/Education/Moon_Camp

Moon animations about Moon exploration:

esa.int/Education/Moon_Camp/The_basics_of_living

ESA classroom resources

esa.int/Education/Classroom_resources

ESA Kids

esa.int/kids

ESA Kids, Back to the Moon

esa.int/kids/en/learn/Our_Universe/Planets_and_moons/Back_to_the_Moon

Extra information

The Code of Conduct for International Space Station Crews

esa.int/esapub/bulletin/bullet105/bul105_6.pdf

European Centre for Space Law

eden-iss.net

The Outer Space Treaty - United Nations Office for Outer Space Affairs

www.unoosa.org/oosa/en/ourwork/spacelaw/treaties/introouterspacetreaty.html

→ ANNEX

Debate card 1

A medical system is not important on the Moon because everybody there must be healthy to be able to live there. Sick people must return to Earth.

Debate card 3

Water is a precious and very expensive resource. People can only have a shower once per month.

Debate card 5

Anyone who breaks the rules is sent back to Earth and never allowed to return.

Debate card 7

There will be a maximum population allowed to live on the Moon.

Debate card 9

Everybody must be able to communicate freely with Earth. Internet will be free on the Moon.

Debate card 11

Citizens of the Moon are given jobs depending on what the local needs are; they don't get a choice.

Debate card 2

The Moon community must be run by a democracy. Moon inhabitants need to choose their president.

Debate card 4

All Moon inhabitants should be over the age of 18, and under the age of 40. Children are not allowed.

Debate card 6

All food must be rationed and everyone gets the same.

Debate card 8

Every person must exercise for 2 hours every day.

Debate card 10

Only the original inhabitants of the Moon can make decisions about the future of the Moon.

Debate card 12

Everyone will be paid the same amount regardless of their job.



