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Committee on the Peaceful Uses of Outer Space (COPUOS)

The Committee on the Peaceful Uses of Outer Space

COPOUS

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HISTORY OF THE COMMITTEE

The Committee on the Peaceful Uses of Outer Space (**COPUOS**) was established in 1958 as an ad hoc committee of 18 members, in response to the launch of Sputnik. The committee was, in political terms, "freaking out." As the U.S. and the USSR escalated their demonstrations of technological progress, it was clear that the issue of mankind in space would be permanent. In 1959, the General Assembly established COPUOS as a permanent body with 24 members. Its mandate was to promote the peaceful exploration and exploitation of **outer space**, regardless of national rivalries or technological progress. Additionally, COPUOS was instructed to assist, organize, and encourage any research relating to outer space. The most influential part of this mandate is the short subclause: "To study the nature of legal problems which may arise from the exploration of outer space."[1] With this, COPUOS is able to define all legal restrictions of outer space.

In 1962, two subcommittees began to assist COPUOS: the Scientific and Technical Subcommittee and the Legal Subcommittee. These subcommittees meet annually and help COPUOS maintain relevance to any developments in technology and legal matters. COPUOS responds to the Fourth Committee of the General Assembly, the Special Political and Decolonization Committee, quite frankly because no other committee of the General Assembly even remotely talks about space exploration. COPUOS in 1966 has not created any treaties, but its main purpose is to enforce and create any international treaties relating to outer space, and to oversee any international agreements with a focus in outer space[2].

[1] "ARES_14_1472E.Pdf." Accessed July 28, 2020. https://www.unoosa.org/pdf/gares/ARES_14_1472E.pdf.
[2] "COPUOS." Accessed July 28, 2020. https://www.unoosa.org/oosa/en/ourwork/copuos/index.html.

TOPIC: SPACE LAW

Statement of the Problem

Since the dawn of human history, we have been aware of gravity's basic rule: what goes up must come down. The sky above was always a separate entity from the physical plane. Throw a ball, it lands on the ground. Jump, and you come back down. Only myths could live in the stars.

Eventually, people started flying. But planes, just like the birds who had been flying for ages, would soar but eventually return to Earth. Even if you let go of a helium balloon and see it rise into oblivion, you know it eventually pops from the altitude and then falls.

So, you can imagine how powerful and horrifying it was to everyone on the planet, once Russian scientists put a satellite in orbit. What went up did not have to come down. Possibilities exploded from government analysts and children's imaginations alike.

We could summon a great fleet of satellites, the kind that could provide GPS, radio signals, and one day, the internet. We could send up travellers, citizens of peace and scientists who would come back with moon rocks in their pockets. There was even the dream to push life beyond our single planet. What went up might not come back to us.

Then, there was the wicked side of these opportunities. We might consume this new frontier with weaponry and disaster, further confining humanity in the fragile network of **weapons of mass destruction**. Regardless, there was a novelty in this frontier. Given the size and influence of the United Nations, all of humanity could establish the rules of space.

Space Law

To be blunt, everything is a problem with respect to **space law**. It's 1966 and we have no rulebook. While only a handful of people have even been to space at this point, there are limitless possibilities of what could be done away from Earth. There needs to be a legal framework for what can and

cannot be done in space. The international community is not concerned with matters such as "space marital law" and "space tax agreements," there are a few areas which need clarity as soon as possible. *The main areas of focus in this committee should be demilitarization, **property rights**, and human rights.* Delegates are welcome to explore any additional legal specializations, *so long as these main areas are covered in the draft resolution*.

Laws are a common, and integral part of human civilization. Despite the universal existence of laws, there are different ideas of how a government ought to operate. And so, each country has its own legal systems, which makes laws only for its citizens. Most of the time, a country's legal jurisdiction is unquestioned. The French government makes laws for French citizens and for the geographical area called the "French Republic." But legal matters are not always this simple.

For example, pirates exist. And what happens if a pirate crew steals from a cargo ship in international waters? Outside any country's borders, who investigates and punishes the crime? Certainly, the theft, even in an international area, is not a legal action. The United Nations brings together countries to create treaties which define and implement international law.

With the pirates, the crime would likely fall under maritime law: a series of conventions which ensures that private sea vessels are prepared and protected.[3] **Maritime Law** would also guide coast guard efforts and insurance claims in response to the piracy. Along with Maritime Law, there is **Sea Law** which discusses how state resources such as navy ships should operate in international waters.

The closest international agreement to a space agreement would be **the Antarctic Treaty**. In the 1950s, seven countries had separate territorial claims to Antarctica, and eight other countries had exploration missions in Antarctica but no official claims.[4] To prevent conflict or posturing over this region, the Antarctic Treaty was signed in 1959. The treaty recognizes that some countries already have territorial gains in Antarctica, and also establishes that the continent will be open to scientific operations and will only contain peaceful infrastructure.[5] Additionally the Antarctic Treaty protects

[3] Kagan, Julia. "Maritime Law." Investopedia. Accessed July 22, 2020. https://www.investopedia.com/terms/m/maritimelaw.asp
[4] U.S. Department of State. "Antarctic Treaty." Accessed July 22, 2020. //2009-2017.state.gov/t/avc/trty/193967.htm.
[5] Ibid

native flora and fauna such as penguins and their eggs.[6] International agreements only work with, well, agreement. Since all the actors who had involvements in Antarctica signed this treaty, all states were on the same page. Without agreement, the treaty simply does not work. If a party violates a treaty but is not part of the agreement, international intervention is not justified. For example, there is no agreement that protects humans from penguins. So even though the Antarctic Treaty would prevent a human war, the penguins could massacre all scientists in Antarctica as an act of war, without sparking international response. The bottom line is that international law solves the problems that countries on their own cannot answer. It is messy and often very vague, but it has a vital role in keeping our globalized societies safe. At the time of this committee, there is no agreement on what happens in space. Endeavors in space are uncontrolled and unprotected, and it is up to the delegates to define this new domain.

Militarization and Space

Space militarization has horrifying potential. If no one has jurisdiction over space zoning or cosmic bodies, this can be a vast new testing ground for military **superpowers**. In 1962, the United States launched a nuclear device in the **upper atmosphere**, 400 kilometers above the Pacific Ocean. This can be considered a test in space, since **NASA** defines space as beginning 62 miles or 99.8 kilometers above the Earth's surface.[7] The test, dubbed Starfish Prime, was intended to see if the Electromagnetic Pulse (EMP) from a nuclear device could potentially stop an ICBM. The results of Starfish Prime's strategic effectiveness were inconclusive, but this explosion detonated in space caused a massive EMP and a surge in heavy ions for hundreds of kilometers. Satellites, airplanes, and

[6] Spofford, Megan. "The Antarctic Treaty Helps Antarctic Penguins | Penguins International," November 25, 2019. https://www.penguinsinternational.org/2019/11/25/the-antarctic-treaty-helps-antarctic-penguins/

[7] "Where Is Space? | NOAA National Environmental Satellite, Data, and Information Service (NESDIS)." Accessed July 24, 2020. https://www.nesdis.noaa.gov/content/where-space.

even street lights and phones in Hawaii, were damaged from the 1.4 megaton explosion. Even weapons tests in space can have consequences on terrestrial life and technology[8].

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Additionally, space offers an opportunity for new weapons of mass destruction. In the 1950s, a scientist at Boeing came up with an idea that was quickly adopted by the U.S. military: Project Thor. The design was aptly named, considering that the method of kinetic bombardment also had the moniker "Rods from God." Theoretically, any nation with a **rocket** could create such a weapon, as it was simply a rod of tungsten the size of a telephone pole, dropped from space. Due to the high melting point of tungsten, the resulting impact of the fallen object would leave an explosion on par with a nuclear bomb but without any radioactive fallout.[9]This was just one idea of many, and further proof that space could be a dangerous new battle ground.

The examples of Starfish Prime and Project Thor barely scratch the surface of space's military potential. There could also be weapons that target satellites, spacecraft, or other weapons.

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[8] Launching The Space Age." Accessed July 22, 2020. https://airandspace.si.edu/exhibitions/spacerace/online/sec200/sec250.htm.

[9] Shainin, Jonathan. "Rods From God." *The New York Times*, December 10, 2006, sec. Magazine. https://www.nytimes.com/2006/12/10/magazine/10section3a.t-9.html.

Theoretically, all aspects of warfare on Earth could be extended to space. State and non-state actors alike, when uninhibited, will wage strikes and long-term campaigns to protect their interests in space. Militarization is the only outcome when diplomacy fails, or in this case, does not even begin.

On a less urgent yet still significant note, military posturing would lead to the destruction of cosmic heritage sites. If the moon could potentially be the place of humanity's first off-world colony, then it could be considered unethical to bombard its surface with weapons testing. Some scientists believe the moon and nearby planets could be potential second homes to humanity. Treating these places as unrestrained battlegrounds may cost the next generations of explorers. Additionally, any military actions in space are not certain to be contained to space. Stockpiling weapons in orbit comes with the risk of misfire or misplacement. The bottom line is that space is a far more dynamic environment than anyone has previously encountered. The uncontrollable nature of warfare could lead to a wider variety of consequences when taken to space.

As delegates, consider how to preserve peace in space. Think carefully, as there are exceptions to every case. It might be simple to prohibit nuclear devices in space, but space could also be the perfect place to study nuclear energy, test power plants, and even build **asteroid deterrents**.

As you are coming up with solutions, try to answer the following questions:

- Should any weapons testing be permitted in space?
    - If yes, then what are its restrictions?
    - If no, why not?
- Should any weapons be permitted in space?
    - If yes, then which ones?
    - If no, why not?

Objects in Space

Property rights must be defined in any international agreements. If you are an American car manufacturer, and you make a car in America, and you sell that car to an American, then the car is "American" for every stage of its creation. In a globalized society, markets extend across multiple countries, so the nationality of a car might change multiple times. The details of this are covered in international trade deals, and the bottom line is to make sure every party is fairly compensated for their contribution. Multiple governments absorb taxes, and every link of the manufacturing chain is paid. As the car changes hands, it is bought and sold, not stolen. The same does not necessarily apply in space.

With no prior agreement, any property could theoretically be stolen or damaged in space, without consequence. Take this scenario: A satellite launched from the USSR fires a projectile at a satellite launched from the USA, damaging its communications equipment. Despite the clear destruction of this act, there is no viable course of action. Is the USSR allowed to protect its interests in space, or does it need justification? Is there any justification for attacking another manmade object in space? Is the USSR liable to damages, even if they are allowed to destroy the satellite? Did the USA even own the satellite, or was the claim lost the second the satellite entered outer space? Are the two countries bound by maritime law, even though the encounter fell far outside the jurisdiction of maritime law? Lawyers who dabble in **international law** might have their own opinions on the best course of action, but the parties in question never made an agreement, and therefore there is no real violation.

Without thoroughly defined property rights, there is no **liability** either. Assuming a less villainous scenario, imagine what would happen if a rocket is launched from orbit, but then fails and falls into a Mexican corn farm. Technically, the rocket came from space, and could be seen as an act of God similarly to a meteor impact. Whether or not damage is intentional, property rights of materials in space can determine who is responsible for consequences.

Finally, nations must agree on the rules behind acquisition of resources, territory, and information in space. Materials would include moon rocks, asteroids and comets, Mars soil samples, gasses on Jupiter, etc. Territory would be the jurisdiction over a set area, such as the lunar south pole, Olympus Mons on Mars, or the entire planet Mercury. As of 1966, there are no restrictions on what can be

claimed in space. The moon could become the 51st state of the USA or the upper atmosphere about the Warsaw Pact could be seen as Soviet occupied territory. Even if this seems outlandish, space could also become commoditized for public or private use. Boeing could mine the asteroid belt and sell its gold ore to Earth-side markets and NASA could harvest the abundant Helium-3 trapped in the moon for nuclear fusion tests. As long as space exploration exists, humanity will be interacting with new lands. It is up to this committee to determine the fate of newly found materials and territories. Additionally, the most abundant resource in space is information. It is stipulated in its mandate that COPUOS will advise, organize, and encourage research relating to outer space. So, consider if and how countries should share information about their off-world discoveries, engineering and technology achievements, mission plans, and so on.

As you are coming up with solutions, try to answer the following questions:

- Who owns property that is launched from Earth into space?
- Should property be defined differently once it exists in space?
- Who is liable for damages inflicted by anthropogenic materials from space?
- Who, if anyone, has a right to occupy territory in space?
- What are the restrictions and purposes of occupied territories in space?
- Who, if anyone, has a right to take materials from space?
- What are the restrictions and purposes of acquired materials from space?
- Can a public or private entity claim material or territory from space for their own possession?
- Should countries be expected to share all their scientific discoveries in space?

Astronauts and Human Rights in Space

Astronauting is one of the most dangerous professions. If we put people into space, it is in the fundamental interest of human rights that we keep them safe. The only way to do this reliably would be to create guidelines around safety and rescue in space. If someone is in danger in international waters or outside their own country, foreign officials are expected to save and then return this person, if possible. While this may seem like a simple request for space-faring nations to adopt, it comes with several implications. In order to have an effective rescue response, all countries would need to know the details of any mission plan: the goal of the mission, the number of astronauts, the type of rocket, the launch location, etc.

Furthermore, when a U.S. citizen is launched into space, what are her protections and rights? It must be stipulated if astronauts are expected to follow laws in space as if they were a citizen on Earth, or if they are held to a new set of laws as ambassadors of humankind. Either way, the final resolution should outline the legal liabilities of people in space, along with their fundamental protections.

As you are coming up with solutions, try to answer the following questions:

- Who owns property that is launched from Earth into space?
- How are governments expected to interact with people in space, whether it is their own citizens or not?
- Who is allowed to be in space?
- How should people interact with property, new resources, and other people in space?
- Is there a new kind of citizenship status expected for people in space? What would the rules and expectation of this new status be?

Expectations for Committee

If you look up "Space Law 1966," you will see that COPUOS produced the "Outer Space Treaty" around this time. To be clear, the goal of this committee is not to write an identical copy of the Outer Space Treaty. We are simulating the international community in its first attempt to create laws in space. Whatever draft resolutions are proposed will undoubtedly have similar talking points to the Outer Space Treaty but should not create identical solutions.

The Outer Space Treaty is, rather objectively, undeveloped. This is no fault to the original writers; they would have no idea of what would happen in the future. For example, Article XII of the Outer Space Treaty effectively creates an Airbnb system for equipment in space. This is not necessarily the wrong approach, but this Article is hardly relevant to most disputes regarding space.

The goal of any resolution should be to prevent any conflict. Conflict is the failure of international law. If everyone was on the same page, then there would be no conflict. So, make sure everyone can be on the same page with everything in the final resolution. Perhaps the only way to accomplish such amiability would be to keep the resolution to vague, overly hopeful articles. It is okay if the final product of this MUNUC committee does not solve every problem in space. My hope is that you all create a first step, an agreement where countries can peacefully operate in this frontier.

It is preferred that delegates be optimistic, and not terribly specific. You are encouraged to adopt few regulations, create few subcommittees, and few enforceable punishments. If you are not to make few of these, then do not make any. Broad language is also encouraged, and only be specific when necessary. This might be different than what you are accustomed to in Model UN committees. But this is meant to simulate the first agreement of its kind. Think of it as creating a large net, and then threading in the extra layers. Maybe little problem fish will slip through the net, but that's for the future to worry about.

History of the Problem


Chinese soldier launches fire-arrow

The earliest evidence of propulsion rockets emerged in China around 2,000 years ago. At this point, basic blackpowder was used in celebrations and festivals.[10] It wasn't until 1232 that controlled rocket-use was recorded, as China fought the Mongol Horde with arrows launched via a gunpowder tube. These looked like modern "bottle rockets" either with an arrowhead or a vat of explosive gunpowder at the tip. After China fell to the Mongols, the Mongol soldiers adopted this proto-rocket technology for their campaigns in Eastern Europe.[11]

Gradually, rockets in warfare fell out of practice. Blackpowder was adopted as munitions for firearms — a far more effective weapon. Throughout the middle ages, chemists and engineers around the world still experimented with rockets, primarily by creating fantastic fireworks. Medieval rulers used followers to amaze their subjects and embellish their castles during celebrations. Fireworks were adopted as a tradition even in the first celebrations of the Fourth of July. John Adams claimed the fireworks were necessary in making the holiday one of "Pomp and Parade, with Shews, Games, Sports, Guns, Bells, Bonfires and Illuminations from one End of this Continent to the other from this Time forward forever more.[12]"

Eventually, physicists began to understand principles of thrust and aerodynamics. At the cusp of the 20th century, a long-distance rocket became theoretically possible. In Nazi Germany, scientists developed the first long range rockets as weapons. The first deployments of the large, liquid

[10] "Brief History of Rockets." Accessed July 22, 2020. https://www.grc.nasa.gov/www/k12/TRC/Rockets/history_of_rockets.html.
[11] Ibid
[12] "Letter from John Adams to Abigail Adams, 3 July 1776, 'Had a Declaration…'" Accessed August 22, 2020. http://www.masshist.org/digitaladams/archive/doc?id=L17760703jasecond.

propellant V-2 rockets came in Autumn 1944.[13] Thousands of V-2 rockets bombarded London, launched from mobile platforms in continental Europe. The weapons could travel about 200 miles at 3,500 miles per hour, and carried a massive one-ton warhead. Since the rockets moved so fast and had no pilots, the attacks were quick, unavoidable, and devastating.[14]

After the defeat of the Axis Powers and the end of World War II, the Allies came into possession of the remaining V-2 rockets. Both the United States and the Soviet Union created **missile** programs, and adopted many German rocket scientists into their projects. The end of World War II marked the beginning of the atomic age, and the newly formed United Nations wanted this era to be one of peace. The first resolution from the UN General Assembly in 1946 was to eliminate all nuclear weapons.[15] Unfortunately, the two emerging superpowers had other plans in mind.

By 1950, five years after the American nuclear attacks on Nagasaki and Hiroshima, the USA had nearly three hundred nuclear warheads stockpiled and the USSR had 5.[16] Both parties were preparing for World War III, and the rest of the world hoped the vast Atlantic and Pacific would inhibit total nuclear war. However, in 1954, the first Intercontinental Ballistic Missile was developed by the USSR, dubbed the "R-7."[17] While the missile could surmount the vast differences between North America and Russia, the first use of the R-7 was to put Sputnik 1 in orbit.

On October fourth, 1957, Americans were baffled by the announcement that the Soviets had successfully launched a satellite into space, sustaining its orbit. To this shock, Soviet scientists said "Wanna see me do it again?" and promptly launched Sputnik 2 in early November, which also housed

[13] National Air and Space Museum. "V-2 Missile." Accessed July 22, 2020. https://airandspace.si.edu/collection-objects/v2-missile/nasm_A19600342000
[14] Londonist. "London V2 Rocket Sites…Mapped," January 12, 2009. https://londonist.com/2009/01/london_v2_rocket_sitesmapped.
[15] ICAN. "History of Nuclear Weapons." Accessed July 22, 2020. https://www.icanw.org/nuclear_weapons_history.
[16] Roser, Max, and Mohamed Nagdy. "Nuclear Weapons." *Our World in Data*, August 6, 2013. https://ourworldindata.org/nuclear-weapons.
[17] Encyclopedia Britannica. "R-7 | Missile and Launch Vehicle." Accessed July 22, 2020. https://www.britannica.com/technology/R-7.

a dog named "Laika" for seven days.[18] Within a month, the USSR had placed the first man-made object, and the first living creature, in space.

In January the following year, the USA launched its first satellite, Explorer 1, and then in October created the National Aeronautics and Space Administration (NASA). Fueled by a nationalistic hybrid of military spending and science, the **Space Race** took off.

The following few years prompted various firsts, experiments, and tests. On April, 12 1961, the Soviet Union launched Yuri Gagarin, the first human into space. After his 108 minute orbit, he landed safely in western Russia. The Americans sent a man into space the following month, and in the next year the USSR launched the first civilian and the first woman into space: Valentina Tereshkova. Another success for the Soviets came in 1965, when Alexei Leonov performed the first spacewalk. [19]

From the ten years since the launch of Sputnik, people, animals, and satellites were launched into space. Some went up and then back down, some stayed in orbit, and some probes were even sent to the moon or beyond. The American president John F. Kennedy boldly announced at Rice University in a speech:

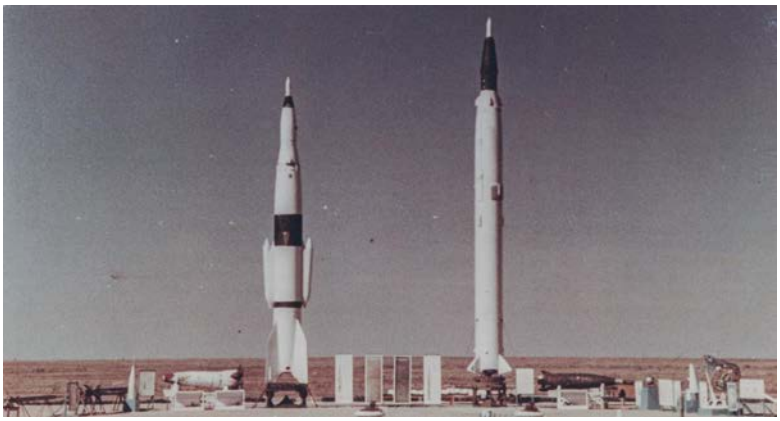
We choose to go to the moon. We choose to go to the moon in this decade and do the other things, not because they are easy, but because they are hard, because that goal will serve to organize and measure the best of our energies and skills, because that challenge is one that we are willing to accept, one we are unwilling to postpone, and one which we intend to win, and the others, too. [20]

And sure enough, the Americans and Russians are working at breakneck speeds to reach the moon.

[18] Royal Museums Greenwich. "Space Race Timeline," June 12, 2019. https://www.rmg.co.uk/discover/explore/spacerace-timeline.
[19] Ibid
[20] "JFK RICE MOON SPEECH." Accessed July 22, 2020. https://er.jsc.nasa.gov/seh/ricetalk.htm.

NASA alone had reached a jaw-breaking size, with the lunar landing program growing to include 34,000 employees and then another 375,000 employees from private contractors.[21]

The 1960s had also become a time of extreme uncertainty. Culturally, America was facing a reckoning on its racial segregation laws. Figures such as Martin Luther King Jr. were seen on the global stage as the United States grappled with its ideas of human liberties. Meanwhile, the Vietnam war only continued to escalate in its size — one of the many ongoing proxy wars. The most dangerous development was that of nuclear proliferation. By 1962, almost thirty thousand nuclear warheads were positioned around the world. It was in this year that the world had its closest encounter with nuclear war, during the Cuban Missile Crisis. After the discovery of Soviet missiles in Cuba, President John F. Kennedy postured a naval blockade. In a direct standoff between the Russian and American militaries, the conflict was fortunately resolved diplomatically. Both sides agreed to remove their most promising nuclear sites, preventing global annihilation. In summary, this decade was marked by worldwide reflections on human rights, diplomacy, and warfare. And in this profound reflection, the international community agreed that cooperation was long overdue.



[21] Editors, History com. "The Space Race." HISTORY. Accessed July 24, 2020. https://www.history.com/topics/coldwar/space-race.

Past Actions

The term "space law" was coined in a Parisian journal in 1910.[22] From 1910 to the launch of Sputnik in 1957, space was merely a theoretical concept among legal academia. Contributors to this debate mostly focused on extending the legal arguments of airspace jurisdiction. There were already existing agreements, both informal and formal, which held that anyone who owns property also owns the air above the property. In the case of nations, a state then has sovereignty over the airspace above it.[23] However, academics noticed that rockets could ascend past traditional airspace and therefore followed an entirely new set of physics principles. The conclusion was that flights in the upper atmosphere would need new agreements in order to be properly regulated. This was intuitive, since an object like an airplane might violate airspace agreement by flying over a country without permission. However, an object like a satellite would follow an orbit, and would pass over hundreds of countries, several times a day. It would be unreasonable and unfeasible to uphold the norms of airspace to potential new spaceflights.

After the end of World War II, lawmakers around the world dedicated themselves to protecting the peace. Conversations around space law began to include questions of territory acquisition and militarization in space. There was a large academic consensus that there should be an upper bound to state sovereignty, and that outer space ought to be a place of peace and science, so that future generations will benefit from this common heritage of man. Meanwhile, in 1950, the United States made an agreement with the United Kingdom which permitted American missile tests to fly over the British-controlled Bahamas. This treaty was the first international recognition that the upper atmosphere above a country's territory was sovereign to that country. Also in the 1950s, the International Astronautical Federation began cultivating research around space law. Experts in science and law agreed that, due to the vast potentials of space exploration, nations should convene and reach a consensus on space law before a human-made object was sent into orbit or outer space.

[22] "2010keynote.Pdf." Accessed August 23, 2020. https://www.iislweb.org/website/docs/2010keynote.pdf.
[23] Ibid

Then, a human-made object was sent into orbit, and of course, everyone freaked out. In 1958, the General Assembly of the United Nations passed resolution 1348 (XIII) which established the Committee on the Peaceful Uses of Outer Space as an ad hoc committee with 18 members. In the next year, this was turned into a permanent committee, along with the addition of six new members: Albania, Austria, Bulgaria, Hungary, Lebanon, and Romania.[24] In 1961, Chad, Mongolia, Morocco and Sierra Leone were also added to the committee.

In 1963, the General Assembly also unanimously passed a Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space. The resolution, simply put, states that: no country can claim sovereignty over space, parties must abide by existing international laws as they might apply to space, countries are expected to cooperate in space, any objects launched into space are still considered to be the property of the party that launched it (and that party is also liable to damage incurred by that object), and that astronauts in distress should be rescued by any efforts available. While covering many bases, the resolution provided minimal agreement on space exploration. It did not answer the many questions surrounding space militarization, space property rights and liability, and protection of people in space.

[24] "COPUOS History." Accessed August 23, 2020. https://www.unoosa.org/oosa/en/ourwork/copuos/history.html.

Possible Solutions

To reiterate, there is no expected solution for this committee. Space is a wonky place, so the best approach is to cover as much ground as possible. Also, the primary solutions of this committee will be in the form of agreements, rather than complex subcommittees and regulations. The three most important areas on which to focus are militarization, property rights, and astronaut safety.

Militarization

The easiest agreement for militarization would be the abolishment of weapons of mass destruction in space. There are no weapons in space yet, so no country would need to disassemble or disarm any arsenals. Moreover, a non-proliferation agreement could cover a variety of military resources: soldiers, artillery, military transport, nuclear weapons, etc. All these aspects are important, but the most crucial one would be nuclear weapons. Much of space warfare is still in the realm of science fiction, but a national military could feasibly put a nuclear weapons system in orbit quite soon.

While it might be easy to explicitly ban all potential weapons, delegates must also consider the purpose of any settlement in space. Are countries allowed to set up bases which only their scientists can enter, or is everything in space free territory? Basically, if you hear a knock on your rocket ship, do you have to answer? This might seem outlandish, but it is practical when considering the purpose of space travel. If countries are truly vowing to make space a place of peace, it is important to state that all endeavors must be for the benefit of all humanity and science. Free-entry rules would only reinforce the peaceful ambitions of space exploration.

A nuanced approach could make exceptions for **asteroid deterrents** and peaceful nuclear testing. More pressing than alien invaders are near-Earth objects (NEO). Nuclear weapons could divert the trajectory of an oncoming asteroid, potentially preventing a destructive event. Additionally, some nuclear research might be better suited for space. Especially in energy development, a nuclear meltdown would be barely noticeable in the heavily irradiated vacuum of space.

Property

There is more of a **precedent** for property rights than there is for the other topics of this resolution. So, the two solutions would be either to follow these precedents, or to establish an alternative to the norm.

According to Maritime Law, Sea Law, and the Antarctic Treaty, entering international territory is considered a pause button on property rights. If a French boat departs from a French port, leaves French maritime borders, and floats in the middle of the Atlantic Ocean, the "pause button" is turned on and it is still a French boat. If the French boat enters another country's territory, then the "pause button" turns off; the boat may be subject to search and seizure. Most countries have agreements with each other which protect maritime vessels, so that cargo ships and cruise lines can travel on their international routes safely. Regardless, if the boat is in international waters, it is considered liable to the laws of the original country. Even if an American cruise ship is in the Mediterranean, it would still be illegal for the bartenders to serve customers under the age of 21.

There is also the matter of liability, which is closely related to property rights. Liability is a question of who is responsible for damages. If a party is found liable, they would face financial reimbursement and possible criminal prosecution. Imagine if country A launches a rocket into space, only for it to veer off course and crash into country B. If property rights have a "pause button" in space, then country A is liable to all damage, since the rocket was property of country A. Furthermore, if the rocket from country A hits a satellite owned by country B, then country A is liable to that damage.

Alternatively, all liability can be assumed as a shared cost to humanity. A resolution with this definition would state that any damage incurred by space exploration was simply a cost of this new era. A fund could be set up to provide compensation for any damages from space exploration. Regardless, any rules of liability would have to be explicitly stated in the resolution.

Going further, there is the matter of retrieval. If equipment falls into another country's territory, are they expected to return it to the owner? To do this, COPUOS would likely have to create a system for recording and sharing property claims in space. Think of it like setting up the rules of a lost-and-found box. Countries could be asked to not only retrieve lost parts, but also to actively search for any

debris or fallen equipment. Again, regardless of the extent of these expectations, they would need to be explicitly stated in the resolution.

Additionally, there is the question of acquiring property and territory. Following precedents would suggest that no country can claim space territory for its own sovereignty. There is also the case that only scientists are allowed to acquire property, rather than in the name of private or military interests. More radical ideas would be to permit countries to lay certain claims to space or to create an international body which automatically controls space. There are a few scenarios where it might make more sense for countries to lay their claims to space, such as for free enterprise and diplomatic embassies. On the other hand, all of space can be considered territory of the UN or another international organization. All matters of governance would then fall into this administration's jurisdiction, giving plenty of flexibility for future conflicts.

Astronaut Safety

Being an astronaut is a dangerous profession. Since all states are aware of the necessary dangers of space exploration, a resolution could include the details of assistance and rescue in the case of crisis. Countries could be expected to actively search for astronauts that veered off course. Or, if a country has resources in space, they might be expected to help save astronauts amid a failed mission. Such an agreement would promote the idea that space is not a stage for victories, but of shared successes and defeats.

Besides diffusing national rivalries in space, a resolution should also protect and promote the role of international observers. While it might not be easy now to send a UN inspector to the moon, one day this might be a bureaucratic necessity. Therefore, the resolution should include the protections and roles of inspectors, diplomats, ambassadors, scientists, etc. Think about what steps need to be taken in order to ensure that all countries are abiding to the neutrality and shared efforts of this resolution.

Bloc Positions

By 1966, there had been too many close calls of almost blowing up the world. At this time, both Western and Eastern Bloc countries agree that every country must cease some of its potential powers in the name of peace. This is not a huge sacrifice, considering that neither side had the capacity or the technology for a space-based militia. The international climate was tilting towards denuclearization, despite the rise in smaller capitalist-communist wars and insurgencies around Latin America, the Middle East, and Southeast Asia. Nevertheless, alignments of the **Cold War** come with their own agendas. As delegates, you are not expected to only partner with countries in your alignment. It is encouraged to forge new alliances, and to interpret your country's policy as you see fit. Do some research to see the nuclear stockpiles and space exploration progress of each country in 1966. While the United States and the Soviet Union are the clear leaders of scientific advancement at the time, the rest of the world contributed to each breakthrough of the space race, by sharing manufacturing and research.

Western Aligned and Eastern Aligned Countries

The following countries in this committee can be "Western Aligned" due to military alliances: Australia, Belgium, Canada, France, Iran, Italy, Japan, Lebanon, the United Kingdom of Great Britain and Northern Ireland, the United States of America. Furthermore, the following countries in this committee can be considered as "Eastern Aligned" due to military alliances: Albania, Bulgaria, Czechoslovakia, Hungary, India, Mongolia, Poland, Romania, the United Arab Republic, the Union of Soviet Socialist Republics.

The main goal of all these countries is to prevent any military advantage in the opposite alignment. If you reach a stalemate where neither alignment has a loophole to suit their own agenda, this is still successful. Otherwise, the vested interests of both alignments are largely the same. Since these countries are the most likely to have a direct involvement in the space race, prioritize demilitarization of space, protections of astronauts, and property rights in space.

Neutral Countries

The remaining countries can be considered Neutral at this time in the Cold War: Austria, Argentina, Brazil, Chad, Mexico, Morocco, Sierra Leone, Sweden. These are countries which have officially declared neutrality between the two sides, were incapable of promoting one side due to political instability, or only had economic ties to one alignment. Additionally, neutral countries were some of the least involved in the space race. Taking a more generalist approach, neutral countries should bring up ways to make space a place for all of humankind, not just a playground for two superpowers.

The Promise of Science

Science also has a prominent role in the fate of space. There is the idea that space can be dedicated to the apolitical, pure discipline of science. Undoubtedly, humanity would reach greater progress if scientists you pooled together resources and made decisions in the best interest of all nations. Space stations and bases could be considered free territory, for any citizen of any nation to use — so long as it was done in the name of peace and science. This would give no edge to any nation and would certainly solve the dilemma of militarization. However, while scientists for the most part support this idea, it is unclear how it would be implemented. Space agencies are part of country budgets, not some slush fund written out to "human ingenuity." To truly give space to science, nations would have to operate cooperative projects and/or disassemble their own space monopolies. Again, this would be a radical approach with no clear result. On the other hand, nothing about space is really set in stone in the first place.

Glossary

The Antarctic Treaty: An agreement which stipulates how countries can operate in Antarctica.

Asteroid Deterrents: Weapons that, when activated far in space, could prevent an asteroid collision with Earth.

Astronaut: A person trained to crew a spacecraft.

Celestial Body: Any object in space that is not Earth.

The Cold War: A global period of tension between the Eastern Bloc (led by the USSR) and the Western Bloc (led by the United States of America). While no direct fighting took place, both sides supported proxy wars and built up their military arsenals.

COPUOS: The Committee on the Peaceful Uses of Outer Space was founded in 1958 to solve international dilemmas arising from space exploration and to promote peaceful endeavors.

International Law: The set of rules, regulations, and agreements that govern how independent nations interact with each other.

Liability: Liability is essentially legal responsibility. If a party is liable for an object, then they are responsible for what that object does. Pet owners are liable for their pets, and so if you dog digs up your neighbor's flower bed, you are liable.

NASA: The National Aeronautics and Space Administration was founded in 1958 as a public agency in the United States, with the goal of promoting american engineering and space related sciences.

Outer Space: Outer space begins around 100 km above sea level, at the Kármán line, and goes infinitely beyond that. While parts are still affected by Earth's gravity and atmosphere, this is the first point where satellites can maintain orbit successfully.

Maritime Law: The set of agreements that governs how private entities operate in international waters.

Missile: A rocket propelled object that can travel large distances to deliver a payload. Payloads can range from fireworks to astronauts to nuclear explosions.

Precedent: An agreement that occured for a similar matter in the past, and therefore can provide guidance on how to operate in the future.

Property Rights: Property is something that belongs to a person, party, enterprise, or country. Property rights define how property is owned and protected by laws.

Radiation: Electro-magnetic waves that travel at the speed of light. Different frequencies of radiation can serve different purposes. Low frequency radio waves can help us communicate while high frequency x-rays see through our bodies. Radiation can be naturally created such as through the sun, or human-created such as by turning on a cell phone or setting off a nuclear bomb.

Rocket: A rocket is simply a mechanism that drives thrust. Missiles and spacecraft are often powered by rockets. A rocket is like a battery, it gives the boost to the payload and guidance systems.

Sea Law: The set of agreements that governs how states operate in international waters.

Space Law: The informal and formal agreements on what legally happens in the international territories of the upper atmosphere and outer space.

Space Race: An indirect competition between the Soviet Union and the United States during the Cold War. Beginning with the launch of Sputnik, the space race marked a period of rapid scientific achievements.

Superpowers: In the Cold War, the two superpowers were the USSR and the USA. These countries had vast geopolitical influence, along with unprecedented hoards of weapons. The fate of the world was effectively determined by these two nations.

Upper Atmosphere: The upper atmosphere begins around 70 km above sea level and extends to the xenosphere. This falls outside of international airspace and is where many rockets, weather balloons, and missiles pass through.

Weapons of Mass Destruction: WOMDs are any weapon that could bring about massive and significant damage to human life, including nuclear, chemical, and biological weapons.

Appendix: Science You May Need to Know

This committee will not be overwhelmingly filled with technical jargon. All delegates are expected to understand the following terminology, in order to effectively participate in debate. You are encouraged to learn more about astronomy and rocket engineering, but do please keep your research topical and relevant, especially since this committee is based in 1966. Note that some of this information in the guide, especially facts about astronomy, include present knowledge of the solar system. This is mostly because there is no point in teaching you something that is wrong.

The Atmosphere[25]

The Earth's atmosphere is a thin blanket of gas that separates all life on Earth from **radiation**, meteors, and the cold vacuum of space. The layers of the atmosphere are not physical boundaries, they are merely the zones where certain things happen. Planet atmospheres can evolve over millions of years, but as of now, Earth's atmosphere is 78% Nitrogen, 21% Oxygen, 0.93% Argon, 0.04% Carbon Dioxide (a small fraction which is dangerously increasing due to anthropogenic climate change), and trace amounts of neon, helium, methane, krypton and hydrogen, and water vapor.[26] As evident from the abundance of life on Earth, the atmosphere is perfect for life. Learning about the layers of the atmosphere is important for understanding the scope of space exploration and what makes Earth unique.

[25] Zell, Holly. "Earth's Upper Atmosphere." Text. NASA, March 2, 2015. http://www.nasa.gov/mission_pages/sunearth/science/mos-upper-atmosphere.html.
[26] October 13, Tim Sharp, and 2017. "Earth's Atmosphere: Composition, Climate & Weather." Space.com. Accessed July 28, 2020. https://www.space.com/17683-earth-atmosphere.html

Troposphere (0 - 14.5 km above the Earth's surface): All life on Earth is contained within this region, including all buildings and mountains. Most weather occurs in the troposphere, given the relatively high air pressure.

Stratosphere (14.5 - 50 km above the Earth's surface): Only clouds form in the stratosphere, given the low humidity and air pressure. Commercial planes usually fly in the lower stratosphere to avoid weather turbulence in the Troposphere.[27] The Stratosphere is also the location of the ozone layer — a special blanket of oxygen molecules which absorb and scatter ultraviolet radiation. When the ozone layer is damaged by ozone-depleting pollutants, life is subjected to more dangerous radiation and cancer.

Mesosphere (50 - 85 km above the Earth's surface): The mesosphere is a relatively mysterious part of our atmosphere, and is the closest thing to a boundary between Earth and space. It is difficult to study the mesosphere since this layer is too high in altitude for weather balloons to reach, but too low in altitude for satellites to maintain orbit. Most falling meteors burn up in the mesosphere, leaving lingering traces of metal elements floating in the extremely thin air.[28]

Thermosphere (85 - 600 km above the Earth's surface): The thermosphere ranges in temperature from 200° C to 2,000° C, giving the "thermo" part of its name. At the same time, this layer is nearly a vacuum, composed of sparsely distributed super hot molecules. The beginning of the thermosphere is around where NASA classifies "the beginning of space" or 80 km above the Earth's surface. This is

[27] "The Stratosphere - Overview | UCAR Center for Science Education." Accessed July 28, 2020. https://scied.ucar.edu/shortcontent/stratosphere-overview.
[28] "The Mesosphere - Overview | UCAR Center for Science Education." Accessed July 28, 2020. https://scied.ucar.edu/shortcontent/mesosphere-overview.

considered the beginning of space, since below this point, a satellite would encounter too much friction and burn up in the atmosphere. The Theodore von Kármán came up with an alternative definition in the 1900s, creating the "Kármán Line" 100 km above the Earth's surface. This imaginary boundary is where it is no longer theoretically possible to sustain air flight, according to Kármán's calculations. Many European space agencies (which came about in the modern era) use this as the definition of the boundary of space.[29] The thermosphere also absorbs a large portion of the sun's electromagnetic radiation hitting Earth, especially X-rays and UV rays. Depending on the influx of solar radiation, which can change depending on the solar cycle, the thermosphere can actually grow and shrink much like the tides in the ocean.[30] This EM radiation also causes Aurora Borealis in the thermosphere, as energy waves are directed to the magnetic poles, exciting molecules' electron shells.

Ionosphere (48 - 965 km above the Earth's surface): The ionosphere is a kind of co-existing layer that goes through the mesosphere, thermosphere, and exosphere. Solar radiation ionizes molecules at this altitude, causing negatively charged electrons to spill into different zones. Like the thermosphere, the ionosphere grows and shrinks based on solar conditions. Different parts of the ionosphere absorb different wavelengths of radiation, making it a dynamic part of Sun-Earth interactions. Additionally, radio communications works by bouncing radio waves off of the ionosphere.[31]

Exosphere (600 - 10,000 km): The exosphere is nearly the diameter of Earth, and it is truly massive. The exosphere is cold and nearly a vacuum but can be thought of as "leakage" of the Earth's atmosphere. With the exosphere, the rest of Earth's atmosphere can maintain an equilibrium with far outer space. Once beyond the exosphere, an object is truly free from any influence of Earth. Few missions extend past the exosphere, as these plan to visit other **celestial bodies**.

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[29] Science. "Where, Exactly, Is the Edge of Space? It Depends on Who You Ask.," December 20, 2018. https://www.nationalgeographic.com/science/2018/12/where-is-the-edge-of-space-and-what-is-the-karman-line/.

[30] "Thermosphere - Overview | UCAR Center for Science Education." Accessed July 28, 2020. https://scied.ucar.edu/shortcontent/thermosphere-overview

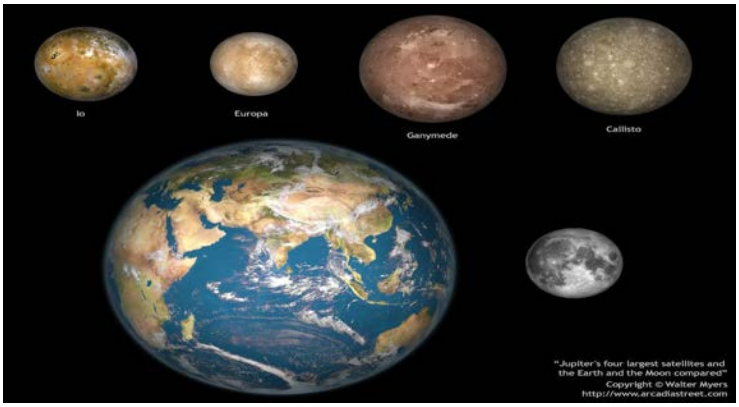
[31] Zell, Holly. "Earth's Upper Atmosphere." Text. NASA, March 2, 2015. http://www.nasa.gov/mission_pages/sunearth/science/mos-upper-atmosphere.html.

Celestial Bodies

Celestial bodies can be defined as any body outside the Earth's atmosphere, including moons, planets, asteroids, and stars.[32] Moons in our solar system can be enormous, and some are potentially more promising for exploration than other planets. Planets are defined by NASA as an object which orbits a star, has cleared all other objects in its path, and has strong enough gravity to maintain a spherical shape. Terrestrial planets are those with a solid surface (Mercury, Venus, Earth, and Mars.) Gas giants are failed stars that contain massive amounts of hydrogen and helium but are not large enough to cause nuclear fusion (Jupiter and Saturn). Ice giants are made of gas and highly pressurized superfluids, typically heavier elements such as oxygen, carbon, nitrogen, and sulphur (these are Uranus and Neptune). Pluto is not classified as a planet in 2021 but it was in 1966, though this likely will not be relevant for our committee. A star is a massive ball of gas, mainly consisting of hydrogen and helium, that sustains several types of nuclear fusion under its gravity. And then there are asteroids, which can be described as the solid objects that don't fit any of these descriptions. Here are a few celestial bodies which have caught the eye of science fiction writers and scientists. This list is by no means extensive but provide the best examples of celestial bodies in our solar system.

The Sun: The sun is quite extraordinary, and though you feel its effects every day, it's best not to stare at its wonder. Stars can fall into multiple categories based on its size, mass, and EM radiation, and the sun is a yellow dwarf star. The sun weighs 1,989,000,000,000,000,000,000,000,000,000 kilograms, and is thus responsible for the gravity which keeps all objects in the solar system in orbit. Nuclear fusion from the sun creates electromagnetic radiation and solar wind. Radiation from the sun can be harmful to life, causing electrical blackouts and severe heat, but also is responsible for the

[32] Coffey, Jerry. "Celestial Body." *Universe Today* (blog), December 27, 2009. https://www.universetoday.com/48671/celestial-body/.



energy that drives most life on Earth. Our sun is the perfect size and distance from Earth so that we can feel mostly positive effects.[33]

The Moon: There is no other name for the moon other than "the Moon." Only recently in human history did we realize that there are other moons in this solar system. The Moon orbits Earth and is only 384,400 km away from us.[34] The surface gravity is about .1654 g, and the surface has frozen pockets of water. Fun fact: the Moon used to be part of the Earth until a proto planet (named Theia) collided with Earth. The remaining debris formed Earth and the Moon[35].

Gas Giant Moons. Ganymede is a moon of Jupiter and is nearly the size of Mars (larger than Mercury). Jupiter's moon Europa likely has liquid water under its surface and has a molten core due to its "tidal loick" with Jupiter. With over 400 active volcanoes, the Jupitarian moon Io is the most geologically active body in the solar system. Titan is a moon of Saturn, and has an atmosphere incredibly similar to Earth's. All these moons, due to their size, have characteristics them potentially more habitable than other nearby planets. So, space agencies plan on sending probes and satellites to examine these bodies further.

The Asteroid Belt: The asteroid belt can be seen as a pile of junk left over from the formation of the solar system. These asteroids are composed of rock, metals such as iron or nickel, carbon-rich materials, ices, or some mix of all these materials. Over sixteen objects in the asteroid belt have a diameter greater than 240 km, with the largest being the 950 km wide, dwarf planet Ceres.[36]

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[33] NASA Sun.

[34] World Atlas.

[35] Coffey, Jerry. "Celestial Body." *Universe Today* (blog), December 27, 2009. https://www.universetoday.com/48671/celestial-body/.

[36] May 05, Nola Taylor Redd, and 2017. "Asteroid Belt: Facts & Formation." Space.com. Accessed July 28, 2020. https://www.space.com/16105-asteroid-belt.html.

Venus: Venus is often described as the twin planet to Earth. It is of a similar size to Earth, and has only slightly lower gravity. The atmosphere of Venus is 100 times as dense as the Earth's and is primarily composed of carbon dioxide. This brings the surface temperature to a toasty 464 degrees Celsius. Venus still experiences volcanic activity, implying that the planet still has a molten core.[37]

Mars: Mars is a dead planet. A long, long time ago, the core was molten and produced a geomagnetic field similar to Earth. Since Mars is significantly smaller than Earth, the planet has a higher surface area to volume ratio. This mathematical dilemma caused the planet to cool quickly, solidifying the core and therefore ending the magnetic field. Due to the lack of a shield from solar radiation, the atmosphere was stripped away. With a thin atmosphere, Mars remains a cold negative 63 degrees Celsius. While the planet may have had a life-supporting environment, the lack of atmosphere killed any chance of life as we know it.[38]

Rocket Science

Rockets have varied in their specifics over the years, but in order to achieve flight, they have followed the following template. The details of rocket schematics will not likely come up in debate. That being said, the delegates and advisors of COPUOS in 1966 were familiar with these diagrams, and so it is certainly helpful in understanding the technicals of space travel.

The basic principle of a rocket launch is thrust. If you've ever seen an action movie, you'll notice that a firearm comes with recoil. As the bullet leaves the gun, the gun pushes backward. When learning to use a firearm, the trainee must adapt to this recoil in order to not drop the gun or possible misfire. The same law of motion which governs recoil is what moves a rocket: for every action there is an equal and opposite reaction. As fuel is ignited in a rocket, various gasses are rapidly expelled from an outlet. A rocket basically rests on an explosion, the rocket ascends in the opposite direction of this guided explosion. With enough force propelling the rocket (thrust), the rocket can go high enough

[37] "Pioneer Venus Project Information." Accessed July 28, 2020. https://nssdc.gsfc.nasa.gov/planetary/pioneer_venus.html.

[38] Home | Curiosity – NASA's Mars Exploration Program." Accessed July 28, 2020. https://mars.nasa.gov/msl/home/.

that gravity no longer causes the object to immediately fall back to Earth. This is the goal of rockets, in the context of space exploration.

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