

We Choose Space!
Sumners, Version 20

We Choose Space!	
<p>SCENE A0 Kennedy speech with fisheye of stadium – embedded video over pan. 12 September 1962</p>	<p>Introduction (President Kennedy and Jim Bratton)</p> <p>Date on Dome: Rice University, Sep 12, 1962</p> <p><i>“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”.</i></p>
<p>SCENE A1: opening titles with names of narrators</p>	<p><i>Opening CREDITS – We Choose Space over the ISS – as told by Scott Parazynski, Tom Jones, Walter Cronkite</i></p>
<p>SCENE A2: Zoom into Scott on the arm of the ISS – change arm</p>	<p>Part A: Our History of Choices (Scott Parazynski)</p> <p>Welcome aboard, I’m Scott Parazynski. I was born the year that President Kennedy first made his commitment to space. Because of that commitment, I had the incredible opportunity to see the Earth from space, working up there outside the Station, repairing a torn solar array.</p>
<p>SCENE A3: Gagarin orbiting Earth, Earth chord and starfield, fade to ISS at time of Tito 12 April 1961 2001</p>	<p>In 1961, Yuri Alekseyevich Gagarin of the Soviet Union became the first man in space as he orbited the Earth in his Vostok 1 capsule – an incredible achievement that really inspired the world. Only forty years later, Dennis Tito rode a Russian Soyuz spacecraft to the orbiting International Space Station. Six more tourists followed in the next decade. The International Space Station remains a choice for both astronauts and tourists until at least 2020.</p>
<p>Scene A4: Alan Shepard’s Freedom 7 fades to Virgin Atlantic craft 5 May 1961 2011</p>	<p>In 1961, Astronaut Alan Shepard became the first American to reach space. He spent five weightless minutes out there in his Freedom 7 capsule with all the world cheering him on. Now over 50 years later, the children and grandchildren of Admiral Shepard’s generation can book a suborbital spaceflight on a commercial space ship.</p>
<p>SCENE A5 Apollo 8 orbiting Moon with Earth Rise followed by spacecraft approaching the Moon 24 December 1968</p>	<p>In 1968, Apollo 8 astronauts, Frank Borman, Jim Lovell, and Bill Anders became the first humans to orbit the Moon, showing us our own Earth, rising above the barren lunar surface. Now a commercial firm is designing trips to orbit the Moon while private companies and governments plan missions to the lunar surface.</p>

<p>SCENE A7 Night scene – Moon and ISS in sky and through telescope – perhaps with children pointing up.</p>	<p>The night sky teases us with places we can almost touch. On a clear evening, we often see the Moon, the brightest celestial object in our night sky. At full Moon, we can identify where all six of the Apollo missions landed.</p> <p>On many nights we can also find the International Space Station orbiting above, now the night sky’s second brightest object. With a small telescope, you can even see its huge solar panels. From my perch on orbit I really enjoyed looking at the Earth below, thinking that there might even be someone looking up at me.</p>
<p>SCENE A8 Earth chord then add ISS and moon farther away. Fade ISS (no Cronkite pics)</p>	<p>The International Space Station and the Moon are our first ports of call. Famous space reporter, Walter Cronkite takes us back 4 billion years, to witness the launch of the Moon, our first space station, and then shares the joy of the Apollo astronauts exploring the lunar surface.</p>
<p>SCENE B2 Birth of the Moon Cut out earth chord at beginning – maybe speed up a little.</p>	<p>PART B: Yesterday’s Moon (Walter Cronkite, Gene Cernan) More than four billion years ago, a young Sun’s gravity brought little order to its unruly solar system. Too many tiny worlds shared the same flattened disk.</p> <p>A young Earth, without its companion Moon, grew by collecting debris strewn along its orbit. Meanwhile another world was also forming - in an orbit crossing Earth’s. A collision was inevitable. It was just a matter of time...and the universe has always had plenty of time.</p> <p>With each orbit, the early Moon raised tides that flooded and then drained Earth’s coastlines and stirred the depths of its ocean -- supplying energy and motion to mix the primordial stew from which the building blocks of life would emerge. Gradually life, carried on the tides, climbed from the sea onto the land... and in time learned to walk, to dream, and to reach for the Moon overhead.</p> <p><i>"Here men from the planet Earth first set foot upon the Moon, July 1969, AD We came in peace for all mankind."</i></p>
<p>SCENE B3 Mission Control with view screens – cut first steps Astronauts exploring Moon Astronauts on lunar</p>	<p>Imagine being the first geologists on a huge unexplored world full of rocks, dust and unsolved mysteries. The lunar soil is rocky debris crushed by meteorite impacts into a substance that clings to everything it touches - turning space suits a dingy gray.</p> <p>To go farther and see more, NASA invented a lunar rover - battery powered with wire mesh wheels - capable of exploring the Moon and perhaps becoming a prototype for tomorrow’s lunar</p>

<p>rover Cut 15 sec of rover</p> <p>Astronauts exploring Moon</p> <p>Astronauts walking on Moon</p> <p>SCENE B5</p> <p>SCENE C1 Beauty shot of the completed ISS as we circle around it. Cut 10-15 seconds</p>	<p>dune buggies.</p> <p><i>“This is really a rock and roll ride, isn’t it? I’ve never been on a ride like this before. Boy oh boy! I’m glad they’ve got this great suspension system on this thing. Yahoo. Golly, this is so great you can’t believe it!”</i></p> <p>Imagine being the first humans on this barren world the first to see a place, kick a rock, stir up dust or leave footprints and rover tracks in its timeless soil. All expressions are inadequate, the experience of a lifetime wrapped in a few precious hours, in a place to which you can never return.</p> <p><i>“I was strolling on the Moon one day in the merry, merry month of December, no May, when then much to my surprise, a pair of funny eyes, te dum, te dum, te dum”</i></p> <p><i>“Oh this is a neat way to travel. Isn’t this great! tum te dum dum dum tum te dum dum dum tum te dum dum dum. I like to skip along. Not me boy. Gene, I’m going to take that SEB number two and my camera and I’m heading home. OK, Boy is this fun.”</i></p> <p>Gene Cernan, the last man to walk on the Moon, remembers.....</p> <p><i>"I slowly pivoted, trying to see everything, and was overwhelmed by the silent, majestic solitude. Not so much as a squirrel track to indicate any sort of life, not a green blade of grass to color the bland, stark beauty, not a cloud overhead nor the slightest hint of a brook or stream. But I felt comfortable, as if I belonged here. From where I stood on the floor of that beautiful mountain-ringed valley the Moon seemed frozen in time."</i></p> <p>PART C: Visiting the International Space Station(Tom Jones) The dramatic Apollo Moon landings showed us that exploring space is incredibly exciting and that we can achieve almost impossible goals in record time. I’m Tom Jones, a veteran space walker and your tour guide for the International Space Station, the largest and most complex structure ever built in space.</p> <p>In the International Space Station, we are like fish in an enclosed aquarium, but we’re much more delicate and demanding. Our aquarium in space must hold in our atmosphere, maintain our life support, and provide enough room for us to live and work.</p> <p>The completed Space Station is a human habitat as large as a five-bedroom house, spanning an area the size of a large soccer field. Here we have created an environment that can keep</p>
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<p>SCENE C2 Construction of ISS – same camera angles, timed to work with the narration</p>	<p>astronauts healthy and productive for six months at a time.</p> <p>Construction of the International Space Station began in 1998 with the Zarya cargo module, providing electrical power and flight control. After the Unity node joined Zarya, the Zvezda module followed in 2000, adding living quarters and environmental systems.</p>
<p>Solar cell array</p>	<p>Soon afterward, shuttle crews attached the first solar cell arrays atop the Unity node.</p>
<p>Destiny Lab</p>	<p>In 2001 my Space Shuttle mission brought up the Destiny Science Lab. I participated in three space walks to attach the Lab to the station. Then, my fellow space walker, Scott Parazynski, helped attach a new robotic arm to the Destiny lab.</p>
<p>Quest and Pirs airlocks</p>	<p>With the addition of the Quest and Pirs airlocks, astronauts could do spacewalks to repair and maintain the Station.</p>
<p>Truss construction</p>	<p>Construction of the Station’s solar arrays took many years. The completed truss spans 100 meters and supports 2,500 square meters of solar panels that can deliver over 100 kilowatts of electrical power.</p>
<p>Delivering Harmony Moving the truss Zoom into P6 truss</p>	<p>In 2007, Scott’s Space Shuttle mission delivered the Station’s second connector node, called Harmony, and moved the P6 solar cell array. A snag in re-deployment of this array required Scott to ride atop the extended robotic arm and repair the torn solar cells so the remaining sections of the station could be installed and powered.</p>
<p>Harmony</p>	<p>Then astronauts placed the Harmony node in the front of the Destiny science lab to serve as the central connecting hub for the European and Japanese laboratories.</p>
<p>Columbus</p>	<p>The European Space Agency’s Columbus science lab arrived first.</p>
<p>JEM</p>	<p>Then the Japanese Experiment Module, called Kibo, attached to the other side of the Harmony node. Kibo has a robotic arm and a platform for experiments outside the Station.</p>
<p>Tranquility</p>	<p>The third node, Tranquility, arrived in 2010, carrying an advanced life support system to recycle wastewater and generate oxygen as well as the station's magnificent Cupola observatory.</p>
<p>Cupola</p>	<p>2011 brought the Leonardo module to store spare parts and</p>

<p>Leonardo Nauka</p>	<p>supplies. The Russian Multipurpose Laboratory Module completes assembly of the International Space Station.</p>
<p>SCENE C3 Astronaut out of airlock</p>	<p>An astronaut exiting the Quest air lock, on the side of the Unity node, gives us a sense of the scale of our outpost in space.</p>
<p>SCENE C4 Pull out to show ISS, zoom into docking port</p>	<p>Constructed by 15 nations working together for nearly 30 years, the International Space Station is a symbol of a space race turning toward international cooperation. It has hosted astronaut crews from many nations since the year 2000 including space tourists, who paid their own way.</p>
<p>SCENE C5 Photo sequence from node with astronauts gliding by – dictated by the astronaut fisheye photography</p> <ol style="list-style-type: none"> 1. keep all of astronauts flying by – maybe slow by half -- add small part that was cut. 2. Remove side trip to Japanese module 3. Remove part of trip through Destiny 4. Remove part of trip through Zvezda, keep eating 5. Remove part of airlock <p>Video sequence of airlock</p>	<p>Let me take you on a snapshot tour inside this multi-room scientific condominium in space, beginning at the entrance to the Harmony node.</p> <p>From this port, we see the Columbus module to our left, the Japanese Kibo lab to our right and straight-ahead the U.S. Destiny laboratory – inviting us deeper into the Space Station.</p> <p>Astronauts in these labs conduct research on space-produced materials and the changing Earth below.</p> <p>Sleeping compartments also ring the Harmony node. When you're floating in space, the orientation of your bedroom really doesn't matter.</p> <p>Beyond Destiny, we enter the Unity node, and beyond it the original Zarya and Zvezda modules. The kitchen and dining table, where we prepare food and eat together, is part of Zvezda.</p> <p>The Unity node also connects to an airlock, storing spacesuits used for spacewalks outside the Station.</p>
<p>Fisheye zoom into cupola</p>	<p>From Unity, we can explore the Tranquility node. This module's cupola observatory is a favorite place for astronauts to gather. Its round central window is the largest on the station. We can watch Europe pass below us in darkness, then soar into sunlight above northern Africa and the Nile River.</p>
<p>Cupola orbit movie</p>	<p>Every 90 minutes, we return to the same place in our orbit, but the Earth in that time has turned beneath us – delivering a different, breathtaking view of our planet. Half of every orbit is sunlit, the other half dark, with a sunrise and a sunset every 90 minutes. This ever-changing view touches an astronaut's soul like no other part of the space experience.</p>

<p>SCENE C6 Soyuz and Progress</p> <p>Fade Shuttle and show dragon capsule docking</p> <p>Fly by of mini-shuttle</p> <p>Show larger Orion-type capsule near Moon</p>	<p>From the cupola, we see Russian Soyuz and Progress vehicles bringing astronauts and supplies to the Station.</p> <p>Replacing the Space Shuttle, are the ships of private companies. Commercial contractors like Space X with its cone-shaped Dragon capsule, can carry both supplies and passengers. Soon small shuttles may also ferry humans to the space station.</p> <p>Larger spacecraft may dock at the Space Station before journeys to the Moon, a nearby asteroid, or to Mars.</p>
<p>SCENE C7 Bigelow in distance</p>	<p>We can even foresee inflatable structures, like those of Bigelow Aerospace, forming a commercial space station. Space could become a very busy place.</p>
<p>SCENE C8 Moon with Cronkite perhaps</p>	<p>Decades after reporting the Apollo Moon landings, veteran newsman Walter Cronkite, embraced a new vision for a future Moon colony. His lunar base combines current research with his own experience sharing the joy of the Apollo astronauts, as they explored the Moon.</p>
<p>SCENE D1 HRPict. Shuttle descending toward Moon</p>	<p>PART D: Tomorrow's Moon Colonies (Walter Cronkite) Perhaps the space stations of today will ultimately lead to a return to Earth's largest space station, the Moon.</p>
	<p>Rocky asteroids and icy comets have crashed into the Moon and pockmarked its face. Each comet impact also delivered water ice to this dry world. At the poles, colonies in perpetual twilight can mine the Moon for this trapped ice.</p>
<p>Radio telescopes</p>	<p>The Moon's far side is quiet and undisturbed by radio noise blaring from Earth. In these silent, wide-open spaces, rows of radio dishes made from lunar materials capture images of distant galaxies and listen for signals from distant alien worlds.</p>
<p>Manufacturing area</p>	<p>Astronauts will mine surface rocks for oxygen to breathe and to use as rocket fuel. They can cast its soil into beams, rods, plates, tubes and glass fibers.</p>
<p>Passing over solar power grid</p>	<p>The Moon has solar energy with no atmosphere to block sunlight during the long lunar day. Solar power stations, made of lunar materials, will collect sunlight and beam the energy to Earth as microwaves.</p>
	<p>The Moon is rich in an energy fuel called Helium 3, produced in the sun's core. For billions of years, this stardust has fallen on the Moon while Earth's atmosphere blocks it from settling on Earth.</p>

<p>Dome colony as shuttle lands</p>	<p>The Moon's Helium 3 can fuel tomorrow's nuclear fusion reactors on Earth.</p>
<p>Interior of dome – panning along, people flying with wings Add in 20 seconds</p>	<p>The Moon can protect the genome of life. The greatest threat to life on Earth is probably the impact of an asteroid or comet. Such a direct hit destroyed more than half of the species on Earth 65 million years ago. An Earth impact will not damage ecosystems on the Moon.</p> <p>The Moon can support an enclosed terrestrial biosphere - complete with plants and animals - for oxygen, food, and companionship. Here a 120 pound human weighs only 20 pounds and can jump six times higher than on Earth. In a pressurized dome, humans wearing wings can actually fly.</p>
<p>Interior Olympics – pole vaulter, gymnast</p>	<p>The lunar Olympic games will break all terrestrial records -- featuring pole vaults more than 120 feet, long jumps more than 180 feet, weightlifting of over an Earth-ton, and graceful gymnasts leaping six times higher than they can on Earth. Life on the Moon may become so pleasant that visitors dread returning to the oppressive gravity pull of Earth - a force that increases their Moon weight six-fold.</p>
<p>SCENE D2 Exterior of Moon colony with landing pad. Show a spacecraft lifting off pad and flying toward Earth</p>	<p>Welcome to the future Moon: sustainable, self-sufficient, and profitable:</p> <ul style="list-style-type: none"> - a producer of solar power and fusion fuel - a source of raw materials to build, launch, and fuel tomorrow's space ships - a home for the first humans to call another world home-
<p>SCENE E1 Launch of Atlantis</p>	<p>PART E: In Summary (Tom Jones) The launch of Atlantis, the last flight of the Space Shuttle, begins a new chapter in space exploration.</p>
<p>SCENE E2: Future collage</p>	<p>Human spaceflight in this century will depend on young people, private companies, and governments around the world choosing space travel for themselves, their children, and their countries.</p>
<p>SCENE E3: Fly out of ISS</p>	<p>In the spirit of President Kennedy, we once again choose space, not because it is easy, but because it is hard and because meeting its challenges is our destiny.</p>
<p>Roll credits</p>	