

An astronaut in a white spacesuit is kneeling on the dark, rocky surface of the moon. The astronaut's helmet has a bright light on it. In the background, the dark lunar horizon is visible against a black sky with a thin crescent moon in the upper left. A small lunar lander is partially visible on the left side of the frame.

NASA EXPLORERS  
**WE ARE THE ARTEMIS GENERATION**

1  
00:00:07,741 --> 00:00:08,008  
(music throughout) More

2  
00:00:08,008 --> 00:00:11,745  
than 50 years ago, NASA's Apollo program  
sent humans

3  
00:00:11,745 --> 00:00:15,648  
to the moon with less computing power  
than is in your mobile phone.

4  
00:00:18,651 --> 00:00:22,422  
Since then, technology has transformed  
space exploration.

5  
00:00:22,622 --> 00:00:26,292  
We've landed rovers on Mars  
and sent robotic explorers

6  
00:00:26,292 --> 00:00:28,695  
to the outer reaches of our solar system.

7  
00:00:29,662 --> 00:00:33,033  
Now we're ready to send humans  
into space again.

8  
00:00:33,299 --> 00:00:35,268  
Starting at the place we know best.

9  
00:00:35,268 --> 00:00:39,072  
The Moon, where we're going to stay  
and learn as much as possible

10  
00:00:39,272 --> 00:00:43,710  
as we forge a human path deeper  
into space than ever before.

11  
00:00:44,110 --> 00:00:49,516  
Artemus is NASA's program to return humans

to the moon for long term exploration.

12

00:00:49,716 --> 00:00:53,119

It is named after the Greek goddess who is Apollo's twin sister.

13

00:00:53,153 --> 00:00:55,021

The Artemis mission will take us to

14

00:00:55,021 --> 00:00:58,792

the Moon's South Pole, a region that's rich in natural resources

15

00:00:58,792 --> 00:01:02,695

and geologic features that will help us answer fundamental questions

16

00:01:02,695 --> 00:01:06,666

about the history of our Moon, Earth and Solar System.

17

00:01:07,400 --> 00:01:10,904

On this season of NASA Explorers, you'll meet the scientists,

18

00:01:11,104 --> 00:01:15,141

engineers, technicians and astronauts of Artemis.

19

00:01:15,575 --> 00:01:19,112

These are the people who are designing science investigations,

20

00:01:19,245 --> 00:01:24,384

analyzing grains of moon dust in the lab, building tools for lunar exploration

21

00:01:24,684 --> 00:01:27,554

and training to conduct science on the surface

22

00:01:27,554 --> 00:01:36,129  
of the moon.

23

00:01:36,830 --> 00:01:39,466  
Yes. So my job title is now astronaut.

24

00:01:39,466 --> 00:01:40,733  
NASA astronaut.

25

00:01:40,733 --> 00:01:43,536  
What first interested me  
and the first time I kind of said

26

00:01:43,536 --> 00:01:44,971  
that I wanted to be an astronaut.

27

00:01:44,971 --> 00:01:46,940  
I was around nine years old.

28

00:01:46,940 --> 00:01:52,745  
I was doing an after school curricular  
program at Judy Resnik Elementary School.

29

00:01:53,012 --> 00:01:59,085  
And I think I asked my parents about  
who she was and what her career path was.

30

00:01:59,085 --> 00:02:02,422  
And I think that was the first time  
that it was explained to me that, hey,

31

00:02:02,689 --> 00:02:07,460  
you know, you you could go to space and  
hang out there as a as a career option.

32

00:02:07,460 --> 00:02:09,696  
So I think that was kind of the first time  
I said, that sounds awesome.

33

00:02:09,996 --> 00:02:11,798

That's really what I'd like to do.

34

00:02:11,798 --> 00:02:16,202

I had done some kind of,  
you know, summer program type of classes.

35

00:02:16,402 --> 00:02:20,073

One thing that sticks out in my head  
was dissecting a cow eye.

36

00:02:20,073 --> 00:02:23,977

And I came home and was just raving  
about how cool that was.

37

00:02:23,977 --> 00:02:24,944

And it's so fun.

38

00:02:24,944 --> 00:02:28,748

And I think my parents looked at me  
kind of funny, but I think that was,

39

00:02:28,748 --> 00:02:32,819

you know, kind of the beginning of my  
my interest in love in science and,

40

00:02:32,952 --> 00:02:38,224

you know, really wanting to dive  
into research and asking questions.

41

00:02:38,391 --> 00:02:40,493

Before becoming an astronaut, Dr.

42

00:02:40,493 --> 00:02:43,196

Jessica Watkins  
worked as a planetary geologist,

43

00:02:44,063 --> 00:02:47,300

as a member of the science team  
behind NASA's Curiosity rover.

44

00:02:47,700 --> 00:02:50,336

Her work focused on Mars.

45

00:02:50,336 --> 00:02:54,007

Now, Jessica is working  
aboard the International Space Station

46

00:02:54,474 --> 00:02:58,011

and is one of the Artemis astronauts  
and rare human beings

47

00:02:58,411 --> 00:03:02,849

who may get to leave their footprints  
on the moon.

48

00:03:03,249 --> 00:03:08,054

In that moment, there is a whole team of  
hundreds of people that have contributed,

49

00:03:08,054 --> 00:03:11,791

probably thousands of people  
that have contributed to that reality.

50

00:03:11,791 --> 00:03:14,961

And, you know,  
the kind of the last piece of it

51

00:03:14,961 --> 00:03:18,031

is, you know, the human in the loop  
that's actually executing it.

52

00:03:18,031 --> 00:03:22,635

But in reality, it will just be about  
representing that the rest of that team

53

00:03:22,635 --> 00:03:27,140

well and doing your job,

your one piece of that puzzle well.

54

00:03:28,174 --> 00:03:30,109

Dr. Julie Mitchell represents

55

00:03:30,109 --> 00:03:34,614

another piece of the Artemis  
puzzle sample processing and storage.

56

00:03:34,814 --> 00:03:38,785

When Artemus astronauts deliver  
the next set of moon samples to earth,

57

00:03:39,352 --> 00:03:42,722

they'll need to be stored  
in a specifically designed facility

58

00:03:42,922 --> 00:03:45,892

and preserved for current  
and future generations.

59

00:03:46,226 --> 00:03:50,430

My main title is the curator of Ices  
and Organics.

60

00:03:50,563 --> 00:03:54,500

All that means is that I'm helping NASA  
get ready to bring ice samples back

61

00:03:54,500 --> 00:03:56,369

from the solar system.

62

00:03:56,369 --> 00:04:00,440

So I work in what's called the Astro  
Materials Acquisition and Curation Office.

63

00:04:00,473 --> 00:04:02,408

We just call it  
the curation Office for short.

64

00:04:02,408 --> 00:04:06,746

So all of the Apollo moon, rocks,  
meteorites, all of our sample return

65

00:04:06,746 --> 00:04:10,850

missions from asteroids, from comets,  
all of those samples come here to Houston

66

00:04:10,850 --> 00:04:14,587

and it's our office job  
to take care of those samples

67

00:04:14,587 --> 00:04:18,625

and make sure that they're available  
to the scientific community to study.

68

00:04:20,093 --> 00:04:23,930

So I grew up in Louisiana on the bayou.

69

00:04:24,297 --> 00:04:27,600

You know, I was down at the water all  
the time looking for snakes and turtles

70

00:04:27,600 --> 00:04:30,637

and looking at different plants  
that were out there.

71

00:04:30,637 --> 00:04:31,971

Nighttime would come around.

72

00:04:31,971 --> 00:04:33,873

And, you know,  
I was just looking at the stars.

73

00:04:33,873 --> 00:04:35,608

I wanted to know the constellations.

74

00:04:35,608 --> 00:04:38,811

I wanted to understand

what was going on up there.

75

00:04:39,579 --> 00:04:42,081

And neither of my parents went to college.

76

00:04:42,348 --> 00:04:45,785

None of my siblings  
or I had any expectation

77

00:04:45,818 --> 00:04:47,553

of going to college either.

78

00:04:47,553 --> 00:04:52,091

My older sister, she actually ended up  
going to college eventually got her Ph.D.

79

00:04:52,392 --> 00:04:55,862

She just gave me a hard time  
and just kind of

80

00:04:57,030 --> 00:05:01,134

was very persistent with me and saying,  
look, just apply to one school.

81

00:05:01,267 --> 00:05:04,837

Luckily, I got in and when I got in  
that was kind of the switch

82

00:05:04,837 --> 00:05:07,974

that flipped like, Oh, okay,  
I can't actually do this,

83

00:05:08,374 --> 00:05:11,678

and I want as many people as possible  
to know

84

00:05:11,711 --> 00:05:15,581

that there are people who are working at  
NASA who,

85

00:05:15,948 --> 00:05:18,384

you know,  
didn't grow up with a lot of resources

86

00:05:18,384 --> 00:05:22,188

and have still found a way to  
to make a contribution.

87

00:05:22,455 --> 00:05:22,722

Okay.

88

00:05:22,722 --> 00:05:25,692

So how does a kid that come from  
the rough part of Lima

89

00:05:26,326 --> 00:05:27,627

get interested into science?

90

00:05:27,627 --> 00:05:31,831

Of course, I was very curious  
and I was very motivated for science.

91

00:05:32,632 --> 00:05:34,567

I don't think  
I would have gotten into science

92

00:05:34,567 --> 00:05:39,439

if it wasn't because of a kind of need  
I had for achieving something great.

93

00:05:40,073 --> 00:05:43,343

Dr. Jose Aponte works in the Astrobiology

94

00:05:43,343 --> 00:05:46,479

Analytical Laboratory at NASA's  
Goddard Space Flight Center.

95

00:05:46,646 --> 00:05:50,216

He studies

grains of dust from meteorites, asteroids

96

00:05:50,416 --> 00:05:54,721

and the moon, hunting  
for microscopic clues to help answer

97

00:05:54,721 --> 00:05:59,225

a gigantic question  
- Where did the seeds of life come from?

98

00:05:59,759 --> 00:06:04,630

Jose could be among the first humans to  
study samples from the moon's South Pole.

99

00:06:04,964 --> 00:06:07,633

I read an advertisement that read We are

100

00:06:07,633 --> 00:06:10,770

looking for an astrobiologist  
to study organic compounds in meteorites.

101

00:06:10,770 --> 00:06:12,705

Astrobiologist?

102

00:06:12,705 --> 00:06:14,107

What's that like?

103

00:06:14,107 --> 00:06:16,142

I never heard that word before.

104

00:06:16,142 --> 00:06:18,044

I had no clue, honestly.

105

00:06:19,946 --> 00:06:23,282

So I've read about it and said, Wow,  
this is pretty cool.

106

00:06:23,883 --> 00:06:25,718

Organic compounds in meteorites.

107

00:06:25,718 --> 00:06:26,586

Meteorites.

108

00:06:26,586 --> 00:06:30,123

Okay, that sounds exciting.

109

00:06:31,090 --> 00:06:33,593

But when I was a kid,  
I was probably ten years old,

110

00:06:34,927 --> 00:06:37,163

and every day  
I had to do the dishes at home.

111

00:06:38,564 --> 00:06:42,235

And there was this pot  
and this pot had a really thick,

112

00:06:42,435 --> 00:06:44,837

black layer of burnt rice.

113

00:06:45,271 --> 00:06:48,841

Something came to mind and I said, okay,  
if I want to clean this pot,

114

00:06:48,941 --> 00:06:50,243

I'm going to add bleach.

115

00:06:50,243 --> 00:06:54,781

Because bleach, you know, dissolved  
stuff, stains and should help.

116

00:06:55,381 --> 00:06:57,450

So I had a couple of cups of bleach.

117

00:06:57,984 --> 00:06:59,585

Look at it.

118

00:06:59,585 --> 00:07:01,320

Nothing happened, of course.

119

00:07:01,320 --> 00:07:02,422

So I said, okay.

120

00:07:02,422 --> 00:07:04,190

Nothing happened. Such a disappointment.

121

00:07:04,190 --> 00:07:09,061

I decided to add a cup of muriatic acid  
that is used to clean toilets.

122

00:07:09,662 --> 00:07:11,230

And then you know what happens, you know?

123

00:07:11,230 --> 00:07:12,331

Right. Okay.

124

00:07:12,331 --> 00:07:16,702

So when you mix bleach and muriatic acid,  
chlorine gas is released.

125

00:07:17,003 --> 00:07:22,308

But in in great quantities,  
a lot of it really fast.

126

00:07:22,308 --> 00:07:23,342

Really quick.

127

00:07:23,342 --> 00:07:26,412

And so I add the muriatic acid  
and I see a lot of fumes coming out.

128

00:07:26,579 --> 00:07:29,348

So I left the pot there and ran upstairs.

129

00:07:29,515 --> 00:07:30,817

And then my grandparents,

130

00:07:30,817 --> 00:07:33,853

we got to leave the house  
because we're going to die if we don't.

131

00:07:34,687 --> 00:07:38,724

When we came back,  
the pot was all destroyed.

132

00:07:39,025 --> 00:07:41,494

I was like, What happened? That was great.

133

00:07:41,527 --> 00:07:42,395

That was crazy.

134

00:07:42,395 --> 00:07:44,730

I don't know what it was,  
but that was cool.

135

00:07:45,231 --> 00:07:47,900

That's the first time  
I think that I was a chemist,

136

00:07:47,900 --> 00:07:50,102

although I didn't know  
that I was a chemist at that time.

137

00:07:50,837 --> 00:07:53,973

I definitely am a person  
that doesn't give up.

138

00:07:54,240 --> 00:07:56,309

I don't take no for an answer.

139

00:07:56,442 --> 00:08:00,780

And as soon as I got to school, really,  
I guess the summer after my freshman

140

00:08:00,780 --> 00:08:04,450  
year,  
I was applying for anything space related.

141  
00:08:04,817 --> 00:08:07,854  
Unfortunately,  
I was unsuccessful many times

142  
00:08:07,887 --> 00:08:11,491  
I've counted it up in the number  
that that I remember from that exercise

143  
00:08:11,491 --> 00:08:15,928  
was about 30 to 35 different applications

144  
00:08:15,928 --> 00:08:20,233  
over a few year period of just nothing.

145  
00:08:20,733 --> 00:08:24,537  
And then the second semester  
of my junior year of college,

146  
00:08:24,770 --> 00:08:27,373  
I was accepted to a NASA internship.

147  
00:08:27,373 --> 00:08:30,209  
And so, sure enough,  
that broke the barrier for me.

148  
00:08:30,510 --> 00:08:33,246  
I got an internship  
that led to another internship.

149  
00:08:33,946 --> 00:08:36,415  
Now I'm here and get to live out my dream.

150  
00:08:36,449 --> 00:08:40,186  
I wear a lot of different hats  
here at NASA, but my primary role

151

00:08:40,186 --> 00:08:44,924

right now is as the deputy project manager  
for the Artemis Geology Tools.

152

00:08:45,024 --> 00:08:48,928

That means that along  
with our project manager, I help to lead

153

00:08:48,928 --> 00:08:52,398

a team of people  
who are building Moon tools.

154

00:08:52,565 --> 00:08:57,203

And so specifically the tools  
that are going to take samples of the moon

155

00:08:57,303 --> 00:09:01,073

and bring them back to earth  
so the scientists can study them for

156

00:09:01,073 --> 00:09:02,308

generations to come.

157

00:09:03,409 --> 00:09:06,512

I watched the Apollo videos many times

158

00:09:06,512 --> 00:09:12,685

and I see the video of the world  
reacting to that accomplishment.

159

00:09:12,685 --> 00:09:16,856

And I just feel so much pride  
and knowing that I get to be a part of it

160

00:09:16,856 --> 00:09:20,126

this time around is just it's so much fun.

161

00:09:20,126 --> 00:09:25,298

It makes every day

just seem like a dream Together,

162

00:09:25,798 --> 00:09:28,768

Jessica, Julie, Jose, and Adam

163

00:09:29,235 --> 00:09:31,771

are pieces of the Artemis puzzle.

164

00:09:31,771 --> 00:09:35,241

Each is a vital component of the team working to accomplish

165

00:09:35,241 --> 00:09:39,579

the monumental task of exploring a world beyond earth.

166

00:09:39,946 --> 00:09:41,347

You can't just do this

167

00:09:41,347 --> 00:09:44,884

with a geologist or you couldn't just do this with an engineer.

168

00:09:45,117 --> 00:09:49,255

You really need a mix of people to think about these challenges

169

00:09:49,255 --> 00:09:51,057

from all the different angles.

170

00:09:51,057 --> 00:09:53,392

And we have that team.

171

00:09:53,392 --> 00:09:57,663

These are our explorers, the people who will get us to the moon,

172

00:09:57,930 --> 00:10:01,100

collect

moon rocks, deliver them to Earth safely,

173

00:10:01,434 --> 00:10:05,805

and ensure  
that we can study them for years to come.

174

00:10:05,805 --> 00:10:07,773

By the time we get to the moon.

175

00:10:07,773 --> 00:10:10,276

We're going to have the best tools.

176

00:10:10,476 --> 00:10:12,345

We're going to have the best containers.

177

00:10:12,345 --> 00:10:13,713

We're going to have the best crew.

178

00:10:13,713 --> 00:10:17,016

And that's because everybody involved  
really, really cares.

179

00:10:17,016 --> 00:10:20,186

And all of that is going to lead us  
to the very best science we can do.

180

00:10:20,219 --> 00:10:22,355

Everybody's hard work ahead of time

181

00:10:22,355 --> 00:10:24,690

will make sure  
that we have these excellent samples

182

00:10:24,690 --> 00:10:28,027

and that they're preserved for the long  
term.

183

00:10:28,127 --> 00:10:31,797

Virtually everyone on Earth knows

the first words uttered from the

184

00:10:31,797 --> 00:10:32,732

surface of the moon.

185

00:10:34,634 --> 00:10:35,401

That's one

186

00:10:35,401 --> 00:10:38,771

small step for man, one

187

00:10:38,771 --> 00:10:42,108

giant leap for mankind.

188

00:10:43,075 --> 00:10:46,946

But not many people know that  
the next words were all about science.

189

00:10:46,946 --> 00:10:49,348

The surface is fine and powdery.

190

00:10:49,815 --> 00:10:53,786

I can

I can pick it up loosely with my toe.

191

00:10:53,786 --> 00:10:58,224

It does adhere in fine layers

192

00:10:59,358 --> 00:11:01,560

like powdered charcoal.

193

00:11:01,560 --> 00:11:03,729

on the next episode of NASA's Explorers.

194

00:11:03,729 --> 00:11:05,031

Moon Rocks.