

TOGETHER WE'RE MORE



Choctaw Nation

TOGETHER WE'RE MORE

TOGETHER WE



TOGETHER WE



1
00:01:00,229 --> 00:00:55,490
station this is Houston are you ready

2
00:01:04,549 --> 00:01:02,510
Houston this is stationed I am ready for

3
00:01:09,890 --> 00:01:04,559
the event

4
00:01:17,810 --> 00:01:12,649
ACL station this is Houston ACR how do

5
00:01:22,670 --> 00:01:20,030
Houston icr this is station I have you

6
00:01:24,710 --> 00:01:22,680
loud and clear

7
00:01:27,950 --> 00:01:24,720
all righty please stand by for opening

8
00:01:32,390 --> 00:01:30,530
as we say in the Choctaw Nation halito

9
00:01:34,910 --> 00:01:32,400
or hello

10
00:01:36,230 --> 00:01:34,920
I'm Gary Batten chief of the Choctaw

11
00:01:38,810 --> 00:01:36,240
Nation of Oklahoma

12
00:01:41,270 --> 00:01:38,820
the Choctaw Nation the third largest

13
00:01:43,550 --> 00:01:41,280

federally recognized tribe resides in

14
00:01:45,830 --> 00:01:43,560
Southeastern Oklahoma and is the second

15
00:01:48,350 --> 00:01:45,840
largest reservation in the United States

16
00:01:49,730 --> 00:01:48,360
which is about the size of the state of

17
00:01:52,010 --> 00:01:49,740
Vermont

18
00:01:54,109 --> 00:01:52,020
this is a wonderful opportunity for

19
00:01:55,850 --> 00:01:54,119
students and tribal members to interact

20
00:01:57,590 --> 00:01:55,860
with astronauts aboard the International

21
00:02:02,569 --> 00:01:57,600
Space Station

22
00:02:11,089 --> 00:02:04,609
my name is Avery and I was wondering if

23
00:02:16,309 --> 00:02:14,089
hi Avery so we have a lot of medical

24
00:02:18,890 --> 00:02:16,319
equipment in space to take care of

25
00:02:20,750 --> 00:02:18,900
astronauts if we get hurt and we get a

26

00:02:22,790 --> 00:02:20,760

fair amount of training for minor

27

00:02:25,070 --> 00:02:22,800

conditions and a couple major conditions

28

00:02:26,869 --> 00:02:25,080

sometimes we're fortunate enough like on

29

00:02:29,030 --> 00:02:26,879

this expedition to have a doctor with us

30

00:02:31,250 --> 00:02:29,040

but if we need help from somebody on the

31

00:02:34,430 --> 00:02:31,260

grounds then we can talk to them and we

32

00:02:37,190 --> 00:02:34,440

have medical kits such as these

33

00:02:41,750 --> 00:02:37,200

which are filled with all types of

34

00:02:44,449 --> 00:02:41,760

different equipment to help us breathe

35

00:02:46,790 --> 00:02:44,459

to keep our bodies uh safe and to do

36

00:02:48,350 --> 00:02:46,800

some minor procedures but if we had

37

00:02:50,930 --> 00:02:48,360

something really go wrong on board

38

00:02:53,990 --> 00:02:50,940

station then we have the spacecraft that

39

00:02:56,390 --> 00:02:54,000

we came up on and we could go into that

40

00:03:01,009 --> 00:02:56,400

spacecraft and do an emergency undoc to

41

00:03:05,330 --> 00:03:03,770

hi my name is Jessica Roberts and can

42

00:03:11,949 --> 00:03:05,340

you describe what it feels like when you

43

00:03:17,149 --> 00:03:15,229

when you launch on top of a rocket from

44

00:03:19,430 --> 00:03:17,159

Earth into space it is the most

45

00:03:22,070 --> 00:03:19,440

incredible feeling so you're laying on

46

00:03:24,710 --> 00:03:22,080

your back when you launch and you can

47

00:03:26,690 --> 00:03:24,720

feel the prop being loaded on the

48

00:03:28,369 --> 00:03:26,700

spacecraft and the rocket it kind of

49

00:03:30,350 --> 00:03:28,379

feels like it comes alive

50

00:03:32,869 --> 00:03:30,360

and then you hear the countdown and it

51
00:03:35,809 --> 00:03:32,879
gets to zero you have actually a pretty

52
00:03:37,550 --> 00:03:35,819
smooth acceleration and you can feel the

53
00:03:40,550 --> 00:03:37,560
additional forces of gravity come

54
00:03:42,589 --> 00:03:40,560
through your chest that Force grows to

55
00:03:44,869 --> 00:03:42,599
about four and a half times the force of

56
00:03:46,610 --> 00:03:44,879
gravity that you feel on Earth so you

57
00:03:48,649 --> 00:03:46,620
feel it pushing down on your chest you

58
00:03:50,509 --> 00:03:48,659
really have to concentrate in order to

59
00:03:52,430 --> 00:03:50,519
breathe and inflate your lungs and you

60
00:03:54,949 --> 00:03:52,440
actually feel the tongue kind of fall

61
00:03:57,890 --> 00:03:54,959
back into the back of your throat

62
00:04:00,170 --> 00:03:57,900
as you get faster and faster you can

63
00:04:01,970 --> 00:04:00,180

feel the rocket and the spacecraft start

64

00:04:03,890 --> 00:04:01,980

to shake and start to rumble and you can

65

00:04:06,050 --> 00:04:03,900

really feel the power of the engines

66

00:04:09,589 --> 00:04:06,060

beneath you and then when the engines

67

00:04:11,869 --> 00:04:09,599

finally cut off it's instantaneous boom

68

00:04:14,210 --> 00:04:11,879

and it's totally silent and totally

69

00:04:15,770 --> 00:04:14,220

smooth and you're floating and you know

70

00:04:19,250 --> 00:04:15,780

you've made it into space it's

71

00:04:23,510 --> 00:04:21,650

hi my name's Kaden and I was wondering

72

00:04:29,450 --> 00:04:23,520

if you can lift Unlimited weight in

73

00:04:34,670 --> 00:04:32,749

in space we have unlimited strength well

74

00:04:36,290 --> 00:04:34,680

so we're in microgravity and so things

75

00:04:38,990 --> 00:04:36,300

have a mass but they don't have weight

76

00:04:41,390 --> 00:04:39,000

like they do on Earth and so I could

77

00:04:43,390 --> 00:04:41,400

lift something that's 500 pounds and I

78

00:04:46,550 --> 00:04:43,400

could lift it up with ease with my hand

79

00:04:48,710 --> 00:04:46,560

now I need to use force in order to stop

80

00:04:50,990 --> 00:04:48,720

the momentum of that object and so if

81

00:04:53,150 --> 00:04:51,000

it's very heavy or if it's moving very

82

00:04:55,129 --> 00:04:53,160

fast then that'll have to increase the

83

00:04:57,350 --> 00:04:55,139

amount of force that I need to stop that

84

00:04:58,790 --> 00:04:57,360

object from moving so it's very

85

00:05:01,070 --> 00:04:58,800

interesting you can tell when things are

86

00:05:03,650 --> 00:05:01,080

heavy because they have you can feel

87

00:05:06,230 --> 00:05:03,660

that mass and that momentum in space but

88

00:05:08,090 --> 00:05:06,240

as far as lifting something I was

89

00:05:11,210 --> 00:05:08,100

carrying a bag on a spacewalk the other

90

00:05:12,830 --> 00:05:11,220

day and it was 330 pounds and other than

91

00:05:17,170 --> 00:05:12,840

it having Mass you couldn't sell that it

92

00:05:28,969 --> 00:05:21,170

hi my name is Deanna and I have my

93

00:05:35,150 --> 00:05:32,510

hi Deandra so unfortunately no washing

94

00:05:37,129 --> 00:05:35,160

of clothes or spacesuits or really

95

00:05:39,170 --> 00:05:37,139

anything while we're up in space we

96

00:05:41,510 --> 00:05:39,180

don't have washing machines and no

97

00:05:44,029 --> 00:05:41,520

showers because water behaves very

98

00:05:46,370 --> 00:05:44,039

differently in space and so this is a

99

00:05:49,490 --> 00:05:46,380

bag of water that I have here and I'll

100

00:05:52,070 --> 00:05:49,500

show you in in on Earth if I squirted

101
00:05:54,710 --> 00:05:52,080
water out of a bag it would just fall to

102
00:05:57,050 --> 00:05:54,720
the ground but in space since there's no

103
00:05:59,990 --> 00:05:57,060
gravity when I squirt the water out you

104
00:06:01,249 --> 00:06:00,000
can see it just forms this kind of a big

105
00:06:03,590 --> 00:06:01,259
bubble

106
00:06:06,110 --> 00:06:03,600
here in space

107
00:06:09,170 --> 00:06:06,120
and that just floats around so you can

108
00:06:11,029 --> 00:06:09,180
put this water onto a towel and then you

109
00:06:14,270 --> 00:06:11,039
can use that to kind of wash your body

110
00:06:16,909 --> 00:06:14,280
or when we get back from a spacewalk we

111
00:06:19,249 --> 00:06:16,919
have some wet wipes and sanitation wipes

112
00:06:21,590 --> 00:06:19,259
that we can use to clean the inside of a

113
00:06:26,809 --> 00:06:21,600

spacesuit but you don't wash it

114

00:06:31,850 --> 00:06:29,930

hi my name is Caleb Anthony and my

115

00:06:34,189 --> 00:06:31,860

question is how do you think space

116

00:06:40,270 --> 00:06:34,199

exploration and NASA will advance in the

117

00:06:46,370 --> 00:06:43,249

Caleb this is an incredibly exciting

118

00:06:48,950 --> 00:06:46,380

time for human exploration you're seeing

119

00:06:50,510 --> 00:06:48,960

a lot of activity in low earth orbit not

120

00:06:52,370 --> 00:06:50,520

just from NASA and our International

121

00:06:54,950 --> 00:06:52,380

Partners but also from commercial

122

00:06:57,409 --> 00:06:54,960

industry so we have private astronauts

123

00:07:00,290 --> 00:06:57,419

now that fly to the International Space

124

00:07:02,749 --> 00:07:00,300

Station and also private astronauts that

125

00:07:05,809 --> 00:07:02,759

fly and do missions in low earth orbit

126
00:07:07,249 --> 00:07:05,819
on a SpaceX spacecraft and so you're

127
00:07:09,469 --> 00:07:07,259
going to see I think the transition of

128
00:07:11,930 --> 00:07:09,479
low earth orbit really to more

129
00:07:14,270 --> 00:07:11,940
commercial companies maybe smaller space

130
00:07:16,610 --> 00:07:14,280
stations that are in low earth orbit

131
00:07:19,249 --> 00:07:16,620
conducting science and you're also going

132
00:07:21,469 --> 00:07:19,259
to see US expand and explore into deep

133
00:07:24,770 --> 00:07:21,479
space we already have the Artemis

134
00:07:26,749 --> 00:07:24,780
program and last month we sent Orion out

135
00:07:28,969 --> 00:07:26,759
beyond the Moon farther than we have

136
00:07:31,189 --> 00:07:28,979
sent any human rated spacecraft before

137
00:07:34,270 --> 00:07:31,199
and soon you're going to see humans

138
00:07:36,890 --> 00:07:34,280

launch to the Moon where aim is to have

139

00:07:39,170 --> 00:07:36,900

sustained human presence on the lunar

140

00:07:41,450 --> 00:07:39,180

surface and really this is a stepping

141

00:07:44,270 --> 00:07:41,460

stone for for our exploration in the

142

00:07:46,670 --> 00:07:44,280

future to Mars so you'll see a lot of

143

00:07:51,170 --> 00:07:46,680

changes and a lot of increase in our

144

00:07:51,180 --> 00:07:58,510

hello my name is Scarlett cochoose

145

00:08:09,370 --> 00:08:02,390

I wonder about space to straw muscle

146

00:08:14,270 --> 00:08:12,589

hi Scarlett so as I was saying when

147

00:08:15,710 --> 00:08:14,280

you're in space if something is heavy

148

00:08:18,050 --> 00:08:15,720

you don't need necessarily strong

149

00:08:20,390 --> 00:08:18,060

muscles to lift it up but it's very

150

00:08:22,129 --> 00:08:20,400

important that astronauts keep their

151
00:08:24,589 --> 00:08:22,139
strong muscles in space for a couple

152
00:08:27,529 --> 00:08:24,599
reasons one is you're really just

153
00:08:29,930 --> 00:08:27,539
floating around all day and so if I

154
00:08:31,610 --> 00:08:29,940
didn't work out and exercise my muscles

155
00:08:33,649 --> 00:08:31,620
I would have what's called muscle

156
00:08:35,870 --> 00:08:33,659
atrophy and all the strength in my

157
00:08:37,670 --> 00:08:35,880
muscles would go away and then when I

158
00:08:40,070 --> 00:08:37,680
returned to Earth I wouldn't be strong

159
00:08:42,589 --> 00:08:40,080
enough to even support the weight of my

160
00:08:46,010 --> 00:08:42,599
own body to stand up and and hold my

161
00:08:47,690 --> 00:08:46,020
head up so we have different devices on

162
00:08:50,389 --> 00:08:47,700
board the space station to help us

163
00:08:52,670 --> 00:08:50,399

exercise and to keep our muscles strong

164

00:08:55,130 --> 00:08:52,680

also when we go outside the space

165

00:08:58,190 --> 00:08:55,140

station on a spacewalk we're wearing a

166

00:09:03,290 --> 00:08:58,200

huge spacesuit and that is inflated to

167

00:09:05,210 --> 00:09:03,300

4.3 PSI above the vacuum of space and to

168

00:09:07,670 --> 00:09:05,220

operate that spacesuit you need strong

169

00:09:10,370 --> 00:09:07,680

muscles to work against the force of the

170

00:09:13,009 --> 00:09:10,380

spacesuit and to crawl along the space

171

00:09:15,170 --> 00:09:13,019

station and stop and start your momentum

172

00:09:16,850 --> 00:09:15,180

as you're going so it's very important

173

00:09:20,210 --> 00:09:16,860

that we keep our strong muscles while

174

00:09:30,070 --> 00:09:23,269

hi my name is Ainsley I have a question

175

00:09:35,090 --> 00:09:32,990

so Avery if you were outside in the

176
00:09:36,110 --> 00:09:35,100
vacuum of space it would be absolutely

177
00:09:38,090 --> 00:09:36,120
quiet

178
00:09:40,730 --> 00:09:38,100
but inside the International Space

179
00:09:42,350 --> 00:09:40,740
Station it's actually quite loud I'm not

180
00:09:45,230 --> 00:09:42,360
sure if you could hear some of the

181
00:09:47,630 --> 00:09:45,240
background noise here I'm in the U.S lab

182
00:09:50,690 --> 00:09:47,640
right now and you can see there's a ton

183
00:09:53,570 --> 00:09:50,700
of computer systems and cabling and

184
00:09:56,150 --> 00:09:53,580
science experiments everywhere all those

185
00:09:58,070 --> 00:09:56,160
systems run off of processors that

186
00:09:59,990 --> 00:09:58,080
require Cooling and so there's a lot of

187
00:10:02,630 --> 00:10:00,000
fans and a lot of the science

188
00:10:03,490 --> 00:10:02,640

experiments have different gases and

189

00:10:06,050 --> 00:10:03,500

different

190

00:10:08,090 --> 00:10:06,060

mechanics that will run and those are

191

00:10:09,889 --> 00:10:08,100

actually quite loud so there is a bit of

192

00:10:13,730 --> 00:10:09,899

a hum all throughout the International

193

00:10:17,050 --> 00:10:13,740

Space Station 24 hours a day and seven

194

00:10:21,949 --> 00:10:19,490

my name is Cameron and I was wondering

195

00:10:23,750 --> 00:10:21,959

does the temperature change when the sun

196

00:10:30,009 --> 00:10:23,760

is blocked by the Earth since there's no

197

00:10:34,190 --> 00:10:32,329

so you're right because there's no

198

00:10:35,750 --> 00:10:34,200

atmosphere in space you're not going to

199

00:10:38,210 --> 00:10:35,760

have the temperature of air like you do

200

00:10:39,650 --> 00:10:38,220

on Earth however things outside the

201

00:10:42,050 --> 00:10:39,660

space station when they're in direct

202

00:10:43,990 --> 00:10:42,060

sunlight will certainly heat up and

203

00:10:47,150 --> 00:10:44,000

those will heat up to about

204

00:10:48,710 --> 00:10:47,160

248 degrees Fahrenheit so that's much

205

00:10:51,530 --> 00:10:48,720

more than the temperature of boiling

206

00:10:54,110 --> 00:10:51,540

water and when things are in a shade or

207

00:10:56,150 --> 00:10:54,120

in a shadow or on the back side of the

208

00:10:59,930 --> 00:10:56,160

earth then things will cool down to

209

00:11:02,389 --> 00:10:59,940

about minus 148 degrees Fahrenheit so

210

00:11:04,190 --> 00:11:02,399

the fluctuation of temperature of the

211

00:11:08,650 --> 00:11:04,200

objects outside the space station is

212

00:11:13,310 --> 00:11:11,569

hi my name is Hannah and I would like to

213

00:11:19,389 --> 00:11:13,320

know how electricity works in the

214

00:11:26,750 --> 00:11:23,990

hi Hannah so we have four pairs of solar

215

00:11:29,210 --> 00:11:26,760

arrays and these are huge arrays that

216

00:11:30,949 --> 00:11:29,220

extend into space and they collect the

217

00:11:33,230 --> 00:11:30,959

energy from the Sun

218

00:11:35,210 --> 00:11:33,240

these arrays then take that energy and

219

00:11:36,889 --> 00:11:35,220

store it into batteries so when the

220

00:11:39,710 --> 00:11:36,899

space station is in direct sunlight

221

00:11:41,750 --> 00:11:39,720

we're absorbing energy from the Sun and

222

00:11:44,269 --> 00:11:41,760

when we're in Shadow

223

00:11:46,370 --> 00:11:44,279

or an eclipse then we use the energy

224

00:11:48,170 --> 00:11:46,380

that's been stored in the batteries to

225

00:11:50,449 --> 00:11:48,180

power all the lights all the computer

226

00:11:52,670 --> 00:11:50,459

systems and all the fans on board the

227

00:11:54,530 --> 00:11:52,680

space station we're actually upgrading

228

00:11:56,389 --> 00:11:54,540

some of these solar arrays because many

229

00:11:59,150 --> 00:11:56,399

of them have been functional for over 20

230

00:12:00,769 --> 00:11:59,160

years and that's part of the spacewalks

231

00:12:03,530 --> 00:12:00,779

that we've been doing over the past few

232

00:12:05,210 --> 00:12:03,540

months and in fact this Thursday my

233

00:12:08,150 --> 00:12:05,220

crewmate koichi and I will go outside

234

00:12:10,610 --> 00:12:08,160

the space station to set up a mod kit

235

00:12:12,949 --> 00:12:10,620

that will house a new solar array called

236

00:12:18,850 --> 00:12:12,959

an irosa that will be rolled out to

237

00:12:23,870 --> 00:12:22,430

hi my name is Colt crochet and my

238

00:12:25,430 --> 00:12:23,880

question is

239

00:12:27,350 --> 00:12:25,440

does the gravity make it more

240

00:12:35,329 --> 00:12:27,360

comfortable on your body

241

00:12:37,970 --> 00:12:36,590

I don't know if you could say it's more

242

00:12:40,069 --> 00:12:37,980

comfortable things are definitely

243

00:12:42,410 --> 00:12:40,079

different and so when you're in space

244

00:12:44,329 --> 00:12:42,420

you have what's called a fluid shift so

245

00:12:46,910 --> 00:12:44,339

normally all the blood a lot of blood

246

00:12:49,129 --> 00:12:46,920

would be in your legs but because you're

247

00:12:51,230 --> 00:12:49,139

in space and there's no gravity a lot of

248

00:12:53,449 --> 00:12:51,240

that blood and fluid will shift up

249

00:12:56,090 --> 00:12:53,459

towards your face so you can see your

250

00:12:58,850 --> 00:12:56,100

face is a little bit puffier your arms

251
00:13:00,530 --> 00:12:58,860
feel like a little bit puffier you may

252
00:13:02,210 --> 00:13:00,540
feel a little bit congested when you

253
00:13:03,530 --> 00:13:02,220
first get up here but it's not

254
00:13:05,990 --> 00:13:03,540
uncomfortable

255
00:13:09,170 --> 00:13:06,000
some of the nice things are that your

256
00:13:11,329 --> 00:13:09,180
back doesn't have all that force of your

257
00:13:13,850 --> 00:13:11,339
weight all the time when you're on Earth

258
00:13:16,610 --> 00:13:13,860
and your knees from walking around so if

259
00:13:18,710 --> 00:13:16,620
you have maybe like a nagging knee or a

260
00:13:20,389 --> 00:13:18,720
back injury that doesn't hurt you as

261
00:13:23,030 --> 00:13:20,399
much in space so kind of some of those

262
00:13:25,370 --> 00:13:23,040
aches and pains actually go away but it

263
00:13:29,569 --> 00:13:25,380

is quite comfortable living and

264

00:13:38,329 --> 00:13:32,690

my name is Noah and how to be an

265

00:13:44,750 --> 00:13:41,870

hi Noah there are many different ways to

266

00:13:47,810 --> 00:13:44,760

becoming an astronaut the first one is

267

00:13:51,230 --> 00:13:47,820

you need to have a master's degree in a

268

00:13:54,530 --> 00:13:51,240

field of science technology engineering

269

00:13:57,530 --> 00:13:54,540

or math and then beyond that really just

270

00:14:00,470 --> 00:13:57,540

some experience in whatever your job is

271

00:14:03,530 --> 00:14:00,480

and so people that are astronauts some

272

00:14:07,069 --> 00:14:03,540

are military fighter pilots others are

273

00:14:09,170 --> 00:14:07,079

doctors scientists engineers and

274

00:14:11,690 --> 00:14:09,180

teachers and so there are many different

275

00:14:14,090 --> 00:14:11,700

paths to becoming an astronaut but it's

276

00:14:17,030 --> 00:14:14,100

important that you follow your passions

277

00:14:19,490 --> 00:14:17,040

in life and that you do well in school

278

00:14:20,509 --> 00:14:19,500

and that you take care of your body and

279

00:14:22,430 --> 00:14:20,519

if that's something that you're

280

00:14:25,509 --> 00:14:22,440

interested in when you grow up you

281

00:14:29,389 --> 00:14:28,129

hi my name is Kylie and I would like to

282

00:14:35,269 --> 00:14:29,399

know what your most important job is

283

00:14:39,350 --> 00:14:37,490

the most important new job you have

284

00:14:41,990 --> 00:14:39,360

while you're on duty is the thing you're

285

00:14:43,970 --> 00:14:42,000

doing right at that moment there's a lot

286

00:14:45,710 --> 00:14:43,980

of critical operations that we conduct

287

00:14:48,050 --> 00:14:45,720

on board the International Space Station

288

00:14:49,970 --> 00:14:48,060

and then even some operations that you

289

00:14:52,310 --> 00:14:49,980

think oh maybe this isn't that important

290

00:14:54,650 --> 00:14:52,320

or that critical really are because

291

00:14:56,930 --> 00:14:54,660

you're the only person up here and it's

292

00:14:59,870 --> 00:14:56,940

your job to make sure that you have that

293

00:15:02,030 --> 00:14:59,880

operation done just right so whether I'm

294

00:15:05,449 --> 00:15:02,040

conducting a million dollar science

295

00:15:07,790 --> 00:15:05,459

experiment or I'm fixing the toilet or

296

00:15:11,090 --> 00:15:07,800

I'm preparing to go outside and execute

297

00:15:13,430 --> 00:15:11,100

a spacewalk or I'm talking to kids like

298

00:15:15,829 --> 00:15:13,440

you and sharing our mission from space

299

00:15:18,470 --> 00:15:15,839

whatever you're doing at that time is

300

00:15:20,750 --> 00:15:18,480

the most important so it's really we

301

00:15:23,329 --> 00:15:20,760

focus on staying focused and getting

302

00:15:25,550 --> 00:15:23,339

that job done and then when you're done

303

00:15:27,650 --> 00:15:25,560

with that job now you can then divert

304

00:15:30,430 --> 00:15:27,660

your attention and your energy to the

305

00:15:42,069 --> 00:15:33,470

my name is Cash uh

306

00:15:47,449 --> 00:15:44,930

so I actually sleep pretty well in space

307

00:15:49,550 --> 00:15:47,459

I think most astronauts do you don't

308

00:15:51,889 --> 00:15:49,560

have a bed like you're used to back on

309

00:15:53,689 --> 00:15:51,899

Earth because there's no gravity and so

310

00:15:55,790 --> 00:15:53,699

you have a little room that's called

311

00:15:58,670 --> 00:15:55,800

your crew quarters it's about the size

312

00:16:00,769 --> 00:15:58,680

of a large telephone booth and uh you

313

00:16:02,810 --> 00:16:00,779

have a sleeping bag and so what I like

314

00:16:05,509 --> 00:16:02,820

to do is I take a bungee cord and I just

315

00:16:07,370 --> 00:16:05,519

velcro myself to the wall and that just

316

00:16:09,650 --> 00:16:07,380

keeps me from floating around too much

317

00:16:12,590 --> 00:16:09,660

and and bonking my head into the ceiling

318

00:16:14,569 --> 00:16:12,600

and then you just kind of float in space

319

00:16:17,389 --> 00:16:14,579

like this and sleep and it's actually

320

00:16:20,150 --> 00:16:17,399

quite comfortable because you don't have

321

00:16:22,430 --> 00:16:20,160

the sunrise and the sunset it can affect

322

00:16:24,530 --> 00:16:22,440

your circadian rhythm so we have lights

323

00:16:27,350 --> 00:16:24,540

around the space station that we can

324

00:16:29,269 --> 00:16:27,360

change and so when it's getting close to

325

00:16:31,610 --> 00:16:29,279

the evening time you can change those

326

00:16:33,530 --> 00:16:31,620

lights to give your body the same kind

327

00:16:35,810 --> 00:16:33,540

of cues that you would have on Earth

328

00:16:39,889 --> 00:16:35,820

with the sun setting and some of that

329

00:16:41,689 --> 00:16:39,899

bright light going away Into Darkness

330

00:16:43,189 --> 00:16:41,699

hi my name is Savannah and I was

331

00:16:45,889 --> 00:16:43,199

wondering why you don't use the methane

332

00:16:50,930 --> 00:16:45,899

gas generated by the sabatier system for

333

00:16:56,449 --> 00:16:53,749

So currently on board we don't have any

334

00:16:59,150 --> 00:16:56,459

hardware that uses methane gas as a

335

00:17:01,870 --> 00:16:59,160

supply the sapatu air is a technology

336

00:17:05,390 --> 00:17:01,880

demonstration and so it's trying to

337

00:17:07,490 --> 00:17:05,400

develop and understand how we can create

338

00:17:09,890 --> 00:17:07,500

life support systems that are

339

00:17:11,809 --> 00:17:09,900

self-contained and in fact we have

340

00:17:15,110 --> 00:17:11,819

advanced systems that will be coming up

341

00:17:17,390 --> 00:17:15,120

after sabadier to try to improve that

342

00:17:19,789 --> 00:17:17,400

technology to make it more efficient and

343

00:17:21,890 --> 00:17:19,799

to also make it smaller and so we can

344

00:17:24,949 --> 00:17:21,900

use that on board the space station and

345

00:17:27,890 --> 00:17:24,959

potentially for spacecraft that explore

346

00:17:32,210 --> 00:17:27,900

into deep space and perhaps from

347

00:17:36,830 --> 00:17:34,610

hi my name is Riley and I was wondering

348

00:17:43,570 --> 00:17:36,840

if the air in the International Space

349

00:17:48,650 --> 00:17:46,130

so we control the air in the

350

00:17:50,930 --> 00:17:48,660

International Space Station to keep our

351
00:17:52,789 --> 00:17:50,940
bodies comfortable and also to keep all

352
00:17:55,010 --> 00:17:52,799
the electronics that we have on board

353
00:17:57,350 --> 00:17:55,020
cool and operating at the correct

354
00:18:00,230 --> 00:17:57,360
temperatures so there's a lot of fans

355
00:18:02,029 --> 00:18:00,240
that are moving air around we have

356
00:18:04,370 --> 00:18:02,039
essentially air conditioning systems

357
00:18:06,890 --> 00:18:04,380
that will scrub the humidity out of the

358
00:18:09,650 --> 00:18:06,900
air and also control the temperature so

359
00:18:12,470 --> 00:18:09,660
right now it's set to about a 72 percent

360
00:18:14,450 --> 00:18:12,480
and the humidity is quite low so that

361
00:18:16,310 --> 00:18:14,460
keeps it comfortable and it's also good

362
00:18:18,830 --> 00:18:16,320
for all the computer equipment on board

363
00:18:21,289 --> 00:18:18,840

the space station

364

00:18:22,669 --> 00:18:21,299

hey my name is Sequoia Johnson and my

365

00:18:28,250 --> 00:18:22,679

question is what are you doing on your

366

00:18:33,289 --> 00:18:30,710

well our mission is about five to six

367

00:18:35,450 --> 00:18:33,299

months long and we have over 200 science

368

00:18:37,970 --> 00:18:35,460

experiments that we're conducting inside

369

00:18:40,310 --> 00:18:37,980

and outside of the space station we're

370

00:18:42,230 --> 00:18:40,320

executing space walks to upgrade those

371

00:18:45,909 --> 00:18:42,240

solar arrays on the outside of the space

372

00:18:48,169 --> 00:18:45,919

station in fact today my crewmate Josh

373

00:18:50,450 --> 00:18:48,179

installed this really cool science

374

00:18:54,409 --> 00:18:50,460

experiment called the bio fabrication

375

00:18:57,169 --> 00:18:54,419

facility this is a facility that is

376

00:19:01,190 --> 00:18:57,179

literally printing 3D printing human

377

00:19:03,830 --> 00:19:01,200

cells so it first flew back in 2019 and

378

00:19:07,190 --> 00:19:03,840

it was able to print the knee meniscus

379

00:19:08,810 --> 00:19:07,200

and also some human heart cells and we

380

00:19:11,090 --> 00:19:08,820

learned a lot from that experiment it

381

00:19:13,549 --> 00:19:11,100

was flown back down to earth some

382

00:19:15,830 --> 00:19:13,559

upgrades and modifications were made and

383

00:19:17,930 --> 00:19:15,840

then it just flew again and we installed

384

00:19:19,789 --> 00:19:17,940

it today so again we're looking at

385

00:19:21,890 --> 00:19:19,799

printing these human cells and trying to

386

00:19:24,169 --> 00:19:21,900

determine if we can print them at a

387

00:19:26,390 --> 00:19:24,179

better quality than you can on planet

388

00:19:29,870 --> 00:19:26,400

Earth because you don't have the effects

389

00:19:32,570 --> 00:19:29,880

of gravity the a game eventually is to

390

00:19:34,430 --> 00:19:32,580

then be able to print human organs and

391

00:19:36,650 --> 00:19:34,440

in fact they're looking to do trials in

392

00:19:40,310 --> 00:19:36,660

animals within the decade so it's a very

393

00:19:43,970 --> 00:19:42,289

hi my name is Bethany

394

00:19:45,830 --> 00:19:43,980

um if you're orbiting Earth how do you

395

00:19:52,789 --> 00:19:45,840

know which way is north east south and

396

00:19:57,710 --> 00:19:54,710

so while you're inside the space station

397

00:20:00,650 --> 00:19:57,720

you really can't tell if you're upside

398

00:20:02,690 --> 00:20:00,660

down or on the wall it really feels the

399

00:20:06,230 --> 00:20:02,700

same to your body there's there's no

400

00:20:08,810 --> 00:20:06,240

difference at all and so generally we

401
00:20:11,210 --> 00:20:08,820
use all the ceiling the walls the floor

402
00:20:14,090 --> 00:20:11,220
everything of the space station but we

403
00:20:15,470 --> 00:20:14,100
have labels that are written as if you

404
00:20:17,090 --> 00:20:15,480
were on the deck of the space station

405
00:20:19,789 --> 00:20:17,100
and that helps you kind of Orient

406
00:20:21,529 --> 00:20:19,799
yourself if you're trying to do some

407
00:20:23,630 --> 00:20:21,539
type of activity and so you'll see a lot

408
00:20:26,450 --> 00:20:23,640
of the things are situated like you're

409
00:20:28,669 --> 00:20:26,460
on the deck and looking forward but to

410
00:20:30,950 --> 00:20:28,679
your body it doesn't matter now as far

411
00:20:34,010 --> 00:20:30,960
as relative to Earth really you can look

412
00:20:36,529 --> 00:20:34,020
at our navigation systems or look out

413
00:20:38,750 --> 00:20:36,539

the window we have a module called the

414

00:20:40,789 --> 00:20:38,760

cupola which has seven windows that are

415

00:20:42,169 --> 00:20:40,799

pointed down towards Earth and so you

416

00:20:45,230 --> 00:20:42,179

can look out and you can see planet

417

00:20:47,690 --> 00:20:45,240

Earth and then you can look at geography

418

00:20:50,870 --> 00:20:47,700

to tell which way is north south east

419

00:20:57,590 --> 00:20:53,810

hi my name's hasten and I was just

420

00:21:00,470 --> 00:20:57,600

wondering when the space station goes

421

00:21:03,289 --> 00:21:00,480

out of orbit and you start losing

422

00:21:09,909 --> 00:21:03,299

gravity's pull at what rate do you lose it

423

00:21:16,310 --> 00:21:12,529

so really it's dependent on your

424

00:21:19,190 --> 00:21:16,320

altitude above Earth and so we are about

425

00:21:23,270 --> 00:21:19,200

250 miles above the planet and we're

426
00:21:25,130 --> 00:21:23,280
traveling at 17 500 miles per hour and

427
00:21:27,169 --> 00:21:25,140
that is the correct speed in order to

428
00:21:28,789 --> 00:21:27,179
keep us in orbit now there is a little

429
00:21:31,490 --> 00:21:28,799
bit of atmosphere and a little bit of

430
00:21:33,590 --> 00:21:31,500
drag so we are continuously decreasing

431
00:21:37,250 --> 00:21:33,600
that altitude but we do what's called a

432
00:21:38,810 --> 00:21:37,260
reboost where we fire the thrusters to

433
00:21:41,630 --> 00:21:38,820
boost the altitude of the International

434
00:21:43,909 --> 00:21:41,640
Space Station you can think of it kind

435
00:21:46,490 --> 00:21:43,919
of like a good analogy is if we shot a

436
00:21:48,169 --> 00:21:46,500
cannon say from the top of a hill the

437
00:21:50,149 --> 00:21:48,179
faster the velocity of that Cannonball

438
00:21:51,409 --> 00:21:50,159

the farther that it would go and

439

00:21:55,730 --> 00:21:51,419

eventually if you're shooting that

440

00:21:57,950 --> 00:21:55,740

Canyon that uh Cannonball fast enough as

441

00:21:59,390 --> 00:21:57,960

it falls towards Earth the curvature of

442

00:22:01,610 --> 00:21:59,400

the Earth is going to match that

443

00:22:04,250 --> 00:22:01,620

Cannonball and it will continue to go

444

00:22:06,770 --> 00:22:04,260

around so we are actually always

445

00:22:09,169 --> 00:22:06,780

continuously falling back towards Earth

446

00:22:11,630 --> 00:22:09,179

we're just happy to do it at the same

447

00:22:14,810 --> 00:22:11,640

rate as a Earth's curves and that's what

448

00:22:20,210 --> 00:22:18,230

this has been an amazing opportunity for

449

00:22:22,310 --> 00:22:20,220

students and tribal members to get a

450

00:22:25,549 --> 00:22:22,320

first-hand look at what scientists

451

00:22:28,010 --> 00:22:25,559

Physicians and Educators do in space and

452

00:22:30,230 --> 00:22:28,020

Inspire the next generation of students

453

00:22:32,390 --> 00:22:30,240

to pursue stem careers

454

00:22:35,510 --> 00:22:32,400

we're excited for this opportunity for

455

00:22:43,970 --> 00:22:35,520

our students and the future of stem

456

00:22:43,980 --> 00:22:47,630

thank you

457

00:22:56,930 --> 00:22:49,850

station this is Houston ACR that

458

00:23:00,289 --> 00:22:59,090

thank you to all participants station we