



1
00:00:07,829 --> 00:00:02,550
station this is houston are you ready

2
00:00:07,839 --> 00:00:11,350
i think we're ready for the event

3
00:00:23,750 --> 00:00:14,070
wgby tv this is mission houston control

4
00:00:23,760 --> 00:00:28,550
i hear you loud and clear

5
00:00:31,910 --> 00:00:30,630
great katie it's such an honor to have

6
00:01:13,270 --> 00:00:31,920
you

7
00:01:13,280 --> 00:01:18,789
can we proceed with the questions

8
00:01:21,670 --> 00:01:20,469
i am ready

9
00:01:26,550 --> 00:01:21,680
great

10
00:01:28,789 --> 00:01:26,560
as a veteran of two shuttle missions can

11
00:01:29,910 --> 00:01:28,799
you talk about how different it was

12
00:01:31,910 --> 00:01:29,920
between

13
00:01:33,990 --> 00:01:31,920

your missions with the space shuttles

14

00:01:41,590 --> 00:01:34,000

and going aboard the international space

15

00:01:53,109 --> 00:01:44,789

well the soyuz fits three people

16

00:01:57,670 --> 00:01:54,950

sorry we're just uh configuring audio

17

00:01:58,550 --> 00:01:57,680

here so i'll start again

18

00:02:00,709 --> 00:01:58,560

uh

19

00:02:02,870 --> 00:02:00,719

the the soyuz is a smaller vehicle and

20

00:02:05,990 --> 00:02:02,880

it really just barely fits three people

21

00:02:07,910 --> 00:02:06,000

and so when we're in there um

22

00:02:09,270 --> 00:02:07,920

it's uh we're sitting pretty close and

23

00:02:10,949 --> 00:02:09,280

we're very close to the outside of the

24

00:02:12,550 --> 00:02:10,959

vessel so i would say you know in the

25

00:02:14,309 --> 00:02:12,560

space shuttle you feel like you're in a

26

00:02:16,790 --> 00:02:14,319

spaceship and you're on your way to

27

00:02:18,630 --> 00:02:16,800

space and uh in the soyuz you feel like

28

00:02:20,710 --> 00:02:18,640

you are the spaceship and you are

29

00:02:22,390 --> 00:02:20,720

hurtling into space so it really feels a

30

00:02:24,309 --> 00:02:22,400

lot closer i mean just about three

31

00:02:25,830 --> 00:02:24,319

inches from your right foot is the

32

00:02:28,070 --> 00:02:25,840

outside of the hull so it's pretty

33

00:02:30,630 --> 00:02:28,080

exciting

34

00:02:37,910 --> 00:02:30,640

what's been the biggest surprise so far

35

00:02:44,150 --> 00:02:41,350

well i i'm both surprised at how quickly

36

00:02:46,949 --> 00:02:44,160

we get used to microgravity it just you

37

00:02:49,589 --> 00:02:46,959

know floating around and just being able

38

00:02:51,190 --> 00:02:49,599

to you know move with just a few fingers

39

00:02:52,470 --> 00:02:51,200

controlling our movements and so how

40

00:02:55,350 --> 00:02:52,480

quickly we get used to it and at the

41

00:02:57,350 --> 00:02:55,360

same time i'm surprised that i'm always

42

00:02:59,670 --> 00:02:57,360

learning new things and new ways to do

43

00:03:01,350 --> 00:02:59,680

things in a in a zero-g environment you

44

00:03:04,390 --> 00:03:01,360

know and realizing new possibilities

45

00:03:10,710 --> 00:03:04,400

that i hadn't actually anticipated so i

46

00:03:14,949 --> 00:03:12,550

i lost her

47

00:03:16,229 --> 00:03:14,959

sorry about that

48

00:03:17,990 --> 00:03:16,239

hey that's okay you know it's just a

49

00:03:18,949 --> 00:03:18,000

busy day here and we had a lot to do a

50

00:03:20,790 --> 00:03:18,959

lot of

51
00:03:22,470 --> 00:03:20,800
you know things that needed done at a

52
00:03:24,390 --> 00:03:22,480
certain time and this is just the way it

53
00:03:26,309 --> 00:03:24,400
is sometimes i think we just adjusted

54
00:03:28,229 --> 00:03:26,319
the lighting as well

55
00:03:30,070 --> 00:03:28,239
i understand and i know it's been

56
00:03:31,670 --> 00:03:30,080
extremely busy aboard the space station

57
00:03:36,789 --> 00:03:31,680
can you talk about some of the work that

58
00:03:41,190 --> 00:03:39,110
it's been a really exciting time because

59
00:03:43,509 --> 00:03:41,200
we've had several supply vehicles in

60
00:03:45,350 --> 00:03:43,519
fact from all the international partners

61
00:03:47,670 --> 00:03:45,360
it's kind of normal or you know not

62
00:03:49,110 --> 00:03:47,680
every day but every few months a russian

63
00:03:51,350 --> 00:03:49,120

progress vehicle will come up here a

64

00:03:54,229 --> 00:03:51,360

russian supply vehicle and we'll bring

65

00:03:56,789 --> 00:03:54,239

supplies and take away trash

66

00:04:01,030 --> 00:03:56,799

but now this year we have both the

67

00:04:03,910 --> 00:04:01,040

japanese supply vehicle the htv and also

68

00:04:06,789 --> 00:04:03,920

the european automated transfer vehicle

69

00:04:09,030 --> 00:04:06,799

which is a european supply vehicle and

70

00:04:11,030 --> 00:04:09,040

until yesterday we had all three of

71

00:04:13,429 --> 00:04:11,040

those here on the space station at the

72

00:04:15,509 --> 00:04:13,439

same time and what that means for us as

73

00:04:17,509 --> 00:04:15,519

a crew is that there's a lot of loading

74

00:04:19,270 --> 00:04:17,519

and unloading and organizing of new

75

00:04:20,469 --> 00:04:19,280

supplies and actually organizing of

76

00:04:22,870 --> 00:04:20,479

things that we want to get off the

77

00:04:25,270 --> 00:04:22,880

station and in fact the htv which we

78

00:04:27,830 --> 00:04:25,280

just released yesterday um with the

79

00:04:30,310 --> 00:04:27,840

robotic arm paulo nespoli and i

80

00:04:32,710 --> 00:04:30,320

were operating the robotic arm and so

81

00:04:34,469 --> 00:04:32,720

literally we had we take the japanese

82

00:04:37,670 --> 00:04:34,479

supply vehicle the htv off of the

83

00:04:40,230 --> 00:04:37,680

station and hold it out into free space

84

00:04:42,629 --> 00:04:40,240

release it with the robotic arm and then

85

00:04:44,390 --> 00:04:42,639

it actually sends we send commands to it

86

00:04:46,070 --> 00:04:44,400

and it actually backs itself slowly away

87

00:04:48,150 --> 00:04:46,080

from the station and then we'll enter

88

00:04:50,710 --> 00:04:48,160

re-enter the earth's atmosphere just

89

00:04:52,469 --> 00:04:50,720

tomorrow so it's been a very exciting

90

00:04:53,830 --> 00:04:52,479

time to have these vehicles here and

91

00:04:56,469 --> 00:04:53,840

especially with the japanese supply

92

00:04:58,230 --> 00:04:56,479

vehicle it has a very large hatchway

93

00:05:00,310 --> 00:04:58,240

which means we could put very large

94

00:05:02,870 --> 00:05:00,320

pieces of equipment or things that we

95

00:05:04,550 --> 00:05:02,880

don't need aboard the station and that

96

00:05:06,469 --> 00:05:04,560

that's been really valuable to clear out

97

00:05:07,749 --> 00:05:06,479

space for new experiments and new

98

00:05:09,590 --> 00:05:07,759

supplies that we do need for the

99

00:05:12,070 --> 00:05:09,600

lifetime of the station

100

00:05:13,909 --> 00:05:12,080

so what is it like using that robotic

101

00:05:19,830 --> 00:05:13,919

arm to reach out and actually grab a

102

00:05:23,510 --> 00:05:21,749

well it's not something we do every day

103

00:05:25,189 --> 00:05:23,520

and in fact from the space station here

104

00:05:27,110 --> 00:05:25,199

we've only done it twice this was the

105

00:05:29,430 --> 00:05:27,120

second time where i got to be at the

106

00:05:31,029 --> 00:05:29,440

controls of the robotic arm and actually

107

00:05:33,430 --> 00:05:31,039

reach out the the japanese supply

108

00:05:35,350 --> 00:05:33,440

vehicle was hovering uh just about you

109

00:05:37,270 --> 00:05:35,360

know a few feet from the space station

110

00:05:39,270 --> 00:05:37,280

and reach out and and capture it with

111

00:05:41,189 --> 00:05:39,280

the robotic arm and you know i've

112

00:05:42,710 --> 00:05:41,199

practiced that a number of times you

113

00:05:44,310 --> 00:05:42,720

know and you know certainly all the

114

00:05:46,550 --> 00:05:44,320

times i was required to practice and

115

00:05:49,029 --> 00:05:46,560

probably a bunch more after that and so

116

00:05:52,310 --> 00:05:49,039

i knew i could do it especially if that

117

00:05:53,749 --> 00:05:52,320

vehicle was pretty well behaved but um

118

00:05:55,110 --> 00:05:53,759

at the same time you know to do

119

00:05:57,670 --> 00:05:55,120

something like this you know you get a

120

00:05:59,270 --> 00:05:57,680

little bit nervous at least i do and and

121

00:06:00,790 --> 00:05:59,280

part of you kind of wonders you know are

122

00:06:02,629 --> 00:06:00,800

you going to make a mistake and the way

123

00:06:04,629 --> 00:06:02,639

that i get over that kind of nervousness

124

00:06:06,790 --> 00:06:04,639

is just to say you know i've done all

125

00:06:07,590 --> 00:06:06,800

the practicing that i can do

126

00:06:08,790 --> 00:06:07,600

and

127

00:06:10,309 --> 00:06:08,800

so

128

00:06:12,629 --> 00:06:10,319

i've done all the practicing that i can

129

00:06:15,189 --> 00:06:12,639

do and so um i'm just going to have to

130

00:06:20,070 --> 00:06:17,909

april 12th marks the 50th anniversary of

131

00:06:22,150 --> 00:06:20,080

manned space flight and i'm curious what

132

00:06:24,230 --> 00:06:22,160

does it feel like to be up in space at

133

00:06:28,150 --> 00:06:24,240

this sort of historic point point in

134

00:06:28,160 --> 00:06:34,150

instead by just a minute wgyb

135

00:06:39,430 --> 00:06:37,189

and houston uh is it should we move to

136

00:06:44,950 --> 00:06:39,440

two for this continuation of this po

137

00:06:44,960 --> 00:07:00,309

copy

138

00:07:00,319 --> 00:07:09,430

okay

139

00:07:09,440 --> 00:07:12,710

what

140

00:07:16,550 --> 00:07:15,270

in wgyb i know um this is to tape and so

141

00:07:17,909 --> 00:07:16,560

i knew you could be a little bit

142

00:07:19,189 --> 00:07:17,919

forgiving we're just trying to get some

143

00:07:20,710 --> 00:07:19,199

things straightened out you know it's

144

00:07:22,230 --> 00:07:20,720

actually one of the logistical things up

145

00:07:24,469 --> 00:07:22,240

here is that we basically have two

146

00:07:26,230 --> 00:07:24,479

channels to talk to the ground and often

147

00:07:28,710 --> 00:07:26,240

you know there's six of us on board here

148

00:07:30,950 --> 00:07:28,720

most of the time and we're each doing

149

00:07:32,870 --> 00:07:30,960

you know six different things and so it

150

00:07:34,230 --> 00:07:32,880

would be nicer to have more channels but

151

00:07:35,990 --> 00:07:34,240

that's one of the capabilities that

152

00:07:37,830 --> 00:07:36,000

we're working on for the space station

153

00:07:39,350 --> 00:07:37,840

because we are now doing so much more

154

00:07:40,309 --> 00:07:39,360

work up here

155

00:07:42,550 --> 00:07:40,319

yeah

156

00:07:45,029 --> 00:07:42,560

so i think your question was about the

157

00:07:46,790 --> 00:07:45,039

the 50th anniversary was that correct i

158

00:07:48,629 --> 00:07:46,800

heard most of it all right i did hear

159

00:07:49,670 --> 00:07:48,639

the question if you're ready

160

00:07:50,550 --> 00:07:49,680

sure

161

00:07:51,909 --> 00:07:50,560

if you want to go ahead and answer it

162

00:07:53,749 --> 00:07:51,919

that'd be great just about the 50th

163

00:07:59,670 --> 00:07:53,759

anniversary what it feels like to be up

164

00:08:05,029 --> 00:08:02,710

somehow when when we have anniversaries

165

00:08:07,110 --> 00:08:05,039

it's i think pretty special because it

166

00:08:09,350 --> 00:08:07,120

it makes us the fact that it's been

167

00:08:12,790 --> 00:08:09,360

five years or ten years or in this case

168

00:08:15,270 --> 00:08:12,800

50 years five decades that people have

169

00:08:18,070 --> 00:08:15,280

been going to space and started by yuri

170

00:08:20,550 --> 00:08:18,080

gagarin with the very first flight

171

00:08:22,230 --> 00:08:20,560

when when we have you know sort of even

172

00:08:24,150 --> 00:08:22,240

numbers like this that cause us to think

173

00:08:27,029 --> 00:08:24,160

about it i think it's great because it

174

00:08:29,350 --> 00:08:27,039

makes us realize how far we've come it

175

00:08:32,230 --> 00:08:29,360

also reminds us of the goals that we

176

00:08:33,909 --> 00:08:32,240

have had i mean we live in a universe

177

00:08:36,230 --> 00:08:33,919

granted we live on planet earth but

178

00:08:38,550 --> 00:08:36,240

planet earth is part of a universe and

179

00:08:41,430 --> 00:08:38,560

it's our neighborhood it's our it's our

180

00:08:43,829 --> 00:08:41,440

i think our path to explore it and the

181

00:08:46,070 --> 00:08:43,839

fact that we are on a path and that we

182

00:08:47,990 --> 00:08:46,080

have come this far the fact that i can

183

00:08:50,230 --> 00:08:48,000

you know call home from space and it's

184

00:08:52,470 --> 00:08:50,240

considered to be a normal thing i think

185

00:08:55,190 --> 00:08:52,480

that we've really come a very long way

186

00:08:57,110 --> 00:08:55,200

and and uh i'll tell you that i am very

187

00:08:59,350 --> 00:08:57,120

pleased and and honored to be up here

188

00:09:01,750 --> 00:08:59,360

during a time when when everybody takes

189

00:09:04,150 --> 00:09:01,760

a minute just to think about uh really

190

00:09:06,150 --> 00:09:04,160

how special our job is and how great it

191

00:09:07,990 --> 00:09:06,160

is that real people are living in and

192

00:09:11,030 --> 00:09:08,000

working and doing really interesting

193

00:09:12,710 --> 00:09:11,040

science experiments in space every day

194

00:09:14,550 --> 00:09:12,720

katie it's a great honor to speak with

195

00:09:15,990 --> 00:09:14,560

you and thank you so much for your time

196

00:09:20,150 --> 00:09:16,000

today and the hard work you're doing up

197

00:09:24,710 --> 00:09:22,070

it's really nice to to talk with you too

198

00:09:27,910 --> 00:09:24,720

and i know that uh um you know we i

199

00:09:29,990 --> 00:09:27,920

don't know we've uh had a great uh um

200

00:09:32,070 --> 00:09:30,000

in mr massachusetts uh it's just been

201
00:09:33,990 --> 00:09:32,080
great to have your station on board um

202
00:09:35,829 --> 00:09:34,000
for the longest time and uh in fact i

203
00:09:57,670 --> 00:09:35,839
listen to the news up here so i get to

204
00:10:05,110 --> 00:09:59,750
this is springfield technical community

205
00:10:21,829 --> 00:10:08,230
springfield i hear you loud and clear

206
00:10:25,110 --> 00:10:23,590
great you know i'm really happy to be

207
00:10:26,790 --> 00:10:25,120
with you today

208
00:10:29,110 --> 00:10:26,800
i know it's taken a lot of organization

209
00:10:30,790 --> 00:10:29,120
on the part of a lot of different folks

210
00:10:32,389 --> 00:10:30,800
to organize this event and i'm just

211
00:10:34,550 --> 00:10:32,399
really thrilled that we're doing this in

212
00:10:37,030 --> 00:10:34,560
massachusetts i've had some beautiful

213
00:10:39,350 --> 00:10:37,040

views of massachusetts during my time up

214

00:10:41,269 --> 00:10:39,360

here in fact usually about twice a day i

215

00:10:48,550 --> 00:10:41,279

can see massachusetts and

216

00:10:53,509 --> 00:10:51,670

i'm tamera rivera from mcMahon have you

217

00:10:59,990 --> 00:10:53,519

ever made a mistake but then work

218

00:11:04,470 --> 00:11:02,069

you know we certainly have made mistakes

219

00:11:06,470 --> 00:11:04,480

all of us up here individually and as a

220

00:11:08,550 --> 00:11:06,480

team we've made mistakes and that's

221

00:11:09,990 --> 00:11:08,560

really why we practice you know one

222

00:11:11,829 --> 00:11:10,000

thing is to learn about the mistake

223

00:11:14,069 --> 00:11:11,839

itself and then the other thing is to

224

00:11:17,269 --> 00:11:14,079

understand you know how we as people

225

00:11:19,110 --> 00:11:17,279

react to that and how we react as a team

226

00:11:21,030 --> 00:11:19,120

and what i really like about the people

227

00:11:23,269 --> 00:11:21,040

that i work with you know both appear in

228

00:11:24,710 --> 00:11:23,279

space and down on the ground is that you

229

00:11:26,389 --> 00:11:24,720

know we're all upset when we make a

230

00:11:29,269 --> 00:11:26,399

mistake we don't like it we wish we

231

00:11:31,509 --> 00:11:29,279

didn't and we but what we're doing our

232

00:11:33,269 --> 00:11:31,519

job up here is more important than

233

00:11:35,269 --> 00:11:33,279

yelling at somebody for making a mistake

234

00:11:37,670 --> 00:11:35,279

or being mad at them about it or being

235

00:11:39,829 --> 00:11:37,680

mad at yourself you just our job is so

236

00:11:42,230 --> 00:11:39,839

important and important to do correctly

237

00:11:44,389 --> 00:11:42,240

and safely that we just have to put that

238

00:11:45,670 --> 00:11:44,399

behind us and get on with the work and

239

00:11:50,870 --> 00:11:45,680

and i really like that about the people

240

00:11:55,670 --> 00:11:52,350

hi my name

241

00:12:03,430 --> 00:11:55,680

is school well a dog or other animal

242

00:12:07,509 --> 00:12:05,750

well i don't know about uh

243

00:12:09,030 --> 00:12:07,519

they they could come here but i will

244

00:12:11,990 --> 00:12:09,040

tell you it's taken me a little while to

245

00:12:14,230 --> 00:12:12,000

get used to living up here in fact it's

246

00:12:16,069 --> 00:12:14,240

funny we we do a lot of walking around

247

00:12:17,990 --> 00:12:16,079

you know with our hands in fact i was

248

00:12:19,750 --> 00:12:18,000

just doing a training exercise where i

249

00:12:21,269 --> 00:12:19,760

had to carry around our pressure reading

250

00:12:22,389 --> 00:12:21,279

gauge and it's a big thing about this

251

00:12:23,269 --> 00:12:22,399

big

252

00:12:25,590 --> 00:12:23,279

and

253

00:12:27,670 --> 00:12:25,600

um my partner up here in space uh

254

00:12:29,190 --> 00:12:27,680

pointed out that it would actually be

255

00:12:30,790 --> 00:12:29,200

easier for me to carry this thing around

256

00:12:32,629 --> 00:12:30,800

in the modules if i actually just kind

257

00:12:34,150 --> 00:12:32,639

of like you know hooked it between my

258

00:12:36,389 --> 00:12:34,160

knees here and then i could just carry

259

00:12:38,790 --> 00:12:36,399

it around and i would have my hands free

260

00:12:40,790 --> 00:12:38,800

to make sure i could find a path and not

261

00:12:42,790 --> 00:12:40,800

get off balance as we tried to go

262

00:12:44,470 --> 00:12:42,800

quickly through the modules so it's been

263

00:12:46,629 --> 00:12:44,480

hard for us to learn how to move around

264

00:12:48,550 --> 00:12:46,639

up here and but i imagine that dogs and

265

00:12:50,550 --> 00:12:48,560

cats and all the other creatures would

266

00:12:52,550 --> 00:12:50,560

adapt as well we actually bring some of

267

00:12:53,910 --> 00:12:52,560

them up here to do experiments we've had

268

00:12:55,030 --> 00:12:53,920

mice up here

269

00:12:57,910 --> 00:12:55,040

we've had

270

00:13:00,310 --> 00:12:57,920

all sorts of insects up here and

271

00:13:02,069 --> 00:13:00,320

fish and worms in fact we have worms up

272

00:13:04,550 --> 00:13:02,079

here right now doing experiments and the

273

00:13:06,389 --> 00:13:04,560

reason is that all of these creatures

274

00:13:08,629 --> 00:13:06,399

have some things in common with us as

275

00:13:11,509 --> 00:13:08,639

people and we can learn about what

276

00:13:13,430 --> 00:13:11,519

affects these the the worms or whatever

277

00:13:15,190 --> 00:13:13,440

insects or animals we're talking about

278

00:13:17,269 --> 00:13:15,200

what affects them up in space and it

279

00:13:19,829 --> 00:13:17,279

helps us understand what affects people

280

00:13:21,430 --> 00:13:19,839

up in space so that we can then go on to

281

00:13:23,590 --> 00:13:21,440

really unders to really know what's

282

00:13:25,590 --> 00:13:23,600

going to happen when we are further away

283

00:13:33,110 --> 00:13:25,600

from home and spend a long time away

284

00:13:37,590 --> 00:13:35,190

hi my name is manuel ortiz from stumble

285

00:13:39,350 --> 00:13:37,600

academy my question is how do you keep

286

00:13:41,509 --> 00:13:39,360

in touch with your family and how does

287

00:13:48,389 --> 00:13:41,519

your family deal with you being in space

288

00:13:53,030 --> 00:13:50,230

well emmanuel um

289

00:13:55,590 --> 00:13:53,040

i i get to call home so to speak um i i

290

00:13:58,470 --> 00:13:55,600

call home i would say almost every day

291

00:14:00,389 --> 00:13:58,480

i've been up here just about 102 days

292

00:14:02,710 --> 00:14:00,399

now and i think i've only missed three

293

00:14:04,790 --> 00:14:02,720

days in in terms of calling home because

294

00:14:06,310 --> 00:14:04,800

we have an internet protocol phone that

295

00:14:08,710 --> 00:14:06,320

we can use when we have the right

296

00:14:10,870 --> 00:14:08,720

satellite coverage so somehow i find

297

00:14:12,470 --> 00:14:10,880

some time to to call i think the bad

298

00:14:14,150 --> 00:14:12,480

thing is that they can't call me and

299

00:14:15,910 --> 00:14:14,160

that makes it a little bit you know hard

300

00:14:17,829 --> 00:14:15,920

for them to always be the ones who get

301
00:14:19,590 --> 00:14:17,839
called and if the satellite coverage

302
00:14:21,030 --> 00:14:19,600
ends then you know i can't really call

303
00:14:23,350 --> 00:14:21,040
back right away and they've gotten a

304
00:14:24,790 --> 00:14:23,360
little bit used to that but

305
00:14:26,150 --> 00:14:24,800
i think what you know when you're a

306
00:14:29,430 --> 00:14:26,160
family and when you have a close

307
00:14:31,030 --> 00:14:29,440
relationship you just learn how to

308
00:14:33,269 --> 00:14:31,040
be happy about the communication that

309
00:14:34,790 --> 00:14:33,279
you do have and so we we try to talk

310
00:14:37,350 --> 00:14:34,800
about our days and how our days are

311
00:14:39,269 --> 00:14:37,360
going um i read to my son and read

312
00:14:40,710 --> 00:14:39,279
stories just like i would at home

313
00:14:42,150 --> 00:14:40,720

and we just try to make the most of the

314

00:14:44,550 --> 00:14:42,160

communication that we have we also have

315

00:14:50,550 --> 00:14:44,560

video conferences once a week and those

316

00:14:55,350 --> 00:14:52,870

hi my name is laura ernst from mcMahon

317

00:14:57,189 --> 00:14:55,360

school how does the is has

318

00:15:02,470 --> 00:14:57,199

helped prepare astronauts for a future

319

00:15:06,550 --> 00:15:04,389

learn in lots of different ways we're

320

00:15:08,550 --> 00:15:06,560

learning about you know sort of the

321

00:15:10,069 --> 00:15:08,560

equipment side of things about how to

322

00:15:11,910 --> 00:15:10,079

run a spaceship and how to make sure

323

00:15:13,030 --> 00:15:11,920

that a spaceship runs i'll give you an

324

00:15:14,949 --> 00:15:13,040

example

325

00:15:17,829 --> 00:15:14,959

we can't bring all the water that we

326

00:15:20,230 --> 00:15:17,839

need up here and so we recycle our water

327

00:15:21,750 --> 00:15:20,240

and i know that sounds kind of yucky and

328

00:15:23,350 --> 00:15:21,760

actually i guess it is kind of yucky but

329

00:15:25,110 --> 00:15:23,360

i'll tell you that when i go to the the

330

00:15:26,389 --> 00:15:25,120

water dispenser and get water it tastes

331

00:15:28,629 --> 00:15:26,399

beautiful and clean

332

00:15:31,110 --> 00:15:28,639

but we are actually recycling

333

00:15:33,430 --> 00:15:31,120

all of our sweat all of our urine all of

334

00:15:34,949 --> 00:15:33,440

our you know old water and and that

335

00:15:37,189 --> 00:15:34,959

seems to work out pretty well but i'll

336

00:15:37,990 --> 00:15:37,199

tell you that the recycling system has

337

00:15:42,550 --> 00:15:38,000

been

338

00:15:44,629 --> 00:15:42,560

expected when we designed it and so

339

00:15:46,870 --> 00:15:44,639

we're learning lessons about how to make

340

00:15:48,949 --> 00:15:46,880

a water recycling system so there's that

341

00:15:51,430 --> 00:15:48,959

equipment side of things and then we're

342

00:15:54,230 --> 00:15:51,440

learning about you know how people react

343

00:15:55,910 --> 00:15:54,240

to being up in space we actually lose

344

00:15:57,590 --> 00:15:55,920

bone mass up here because we don't walk

345

00:15:59,430 --> 00:15:57,600

around on our legs and we don't send

346

00:16:01,430 --> 00:15:59,440

those signals to our brain that says she

347

00:16:03,749 --> 00:16:01,440

needs these muscles in bones so we don't

348

00:16:05,990 --> 00:16:03,759

walk around in those legs and so we need

349

00:16:08,150 --> 00:16:06,000

we we actually lose bone mass

350

00:16:10,150 --> 00:16:08,160

at a rate about 10 times of like an

351

00:16:12,310 --> 00:16:10,160

older person that has osteoporosis so

352

00:16:15,189 --> 00:16:12,320

we're learning about how exercise and

353

00:16:21,350 --> 00:16:15,199

medicines can help us prevent that

354

00:16:26,230 --> 00:16:24,629

hi i'm carlos modino from kelly school

355

00:16:34,710 --> 00:16:26,240

what are the positive points and the

356

00:16:39,670 --> 00:16:38,310

well you know for the the downsides

357

00:16:41,269 --> 00:16:39,680

you know i'm not really sure i can think

358

00:16:42,949 --> 00:16:41,279

of one i mean i know i'm away from home

359

00:16:44,389 --> 00:16:42,959

for a long time from my family and

360

00:16:45,910 --> 00:16:44,399

there's some things that i miss there's

361

00:16:46,870 --> 00:16:45,920

food that i miss there's people that i

362

00:16:49,189 --> 00:16:46,880

miss

363

00:16:51,350 --> 00:16:49,199

but i'm in an amazing and wonderful and

364

00:16:52,710 --> 00:16:51,360

magical place where you know life is

365

00:16:54,470 --> 00:16:52,720

really different and i'm learning more

366

00:16:56,550 --> 00:16:54,480

about it every single day about what i

367

00:16:57,990 --> 00:16:56,560

can do living in a in a weightless

368

00:17:00,150 --> 00:16:58,000

environment i mean first of all it's

369

00:17:02,069 --> 00:17:00,160

really fun so i just don't think that

370

00:17:04,470 --> 00:17:02,079

there's a lot of disadvantages in in

371

00:17:06,549 --> 00:17:04,480

those disadvantages that i mentioned

372

00:17:08,549 --> 00:17:06,559

um are the same as a lot of our like

373

00:17:10,549 --> 00:17:08,559

military people that are away from home

374

00:17:12,069 --> 00:17:10,559

and serving their country i mean they're

375

00:17:13,829 --> 00:17:12,079

spending time away from their families

376

00:17:15,750 --> 00:17:13,839

and they're not in nearly as nice or

377

00:17:17,350 --> 00:17:15,760

exciting a place as this

378

00:17:18,949 --> 00:17:17,360

and they don't get the view that i have

379

00:17:21,429 --> 00:17:18,959

to be able to look down at the earth and

380

00:17:22,549 --> 00:17:21,439

see amazing amazing things on the earth

381

00:17:24,230 --> 00:17:22,559

so

382

00:17:26,309 --> 00:17:24,240

there are advantages and disadvantages

383

00:17:27,350 --> 00:17:26,319

but i'm really really happy up here and

384

00:17:32,630 --> 00:17:27,360

i don't really actually want to come

385

00:17:37,430 --> 00:17:34,789

hi i'm janelle bryan from stem middle

386

00:17:39,909 --> 00:17:37,440

academy my question is what happens if

387

00:17:45,270 --> 00:17:39,919

you have an unexpected medical emergency

388

00:17:49,830 --> 00:17:48,070

it depends on the emergency we're all

389

00:17:51,909 --> 00:17:49,840

medically trained i mean not to be

390

00:17:54,549 --> 00:17:51,919

doctors but to do a lot of different

391

00:17:56,630 --> 00:17:54,559

procedures and especially we have an

392

00:17:57,990 --> 00:17:56,640

automatic defibrillator up here if

393

00:18:00,150 --> 00:17:58,000

somebody has some kind of a heart

394

00:18:02,870 --> 00:18:00,160

problem so we're well trained in all the

395

00:18:05,590 --> 00:18:02,880

basic procedures and you know the ground

396

00:18:08,150 --> 00:18:05,600

is just one phone call and one video

397

00:18:10,950 --> 00:18:08,160

call away and we have doctors that are

398

00:18:13,029 --> 00:18:10,960

there all the time and so we can always

399

00:18:14,390 --> 00:18:13,039

call and get their help and if it's

400

00:18:16,310 --> 00:18:14,400

something where they need to show us

401
00:18:18,070 --> 00:18:16,320
something or tell us how to do something

402
00:18:20,230 --> 00:18:18,080
then we have ways and we've practiced

403
00:18:22,150 --> 00:18:20,240
ways of doing that and if it's really an

404
00:18:24,710 --> 00:18:22,160
emergency we could actually be home in

405
00:18:26,470 --> 00:18:24,720
probably about 15 hours

406
00:18:28,390 --> 00:18:26,480
because we just climb in our soyuz on

407
00:18:33,430 --> 00:18:28,400
our spacecraft and do orbit and land on

408
00:18:37,590 --> 00:18:35,350
hi my name is anna diaz and i'm from

409
00:18:39,990 --> 00:18:37,600
mcmahon school my question is do you

410
00:18:42,070 --> 00:18:40,000
remember the exact time you realized you

411
00:18:43,669 --> 00:18:42,080
wanted to be an astronaut and what did

412
00:18:49,510 --> 00:18:43,679
your family and friends say when you

413
00:18:54,390 --> 00:18:51,590

anna you might find this surprising but

414

00:18:56,070 --> 00:18:54,400

when i was growing up a long time ago

415

00:18:58,710 --> 00:18:56,080

it was actually strange for girls to

416

00:19:00,549 --> 00:18:58,720

become astronauts now i think you know

417

00:19:02,870 --> 00:19:00,559

you probably could think of a couple of

418

00:19:04,230 --> 00:19:02,880

women astronauts and so i think it's

419

00:19:06,310 --> 00:19:04,240

really great but when i was growing up

420

00:19:09,990 --> 00:19:06,320

it was something i didn't even think of

421

00:19:11,430 --> 00:19:10,000

until i met dr sally ride and she didn't

422

00:19:13,510 --> 00:19:11,440

remember meeting me we've talked about

423

00:19:14,950 --> 00:19:13,520

it since but all sudden i looked at her

424

00:19:17,590 --> 00:19:14,960

i shook her hand and i thought well

425

00:19:20,390 --> 00:19:17,600

she's a real person just like me

426
00:19:21,750 --> 00:19:20,400
and maybe that means i could do that job

427
00:19:23,669 --> 00:19:21,760
and that's actually why i'm here talking

428
00:19:25,110 --> 00:19:23,679
to you today not so much so that all of

429
00:19:27,350 --> 00:19:25,120
you become astronauts but so that you

430
00:19:29,590 --> 00:19:27,360
realize that people who do the jobs that

431
00:19:37,190 --> 00:19:29,600
you think are so cool and amazing those

432
00:19:42,549 --> 00:19:40,070
hi my name my name is raniel um i come

433
00:19:45,590 --> 00:19:42,559
from kelly school here's my question

434
00:19:47,510 --> 00:19:45,600
after the recent earthquake in japan

435
00:19:52,710 --> 00:19:47,520
have you noticed any changes to the

436
00:19:55,590 --> 00:19:53,990
we have uh

437
00:19:58,470 --> 00:19:55,600
noticed we've been taking pictures of

438
00:20:00,230 --> 00:19:58,480

japan specifically and just looking down

439

00:20:01,909 --> 00:20:00,240

with your eyes i don't see much

440

00:20:04,390 --> 00:20:01,919

difference although some i think you can

441

00:20:06,470 --> 00:20:04,400

see changes in the water around

442

00:20:09,190 --> 00:20:06,480

japan with more sedimentation but we've

443

00:20:11,430 --> 00:20:09,200

been using very big lenses to take

444

00:20:13,270 --> 00:20:11,440

detailed pictures of japan to help

445

00:20:15,029 --> 00:20:13,280

people on earth understand

446

00:20:17,029 --> 00:20:15,039

the extent of the damage and places

447

00:20:18,549 --> 00:20:17,039

where people might need help so every

448

00:20:25,830 --> 00:20:18,559

time we go over japan we try to take

449

00:20:30,789 --> 00:20:28,390

hi my name is devine davis i'm from stem

450

00:20:32,870 --> 00:20:30,799

middle academy as you orbit the earth

451
00:20:38,789 --> 00:20:32,880
can you see the impact of humans on the

452
00:20:42,630 --> 00:20:40,630
yvonne we can see

453
00:20:44,950 --> 00:20:42,640
different different impacts

454
00:20:47,029 --> 00:20:44,960
one of the easiest ones to see is is

455
00:20:48,870 --> 00:20:47,039
looking at the coastline we can see

456
00:20:50,390 --> 00:20:48,880
different amounts of sediment you know

457
00:20:52,789 --> 00:20:50,400
out into the water

458
00:20:54,870 --> 00:20:52,799
when we're going over land can actually

459
00:20:58,310 --> 00:20:54,880
see uh you know regular patterns of

460
00:21:00,630 --> 00:20:58,320
where land has been um has been farmed

461
00:21:02,149 --> 00:21:00,640
or cultivated so it looks different than

462
00:21:03,590 --> 00:21:02,159
you know whether there's not little

463
00:21:05,510 --> 00:21:03,600

straight lines you know where things

464

00:21:09,270 --> 00:21:05,520

haven't been cultivated we can see the

465

00:21:12,149 --> 00:21:09,280

burning of the rain forest we can see um

466

00:21:13,590 --> 00:21:12,159

lakes that over time are gotten smaller

467

00:21:15,669 --> 00:21:13,600

and smaller and smaller people have

468

00:21:18,789 --> 00:21:15,679

taken pictures of like for example lake

469

00:21:20,710 --> 00:21:18,799

chad in africa um you know for years and

470

00:21:22,549 --> 00:21:20,720

years and years from space and we can

471

00:21:24,230 --> 00:21:22,559

see that it's become smaller and smaller

472

00:21:25,510 --> 00:21:24,240

and smaller so we can understand that

473

00:21:27,110 --> 00:21:25,520

there's the effects of different

474

00:21:34,149 --> 00:21:27,120

droughts it's a really interesting

475

00:21:38,470 --> 00:21:36,230

hi my name is megan demaris from mcmahon

476
00:21:40,789 --> 00:21:38,480
school and my question is what kinds of

477
00:21:47,190 --> 00:21:40,799
experiments are you doing right now and

478
00:21:51,909 --> 00:21:49,669
and most of the experiments are long

479
00:21:53,990 --> 00:21:51,919
term in that they're going on for a long

480
00:21:56,070 --> 00:21:54,000
time here and some of them have samples

481
00:21:57,830 --> 00:21:56,080
that come back to earth some of them um

482
00:22:00,470 --> 00:21:57,840
the data is right up here on the space

483
00:22:02,549 --> 00:22:00,480
station i just uh started a experiment

484
00:22:03,990 --> 00:22:02,559
this morning called nanoskeletons where

485
00:22:06,950 --> 00:22:04,000
we're actually looking at different ways

486
00:22:09,750 --> 00:22:06,960
to form crystals up here in space and

487
00:22:11,750 --> 00:22:09,760
and crystals form differently up here in

488
00:22:13,350 --> 00:22:11,760

space because down on the ground

489

00:22:15,830 --> 00:22:13,360

building a crystal or having a crystal

490

00:22:17,669 --> 00:22:15,840

grow is is kind of like

491

00:22:19,110 --> 00:22:17,679

building a brick wall and if all the

492

00:22:20,630 --> 00:22:19,120

bricks really could be exactly where

493

00:22:22,789 --> 00:22:20,640

they'd like to be they'd actually all be

494

00:22:25,430 --> 00:22:22,799

in a row but sometimes gravity will make

495

00:22:26,710 --> 00:22:25,440

one of them sit down crooked well the

496

00:22:28,149 --> 00:22:26,720

the friends of that brick don't know

497

00:22:29,909 --> 00:22:28,159

that he's sitting down crooked and they

498

00:22:31,270 --> 00:22:29,919

sit down crooked on top of him and

499

00:22:33,190 --> 00:22:31,280

suddenly we have a brick wall that has

500

00:22:35,430 --> 00:22:33,200

straight parts and parts that are not in

501
00:22:37,830 --> 00:22:35,440
the right place and so those can be

502
00:22:39,990 --> 00:22:37,840
defects for example in electronic um

503
00:22:41,669 --> 00:22:40,000
crystals that we use for computers so

504
00:22:43,270 --> 00:22:41,679
there's lots of different kinds of

505
00:22:45,270 --> 00:22:43,280
experiments the ones that i think are

506
00:22:46,310 --> 00:22:45,280
really interesting at least for me to

507
00:22:48,870 --> 00:22:46,320
look at

508
00:22:51,909 --> 00:22:48,880
involve growing crystals and also fluid

509
00:22:54,870 --> 00:22:53,669
fluid experiments where we get to

510
00:22:56,710 --> 00:22:54,880
understand

511
00:22:57,990 --> 00:22:56,720
what the fluids are doing and that's

512
00:23:02,470 --> 00:22:58,000
pretty neat because they all float

513
00:23:02,480 --> 00:23:07,029

my name

514

00:23:10,630 --> 00:23:09,190

this is mission control houston we're in

515

00:23:12,230 --> 00:23:10,640

a break as we hand over from one

516

00:23:14,710 --> 00:23:12,240

satellite to another in the tracking

517

00:23:16,549 --> 00:23:14,720

data with a satellite constellation as

518

00:23:18,390 --> 00:23:16,559

soon as we get the satellite signal back

519

00:23:19,830 --> 00:23:18,400

we'll resume our event with katie

520

00:23:22,710 --> 00:23:19,840

coleman aboard the international space

521

00:23:24,070 --> 00:23:22,720

station and students at the springfield

522

00:23:25,909 --> 00:23:24,080

technical community college in

523

00:23:27,350 --> 00:23:25,919

springfield massachusetts

524

00:23:29,430 --> 00:23:27,360

katie on one we're just waiting for k.u

525

00:23:35,590 --> 00:23:29,440

to lock up

526

00:23:35,600 --> 00:23:41,269

okay springfield go ahead

527

00:23:44,390 --> 00:23:43,269

my name is amaris and i'm from kelly

528

00:23:46,390 --> 00:23:44,400

school

529

00:23:48,470 --> 00:23:46,400

on the next space shuttle mission

530

00:23:51,750 --> 00:23:48,480

sts-134

531

00:23:54,310 --> 00:23:51,760

and orb is being sent up so scientists

532

00:23:56,230 --> 00:23:54,320

can study how it makes its web are you

533

00:23:57,510 --> 00:23:56,240

studying any creatures in space right

534

00:24:01,350 --> 00:23:57,520

now

535

00:24:05,350 --> 00:24:03,909

we have we have some worms up here right

536

00:24:06,870 --> 00:24:05,360

now and they're so tiny they don't

537

00:24:08,950 --> 00:24:06,880

really look like worms they look like

538

00:24:11,510 --> 00:24:08,960

little dots but we're under we're trying

539

00:24:13,510 --> 00:24:11,520

to understand how they actually multiply

540

00:24:14,710 --> 00:24:13,520

in space and what their structures are

541

00:24:16,630 --> 00:24:14,720

if they're any bit if they're any

542

00:24:18,549 --> 00:24:16,640

different when they don't have gravity

543

00:24:19,990 --> 00:24:18,559

to worry about and i think it's going to

544

00:24:21,830 --> 00:24:20,000

be really interesting to see what the

545

00:24:24,390 --> 00:24:21,840

spiders do when you think about making a

546

00:24:26,230 --> 00:24:24,400

web you know they must take gravity into

547

00:24:28,070 --> 00:24:26,240

account they must think about the parts

548

00:24:29,269 --> 00:24:28,080

you know how they have to be structured

549

00:24:31,669 --> 00:24:29,279

on the parts where they might be more

550

00:24:33,350 --> 00:24:31,679

likely to fall and up here where you're

551

00:24:34,630 --> 00:24:33,360

not likely more likely to fall from

552

00:24:36,549 --> 00:24:34,640

anywhere because everything's going to

553

00:24:46,230 --> 00:24:36,559

float i'm thinking that they will become

554

00:24:51,190 --> 00:24:49,029

hi my name is francesca from the middle

555

00:24:53,510 --> 00:24:51,200

academy and my question is

556

00:24:58,830 --> 00:24:53,520

how do you all get along on the iss and

557

00:25:03,350 --> 00:25:01,590

conflicts francesca um because we're up

558

00:25:05,750 --> 00:25:03,360

here in this totally marvelous and

559

00:25:07,830 --> 00:25:05,760

amazing place it's a little easier to to

560

00:25:09,990 --> 00:25:07,840

get along than you might think but we do

561

00:25:11,669 --> 00:25:10,000

have our differences and the thing that

562

00:25:14,149 --> 00:25:11,679

i try to do and i'm not always

563

00:25:15,510 --> 00:25:14,159

successful but what i try to do is i try

564

00:25:17,590 --> 00:25:15,520

to remember that when there's something

565

00:25:18,390 --> 00:25:17,600

about somebody that i don't particularly

566

00:25:20,149 --> 00:25:18,400

like

567

00:25:22,070 --> 00:25:20,159

or maybe is just different than the way

568

00:25:24,390 --> 00:25:22,080

i do it sometimes i think oh we should

569

00:25:26,630 --> 00:25:24,400

do it my way but actually the best thing

570

00:25:28,950 --> 00:25:26,640

is to realize that when you have a group

571

00:25:30,789 --> 00:25:28,960

of people together everybody in that

572

00:25:32,950 --> 00:25:30,799

group does something

573

00:25:35,029 --> 00:25:32,960

better than you do and you do something

574

00:25:37,430 --> 00:25:35,039

better than they do and together that

575

00:25:39,029 --> 00:25:37,440

makes a really powerful team and so when

576

00:25:40,630 --> 00:25:39,039

something is a little different and

577

00:25:42,470 --> 00:25:40,640

maybe you don't like it think well wait

578

00:25:44,070 --> 00:25:42,480

a minute what does this person do that

579

00:25:45,750 --> 00:25:44,080

they do better than i do i'm going to

580

00:25:47,510 --> 00:25:45,760

have them do that and i'm going to do

581

00:25:53,750 --> 00:25:47,520

the things that i'm good at too

582

00:25:57,190 --> 00:25:55,590

hello my name is dominic evans from

583

00:25:59,430 --> 00:25:57,200

mcmahon school

584

00:26:01,029 --> 00:25:59,440

do you get tired physically in space

585

00:26:07,510 --> 00:26:01,039

even though your muscles are not working

586

00:26:12,789 --> 00:26:08,470

we

587

00:26:14,630 --> 00:26:12,799

really hard i think my head gets tired

588

00:26:16,630 --> 00:26:14,640

you know we work pretty hard every day

589

00:26:18,630 --> 00:26:16,640

and at the same time we also do almost

590

00:26:20,630 --> 00:26:18,640

two hours of exercise every day and

591

00:26:22,549 --> 00:26:20,640

that's because our muscles don't get a

592

00:26:25,110 --> 00:26:22,559

workout unless we work unless we

593

00:26:27,430 --> 00:26:25,120

actually do some exercise and we use um

594

00:26:30,070 --> 00:26:27,440

a weightlifting machine that is based on

595

00:26:32,149 --> 00:26:30,080

vacuum so i'm literally pulling against

596

00:26:34,230 --> 00:26:32,159

a cylinder inside a cylinder that

597

00:26:35,669 --> 00:26:34,240

doesn't want to that has just air or no

598

00:26:37,269 --> 00:26:35,679

air back there and when i pull it's

599

00:26:39,350 --> 00:26:37,279

really hard and so we can adjust the

600

00:26:42,070 --> 00:26:39,360

weights to make them hard for us and i

601
00:26:43,350 --> 00:26:42,080
do all sorts of exercises i do squats

602
00:26:47,669 --> 00:26:43,360
and i do

603
00:26:53,669 --> 00:26:47,679
i will be actually very tired at the end

604
00:26:59,830 --> 00:26:56,789
hi i'm evander barrios from kelly school

605
00:27:02,230 --> 00:26:59,840
when will robot robonaut 2 be activated

606
00:27:07,269 --> 00:27:02,240
and working on the iss and what will his

607
00:27:11,510 --> 00:27:09,190
we are all very anxious to activate

608
00:27:14,149 --> 00:27:11,520
robonaut and start him working although

609
00:27:16,310 --> 00:27:14,159
i will i will clarify that you know

610
00:27:18,549 --> 00:27:16,320
in terms of what he's up here for he's

611
00:27:20,549 --> 00:27:18,559
up for up here so that we can understand

612
00:27:23,430 --> 00:27:20,559
what robots can do

613
00:27:26,149 --> 00:27:23,440

and how the way they they work

614

00:27:28,070 --> 00:27:26,159

mechanically is affected by the lack of

615

00:27:30,230 --> 00:27:28,080

gravity so to speak i mean let's say i

616

00:27:33,190 --> 00:27:30,240

want robonaut to reach out and then push

617

00:27:35,669 --> 00:27:33,200

a switch whatever he gets some signal

618

00:27:37,909 --> 00:27:35,679

well without you know on the ground all

619

00:27:39,909 --> 00:27:37,919

those calculations that tell robonaut

620

00:27:42,149 --> 00:27:39,919

how far to put his hand out and then how

621

00:27:44,710 --> 00:27:42,159

hard to push on the switch they all take

622

00:27:46,310 --> 00:27:44,720

gravity into account and so when we take

623

00:27:48,310 --> 00:27:46,320

away that variable we need to have

624

00:27:50,389 --> 00:27:48,320

understand how to change all the

625

00:27:51,830 --> 00:27:50,399

equations that define his motions so

626

00:27:53,669 --> 00:27:51,840

that's one of the things that we'll be

627

00:27:56,230 --> 00:27:53,679

looking at and we'll also be looking at

628

00:27:57,830 --> 00:27:56,240

how people and machines work together

629

00:27:58,870 --> 00:27:57,840

what's scary about that what's

630

00:28:00,310 --> 00:27:58,880

interesting and what are the

631

00:28:01,510 --> 00:28:00,320

possibilities

632

00:28:03,430 --> 00:28:01,520

that we haven't even thought of and

633

00:28:04,870 --> 00:28:03,440

that's why robonaut's up here so it'll

634

00:28:06,470 --> 00:28:04,880

be pretty fun once he starts but it's

635

00:28:13,669 --> 00:28:06,480

going to be a little while we have to

636

00:28:18,389 --> 00:28:16,630

hi i'm dumani from stem on the iss you

637

00:28:19,990 --> 00:28:18,399

work with people from all over the world

638

00:28:26,070 --> 00:28:20,000

have you ever had any problems with

639

00:28:29,750 --> 00:28:27,830

i don't know if i would say problems but

640

00:28:31,430 --> 00:28:29,760

i will say that you know we all come

641

00:28:33,430 --> 00:28:31,440

from different countries

642

00:28:35,510 --> 00:28:33,440

the major sort of partners or the major

643

00:28:37,350 --> 00:28:35,520

languages i'll say up here are russian

644

00:28:39,510 --> 00:28:37,360

and english and so

645

00:28:41,350 --> 00:28:39,520

all the u.s partners do our best to

646

00:28:43,350 --> 00:28:41,360

learn russian and the russians do their

647

00:28:45,669 --> 00:28:43,360

best to learn english and at the same

648

00:28:46,950 --> 00:28:45,679

time sometimes we do have you know times

649

00:28:49,350 --> 00:28:46,960

that we think we understand what each

650

00:28:51,510 --> 00:28:49,360

other says and it's not true so we

651
00:28:54,070 --> 00:28:51,520
actually always have to be listening for

652
00:28:56,230 --> 00:28:54,080
when we might have a miscommunication

653
00:28:58,549 --> 00:28:56,240
and just explain patiently to our other

654
00:29:00,310 --> 00:28:58,559
crew member or vice versa that we've

655
00:29:02,389 --> 00:29:00,320
misunderstood and we work out those

656
00:29:03,669 --> 00:29:02,399
systems while we're training together

657
00:29:09,909 --> 00:29:03,679
and so we're pretty good at it by the

658
00:29:14,549 --> 00:29:13,110
hi my name is justin from mcmahon school

659
00:29:22,549 --> 00:29:14,559
what does it feel like to be in the

660
00:29:26,389 --> 00:29:24,870
jason it is so

661
00:29:28,230 --> 00:29:26,399
exciting it's pretty amazing you know

662
00:29:29,830 --> 00:29:28,240
you're sitting so close in the soyuz so

663
00:29:32,149 --> 00:29:29,840

close to two other people i'm on the

664

00:29:34,389 --> 00:29:32,159

right side and dimas in the middle and

665

00:29:36,950 --> 00:29:34,399

and paulo was on the left and in there

666

00:29:38,470 --> 00:29:36,960

we all all are with our knees almost

667

00:29:40,389 --> 00:29:38,480

touching each other and we're in a

668

00:29:42,389 --> 00:29:40,399

spaceship and the count the clock is

669

00:29:45,269 --> 00:29:42,399

counting down and i will tell you when

670

00:29:47,510 --> 00:29:45,279

that rocket uh lit off in kazakhstan it

671

00:29:49,350 --> 00:29:47,520

was totally totally amazing and

672

00:29:51,990 --> 00:29:49,360

immediately you are just hurtling

673

00:29:53,909 --> 00:29:52,000

through space and it's happening so fast

674

00:29:55,990 --> 00:29:53,919

and it's mostly i think just really

675

00:29:57,750 --> 00:29:56,000

exciting because you realize that here

676

00:30:00,310 --> 00:29:57,760

you are a regular old person who just

677

00:30:02,310 --> 00:30:00,320

worked hard and you're getting to go to

678

00:30:04,549 --> 00:30:02,320

to the space station to live and work up

679

00:30:07,590 --> 00:30:04,559

there for six months so it was really

680

00:30:09,350 --> 00:30:07,600

just exciting to be on that journey and

681

00:30:11,590 --> 00:30:09,360

eight and a half minutes later

682

00:30:17,750 --> 00:30:11,600

there we are in space and and that was

683

00:30:21,110 --> 00:30:20,070

hi i'm gilberto medeiros from sun meadow

684

00:30:23,350 --> 00:30:21,120

academy

685

00:30:30,070 --> 00:30:23,360

what happens during an emergency on the

686

00:30:34,470 --> 00:30:32,230

now that is a great question and one of

687

00:30:36,470 --> 00:30:34,480

the reasons why i just came all all at

688

00:30:38,870 --> 00:30:36,480

the very last minute to our interview

689

00:30:40,630 --> 00:30:38,880

today was that we were practicing what

690

00:30:43,029 --> 00:30:40,640

if an emergency happens and that's what

691

00:30:44,630 --> 00:30:43,039

we do we practice those things and make

692

00:30:46,070 --> 00:30:44,640

sure that we don't just kind of know the

693

00:30:47,909 --> 00:30:46,080

plan in our head but we've actually

694

00:30:49,990 --> 00:30:47,919

practiced it together who's going to do

695

00:30:51,590 --> 00:30:50,000

what what the valve that you're supposed

696

00:30:53,350 --> 00:30:51,600

to go and close what that really looks

697

00:30:55,190 --> 00:30:53,360

like the emergency that we practiced

698

00:30:57,350 --> 00:30:55,200

today was what if there's a hole in the

699

00:30:59,110 --> 00:30:57,360

space station what are we going to do

700

00:31:01,029 --> 00:30:59,120

and we have a system we've got a really

701
00:31:02,870 --> 00:31:01,039
big space station and the first thing we

702
00:31:04,389 --> 00:31:02,880
do is actually make sure we're all safe

703
00:31:05,909 --> 00:31:04,399
and then we close one of the hatches in

704
00:31:07,909 --> 00:31:05,919
the middle and we figure out which half

705
00:31:09,830 --> 00:31:07,919
is leaking and then within that half we

706
00:31:11,430 --> 00:31:09,840
figure out which part is leaking and

707
00:31:13,830 --> 00:31:11,440
while we do that we always make sure

708
00:31:15,669 --> 00:31:13,840
that we can get to our rescue ship which

709
00:31:17,350 --> 00:31:15,679
is always attached to the space station

710
00:31:19,029 --> 00:31:17,360
so we practice those kinds of things and

711
00:31:20,789 --> 00:31:19,039
the same goes for fire and other

712
00:31:27,110 --> 00:31:20,799
emergencies that happen up here and we

713
00:31:31,110 --> 00:31:28,630

i'm sean rodriguez from stem middle

714

00:31:32,549 --> 00:31:31,120

academy and my question is if

715

00:31:38,470 --> 00:31:32,559

if you can go anywhere in space where

716

00:31:42,389 --> 00:31:40,389

if i could go anywhere in space i'll

717

00:31:44,710 --> 00:31:42,399

tell you i'm very happy just orbiting

718

00:31:47,350 --> 00:31:44,720

the earth like i am 16 times a day i

719

00:31:48,870 --> 00:31:47,360

mean i just love being up here but if i

720

00:31:50,950 --> 00:31:48,880

could go to other places i think i would

721

00:31:52,870 --> 00:31:50,960

go to mars you know as soon as i could

722

00:31:55,190 --> 00:31:52,880

because that's the planet that we think

723

00:31:56,950 --> 00:31:55,200

is the most like earth the one where we

724

00:32:00,470 --> 00:31:56,960

think that people could actually you

725

00:32:02,070 --> 00:32:00,480

know make a new home and be you know be

726

00:32:03,669 --> 00:32:02,080

living in a different part of our

727

00:32:06,310 --> 00:32:03,679

universe so i would go there as soon as

728

00:32:07,830 --> 00:32:06,320

i could but i know that before i do that

729

00:32:09,590 --> 00:32:07,840

i want it to be safe i want to

730

00:32:11,350 --> 00:32:09,600

understand that i'm going to get in a

731

00:32:12,549 --> 00:32:11,360

spaceship that's going to get there i

732

00:32:14,789 --> 00:32:12,559

want to understand that i'm going to be

733

00:32:16,470 --> 00:32:14,799

able to come home once i've been there

734

00:32:17,909 --> 00:32:16,480

and i want to understand that i can live

735

00:32:19,350 --> 00:32:17,919

safely there so that's the kinds of

736

00:32:21,190 --> 00:32:19,360

things we're doing up here on the space

737

00:32:28,389 --> 00:32:21,200

station and also down on the earth we

738

00:32:33,750 --> 00:32:31,669

hi my name is victor figueroa and do you

739

00:32:35,590 --> 00:32:33,760

think the space program would be

740

00:32:40,789 --> 00:32:35,600

different if we hadn't landed on the

741

00:32:44,470 --> 00:32:42,789

victor i i do think it would be

742

00:32:47,990 --> 00:32:44,480

different because

743

00:32:48,950 --> 00:32:48,000

somehow when people left our planet

744

00:32:51,990 --> 00:32:48,960

and then

745

00:32:53,990 --> 00:32:52,000

flew to the moon landed on the moon and

746

00:32:56,149 --> 00:32:54,000

could come back and tell us about it and

747

00:32:58,870 --> 00:32:56,159

had pictures and video to show that they

748

00:33:01,110 --> 00:32:58,880

were really there i think it it just

749

00:33:02,870 --> 00:33:01,120

affected us as people we realized that

750

00:33:04,630 --> 00:33:02,880

no matter how much we think that our

751
00:33:06,789 --> 00:33:04,640
everyday life is right here on earth we

752
00:33:08,789 --> 00:33:06,799
realize that we live in a huge

753
00:33:11,269 --> 00:33:08,799
neighborhood we live in a universe and

754
00:33:12,549 --> 00:33:11,279
our earth is one tiny little part of

755
00:33:15,269 --> 00:33:12,559
that universe

756
00:33:17,509 --> 00:33:15,279
and we were meant to find out what else

757
00:33:19,830 --> 00:33:17,519
is out there so i think that the fact

758
00:33:21,909 --> 00:33:19,840
that we landed on the moon gave people

759
00:33:24,149 --> 00:33:21,919
the courage to be really sure about the

760
00:33:27,029 --> 00:33:24,159
fact that they were saying let's go

761
00:33:29,590 --> 00:33:27,039
further let's invent spacecraft let's

762
00:33:31,750 --> 00:33:29,600
invent life support systems and let's

763
00:33:32,630 --> 00:33:31,760

let's you know make sure that people are

764

00:33:35,590 --> 00:33:32,640

ready

765

00:33:37,990 --> 00:33:35,600

for when they grow up to be adults to

766

00:33:39,669 --> 00:33:38,000

come and and go to other places and the

767

00:33:41,110 --> 00:33:39,679

fact that all of you today are asking

768

00:33:46,230 --> 00:33:41,120

these kinds of questions you're getting

769

00:33:50,870 --> 00:33:48,710

okay let's go ahead

770

00:33:52,470 --> 00:33:50,880

good morning katie my name is paul revel

771

00:33:53,990 --> 00:33:52,480

i'm secretary of education for the

772

00:33:55,669 --> 00:33:54,000

commonwealth of massachusetts and on

773

00:33:57,909 --> 00:33:55,679

behalf of governor deval patrick number

774

00:33:59,509 --> 00:33:57,919

one i want to thank you for being such a

775

00:34:00,870 --> 00:33:59,519

great role model and such a great

776

00:34:02,950 --> 00:34:00,880

teacher in the way you've responded to

777

00:34:04,549 --> 00:34:02,960

students questions today i have the

778

00:34:05,909 --> 00:34:04,559

honor of asking the last question i have

779

00:34:07,269 --> 00:34:05,919

a question i'm supposed to ask and then

780

00:34:09,190 --> 00:34:07,279

i have a question i want to ask so i'm

781

00:34:10,869 --> 00:34:09,200

going to ask two questions and take that

782

00:34:12,869 --> 00:34:10,879

prerogative the first question is the

783

00:34:15,909 --> 00:34:12,879

scientific question why does the space

784

00:34:18,710 --> 00:34:15,919

station orbit 200 miles from earth just

785

00:34:20,389 --> 00:34:18,720

200 miles from earth the second is

786

00:34:22,710 --> 00:34:20,399

what would be your advice to these

787

00:34:25,030 --> 00:34:22,720

students as they think about careers in

788

00:34:26,710 --> 00:34:25,040

stem how to pursue their education what

789

00:34:28,550 --> 00:34:26,720

was important in your educational

790

00:34:33,270 --> 00:34:28,560

experience how what advice would you

791

00:34:36,869 --> 00:34:35,430

okay you know um i did get some of these

792

00:34:38,470 --> 00:34:36,879

questions in advance and i saw your

793

00:34:41,109 --> 00:34:38,480

question i thought you know i don't know

794

00:34:43,030 --> 00:34:41,119

if i exactly know the answer to why why

795

00:34:46,550 --> 00:34:43,040

are we 200 miles above the earth and not

796

00:34:49,190 --> 00:34:46,560

300 or 400 or 100 and i think that it's

797

00:34:51,109 --> 00:34:49,200

a balance between you know the further

798

00:34:53,669 --> 00:34:51,119

away from the earth we go the more fuel

799

00:34:55,109 --> 00:34:53,679

it takes to get there and to stay there

800

00:34:56,869 --> 00:34:55,119

because even though we know we're up in

801
00:34:59,990 --> 00:34:56,879
space orbiting around we're actually

802
00:35:01,910 --> 00:35:00,000
always spiraling back down to the earth

803
00:35:03,829 --> 00:35:01,920
you know that's we're actually always in

804
00:35:05,270 --> 00:35:03,839
a path to end up landing on the earth

805
00:35:08,310 --> 00:35:05,280
it's just it's going to take a really

806
00:35:10,550 --> 00:35:08,320
really long time and so um the the

807
00:35:12,390 --> 00:35:10,560
reason i think we picked 200 miles is

808
00:35:15,030 --> 00:35:12,400
that it's it's it's basically what our

809
00:35:16,550 --> 00:35:15,040
spaceships can carry in terms of fuel in

810
00:35:18,630 --> 00:35:16,560
order to get us up here and actually

811
00:35:20,630 --> 00:35:18,640
have enough fuel to keep giving us that

812
00:35:23,109 --> 00:35:20,640
extra speed just to stay up here and not

813
00:35:24,310 --> 00:35:23,119

be falling back to the earth

814

00:35:26,630 --> 00:35:24,320

but you might want to check that answer

815

00:35:29,030 --> 00:35:26,640

because that's just my best instinct

816

00:35:31,109 --> 00:35:29,040

now your second question about what i

817

00:35:32,870 --> 00:35:31,119

would tell um

818

00:35:35,190 --> 00:35:32,880

you know kids that are interested in in

819

00:35:37,030 --> 00:35:35,200

science and technology i mean first of

820

00:35:39,750 --> 00:35:37,040

all i think they're doing exactly the

821

00:35:41,589 --> 00:35:39,760

right thing today by having the courage

822

00:35:43,589 --> 00:35:41,599

to ask their questions even though they

823

00:35:45,510 --> 00:35:43,599

might think that maybe their silly

824

00:35:47,349 --> 00:35:45,520

questions or maybe everybody knows the

825

00:35:49,030 --> 00:35:47,359

answer to that question but them they're

826

00:35:50,550 --> 00:35:49,040

having the courage to stand up and ask

827

00:35:53,270 --> 00:35:50,560

their questions and i think that's

828

00:35:55,670 --> 00:35:53,280

really important to do and it's a hard

829

00:35:57,910 --> 00:35:55,680

thing to do so i congratulate all of you

830

00:36:00,630 --> 00:35:57,920

for doing that today and i encourage you

831

00:36:02,390 --> 00:36:00,640

to do it tomorrow and the next day and

832

00:36:03,910 --> 00:36:02,400

then day after that too

833

00:36:05,109 --> 00:36:03,920

and don't just you know wait until

834

00:36:07,030 --> 00:36:05,119

you're talking to somebody who's up on

835

00:36:09,430 --> 00:36:07,040

the space station again if you have a

836

00:36:10,950 --> 00:36:09,440

question for an adult about their job do

837

00:36:12,870 --> 00:36:10,960

they like their job what's the most

838

00:36:14,950 --> 00:36:12,880

interesting thing about their job what

839

00:36:16,470 --> 00:36:14,960

do they hate about their job what would

840

00:36:17,750 --> 00:36:16,480

they change in their job if they could

841

00:36:20,150 --> 00:36:17,760

change anything

842

00:36:21,829 --> 00:36:20,160

as kids it is your job to ask those

843

00:36:23,109 --> 00:36:21,839

questions because it gets you ready for

844

00:36:25,030 --> 00:36:23,119

the future

845

00:36:27,349 --> 00:36:25,040

and the last thing i would tell you is

846

00:36:28,710 --> 00:36:27,359

that there's all sorts of different

847

00:36:32,630 --> 00:36:28,720

aspects of

848

00:36:34,950 --> 00:36:32,640

becoming a new engineer or scientist or

849

00:36:38,710 --> 00:36:34,960

mathematician any of those things and in

850

00:36:41,670 --> 00:36:38,720

fact any career languages art music all

851
00:36:44,470 --> 00:36:41,680
those things some people have a gift at

852
00:36:46,470 --> 00:36:44,480
some part of that okay but other parts

853
00:36:50,150 --> 00:36:46,480
of it are going to be hard for them for

854
00:36:52,470 --> 00:36:50,160
example for me i like math okay and i'm

855
00:36:54,230 --> 00:36:52,480
probably pretty good at math and i love

856
00:36:55,750 --> 00:36:54,240
chemistry i mean to me it's just

857
00:36:57,510 --> 00:36:55,760
interesting and sometimes i know the

858
00:36:59,109 --> 00:36:57,520
answer even if i don't even really know

859
00:37:01,270 --> 00:36:59,119
how i know the answer

860
00:37:03,750 --> 00:37:01,280
i will tell you that physics is really

861
00:37:05,990 --> 00:37:03,760
hard for me i have to think hard about

862
00:37:08,950 --> 00:37:06,000
every single thing it doesn't exactly

863
00:37:11,190 --> 00:37:08,960

make sense to me it's not the way that i

864

00:37:12,390 --> 00:37:11,200

think now does that mean that physics is

865

00:37:14,550 --> 00:37:12,400

not for me

866

00:37:16,390 --> 00:37:14,560

it doesn't it means that physics is

867

00:37:18,390 --> 00:37:16,400

harder for me and i have to work harder

868

00:37:20,069 --> 00:37:18,400

at physics and so

869

00:37:22,069 --> 00:37:20,079

when you're doing something in the

870

00:37:23,430 --> 00:37:22,079

classroom and it's easy for your friend

871

00:37:25,829 --> 00:37:23,440

sitting next to you but it's a little

872

00:37:26,790 --> 00:37:25,839

harder for you don't think oh this isn't

873

00:37:28,550 --> 00:37:26,800

for me

874

00:37:30,790 --> 00:37:28,560

realize that everybody is good at

875

00:37:33,510 --> 00:37:30,800

different things and some things we have

876
00:37:35,829 --> 00:37:33,520
to work harder at and especially realize

877
00:37:38,310 --> 00:37:35,839
that when you do work hard at it you're

878
00:37:40,710 --> 00:37:38,320
going to get it that practice is really

879
00:37:43,270 --> 00:37:40,720
going to make perfect perfect and if you

880
00:37:44,870 --> 00:37:43,280
learn things step to step step by step

881
00:37:46,710 --> 00:37:44,880
you're going to know just as much as

882
00:37:49,750 --> 00:37:46,720
your friend next door who maybe knew it

883
00:37:51,829 --> 00:37:49,760
a little faster so believe in yourselves

884
00:37:53,670 --> 00:37:51,839
and believe that you can be anything and

885
00:37:56,470 --> 00:37:53,680
you can do any of the things that you'd

886
00:37:58,230 --> 00:37:56,480
like to do but you need to be prepared

887
00:38:00,230 --> 00:37:58,240
it's not just going to happen you're

888
00:38:01,829 --> 00:38:00,240

going to have to do the work and i think

889

00:38:03,270 --> 00:38:01,839

that today you've made a good start at

890

00:38:04,630 --> 00:38:03,280

that by asking some really great

891

00:38:06,470 --> 00:38:04,640

questions

892

00:38:09,349 --> 00:38:06,480

station this is houston acr that

893

00:38:11,510 --> 00:38:09,359

concludes the event thank you

894

00:38:13,349 --> 00:38:11,520

thank you wgby tv and springfield

895

00:38:14,550 --> 00:38:13,359

technical community college station we