



1
00:00:15,190 --> 00:00:13,749
see what else can i show oh remember i

2
00:00:16,630 --> 00:00:15,200
wanted to show you a live view from

3
00:00:18,390 --> 00:00:16,640
space

4
00:00:20,790 --> 00:00:18,400
um let's see if i got any astronauts

5
00:00:23,029 --> 00:00:20,800
well there we go

6
00:00:25,109 --> 00:00:23,039
all right here i think it's dan burbank

7
00:00:27,589 --> 00:00:25,119
the commander yep he's doing some

8
00:00:29,509 --> 00:00:27,599
maintenance inside the international

9
00:00:33,750 --> 00:00:29,519
space station and you're looking at a

10
00:00:35,830 --> 00:00:33,760
live view um inside the space station

11
00:00:37,830 --> 00:00:35,840
now i'm going to be um

12
00:00:40,470 --> 00:00:37,840
turning it over to mission control here

13
00:00:41,830 --> 00:00:40,480

very shortly in about 30 seconds so i'm

14

00:00:43,510 --> 00:00:41,840

going to go ahead and leave it on a shot

15

00:00:45,110 --> 00:00:43,520

like this and i'm not going to say

16

00:00:48,150 --> 00:00:45,120

anything and the next voice you should

17

00:00:50,150 --> 00:00:48,160

hear is either josh byerly

18

00:00:52,229 --> 00:00:50,160

from the public affairs office in

19

00:00:54,549 --> 00:00:52,239

mission control and then you'll hear

20

00:00:56,950 --> 00:00:54,559

dottie metcalf lindberger our nasa

21

00:00:59,510 --> 00:00:56,960

astronaut who's our special guest inside

22

00:01:19,510 --> 00:00:59,520

mission control so stand by for mission

23

00:01:22,390 --> 00:01:20,950

hi everybody this is mission control

24

00:01:24,830 --> 00:01:22,400

houston we want to welcome you guys

25

00:01:27,190 --> 00:01:24,840

there at the heritage middle school in

26

00:01:28,789 --> 00:01:27,200

idaho i'm joined by dottie metcalf

27

00:01:30,710 --> 00:01:28,799

lindenberger who is an astronaut i'm

28

00:01:31,910 --> 00:01:30,720

josh byerly here and uh dottie is

29

00:01:33,109 --> 00:01:31,920

willing to take your questions she'll

30

00:01:35,910 --> 00:01:33,119

probably take all the hard ones i'll

31

00:01:35,920 --> 00:01:40,069

so i think we're ready to go

32

00:01:40,079 --> 00:01:47,109

our first question

33

00:01:49,749 --> 00:01:48,550

okay are you guys there we're ready to

34

00:01:51,270 --> 00:01:49,759

take your questions here inside mission

35

00:01:52,950 --> 00:01:51,280

control so if you're ready to go ahead

36

00:02:00,310 --> 00:01:52,960

go ahead and step up and ask whatever

37

00:02:05,109 --> 00:02:01,749

good morning

38

00:02:09,190 --> 00:02:06,789

awesome

39

00:02:10,630 --> 00:02:09,200

are there any uh stressful situations

40

00:02:13,670 --> 00:02:10,640

that you see in the release that are

41

00:02:15,750 --> 00:02:13,680

like life or death situations

42

00:02:17,670 --> 00:02:15,760

are there any stressful or life or death

43

00:02:20,550 --> 00:02:17,680

situations well we do have emergencies

44

00:02:21,670 --> 00:02:20,560

arrive arise while we are doing space

45

00:02:22,630 --> 00:02:21,680

flight

46

00:02:24,869 --> 00:02:22,640

but

47

00:02:26,070 --> 00:02:24,879

as you can see probably

48

00:02:27,589 --> 00:02:26,080

earlier you were looking at mission

49

00:02:29,270 --> 00:02:27,599

control and that's where we're sitting

50

00:02:31,270 --> 00:02:29,280

we've got a whole team of people here on

51
00:02:33,350 --> 00:02:31,280
earth as well as the whole crew that can

52
00:02:36,470 --> 00:02:33,360
work through emergencies together so if

53
00:02:39,589 --> 00:02:36,480
there were a fire or a depressurization

54
00:02:41,350 --> 00:02:39,599
or any of the ammonia leak we have

55
00:02:42,869 --> 00:02:41,360
procedures that we would run and we

56
00:02:45,750 --> 00:02:42,879
practice these here on earth just like

57
00:02:47,430 --> 00:02:45,760
you guys probably practice fire drills

58
00:02:48,949 --> 00:02:47,440
maybe even some earthquake drills there

59
00:02:51,430 --> 00:02:48,959
in the northwest

60
00:02:53,670 --> 00:02:51,440
so we practice those things

61
00:02:55,270 --> 00:02:53,680
anytime a medical situation could arise

62
00:02:57,030 --> 00:02:55,280
and we have crew members who are trained

63
00:02:58,390 --> 00:02:57,040

as the medical officers unless they're

64

00:03:00,309 --> 00:02:58,400

already a doctor and then they're

65

00:03:01,910 --> 00:03:00,319

completely certified so

66

00:03:03,910 --> 00:03:01,920

we do have ways of dealing with

67

00:03:09,670 --> 00:03:03,920

emergencies that can arrive a rise on

68

00:03:09,680 --> 00:03:16,830

the next

69

00:03:21,830 --> 00:03:19,190

question what would you say would be

70

00:03:23,910 --> 00:03:21,840

nasa's greatest accomplishment

71

00:03:25,430 --> 00:03:23,920

what would i say that is nasa's greatest

72

00:03:27,830 --> 00:03:25,440

accomplishment

73

00:03:29,509 --> 00:03:27,840

well i think putting humans in space is

74

00:03:31,830 --> 00:03:29,519

quite an amazing

75

00:03:34,710 --> 00:03:31,840

accomplishment so i'm i'm very glad that

76

00:03:36,869 --> 00:03:34,720

we pursued that um back in the 50s and

77

00:03:38,949 --> 00:03:36,879

60s when we finally were launching folks

78

00:03:42,070 --> 00:03:38,959

into space but i'd also say we've done a

79

00:03:45,670 --> 00:03:42,080

lot of amazing things in exploration um

80

00:03:48,630 --> 00:03:45,680

that is also non-human space flight so

81

00:03:50,630 --> 00:03:48,640

but putting a human in space is is quite

82

00:03:52,149 --> 00:03:50,640

a feat because of all the things we as

83

00:03:53,830 --> 00:03:52,159

humans need

84

00:03:56,229 --> 00:03:53,840

besides you know just food and water i

85

00:03:57,190 --> 00:03:56,239

mean thinking about how we have to

86

00:03:58,949 --> 00:03:57,200

provide

87

00:04:00,550 --> 00:03:58,959

air that's clean

88

00:04:02,789 --> 00:04:00,560

and fresh and then scrub the carbon

89

00:04:03,990 --> 00:04:02,799

dioxide from it and how we need to take

90

00:04:05,990 --> 00:04:04,000

care of

91

00:04:07,190 --> 00:04:06,000

our bodily needs besides just eating

92

00:04:08,630 --> 00:04:07,200

that we need to have bathrooms and

93

00:04:10,789 --> 00:04:08,640

things like that so all those things

94

00:04:12,949 --> 00:04:10,799

needed to be designed and taken care of

95

00:04:14,470 --> 00:04:12,959

for space flight and i'm i'm really

96

00:04:16,310 --> 00:04:14,480

impressed how we have

97

00:04:18,710 --> 00:04:16,320

we had we first did that and we have

98

00:04:20,469 --> 00:04:18,720

continued to evolve it through time and

99

00:04:22,550 --> 00:04:20,479

how it's it's really working great on

100

00:04:25,030 --> 00:04:22,560

the space station now

101
00:04:30,870 --> 00:04:25,040
all right next question

102
00:04:34,950 --> 00:04:32,550
oh yes

103
00:04:36,150 --> 00:04:34,960
when you were on the international space

104
00:04:38,950 --> 00:04:36,160
station

105
00:04:40,390 --> 00:04:38,960
what did you do with the free time you

106
00:04:43,270 --> 00:04:40,400
may have had

107
00:04:45,510 --> 00:04:43,280
that's a great question um there's not a

108
00:04:47,830 --> 00:04:45,520
lot of free time in space but when you

109
00:04:49,990 --> 00:04:47,840
have it there are two favorite things

110
00:04:51,909 --> 00:04:50,000
that i did and one was look out the

111
00:04:54,070 --> 00:04:51,919
window and i actually looked down on

112
00:04:55,990 --> 00:04:54,080
idaho when i was up there because

113
00:04:58,230 --> 00:04:56,000

i taught not far away from idaho i

114

00:04:59,590 --> 00:04:58,240

taught in vancouver washington and so

115

00:05:01,590 --> 00:04:59,600

i'm very familiar with the pacific

116

00:05:03,590 --> 00:05:01,600

northwest i love the volcanoes and i've

117

00:05:05,670 --> 00:05:03,600

climbed a couple of them and so i would

118

00:05:07,270 --> 00:05:05,680

look out the window down at the united

119

00:05:08,230 --> 00:05:07,280

states and then places i've never been

120

00:05:09,830 --> 00:05:08,240

in the world

121

00:05:12,629 --> 00:05:09,840

never been south of the equator and so

122

00:05:15,270 --> 00:05:12,639

it was amazing to look at south america

123

00:05:17,430 --> 00:05:15,280

australia africa all these places that i

124

00:05:19,990 --> 00:05:17,440

really want to travel to someday

125

00:05:21,749 --> 00:05:20,000

and there's just also looking at space

126

00:05:23,990 --> 00:05:21,759

the moon stars

127

00:05:26,230 --> 00:05:24,000

planets i enjoyed looking at the moon

128

00:05:28,629 --> 00:05:26,240

because it was in a crescent phase while

129

00:05:30,550 --> 00:05:28,639

i was there so it just it looks really

130

00:05:31,510 --> 00:05:30,560

neat against the dark sky it's really

131

00:05:33,110 --> 00:05:31,520

beautiful

132

00:05:35,590 --> 00:05:33,120

my other favorite pastime of course is

133

00:05:38,629 --> 00:05:35,600

floating and doing pretty cool tricks

134

00:05:39,830 --> 00:05:38,639

flipping around in space you know dottie

135

00:05:41,590 --> 00:05:39,840

talked about them not having a whole lot

136

00:05:42,950 --> 00:05:41,600

of free time a lot of things that some

137

00:05:44,150 --> 00:05:42,960

people don't really understand is back

138

00:05:46,390 --> 00:05:44,160

whenever they used to fly the shuttle

139

00:05:48,070 --> 00:05:46,400

and station missions together these

140

00:05:49,110 --> 00:05:48,080

crews were actually scheduled in five

141

00:05:50,629 --> 00:05:49,120

minute increments so they would be

142

00:05:52,550 --> 00:05:50,639

handed a schedule every day that had

143

00:05:54,070 --> 00:05:52,560

five-minute chops of time that they had

144

00:05:55,590 --> 00:05:54,080

to basically stick with throughout the

145

00:05:57,189 --> 00:05:55,600

entire day so they it kind of gives you

146

00:06:02,550 --> 00:05:57,199

a sense of exactly what they were doing

147

00:06:07,430 --> 00:06:04,870

all right um

148

00:06:10,950 --> 00:06:09,430

how often does the surgeon have to help

149

00:06:12,950 --> 00:06:10,960

the astronauts

150

00:06:14,790 --> 00:06:12,960

in extreme situations

151

00:06:18,309 --> 00:06:14,800

how often do we have to help with

152

00:06:20,070 --> 00:06:18,319

extreme situations not very often

153

00:06:21,830 --> 00:06:20,080

we've had a couple of things in the last

154

00:06:23,670 --> 00:06:21,840

few years come up of sometimes we have

155

00:06:25,830 --> 00:06:23,680

to do debris avoidance maneuvers because

156

00:06:27,830 --> 00:06:25,840

they're space junk and so we are

157

00:06:30,790 --> 00:06:27,840

tracking this junk here on earth and

158

00:06:33,029 --> 00:06:30,800

then we have to um maybe move the space

159

00:06:34,309 --> 00:06:33,039

station or sometimes we just are aware

160

00:06:35,990 --> 00:06:34,319

of the junk and we don't have to move

161

00:06:36,790 --> 00:06:36,000

but crews might have to shelter for a

162

00:06:39,749 --> 00:06:36,800

while

163

00:06:42,230 --> 00:06:39,759

um other we did have a pump module go

164

00:06:44,469 --> 00:06:42,240

down uh almost

165

00:06:47,670 --> 00:06:44,479

two august ago yeah almost two years ago

166

00:06:49,749 --> 00:06:47,680

in august and that um was

167

00:06:51,589 --> 00:06:49,759

is very important because it helps cool

168

00:06:53,350 --> 00:06:51,599

our space station it keeps all of the

169

00:06:55,430 --> 00:06:53,360

equipment cooled and it moves all this

170

00:06:56,629 --> 00:06:55,440

fluids around so it keeps things cooled

171

00:06:58,710 --> 00:06:56,639

so um

172

00:07:00,390 --> 00:06:58,720

that was an emergency but it wasn't such

173

00:07:01,430 --> 00:07:00,400

an emergency that we had to like go out

174

00:07:03,270 --> 00:07:01,440

the door immediately and do this

175

00:07:05,110 --> 00:07:03,280

spacewalk we had time to plan it here on

176

00:07:07,270 --> 00:07:05,120

earth make really good decisions and

177

00:07:09,670 --> 00:07:07,280

then go do the spacewalks and repair it

178

00:07:10,870 --> 00:07:09,680

and we worked as a team and repaired it

179

00:07:11,990 --> 00:07:10,880

and now the space station's back

180

00:07:15,430 --> 00:07:12,000

functioning

181

00:07:17,589 --> 00:07:15,440

100 so it's just amazing what we can do

182

00:07:19,189 --> 00:07:17,599

um but yeah sometimes emergencies come

183

00:07:21,110 --> 00:07:19,199

up but like i said we have a good way of

184

00:07:23,189 --> 00:07:21,120

handling them they train a lot

185

00:07:25,189 --> 00:07:23,199

absolutely we the crew train but also

186

00:07:28,309 --> 00:07:25,199

the ground team trains they do they do

187

00:07:29,749 --> 00:07:28,319

simulations all the time here i mean we

188

00:07:31,350 --> 00:07:29,759

the the flight controllers here there's

189

00:07:32,790 --> 00:07:31,360

there's probably 20 people in this room

190

00:07:33,830 --> 00:07:32,800

they all have different jobs but they

191

00:07:35,350 --> 00:07:33,840

practice

192

00:07:36,550 --> 00:07:35,360

pretty much worst case scenarios a lot

193

00:07:38,710 --> 00:07:36,560

of times with you know what what's kind

194

00:07:40,790 --> 00:07:38,720

of the worst bad day you can have and

195

00:07:42,230 --> 00:07:40,800

how they react to that so so whenever it

196

00:07:43,749 --> 00:07:42,240

comes time for the actual flight it's

197

00:07:55,589 --> 00:07:43,759

it's a little bit actually

198

00:08:00,469 --> 00:07:57,909

when when you found out that you were

199

00:08:02,550 --> 00:08:00,479

going to be up in the space station what

200

00:08:05,430 --> 00:08:02,560

kind of preparations did you have what

201

00:08:08,309 --> 00:08:05,440

did they be like mentally

202

00:08:09,990 --> 00:08:08,319

oh great question well um training first

203

00:08:12,390 --> 00:08:10,000

for the flight that i went on which was

204

00:08:14,309 --> 00:08:12,400

a shuttle flight going to space station

205

00:08:16,230 --> 00:08:14,319

you find out about a year a year and a

206

00:08:17,990 --> 00:08:16,240

half out and so that's the mental

207

00:08:19,350 --> 00:08:18,000

preparation is you start actually

208

00:08:22,150 --> 00:08:19,360

training as a team and there were seven

209

00:08:24,629 --> 00:08:22,160

of us on this team and and we were going

210

00:08:26,070 --> 00:08:24,639

to classes and you start out you have

211

00:08:28,629 --> 00:08:26,080

your assignments so i was like the

212

00:08:30,790 --> 00:08:28,639

flight engineer and i was the inside

213

00:08:32,550 --> 00:08:30,800

coordinator of the spacewalks and so you

214

00:08:34,709 --> 00:08:32,560

have your job and then you start

215

00:08:35,909 --> 00:08:34,719

learning it and then and then you start

216

00:08:36,949 --> 00:08:35,919

doing these simulations like i talked

217

00:08:39,029 --> 00:08:36,959

about then they start throwing in

218

00:08:41,589 --> 00:08:39,039

failures and pretty soon you're you're

219

00:08:43,430 --> 00:08:41,599

really working as a smooth team so

220

00:08:44,149 --> 00:08:43,440

that was again about a year and a half

221

00:08:47,030 --> 00:08:44,159

out

222

00:08:48,550 --> 00:08:47,040

and uh and then physically i mean we are

223

00:08:50,630 --> 00:08:48,560

always training

224

00:08:53,030 --> 00:08:50,640

we work out here on earth a couple of

225

00:08:54,949 --> 00:08:53,040

times a week as astronauts we have a gym

226

00:08:57,590 --> 00:08:54,959

we weight lift we do a lot of things to

227

00:08:58,710 --> 00:08:57,600

just prepare that way and we also for

228

00:08:59,829 --> 00:08:58,720

the people that are going to go do a

229

00:09:01,190 --> 00:08:59,839

spacewalk they're in the neutral

230

00:09:03,350 --> 00:09:01,200

buoyancy lab for

231

00:09:05,430 --> 00:09:03,360

about six hours at a time and they do

232

00:09:07,509 --> 00:09:05,440

that multiple times for each spacewalk

233

00:09:10,790 --> 00:09:07,519

so we might practice a spacewalk four to

234

00:09:12,949 --> 00:09:10,800

seven times before we go do that um

235

00:09:14,790 --> 00:09:12,959

and now with the international space

236

00:09:16,550 --> 00:09:14,800

station crews are preparing and starting

237

00:09:20,230 --> 00:09:16,560

training two and a half years before

238

00:09:21,829 --> 00:09:20,240

they fly so um that's quite a commitment

239

00:09:23,910 --> 00:09:21,839

and of course it's not just the

240

00:09:26,310 --> 00:09:23,920

astronaut it's the whole family that is

241

00:09:28,070 --> 00:09:26,320

um it's kind of in training and so

242

00:09:30,389 --> 00:09:28,080

there's travel and all these things that

243

00:09:31,990 --> 00:09:30,399

are involved but uh

244

00:09:34,389 --> 00:09:32,000

you're just really open with your family

245

00:09:36,389 --> 00:09:34,399

and you discuss what you'll do

246

00:09:38,870 --> 00:09:36,399

when things come up and how to deal with

247

00:09:43,910 --> 00:09:38,880

that so that's how we prepare mentally

248

00:09:43,920 --> 00:09:51,990

um

249

00:09:57,590 --> 00:09:54,310

how does nasa hook that spacecraft to

250

00:09:58,870 --> 00:09:57,600

the space station for boarding

251
00:10:00,470 --> 00:09:58,880
how do you hook up spacecraft to the

252
00:10:02,310 --> 00:10:00,480
space station for boarding

253
00:10:03,590 --> 00:10:02,320
oh okay that's i didn't quite hear it

254
00:10:06,470 --> 00:10:03,600
thanks

255
00:10:08,069 --> 00:10:06,480
great question we have different docking

256
00:10:09,990 --> 00:10:08,079
compartments and we also have different

257
00:10:11,509 --> 00:10:10,000
vehicles that come to the space station

258
00:10:13,030 --> 00:10:11,519
so for humans coming to the space

259
00:10:15,190 --> 00:10:13,040
station they're coming on a soyuz right

260
00:10:16,790 --> 00:10:15,200
now and there are specific docking

261
00:10:18,949 --> 00:10:16,800
compartments for the soyuz that are at

262
00:10:20,710 --> 00:10:18,959
the back of the station in the russian

263
00:10:22,310 --> 00:10:20,720

module and

264

00:10:23,030 --> 00:10:22,320

then you have hatches that you go

265

00:10:25,190 --> 00:10:23,040

through and there's all these

266

00:10:27,990 --> 00:10:25,200

pressurizations before you open hatches

267

00:10:29,430 --> 00:10:28,000

and and this so that's how we get humans

268

00:10:30,710 --> 00:10:29,440

into space right now

269

00:10:32,069 --> 00:10:30,720

when we had the shuttle we also had

270

00:10:33,670 --> 00:10:32,079

another docking compartment and it

271

00:10:35,030 --> 00:10:33,680

worked a little bit differently for such

272

00:10:36,870 --> 00:10:35,040

a big vehicle and it was out in the

273

00:10:39,030 --> 00:10:36,880

front of the space station

274

00:10:41,670 --> 00:10:39,040

currently we have the

275

00:10:43,670 --> 00:10:41,680

atv the european cargo vehicle that

276

00:10:45,430 --> 00:10:43,680

stocked a space station and that came up

277

00:10:46,870 --> 00:10:45,440

robotically and so

278

00:10:48,630 --> 00:10:46,880

it just stalks

279

00:10:50,230 --> 00:10:48,640

without the need of humans although

280

00:10:51,430 --> 00:10:50,240

humans know how they could intervene if

281

00:10:52,949 --> 00:10:51,440

they need to

282

00:10:55,790 --> 00:10:52,959

and then we're going to be having the

283

00:10:58,829 --> 00:10:55,800

summer a visiting vehicle called

284

00:11:00,389 --> 00:10:58,839

htv3 and that's from the

285

00:11:02,949 --> 00:11:00,399

japanese

286

00:11:05,030 --> 00:11:02,959

space agency and that will dock to the

287

00:11:07,590 --> 00:11:05,040

front of station and that uses a robotic

288

00:11:08,310 --> 00:11:07,600

arm and so crew member actually

289

00:11:11,269 --> 00:11:08,320

is

290

00:11:13,910 --> 00:11:11,279

needed the last few meters to take the

291

00:11:16,150 --> 00:11:13,920

robotic arm and grapple the htv3 and

292

00:11:18,310 --> 00:11:16,160

then birth it to the space station so

293

00:11:19,990 --> 00:11:18,320

lots of different ways that people and

294

00:11:21,590 --> 00:11:20,000

cargo come to space station and if you

295

00:11:22,710 --> 00:11:21,600

ever watch it on tv and you see you know

296

00:11:23,750 --> 00:11:22,720

back where we had shuttle and it would

297

00:11:26,790 --> 00:11:23,760

talk about the station or any of the

298

00:11:27,910 --> 00:11:26,800

russian stuff it looks so slow on tv and

299

00:11:29,750 --> 00:11:27,920

you forget that they're going more than

300

00:11:31,430 --> 00:11:29,760

17 000 miles an hour both of those

301
00:11:33,030 --> 00:11:31,440
spacecrafts and they each weigh

302
00:11:34,150 --> 00:11:33,040
hundreds of thousands of pounds so it's

303
00:11:35,990 --> 00:11:34,160
a little bit misleading when you see it

304
00:11:37,030 --> 00:11:36,000
on tv it looks so slow and cautious and

305
00:11:38,630 --> 00:11:37,040
it's really

306
00:11:54,069 --> 00:11:38,640
going pretty fast right so it's

307
00:11:59,590 --> 00:11:56,550
um what is the most stressful part about

308
00:12:01,670 --> 00:11:59,600
a space shuttle flight

309
00:12:02,949 --> 00:12:01,680
wow the most stressful part well you

310
00:12:05,750 --> 00:12:02,959
know the great thing about all the

311
00:12:08,230 --> 00:12:05,760
training was that you feel very prepared

312
00:12:09,430 --> 00:12:08,240
but i will say that i was definitely

313
00:12:11,269 --> 00:12:09,440

excited maybe had a little bit of

314

00:12:14,629 --> 00:12:11,279

butterflies when i went out to the pad

315

00:12:16,629 --> 00:12:14,639

on that day to launch because you've got

316

00:12:18,790 --> 00:12:16,639

so much propellant and you've got two

317

00:12:20,710 --> 00:12:18,800

solid rocket boosters that you know

318

00:12:22,870 --> 00:12:20,720

um and you know how you get to space all

319

00:12:24,550 --> 00:12:22,880

this thrust and energy so you want that

320

00:12:26,949 --> 00:12:24,560

energy to be going the right direction

321

00:12:28,710 --> 00:12:26,959

so um and that you don't have control of

322

00:12:30,949 --> 00:12:28,720

that has been designed by really

323

00:12:33,269 --> 00:12:30,959

talented engineers and that's you just

324

00:12:34,949 --> 00:12:33,279

have trust and you know that we have

325

00:12:35,910 --> 00:12:34,959

done this many times and you've seen it

326

00:12:37,990 --> 00:12:35,920

and so

327

00:12:40,069 --> 00:12:38,000

i was really excited but i think that

328

00:12:42,470 --> 00:12:40,079

was the first time i felt a bit nervous

329

00:12:44,230 --> 00:12:42,480

before getting um into the spaceship

330

00:12:45,910 --> 00:12:44,240

and then um

331

00:12:47,350 --> 00:12:45,920

not a not a lot of stress in space

332

00:12:49,430 --> 00:12:47,360

because even when things went wrong like

333

00:12:51,750 --> 00:12:49,440

we had things go wrong on our spacewalks

334

00:12:53,990 --> 00:12:51,760

but we had trained for what to do and we

335

00:12:55,829 --> 00:12:54,000

had talked about contingency situations

336

00:12:57,269 --> 00:12:55,839

and we had plans and again like i said

337

00:12:59,670 --> 00:12:57,279

we talked to the ground a lot and they

338

00:13:01,750 --> 00:12:59,680

have really good ideas too so as we do

339

00:13:03,990 --> 00:13:01,760

all this teamwork um

340

00:13:06,150 --> 00:13:04,000

i just felt like we were all very

341

00:13:07,670 --> 00:13:06,160

prepared and very calm and we had good

342

00:13:08,949 --> 00:13:07,680

rationale for why we were doing what we

343

00:13:11,190 --> 00:13:08,959

were doing so

344

00:13:12,710 --> 00:13:11,200

during flight no stressful situations it

345

00:13:13,910 --> 00:13:12,720

was awesome

346

00:13:15,110 --> 00:13:13,920

dottie mentioned something very

347

00:13:16,550 --> 00:13:15,120

interesting that even whenever it's

348

00:13:18,230 --> 00:13:16,560

stressful it's it's pretty calm and it's

349

00:13:19,350 --> 00:13:18,240

it's the same way as somebody who's been

350

00:13:20,389 --> 00:13:19,360

inside mission control and kind of

351

00:13:22,150 --> 00:13:20,399

watched

352

00:13:23,670 --> 00:13:22,160

certain challenges come up during flight

353

00:13:25,190 --> 00:13:23,680

it's not like the movies where you see

354

00:13:27,190 --> 00:13:25,200

you know a lot of chaos and stuff like

355

00:13:28,550 --> 00:13:27,200

that i mean the team is very

356

00:13:29,910 --> 00:13:28,560

focused

357

00:13:31,509 --> 00:13:29,920

they've trained for these kind of things

358

00:13:34,069 --> 00:13:31,519

and even whenever you know certain

359

00:13:35,829 --> 00:13:34,079

semi-major things have happened um it's

360

00:13:37,509 --> 00:13:35,839

just very calm and professional it's not

361

00:13:38,550 --> 00:13:37,519

like what you what you would expect so

362

00:13:42,310 --> 00:13:38,560

right

363

00:13:44,470 --> 00:13:43,350

question

364

00:13:46,870 --> 00:13:44,480

um

365

00:13:50,710 --> 00:13:46,880

how much money is spent at nasa each

366

00:13:53,269 --> 00:13:50,720

year oh money spent uh well we get a

367

00:13:56,069 --> 00:13:53,279

budget from the government and we just

368

00:13:58,710 --> 00:13:56,079

get a portion of that for um human space

369

00:14:00,230 --> 00:13:58,720

flight and for the iss operations so you

370

00:14:01,750 --> 00:14:00,240

can actually go look up the exact

371

00:14:03,670 --> 00:14:01,760

details maybe you want to fill in a

372

00:14:05,110 --> 00:14:03,680

little bit but

373

00:14:06,790 --> 00:14:05,120

so out of the entire federal budget you

374

00:14:08,550 --> 00:14:06,800

know a lot of people have

375

00:14:09,910 --> 00:14:08,560

they think that nasa gets a huge chunk

376

00:14:12,069 --> 00:14:09,920

of money and we do relatively speaking

377

00:14:12,949 --> 00:14:12,079

we get about 17 18 billion dollars a

378

00:14:14,550 --> 00:14:12,959

year

379

00:14:16,629 --> 00:14:14,560

but out of the entire federal budget

380

00:14:19,269 --> 00:14:16,639

that is less than one half of one

381

00:14:20,550 --> 00:14:19,279

percent of all the money so so our share

382

00:14:22,870 --> 00:14:20,560

nasa's share of the entire federal

383

00:14:24,230 --> 00:14:22,880

budget is actually not that big at all

384

00:14:25,430 --> 00:14:24,240

the biggest that it ever was was back

385

00:14:26,870 --> 00:14:25,440

during apollo and that was only about

386

00:14:29,350 --> 00:14:26,880

four percent of the entire federal

387

00:14:32,069 --> 00:14:29,360

budget so it's it's you know it's it's a

388

00:14:33,350 --> 00:14:32,079

relatively small uh chunk of money in

389

00:14:34,790 --> 00:14:33,360

terms of the entire federal government

390

00:14:36,790 --> 00:14:34,800

spending but you get a lot of benefits

391

00:14:38,629 --> 00:14:36,800

out of it in terms of spin-offs and and

392

00:14:40,230 --> 00:14:38,639

and what this agency is able to do yeah

393

00:14:41,990 --> 00:14:40,240

and i think of course one of the big

394

00:14:44,069 --> 00:14:42,000

benefits is that

395

00:14:46,389 --> 00:14:44,079

we learn about how we can go explore

396

00:14:48,310 --> 00:14:46,399

better and and we want to continue human

397

00:14:50,629 --> 00:14:48,320

space flight so we want you guys to be

398

00:14:53,030 --> 00:14:50,639

explorers too just like the people that

399

00:14:54,629 --> 00:14:53,040

came to the northwest when uh when they

400

00:14:55,829 --> 00:14:54,639

were exploring for the early united

401
00:15:02,629 --> 00:14:55,839
states so we want you guys to be

402
00:15:07,590 --> 00:15:04,470
was there anything you didn't like about

403
00:15:09,189 --> 00:15:07,600
race travel that was maybe uncomfortable

404
00:15:10,870 --> 00:15:09,199
something uncomfortable about space

405
00:15:13,269 --> 00:15:10,880
travel well um

406
00:15:15,590 --> 00:15:13,279
the suit is really hot yes and that's

407
00:15:17,350 --> 00:15:15,600
not kidding and it's heavy a bit heavy

408
00:15:18,790 --> 00:15:17,360
um so uh

409
00:15:20,150 --> 00:15:18,800
for all crew members even those that are

410
00:15:22,629 --> 00:15:20,160
launching on soyuz you're going to have

411
00:15:24,710 --> 00:15:22,639
a specific suit that you launch in

412
00:15:26,949 --> 00:15:24,720
and you have to sit for a while you go

413
00:15:29,990 --> 00:15:26,959

out to the vehicle and you get loaded in

414

00:15:31,430 --> 00:15:30,000

and then you sit and you wait and uh in

415

00:15:33,110 --> 00:15:31,440

the soyuz you wait you wait with your

416

00:15:34,230 --> 00:15:33,120

knees scrunched up against you and in

417

00:15:36,629 --> 00:15:34,240

the shuttle you're laying down on your

418

00:15:38,790 --> 00:15:36,639

back too and and so

419

00:15:40,310 --> 00:15:38,800

um to keep us cooled off in the shuttle

420

00:15:42,470 --> 00:15:40,320

we had this long underwear with little

421

00:15:43,990 --> 00:15:42,480

hoses in it that ran cold water through

422

00:15:46,069 --> 00:15:44,000

it and you could keep pretty cool and

423

00:15:47,269 --> 00:15:46,079

there was blowing air circulating air so

424

00:15:49,509 --> 00:15:47,279

that helps you

425

00:15:51,590 --> 00:15:49,519

and thankfully the april morning that we

426

00:15:54,150 --> 00:15:51,600

launched on two years ago was

427

00:15:55,829 --> 00:15:54,160

pretty cool for florida but it could get

428

00:15:57,749 --> 00:15:55,839

really hot there's even mosquitoes

429

00:15:58,790 --> 00:15:57,759

sometimes that get in the vehicle so

430

00:16:00,629 --> 00:15:58,800

that part could all be a little

431

00:16:02,629 --> 00:16:00,639

uncomfortable until you know you finally

432

00:16:04,150 --> 00:16:02,639

launch and then um

433

00:16:06,069 --> 00:16:04,160

returning same thing you have to get

434

00:16:08,069 --> 00:16:06,079

back into that suit and

435

00:16:10,550 --> 00:16:08,079

you know you've been in normal clothes i

436

00:16:11,670 --> 00:16:10,560

mean i wore this shirt in space and

437

00:16:12,870 --> 00:16:11,680

you've been in these normal clothes and

438

00:16:15,990 --> 00:16:12,880

then you have to get back into the suit

439

00:16:17,749 --> 00:16:16,000

and it's not really comfortable um but

440

00:16:19,110 --> 00:16:17,759

you would totally do it for a few

441

00:16:20,470 --> 00:16:19,120

moments of space flight well they have

442

00:16:21,749 --> 00:16:20,480

to drink a lot to talk about fluid

443

00:16:23,030 --> 00:16:21,759

loading you have to they have to drink a

444

00:16:23,990 --> 00:16:23,040

lot of like sport drinks and things like

445

00:16:25,509 --> 00:16:24,000

that they used to have to drink kind of

446

00:16:27,350 --> 00:16:25,519

some like basically chicken soup water

447

00:16:28,949 --> 00:16:27,360

right there's chicken consommé and

448

00:16:30,389 --> 00:16:28,959

then also we did

449

00:16:32,389 --> 00:16:30,399

water and salt tablets that's what i

450

00:16:34,550 --> 00:16:32,399

personally chose to do and

451
00:16:37,509 --> 00:16:34,560
you do that just before you're deciding

452
00:16:38,389 --> 00:16:37,519
to make uh the burn to deorbit and so

453
00:16:40,470 --> 00:16:38,399
this is

454
00:16:42,710 --> 00:16:40,480
maybe an hour two hours before you're

455
00:16:45,350 --> 00:16:42,720
going to be landing you're drinking

456
00:16:48,069 --> 00:16:45,360
lots of bags of water i mean i think i

457
00:16:49,430 --> 00:16:48,079
was trying to drink six eight ounce bags

458
00:16:51,350 --> 00:16:49,440
of water

459
00:16:53,030 --> 00:16:51,360
and and you're still trying to push

460
00:16:54,870 --> 00:16:53,040
buttons and you know follow the normal

461
00:16:57,189 --> 00:16:54,880
checklist while drinking this stuff

462
00:16:58,710 --> 00:16:57,199
um needless to say it is not super

463
00:17:01,350 --> 00:16:58,720

comfortable

464

00:17:04,069 --> 00:17:01,360

to drink all that well and then re-enter

465

00:17:05,270 --> 00:17:04,079

gravity because before all those floors

466

00:17:06,470 --> 00:17:05,280

are kind of floating in your stomach no

467

00:17:07,750 --> 00:17:06,480

big deal but then when you start to

468

00:17:09,270 --> 00:17:07,760

re-enter you start to feel it on your

469

00:17:11,829 --> 00:17:09,280

bladder and that's not super comfortable

470

00:17:14,150 --> 00:17:11,839

either so yeah

471

00:17:15,110 --> 00:17:14,160

who's next

472

00:17:16,829 --> 00:17:15,120

okay

473

00:17:20,630 --> 00:17:16,839

um how do you

474

00:17:23,429 --> 00:17:20,640

shower aha you may not like this answer

475

00:17:25,669 --> 00:17:23,439

you don't really take a shower per se um

476

00:17:27,350 --> 00:17:25,679

it's it's kind of like camping a little

477

00:17:29,669 --> 00:17:27,360

bit cleaner since you're not hanging out

478

00:17:31,190 --> 00:17:29,679

with the dirt but

479

00:17:33,510 --> 00:17:31,200

you use

480

00:17:35,669 --> 00:17:33,520

baby wipes to just kind of wash your

481

00:17:37,909 --> 00:17:35,679

skin off there's also some

482

00:17:40,070 --> 00:17:37,919

wet towels and and soap rinse that you

483

00:17:40,789 --> 00:17:40,080

can get on your skin and clean yourself

484

00:17:42,710 --> 00:17:40,799

with

485

00:17:44,710 --> 00:17:42,720

and there's a no rinse shampoo that you

486

00:17:47,190 --> 00:17:44,720

work through your hair and it becomes

487

00:17:48,070 --> 00:17:47,200

quite messy because if you think about

488

00:17:49,510 --> 00:17:48,080

it

489

00:17:50,950 --> 00:17:49,520

when you wash your hair you know you

490

00:17:53,270 --> 00:17:50,960

have extra hair that falls out or you

491

00:17:54,950 --> 00:17:53,280

have skin that sloughs off and where

492

00:17:56,390 --> 00:17:54,960

does that stuff go in space it goes

493

00:17:58,070 --> 00:17:56,400

floating around you so you have to make

494

00:17:59,190 --> 00:17:58,080

sure you keep your hair like we stick it

495

00:18:01,190 --> 00:17:59,200

to

496

00:18:02,549 --> 00:18:01,200

gray tape and we just kind of accumulate

497

00:18:04,310 --> 00:18:02,559

that way and then put it in the trash so

498

00:18:05,830 --> 00:18:04,320

that's not floating around and

499

00:18:07,990 --> 00:18:05,840

getting in everyone's way especially my

500

00:18:09,750 --> 00:18:08,000

hair that'd be kind of messy so

501
00:18:11,430 --> 00:18:09,760
that's how we keep ourselves clean and

502
00:18:13,510 --> 00:18:11,440
but you can do it daily

503
00:18:15,270 --> 00:18:13,520
or you can do it after your exercise so

504
00:18:17,270 --> 00:18:15,280
you do need to keep yourself clean it's

505
00:18:19,190 --> 00:18:17,280
definitely part of the important hygiene

506
00:18:20,789 --> 00:18:19,200
part in space i mean um you don't want

507
00:18:22,310 --> 00:18:20,799
to be up there six months and not be

508
00:18:24,070 --> 00:18:22,320
keeping yourself clean so who wants to

509
00:18:25,190 --> 00:18:24,080
be an astronaut now

510
00:18:26,630 --> 00:18:25,200
who wants to be around the other

511
00:18:30,230 --> 00:18:26,640
astronauts right

512
00:18:34,230 --> 00:18:32,549
what kind of education is required to go

513
00:18:35,909 --> 00:18:34,240

up into space

514

00:18:37,190 --> 00:18:35,919

say that one more what kind of education

515

00:18:38,950 --> 00:18:37,200

is required to go up in space is that

516

00:18:42,549 --> 00:18:38,960

what you're asking

517

00:18:45,270 --> 00:18:42,559

no okay oh great you have good ears

518

00:18:47,669 --> 00:18:45,280

you need to have a at least a bachelor's

519

00:18:50,150 --> 00:18:47,679

in math engineering or science and then

520

00:18:52,630 --> 00:18:50,160

of course further degrees are definitely

521

00:18:55,110 --> 00:18:52,640

encouraged and an experience in those

522

00:18:57,669 --> 00:18:55,120

degrees so doing research or

523

00:19:00,470 --> 00:18:57,679

teaching etc in those degrees

524

00:19:03,430 --> 00:19:00,480

and so that's why we really hope that

525

00:19:06,470 --> 00:19:03,440

you are studying math science technology

526
00:19:08,070 --> 00:19:06,480
and engineering those good core stem

527
00:19:09,830 --> 00:19:08,080
classes

528
00:19:11,590 --> 00:19:09,840
and also you know this is one thing we

529
00:19:13,270 --> 00:19:11,600
always try to tell students and even

530
00:19:14,870 --> 00:19:13,280
college kids too that if you want to

531
00:19:15,909 --> 00:19:14,880
come work at nasa maybe you're not going

532
00:19:18,070 --> 00:19:15,919
to be an astronaut but if you want to

533
00:19:19,190 --> 00:19:18,080
come work here we hire all kinds of

534
00:19:20,630 --> 00:19:19,200
backgrounds i've got a degree in

535
00:19:22,310 --> 00:19:20,640
communications and there's other people

536
00:19:24,310 --> 00:19:22,320
in our office that have

537
00:19:25,510 --> 00:19:24,320
journalism degrees and marketing degrees

538
00:19:27,990 --> 00:19:25,520

and we've got people that have human

539

00:19:29,750 --> 00:19:28,000

resources degrees we've got budget

540

00:19:31,190 --> 00:19:29,760

people i mean there's all kinds so if

541

00:19:32,710 --> 00:19:31,200

you want to come work at nasa and be

542

00:19:35,270 --> 00:19:32,720

part of this it's one of the coolest

543

00:19:37,029 --> 00:19:35,280

jobs on the planet and you know you can

544

00:19:39,430 --> 00:19:37,039

get there so all through all sorts of

545

00:19:40,789 --> 00:19:39,440

that's right so be passionate about what

546

00:19:42,310 --> 00:19:40,799

you're pursuing

547

00:19:44,230 --> 00:19:42,320

is go for something that you really want

548

00:19:52,789 --> 00:19:44,240

to do and it's funny what doors tend to

549

00:19:56,470 --> 00:19:55,029

you guys got another one

550

00:19:58,630 --> 00:19:56,480

um austin

551
00:20:01,270 --> 00:19:58,640
um when you go up into space is the

552
00:20:03,270 --> 00:20:01,280
pressure really bad on your ears

553
00:20:04,789 --> 00:20:03,280
actually no it's the way that we

554
00:20:07,590 --> 00:20:04,799
designed the

555
00:20:10,310 --> 00:20:07,600
uh the shuttle in our vehicles is so

556
00:20:12,630 --> 00:20:10,320
that you've really have very little

557
00:20:15,190 --> 00:20:12,640
change in pressure you do get a little a

558
00:20:16,470 --> 00:20:15,200
slight change but it is minimal compared

559
00:20:18,710 --> 00:20:16,480
to what you would experience in an

560
00:20:21,750 --> 00:20:18,720
airplane or what you would experience

561
00:20:24,230 --> 00:20:21,760
driving up into the mountains so

562
00:20:26,149 --> 00:20:24,240
not a change because the the idea is

563
00:20:29,590 --> 00:20:26,159

that as you um

564

00:20:31,510 --> 00:20:29,600

as you go up and and decrease the air

565

00:20:33,350 --> 00:20:31,520

pressure on the outside of the vehicle

566

00:20:34,710 --> 00:20:33,360

you have

567

00:20:37,270 --> 00:20:34,720

the vehicle has to

568

00:20:38,630 --> 00:20:37,280

maintain the pressure inside

569

00:20:41,270 --> 00:20:38,640

very well i mean you don't want any

570

00:20:42,630 --> 00:20:41,280

leaks out and you don't wouldn't want it

571

00:20:44,870 --> 00:20:42,640

to burst because it would be higher

572

00:20:46,549 --> 00:20:44,880

pressure inside it would burst out so

573

00:20:49,669 --> 00:20:46,559

we've designed our aircraft so that it

574

00:20:52,070 --> 00:20:49,679

maintains about 14.7 psi which is

575

00:20:53,590 --> 00:20:52,080

roughly equal to what seed pressure is

576

00:20:55,590 --> 00:20:53,600

so you have a little bit less air

577

00:20:57,750 --> 00:20:55,600

pressure in idaho because you're up

578

00:20:59,669 --> 00:20:57,760

higher in altitude but

579

00:21:01,270 --> 00:20:59,679

that is that's what we maintain within

580

00:21:05,029 --> 00:21:01,280

our spacecraft and the same with the

581

00:21:13,029 --> 00:21:05,039

space station it's roughly 14.7 year

582

00:21:18,230 --> 00:21:15,590

in in mission control

583

00:21:20,470 --> 00:21:18,240

how many different jobs are there

584

00:21:22,149 --> 00:21:20,480

oh that is a great question

585

00:21:23,669 --> 00:21:22,159

um like josh was saying we're counting

586

00:21:24,950 --> 00:21:23,679

hang on there's

587

00:21:27,430 --> 00:21:24,960

more looking around there's probably

588

00:21:29,350 --> 00:21:27,440

there's about 20 people yeah right now

589

00:21:32,390 --> 00:21:29,360

that we have all sorts of jobs from the

590

00:21:34,149 --> 00:21:32,400

flight controller and flight director

591

00:21:36,950 --> 00:21:34,159

who's in charge of everyone and is

592

00:21:39,029 --> 00:21:36,960

overseeing to the person who talks with

593

00:21:41,270 --> 00:21:39,039

the crew members that's the cap capcom

594

00:21:43,190 --> 00:21:41,280

capsule communicator um and then we have

595

00:21:45,590 --> 00:21:43,200

people who are looking at trajectory

596

00:21:48,230 --> 00:21:45,600

people that are maintaining the life

597

00:21:52,149 --> 00:21:48,240

support systems the thermal systems uh

598

00:21:54,789 --> 00:21:52,159

the computers the daily calendar

599

00:21:57,830 --> 00:21:54,799

the public outreach all these different

600

00:21:59,830 --> 00:21:57,840

jobs in mission control all working as a

601
00:22:00,789 --> 00:21:59,840
team there's flight doctors there's and

602
00:22:02,470 --> 00:22:00,799
there's a there's an interesting

603
00:22:03,830 --> 00:22:02,480
position called ground control or dc

604
00:22:05,430 --> 00:22:03,840
which is uh here in the back of the room

605
00:22:07,190 --> 00:22:05,440
and the shuttle room is up at the front

606
00:22:08,549 --> 00:22:07,200
but those guys run the entire mission

607
00:22:09,909 --> 00:22:08,559
control center and they've got more

608
00:22:11,510 --> 00:22:09,919
computer screens over there than i've

609
00:22:13,990 --> 00:22:11,520
ever seen in my life i mean these guys

610
00:22:16,149 --> 00:22:14,000
know how to run every exactly piece of

611
00:22:17,669 --> 00:22:16,159
system in this entire building every

612
00:22:19,190 --> 00:22:17,679
mile of a wire that we have here so

613
00:22:20,230 --> 00:22:19,200

they've got a pretty pretty tough job

614

00:22:21,350 --> 00:22:20,240

they're also the ones that actually help

615

00:22:22,870 --> 00:22:21,360

us communicate

616

00:22:25,029 --> 00:22:22,880

with the space station and the shuttle

617

00:22:27,750 --> 00:22:25,039

back in the day so it's uh there's it

618

00:22:29,510 --> 00:22:27,760

takes it takes a big and wide and

619

00:22:36,230 --> 00:22:29,520

a pretty big variety of people to uh to

620

00:22:36,240 --> 00:22:48,390

okay

621

00:22:52,830 --> 00:22:50,549

in your time and space what seems to be

622

00:22:55,750 --> 00:22:52,840

the longest

623

00:22:58,470 --> 00:22:55,760

job uh while i was up in space i was

624

00:23:00,870 --> 00:22:58,480

just there for about 15 days and the job

625

00:23:03,590 --> 00:23:00,880

that i did the most was um to actually

626

00:23:05,990 --> 00:23:03,600

be a mover we brought up six tons of

627

00:23:08,549 --> 00:23:06,000

equipment and we needed to move

628

00:23:10,630 --> 00:23:08,559

that all out of um basically this big

629

00:23:14,230 --> 00:23:10,640

u-haul vehicle called the multi-purpose

630

00:23:15,990 --> 00:23:14,240

logistics module and uh get that out and

631

00:23:18,630 --> 00:23:16,000

get it onto station and then we had to

632

00:23:21,430 --> 00:23:18,640

return trash and equipment and so we

633

00:23:23,669 --> 00:23:21,440

repacked so most of my time was as a

634

00:23:26,310 --> 00:23:23,679

mover the other significant portion of

635

00:23:28,710 --> 00:23:26,320

my time was as a as the choreographer

636

00:23:29,430 --> 00:23:28,720

inside of the spacewalk so i talked to

637

00:23:32,470 --> 00:23:29,440

the

638

00:23:33,830 --> 00:23:32,480

um to rick mastracchio and clay anderson

639

00:23:35,270 --> 00:23:33,840

as they were doing their spacewalks the

640

00:23:37,350 --> 00:23:35,280

whole time so it was a lot of talking

641

00:23:39,750 --> 00:23:37,360

that was three days about six and a half

642

00:23:41,110 --> 00:23:39,760

to seven hours of talking telling them

643

00:23:42,710 --> 00:23:41,120

about the bolts they were going to be

644

00:23:44,390 --> 00:23:42,720

turning about

645

00:23:45,990 --> 00:23:44,400

where their next

646

00:23:47,669 --> 00:23:46,000

move was going to be where the robotic

647

00:23:49,830 --> 00:23:47,679

arm was going to pick up an ammonia tank

648

00:23:51,990 --> 00:23:49,840

where it was going to drop it off etc so

649

00:23:54,789 --> 00:23:52,000

that was my next job and then my final

650

00:23:56,950 --> 00:23:54,799

big job was as the flight engineer but

651
00:23:58,789 --> 00:23:56,960
that was just on launch and entry so

652
00:23:59,909 --> 00:23:58,799
that was just kind of a small job she

653
00:24:01,510 --> 00:23:59,919
got to sit up on the flight deck and

654
00:24:03,350 --> 00:24:01,520
actually see out the windows so she had

655
00:24:05,990 --> 00:24:03,360
a cool job

656
00:24:09,669 --> 00:24:08,149
ryan um when you're in space how much

657
00:24:10,870 --> 00:24:09,679
sleep you get

658
00:24:12,549 --> 00:24:10,880
when you're in space how much sleep do

659
00:24:14,149 --> 00:24:12,559
you get well we can actually get just as

660
00:24:17,029 --> 00:24:14,159
much sleep here on the ground and i

661
00:24:18,950 --> 00:24:17,039
slept really well in space um i didn't

662
00:24:21,430 --> 00:24:18,960
usually here on earth i try to get about

663
00:24:22,789 --> 00:24:21,440

eight hours of sleep because i exercise

664

00:24:25,029 --> 00:24:22,799

a lot i just kind of need eight hours to

665

00:24:27,430 --> 00:24:25,039

be a happy person um

666

00:24:28,950 --> 00:24:27,440

but in space it didn't seem i think

667

00:24:31,350 --> 00:24:28,960

because you're not having to put as much

668

00:24:33,190 --> 00:24:31,360

resistance since you're not working with

669

00:24:34,549 --> 00:24:33,200

working against gravity the whole time i

670

00:24:36,070 --> 00:24:34,559

didn't need quite as much sleep so i

671

00:24:37,830 --> 00:24:36,080

found about seven hours was actually

672

00:24:39,750 --> 00:24:37,840

really great and the funny thing is when

673

00:24:42,470 --> 00:24:39,760

we sleep in space we sort of look like

674

00:24:44,870 --> 00:24:42,480

zombies because our arms float out in

675

00:24:47,350 --> 00:24:44,880

front of us

676
00:24:48,710 --> 00:24:47,360
but uh but you sleep so well because

677
00:24:50,390 --> 00:24:48,720
you're not

678
00:24:52,390 --> 00:24:50,400
forced onto a bed you're just kind of

679
00:24:53,990 --> 00:24:52,400
floating above it and so you strap

680
00:24:55,669 --> 00:24:54,000
yourself into your sleeping bag

681
00:24:58,310 --> 00:24:55,679
sometimes you stick yourself to the wall

682
00:25:00,390 --> 00:24:58,320
don't you you have to velcro yourself or

683
00:25:02,789 --> 00:25:00,400
in our case we had to use french hooks

684
00:25:05,669 --> 00:25:02,799
and and put ourselves onto the wall

685
00:25:07,750 --> 00:25:05,679
and uh if you want firmness you can put

686
00:25:09,830 --> 00:25:07,760
bungees around you and like really suck

687
00:25:12,830 --> 00:25:09,840
yourself to the wall but i kind of liked

688
00:25:16,070 --> 00:25:12,840

that feeling of floating

689

00:25:19,350 --> 00:25:16,080

so how you sleep in space

690

00:25:21,830 --> 00:25:19,360

oh say it again um

691

00:25:24,470 --> 00:25:21,840

what is going through your mind when you

692

00:25:25,830 --> 00:25:24,480

realize you're up in space and you're

693

00:25:29,430 --> 00:25:25,840

not on your

694

00:25:33,430 --> 00:25:32,070

well i think you definitely realize um

695

00:25:35,750 --> 00:25:33,440

kind of the

696

00:25:37,669 --> 00:25:35,760

precarious position or the

697

00:25:39,510 --> 00:25:37,679

um the position where if something went

698

00:25:41,269 --> 00:25:39,520

wrong you would want to fix it fast

699

00:25:43,590 --> 00:25:41,279

because your vehicle is your life

700

00:25:45,430 --> 00:25:43,600

support it is your only way of staying

701
00:25:47,590 --> 00:25:45,440
alive in space

702
00:25:48,710 --> 00:25:47,600
and so you definitely take care of the

703
00:25:50,950 --> 00:25:48,720
vehicle

704
00:25:53,190 --> 00:25:50,960
and but it was just such a beautiful

705
00:25:55,190 --> 00:25:53,200
experience i mean looking at the earth

706
00:25:56,630 --> 00:25:55,200
and the floating and so

707
00:25:57,750 --> 00:25:56,640
getting used to that floating getting

708
00:25:58,710 --> 00:25:57,760
used to the fact that when you drop

709
00:26:01,110 --> 00:25:58,720
something

710
00:26:03,269 --> 00:26:01,120
it doesn't fall to the ground it floats

711
00:26:05,430 --> 00:26:03,279
somewhere and gets caught up in some fan

712
00:26:07,190 --> 00:26:05,440
or filter or wherever you have to go

713
00:26:08,789 --> 00:26:07,200

find it so that took some getting used

714

00:26:11,990 --> 00:26:08,799

to but

715

00:26:14,149 --> 00:26:12,000

just you really look at uh the beauty of

716

00:26:16,230 --> 00:26:14,159

the earth and just how amazing it is

717

00:26:21,669 --> 00:26:16,240

that you can be in space that that we

718

00:26:21,679 --> 00:26:29,669

is that it

719

00:26:33,510 --> 00:26:32,070

say one more time what was that

720

00:26:35,430 --> 00:26:33,520

what's the most exciting thing that

721

00:26:38,470 --> 00:26:35,440

you've seen while you were in space

722

00:26:40,549 --> 00:26:38,480

the most exciting thing well um

723

00:26:42,549 --> 00:26:40,559

looking back at where my family was

724

00:26:44,710 --> 00:26:42,559

right at the moment so

725

00:26:46,630 --> 00:26:44,720

when uh we could pick out there was one

726

00:26:48,870 --> 00:26:46,640

particular pass i remember early on in

727

00:26:50,549 --> 00:26:48,880

the flight and jim dutton is from uh

728

00:26:53,190 --> 00:26:50,559

oregon so the two of us were looking

729

00:26:56,149 --> 00:26:53,200

through the cupola and

730

00:26:58,630 --> 00:26:56,159

we found crater lake and then we could

731

00:27:00,710 --> 00:26:58,640

find all these places that we had either

732

00:27:02,950 --> 00:27:00,720

lived in or we had family living in and

733

00:27:04,710 --> 00:27:02,960

so we went from the oregon washington

734

00:27:07,029 --> 00:27:04,720

coast all the way across the united

735

00:27:09,269 --> 00:27:07,039

states down to houston and that was it

736

00:27:11,269 --> 00:27:09,279

was just this neat pass and and all

737

00:27:13,110 --> 00:27:11,279

along the way we had people that we knew

738

00:27:15,190 --> 00:27:13,120

or cared about so my parents are in

739

00:27:17,430 --> 00:27:15,200

colorado my husband's family is in the

740

00:27:19,029 --> 00:27:17,440

northwest and my family right now my

741

00:27:21,590 --> 00:27:19,039

husband and daughter are here in houston

742

00:27:23,669 --> 00:27:21,600

so that was a really special special

743

00:27:25,269 --> 00:27:23,679

moment

744

00:27:27,029 --> 00:27:25,279

all right it looks like that's all the

745

00:27:29,190 --> 00:27:27,039

time that we have for questions but i

746

00:27:30,950 --> 00:27:29,200

would like to have you guys say goodbye

747

00:27:32,870 --> 00:27:30,960

to each other so let's start with uh

748

00:27:35,269 --> 00:27:32,880

heritage middle school would you like to

749

00:27:37,590 --> 00:27:35,279

thank our special guests for uh

750

00:27:46,070 --> 00:27:37,600

coming to your school live virtually

751

00:27:46,080 --> 00:27:52,470

great experience you're awesome

752

00:27:55,590 --> 00:27:54,070

and thank you guys too you were really

753

00:27:56,950 --> 00:27:55,600

good you had great questions i enjoyed

754

00:27:58,310 --> 00:27:56,960

this thank you yeah we want to thank you

755

00:27:59,830 --> 00:27:58,320

guys for joining us it's always fun to

756

00:28:00,950 --> 00:27:59,840

talk to you guys so we hope to uh we