



002: 17:40:23+

Mission Control



PAO



1
00:00:05,670 --> 00:00:04,150
hi welcome to mission control houston

2
00:00:07,990 --> 00:00:05,680
we're here in the international space

3
00:00:09,430 --> 00:00:08,000
station flight control room and i am

4
00:00:10,870 --> 00:00:09,440
brandy dean i'm working the public

5
00:00:14,070 --> 00:00:10,880
affairs office here and i've got here

6
00:00:15,829 --> 00:00:14,080
with me dory tomica who is the visiting

7
00:00:16,710 --> 00:00:15,839
vehicle officer on the space station

8
00:00:19,189 --> 00:00:16,720
flight

9
00:00:20,550 --> 00:00:19,199
control team so i'm gonna let her tell a

10
00:00:23,029 --> 00:00:20,560
little bit about herself and then i hear

11
00:00:25,429 --> 00:00:23,039
you have some questions for us dory

12
00:00:27,349 --> 00:00:25,439
thanks brandi hey guys um like i said my

13
00:00:29,189 --> 00:00:27,359

name is dory and i've worked here at

14

00:00:31,109 --> 00:00:29,199

nasa since uh

15

00:00:32,389 --> 00:00:31,119

for five years now full-time

16

00:00:34,229 --> 00:00:32,399

but before that i actually worked here

17

00:00:36,389 --> 00:00:34,239

when i was in college so i started back

18

00:00:38,150 --> 00:00:36,399

in 2004 and i worked here every other

19

00:00:39,830 --> 00:00:38,160

semester so i've gotten a lot of

20

00:00:41,830 --> 00:00:39,840

experience while i've been here

21

00:00:44,630 --> 00:00:41,840

um and like you said i'm in the visiting

22

00:00:45,990 --> 00:00:44,640

vehicle office and so we work in mission

23

00:00:47,910 --> 00:00:46,000

control

24

00:00:50,150 --> 00:00:47,920

for the space station and we are in

25

00:00:51,670 --> 00:00:50,160

charge of space station safety

26
00:00:53,830 --> 00:00:51,680
when there's another vehicle coming to

27
00:00:55,590 --> 00:00:53,840
the space station so lots of vehicles

28
00:00:58,150 --> 00:00:55,600
come the russians have their progress in

29
00:00:59,990 --> 00:00:58,160
soyuz the europeans have a vehicle the

30
00:01:01,750 --> 00:01:00,000
japanese space agency has a vehicle and

31
00:01:03,029 --> 00:01:01,760
now they're two u.s vehicles who are

32
00:01:04,950 --> 00:01:03,039
coming and so

33
00:01:07,270 --> 00:01:04,960
anytime those vehicles are near the iss

34
00:01:09,109 --> 00:01:07,280
the the vvo is in charge of making sure

35
00:01:11,030 --> 00:01:09,119
that they're being safe and that the iss

36
00:01:12,710 --> 00:01:11,040
is safe and the crew is safe and you'll

37
00:01:14,070 --> 00:01:12,720
have a vehicle that's coming soon right

38
00:01:16,070 --> 00:01:14,080

we do yeah next weekend we'll have

39

00:01:17,429 --> 00:01:16,080

dragon which is a spacex's vehicle and

40

00:01:19,830 --> 00:01:17,439

they're based out of l.a out in

41

00:01:21,510 --> 00:01:19,840

california all right well thanks dory

42

00:01:23,190 --> 00:01:21,520

okay i hear uh that y'all have some

43

00:01:26,230 --> 00:01:23,200

questions for us there in phoenix so

44

00:01:28,390 --> 00:01:26,240

send them our way

45

00:01:30,550 --> 00:01:28,400

oh

46

00:01:32,310 --> 00:01:30,560

how do astronauts maintain muscle mass

47

00:01:34,390 --> 00:01:32,320

and microgravity

48

00:01:36,390 --> 00:01:34,400

how do astronauts maintain muscle mass

49

00:01:37,510 --> 00:01:36,400

and microgravity that's a really good

50

00:01:39,350 --> 00:01:37,520

question and something that's really

51
00:01:41,190 --> 00:01:39,360
important on the space station the

52
00:01:43,190 --> 00:01:41,200
astronauts do a lot of exercise they

53
00:01:44,630 --> 00:01:43,200
have exercise in their schedules every

54
00:01:46,550 --> 00:01:44,640
day they have different kinds of

55
00:01:48,469 --> 00:01:46,560
exercise they can do of course it's all

56
00:01:50,310 --> 00:01:48,479
modified to make it work in space and so

57
00:01:52,469 --> 00:01:50,320
sometimes they actually have to use kind

58
00:01:54,310 --> 00:01:52,479
of bungee cords to attach themselves to

59
00:01:56,230 --> 00:01:54,320
the equipment to kind of gravitate or

60
00:01:58,149 --> 00:01:56,240
simulate gravity but they have things

61
00:01:59,670 --> 00:01:58,159
like treadmills and exercise bikes and

62
00:02:01,670 --> 00:01:59,680
then they do weights and things like

63
00:02:03,590 --> 00:02:01,680

that too so lots of same exercises we do

64

00:02:05,109 --> 00:02:03,600

on earth just a little bit modified yeah

65

00:02:06,870 --> 00:02:05,119

they have special equipment for it to

66

00:02:09,270 --> 00:02:06,880

make it work without gravity to hold it

67

00:02:16,869 --> 00:02:09,280

down

68

00:02:21,030 --> 00:02:18,949

do you use robotic mechanical arms on

69

00:02:22,949 --> 00:02:21,040

the space station

70

00:02:25,510 --> 00:02:22,959

do we use a lot of mechanical arms on

71

00:02:26,309 --> 00:02:25,520

the space station we do have uh we do

72

00:02:30,070 --> 00:02:26,319

have

73

00:02:33,110 --> 00:02:30,080

big one that you've probably seen is the

74

00:02:34,470 --> 00:02:33,120

ss rms and that's the really big arm

75

00:02:36,229 --> 00:02:34,480

that we're actually going to use next

76

00:02:37,509 --> 00:02:36,239

weekend for when dragon comes up

77

00:02:38,790 --> 00:02:37,519

dragon's gonna come real close to

78

00:02:40,229 --> 00:02:38,800

station and then the arm's gonna come

79

00:02:42,150 --> 00:02:40,239

out and grab it

80

00:02:43,509 --> 00:02:42,160

the japanese have their own smaller arm

81

00:02:45,430 --> 00:02:43,519

that they use on their module for their

82

00:02:47,430 --> 00:02:45,440

science experiments but robotics is very

83

00:02:48,790 --> 00:02:47,440

big at the space station

84

00:02:50,630 --> 00:02:48,800

and i think sometimes there are

85

00:02:52,070 --> 00:02:50,640

astronauts that go on the end of the

86

00:02:53,589 --> 00:02:52,080

robotic arm to move around during

87

00:02:55,910 --> 00:02:53,599

spacewalks and

88

00:02:57,830 --> 00:02:55,920

there's also a robot that lives inside

89

00:02:59,830 --> 00:02:57,840

the space station called robonaut 2 so

90

00:03:02,630 --> 00:02:59,840

it's not a robotic arm but an actual

91

00:03:05,990 --> 00:03:02,640

robot with arms

92

00:03:08,149 --> 00:03:06,000

do you have a lot of oxygen tanks or how

93

00:03:11,110 --> 00:03:08,159

do you clean the air in the space

94

00:03:15,030 --> 00:03:13,350

so the space station has oxygen

95

00:03:17,990 --> 00:03:15,040

scrubbers and they're these machines

96

00:03:19,350 --> 00:03:18,000

that basically clean the oxygen for us

97

00:03:21,270 --> 00:03:19,360

and so that that's how we kind of

98

00:03:22,550 --> 00:03:21,280

recirculate that air and and keep it

99

00:03:24,869 --> 00:03:22,560

clean and keep it with the right amount

100

00:03:28,390 --> 00:03:26,550

items in it for good breathing and

101
00:03:30,390 --> 00:03:28,400
things like that

102
00:03:34,229 --> 00:03:30,400
what is the process for becoming an

103
00:03:39,270 --> 00:03:37,110
well that's a really good question um

104
00:03:41,030 --> 00:03:39,280
it kind of depends lots of people will

105
00:03:42,149 --> 00:03:41,040
apply to become astronauts that's the

106
00:03:44,229 --> 00:03:42,159
first step you have to send in an

107
00:03:45,910 --> 00:03:44,239
application and sometimes you have to

108
00:03:48,149 --> 00:03:45,920
send in different applications you won't

109
00:03:49,589 --> 00:03:48,159
get it your first try or your second try

110
00:03:50,869 --> 00:03:49,599
it's you know they get thousands of

111
00:03:52,390 --> 00:03:50,879
applications and they pick just a

112
00:03:54,789 --> 00:03:52,400
handful of astronauts when they pick a

113
00:03:57,190 --> 00:03:54,799

new class that's what they call them

114

00:03:58,390 --> 00:03:57,200

but there's an application process and

115

00:04:00,470 --> 00:03:58,400

then if you make it through that there's

116

00:04:02,229 --> 00:04:00,480

an interview process and there's a lot

117

00:04:03,990 --> 00:04:02,239

of testing you have to do physically to

118

00:04:05,910 --> 00:04:04,000

make sure you can handle really being an

119

00:04:06,949 --> 00:04:05,920

astronaut because being 0g is tough on

120

00:04:08,550 --> 00:04:06,959

your body

121

00:04:10,710 --> 00:04:08,560

and then there's also a social aspect to

122

00:04:12,630 --> 00:04:10,720

it too where they they make sure that

123

00:04:15,190 --> 00:04:12,640

you know if you're going to be stuck in

124

00:04:16,949 --> 00:04:15,200

you know a house imagine with six people

125

00:04:18,150 --> 00:04:16,959

for six months you want to make sure

126
00:04:19,670 --> 00:04:18,160
that you're really good at getting along

127
00:04:20,949 --> 00:04:19,680
with people and so that's a little bit

128
00:04:22,550 --> 00:04:20,959
of it too that you really have the right

129
00:04:24,629 --> 00:04:22,560
personality for it and then of course

130
00:04:25,990 --> 00:04:24,639
you have to have had enough schooling to

131
00:04:27,430 --> 00:04:26,000
really be able to help on the space

132
00:04:29,430 --> 00:04:27,440
station with doing all the science and

133
00:04:30,870 --> 00:04:29,440
everything so a lot of the astronauts

134
00:04:32,390 --> 00:04:30,880
have phds

135
00:04:34,629 --> 00:04:32,400
and if not most of them have master's

136
00:04:36,950 --> 00:04:34,639
degrees so those are kind of the broad

137
00:04:39,909 --> 00:04:36,960
areas and most of them have the degrees

138
00:04:41,270 --> 00:04:39,919

in science or math or engineering maybe

139

00:04:43,590 --> 00:04:41,280

technology

140

00:04:45,510 --> 00:04:43,600

field so it's kind of a specific area

141

00:04:47,670 --> 00:04:45,520

you have to start studying early on so

142

00:04:51,270 --> 00:04:47,680

you're good enough to be uh to go into

143

00:04:57,990 --> 00:04:51,990

uh

144

00:05:00,629 --> 00:04:58,000

at the space station

145

00:05:02,310 --> 00:05:00,639

yeah i think so i i think you know it's

146

00:05:04,150 --> 00:05:02,320

it's just like you know if you put six

147

00:05:05,350 --> 00:05:04,160

people together like i said for a while

148

00:05:06,950 --> 00:05:05,360

i'm sure there will be times when you

149

00:05:08,390 --> 00:05:06,960

wish you could you know get by yourself

150

00:05:10,469 --> 00:05:08,400

for a little bit and have some personal

151

00:05:11,990 --> 00:05:10,479

time and so but these people are all

152

00:05:13,749 --> 00:05:12,000

really good at getting along and they're

153

00:05:15,270 --> 00:05:13,759

all really great friends too they train

154

00:05:17,029 --> 00:05:15,280

a lot together before they go up there

155

00:05:18,950 --> 00:05:17,039

so they're really a team and almost like

156

00:05:20,310 --> 00:05:18,960

a family by the time they go up there so

157

00:05:22,870 --> 00:05:20,320

yeah they get along really well and they

158

00:05:36,150 --> 00:05:22,880

have a lot of fun too

159

00:05:40,710 --> 00:05:38,629

we have a robotics class on campus how

160

00:05:44,310 --> 00:05:40,720

extensively are robots used in the

161

00:05:45,749 --> 00:05:44,320

program and what type of robots are used

162

00:05:48,070 --> 00:05:45,759

yes we talked a little bit about it

163

00:05:50,230 --> 00:05:48,080

before but we use robotics a lot in the

164

00:05:52,550 --> 00:05:50,240

space station like we said the arm is a

165

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

really integral part a lot of the work

166

00:05:55,909 --> 00:05:54,080

we do outside the space station where we

167

00:05:57,110 --> 00:05:55,919

need to fix things or do some

168

00:05:58,629 --> 00:05:57,120

maintenance

169

00:05:59,909 --> 00:05:58,639

that a lot of that involves the arm

170

00:06:01,749 --> 00:05:59,919

because the arm can reach almost the

171

00:06:03,749 --> 00:06:01,759

entire space station so we use that a

172

00:06:05,510 --> 00:06:03,759

lot and then like brandi had mentioned

173

00:06:07,830 --> 00:06:05,520

we have robonaut up there who's our

174

00:06:09,670 --> 00:06:07,840

robot astronaut and we're just starting

175

00:06:11,590 --> 00:06:09,680

to really get to use him but he's going

176

00:06:13,110 --> 00:06:11,600

to be able to do tasks

177

00:06:14,870 --> 00:06:13,120

so that the astronauts don't have to

178

00:06:17,029 --> 00:06:14,880

because going out in space is dangerous

179

00:06:18,550 --> 00:06:17,039

and so you know we like to make sure we

180

00:06:19,510 --> 00:06:18,560

prepare a lot before we do it and we

181

00:06:21,110 --> 00:06:19,520

send them out there when they have

182

00:06:23,430 --> 00:06:21,120

really important things to do and so if

183

00:06:24,870 --> 00:06:23,440

we can send robonaut out there instead

184

00:06:26,870 --> 00:06:24,880

to do some of the easier stuff that's

185

00:06:28,390 --> 00:06:26,880

kind of a long-term goal for us so

186

00:06:29,590 --> 00:06:28,400

you'll see a lot of robotics use in the

187

00:06:31,830 --> 00:06:29,600

future

188

00:06:35,590 --> 00:06:31,840

and you can find out more about robonaut

189

00:06:38,150 --> 00:06:35,600

online at wwe

190

00:06:41,189 --> 00:06:38,160

robonaut and actually you can talk with

191

00:06:43,270 --> 00:06:41,199

them via twitter at twitter.com

192

00:06:46,309 --> 00:06:43,280

astrorobonaut so y'all can find out a

193

00:06:49,029 --> 00:06:47,350

um

194

00:06:51,749 --> 00:06:49,039

who made the food

195

00:06:53,830 --> 00:06:51,759

you like the packet

196

00:06:57,270 --> 00:06:53,840

it's pretty cool i did can you repeat

197

00:07:00,790 --> 00:06:57,280

that question i didn't quite hear it

198

00:07:03,189 --> 00:07:00,800

who made the food the packet the food

199

00:07:06,469 --> 00:07:03,199

who makes the food packages

200

00:07:08,550 --> 00:07:06,479

yes we actually um we have a group here

201
00:07:11,510 --> 00:07:08,560
at jsc that's in charge of astronaut

202
00:07:13,110 --> 00:07:11,520
food and it's it's difficult we try to

203
00:07:14,550 --> 00:07:13,120
make the same kind of food that you have

204
00:07:16,150 --> 00:07:14,560
on the ground but you have to make it

205
00:07:17,909 --> 00:07:16,160
kind of differently sometimes you have

206
00:07:19,670 --> 00:07:17,919
to take a lot of the water out of it so

207
00:07:22,790 --> 00:07:19,680
it's dehydrated food and then we add the

208
00:07:24,150 --> 00:07:22,800
water back in when we're in space um but

209
00:07:25,589 --> 00:07:24,160
you know you have we have a lot of

210
00:07:26,870 --> 00:07:25,599
people from different countries here and

211
00:07:28,550 --> 00:07:26,880
different countries have different food

212
00:07:30,070 --> 00:07:28,560
that they specialize in or that they

213
00:07:31,909 --> 00:07:30,080

really enjoy and so one of the things we

214

00:07:33,589 --> 00:07:31,919

do is make sure that we have food that

215

00:07:35,270 --> 00:07:33,599

people from the um from their home

216

00:07:37,510 --> 00:07:35,280

country so that it feels a little bit

217

00:07:39,430 --> 00:07:37,520

more like home and so one of the things

218

00:07:40,790 --> 00:07:39,440

they do is on big holidays you know if

219

00:07:42,309 --> 00:07:40,800

there's special food you eat on a

220

00:07:45,189 --> 00:07:42,319

holiday they'll actually send it up for

221

00:07:46,790 --> 00:07:45,199

that holiday and so you know like we eat

222

00:07:48,469 --> 00:07:46,800

sauerkraut at new year's that kind of a

223

00:07:49,909 --> 00:07:48,479

thing so if there's a special food for

224

00:07:51,430 --> 00:07:49,919

example that the russians have for a

225

00:07:52,629 --> 00:07:51,440

holiday then they'll send it on board so

226

00:07:53,909 --> 00:07:52,639

that they can have the food they would

227

00:07:55,350 --> 00:07:53,919

normally have if they were at home for

228

00:07:57,749 --> 00:07:55,360

that holiday

229

00:07:59,029 --> 00:07:57,759

and before the crew goes into space they

230

00:08:00,629 --> 00:07:59,039

get to try all the different kinds of

231

00:08:02,390 --> 00:08:00,639

food and decide what they like and then

232

00:08:04,150 --> 00:08:02,400

they work with the team here on the

233

00:08:05,189 --> 00:08:04,160

ground to make sure that they get the

234

00:08:06,790 --> 00:08:05,199

right

235

00:08:09,830 --> 00:08:06,800

amount of different vitamins and

236

00:08:11,589 --> 00:08:09,840

nutrition and get a good balanced diet

237

00:08:12,869 --> 00:08:11,599

and then that's what's sent up for them

238

00:08:15,990 --> 00:08:12,879

so that they are they don't have to eat

239

00:08:18,150 --> 00:08:16,000

anything that they can't stand

240

00:08:19,670 --> 00:08:18,160

since space uh shuttles are no longer in

241

00:08:20,950 --> 00:08:19,680

use how are supplies delivered to the

242

00:08:22,469 --> 00:08:20,960

space station

243

00:08:24,710 --> 00:08:22,479

good questions yeah another good

244

00:08:26,950 --> 00:08:24,720

question uh so right now we can't we get

245

00:08:28,950 --> 00:08:26,960

crew to the space station via the soyuz

246

00:08:30,550 --> 00:08:28,960

and that's uh russia's vehicle that can

247

00:08:32,949 --> 00:08:30,560

take people up on it so that's how

248

00:08:35,350 --> 00:08:32,959

everybody's going up and back right now

249

00:08:36,790 --> 00:08:35,360

for cargo for for non-people we have

250

00:08:38,550 --> 00:08:36,800

lots of different vehicles that can go

251
00:08:40,469 --> 00:08:38,560
up there right now the russians have a

252
00:08:42,469 --> 00:08:40,479
vehicle called progress which is like

253
00:08:43,829 --> 00:08:42,479
the soyuz except it's full of stuff not

254
00:08:46,470 --> 00:08:43,839
people

255
00:08:48,550 --> 00:08:46,480
the europeans have one called atv and

256
00:08:50,150 --> 00:08:48,560
the japanese have a vehicle called htv

257
00:08:51,670 --> 00:08:50,160
and those are both cargo vehicles that

258
00:08:53,670 --> 00:08:51,680
come to the space station and now we

259
00:08:55,269 --> 00:08:53,680
have two u.s companies dragon that we

260
00:08:56,630 --> 00:08:55,279
were talking about so it's coming next

261
00:08:59,350 --> 00:08:56,640
week and bringing up some cargo and

262
00:09:01,269 --> 00:08:59,360
supplies and some science experiments

263
00:09:03,110 --> 00:09:01,279

and then orbital's vehicle cygnus will

264

00:09:05,509 --> 00:09:03,120

be coming up later this year and it will

265

00:09:06,829 --> 00:09:05,519

be able to do that too

266

00:09:09,910 --> 00:09:06,839

what are the types of

267

00:09:11,829 --> 00:09:09,920

careers are possible with nasa

268

00:09:13,430 --> 00:09:11,839

what other type of careers are possible

269

00:09:15,350 --> 00:09:13,440

at nasa

270

00:09:16,550 --> 00:09:15,360

well um there are a whole lot of

271

00:09:19,110 --> 00:09:16,560

different types of things you can do at

272

00:09:21,829 --> 00:09:19,120

nasa obviously there could be a

273

00:09:23,350 --> 00:09:21,839

flight controller like dory here or an

274

00:09:25,190 --> 00:09:23,360

astronaut or

275

00:09:27,350 --> 00:09:25,200

just an engineer

276

00:09:30,150 --> 00:09:27,360

i work in the public affairs office so i

277

00:09:31,829 --> 00:09:30,160

write a lot and there's really not not a

278

00:09:33,509 --> 00:09:31,839

whole lot of areas that nasa doesn't

279

00:09:34,470 --> 00:09:33,519

touch in some way but most people are

280

00:09:36,870 --> 00:09:34,480

going to be

281

00:09:40,310 --> 00:09:36,880

in the science or math or engineering

282

00:09:45,910 --> 00:09:41,910

yeah specific daily routines on the

283

00:09:51,190 --> 00:09:48,949

the daily routines on the space station

284

00:09:53,110 --> 00:09:51,200

yeah actually the days are very

285

00:09:54,710 --> 00:09:53,120

scheduled on the space station because

286

00:09:55,990 --> 00:09:54,720

time and space is really important we

287

00:09:58,070 --> 00:09:56,000

have a lot of science we want to get

288

00:09:59,670 --> 00:09:58,080

done we have a lot uh we have vehicles

289

00:10:01,910 --> 00:09:59,680

that are coming up we have robotics

290

00:10:03,670 --> 00:10:01,920

things we want to do and so the day is

291

00:10:04,949 --> 00:10:03,680

very well scheduled and one of the

292

00:10:06,550 --> 00:10:04,959

things is that

293

00:10:08,230 --> 00:10:06,560

you know we start the day at a set time

294

00:10:09,910 --> 00:10:08,240

and we end the day at a set time and we

295

00:10:11,990 --> 00:10:09,920

have lunch we try to keep it at you know

296

00:10:13,829 --> 00:10:12,000

around lunchtime same with dinner and so

297

00:10:15,269 --> 00:10:13,839

we schedule activities in between those

298

00:10:16,790 --> 00:10:15,279

times and so yeah everything's very

299

00:10:18,790 --> 00:10:16,800

scheduled and the ground and the crew

300

00:10:20,550 --> 00:10:18,800

can both see that schedule both for that

301

00:10:23,190 --> 00:10:20,560

day and in the future we plan a lot in

302

00:10:24,870 --> 00:10:23,200

advance and it's planned very detailed

303

00:10:26,550 --> 00:10:24,880

too down to i think five minute

304

00:10:27,990 --> 00:10:26,560

increments so that they know what they

305

00:10:30,150 --> 00:10:28,000

are supposed to be doing at any given

306

00:10:31,430 --> 00:10:30,160

time and so that the ground makes sure

307

00:10:32,630 --> 00:10:31,440

that they have enough time for the

308

00:10:34,069 --> 00:10:32,640

things that they're asking them to do

309

00:10:40,310 --> 00:10:34,079

and they don't run out of time before

310

00:10:45,670 --> 00:10:42,230

and uh ready for your next question if

311

00:10:51,110 --> 00:10:49,030

what does uh mission control do

312

00:10:52,870 --> 00:10:51,120

mission control does a whole lot of jobs

313

00:10:53,910 --> 00:10:52,880

actually if if you've seen a picture of

314

00:10:55,430 --> 00:10:53,920

mission control you can see there are a

315

00:10:57,509 --> 00:10:55,440

lot of different desks we got those

316

00:10:59,190 --> 00:10:57,519

consoles and each console does something

317

00:11:01,350 --> 00:10:59,200

different but the main job of mission

318

00:11:03,509 --> 00:11:01,360

control is to help the space station to

319

00:11:05,590 --> 00:11:03,519

help the crew and to help the actual the

320

00:11:07,110 --> 00:11:05,600

structure the space station itself to do

321

00:11:09,110 --> 00:11:07,120

what it needs to get done so we have

322

00:11:10,710 --> 00:11:09,120

people like me the videos that are in

323

00:11:12,389 --> 00:11:10,720

charge of safety when there's a vehicle

324

00:11:13,430 --> 00:11:12,399

coming to the space station we have

325

00:11:15,030 --> 00:11:13,440

people that are in charge of the

326

00:11:16,870 --> 00:11:15,040

computers onboard the space station and

327

00:11:18,150 --> 00:11:16,880

making sure they run we have people that

328

00:11:19,990 --> 00:11:18,160

are in charge of keeping the life

329

00:11:22,230 --> 00:11:20,000

support systems working well so the

330

00:11:23,590 --> 00:11:22,240

oxygen like we talked about and water

331

00:11:25,269 --> 00:11:23,600

we have people that just run every

332

00:11:27,269 --> 00:11:25,279

different piece keeping a space station

333

00:11:28,790 --> 00:11:27,279

in the right place in space so just

334

00:11:30,389 --> 00:11:28,800

about anything you can think of there

335

00:11:31,750 --> 00:11:30,399

are even people that have to figure out

336

00:11:33,829 --> 00:11:31,760

you know where stuff is stored on the

337

00:11:35,430 --> 00:11:33,839

space station because you know you have

338

00:11:37,350 --> 00:11:35,440

closets in your house but on the space

339

00:11:39,590 --> 00:11:37,360

station there are closets on the walls

340

00:11:41,350 --> 00:11:39,600

and on the floor and on the ceiling

341

00:11:43,590 --> 00:11:41,360

and so think about you're living in your

342

00:11:45,190 --> 00:11:43,600

house and then six months later new

343

00:11:46,790 --> 00:11:45,200

people come into your house you have no

344

00:11:49,030 --> 00:11:46,800

idea where they put the scissors or

345

00:11:50,389 --> 00:11:49,040

where the stapler is and so we on the

346

00:11:51,829 --> 00:11:50,399

ground have to help out with that too to

347

00:11:52,550 --> 00:11:51,839

kind of keep track of where things are

348

00:11:54,069 --> 00:11:52,560

so

349

00:11:58,710 --> 00:11:54,079

lots of things that mission control does

350

00:11:58,720 --> 00:12:05,509

ready for your next question

351

00:12:11,030 --> 00:12:08,150

um how difficult is it using the zero

352

00:12:12,790 --> 00:12:11,040

gravity toilet

353

00:12:14,870 --> 00:12:12,800

that's always a fun question huh so i've

354

00:12:17,030 --> 00:12:14,880

never gotten to use it myself but i have

355

00:12:18,150 --> 00:12:17,040

talked to some of the astronauts and one

356

00:12:19,750 --> 00:12:18,160

of the things is they do a lot of

357

00:12:21,750 --> 00:12:19,760

training on the ground we do training

358

00:12:23,670 --> 00:12:21,760

for everything and that's that's not an

359

00:12:24,870 --> 00:12:23,680

exception you know you have to learn how

360

00:12:26,150 --> 00:12:24,880

the machine works because it's

361

00:12:28,230 --> 00:12:26,160

definitely different than a regular

362

00:12:30,150 --> 00:12:28,240

toilet and you have to learn how to use

363

00:12:32,710 --> 00:12:30,160

it properly and then once they have that

364

00:12:34,069 --> 00:12:32,720

training it's it's not difficult it's

365

00:12:36,310 --> 00:12:34,079

just a different process they have to

366

00:12:37,110 --> 00:12:36,320

learn

367

00:12:44,870 --> 00:12:37,120

next

368

00:12:49,269 --> 00:12:46,629

how many different types of jobs are at

369

00:12:50,790 --> 00:12:49,279

mission control

370

00:12:52,949 --> 00:12:50,800

how many different types of jobs are in

371

00:12:54,710 --> 00:12:52,959

mission control it's it's hard to count

372

00:12:56,949 --> 00:12:54,720

uh get a real count because

373

00:12:58,389 --> 00:12:56,959

if you are you can see where we are

374

00:13:00,389 --> 00:12:58,399

there are a number of deaths just like

375

00:13:03,910 --> 00:13:00,399

the one we're sitting at here who each

376

00:13:06,470 --> 00:13:03,920

have a person at it doing a specific job

377

00:13:08,629 --> 00:13:06,480

and each of those desks has somebody who

378

00:13:10,790 --> 00:13:08,639

sits at them all day so there's three

379

00:13:12,550 --> 00:13:10,800

people who um sit at them you know for

380

00:13:14,069 --> 00:13:12,560

about eight or nine hours at a time and

381

00:13:17,190 --> 00:13:14,079

they switch off so that there's always

382

00:13:20,389 --> 00:13:17,200

somebody there and each of those desks

383

00:13:21,990 --> 00:13:20,399

also has a whole room of people usually

384

00:13:22,949 --> 00:13:22,000

that sits somewhere else not in this

385

00:13:24,230 --> 00:13:22,959

room but

386

00:13:25,350 --> 00:13:24,240

that backs them up on different

387

00:13:27,030 --> 00:13:25,360

activities they might have to do

388

00:13:28,870 --> 00:13:27,040

somewhere else so

389

00:13:30,150 --> 00:13:28,880

it's a it's a lot of people it keeps it

390

00:13:33,350 --> 00:13:30,160

takes a lot of people to keep the space

391

00:13:33,360 --> 00:13:38,470

next question

392

00:13:43,110 --> 00:13:40,949

um what kind of college course work is

393

00:13:45,670 --> 00:13:43,120

needed to follow the career field of an

394

00:13:47,030 --> 00:13:45,680

astronaut

395

00:13:48,310 --> 00:13:47,040

like we had talked about you know most

396

00:13:50,949 --> 00:13:48,320

of the astronauts are involved in

397

00:13:52,870 --> 00:13:50,959

technology or science or engineering

398

00:13:54,470 --> 00:13:52,880

and so you would get you start off with

399

00:13:56,389 --> 00:13:54,480

your bachelor's degree in one of those

400

00:13:58,550 --> 00:13:56,399

areas and then you kind of figure out

401
00:14:00,310 --> 00:13:58,560
what you want your specialty to be and

402
00:14:01,430 --> 00:14:00,320
then they'll go and get a master's in

403
00:14:03,829 --> 00:14:01,440
that and most of the time they'll even

404
00:14:05,269 --> 00:14:03,839
go and get a phd so you know the highest

405
00:14:08,230 --> 00:14:05,279
kind of degree you can get to really

406
00:14:09,430 --> 00:14:08,240
become an expert on that subject

407
00:14:11,750 --> 00:14:09,440
and i think a lot of the astronauts

408
00:14:13,829 --> 00:14:11,760
would tell you that

409
00:14:15,509 --> 00:14:13,839
their recommendation is because it's so

410
00:14:17,189 --> 00:14:15,519
hard to be an astronaut you should

411
00:14:18,870 --> 00:14:17,199
really study something that you love

412
00:14:19,910 --> 00:14:18,880
anyway that you'll love doing even if

413
00:14:21,750 --> 00:14:19,920

you're not going to do it as an

414

00:14:23,910 --> 00:14:21,760

astronaut so that

415

00:14:26,150 --> 00:14:23,920

that also helps you

416

00:14:28,069 --> 00:14:26,160

learn to be really the best in your

417

00:14:29,750 --> 00:14:28,079

field if you love it you'll work hard at

418

00:14:31,509 --> 00:14:29,760

it and so that increases your chance of

419

00:14:32,949 --> 00:14:31,519

being an astronaut but it also gives you

420

00:14:34,870 --> 00:14:32,959

a backup plan if you're not able to be

421

00:14:36,629 --> 00:14:34,880

an astronaut

422

00:14:38,870 --> 00:14:36,639

what temperatures outside of space

423

00:14:40,389 --> 00:14:38,880

stations do you experience and how are

424

00:14:42,710 --> 00:14:40,399

temperatures adjusted for the

425

00:14:45,030 --> 00:14:42,720

temperature change

426

00:14:46,790 --> 00:14:45,040

that's a good question um when it is

427

00:14:48,550 --> 00:14:46,800

nighttime outside the space station so

428

00:14:49,910 --> 00:14:48,560

the the space station is going around

429

00:14:52,150 --> 00:14:49,920

the earth so

430

00:14:53,430 --> 00:14:52,160

about half the time it's in the sunlight

431

00:14:55,189 --> 00:14:53,440

and half the time it's behind the earth

432

00:14:57,829 --> 00:14:55,199

and so it's in dark and when it's in the

433

00:14:59,509 --> 00:14:57,839

dark it's way below freezing outside and

434

00:15:01,509 --> 00:14:59,519

when it's in the sun it's much hotter

435

00:15:02,870 --> 00:15:01,519

than it ever gets on earth and so you

436

00:15:04,629 --> 00:15:02,880

can get really big temperature

437

00:15:06,629 --> 00:15:04,639

differences and so when the crew is

438

00:15:08,710 --> 00:15:06,639

inside the space station maintains a

439

00:15:10,870 --> 00:15:08,720

good temperature for them and it uses

440

00:15:12,470 --> 00:15:10,880

different ways to either collect the sun

441

00:15:14,069 --> 00:15:12,480

and use its energy to help heat the

442

00:15:15,910 --> 00:15:14,079

station or to

443

00:15:16,710 --> 00:15:15,920

kind of reject some of that heat to keep

444

00:15:19,750 --> 00:15:16,720

it

445

00:15:21,590 --> 00:15:19,760

too hot and then when the astronauts go

446

00:15:23,269 --> 00:15:21,600

outside to do their space walks their

447

00:15:24,629 --> 00:15:23,279

suits do that for them

448

00:15:26,470 --> 00:15:24,639

their suits have

449

00:15:27,829 --> 00:15:26,480

a little has water running through it

450

00:15:29,269 --> 00:15:27,839

and they can control the temperature of

451

00:15:31,030 --> 00:15:29,279

the water and that will help control the

452

00:15:33,269 --> 00:15:31,040

temperature inside the spacesuit to keep

453

00:15:34,949 --> 00:15:33,279

them from getting too hot or too cold

454

00:15:36,310 --> 00:15:34,959

and for when it's really cold if it's

455

00:15:37,990 --> 00:15:36,320

nighttime and they're working on

456

00:15:40,150 --> 00:15:38,000

something they really need their fingers

457

00:15:42,150 --> 00:15:40,160

for they have heaters and their gloves

458

00:15:43,509 --> 00:15:42,160

that keep their fingers warm so

459

00:15:45,110 --> 00:15:43,519

lots of things that

460

00:15:46,470 --> 00:15:45,120

that goes into keeping you comfortable

461

00:15:49,030 --> 00:15:46,480

when you're in space

462

00:15:49,990 --> 00:15:49,040

next question

463

00:15:51,430 --> 00:15:50,000

oh

464

00:15:54,069 --> 00:15:51,440

what kind of jobs are on the space

465

00:15:55,350 --> 00:15:54,079

station

466

00:15:57,110 --> 00:15:55,360

so the astronauts when they're on the

467

00:15:59,030 --> 00:15:57,120

space station do a lot of different

468

00:16:00,790 --> 00:15:59,040

things um the the thing you probably

469

00:16:01,910 --> 00:16:00,800

hear the most about is is the science

470

00:16:04,069 --> 00:16:01,920

you know they're doing all kinds of

471

00:16:05,590 --> 00:16:04,079

really cool experiments and doing things

472

00:16:07,430 --> 00:16:05,600

that we can only do in space you know

473

00:16:09,030 --> 00:16:07,440

figuring out how gravity affects

474

00:16:10,470 --> 00:16:09,040

different things and so that's what they

475

00:16:13,030 --> 00:16:10,480

really enjoy doing they love doing

476

00:16:14,389 --> 00:16:13,040

science um but they also really like

477

00:16:16,230 --> 00:16:14,399

looking at the earth we do a lot of

478

00:16:17,910 --> 00:16:16,240

studying of the earth taking pictures of

479

00:16:19,509 --> 00:16:17,920

the earth um

480

00:16:21,189 --> 00:16:19,519

sometimes when we have things like

481

00:16:22,870 --> 00:16:21,199

hurricanes that are coming the

482

00:16:24,470 --> 00:16:22,880

astronauts will actually help with that

483

00:16:26,710 --> 00:16:24,480

and take pictures of that for the ground

484

00:16:27,910 --> 00:16:26,720

since we get a really good view of that

485

00:16:29,670 --> 00:16:27,920

and then there are things that they have

486

00:16:31,509 --> 00:16:29,680

to do just to just to keep the space

487

00:16:32,870 --> 00:16:31,519

station working so it's kind of like how

488

00:16:34,310 --> 00:16:32,880

you have to do some chores around your

489

00:16:35,670 --> 00:16:34,320

house to keep your house clean and

490

00:16:37,509 --> 00:16:35,680

functioning they have to do chores in

491

00:16:38,949 --> 00:16:37,519

space too and so they have to do some

492

00:16:40,069 --> 00:16:38,959

cleaning or they have to do some

493

00:16:42,550 --> 00:16:40,079

maintenance to keep some of the

494

00:16:44,310 --> 00:16:42,560

equipment working

495

00:16:45,829 --> 00:16:44,320

does the space station continue to grow

496

00:16:48,790 --> 00:16:45,839

in size to hold more astronauts

497

00:16:50,470 --> 00:16:48,800

cosmonauts etc

498

00:16:52,470 --> 00:16:50,480

the space station is pretty much done

499

00:16:54,310 --> 00:16:52,480

growing now uh it was designed to hold

500

00:16:56,150 --> 00:16:54,320

six people and that's where we are and

501
00:16:58,230 --> 00:16:56,160
so we're gonna keep rotating those six

502
00:17:00,470 --> 00:16:58,240
people in and out but uh we don't intend

503
00:17:01,910 --> 00:17:00,480
to get much bigger put many more people

504
00:17:03,749 --> 00:17:01,920
in there it's pretty much the size it's

505
00:17:05,590 --> 00:17:03,759
gonna be it's a live view that you're

506
00:17:07,029 --> 00:17:05,600
seeing here of uh what the space station

507
00:17:09,510 --> 00:17:07,039
looks like on the inside right now this

508
00:17:11,990 --> 00:17:09,520
is the destiny laboratory which is

509
00:17:14,309 --> 00:17:12,000
the united space uh the united states

510
00:17:15,829 --> 00:17:14,319
laboratory um there are

511
00:17:18,710 --> 00:17:15,839
three different laboratories on the

512
00:17:20,470 --> 00:17:18,720
united states side of the space station

513
00:17:23,510 --> 00:17:20,480

there's one from the u.s and then also

514

00:17:24,870 --> 00:17:23,520

one from europe and one from japan and

515

00:17:26,789 --> 00:17:24,880

then the russian side of the space

516

00:17:28,390 --> 00:17:26,799

station has a couple of other modules so

517

00:17:30,070 --> 00:17:28,400

they're it's really big it's about as

518

00:17:31,990 --> 00:17:30,080

long as

519

00:17:33,510 --> 00:17:32,000

about the size of a football field with

520

00:17:35,909 --> 00:17:33,520

the solar arrays

521

00:17:38,230 --> 00:17:35,919

and um there's actually i think the crew

522

00:17:39,909 --> 00:17:38,240

members tend to tell you that um that

523

00:17:41,510 --> 00:17:39,919

there's plenty of room for six people in

524

00:17:42,950 --> 00:17:41,520

there and actually they are able to

525

00:17:44,390 --> 00:17:42,960

spend a lot of their time kind of by

526

00:17:46,470 --> 00:17:44,400

themselves working and they don't

527

00:17:48,870 --> 00:17:46,480

necessarily work side by side all the

528

00:17:54,150 --> 00:17:52,390

what kind of training do they do

529

00:17:56,310 --> 00:17:54,160

in nasa

530

00:17:58,390 --> 00:17:56,320

what kind of training do we do at nasa

531

00:18:00,310 --> 00:17:58,400

training for the astronauts

532

00:18:01,830 --> 00:18:00,320

they do all sorts of training they spend

533

00:18:03,990 --> 00:18:01,840

a lot of their time doing training to

534

00:18:06,310 --> 00:18:04,000

get ready um they do things from

535

00:18:08,390 --> 00:18:06,320

training for example how to fix a

536

00:18:10,310 --> 00:18:08,400

computer that may break because we don't

537

00:18:11,830 --> 00:18:10,320

you know you can't just send

538

00:18:13,190 --> 00:18:11,840

you can't call somebody to come fix your

539

00:18:14,630 --> 00:18:13,200

computer in space right you kind of have

540

00:18:16,310 --> 00:18:14,640

to know how to do it so we get training

541

00:18:17,510 --> 00:18:16,320

and that kind of stuff

542

00:18:18,789 --> 00:18:17,520

they also get training for all the

543

00:18:19,909 --> 00:18:18,799

science they're going to have to do so

544

00:18:21,830 --> 00:18:19,919

they understand what they're going to

545

00:18:23,110 --> 00:18:21,840

need to be doing for the experiments

546

00:18:24,789 --> 00:18:23,120

they do a lot of training if they're

547

00:18:25,990 --> 00:18:24,799

going to do space walks

548

00:18:27,750 --> 00:18:26,000

to make sure they understand what

549

00:18:29,430 --> 00:18:27,760

they're doing and where they're gonna go

550

00:18:31,029 --> 00:18:29,440

in space it's really choreographed

551
00:18:32,549 --> 00:18:31,039
almost like a dance when they go out in

552
00:18:33,669 --> 00:18:32,559
space where they know exactly where

553
00:18:35,750 --> 00:18:33,679
they're gonna put their hand or where

554
00:18:37,750 --> 00:18:35,760
they're gonna put their foot it's very

555
00:18:39,270 --> 00:18:37,760
precise and then of course they train

556
00:18:41,350 --> 00:18:39,280
just generically on things like using

557
00:18:43,430 --> 00:18:41,360
the robotic arm it's a really big arm

558
00:18:45,909 --> 00:18:43,440
and they have to learn how to handle it

559
00:18:47,750 --> 00:18:45,919
and how to work it very smoothly for

560
00:18:49,350 --> 00:18:47,760
things like capturing vehicles so a lot

561
00:18:51,190 --> 00:18:49,360
of training there and then the people on

562
00:18:53,430 --> 00:18:51,200
the ground also do training

563
00:18:55,990 --> 00:18:53,440

we do some things called simulations and

564

00:18:57,669 --> 00:18:56,000

that's where we set computers up that

565

00:18:59,350 --> 00:18:57,679

run and pretend like the space station

566

00:19:01,110 --> 00:18:59,360

is running and pretend like for example

567

00:19:02,950 --> 00:19:01,120

dragon is coming

568

00:19:04,549 --> 00:19:02,960

and so we actually see graphics just

569

00:19:06,230 --> 00:19:04,559

like it's really happening in real life

570

00:19:07,990 --> 00:19:06,240

and the entire mission control team will

571

00:19:09,430 --> 00:19:08,000

practice and pretend like it's really

572

00:19:10,549 --> 00:19:09,440

happening and so we practice all the

573

00:19:11,750 --> 00:19:10,559

stuff we're gonna have to do on the

574

00:19:13,750 --> 00:19:11,760

ground too

575

00:19:15,430 --> 00:19:13,760

how long did you have to train to be a

576

00:19:16,950 --> 00:19:15,440

visiting vehicle officer

577

00:19:19,029 --> 00:19:16,960

so like i said i've been here for five

578

00:19:20,390 --> 00:19:19,039

years and as brandi mentioned for each

579

00:19:21,909 --> 00:19:20,400

of the positions that's here there's

580

00:19:23,430 --> 00:19:21,919

actually more people helping them in

581

00:19:24,870 --> 00:19:23,440

different rooms and so

582

00:19:27,029 --> 00:19:24,880

we first get trained to go ahead and

583

00:19:28,789 --> 00:19:27,039

work and we call those in the back rooms

584

00:19:30,470 --> 00:19:28,799

and so i got trained to work three

585

00:19:31,990 --> 00:19:30,480

different positions in the back room

586

00:19:33,270 --> 00:19:32,000

before i got to come up here and work in

587

00:19:35,270 --> 00:19:33,280

the front room and i got my

588

00:19:36,950 --> 00:19:35,280

certification last year so it took me

589

00:19:38,549 --> 00:19:36,960

about four years of training to be able

590

00:19:40,230 --> 00:19:38,559

to make it into actual mission control

591

00:19:42,549 --> 00:19:40,240

and you have to kind of go step by step

592

00:19:43,909 --> 00:19:42,559

right you take one one uh position at a

593

00:19:45,990 --> 00:19:43,919

time learn how to do it well then move

594

00:19:48,230 --> 00:19:46,000

on to the next one exactly

595

00:19:49,590 --> 00:19:48,240

all right next question

596

00:19:51,110 --> 00:19:49,600

i'm sorry we weren't able to hear that

597

00:19:53,669 --> 00:19:51,120

one i don't think their microphone your

598

00:19:56,390 --> 00:19:53,679

microphone was turned on

599

00:19:58,789 --> 00:19:56,400

what does robonaut do now in space

600

00:19:59,830 --> 00:19:58,799

what does robonaut do now so robonaut

601
00:20:01,669 --> 00:19:59,840
just like we were talking about he's

602
00:20:03,270 --> 00:20:01,679
kind of in training right now um you

603
00:20:04,789 --> 00:20:03,280
know he went up there and now he's kind

604
00:20:06,390 --> 00:20:04,799
of learning the things he's going to be

605
00:20:07,990 --> 00:20:06,400
doing and so they're they're doing some

606
00:20:09,510 --> 00:20:08,000
testing with him they're using him for

607
00:20:11,270 --> 00:20:09,520
very small things inside the space

608
00:20:12,710 --> 00:20:11,280
station right now and because it's

609
00:20:14,230 --> 00:20:12,720
everybody has to learn you know the

610
00:20:16,470 --> 00:20:14,240
astronauts have to learn what it's like

611
00:20:18,310 --> 00:20:16,480
to work next to a robot because he's new

612
00:20:19,590 --> 00:20:18,320
there and robonaut has to learn about

613
00:20:21,669 --> 00:20:19,600

the kinds of things he can do in the

614

00:20:23,830 --> 00:20:21,679

space station and the team on the ground

615

00:20:25,350 --> 00:20:23,840

that helps control robot needs to learn

616

00:20:27,110 --> 00:20:25,360

you know how he works in space and what

617

00:20:28,630 --> 00:20:27,120

kind of things they can do

618

00:20:30,630 --> 00:20:28,640

so right now he's kind of in training

619

00:20:31,990 --> 00:20:30,640

just like the rest of us go through and

620

00:20:33,350 --> 00:20:32,000

then like we said eventually he'll be

621

00:20:34,950 --> 00:20:33,360

able to go and do things for the

622

00:20:35,830 --> 00:20:34,960

astronauts to kind of help save them

623

00:20:36,870 --> 00:20:35,840

time

624

00:20:38,470 --> 00:20:36,880

some of the stuff that's going to be a

625

00:20:40,470 --> 00:20:38,480

little bit too boring for the astronauts

626
00:20:42,470 --> 00:20:40,480
to do because robonauts robots don't

627
00:20:44,149 --> 00:20:42,480
mind if it's boring

628
00:20:46,710 --> 00:20:44,159
next question

629
00:20:50,070 --> 00:20:46,720
how can you don't go to any other states

630
00:20:52,310 --> 00:20:50,080
any other planets but the moon

631
00:20:54,070 --> 00:20:52,320
yeah we don't yet we want to and we want

632
00:20:55,510 --> 00:20:54,080
to go and explore lots of other places

633
00:20:57,750 --> 00:20:55,520
you know maybe some other planets or

634
00:20:59,430 --> 00:20:57,760
some asteroids or even farther than that

635
00:21:01,270 --> 00:20:59,440
so definitely we're looking at going you

636
00:21:03,270 --> 00:21:01,280
know way beyond the earth

637
00:21:04,870 --> 00:21:03,280
and we hope to do that in the future but

638
00:21:06,630 --> 00:21:04,880

it's it's like training you have to take

639

00:21:08,149 --> 00:21:06,640

little steps so the moon's the closest

640

00:21:09,909 --> 00:21:08,159

thing so that's the first baby step that

641

00:21:11,669 --> 00:21:09,919

we take and we practice on that and then

642

00:21:13,750 --> 00:21:11,679

we'll keep going we're actually building

643

00:21:14,870 --> 00:21:13,760

a new spaceship right now called the

644

00:21:16,390 --> 00:21:14,880

orion

645

00:21:17,669 --> 00:21:16,400

that's going to let us take people to

646

00:21:20,230 --> 00:21:17,679

other planets we

647

00:21:23,669 --> 00:21:20,240

believe we'll be able to go to the moon

648

00:21:25,669 --> 00:21:23,679

or asteroids or even mars on orion and

649

00:21:27,230 --> 00:21:25,679

you can find out more about that online

650

00:21:30,390 --> 00:21:27,240

too at

651
00:21:32,070 --> 00:21:30,400
www.nasa.gov orion

652
00:21:33,590 --> 00:21:32,080
next question

653
00:21:35,909 --> 00:21:33,600
i just want to thank you for talking to

654
00:21:37,909 --> 00:21:35,919
my students but uh also

655
00:21:39,830 --> 00:21:37,919
some context about two months ago they

656
00:21:42,070 --> 00:21:39,840
spoke to one of the designers of

657
00:21:44,549 --> 00:21:42,080
robonaut cody hensley i think he works

658
00:21:46,630 --> 00:21:44,559
in your building oh okay

659
00:21:48,310 --> 00:21:46,640
so you know they had some context my

660
00:21:50,310 --> 00:21:48,320
question though is

661
00:21:51,830 --> 00:21:50,320
did the people uh astronauts on the

662
00:21:54,549 --> 00:21:51,840
space station have

663
00:21:56,789 --> 00:21:54,559

any uh opinions or sightings of the

664

00:22:00,549 --> 00:21:56,799

asteroid

665

00:22:05,669 --> 00:22:02,950

i don't think that um they had any from

666

00:22:07,190 --> 00:22:05,679

the space station that um that they saw

667

00:22:10,390 --> 00:22:07,200

we are watching we watched it really

668

00:22:11,830 --> 00:22:10,400

closely at nasa um and we actually

669

00:22:14,070 --> 00:22:11,840

have some pictures online if you want to

670

00:22:16,310 --> 00:22:14,080

go look at nasa.gov there's a lot of

671

00:22:19,430 --> 00:22:16,320

information there about the asteroid

672

00:22:21,350 --> 00:22:19,440

that flew by um that we knew was coming

673

00:22:23,270 --> 00:22:21,360

on friday the big one and also the one

674

00:22:25,350 --> 00:22:23,280

that hit russia so there's there's lots

675

00:22:27,430 --> 00:22:25,360

of interesting information there

676
00:22:28,950 --> 00:22:27,440
and uh one of the groups that works here

677
00:22:30,789 --> 00:22:28,960
pointing is another group in mission

678
00:22:32,710 --> 00:22:30,799
control and they were looking into the

679
00:22:34,310 --> 00:22:32,720
crew being able to see that and i think

680
00:22:36,149 --> 00:22:34,320
one of the things they said is that it

681
00:22:38,310 --> 00:22:36,159
was too small to actually see very

682
00:22:39,190 --> 00:22:38,320
easily you know space is really large

683
00:22:40,549 --> 00:22:39,200
and so

684
00:22:42,230 --> 00:22:40,559
it was a little bit too small for them

685
00:22:43,909 --> 00:22:42,240
to see just from the space station and

686
00:22:45,909 --> 00:22:43,919
it also depends on you know where the

687
00:22:47,190 --> 00:22:45,919
asteroid was and where the crew and the

688
00:22:48,950 --> 00:22:47,200

space station were at the time if the

689

00:22:50,950 --> 00:22:48,960

earth was in the way so i don't think we

690

00:22:52,390 --> 00:22:50,960

got to see that one i think it's good

691

00:22:54,789 --> 00:22:52,400

that it was too small to see that's what

692

00:22:56,310 --> 00:22:54,799

we like for asteroids close to earth uh

693

00:22:57,750 --> 00:22:56,320

we do um let the

694

00:22:59,190 --> 00:22:57,760

astronauts know though when there's

695

00:23:00,390 --> 00:22:59,200

going to be something cool in space to

696

00:23:01,590 --> 00:23:00,400

see that they're going to be able to see

697

00:23:03,590 --> 00:23:01,600

and a lot of times they're able to take

698

00:23:05,750 --> 00:23:03,600

good pictures and video which we all put

699

00:23:07,990 --> 00:23:05,760

on nasa.gov and you can see for yourself

700

00:23:11,750 --> 00:23:08,000

so there's lots of really cool pictures

701
00:23:13,750 --> 00:23:11,760
of uh just the earth and and beautiful

702
00:23:16,390 --> 00:23:13,760
pictures of it and also uh

703
00:23:19,750 --> 00:23:16,400
the northern lights things like that and

704
00:23:21,270 --> 00:23:19,760
uh meteors hitting and um and uh you

705
00:23:23,190 --> 00:23:21,280
know burning up in the earth's

706
00:23:25,029 --> 00:23:23,200
atmosphere and lots of really cool

707
00:23:27,190 --> 00:23:25,039
phenomenon

708
00:23:28,950 --> 00:23:27,200
all right and dory and brandy thank you

709
00:23:31,190 --> 00:23:28,960
so much for answering all these

710
00:23:33,750 --> 00:23:31,200
wonderful questions um wanted to give

711
00:23:37,350 --> 00:23:33,760
salt river um last chance to say thank

712
00:23:39,110 --> 00:23:37,360
you and goodbye

713
00:23:41,430 --> 00:23:39,120

thank y'all great questions we really