
PAO

1
00:00:04,230 --> 00:00:01,990
well welcome to mission control in

2
00:00:06,470 --> 00:00:04,240
houston my name is pat ryan i'm the

3
00:00:09,350 --> 00:00:06,480
public affairs officer on the orbit 2

4
00:00:11,669 --> 00:00:09,360
shift here in mission control today and

5
00:00:13,350 --> 00:00:11,679
we just finished up our daily update of

6
00:00:15,509 --> 00:00:13,360
the news onboard the international space

7
00:00:17,590 --> 00:00:15,519
station and looking forward to talking

8
00:00:19,670 --> 00:00:17,600
to you about the station and about space

9
00:00:21,349 --> 00:00:19,680
exploration uh brought along somebody

10
00:00:24,150 --> 00:00:21,359
who knows all of that stuff

11
00:00:25,990 --> 00:00:24,160
even better than i do uh eric bowe is an

12
00:00:28,390 --> 00:00:26,000
astronaut he's been an astronaut since

13
00:00:31,109 --> 00:00:28,400

uh 2000 he's flown to the international

14
00:00:33,990 --> 00:00:31,119
space station twice as the pilot on

15
00:00:35,510 --> 00:00:34,000
space shuttle endeavour in 2008 and on

16
00:00:37,990 --> 00:00:35,520
the very final flight of space shuttle

17
00:00:40,389 --> 00:00:38,000
discovery in 2011.

18
00:00:43,270 --> 00:00:40,399
but perhaps more important eric is tell

19
00:00:45,750 --> 00:00:43,280
us how where you came from to get here

20
00:00:47,190 --> 00:00:45,760
well i grew up in atlanta georgia i was

21
00:00:48,790 --> 00:00:47,200
lived on the northeast side of town went

22
00:00:50,229 --> 00:00:48,800
to evansdale elementary school and i

23
00:00:52,310 --> 00:00:50,239
graduated from henderson high school

24
00:00:55,430 --> 00:00:52,320
which is now a middle school in atlanta

25
00:00:56,470 --> 00:00:55,440
area so you are familiar with the area

26
00:00:59,430 --> 00:00:56,480
where

27
00:01:00,310 --> 00:00:59,440
the folks here from ball ground are are

28
00:01:01,830 --> 00:01:00,320
are

29
00:01:03,430 --> 00:01:01,840
absolutely very very familiar with the

30
00:01:04,630 --> 00:01:03,440
atlanta area i was looking at ball

31
00:01:06,550 --> 00:01:04,640
ground where these guys are

32
00:01:07,830 --> 00:01:06,560
location-wise my father actually is in

33
00:01:08,710 --> 00:01:07,840
canton which is pretty close to where

34
00:01:10,630 --> 00:01:08,720
they're at

35
00:01:12,390 --> 00:01:10,640
tell us real quickly how did you become

36
00:01:14,550 --> 00:01:12,400
interested in being an astronaut how did

37
00:01:16,550 --> 00:01:14,560
you what did you have to do to get here

38
00:01:18,230 --> 00:01:16,560

well i've always been interested in

39
00:01:19,590 --> 00:01:18,240
flying it's just been one of my passions

40
00:01:21,030 --> 00:01:19,600
and so i went into the air force and

41
00:01:22,950 --> 00:01:21,040
became an air force pilot it was always

42
00:01:24,950 --> 00:01:22,960
kind of a far off dream i remember my

43
00:01:26,950 --> 00:01:24,960
parents coming when when the moon

44
00:01:28,310 --> 00:01:26,960
landings happened and neil armstrong was

45
00:01:30,550 --> 00:01:28,320
walking on the moon calling me in and

46
00:01:32,310 --> 00:01:30,560
saying hey watch this on tv that's kind

47
00:01:33,510 --> 00:01:32,320
of my first recollection of television i

48
00:01:35,670 --> 00:01:33,520
remember seeing the landing and i think

49
00:01:37,670 --> 00:01:35,680
that's kind of was always kind of on my

50
00:01:39,670 --> 00:01:37,680
mind to maybe get a chance to do that in

51
00:01:41,830 --> 00:01:39,680
the future and as my career went along i

52
00:01:43,830 --> 00:01:41,840
became a fighter pilot and a test pilot

53
00:01:45,190 --> 00:01:43,840
and i had the qualifications to be an

54
00:01:47,350 --> 00:01:45,200
astronaut i went ahead and applied and

55
00:01:48,950 --> 00:01:47,360
that's kind of the course it took cool

56
00:01:50,630 --> 00:01:48,960
well let's find out what the what the

57
00:01:54,469 --> 00:01:50,640
kids in the atlanta area are interested

58
00:01:56,469 --> 00:01:54,479
in we're ready to take your questions

59
00:01:58,550 --> 00:01:56,479
what kind of training do you do to

60
00:02:01,830 --> 00:01:58,560
become an astronaut and how many years

61
00:02:03,749 --> 00:02:01,840
do you have to train to be an astronaut

62
00:02:05,030 --> 00:02:03,759
that's a great question well the

63
00:02:06,389 --> 00:02:05,040

training involved usually when you come

64
00:02:07,990 --> 00:02:06,399
in as an astronaut one of the first

65
00:02:09,350 --> 00:02:08,000
things you do is you go through

66
00:02:11,029 --> 00:02:09,360
astronaut candidate training so that's

67
00:02:12,309 --> 00:02:11,039
usually in the range of a year and a

68
00:02:13,990 --> 00:02:12,319
half to two and a half years depending

69
00:02:15,910 --> 00:02:14,000
on how that works out so you do all

70
00:02:17,990 --> 00:02:15,920
kinds of generic training

71
00:02:19,830 --> 00:02:18,000
things like working the robotic arm you

72
00:02:21,670 --> 00:02:19,840
learn how to fly we have t-38s that we

73
00:02:22,949 --> 00:02:21,680
use for training to get crew members

74
00:02:24,869 --> 00:02:22,959
used to what it's going to be like in a

75
00:02:26,869 --> 00:02:24,879
spaceship because of communications and

76
00:02:29,430 --> 00:02:26,879
working those things we also have

77
00:02:30,470 --> 00:02:29,440
a neutral buoyancy laboratory nbl we'll

78
00:02:32,470 --> 00:02:30,480
talk about that probably a little bit

79
00:02:34,390 --> 00:02:32,480
later where we practice doing space

80
00:02:36,309 --> 00:02:34,400
walks as well and we have a lot of other

81
00:02:37,910 --> 00:02:36,319
training uh language training now with

82
00:02:39,110 --> 00:02:37,920
the the international space station

83
00:02:40,790 --> 00:02:39,120
russians one of those big things that

84
00:02:42,869 --> 00:02:40,800
we're learning on the station so that

85
00:02:44,470 --> 00:02:42,879
training and then then as you you uh

86
00:02:46,070 --> 00:02:44,480
pick up jobs in the astronaut office as

87
00:02:47,430 --> 00:02:46,080
you wait to be assigned for your flight

88
00:02:49,110 --> 00:02:47,440

and then you get assigned a flight and

89
00:02:50,550 --> 00:02:49,120
then that training right now for the

90
00:02:51,990 --> 00:02:50,560
international space station is on the

91
00:02:54,390 --> 00:02:52,000
order of about two to two and a half

92
00:02:56,630 --> 00:02:54,400
years for your training that's involved

93
00:02:58,149 --> 00:02:56,640
when i was a space shuttle pilot uh my

94
00:02:59,830 --> 00:02:58,159
training for their space shuttle mission

95
00:03:01,430 --> 00:02:59,840
was about a year to a year and a half so

96
00:03:02,550 --> 00:03:01,440
it kind of depends on what what you're

97
00:03:05,030 --> 00:03:02,560
going for you know space station

98
00:03:06,390 --> 00:03:05,040
missions about six months is how long it

99
00:03:07,430 --> 00:03:06,400
lasts it just takes a little bit longer

100
00:03:10,149 --> 00:03:07,440
especially because you have travel

101
00:03:11,270 --> 00:03:10,159
between different countries

102
00:03:12,869 --> 00:03:11,280
did i answer

103
00:03:15,509 --> 00:03:12,879
yes okay yes

104
00:03:17,990 --> 00:03:15,519
next question

105
00:03:20,390 --> 00:03:18,000
was it like training in water and how

106
00:03:21,830 --> 00:03:20,400
does it relate to being in space

107
00:03:24,229 --> 00:03:21,840
yeah well you mentioned the the neutral

108
00:03:25,910 --> 00:03:24,239
buoyancy laboratory is that that's a

109
00:03:27,190 --> 00:03:25,920
bunch of absolutely it's it's one of the

110
00:03:28,390 --> 00:03:27,200
biggest pools in the world and it's

111
00:03:29,670 --> 00:03:28,400
gigantic if you ever get a chance to

112
00:03:30,949 --> 00:03:29,680
come out here to johnson space center

113
00:03:33,030 --> 00:03:30,959

you should you can take a tour of it and

114
00:03:34,390 --> 00:03:33,040
actually see it it's really gigantic and

115
00:03:35,830 --> 00:03:34,400
even though it's a really big pool we

116
00:03:37,110 --> 00:03:35,840
can't fit the international stage

117
00:03:38,630 --> 00:03:37,120
station fully in there so we actually

118
00:03:40,710 --> 00:03:38,640
have to put the mock-ups in different

119
00:03:42,149 --> 00:03:40,720
locations but the thing the pool allows

120
00:03:43,910 --> 00:03:42,159
us to do is to get out there and

121
00:03:45,589 --> 00:03:43,920
practice three-dimensionally like we're

122
00:03:47,670 --> 00:03:45,599
going to be in space whereas if it was

123
00:03:49,270 --> 00:03:47,680
some other way you obviously can't float

124
00:03:50,949 --> 00:03:49,280
on the ground one what they do is they

125
00:03:52,470 --> 00:03:50,959
balance you out in the pool and so it

126
00:03:54,070 --> 00:03:52,480
kind of stimulates

127
00:03:55,830 --> 00:03:54,080
like being in space things the pool

128
00:03:57,429 --> 00:03:55,840
doesn't do very well

129
00:03:58,789 --> 00:03:57,439
is one thing that you get in the water

130
00:04:00,070 --> 00:03:58,799
is obviously drag you know you move your

131
00:04:01,429 --> 00:04:00,080
hands in front of you and it slows you

132
00:04:02,949 --> 00:04:01,439
down so in space these are things that

133
00:04:04,789 --> 00:04:02,959
you have to compensate for and most crew

134
00:04:06,710 --> 00:04:04,799
members when they go out the first first

135
00:04:08,869 --> 00:04:06,720
time they go outside in space they have

136
00:04:10,710 --> 00:04:08,879
to really concentrate to look at those

137
00:04:12,070 --> 00:04:10,720
differences and make a difference but we

138
00:04:13,190 --> 00:04:12,080

found the pool is the best way to

139
00:04:14,869 --> 00:04:13,200
simulate

140
00:04:21,909 --> 00:04:14,879
space that we can do on the ground with

141
00:04:25,830 --> 00:04:23,749
did you like scuba diving before you

142
00:04:28,310 --> 00:04:25,840
started training with it

143
00:04:30,310 --> 00:04:28,320
i i that's a great question i did like

144
00:04:32,469 --> 00:04:30,320
to do scuba dive i was uh stationed in

145
00:04:34,790 --> 00:04:32,479
the air force uh on my first assignment

146
00:04:35,830 --> 00:04:34,800
as an operational uh pilot and i was in

147
00:04:37,189 --> 00:04:35,840
the philippines and that's where

148
00:04:38,310 --> 00:04:37,199
actually i learned how to scuba dive and

149
00:04:40,629 --> 00:04:38,320
i had a great time there the scuba

150
00:04:41,909 --> 00:04:40,639
diving was excellent so beautiful

151
00:04:44,310 --> 00:04:41,919
beautiful place to learn how to scuba

152
00:04:45,590 --> 00:04:44,320
dive and i've continued scuba diving

153
00:04:47,909 --> 00:04:45,600
throughout my life but we also scuba

154
00:04:49,990 --> 00:04:47,919
dive not only we're a space heat in the

155
00:04:51,909 --> 00:04:50,000
pool but we also practice in the pool uh

156
00:04:53,590 --> 00:04:51,919
for our space blocks by

157
00:04:56,070 --> 00:04:53,600
looking around at the mock-ups and scuba

158
00:04:58,070 --> 00:04:56,080
diving gear so i i really enjoy scuba

159
00:04:59,909 --> 00:04:58,080
diving and enjoy both in our nbl and

160
00:05:01,990 --> 00:04:59,919
also out in the ocean and i'll point out

161
00:05:03,830 --> 00:05:02,000
that there are other people who are

162
00:05:06,629 --> 00:05:03,840
doing who are helping train astronauts

163
00:05:08,790 --> 00:05:06,639

who scuba dive uh i had never been a

164
00:05:11,670 --> 00:05:08,800
diver before but shortly after i came to

165
00:05:14,310 --> 00:05:11,680
work here i got trained in scuba diving

166
00:05:16,950 --> 00:05:14,320
so i could go in that pool with a camera

167
00:05:19,110 --> 00:05:16,960
to shoot video of the astronauts while

168
00:05:22,150 --> 00:05:19,120
they were training and it's a remarkable

169
00:05:24,550 --> 00:05:22,160
thing to be floating around in there for

170
00:05:27,110 --> 00:05:24,560
for a couple of hours at a time holding

171
00:05:29,909 --> 00:05:27,120
a camera that's trailing this long cord

172
00:05:32,150 --> 00:05:29,919
and swimming around following them as

173
00:05:33,749 --> 00:05:32,160
they uh as they train for all the tasks

174
00:05:35,029 --> 00:05:33,759
that they have to do on the spacewalk

175
00:05:37,270 --> 00:05:35,039
you get a real

176
00:05:39,270 --> 00:05:37,280
a real interesting perspective of of how

177
00:05:41,350 --> 00:05:39,280
that goes and you also learn a lot about

178
00:05:42,710 --> 00:05:41,360
what they're actually doing on the eva

179
00:05:44,710 --> 00:05:42,720
so uh

180
00:05:45,990 --> 00:05:44,720
people who like diving can can be

181
00:05:47,670 --> 00:05:46,000
involved even when they're not

182
00:05:49,590 --> 00:05:47,680
astronauts absolutely when we're out

183
00:05:50,950 --> 00:05:49,600
there just practicing it's typically a

184
00:05:52,390 --> 00:05:50,960
spacewalk we have two people that are

185
00:05:54,710 --> 00:05:52,400
outside and when we're practicing we

186
00:05:56,870 --> 00:05:54,720
have two people but we have a whole team

187
00:05:59,270 --> 00:05:56,880
that's supporting that

188
00:06:00,950 --> 00:05:59,280

training that we're doing in the nbl and

189
00:06:02,629 --> 00:06:00,960
so when we do that we have just like you

190
00:06:04,550 --> 00:06:02,639
said photographers that are working with

191
00:06:05,749 --> 00:06:04,560
us we have safety divers that are keep

192
00:06:08,150 --> 00:06:05,759
watching us

193
00:06:09,670 --> 00:06:08,160
we have a camera photographers we also

194
00:06:11,029 --> 00:06:09,680
have people talking to us on the loops

195
00:06:12,950 --> 00:06:11,039
that are not in the pool but they're

196
00:06:14,870 --> 00:06:12,960
looking at some technical details so we

197
00:06:16,309 --> 00:06:14,880
have a huge team that's helping us train

198
00:06:19,189 --> 00:06:16,319
while we're in the water so absolutely

199
00:06:22,710 --> 00:06:19,199
there's a lot of things to do here

200
00:06:28,070 --> 00:06:26,070
is astronaut training tiring

201
00:06:29,430 --> 00:06:28,080
i start trying can be tiring you know

202
00:06:31,189 --> 00:06:29,440
it's really a lot of fun

203
00:06:33,029 --> 00:06:31,199
it's a lot of hard work there are times

204
00:06:33,990 --> 00:06:33,039
when it you know goes quickly when

205
00:06:35,749 --> 00:06:34,000
you're working really hard and there's

206
00:06:37,590 --> 00:06:35,759
other times when you just got to do some

207
00:06:39,749 --> 00:06:37,600
brute force of looking at things and

208
00:06:41,270 --> 00:06:39,759
really studying things but the pool that

209
00:06:42,950 --> 00:06:41,280
we just talked about where you're doing

210
00:06:44,710 --> 00:06:42,960
when you're doing a spacewalk is because

211
00:06:47,029 --> 00:06:44,720
you're fighting against the suit

212
00:06:48,790 --> 00:06:47,039
typically we when you're in space you

213
00:06:50,150 --> 00:06:48,800

have a pressure differential which makes

214
00:06:52,070 --> 00:06:50,160
the suit kind of rigid when you're

215
00:06:53,670 --> 00:06:52,080
moving your arms back and forth and so

216
00:06:55,029 --> 00:06:53,680
that really makes it and doing things

217
00:06:56,469 --> 00:06:55,039
with your hands like your task of

218
00:06:58,870 --> 00:06:56,479
squeezing with your hands can be very

219
00:07:00,150 --> 00:06:58,880
difficult so when you get done with that

220
00:07:02,870 --> 00:07:00,160
whether you're doing a space walk in

221
00:07:04,550 --> 00:07:02,880
space or or you're in the pool you end

222
00:07:06,309 --> 00:07:04,560
the day and you're fairly tired and

223
00:07:09,270 --> 00:07:06,319
other things like that can be fairly

224
00:07:12,710 --> 00:07:09,280
rigorous in our training

225
00:07:17,909 --> 00:07:16,390
is the suit you wear heavy

226
00:07:19,510 --> 00:07:17,919
that is a good question it is heavy

227
00:07:21,589 --> 00:07:19,520
actually that the white suit when we go

228
00:07:23,830 --> 00:07:21,599
outside for a spacewalk is

229
00:07:25,270 --> 00:07:23,840
weighs about uh 300 pounds or so so it's

230
00:07:26,230 --> 00:07:25,280
a fairly heavy suit that you got to move

231
00:07:29,270 --> 00:07:26,240
around but you got to remember when

232
00:07:31,350 --> 00:07:29,280
you're in space we we call it uh

233
00:07:32,790 --> 00:07:31,360
you hear the term zero g or

234
00:07:34,390 --> 00:07:32,800
weightlessness or we call it

235
00:07:36,230 --> 00:07:34,400
microgravity to be very specific but

236
00:07:37,830 --> 00:07:36,240
essentially you're weightless and so

237
00:07:39,189 --> 00:07:37,840
that allows us to move the suit around

238
00:07:40,469 --> 00:07:39,199

so the thing that makes it difficult to

239
00:07:42,309 --> 00:07:40,479
move the suit is that you're fighting

240
00:07:44,390 --> 00:07:42,319
that pressure that i was talking about

241
00:07:45,909 --> 00:07:44,400
in in the suit itself so you don't

242
00:07:47,670 --> 00:07:45,919
really feel the weight and it's actually

243
00:07:49,029 --> 00:07:47,680
fairly easy to move

244
00:07:51,189 --> 00:07:49,039
our other seat that we wear a lot of

245
00:07:52,710 --> 00:07:51,199
times like when we launch on a soyuz or

246
00:07:53,990 --> 00:07:52,720
when i was launched on a space shuttle

247
00:07:55,110 --> 00:07:54,000
wear a different suit and that suit

248
00:07:57,589 --> 00:07:55,120
isn't quite as heavy it doesn't weigh

249
00:07:59,990 --> 00:07:57,599
300 pounds it weighs on the order of 30

250
00:08:01,270 --> 00:08:00,000
to 50 pounds but the suits that we do do

251
00:08:02,230 --> 00:08:01,280
have some weight to it and you have to

252
00:08:03,990 --> 00:08:02,240
work around them they have some

253
00:08:06,150 --> 00:08:04,000
limitations that affect you but that's

254
00:08:08,070 --> 00:08:06,160
why we do the training that we do and

255
00:08:09,830 --> 00:08:08,080
and part of the reason that

256
00:08:11,189 --> 00:08:09,840
that's you said you have to work against

257
00:08:13,430 --> 00:08:11,199
the suit is because of it's it's

258
00:08:15,029 --> 00:08:13,440
pressurized on the inside if you go out

259
00:08:17,029 --> 00:08:15,039
to do a spacewalk

260
00:08:18,869 --> 00:08:17,039
where there is no atmospheric pressure

261
00:08:20,469 --> 00:08:18,879
because there is no atmosphere you have

262
00:08:22,309 --> 00:08:20,479
to have the pressure on the inside of

263
00:08:23,749 --> 00:08:22,319

the suit in order to provide you with an

264
00:08:25,430 --> 00:08:23,759
environment that you can live in and

265
00:08:26,469 --> 00:08:25,440
it's that pressure that makes it hard to

266
00:08:28,070 --> 00:08:26,479
operate

267
00:08:29,830 --> 00:08:28,080
that that makes it tough to work against

268
00:08:34,389 --> 00:08:29,840
the pressure on the inside of the suit

269
00:08:40,230 --> 00:08:36,310
what materials do you use to make an

270
00:08:42,469 --> 00:08:40,240
astronaut suit and what arts features

271
00:08:44,070 --> 00:08:42,479
that's the uh the suit is actually

272
00:08:45,590 --> 00:08:44,080
fairly complicated obviously it's

273
00:08:47,110 --> 00:08:45,600
another team that went out and designed

274
00:08:48,550 --> 00:08:47,120
the suit we've we've had you know

275
00:08:50,550 --> 00:08:48,560
several iterations of suits along the

276
00:08:52,389 --> 00:08:50,560
way but the big picture for the the

277
00:08:54,470 --> 00:08:52,399
space fleet that we have the one that we

278
00:08:56,389 --> 00:08:54,480
take outside to do our space walks with

279
00:08:58,230 --> 00:08:56,399
is there's a it's made out of layers you

280
00:08:59,670 --> 00:08:58,240
start with a layer that basically

281
00:09:00,790 --> 00:08:59,680
is a bladder basically keeps that

282
00:09:02,230 --> 00:09:00,800
pressure that we've been talking about

283
00:09:03,750 --> 00:09:02,240
keeps the air in that's obviously one of

284
00:09:05,190 --> 00:09:03,760
the most important things because you

285
00:09:07,590 --> 00:09:05,200
can't continue to live if you don't have

286
00:09:09,030 --> 00:09:07,600
a place to to breathe and so that's the

287
00:09:10,470 --> 00:09:09,040
bigger and then all the other layers are

288
00:09:12,389 --> 00:09:10,480

basically to support that layer so then

289
00:09:14,070 --> 00:09:12,399
we have a layer that basically is a

290
00:09:15,509 --> 00:09:14,080
protective layer so that if you bump

291
00:09:17,750 --> 00:09:15,519
into something you don't accidentally

292
00:09:18,630 --> 00:09:17,760
cut that bladder and then on top of that

293
00:09:19,829 --> 00:09:18,640
we have

294
00:09:21,670 --> 00:09:19,839
kind of a mesh

295
00:09:23,269 --> 00:09:21,680
weaving that goes on top again that

296
00:09:25,350 --> 00:09:23,279
helps protect and then there's a thermal

297
00:09:27,190 --> 00:09:25,360
layer that protects against the sun and

298
00:09:28,790 --> 00:09:27,200
then on our gloves where we grab things

299
00:09:30,630 --> 00:09:28,800
we actually take

300
00:09:31,910 --> 00:09:30,640
we'll put an additional like a rubber

301
00:09:33,910 --> 00:09:31,920
layer that helps us so when we're

302
00:09:35,750 --> 00:09:33,920
touching things that layer can help

303
00:09:38,150 --> 00:09:35,760
prevent us from getting cut cuts in our

304
00:09:39,190 --> 00:09:38,160
gloves so the suit is a very complicated

305
00:09:41,030 --> 00:09:39,200
then obviously it's almost like a

306
00:09:42,630 --> 00:09:41,040
portable spaceship because you have your

307
00:09:43,750 --> 00:09:42,640
own oxygen and breathing you're

308
00:09:45,430 --> 00:09:43,760
basically self-sustaining you have a

309
00:09:47,590 --> 00:09:45,440
little power unit like a battery so you

310
00:09:50,470 --> 00:09:47,600
can monitor your systems that's going on

311
00:09:51,750 --> 00:09:50,480
and you have to you have water to cool

312
00:09:53,190 --> 00:09:51,760
the suit while you're outside so there's

313
00:09:54,630 --> 00:09:53,200

a lot of different things that go on as

314
00:09:55,910 --> 00:09:54,640
a space suit

315
00:09:57,670 --> 00:09:55,920
and it's essentially like a little

316
00:09:59,590 --> 00:09:57,680
spaceship that you're taking outside i

317
00:10:01,350 --> 00:09:59,600
think it's also important to point out

318
00:10:03,430 --> 00:10:01,360
that you don't go to space and wear

319
00:10:05,910 --> 00:10:03,440
those spacesuits all the time most of

320
00:10:07,350 --> 00:10:05,920
the time you're dressed like this

321
00:10:08,710 --> 00:10:07,360
absolutely usually we're wearing a shirt

322
00:10:09,829 --> 00:10:08,720
just like this on the inside and it's

323
00:10:11,269 --> 00:10:09,839
just when you're going to go do a

324
00:10:13,190 --> 00:10:11,279
spacewalk that you actually put on that

325
00:10:15,350 --> 00:10:13,200
full suit and typically when you're

326
00:10:17,190 --> 00:10:15,360
riding up and down you put a space suit

327
00:10:18,550 --> 00:10:17,200
on but then once you're in orbit a lot

328
00:10:19,750 --> 00:10:18,560
of times you take the space suit off do

329
00:10:21,590 --> 00:10:19,760
some work and then you put the suit on

330
00:10:23,750 --> 00:10:21,600
so most of the time you're not wearing a

331
00:10:25,350 --> 00:10:23,760
super but there are times when when

332
00:10:27,910 --> 00:10:25,360
you're having to do the space workers or

333
00:10:31,269 --> 00:10:27,920
special times that you put the suit on

334
00:10:35,750 --> 00:10:33,750
what is it like to live in

335
00:10:38,310 --> 00:10:35,760
what is it like living in space and how

336
00:10:39,910 --> 00:10:38,320
long do you usually stay up there

337
00:10:42,150 --> 00:10:39,920
well it's great living in space it's one

338
00:10:44,069 --> 00:10:42,160

of the coolest things you know the

339
00:10:45,750 --> 00:10:44,079
uh living in space

340
00:10:46,630 --> 00:10:45,760
there are so many things to see

341
00:10:47,990 --> 00:10:46,640
once

342
00:10:49,030 --> 00:10:48,000
usually you're busy with a lot of work

343
00:10:50,550 --> 00:10:49,040
that's going on but when you have some

344
00:10:51,829 --> 00:10:50,560
free time the thing that you go out and

345
00:10:53,509 --> 00:10:51,839
do is you look at the earth and you're

346
00:10:54,710 --> 00:10:53,519
amazed at how it is but there's all

347
00:10:56,710 --> 00:10:54,720
kinds of things you have to think about

348
00:10:57,829 --> 00:10:56,720
spaces how to eat how to sleep all the

349
00:10:58,870 --> 00:10:57,839
basics

350
00:11:00,630 --> 00:10:58,880
i think there's

351
00:11:02,949 --> 00:11:00,640
there are a lot of different things that

352
00:11:05,509 --> 00:11:02,959
that are involved in it but it's it uh

353
00:11:07,750 --> 00:11:05,519
for my flights i went up for about

354
00:11:09,190 --> 00:11:07,760
two weeks almost 16 days some of the

355
00:11:10,630 --> 00:11:09,200
longer space shuttle missions where we

356
00:11:12,550 --> 00:11:10,640
went up to the space station and stayed

357
00:11:13,910 --> 00:11:12,560
there and we met crew members like we

358
00:11:15,350 --> 00:11:13,920
have crew members on board now we have

359
00:11:17,190 --> 00:11:15,360
six crew members on the space station

360
00:11:18,870 --> 00:11:17,200
right now and they're up there for

361
00:11:21,190 --> 00:11:18,880
anywhere from five to six months is the

362
00:11:23,269 --> 00:11:21,200
typical mission while they're on board

363
00:11:25,030 --> 00:11:23,279

so it's uh you really have to kind of

364
00:11:26,150 --> 00:11:25,040
calibrate yourself to how long it's

365
00:11:28,389 --> 00:11:26,160
going to be when you're on any shorter

366
00:11:30,069 --> 00:11:28,399
missions they're a lot more fast paced

367
00:11:31,590 --> 00:11:30,079
but on the longer missions it's still a

368
00:11:33,829 --> 00:11:31,600
high pace but you do it over a longer

369
00:11:36,630 --> 00:11:33,839
period of time and in fact we already

370
00:11:38,310 --> 00:11:36,640
have a crew that's been assigned that is

371
00:11:41,269 --> 00:11:38,320
in training right now for a mission that

372
00:11:43,670 --> 00:11:41,279
will last a full year in space uh one

373
00:11:46,389 --> 00:11:43,680
nasa astronaut scott kelly and russian

374
00:11:48,310 --> 00:11:46,399
cosmonaut mikhail konienko uh are about

375
00:11:49,670 --> 00:11:48,320
to officially get started in their

376
00:11:51,590 --> 00:11:49,680
training they're gonna launch and

377
00:11:54,069 --> 00:11:51,600
they're gonna be up in space for a full

378
00:11:56,629 --> 00:11:54,079
year uh longer missions like that that

379
00:11:58,949 --> 00:11:56,639
that we're doing in order to better find

380
00:12:01,269 --> 00:11:58,959
out how people can spend a long time in

381
00:12:03,269 --> 00:12:01,279
space because it's going to take a long

382
00:12:05,350 --> 00:12:03,279
time in space to go do the future

383
00:12:07,590 --> 00:12:05,360
explorations that we want to do to uh to

384
00:12:09,829 --> 00:12:07,600
go to mars or to go to asteroids it'll

385
00:12:11,430 --> 00:12:09,839
take a lot longer than just six months

386
00:12:12,949 --> 00:12:11,440
and in the recent times this is some of

387
00:12:15,030 --> 00:12:12,959
the big things we've been learning about

388
00:12:16,629 --> 00:12:15,040

in space on the space station is

389
00:12:18,310 --> 00:12:16,639
actually doing these six-month missions

390
00:12:19,829 --> 00:12:18,320
we've kind of we're doing a build of

391
00:12:21,190 --> 00:12:19,839
approach as we get there and so these

392
00:12:23,590 --> 00:12:21,200
things we're learning about a lot of

393
00:12:25,110 --> 00:12:23,600
things like bone loss how to keep your

394
00:12:26,790 --> 00:12:25,120
muscles obviously when you're in space

395
00:12:28,230 --> 00:12:26,800
you're not using your muscles the same

396
00:12:29,190 --> 00:12:28,240
way on the ground just standing up on

397
00:12:30,870 --> 00:12:29,200
earth as

398
00:12:32,629 --> 00:12:30,880
a workout when you're in space you don't

399
00:12:34,949 --> 00:12:32,639
have that effect so we have other ways

400
00:12:37,509 --> 00:12:34,959
to do that with the workout equipment

401
00:12:39,269 --> 00:12:37,519
and that we have a

402
00:12:40,310 --> 00:12:39,279
bicycle that we can work on on treadmill

403
00:12:44,629 --> 00:12:40,320
as well

404
00:12:50,150 --> 00:12:47,910
what is it like sleeping in space

405
00:12:51,350 --> 00:12:50,160
well sleeping in space can be can can be

406
00:12:52,949 --> 00:12:51,360
interesting the first time obviously

407
00:12:55,190 --> 00:12:52,959
you're just floating in space so you

408
00:12:56,389 --> 00:12:55,200
usually uh in on the space shuttle we

409
00:12:57,829 --> 00:12:56,399
actually took out sleeping bags so it

410
00:12:59,350 --> 00:12:57,839
was kind of like being on a camping trip

411
00:13:01,110 --> 00:12:59,360
where you went out and put your sleeping

412
00:13:02,069 --> 00:13:01,120
bag up for the day on space station

413
00:13:03,990 --> 00:13:02,079

right now they actually have little

414
00:13:05,350 --> 00:13:04,000
sleeping quarters that they go into so

415
00:13:06,470 --> 00:13:05,360
either either way you have a place that

416
00:13:07,430 --> 00:13:06,480
kind of keeps you in place and that's

417
00:13:08,790 --> 00:13:07,440
just so you're not floating around

418
00:13:09,670 --> 00:13:08,800
bumping into things that probably wake

419
00:13:10,870 --> 00:13:09,680
you up

420
00:13:12,629 --> 00:13:10,880
uh one of the things i always thought

421
00:13:14,790 --> 00:13:12,639
was kind of interesting about space is

422
00:13:16,470 --> 00:13:14,800
it's it could be

423
00:13:17,990 --> 00:13:16,480
they give you a pillow but obviously in

424
00:13:19,350 --> 00:13:18,000
space your head would be like this off

425
00:13:21,750 --> 00:13:19,360
the pillow and that wouldn't work so

426
00:13:23,750 --> 00:13:21,760
well so nasa gives you some nasa issued

427
00:13:25,269 --> 00:13:23,760
velcro to stick around your head and

428
00:13:27,430 --> 00:13:25,279
attach yourself to the pillow so it's

429
00:13:29,030 --> 00:13:27,440
kind of a fun way to make sure that you

430
00:13:29,910 --> 00:13:29,040
and actually it's very normal you

431
00:13:31,350 --> 00:13:29,920
actually

432
00:13:33,110 --> 00:13:31,360
feels like you're sleeping at home after

433
00:13:34,470 --> 00:13:33,120
a while but you do have some interesting

434
00:13:36,310 --> 00:13:34,480
dreams while you're floating around and

435
00:13:37,509 --> 00:13:36,320
it's a lot of people like to curl up

436
00:13:39,110 --> 00:13:37,519
with their knees kind of get in that

437
00:13:41,269 --> 00:13:39,120
fetal position and again we have some

438
00:13:42,310 --> 00:13:41,279

velcro to get your knees in a position

439
00:13:43,750 --> 00:13:42,320
to kind of hold them there because if

440
00:13:45,829 --> 00:13:43,760
not they would just extend themselves

441
00:13:47,110 --> 00:13:45,839
out and wouldn't work the way you wanted

442
00:13:49,189 --> 00:13:47,120
to but

443
00:13:51,430 --> 00:13:49,199
like anything you learn how to adjust to

444
00:13:53,430 --> 00:13:51,440
these changes and it's actually fairly

445
00:13:55,189 --> 00:13:53,440
easy to sleep in in space you have to

446
00:13:57,189 --> 00:13:55,199
worry about a soft soft bed like you do

447
00:13:59,990 --> 00:13:57,199
on the ground okay

448
00:14:04,069 --> 00:14:02,069
how do people in the international space

449
00:14:06,470 --> 00:14:04,079
station get food and water from earth if

450
00:14:08,150 --> 00:14:06,480
they run out

451
00:14:10,150 --> 00:14:08,160
well how do you get food and well the

452
00:14:11,590 --> 00:14:10,160
big thing we were just talking we have a

453
00:14:13,350 --> 00:14:11,600
ship that's uh

454
00:14:14,949 --> 00:14:13,360
planning to dock to come up the space

455
00:14:16,310 --> 00:14:14,959
station we have we have these unmanned

456
00:14:17,910 --> 00:14:16,320
ships that come up the russians have

457
00:14:19,350 --> 00:14:17,920
some we have some our international

458
00:14:21,750 --> 00:14:19,360
partners in the united states as well

459
00:14:23,750 --> 00:14:21,760
has one and we're actually as a new

460
00:14:25,910 --> 00:14:23,760
commercial company the orbital sciences

461
00:14:27,189 --> 00:14:25,920
is looking at launching in their vehicle

462
00:14:28,710 --> 00:14:27,199
uh coming up this summer so we have

463
00:14:30,710 --> 00:14:28,720

different ways of getting food and water

464
00:14:32,150 --> 00:14:30,720
up to the space station the big thing is

465
00:14:34,389 --> 00:14:32,160
as planning we don't want to get to that

466
00:14:36,470 --> 00:14:34,399
point where we run out of food and water

467
00:14:38,470 --> 00:14:36,480
on the space station another interesting

468
00:14:40,949 --> 00:14:38,480
fact is on space station a lot of our

469
00:14:43,350 --> 00:14:40,959
water actually gets recycled we have a

470
00:14:44,870 --> 00:14:43,360
reclamation system on board

471
00:14:45,910 --> 00:14:44,880
90 of the water that we have that's

472
00:14:48,230 --> 00:14:45,920
getting used

473
00:14:50,069 --> 00:14:48,240
is getting reprocessed and redone and

474
00:14:51,590 --> 00:14:50,079
it's really important because weight is

475
00:14:53,829 --> 00:14:51,600
a fairly expensive thing to get up and

476
00:14:55,509 --> 00:14:53,839
down and the average human needs about

477
00:14:56,870 --> 00:14:55,519
two liters of water a day so you start

478
00:14:58,710 --> 00:14:56,880
adding that up that adds up to be a lot

479
00:14:59,910 --> 00:14:58,720
of weight of water and so by reusing it

480
00:15:01,829 --> 00:14:59,920
and these are some of the things that

481
00:15:02,870 --> 00:15:01,839
we're learning in space that we can use

482
00:15:04,790 --> 00:15:02,880
on the ground because there's obviously

483
00:15:07,670 --> 00:15:04,800
places on earth where water is limited

484
00:15:09,590 --> 00:15:07,680
and as eric said there's a because the

485
00:15:10,870 --> 00:15:09,600
space station is run by a partnership of

486
00:15:13,030 --> 00:15:10,880
different nations

487
00:15:15,509 --> 00:15:13,040
different countries are are providing

488
00:15:17,829 --> 00:15:15,519

those supplies the the russian partners

489
00:15:20,550 --> 00:15:17,839
launch one kind of cargo ship the

490
00:15:22,949 --> 00:15:20,560
european space agency has one the japan

491
00:15:26,629 --> 00:15:22,959
aerospace exploration agency has yet

492
00:15:28,629 --> 00:15:26,639
another kind of cargo ship and nasa has

493
00:15:30,710 --> 00:15:28,639
provided the seed money for a couple of

494
00:15:32,550 --> 00:15:30,720
private companies in america that have

495
00:15:34,870 --> 00:15:32,560
been developing cargo ships one of them

496
00:15:36,949 --> 00:15:34,880
is already flying and the second one is

497
00:15:45,350 --> 00:15:36,959
about ready for its first test flight

498
00:15:50,150 --> 00:15:47,189
did you see the great wall of china

499
00:15:51,829 --> 00:15:50,160
while you were traveling through space

500
00:15:53,910 --> 00:15:51,839
i actually didn't see the great wall of

501
00:15:55,030 --> 00:15:53,920
china the the timing for lighting didn't

502
00:15:56,629 --> 00:15:55,040
work out that way but there have been

503
00:15:58,470 --> 00:15:56,639
people that have seen the great wall of

504
00:15:59,749 --> 00:15:58,480
china and actually with a camera you can

505
00:16:01,590 --> 00:15:59,759
see a lot of things on earth that you

506
00:16:03,990 --> 00:16:01,600
know that humans are there we're flying

507
00:16:06,150 --> 00:16:04,000
fairly low over the planet we're at at

508
00:16:08,150 --> 00:16:06,160
the range of about uh

509
00:16:09,910 --> 00:16:08,160
200 to 300 mile

510
00:16:11,829 --> 00:16:09,920
uh up in space depending on where you

511
00:16:13,509 --> 00:16:11,839
are in your orbit uh distance so you're

512
00:16:14,949 --> 00:16:13,519
actually fairly low going across the

513
00:16:16,310 --> 00:16:14,959

planet and you can see the great wall of

514
00:16:17,430 --> 00:16:16,320
china from

515
00:16:19,189 --> 00:16:17,440
space but there are a lot of things that

516
00:16:20,150 --> 00:16:19,199
you can see that are that are man-made

517
00:16:22,470 --> 00:16:20,160
from

518
00:16:23,749 --> 00:16:22,480
why you're going around the planet in

519
00:16:25,189 --> 00:16:23,759
orbit but the great wall of china is a

520
00:16:27,430 --> 00:16:25,199
pretty amazing one it's it's on my list

521
00:16:33,990 --> 00:16:27,440
so i get the chance to see it one when i

522
00:16:38,230 --> 00:16:35,749
did you see day and night when you

523
00:16:41,509 --> 00:16:40,310
you see day and night actually

524
00:16:42,389 --> 00:16:41,519
a lot while you're up in space when

525
00:16:45,350 --> 00:16:42,399
you're going around the planet you're

526
00:16:47,430 --> 00:16:45,360
going about 17 500 miles per hour in

527
00:16:50,230 --> 00:16:47,440
orbit what that means is that you go

528
00:16:52,389 --> 00:16:50,240
around the planet 16 times a day and 16

529
00:16:55,110 --> 00:16:52,399
times a day means you see 16 sunrises

530
00:16:56,949 --> 00:16:55,120
and sunsets every day so the sun and the

531
00:16:58,790 --> 00:16:56,959
sun comes up 16 times as fast and goes

532
00:17:00,870 --> 00:16:58,800
down 16 times as fast so when you see it

533
00:17:02,470 --> 00:17:00,880
it's up pretty quick and down pretty

534
00:17:04,710 --> 00:17:02,480
quick and one of the interesting things

535
00:17:06,150 --> 00:17:04,720
and of course the weather is below us so

536
00:17:07,669 --> 00:17:06,160
there's never anything in the way so

537
00:17:09,669 --> 00:17:07,679
when the sun comes up it's very bright

538
00:17:11,189 --> 00:17:09,679

when it goes down it's very dark and and

539
00:17:12,949 --> 00:17:11,199
so a lot of the effects that you see on

540
00:17:14,949 --> 00:17:12,959
earth that are caused by the atmosphere

541
00:17:16,549 --> 00:17:14,959
you don't see those up in space but it's

542
00:17:18,390 --> 00:17:16,559
actually there are some unique views

543
00:17:20,549 --> 00:17:18,400
seeing it from space as well

544
00:17:21,829 --> 00:17:20,559
and the sun on spacewalks like we were

545
00:17:23,750 --> 00:17:21,839
talking about earlier you really have to

546
00:17:25,350 --> 00:17:23,760
take into account where the sun is

547
00:17:26,710 --> 00:17:25,360
because it can actually if you're

548
00:17:27,990 --> 00:17:26,720
looking right into it as you're working

549
00:17:29,430 --> 00:17:28,000
on something that can really blind what

550
00:17:30,950 --> 00:17:29,440
you're doing or when the sun goes down

551
00:17:32,070 --> 00:17:30,960
if you don't have your lights on you

552
00:17:33,270 --> 00:17:32,080
won't be able to see the tasks that

553
00:17:34,789 --> 00:17:33,280
you're working on so keeping track of

554
00:17:36,870 --> 00:17:34,799
where the sun is is actually a fairly

555
00:17:38,630 --> 00:17:36,880
important thing but it also affects how

556
00:17:39,990 --> 00:17:38,640
you sleep because obviously a lot of

557
00:17:41,190 --> 00:17:40,000
people use the sun on the ground to kind

558
00:17:43,029 --> 00:17:41,200
of tell what time it is so you kind of

559
00:17:44,390 --> 00:17:43,039
have to get used to a new clock because

560
00:17:46,470 --> 00:17:44,400
you look at the sun a little differently

561
00:17:50,230 --> 00:17:46,480
while you're up in orbit

562
00:17:56,470 --> 00:17:54,070
does your oxygen level drop in space

563
00:17:58,630 --> 00:17:56,480

your oxygen level actually it's all

564
00:17:59,750 --> 00:17:58,640
maintained we have systems on board that

565
00:18:01,909 --> 00:17:59,760
maintain it we have a whole mission

566
00:18:03,430 --> 00:18:01,919
control room here here in houston and

567
00:18:05,270 --> 00:18:03,440
also there's one in russia as well that

568
00:18:06,230 --> 00:18:05,280
are looking at these

569
00:18:08,150 --> 00:18:06,240
to make sure that we have the right

570
00:18:09,909 --> 00:18:08,160
mixture of gases in there so we have to

571
00:18:11,510 --> 00:18:09,919
keep track of that as as part of things

572
00:18:13,510 --> 00:18:11,520
so as you breathe it obviously it drops

573
00:18:15,350 --> 00:18:13,520
down but we have a tank

574
00:18:17,110 --> 00:18:15,360
outside that actually helps

575
00:18:19,270 --> 00:18:17,120
put put more oxygen in the air we have

576
00:18:21,669 --> 00:18:19,280
ships that bring up oxygen as well and

577
00:18:24,310 --> 00:18:21,679
we can actually split oxygen take water

578
00:18:25,750 --> 00:18:24,320
we can split the hydrogen and the oxygen

579
00:18:27,590 --> 00:18:25,760
and actually get oxygen from that as

580
00:18:29,029 --> 00:18:27,600
well so there there's multiple ways to

581
00:18:30,390 --> 00:18:29,039
get it it obviously goes down as we

582
00:18:31,750 --> 00:18:30,400
breathe it and we just have to replace

583
00:18:37,029 --> 00:18:31,760
it over time so it's something that we

584
00:18:40,710 --> 00:18:38,950
can you watch the atlanta braves game in

585
00:18:42,549 --> 00:18:40,720
space

586
00:18:43,909 --> 00:18:42,559
yes you can and that's an important

587
00:18:46,870 --> 00:18:43,919
thing to do i remember when i was up in

588
00:18:48,549 --> 00:18:46,880

space on one of them and i was actually

589
00:18:50,390 --> 00:18:48,559
when i was on a trip we flew over a

590
00:18:51,590 --> 00:18:50,400
georgia tech game and they actually

591
00:18:53,029 --> 00:18:51,600
announced this on

592
00:18:54,230 --> 00:18:53,039
on the news as the space station flew

593
00:18:55,990 --> 00:18:54,240
overhead i didn't hear about it at the

594
00:18:56,789 --> 00:18:56,000
time but when i landed people showed me

595
00:19:09,270 --> 00:18:56,799
the

596
00:19:10,710 --> 00:19:09,280
lot of times you're busy but you could

597
00:19:12,549 --> 00:19:10,720
watch it you know on a weekend or when

598
00:19:14,390 --> 00:19:12,559
you have some time you know at night or

599
00:19:15,110 --> 00:19:14,400
something like that get a tape for you

600
00:19:16,549 --> 00:19:15,120
but

601
00:19:17,909 --> 00:19:16,559
you know only for big things do you get

602
00:19:18,950 --> 00:19:17,919
a chance maybe like the world series or

603
00:19:20,789 --> 00:19:18,960
something you might get a chance to

604
00:19:21,990 --> 00:19:20,799
watch that there's not a television that

605
00:19:23,750 --> 00:19:22,000
you can turn on and just watch

606
00:19:26,150 --> 00:19:23,760
whatever's on television but the folks

607
00:19:28,070 --> 00:19:26,160
who work here at mission control in

608
00:19:30,470 --> 00:19:28,080
houston can

609
00:19:32,549 --> 00:19:30,480
take uh whether it's a braves game or or

610
00:19:35,270 --> 00:19:32,559
the world series or the super bowl or

611
00:19:37,029 --> 00:19:35,280
something they can they can send that up

612
00:19:39,909 --> 00:19:37,039
to the crew members and they can watch

613
00:19:42,070 --> 00:19:39,919

it on on a laptop on a computer laptop

614
00:19:44,230 --> 00:19:42,080
screen so they can keep up with things

615
00:19:45,350 --> 00:19:44,240
like that and most crews request those

616
00:19:46,549 --> 00:19:45,360
kind of things and that's we have a

617
00:19:48,390 --> 00:19:46,559
group here that on the ground that

618
00:19:49,990 --> 00:19:48,400
actually helps us get that kind of what

619
00:19:55,909 --> 00:19:50,000
you're looking to watch while you're up

620
00:20:01,669 --> 00:19:59,270
have you seen anything unusual in space

621
00:20:03,110 --> 00:20:01,679
not counting your crewmates

622
00:20:04,470 --> 00:20:03,120
yeah the things that you see an unusual

623
00:20:06,470 --> 00:20:04,480
in space probably the biggest things is

624
00:20:07,909 --> 00:20:06,480
just how amazing the world is when you

625
00:20:09,510 --> 00:20:07,919
look out the window i mean you can

626
00:20:10,789 --> 00:20:09,520
really see the planets alive you look

627
00:20:12,630 --> 00:20:10,799
out the window and you can see the

628
00:20:13,909 --> 00:20:12,640
atmosphere you can see the blueness of

629
00:20:15,830 --> 00:20:13,919
the oceans there's a lot of places you

630
00:20:17,430 --> 00:20:15,840
fly over in the earth that you're a good

631
00:20:18,950 --> 00:20:17,440
chance you won't get to see in real life

632
00:20:21,270 --> 00:20:18,960
and there are a few places when i was on

633
00:20:22,710 --> 00:20:21,280
orbit i i saw new zealand it was one of

634
00:20:23,990 --> 00:20:22,720
the things that always flew underneath

635
00:20:26,310 --> 00:20:24,000
us fairly often and i got the

636
00:20:27,830 --> 00:20:26,320
opportunity i was lucky enough to to go

637
00:20:29,909 --> 00:20:27,840
down to new zealand later and it was

638
00:20:31,669 --> 00:20:29,919

neat to compare the the view that you

639
00:20:33,430 --> 00:20:31,679
saw from space and and the view so the

640
00:20:36,230 --> 00:20:33,440
things that i that was most unusual is

641
00:20:42,470 --> 00:20:36,240
seeing us seeing our planet from from a

642
00:20:46,870 --> 00:20:44,230
what is your favorite thing about living

643
00:20:50,470 --> 00:20:48,950
i'd have to say the my favorite thing

644
00:20:52,070 --> 00:20:50,480
about living in space is really just the

645
00:20:53,909 --> 00:20:52,080
mission i it's one of the things i like

646
00:20:54,950 --> 00:20:53,919
being about an astronaut is the people

647
00:20:56,310 --> 00:20:54,960
that you're working with and it's not

648
00:20:57,990 --> 00:20:56,320
just the astronauts that are onboard the

649
00:20:59,750 --> 00:20:58,000
space station it's it's everyone that's

650
00:21:01,270 --> 00:20:59,760
in the team because when you see an

651
00:21:02,789 --> 00:21:01,280
astronaut in space there's actually a

652
00:21:04,230 --> 00:21:02,799
thousand people that are behind that are

653
00:21:06,310 --> 00:21:04,240
doing we have a control room here we

654
00:21:07,669 --> 00:21:06,320
have control you know rooms that are

655
00:21:09,270 --> 00:21:07,679
actually behind the control room that

656
00:21:11,029 --> 00:21:09,280
support the control and things that are

657
00:21:12,070 --> 00:21:11,039
going on the people that design the

658
00:21:13,270 --> 00:21:12,080
hardware

659
00:21:14,710 --> 00:21:13,280
you get to go out and meet a lot of

660
00:21:16,710 --> 00:21:14,720
these people that worked on the thing

661
00:21:18,230 --> 00:21:16,720
the scientific effort it's it's really

662
00:21:19,669 --> 00:21:18,240
just a huge big effort and it's really

663
00:21:21,270 --> 00:21:19,679

neat and then we've talked about the

664
00:21:23,029 --> 00:21:21,280
international partnership that we were

665
00:21:25,430 --> 00:21:23,039
talking about earlier and it's just one

666
00:21:26,870 --> 00:21:25,440
of those things that uh you know you

667
00:21:29,029 --> 00:21:26,880
have astronauts that are from different

668
00:21:30,470 --> 00:21:29,039
countries you have teams from different

669
00:21:31,669 --> 00:21:30,480
countries and all this is going on at

670
00:21:33,110 --> 00:21:31,679
the same time when you start thinking

671
00:21:34,789 --> 00:21:33,120
about it and you look at it and then you

672
00:21:36,310 --> 00:21:34,799
look at the planet and you realize

673
00:21:38,549 --> 00:21:36,320
there's this huge team effort and all

674
00:21:39,830 --> 00:21:38,559
these people involved to me it's it's

675
00:21:40,950 --> 00:21:39,840
probably the most exciting thing about

676
00:21:42,950 --> 00:21:40,960
the space station the thing that i

677
00:21:48,470 --> 00:21:42,960
really think is the coolest part about

678
00:21:53,510 --> 00:21:51,909
how does mission control help you

679
00:21:55,029 --> 00:21:53,520
well mission control does a lot of

680
00:21:56,870 --> 00:21:55,039
things for us they they really kind of

681
00:21:58,789 --> 00:21:56,880
set the schedule for the day so every

682
00:22:00,789 --> 00:21:58,799
day when a creamer wakes up we have

683
00:22:02,149 --> 00:22:00,799
meetings the day before that and then

684
00:22:03,669 --> 00:22:02,159
that day they get up and they look at

685
00:22:04,789 --> 00:22:03,679
the things that they're going to do and

686
00:22:06,230 --> 00:22:04,799
they kind of have a schedule and a lot

687
00:22:07,590 --> 00:22:06,240
of times we come up with challenges

688
00:22:10,310 --> 00:22:07,600

where something doesn't work the way we

689
00:22:12,789 --> 00:22:10,320
expect or we have like tomorrow we have

690
00:22:13,830 --> 00:22:12,799
a vehicle coming up for rendezvous a lot

691
00:22:15,029 --> 00:22:13,840
of these things are going on in the

692
00:22:16,149 --> 00:22:15,039
background where the crew member is not

693
00:22:17,669 --> 00:22:16,159
directly involved in it but they're

694
00:22:19,029 --> 00:22:17,679
keeping us informed on what's going on

695
00:22:21,270 --> 00:22:19,039
with those vehicles

696
00:22:23,029 --> 00:22:21,280
and when you have problems that's the

697
00:22:24,390 --> 00:22:23,039
the the ground crew there

698
00:22:26,310 --> 00:22:24,400
pretty much we work back and forth

699
00:22:28,070 --> 00:22:26,320
continuously we're constantly having

700
00:22:29,909 --> 00:22:28,080
discussions we're having email traffic

701
00:22:31,510 --> 00:22:29,919
go up and down we get videos that they

702
00:22:33,430 --> 00:22:31,520
come up and down that talk about the

703
00:22:34,149 --> 00:22:33,440
experiments that we're working on or or

704
00:22:37,590 --> 00:22:34,159
the

705
00:22:38,630 --> 00:22:37,600
vehicle so mission control is extremely

706
00:22:40,549 --> 00:22:38,640
involved and it's one of the big

707
00:22:41,830 --> 00:22:40,559
training areas we even have a person

708
00:22:43,669 --> 00:22:41,840
that we call a capcom here in the

709
00:22:45,029 --> 00:22:43,679
control room that actually talks

710
00:22:46,310 --> 00:22:45,039
takes the what the control arm is

711
00:22:48,789 --> 00:22:46,320
talking about and then pipes it up to

712
00:22:50,630 --> 00:22:48,799
the astronauts and vice versa so it's

713
00:22:52,950 --> 00:22:50,640

it's a very essential part of the the

714
00:22:58,950 --> 00:22:52,960
whole mission of getting the job done

715
00:23:03,350 --> 00:23:01,190
did you ever think you'd be a pilot for

716
00:23:05,029 --> 00:23:03,360
nasa

717
00:23:07,270 --> 00:23:05,039
you know i it was one of those far-off

718
00:23:09,350 --> 00:23:07,280
dreams but it's you know now that i'm in

719
00:23:10,549 --> 00:23:09,360
this position i i really consider myself

720
00:23:12,149 --> 00:23:10,559
extremely fortunate to get the

721
00:23:14,549 --> 00:23:12,159
opportunity there's a lot of people that

722
00:23:16,070 --> 00:23:14,559
that apply and want to do it and and

723
00:23:17,909 --> 00:23:16,080
there are those out there in your group

724
00:23:19,750 --> 00:23:17,919
that uh i hope you will if you're

725
00:23:21,909 --> 00:23:19,760
interested in space we'll uh we'll put

726
00:23:23,350 --> 00:23:21,919
your name on it because i just like you

727
00:23:25,029 --> 00:23:23,360
i was sitting in a classroom just like

728
00:23:26,630 --> 00:23:25,039
you were in in georgia and it was an

729
00:23:28,230 --> 00:23:26,640
opportunity to

730
00:23:29,830 --> 00:23:28,240
to get the chance to go through so study

731
00:23:31,029 --> 00:23:29,840
hard in school look at those math and

732
00:23:33,270 --> 00:23:31,039
sciences and keep doing what you're

733
00:23:34,870 --> 00:23:33,280
doing and you could be sitting in

734
00:23:36,390 --> 00:23:34,880
this seat talking to some other people

735
00:23:39,110 --> 00:23:36,400
from georgia in the future

736
00:23:41,430 --> 00:23:39,120
eric we're our time is about up i want

737
00:23:43,110 --> 00:23:41,440
to thank you for joining us and and

738
00:23:44,950 --> 00:23:43,120

providing some thoughtful answers about

739
00:23:45,909 --> 00:23:44,960
the job that you do well you're welcome