



Hello Expedition 491
Welcome to Cygnus OA-5

ARMY

DECK

1
00:00:06,789 --> 00:00:02,310
station this is houston are you ready

2
00:00:06,799 --> 00:00:10,549
stations ready

3
00:00:14,150 --> 00:00:12,150
wheat ridge high school this is mission

4
00:00:16,630 --> 00:00:14,160
control houston please call station for

5
00:00:18,790 --> 00:00:16,640
a voice check

6
00:00:21,670 --> 00:00:18,800
station this is congressman ed

7
00:00:23,990 --> 00:00:21,680
perlmutter here with the students from

8
00:00:25,589 --> 00:00:24,000
wheat ridge high school how do you hear

9
00:00:29,109 --> 00:00:25,599
me

10
00:00:30,870 --> 00:00:29,119
loud and clear congressman nice to have

11
00:00:33,190 --> 00:00:30,880
you today and with all the students glad

12
00:00:34,310 --> 00:00:33,200
to do this

13
00:00:37,270 --> 00:00:34,320

commander

14

00:00:40,470 --> 00:00:37,280

i can't tell you how excited all of us

15

00:00:42,869 --> 00:00:40,480

are to speak with you today here from

16

00:00:45,110 --> 00:00:42,879

wheatridge colorado you're going to get

17

00:00:46,950 --> 00:00:45,120

a lot of interesting questions from the

18

00:00:48,310 --> 00:00:46,960

farmers so this is the wheatridge

19

00:00:51,670 --> 00:00:48,320

farmers

20

00:00:53,670 --> 00:00:51,680

and we have some very important people

21

00:00:55,110 --> 00:00:53,680

in the audience a friend of yours steve

22

00:00:57,510 --> 00:00:55,120

lindsey is here

23

00:01:00,709 --> 00:00:57,520

we have colonel harvey who was a

24

00:01:03,270 --> 00:01:00,719

tuskegee airman is here and we have some

25

00:01:05,750 --> 00:01:03,280

fantastic students who have great

26

00:01:08,149 --> 00:01:05,760

questions for you today we're proud to

27

00:01:10,149 --> 00:01:08,159

be part of this uplink and we're proud

28

00:01:12,230 --> 00:01:10,159

to talk to you

29

00:01:17,830 --> 00:01:12,240

an astronaut from the united states of

30

00:01:21,270 --> 00:01:20,070

so with that i'm going to turn it over

31

00:01:27,030 --> 00:01:21,280

to

32

00:01:31,590 --> 00:01:27,040

introduce yourself for a second and then

33

00:01:36,069 --> 00:01:34,069

all right sounds great uh i'm uh retired

34

00:01:37,990 --> 00:01:36,079

army colonel shane kimbrough commander

35

00:01:39,990 --> 00:01:38,000

of the international space station

36

00:01:41,910 --> 00:01:40,000

um we have a crew of three on board

37

00:01:44,550 --> 00:01:41,920

right now i have two russian cosmonauts

38

00:01:46,310 --> 00:01:44,560

with me um here tomorrow we're gonna get

39

00:01:48,630 --> 00:01:46,320

three more uh crewmates so that's gonna

40

00:01:50,870 --> 00:01:48,640

be awesome to have another american a

41

00:01:53,109 --> 00:01:50,880

frenchman and another russian on board

42

00:01:59,910 --> 00:01:53,119

so it'll make our expedition 50 crew of

43

00:02:04,230 --> 00:02:02,069

good morning commander and welcome to

44

00:02:06,149 --> 00:02:04,240

our high school my name is gracie meoni

45

00:02:07,830 --> 00:02:06,159

and i'm a junior here my question for

46

00:02:09,669 --> 00:02:07,840

you today is what have you learned along

47

00:02:15,430 --> 00:02:09,679

your path as becoming an astronaut that

48

00:02:18,869 --> 00:02:17,190

well it's my whole career i guess kind

49

00:02:20,229 --> 00:02:18,879

of encompasses that question i've

50

00:02:21,510 --> 00:02:20,239

learned a lot about leadership i've

51
00:02:22,949 --> 00:02:21,520
learned a lot about how to be a team

52
00:02:25,190 --> 00:02:22,959
member

53
00:02:26,790 --> 00:02:25,200
how to be a you know part of something

54
00:02:28,550 --> 00:02:26,800
bigger than yourself i think is a big

55
00:02:30,150 --> 00:02:28,560
thing i've learned along the way

56
00:02:32,150 --> 00:02:30,160
this space flight is amazing but it's

57
00:02:34,070 --> 00:02:32,160
not everything and it's not about me

58
00:02:36,630 --> 00:02:34,080
it's about the nasa team it's about the

59
00:02:38,710 --> 00:02:36,640
russian space agency team the european

60
00:02:40,229 --> 00:02:38,720
space agency team and the japanese space

61
00:02:42,229 --> 00:02:40,239
agency team so

62
00:02:43,270 --> 00:02:42,239
it's much bigger than any of us alone i

63
00:02:46,470 --> 00:02:43,280

think that's one thing i've learned

64

00:02:46,480 --> 00:02:52,470

thank you

65

00:02:56,710 --> 00:02:54,470

hello commander my name is max harris

66

00:02:58,149 --> 00:02:56,720

and i'm a ninth grader

67

00:03:00,309 --> 00:02:58,159

my question for you is what are the

68

00:03:06,470 --> 00:03:00,319

biggest challenges that we face to make

69

00:03:10,149 --> 00:03:08,070

that's a great question it's a big topic

70

00:03:11,750 --> 00:03:10,159

these days which is awesome

71

00:03:13,030 --> 00:03:11,760

i think the biggest challenge is just

72

00:03:15,589 --> 00:03:13,040

trying to figure out how to get

73

00:03:16,869 --> 00:03:15,599

astronauts to mars and return home

74

00:03:18,390 --> 00:03:16,879

safely

75

00:03:20,869 --> 00:03:18,400

it sounds kind of simple but there's a

76

00:03:22,630 --> 00:03:20,879

lot that's involved in that um whether

77

00:03:24,630 --> 00:03:22,640

it's the workout machines that we have

78

00:03:26,470 --> 00:03:24,640

or the food we're going to eat or the

79

00:03:28,550 --> 00:03:26,480

systems on board the spacecraft that we

80

00:03:31,270 --> 00:03:28,560

have to keep us alive so that's a very

81

00:03:36,630 --> 00:03:31,280

challenging problem

82

00:03:40,390 --> 00:03:38,470

hello commander my name is caleb coyne

83

00:03:42,309 --> 00:03:40,400

and i'm a 10th grader here and my

84

00:03:43,990 --> 00:03:42,319

question for you today is how is being

85

00:03:49,589 --> 00:03:44,000

an astronaut influence your mindset and

86

00:03:53,270 --> 00:03:50,869

well that's a good question i've been an

87

00:03:54,390 --> 00:03:53,280

astronaut i guess about 12 years now and

88

00:03:57,589 --> 00:03:54,400

uh

89

00:03:59,830 --> 00:03:57,599

i had my first flight in 2008

90

00:04:01,589 --> 00:03:59,840

and so after that flight i don't know if

91

00:04:04,070 --> 00:04:01,599

my perception or anything changed it

92

00:04:05,270 --> 00:04:04,080

just kind of reiterated the mindset that

93

00:04:06,789 --> 00:04:05,280

i had

94

00:04:08,550 --> 00:04:06,799

again kind of going back to that first

95

00:04:10,789 --> 00:04:08,560

question where it's it's not about me

96

00:04:12,630 --> 00:04:10,799

it's about a bigger team

97

00:04:15,350 --> 00:04:12,640

and i think i've continued that mindset

98

00:04:23,590 --> 00:04:15,360

throughout my career

99

00:04:28,950 --> 00:04:26,710

hello i am eleanor mang a 9th grader on

100

00:04:30,629 --> 00:04:28,960

your current mission what is the most

101

00:04:35,430 --> 00:04:30,639

interesting science experiment that

102

00:04:38,790 --> 00:04:37,270

great question we've only been here a

103

00:04:40,310 --> 00:04:38,800

little over three weeks now so we

104

00:04:41,990 --> 00:04:40,320

haven't gotten into most of the science

105

00:04:43,990 --> 00:04:42,000

that we're going to do on board we have

106

00:04:45,990 --> 00:04:44,000

about 200 experiments that our crew is

107

00:04:48,070 --> 00:04:46,000

going to do over the next three to four

108

00:04:51,189 --> 00:04:48,080

months which is really exciting i've

109

00:04:53,430 --> 00:04:51,199

done a few things that uh so far

110

00:04:55,270 --> 00:04:53,440

personally on my body which is those are

111

00:04:56,790 --> 00:04:55,280

always interesting i can't give you the

112

00:04:58,310 --> 00:04:56,800

details on those because it's private

113

00:04:59,990 --> 00:04:58,320

information but those are always

114

00:05:01,590 --> 00:05:00,000

interesting to see

115

00:05:03,510 --> 00:05:01,600

and it's all for use to figure out how

116

00:05:05,270 --> 00:05:03,520

we're going to get people away from low

117

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

earth orbit and go to places like mars

118

00:05:08,870 --> 00:05:07,120

that we talked about earlier

119

00:05:10,230 --> 00:05:08,880

i'm also growing some plants on board

120

00:05:11,909 --> 00:05:10,240

i'm growing some lettuce and some

121

00:05:13,110 --> 00:05:11,919

cabbage and that's going really well so

122

00:05:14,469 --> 00:05:13,120

so far that's probably the most

123

00:05:22,710 --> 00:05:14,479

interesting thing

124

00:05:26,950 --> 00:05:24,629

hello my name is alex sanders i'm a

125

00:05:29,350 --> 00:05:26,960

senior and i'm curious as to how you are

126

00:05:34,070 --> 00:05:29,360

prepared to treat severe trauma on the

127

00:05:38,070 --> 00:05:35,749

a very good question something we hope

128

00:05:40,070 --> 00:05:38,080

we never have to deal with but if we do

129

00:05:43,029 --> 00:05:40,080

there's always some medically trained

130

00:05:44,310 --> 00:05:43,039

people on the crew i i am one of those

131

00:05:45,909 --> 00:05:44,320

and actually behind me i don't know if

132

00:05:47,189 --> 00:05:45,919

you can see this board that i'm kind of

133

00:05:48,710 --> 00:05:47,199

pointing at

134

00:05:50,150 --> 00:05:48,720

but if you can't that's where we would

135

00:05:52,070 --> 00:05:50,160

actually take a patient that's going

136

00:05:54,070 --> 00:05:52,080

through severe trauma we would strap

137

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

them down to that board and then we have

138

00:05:57,270 --> 00:05:55,600

all kind of equipment right around me

139

00:05:59,270 --> 00:05:57,280

here that we can handle in pretty much

140

00:06:00,550 --> 00:05:59,280

any emergency that could come up uh

141

00:06:03,029 --> 00:06:00,560

medically so

142

00:06:05,590 --> 00:06:03,039

we're very well trained of course

143

00:06:07,590 --> 00:06:05,600

i am not a doctor so

144

00:06:08,629 --> 00:06:07,600

some some astronauts are but most are

145

00:06:10,390 --> 00:06:08,639

not

146

00:06:11,990 --> 00:06:10,400

so we would be actually talking to

147

00:06:13,749 --> 00:06:12,000

somebody in mission control who is a

148

00:06:15,430 --> 00:06:13,759

doctor and they would be walking us

149

00:06:17,510 --> 00:06:15,440

through whatever procedure we needed to

150

00:06:23,749 --> 00:06:17,520

do

151

00:06:28,309 --> 00:06:26,629

hello i'm wesley nichols and i'm i'm a

152

00:06:29,430 --> 00:06:28,319

senior at wheat ridge high school i was

153

00:06:31,350 --> 00:06:29,440

wondering how do you sleep in

154

00:06:35,270 --> 00:06:31,360

microgravity strapped down or floating

155

00:06:38,390 --> 00:06:36,790

very good question now we wouldn't get

156

00:06:40,309 --> 00:06:38,400

much sleep if we floated around just

157

00:06:42,150 --> 00:06:40,319

because you'd be banging into things so

158

00:06:44,390 --> 00:06:42,160

we do strap ourselves down we actually

159

00:06:46,710 --> 00:06:44,400

have a little uh it's like a i call it a

160

00:06:48,629 --> 00:06:46,720

bedroom but we call it officially a crew

161

00:06:50,550 --> 00:06:48,639

quarters it's kind of like a really tiny

162

00:06:56,230 --> 00:06:50,560

closet and i actually brought my

163

00:06:59,990 --> 00:06:57,990

so here's here's what a sleeping bag

164

00:07:01,430 --> 00:07:00,000

looks like and we have to secure it to

165

00:07:03,189 --> 00:07:01,440

the wall so you can

166

00:07:05,670 --> 00:07:03,199

velcro it or tie it off i use these

167

00:07:07,350 --> 00:07:05,680

little rings on the side to tie mine off

168

00:07:08,790 --> 00:07:07,360

and you can be in any orientation you

169

00:07:10,629 --> 00:07:08,800

want because it doesn't matter there's

170

00:07:12,950 --> 00:07:10,639

no up or down up here so you could sleep

171

00:07:14,070 --> 00:07:12,960

upside down or right side up however you

172

00:07:16,550 --> 00:07:14,080

want to do it whatever's more

173

00:07:17,749 --> 00:07:16,560

comfortable for for each crew member

174

00:07:18,950 --> 00:07:17,759

but you definitely want to make sure

175

00:07:20,950 --> 00:07:18,960

you're strapped down so you're not

176

00:07:24,550 --> 00:07:20,960

floating around and hitting the sides of

177

00:07:24,560 --> 00:07:30,390

thank you

178

00:07:34,390 --> 00:07:32,629

hello commander my name is kevin mccooy i

179

00:07:36,150 --> 00:07:34,400

am an 11th grader

180

00:07:37,990 --> 00:07:36,160

what is the biggest or greatest

181

00:07:42,790 --> 00:07:38,000

challenge in training or preparation to

182

00:07:46,710 --> 00:07:44,150

well there's a lot of challenges

183

00:07:48,629 --> 00:07:46,720

involved in the training um

184

00:07:50,390 --> 00:07:48,639

you know we do a lot of academics we do

185

00:07:52,469 --> 00:07:50,400

a lot of studying i think the biggest

186

00:07:54,070 --> 00:07:52,479

challenge for me is just the uh

187

00:07:56,070 --> 00:07:54,080

especially for this flight was the time

188

00:07:57,189 --> 00:07:56,080

away from home away from my family and

189

00:07:58,629 --> 00:07:57,199

kids

190

00:08:01,510 --> 00:07:58,639

that was tough it was about two and a

191

00:08:03,430 --> 00:08:01,520

half year process and it's about 40

192

00:08:05,749 --> 00:08:03,440

percent of that was spent away most of

193

00:08:08,150 --> 00:08:05,759

it being in russia for training

194

00:08:11,670 --> 00:08:08,160

also learning the russian language

195

00:08:11,680 --> 00:08:17,990

thank you

196

00:08:22,309 --> 00:08:20,469

hi my name is jax voss i'm a junior and

197

00:08:28,710 --> 00:08:22,319

i was wondering what is the scariest

198

00:08:32,790 --> 00:08:30,869

well i'm not sure i've ever had a scary

199

00:08:33,829 --> 00:08:32,800

experience and i hope it stays that way

200

00:08:35,029 --> 00:08:33,839

um

201
00:08:36,310 --> 00:08:35,039
my first flight it was just a couple

202
00:08:38,149 --> 00:08:36,320
weeks long and we didn't really have

203
00:08:39,509 --> 00:08:38,159
anything thank goodness it went went

204
00:08:41,670 --> 00:08:39,519
completely wrong and same with this

205
00:08:43,750 --> 00:08:41,680
flight so far so we are prepared to

206
00:08:46,070 --> 00:08:43,760
handle a lot of emergencies we get a lot

207
00:08:47,829 --> 00:08:46,080
of training most of our training for any

208
00:08:49,350 --> 00:08:47,839
space flight is is dealing with

209
00:08:51,590 --> 00:08:49,360
emergencies with the vehicles or the

210
00:08:53,670 --> 00:08:51,600
systems on board so we're very well

211
00:08:55,190 --> 00:08:53,680
trained the whole crew is and if

212
00:08:57,350 --> 00:08:55,200
something happens i think we'll be able

213
00:09:03,750 --> 00:08:57,360

to take care of it

214

00:09:08,310 --> 00:09:05,590

hello commander my name is jacqueline

215

00:09:10,389 --> 00:09:08,320

pedlow and i'm in 11th grade my question

216

00:09:17,829 --> 00:09:10,399

for you today is what is the funniest

217

00:09:22,790 --> 00:09:20,310

so i think a lot of funny events occur

218

00:09:24,150 --> 00:09:22,800

around the dinner table or like this

219

00:09:25,670 --> 00:09:24,160

little table we have that we sit around

220

00:09:27,430 --> 00:09:25,680

and eat our meals at

221

00:09:28,389 --> 00:09:27,440

food is always a fun thing up here

222

00:09:29,990 --> 00:09:28,399

because

223

00:09:31,750 --> 00:09:30,000

it's just so unique and things are

224

00:09:33,590 --> 00:09:31,760

floating around and

225

00:09:36,150 --> 00:09:33,600

we're just not used to that being being

226

00:09:38,790 --> 00:09:36,160

on earth so we always have fun at meals

227

00:09:40,310 --> 00:09:38,800

and a lot of our funny stories come out

228

00:09:41,590 --> 00:09:40,320

it's just a good time to sit around with

229

00:09:43,190 --> 00:09:41,600

our colleagues

230

00:09:45,269 --> 00:09:43,200

and toss food around back and forth to

231

00:09:48,150 --> 00:09:45,279

each other let it float into your mouth

232

00:09:50,550 --> 00:09:48,160

or create a big water bubble

233

00:09:52,310 --> 00:09:50,560

that everybody can drink out of

234

00:09:53,990 --> 00:09:52,320

or put m ms in the middle and watch them

235

00:09:55,829 --> 00:09:54,000

float around

236

00:09:57,269 --> 00:09:55,839

things like that so i think meal time is

237

00:09:59,110 --> 00:09:57,279

probably the funniest time that i've had

238

00:10:05,829 --> 00:09:59,120

up here

239

00:10:09,509 --> 00:10:07,590

hello again commander my name is max

240

00:10:11,190 --> 00:10:09,519

harris

241

00:10:13,430 --> 00:10:11,200

what are the biggest challenges during a

242

00:10:18,150 --> 00:10:13,440

space walk and how long does your oxygen

243

00:10:22,630 --> 00:10:19,829

space walks by nature are very

244

00:10:24,550 --> 00:10:22,640

challenging uh physically and mentally

245

00:10:27,110 --> 00:10:24,560

i mean when i did i did two of my first

246

00:10:28,150 --> 00:10:27,120

flights and realized how challenging

247

00:10:30,550 --> 00:10:28,160

they were

248

00:10:32,630 --> 00:10:30,560

uh you're just so focused for about six

249

00:10:34,630 --> 00:10:32,640

and a half seven hours straight that

250

00:10:37,430 --> 00:10:34,640

your mind is completely

251

00:10:38,949 --> 00:10:37,440

exhausted when you get back inside

252

00:10:40,870 --> 00:10:38,959

so it's it's physically challenging

253

00:10:42,310 --> 00:10:40,880

because you're moving about a 300 pound

254

00:10:44,710 --> 00:10:42,320

spacesuit around of course it doesn't

255

00:10:46,150 --> 00:10:44,720

weigh anything in space but it is a mass

256

00:10:47,750 --> 00:10:46,160

you have to move around and it's

257

00:10:49,590 --> 00:10:47,760

pressurized so you're fighting the

258

00:10:50,949 --> 00:10:49,600

pressure of that spacesuit every time

259

00:10:52,310 --> 00:10:50,959

you move your hands or you're moving

260

00:10:53,990 --> 00:10:52,320

your body around

261

00:10:55,750 --> 00:10:54,000

um so physically

262

00:10:57,670 --> 00:10:55,760

and mentally challenging are probably

263

00:10:58,949 --> 00:10:57,680

the two biggest things to answer your

264

00:11:01,269 --> 00:10:58,959

second question

265

00:11:03,190 --> 00:11:01,279

our oxygen tanks can last about eight or

266

00:11:04,790 --> 00:11:03,200

eight and a half hours

267

00:11:07,190 --> 00:11:04,800

if you're not you know working super

268

00:11:09,030 --> 00:11:07,200

hard it all depends on your workload

269

00:11:11,190 --> 00:11:09,040

but typically these days we plan our

270

00:11:13,590 --> 00:11:11,200

space watch for six and a half hours and

271

00:11:15,750 --> 00:11:13,600

that typically covers the oxygen we can

272

00:11:17,509 --> 00:11:15,760

also if you need to you can come back to

273

00:11:19,910 --> 00:11:17,519

the air lock which is where we left out

274

00:11:21,829 --> 00:11:19,920

of and kind of get a refuel so it's kind

275

00:11:24,230 --> 00:11:21,839

of like going to the to the gas station

276

00:11:25,670 --> 00:11:24,240

for your car when you need gas we can

277

00:11:28,069 --> 00:11:25,680

come back to the air lock and actually

278

00:11:29,990 --> 00:11:28,079

get more oxygen put into our suit by

279

00:11:32,310 --> 00:11:30,000

hooking up to a to a cord and making

280

00:11:34,389 --> 00:11:32,320

that happen so that would obviously

281

00:11:36,550 --> 00:11:34,399

extend the life of the spacewalk if we

282

00:11:43,509 --> 00:11:36,560

needed it

283

00:11:47,509 --> 00:11:45,910

hello my name is brisa williams and i'm

284

00:11:49,670 --> 00:11:47,519

in the 10th grade

285

00:11:51,670 --> 00:11:49,680

do you believe that the private industry

286

00:11:56,949 --> 00:11:51,680

will provide an opportunity for to

287

00:12:01,350 --> 00:11:59,430

i absolutely do and uh a couple

288

00:12:02,949 --> 00:12:01,360

companies are pretty close they're a few

289

00:12:05,190 --> 00:12:02,959

years away i think from putting

290

00:12:08,310 --> 00:12:05,200

astronauts or people on board and

291

00:12:09,590 --> 00:12:08,320

sending them into space

292

00:12:11,110 --> 00:12:09,600

and i'm sure there's other companies

293

00:12:12,710 --> 00:12:11,120

down the road that are going to be doing

294

00:12:15,030 --> 00:12:12,720

the same so i'm really looking forward

295

00:12:16,710 --> 00:12:15,040

to kind of this next decade or so where

296

00:12:19,430 --> 00:12:16,720

private industry really gets involved

297

00:12:22,710 --> 00:12:19,440

with sending people and also

298

00:12:28,790 --> 00:12:22,720

other vehicles into space

299

00:12:33,509 --> 00:12:31,030

hello commander my name is isaac torres

300

00:12:35,829 --> 00:12:33,519

i'm in 12th grade and my question is

301
00:12:42,069 --> 00:12:35,839
what were your emotions the first time

302
00:12:46,629 --> 00:12:44,710
wow i was completely awestruck it's just

303
00:12:47,590 --> 00:12:46,639
unbelievable to see that for the first

304
00:12:49,110 --> 00:12:47,600
time

305
00:12:50,870 --> 00:12:49,120
and the good part about it is we

306
00:12:53,269 --> 00:12:50,880
actually experienced 16 of those

307
00:12:54,870 --> 00:12:53,279
sunrises and sunsets every day because

308
00:12:57,110 --> 00:12:54,880
we're going around the earth every 90

309
00:12:59,269 --> 00:12:57,120
minutes of course we don't see them all

310
00:13:01,590 --> 00:12:59,279
but i think when i saw my first one when

311
00:13:03,509 --> 00:13:01,600
i was outside spacewalking that really

312
00:13:04,710 --> 00:13:03,519
really blew me away it just made me feel

313
00:13:06,790 --> 00:13:04,720

very humble

314

00:13:08,949 --> 00:13:06,800

you can see the earth's atmosphere the

315

00:13:09,990 --> 00:13:08,959

thin layer that protects all of you down

316

00:13:12,230 --> 00:13:10,000

on earth

317

00:13:15,350 --> 00:13:12,240

from living and dying so it's very

318

00:13:15,360 --> 00:13:21,910

thank you commander

319

00:13:25,190 --> 00:13:23,910

hello commander my name is tj arbuckle

320

00:13:27,670 --> 00:13:25,200

and i'm a ninth grader here at wheat

321

00:13:29,509 --> 00:13:27,680

ridge high school my question for you is

322

00:13:31,269 --> 00:13:29,519

can you please explain how the

323

00:13:33,509 --> 00:13:31,279

astronauts on the international space

324

00:13:37,990 --> 00:13:33,519

station communicate with mission control

325

00:13:42,470 --> 00:13:39,910

yeah sure a very good question we have

326

00:13:44,470 --> 00:13:42,480

what we call space to ground channels

327

00:13:47,590 --> 00:13:44,480

and that's the formal communication now

328

00:13:49,030 --> 00:13:47,600

we do that through satellites that relay

329

00:13:50,949 --> 00:13:49,040

our communications

330

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

back and forth from in my case to

331

00:13:54,870 --> 00:13:52,880

houston most of the time

332

00:13:56,710 --> 00:13:54,880

but like today we have mission control

333

00:13:59,509 --> 00:13:56,720

centers all around the world so

334

00:14:01,350 --> 00:13:59,519

typically the us astronauts will use the

335

00:14:03,910 --> 00:14:01,360

the second channel space to ground two

336

00:14:05,910 --> 00:14:03,920

we call it to talk to houston or to talk

337

00:14:08,069 --> 00:14:05,920

to mission control in munich where the

338

00:14:11,189 --> 00:14:08,079

european space agency has their mission

339

00:14:12,870 --> 00:14:11,199

control or in scuba japan where the

340

00:14:14,710 --> 00:14:12,880

japanese have their mission control

341

00:14:16,710 --> 00:14:14,720

center so we would use that second

342

00:14:18,949 --> 00:14:16,720

channel the the russians typically use

343

00:14:21,509 --> 00:14:18,959

space to ground one to talk to mission

344

00:14:23,990 --> 00:14:21,519

control in moscow now if we need to get

345

00:14:25,910 --> 00:14:24,000

everybody on the same channel and talk

346

00:14:27,670 --> 00:14:25,920

at once we would use space to ground one

347

00:14:30,069 --> 00:14:27,680

that's kind of the universal channel for

348

00:14:35,750 --> 00:14:30,079

everybody

349

00:14:40,069 --> 00:14:37,990

hello commander my name is colin warren

350

00:14:41,670 --> 00:14:40,079

i'm a freshman here at wheatridge i was

351
00:14:43,430 --> 00:14:41,680
wondering how does it feel returning to

352
00:14:48,069 --> 00:14:43,440
earth and landing in a capsule compared

353
00:14:51,030 --> 00:14:49,590
that's a great question and i haven't

354
00:14:52,710 --> 00:14:51,040
experienced it yet but i can tell you

355
00:14:54,470 --> 00:14:52,720
what i've heard um

356
00:14:56,710 --> 00:14:54,480
landing in a shuttle obviously was was

357
00:14:58,230 --> 00:14:56,720
really incredible and mr lindsay there

358
00:14:59,269 --> 00:14:58,240
can tell you he did it a lot more times

359
00:15:01,829 --> 00:14:59,279
than i did

360
00:15:03,750 --> 00:15:01,839
but uh it's really fascinating for me to

361
00:15:06,310 --> 00:15:03,760
to land on a spacecraft to run it down

362
00:15:08,230 --> 00:15:06,320
the runway kind of like an airplane

363
00:15:10,069 --> 00:15:08,240

that was really i think comfortable is

364

00:15:11,430 --> 00:15:10,079

probably the right word compared to what

365

00:15:13,189 --> 00:15:11,440

i'm about to do here in a few months

366

00:15:15,269 --> 00:15:13,199

when we come home

367

00:15:17,269 --> 00:15:15,279

it's a little less comfortable but uh

368

00:15:19,189 --> 00:15:17,279

the system that the russians have

369

00:15:22,550 --> 00:15:19,199

works we're under a parachute and we

370

00:15:24,550 --> 00:15:22,560

come down and we just land in kazakhstan

371

00:15:26,870 --> 00:15:24,560

kind of in my case it'll be in february

372

00:15:28,710 --> 00:15:26,880

or march so it'll be very cold out we'll

373

00:15:29,670 --> 00:15:28,720

hit the frozen ground probably covered

374

00:15:31,829 --> 00:15:29,680

with snow

375

00:15:33,829 --> 00:15:31,839

i'm going pretty fast so it's just kind

376

00:15:36,150 --> 00:15:33,839

of my my colleagues i think have said

377

00:15:39,030 --> 00:15:36,160

it's it's like a uh kind of like a car

378

00:15:41,670 --> 00:15:39,040

crash you just hit the ground very hard

379

00:15:43,350 --> 00:15:41,680

everybody in most cases is doing just

380

00:15:45,269 --> 00:15:43,360

fine so it's not a big deal it's just

381

00:15:48,629 --> 00:15:45,279

something very different than than

382

00:15:55,189 --> 00:15:48,639

people that flew on shuttle or used to

383

00:15:58,470 --> 00:15:56,710

hello commander i'm casey craim and i'm

384

00:16:00,069 --> 00:15:58,480

in the 11th grade given all the

385

00:16:01,590 --> 00:16:00,079

potential dangers that you have in space

386

00:16:06,870 --> 00:16:01,600

which one of those dangers scare you the

387

00:16:09,749 --> 00:16:08,310

well i guess i don't really think about

388

00:16:12,790 --> 00:16:09,759

that very much and that probably comes

389

00:16:14,870 --> 00:16:12,800

from a lot of my military training um

390

00:16:16,870 --> 00:16:14,880

i think i'm just geared toward to rely

391

00:16:19,269 --> 00:16:16,880

on my training rely on the equipment i'm

392

00:16:21,670 --> 00:16:19,279

confident and all that stuff uh and that

393

00:16:23,189 --> 00:16:21,680

prepares me for a mission that's can be

394

00:16:24,949 --> 00:16:23,199

dangerous whether it's in the military

395

00:16:26,389 --> 00:16:24,959

or here in space because

396

00:16:28,550 --> 00:16:26,399

both of those environments can can

397

00:16:29,829 --> 00:16:28,560

potentially be very dangerous

398

00:16:32,310 --> 00:16:29,839

um

399

00:16:34,470 --> 00:16:32,320

so i don't really think about that i

400

00:16:36,550 --> 00:16:34,480

also have a lot of faith so

401

00:16:39,350 --> 00:16:36,560

i use that to lean on

402

00:16:41,110 --> 00:16:39,360

when things maybe would get dangerous

403

00:16:42,550 --> 00:16:41,120

but it you know inherently space flight

404

00:16:43,990 --> 00:16:42,560

is dangerous

405

00:16:47,189 --> 00:16:44,000

but i don't think about all the things

406

00:16:52,629 --> 00:16:47,199

that could go wrong

407

00:16:57,350 --> 00:16:54,870

hi commander i am theresa kennison an

408

00:17:03,350 --> 00:16:57,360

11th grader what physical activities are

409

00:17:07,189 --> 00:17:05,429

we have a great program now to take care

410

00:17:09,590 --> 00:17:07,199

of working out we have this machine

411

00:17:12,309 --> 00:17:09,600

called a red which stands for advanced

412

00:17:14,069 --> 00:17:12,319

resistive exercise device it's a machine

413

00:17:16,230 --> 00:17:14,079

that you can pretty much do anything you

414

00:17:18,470 --> 00:17:16,240

can do on earth like squats or bench

415

00:17:20,150 --> 00:17:18,480

press shoulder press

416

00:17:21,590 --> 00:17:20,160

dead lifts anything like that and you

417

00:17:23,909 --> 00:17:21,600

actually really feel like you're getting

418

00:17:26,230 --> 00:17:23,919

a workout you can get up to 600 pound

419

00:17:27,909 --> 00:17:26,240

load on this machine so obviously again

420

00:17:28,630 --> 00:17:27,919

things don't weigh anything in space but

421

00:17:30,310 --> 00:17:28,640

the

422

00:17:32,630 --> 00:17:30,320

machine can actually put a load up to

423

00:17:34,390 --> 00:17:32,640

600 pounds or so so i don't think i'll

424

00:17:36,710 --> 00:17:34,400

be lifting that much but uh it's

425

00:17:38,789 --> 00:17:36,720

incredible how much you can

426
00:17:40,230 --> 00:17:38,799
get going and build your strength while

427
00:17:41,830 --> 00:17:40,240
you're in space

428
00:17:43,590 --> 00:17:41,840
this was not up here last time i was

429
00:17:45,830 --> 00:17:43,600
here so it's really been great to work

430
00:17:47,830 --> 00:17:45,840
out on that we work out at least an hour

431
00:17:49,830 --> 00:17:47,840
on that every day along with an hour of

432
00:17:52,150 --> 00:17:49,840
cardio so we have a stationary bike

433
00:17:53,750 --> 00:17:52,160
which is to my left here i don't know if

434
00:17:55,190 --> 00:17:53,760
you can see that in the

435
00:17:56,870 --> 00:17:55,200
screen or not but that's a stationary

436
00:17:58,950 --> 00:17:56,880
bike and we also have a treadmill that

437
00:18:00,950 --> 00:17:58,960
we can run on so

438
00:18:02,710 --> 00:18:00,960

we we do the bike about twice a week and

439

00:18:04,789 --> 00:18:02,720

we do the treadmill about five times a

440

00:18:06,390 --> 00:18:04,799

week so we're in general working out

441

00:18:08,630 --> 00:18:06,400

every day about two to two and a half

442

00:18:12,390 --> 00:18:08,640

hours a day to maintain our our muscle

443

00:18:17,270 --> 00:18:12,400

mass and our bone density and bone mass

444

00:18:21,190 --> 00:18:19,029

hi commander my name is alex coulter and

445

00:18:22,789 --> 00:18:21,200

i'm in 11th grade are certain

446

00:18:28,310 --> 00:18:22,799

illnesses more dangerous when they are

447

00:18:28,320 --> 00:18:31,990

could you repeat the question i'm sorry

448

00:18:39,510 --> 00:18:33,750

are certain illnesses more dangerous

449

00:18:43,350 --> 00:18:40,789

i'm not sure i know the answer to that

450

00:18:45,430 --> 00:18:43,360

question we uh we do a really good job

451
00:18:48,070 --> 00:18:45,440
of quarantining the astronauts and

452
00:18:49,750 --> 00:18:48,080
cosmonauts before we launch um and in

453
00:18:51,430 --> 00:18:49,760
the case in our case we were there a

454
00:18:52,950 --> 00:18:51,440
little over two weeks in quarantine

455
00:18:54,710 --> 00:18:52,960
which means you get away from the

456
00:18:56,470 --> 00:18:54,720
general public and you're you're kind of

457
00:18:58,549 --> 00:18:56,480
sequestered so that you're not exposed

458
00:19:00,710 --> 00:18:58,559
to all the germs and things that people

459
00:19:03,430 --> 00:19:00,720
in the general public have so by doing

460
00:19:05,029 --> 00:19:03,440
that the idea is to come to space and

461
00:19:07,029 --> 00:19:05,039
not have any germs or not have any

462
00:19:09,110 --> 00:19:07,039
illnesses with you

463
00:19:11,190 --> 00:19:09,120

in most cases that is very true and it

464

00:19:13,110 --> 00:19:11,200

was true in our case but i have heard of

465

00:19:15,110 --> 00:19:13,120

a few cases where people brought a cold

466

00:19:16,870 --> 00:19:15,120

up or something like that

467

00:19:19,350 --> 00:19:16,880

but nothing really major that i've heard

468

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

of anyway and so

469

00:19:23,190 --> 00:19:21,280

the danger of bringing anything on board

470

00:19:25,350 --> 00:19:23,200

into a closed environment like this is

471

00:19:27,430 --> 00:19:25,360

if somebody is sick then the whole crew

472

00:19:28,630 --> 00:19:27,440

is going to get sick pretty quickly so a

473

00:19:31,510 --> 00:19:28,640

little different than earth where you

474

00:19:33,669 --> 00:19:31,520

have the atmosphere in the air to maybe

475

00:19:35,029 --> 00:19:33,679

dissipate an illness from a friend or

476

00:19:37,190 --> 00:19:35,039

something that's that you're not getting

477

00:19:39,110 --> 00:19:37,200

too close with we don't have that luxury

478

00:19:40,390 --> 00:19:39,120

here on board the space station so we

479

00:19:41,990 --> 00:19:40,400

try to prevent all that by the

480

00:19:43,990 --> 00:19:42,000

quarantine process that i mentioned

481

00:19:48,789 --> 00:19:44,000

earlier

482

00:19:52,950 --> 00:19:51,350

commander hi this ed perlmutter again i

483

00:19:55,110 --> 00:19:52,960

just want to thank you for taking the

484

00:19:56,470 --> 00:19:55,120

time to speak to us here in wheatridge

485

00:19:59,190 --> 00:19:56,480

colorado

486

00:20:01,270 --> 00:19:59,200

um we feel very fortunate you know to

487

00:20:03,830 --> 00:20:01,280

hear that you're growing lettuce and

488

00:20:07,350 --> 00:20:03,840

cabbage just like matt damon did

489

00:20:10,149 --> 00:20:07,360

something he grew potatoes on mars

490

00:20:11,590 --> 00:20:10,159

we know that your training

491

00:20:12,390 --> 00:20:11,600

your desire

492

00:20:14,950 --> 00:20:12,400

will

493

00:20:17,110 --> 00:20:14,960

come in handy no matter what crops up

494

00:20:19,350 --> 00:20:17,120

and so we're just thankful that you

495

00:20:21,590 --> 00:20:19,360

serve our nation and that you're serving

496

00:20:23,909 --> 00:20:21,600

the future by doing what you're doing

497

00:20:26,230 --> 00:20:23,919

and we here in wheatridge want to give

498

00:20:28,870 --> 00:20:26,240

you a big thank you one

499

00:20:38,470 --> 00:20:28,880

two three thank you

500

00:20:41,990 --> 00:20:40,310

well thank you and it's been a pleasure

501
00:20:43,750 --> 00:20:42,000
being with you today i wish you all a

502
00:20:46,149 --> 00:20:43,760
happy thanksgiving and it's an honor for

503
00:20:54,789 --> 00:20:46,159
me to serve

504
00:20:59,590 --> 00:20:56,630
station this is houston icr that

505
00:21:01,270 --> 00:20:59,600
concludes the event thank you

506
00:21:03,270 --> 00:21:01,280
thank you to all the participants and

507
00:21:05,430 --> 00:21:03,280
guests from the wheat ridge high school

508
00:21:07,510 --> 00:21:05,440
station we are now reconfiguring audio

509
00:21:09,270 --> 00:21:07,520
for the deferred release and shane give

510
00:21:10,870 --> 00:21:09,280
us a call on two have some additional