



International Space Station



Shaker Heights Schools, Ohio

1  
00:00:12,709 --> 00:00:08,629  
station this is houston are you ready

2  
00:00:18,310 --> 00:00:14,950  
houston this is station we are ready for

3  
00:00:22,630 --> 00:00:20,390  
shaker heights school this is mission

4  
00:00:26,150 --> 00:00:22,640  
control houston please call station for

5  
00:00:33,270 --> 00:00:27,910  
station this is brian child here with

6  
00:00:37,510 --> 00:00:35,270  
how you doing sir we hear you loud and

7  
00:00:41,030 --> 00:00:37,520  
clear welcome aboard the international

8  
00:00:41,040 --> 00:00:51,990  
thank you here's our first question

9  
00:00:57,830 --> 00:00:55,270  
my name is celia from fernway elementary

10  
00:01:00,790 --> 00:00:57,840  
my question is after all the training

11  
00:01:02,869 --> 00:01:00,800  
and preparations for going to the iss

12  
00:01:08,789 --> 00:01:02,879  
what is one thing you are not prepared

13  
00:01:14,469 --> 00:01:11,670

wow that's a great question so we spend

14

00:01:16,149 --> 00:01:14,479

quite a few years getting ready

15

00:01:19,510 --> 00:01:16,159

to come up to the international space

16

00:01:25,109 --> 00:01:21,749

and the one thing that we cannot

17

00:01:27,350 --> 00:01:25,119

simulate on the ground is microgravity

18

00:01:28,550 --> 00:01:27,360

and things float while we're up here as

19

00:01:30,789 --> 00:01:28,560

you can see

20

00:01:33,749 --> 00:01:30,799

offload mark is floating

21

00:01:35,910 --> 00:01:33,759

and so it really takes a lot of effort

22

00:01:37,910 --> 00:01:35,920

to learn how to control that when i set

23

00:01:40,789 --> 00:01:37,920

things down on the ground you can let it

24

00:01:41,990 --> 00:01:40,799

go and it sits there but in space it'll

25

00:01:43,670 --> 00:01:42,000

float away

26

00:01:45,990 --> 00:01:43,680

and the way you deal with it is every

27

00:01:47,429 --> 00:01:46,000

now and then you lose things as we all

28

00:01:49,510 --> 00:01:47,439

know

29

00:01:51,429 --> 00:01:49,520

but then you learn to use velcro and you

30

00:01:52,710 --> 00:01:51,439

learn to keep track of all your stuff so

31

00:02:02,389 --> 00:01:52,720

it takes a little bit of time to get

32

00:02:09,050 --> 00:02:04,550

hi my name is benjamin

33

00:02:09,060 --> 00:02:12,309

[Music]

34

00:02:12,319 --> 00:02:17,589

my question is

35

00:02:17,599 --> 00:02:23,670

why are spaces fighting

36

00:02:27,830 --> 00:02:25,910

that's another great question so i can't

37

00:02:29,270 --> 00:02:27,840

say with certainty why they're white i

38

00:02:31,430 --> 00:02:29,280

can tell you that

39

00:02:33,990 --> 00:02:31,440

one of the things the benefits of a

40

00:02:36,630 --> 00:02:34,000

white spacesuit is that the color white

41

00:02:39,030 --> 00:02:36,640

reflects light better and absorbs heat

42

00:02:41,670 --> 00:02:39,040

worse so if you're in an environment

43

00:02:49,270 --> 00:02:41,680

where you need to reject heat as much as

44

00:02:53,270 --> 00:02:51,350

okay go ahead

45

00:02:55,430 --> 00:02:53,280

hi my name is leslie from woodbury

46

00:02:57,350 --> 00:02:55,440

elementary my question is

47

00:02:59,110 --> 00:02:57,360

do your cells in your body adapt to the

48

00:03:08,390 --> 00:02:59,120

change from being on earth to being in

49

00:03:11,830 --> 00:03:09,750

and i think the question was asking

50

00:03:14,070 --> 00:03:11,840

about how the body adapts to being in

51  
00:03:16,790 --> 00:03:14,080  
space hopefully

52  
00:03:18,949 --> 00:03:16,800  
so i'll answer that one it's amazing how

53  
00:03:21,030 --> 00:03:18,959  
the body can get used to being in a

54  
00:03:23,030 --> 00:03:21,040  
different environment so quickly the

55  
00:03:25,350 --> 00:03:23,040  
first couple of days for me personally i

56  
00:03:27,750 --> 00:03:25,360  
don't feel good when i come to space or

57  
00:03:29,589 --> 00:03:27,760  
when i go back to earth but after just a

58  
00:03:31,830 --> 00:03:29,599  
couple of days it feels like we were

59  
00:03:34,070 --> 00:03:31,840  
born to be in space you learn how to

60  
00:03:36,949 --> 00:03:34,080  
move you learn how to use your feet and

61  
00:03:38,710 --> 00:03:36,959  
it becomes very very natural so

62  
00:03:43,589 --> 00:03:38,720  
our bodies are pretty good for adapting

63  
00:03:47,990 --> 00:03:45,430

hi my name is haley from the middle

64

00:03:50,390 --> 00:03:48,000

school my question is we know you both

65

00:03:52,070 --> 00:03:50,400

took part in the recent space walks can

66

00:03:54,149 --> 00:03:52,080

you describe the first feeling you

67

00:03:55,990 --> 00:03:54,159

experienced when you were outside and

68

00:04:00,710 --> 00:03:56,000

saw the earth as you were floating above

69

00:04:05,990 --> 00:04:03,750

uh honestly my first thought was

70

00:04:08,869 --> 00:04:06,000

be careful don't make a mistake

71

00:04:12,070 --> 00:04:08,879

um we've trained a lot for that event

72

00:04:14,550 --> 00:04:12,080

but somehow the it really hit home when

73

00:04:16,310 --> 00:04:14,560

i was outside and i could look in any

74

00:04:18,390 --> 00:04:16,320

direction and see the horizon of the

75

00:04:20,390 --> 00:04:18,400

earth or the blackness of space

76  
00:04:21,430 --> 00:04:20,400  
and there was nothing between me and it

77  
00:04:23,270 --> 00:04:21,440  
and it

78  
00:04:24,230 --> 00:04:23,280  
literally other than some

79  
00:04:29,110 --> 00:04:24,240  
some

80  
00:04:31,510 --> 00:04:29,120  
few particles of the atmosphere um

81  
00:04:32,790 --> 00:04:31,520  
the very first impression i had was in

82  
00:04:34,550 --> 00:04:32,800  
the airlock

83  
00:04:36,710 --> 00:04:34,560  
where it's kind of a small tube if you

84  
00:04:38,469 --> 00:04:36,720  
can imagine two people in a tube

85  
00:04:39,510 --> 00:04:38,479  
there's lights on but it's all indoor

86  
00:04:40,950 --> 00:04:39,520  
lighting

87  
00:04:42,550 --> 00:04:40,960  
and then when the commander who was

88  
00:04:43,830 --> 00:04:42,560

doing the space walk with me opened the

89

00:04:45,350 --> 00:04:43,840

hatch

90

00:04:47,270 --> 00:04:45,360

it suddenly felt like we were going

91

00:04:48,950 --> 00:04:47,280

outside because we got this intense

92

00:04:51,189 --> 00:04:48,960

bright light coming off of the earth

93

00:04:52,790 --> 00:04:51,199

reflected from the sun that came into

94

00:04:54,950 --> 00:04:52,800

the airlock and changed the feeling in

95

00:04:56,230 --> 00:04:54,960

the airlock and suddenly i felt like wow

96

00:05:05,670 --> 00:04:56,240

we're really going to go outside in

97

00:05:09,749 --> 00:05:07,510

hi my name is drake mccandlish from

98

00:05:17,830 --> 00:05:09,759

mercier elementary my question is what

99

00:05:23,670 --> 00:05:20,870

wow so when i was uh when i was really

100

00:05:26,469 --> 00:05:23,680

young probably younger than you

101  
00:05:28,790 --> 00:05:26,479  
i would watch the films and film is this

102  
00:05:30,469 --> 00:05:28,800  
old thing we used to use to watch to

103  
00:05:33,270 --> 00:05:30,479  
watch things

104  
00:05:35,350 --> 00:05:33,280  
and so i would watch the film of the

105  
00:05:37,350 --> 00:05:35,360  
astronauts walking on the moon as part

106  
00:05:38,870 --> 00:05:37,360  
of the apollo missions and i thought hey

107  
00:05:40,390 --> 00:05:38,880  
that's pretty cool i would love to do

108  
00:05:42,550 --> 00:05:40,400  
that someday

109  
00:05:44,790 --> 00:05:42,560  
of course it was just a dream of mine

110  
00:05:47,029 --> 00:05:44,800  
and then i read a lot of science fiction

111  
00:05:48,550 --> 00:05:47,039  
books and i still like them and i would

112  
00:05:50,550 --> 00:05:48,560  
read about people going to different

113  
00:05:51,430 --> 00:05:50,560

planets and doing all kinds of crazy

114

00:05:52,950 --> 00:05:51,440

things

115

00:05:54,070 --> 00:05:52,960

and that just kind of kept the dream

116

00:05:56,309 --> 00:05:54,080

alive

117

00:05:59,270 --> 00:05:56,319

and so i think from a very young age i

118

00:06:00,629 --> 00:05:59,280

thought it'd be a cool job

119

00:06:01,830 --> 00:06:00,639

i thought it'd be great to go and

120

00:06:04,870 --> 00:06:01,840

explore

121

00:06:06,710 --> 00:06:04,880

and when i was teaching middle school

122

00:06:08,790 --> 00:06:06,720

before i became an astronaut i saw they

123

00:06:10,950 --> 00:06:08,800

were looking for astronauts and they

124

00:06:13,029 --> 00:06:10,960

wanted teachers to become astronauts and

125

00:06:15,430 --> 00:06:13,039

i said wow this is my chance maybe i can

126

00:06:17,350 --> 00:06:15,440

get the job and so i applied and

127

00:06:30,070 --> 00:06:17,360

here i am today on the space station so

128

00:06:30,080 --> 00:06:33,110

hi my name

129

00:06:36,950 --> 00:06:34,550

my question is

130

00:06:38,950 --> 00:06:36,960

are you super scared while going out

131

00:06:50,309 --> 00:06:38,960

in space away from earth and while you

132

00:06:50,319 --> 00:06:55,510

would you mind repeating that question

133

00:06:59,990 --> 00:06:57,670

hi my name is poplar from boulevard

134

00:07:01,749 --> 00:07:00,000

elementary my question is were you super

135

00:07:04,070 --> 00:07:01,759

scared about going out

136

00:07:10,070 --> 00:07:04,080

in space away from earth and while you

137

00:07:13,670 --> 00:07:11,189

um

138

00:07:16,469 --> 00:07:13,680

i i was there was certainly fear was a

139

00:07:19,350 --> 00:07:16,479

factor i was very attentive i'm not so

140

00:07:23,909 --> 00:07:19,360

certain i was afraid more of physical

141

00:07:25,670 --> 00:07:23,919

harm or afraid of just making a mistake

142

00:07:27,430 --> 00:07:25,680

there's so much invested in getting us

143

00:07:29,830 --> 00:07:27,440

ready that mike

144

00:07:31,430 --> 00:07:29,840

and so many people are supporting us

145

00:07:33,510 --> 00:07:31,440

that the last thing i want to do is let

146

00:07:34,950 --> 00:07:33,520

anybody down

147

00:07:36,390 --> 00:07:34,960

and i can tell you the second time i did

148

00:07:39,350 --> 00:07:36,400

a space walk

149

00:07:42,309 --> 00:07:39,360

that i really wasn't nearly as

150

00:07:44,710 --> 00:07:42,319

concerned as the first time i realized

151

00:07:47,270 --> 00:07:44,720

that physics was on my side and if i let

152

00:07:49,350 --> 00:07:47,280

go of something without pushing hard i

153

00:07:51,350 --> 00:07:49,360

would just stay floating right there so

154

00:07:53,670 --> 00:07:51,360

it took much less effort

155

00:07:56,390 --> 00:07:53,680

um when i when i really kind of started

156

00:07:59,749 --> 00:07:56,400

getting in an instinctual feel for the

157

00:08:01,270 --> 00:07:59,759

fact that uh unless i moved really fast

158

00:08:03,189 --> 00:08:01,280

i wasn't going to move very fast i was

159

00:08:19,189 --> 00:08:03,199

going to go ahead and stay put without

160

00:08:30,710 --> 00:08:22,869

elementary and my question is how do you

161

00:08:34,709 --> 00:08:32,790

yeah that's a really good question we

162

00:08:36,550 --> 00:08:34,719

don't have the supermarket so we can't

163

00:08:38,550 --> 00:08:36,560

go to the store to get food

164

00:08:41,269 --> 00:08:38,560

but we do have what we call cargo

165

00:08:43,509 --> 00:08:41,279

vehicles that will come up a few times a

166

00:08:45,590 --> 00:08:43,519

year we actually have one coming up in

167

00:08:47,670 --> 00:08:45,600

the next couple of weeks and it'll bring

168

00:08:48,949 --> 00:08:47,680

us all kinds of food all kinds of

169

00:08:50,710 --> 00:08:48,959

supplies

170

00:08:54,470 --> 00:08:50,720

but one thing we've been doing just

171

00:08:55,910 --> 00:08:54,480

recently is we're growing some plants so

172

00:08:57,509 --> 00:08:55,920

now we're kind of making our own food

173

00:09:03,829 --> 00:08:57,519

it's not a lot but we're learning how to

174

00:09:09,590 --> 00:09:06,470

hi my name is kirsten from

175

00:09:15,829 --> 00:09:09,600

roman elementary my question is how do

176

00:09:19,990 --> 00:09:17,990

so we're very fortunate because on the

177

00:09:21,990 --> 00:09:20,000

international space station we have an

178

00:09:23,430 --> 00:09:22,000

internet protocol phone so basically

179

00:09:25,990 --> 00:09:23,440

with satellites

180

00:09:28,070 --> 00:09:26,000

we're able to use the internet and talk

181

00:09:30,150 --> 00:09:28,080

to our families um it's not quite as

182

00:09:32,550 --> 00:09:30,160

good as being on the ground because

183

00:09:34,949 --> 00:09:32,560

so the space station has large objects

184

00:09:36,710 --> 00:09:34,959

that can interfere with the satellites

185

00:09:38,630 --> 00:09:36,720

so sometimes it's broken up but really

186

00:09:45,829 --> 00:09:38,640

it's very convenient we can we can dial

187

00:09:50,070 --> 00:09:47,910

hi my name is kira from the high school

188

00:09:52,070 --> 00:09:50,080

my question is were you able to see and

189

00:09:58,630 --> 00:09:52,080

predict the paths of hurricanes from

190

00:10:03,030 --> 00:10:00,550

well we can definitely

191

00:10:05,110 --> 00:10:03,040

see the hurricanes from up here and we

192

00:10:07,269 --> 00:10:05,120

can take a lot of great pictures that

193

00:10:09,910 --> 00:10:07,279

will help scientists learn how

194

00:10:10,870 --> 00:10:09,920

the hurricanes behave how the the clouds

195

00:10:12,949 --> 00:10:10,880

move

196

00:10:15,829 --> 00:10:12,959

we can't really predict where it's going

197

00:10:18,790 --> 00:10:15,839

to go as we're going around the earth we

198

00:10:21,910 --> 00:10:18,800

see it for a very short period of time

199

00:10:24,710 --> 00:10:21,920

but it is really really noticeable and

200

00:10:26,230 --> 00:10:24,720

again we try to provide information to

201  
00:10:28,150 --> 00:10:26,240  
those people on the ground either the

202  
00:10:29,990 --> 00:10:28,160  
scientists that are studying them or

203  
00:10:32,069 --> 00:10:30,000  
even people that are living potentially

204  
00:10:34,630 --> 00:10:32,079  
in the path of the hurricanes and then

205  
00:10:36,230 --> 00:10:34,640  
once they pass if we can also help out

206  
00:10:38,150 --> 00:10:36,240  
by taking pictures of what might have

207  
00:10:40,069 --> 00:10:38,160  
happened afterwards to help with the

208  
00:10:41,350 --> 00:10:40,079  
recovery effort so it's uh there is a

209  
00:10:42,630 --> 00:10:41,360  
lot we can do

210  
00:10:44,949 --> 00:10:42,640  
and it's one of the nice things about

211  
00:10:47,030 --> 00:10:44,959  
having humans in space is that we can

212  
00:10:54,069 --> 00:10:47,040  
act uh react very quickly to things that

213  
00:10:56,230 --> 00:10:54,870

okay

214

00:11:08,310 --> 00:10:56,240

my

215

00:11:11,829 --> 00:11:10,069

so i think it's important for us to go

216

00:11:14,470 --> 00:11:11,839

to space because

217

00:11:16,790 --> 00:11:14,480

it is a challenging endeavor that

218

00:11:18,470 --> 00:11:16,800

focuses our attention and the attention

219

00:11:20,230 --> 00:11:18,480

of science into

220

00:11:23,430 --> 00:11:20,240

learning new things

221

00:11:26,230 --> 00:11:23,440

uh it also gives us opportunities

222

00:11:27,910 --> 00:11:26,240

so first of all by by focusing on doing

223

00:11:30,310 --> 00:11:27,920

challenging things we end up with lots

224

00:11:32,710 --> 00:11:30,320

of what we call spin-off technologies

225

00:11:35,590 --> 00:11:32,720

things that we get unexpectedly that

226

00:11:37,509 --> 00:11:35,600

help our lives in the ground right away

227

00:11:39,190 --> 00:11:37,519

also because

228

00:11:42,150 --> 00:11:39,200

when you do science experiments it's

229

00:11:43,829 --> 00:11:42,160

good to take to try to change variables

230

00:11:45,670 --> 00:11:43,839

and see how things react to get a better

231

00:11:48,069 --> 00:11:45,680

understanding of how things work well

232

00:11:48,790 --> 00:11:48,079

here in the space station we're able to

233

00:11:49,829 --> 00:11:48,800

take

234

00:11:52,150 --> 00:11:49,839

we're able to have a sense of

235

00:11:53,509 --> 00:11:52,160

weightlessness up here and so then we

236

00:11:54,629 --> 00:11:53,519

can see how

237

00:11:56,949 --> 00:11:54,639

how

238

00:11:59,509 --> 00:11:56,959

things behave from combustion to plant

239

00:12:01,829 --> 00:11:59,519

growth without that

240

00:12:03,269 --> 00:12:01,839

sense of up or down to affect it and

241

00:12:05,030 --> 00:12:03,279

that helps us to better understand how

242

00:12:07,350 --> 00:12:05,040

things really work and then that helps

243

00:12:09,110 --> 00:12:07,360

us out in the future and then i really

244

00:12:10,870 --> 00:12:09,120

think the human spirit has a strong

245

00:12:13,829 --> 00:12:10,880

desire to explore

246

00:12:17,350 --> 00:12:13,839

and it helps us put perspective on where

247

00:12:19,350 --> 00:12:17,360

we live now and understand better

248

00:12:27,590 --> 00:12:19,360

how we got here and

249

00:12:32,550 --> 00:12:29,990

hi my name is ailey from woodbury

250

00:12:34,389 --> 00:12:32,560

elementary my question is if a serious

251  
00:12:35,350 --> 00:12:34,399  
emergency happened while you were in

252  
00:12:36,949 --> 00:12:35,360  
space

253  
00:12:43,430 --> 00:12:36,959  
what would you do and would you be able

254  
00:12:47,750 --> 00:12:45,269  
yes hopefully

255  
00:12:49,030 --> 00:12:47,760  
so we do train for various types of

256  
00:12:50,949 --> 00:12:49,040  
emergencies

257  
00:12:53,190 --> 00:12:50,959  
and they could be anything from maybe a

258  
00:12:55,350 --> 00:12:53,200  
fire or something might hit us and we

259  
00:12:57,670 --> 00:12:55,360  
get a hole in the space station

260  
00:12:59,190 --> 00:12:57,680  
maybe something goes into the atmosphere

261  
00:13:01,430 --> 00:12:59,200  
but then we could have one of us that

262  
00:13:03,990 --> 00:13:01,440  
might get sick

263  
00:13:04,870 --> 00:13:04,000

we might injure ourselves doing work and

264

00:13:06,710 --> 00:13:04,880

so

265

00:13:09,030 --> 00:13:06,720

the first thing we would do

266

00:13:11,190 --> 00:13:09,040

it depends on what it is we'll react to

267

00:13:13,910 --> 00:13:11,200

the immediate emergency if it's a

268

00:13:16,069 --> 00:13:13,920

medical emergency we will call mission

269

00:13:17,829 --> 00:13:16,079

control and try to talk to one of the

270

00:13:19,590 --> 00:13:17,839

flight surgeons there

271

00:13:20,790 --> 00:13:19,600

we have some training but mark probably

272

00:13:22,389 --> 00:13:20,800

doesn't want me

273

00:13:23,590 --> 00:13:22,399

doing too much on him if he has an

274

00:13:25,829 --> 00:13:23,600

injury

275

00:13:28,069 --> 00:13:25,839

but having the ground help us in all

276

00:13:29,910 --> 00:13:28,079

cases is really important

277

00:13:32,710 --> 00:13:29,920

and if it is something super super

278

00:13:35,190 --> 00:13:32,720

serious we always have our

279

00:13:38,069 --> 00:13:35,200

soyuz spacecraft that brought us here

280

00:13:40,230 --> 00:13:38,079

and we can hop in that at any time

281

00:13:42,230 --> 00:13:40,240

and we can undock from the space station

282

00:13:44,069 --> 00:13:42,240

and then head back home so

283

00:13:45,670 --> 00:13:44,079

we train a lot for it

284

00:13:48,710 --> 00:13:45,680

we're fortunate so far everything's been

285

00:13:56,069 --> 00:13:48,720

going well and we'll continue to to keep

286

00:14:01,430 --> 00:13:58,550

hi my name is jalen

287

00:14:04,150 --> 00:14:01,440

from boulevard elementary my question is

288

00:14:05,750 --> 00:14:04,160

can you describe what a typical day on

289

00:14:10,389 --> 00:14:05,760

the is

290

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

sure so basically i would say six in the

291

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

morning is when we wake up 7 30 we have

292

00:14:19,110 --> 00:14:16,880

a meeting with the ground to talk about

293

00:14:20,470 --> 00:14:19,120

how the what's uh going to either

294

00:14:21,910 --> 00:14:20,480

changes or what's going to what's going

295

00:14:23,829 --> 00:14:21,920

to happen of the day

296

00:14:25,990 --> 00:14:23,839

we've got a schedule that's been

297

00:14:28,230 --> 00:14:26,000

uploaded for us and we we

298

00:14:30,150 --> 00:14:28,240

work that schedule the whole day

299

00:14:31,670 --> 00:14:30,160

typically we've got about an hour for

300

00:14:33,670 --> 00:14:31,680

lunch right

301  
00:14:34,949 --> 00:14:33,680  
yeah

302  
00:14:36,550 --> 00:14:34,959  
but we spent much less than that

303  
00:14:41,590 --> 00:14:36,560  
actually eating lunch

304  
00:14:43,110 --> 00:14:41,600  
and uh we work till about 7 30.

305  
00:14:44,949 --> 00:14:43,120  
part of the work day though includes a

306  
00:14:46,870 --> 00:14:44,959  
couple hours maybe two and a half hours

307  
00:14:50,150 --> 00:14:46,880  
to exercise

308  
00:14:51,829 --> 00:14:50,160  
and then after 7 30 we have

309  
00:14:53,110 --> 00:14:51,839  
at around 7 30 we have another meeting

310  
00:14:54,790 --> 00:14:53,120  
with the ground

311  
00:15:02,470 --> 00:14:54,800  
and then we have time to get ready for

312  
00:15:09,110 --> 00:15:05,430  
hi my name is anya

313  
00:15:11,990 --> 00:15:09,120

from fernway elementary my question is

314

00:15:18,389 --> 00:15:12,000

what are the qualifications for going

315

00:15:22,389 --> 00:15:20,629

that's a pretty interesting question

316

00:15:23,670 --> 00:15:22,399

because when you look at the astronauts

317

00:15:27,269 --> 00:15:23,680

that are up here

318

00:15:28,949 --> 00:15:27,279

we all have very different backgrounds

319

00:15:31,350 --> 00:15:28,959

but the one thing that we all have in

320

00:15:34,150 --> 00:15:31,360

common is we all studied something in

321

00:15:36,470 --> 00:15:34,160

the sciences the engineer in engineering

322

00:15:39,430 --> 00:15:36,480

or mathematics

323

00:15:41,269 --> 00:15:39,440

and we all have a desire to be in the

324

00:15:42,389 --> 00:15:41,279

space and we all had the dream of coming

325

00:15:43,189 --> 00:15:42,399

to space

326

00:15:45,430 --> 00:15:43,199

so

327

00:15:47,030 --> 00:15:45,440

today if you want to become an astronaut

328

00:15:48,310 --> 00:15:47,040

you need to have a degree in one of

329

00:15:51,030 --> 00:15:48,320

those fields

330

00:15:53,269 --> 00:15:51,040

and then a certain amount of experience

331

00:15:54,710 --> 00:15:53,279

but hopefully someday we can have people

332

00:15:57,189 --> 00:15:54,720

go into space

333

00:15:59,030 --> 00:15:57,199

on a more regular basis because

334

00:16:01,269 --> 00:15:59,040

all of us have different qualifications

335

00:16:03,749 --> 00:16:01,279

and all of those can be very beneficial

336

00:16:15,749 --> 00:16:03,759

to living in space and maybe living on a

337

00:16:20,790 --> 00:16:18,230

hi my name is isaac from honoraway

338

00:16:40,629 --> 00:16:20,800

elementary my question is have you made

339

00:16:43,670 --> 00:16:42,470

there's so many important discoveries

340

00:16:52,790 --> 00:16:43,680

that we're trying to make sure we pick

341

00:16:57,030 --> 00:16:54,470

i can tell you just one that i'm aware

342

00:16:59,269 --> 00:16:57,040

of off the top of my head um and really

343

00:17:01,430 --> 00:16:59,279

i'm not sure that it was a discovery so

344

00:17:02,949 --> 00:17:01,440

much as a potential an item with

345

00:17:05,669 --> 00:17:02,959

potential

346

00:17:08,549 --> 00:17:05,679

there's a lot of hope that some lung

347

00:17:09,990 --> 00:17:08,559

tissues that we've grown on in the space

348

00:17:12,870 --> 00:17:10,000

station

349

00:17:14,230 --> 00:17:12,880

may help contribute to finding a cure

350

00:17:17,029 --> 00:17:14,240

for cancer

351

00:17:19,110 --> 00:17:17,039

there's also been a lot of

352

00:17:21,750 --> 00:17:19,120

uh learning about

353

00:17:24,069 --> 00:17:21,760

regenerating water and making it clean

354

00:17:27,189 --> 00:17:24,079

so we actually recycle all of our all

355

00:17:29,270 --> 00:17:27,199

the fluid from sweat to other stuff

356

00:17:30,950 --> 00:17:29,280

and uh

357

00:17:32,150 --> 00:17:30,960

that's a useful technology to use on the

358

00:17:33,990 --> 00:17:32,160

ground so that's helped contribute to

359

00:17:35,270 --> 00:17:34,000

making pure water in places where it's

360

00:17:40,390 --> 00:17:35,280

hard to get

361

00:17:40,400 --> 00:17:43,110

it's good

362

00:17:43,120 --> 00:17:48,789

that's all i got right now

363

00:17:52,710 --> 00:17:49,590

hi

364

00:17:55,110 --> 00:17:52,720

my name is gabi from musa elementary my

365

00:18:03,110 --> 00:17:55,120

question is how come it's so hard to get

366

00:18:07,110 --> 00:18:05,029

so mark is the smart one so he's going

367

00:18:10,710 --> 00:18:07,120

to answer that one he he was a physics

368

00:18:14,310 --> 00:18:12,070

so it's hard getting through the earth's

369

00:18:16,470 --> 00:18:14,320

atmosphere just because of the speed

370

00:18:18,710 --> 00:18:16,480

that we are moving at so right now we're

371

00:18:20,390 --> 00:18:18,720

moving four miles a second

372

00:18:23,190 --> 00:18:20,400

and if we want to land on the earth we

373

00:18:24,789 --> 00:18:23,200

want to be going at roughly zero miles

374

00:18:26,710 --> 00:18:24,799

per second relative to the surface of

375

00:18:29,110 --> 00:18:26,720

the earth and we actually use the

376

00:18:30,630 --> 00:18:29,120

atmosphere to slow us down so that

377

00:18:32,390 --> 00:18:30,640

there's a lot of friction and that

378

00:18:33,990 --> 00:18:32,400

generates heat so

379

00:18:35,990 --> 00:18:34,000

that's why uh going through the

380

00:18:40,310 --> 00:18:36,000

atmosphere is hard it's just the speed

381

00:18:40,320 --> 00:18:44,070

okay

382

00:18:47,820 --> 00:18:45,029

hi

383

00:18:59,990 --> 00:18:47,830

my name is

384

00:19:04,310 --> 00:19:01,510

i'm sorry can you repeat that question

385

00:19:13,909 --> 00:19:06,220

are there germs in space

386

00:19:17,350 --> 00:19:15,990

okay so the question about uh germs in

387

00:19:21,350 --> 00:19:17,360

space

388

00:19:23,510 --> 00:19:21,360

um

389

00:19:26,390 --> 00:19:23,520

i'm not sure why i looked at mark but uh

390

00:19:28,070 --> 00:19:26,400

so we all have germs in our body on the

391

00:19:30,789 --> 00:19:28,080

outside of our body

392

00:19:32,789 --> 00:19:30,799

but a lot of those are beneficial to us

393

00:19:35,510 --> 00:19:32,799

we do spend a lot of time cleaning the

394

00:19:37,669 --> 00:19:35,520

space station every weekend so if you

395

00:19:39,750 --> 00:19:37,679

think you have your chores at home we

396

00:19:41,909 --> 00:19:39,760

have hours as well where if you were to

397

00:19:43,270 --> 00:19:41,919

see us on a saturday morning we're like

398

00:19:45,110 --> 00:19:43,280

little ants running around cleaning the

399

00:19:47,270 --> 00:19:45,120

space station to make sure that some of

400

00:19:49,430 --> 00:19:47,280

those bad germs don't take place and

401

00:19:51,029 --> 00:19:49,440

start growing some more

402

00:20:18,149 --> 00:19:51,039

but we have them up here and they are

403

00:20:23,909 --> 00:20:20,310

station this is houston acr that

404

00:20:28,470 --> 00:20:26,230

thank you to all participants from

405

00:20:30,470 --> 00:20:28,480

shaker heights schools station we are

406

00:20:43,690 --> 00:20:30,480

now resuming operational audio