

1
00:00:03,270 --> 00:00:01,510
not know this but she's not just the

2
00:00:06,230 --> 00:00:03,280
vice president united states he's also

3
00:00:08,790 --> 00:00:06,240
the chair of the national space council

4
00:00:10,709 --> 00:00:08,800
so she oversees the entire nation's

5
00:00:12,789 --> 00:00:10,719
space programs and efforts whether we're

6
00:00:15,910 --> 00:00:12,799
talking about nasa

7
00:00:18,310 --> 00:00:15,920
military earth observation for climate

8
00:00:20,870 --> 00:00:18,320
all different types of things here and

9
00:00:22,070 --> 00:00:20,880
she wanted to appreciate uh the work

10
00:00:23,590 --> 00:00:22,080
that you've done

11
00:00:25,429 --> 00:00:23,600
and i want to read a letter that she has

12
00:00:27,269 --> 00:00:25,439
signed uh there's a letter right there

13
00:00:28,390 --> 00:00:27,279

with her signature right at the bottom

14

00:00:30,950 --> 00:00:28,400

and it says

15

00:00:33,190 --> 00:00:30,960

dear captain glover i send you my

16

00:00:34,950 --> 00:00:33,200

warmest congratulations on your historic

17

00:00:37,110 --> 00:00:34,960

achievement as the first

18

00:00:39,590 --> 00:00:37,120

african-american man

19

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

to complete a long-duration mission on

20

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

the international space station and you

21

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

heard he was up there six months

22

00:00:48,389 --> 00:00:45,520

i'm grateful we have a chance to speak

23

00:00:50,389 --> 00:00:48,399

last year while we were on aboard the

24

00:00:52,470 --> 00:00:50,399

space station so she actually did call

25

00:00:53,910 --> 00:00:52,480

him uh on board the international space

26

00:00:55,270 --> 00:00:53,920

station

27

00:00:56,950 --> 00:00:55,280

through your career

28

00:00:59,750 --> 00:00:56,960

of service as an officer in the united

29

00:01:02,150 --> 00:00:59,760

states navy and as an astro connection

30

00:01:04,710 --> 00:01:02,160

astronaut you have blazed new trails and

31

00:01:06,630 --> 00:01:04,720

served our nation admirably

32

00:01:09,190 --> 00:01:06,640

and through your engagement with our

33

00:01:11,590 --> 00:01:09,200

nation's youth at the national museum of

34

00:01:13,910 --> 00:01:11,600

african american history and culture

35

00:01:17,190 --> 00:01:13,920

you encourage and inspire the next

36

00:01:18,950 --> 00:01:17,200

generation of explorers it's you all

37

00:01:20,390 --> 00:01:18,960

as we embark on the artemis program to

38

00:01:23,109 --> 00:01:20,400

return to the moon

39

00:01:24,950 --> 00:01:23,119

and onto mars your contributions to what

40

00:01:27,510 --> 00:01:24,960

we know about living and working in

41

00:01:29,990 --> 00:01:27,520

space will be crucial you represent the

42

00:01:31,910 --> 00:01:30,000

best of who we are as a country

43

00:01:33,830 --> 00:01:31,920

and i hope you take the tremendous pride

44

00:01:36,630 --> 00:01:33,840

in this accomplishment i joined your

45

00:01:39,510 --> 00:01:36,640

family friends and our country in

46

00:01:41,270 --> 00:01:39,520

celebrating you today sincerely kamala

47

00:01:59,270 --> 00:01:41,280

harris

48

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

wow wow i love this place

49

00:02:06,630 --> 00:02:04,079

but i love even more now that you're all

50

00:02:08,150 --> 00:02:06,640

here so thank you for coming today and

51
00:02:09,830 --> 00:02:08,160
to all the teachers and parents raise

52
00:02:11,110 --> 00:02:09,840
your hands

53
00:02:12,550 --> 00:02:11,120
thank you for bringing all these

54
00:02:12,900 --> 00:02:12,560
students thank you give yourself your

55
00:02:13,210 --> 00:02:12,910
honor

56
00:02:18,070 --> 00:02:13,220
[Applause]

57
00:02:22,229 --> 00:02:20,710
i really appreciate and respect the time

58
00:02:23,430 --> 00:02:22,239
that we get to spend together and uh you

59
00:02:25,910 --> 00:02:23,440
know i have children i've got four

60
00:02:28,470 --> 00:02:25,920
daughters uh one in middle school two in

61
00:02:30,070 --> 00:02:28,480
high school and one in college

62
00:02:32,630 --> 00:02:30,080
if i let my hair proud you can see the

63
00:02:34,550 --> 00:02:32,640

gray hair i've got an adult child

64

00:02:36,070 --> 00:02:34,560

and so i really think a lot about who

65

00:02:37,670 --> 00:02:36,080

they interact with who they speak to and

66

00:02:38,869 --> 00:02:37,680

so i take this very seriously the fact

67

00:02:41,270 --> 00:02:38,879

that you get to be here with me and i

68

00:02:43,589 --> 00:02:41,280

can share some time with you is very

69

00:02:45,830 --> 00:02:43,599

special to me and so i'm just grateful

70

00:02:47,270 --> 00:02:45,840

for for you allowing me this time to

71

00:02:49,509 --> 00:02:47,280

share a little bit about my journey with

72

00:02:52,390 --> 00:02:49,519

you so without further ado we are going

73

00:02:54,390 --> 00:02:52,400

to get started and so i'm first going to

74

00:02:56,630 --> 00:02:54,400

make an adjustment here because

75

00:03:11,110 --> 00:02:56,640

i want you to hear this as well to see

76

00:03:11,120 --> 00:03:55,750

don't

77

00:04:00,149 --> 00:03:58,470

here is for you all to

78

00:04:02,470 --> 00:04:00,159

to maybe find some things in these

79

00:04:03,990 --> 00:04:02,480

stories that you can connect with uh and

80

00:04:05,190 --> 00:04:04,000

that you can take with you and keep with

81

00:04:07,830 --> 00:04:05,200

your room you know what he dealt with

82

00:04:09,509 --> 00:04:07,840

that he overcame that and he used that

83

00:04:11,429 --> 00:04:09,519

to help him get further along on his

84

00:04:13,429 --> 00:04:11,439

journey and chase down and catch a

85

00:04:15,030 --> 00:04:13,439

couple of his own dreams and to know

86

00:04:15,990 --> 00:04:15,040

that you can do the same okay can you do

87

00:04:19,749 --> 00:04:16,000

that

88

00:04:21,590 --> 00:04:19,759

so start with a question there are

89

00:04:23,830 --> 00:04:21,600

questions today i might give you a pop

90

00:04:25,189 --> 00:04:23,840

quiz at the end of this one

91

00:04:26,710 --> 00:04:25,199

right you might want to take some no you

92

00:04:29,110 --> 00:04:26,720

don't take notes but i want to start

93

00:04:30,710 --> 00:04:29,120

with one question i like to ask kids

94

00:04:32,550 --> 00:04:30,720

this because i'm doing some some

95

00:04:34,310 --> 00:04:32,560

statistics here so

96

00:04:35,830 --> 00:04:34,320

what do you want to be when you grow up

97

00:04:37,510 --> 00:04:35,840

if you know what you want to be raise

98

00:04:50,310 --> 00:04:37,520

your hand

99

00:04:54,550 --> 00:04:52,150

and you know what i hadn't flown before

100

00:05:01,830 --> 00:04:54,560

i started my career and so it's possible

101
00:05:04,790 --> 00:05:03,430
okay for those of you who don't know

102
00:05:06,070 --> 00:05:04,800
okay everybody put your hands down if

103
00:05:07,670 --> 00:05:06,080
you don't know what you want to be with

104
00:05:08,870 --> 00:05:07,680
you girl raise your hand be honest

105
00:05:10,790 --> 00:05:08,880
because i'm going to raise my hand in

106
00:05:12,070 --> 00:05:10,800
this category too even though i am a

107
00:05:14,550 --> 00:05:12,080
grown-up you know i'm standing up here

108
00:05:16,469 --> 00:05:14,560
wearing my blue pajamas in front of here

109
00:05:17,830 --> 00:05:16,479
but one of the things i love about my

110
00:05:19,350 --> 00:05:17,840
job is that it's a lot of different

111
00:05:21,110 --> 00:05:19,360
things and so i haven't really had to

112
00:05:22,629 --> 00:05:21,120
choose i get all kind of cool stuff and

113
00:05:24,950 --> 00:05:22,639

i'll tell you a little bit

114

00:05:26,710 --> 00:05:24,960

so it's almost half it's almost half so

115

00:05:28,790 --> 00:05:26,720

i will tell you when i ask this question

116

00:05:29,830 --> 00:05:28,800

i ask it a lot and i have found about

117

00:05:31,670 --> 00:05:29,840

half

118

00:05:33,189 --> 00:05:31,680

the students know and a lot of times

119

00:05:34,629 --> 00:05:33,199

they say astronaut maybe just because

120

00:05:37,029 --> 00:05:34,639

i'm here they don't want me to feel bad

121

00:05:39,270 --> 00:05:37,039

so i put a little more percentage on

122

00:05:41,670 --> 00:05:39,280

the side where this is the most common

123

00:05:42,790 --> 00:05:41,680

answer that i actually get it is that i

124

00:05:44,390 --> 00:05:42,800

don't know

125

00:05:46,150 --> 00:05:44,400

and you know what if if that's the

126

00:05:47,909 --> 00:05:46,160

category that you're in

127

00:05:49,350 --> 00:05:47,919

that's why i raised my hand because when

128

00:05:50,950 --> 00:05:49,360

i was your age i couldn't tell you

129

00:05:53,270 --> 00:05:50,960

clearly i mean i want to be a stunt man

130

00:05:54,469 --> 00:05:53,280

a fireman a police officer like my

131

00:05:56,629 --> 00:05:54,479

father

132

00:05:58,309 --> 00:05:56,639

and then i saw this amazing thing

133

00:06:00,550 --> 00:05:58,319

launched to space on the news and i

134

00:06:03,189 --> 00:06:00,560

thought i want to drive a space shuttle

135

00:06:04,390 --> 00:06:03,199

but i didn't know but that's okay some

136

00:06:05,670 --> 00:06:04,400

of the things i'm going to talk to you

137

00:06:07,670 --> 00:06:05,680

about today you're going to see some

138

00:06:09,270 --> 00:06:07,680

themes and a couple of those themes

139

00:06:11,590 --> 00:06:09,280

are what i really want you to take away

140

00:06:13,189 --> 00:06:11,600

from this so and here's what you can be

141

00:06:15,749 --> 00:06:13,199

even if you don't know what you want to

142

00:06:18,070 --> 00:06:15,759

do for work these are things that you

143

00:06:20,150 --> 00:06:18,080

can do in your life that will help you

144

00:06:23,110 --> 00:06:20,160

accomplish your dreams and number one is

145

00:06:25,510 --> 00:06:23,120

to be resilient i used to use the word

146

00:06:26,950 --> 00:06:25,520

be greedy but we named our spacecraft

147

00:06:28,629 --> 00:06:26,960

resilience and so i used the word

148

00:06:30,230 --> 00:06:28,639

resilient and i'll come back and explain

149

00:06:32,950 --> 00:06:30,240

to you what that means but repeat that

150

00:06:34,070 --> 00:06:32,960

one after me be resilient

151

00:06:35,510 --> 00:06:34,080

if you don't know what it is i'll

152

00:06:37,029 --> 00:06:35,520

explain later don't let me walk off

153

00:06:39,590 --> 00:06:37,039

without telling you what that means

154

00:06:41,909 --> 00:06:39,600

number two repeat after me be a lifelong

155

00:06:43,670 --> 00:06:41,919

learner

156

00:06:45,350 --> 00:06:43,680

and number three

157

00:06:47,790 --> 00:06:45,360

maybe the most important

158

00:06:50,950 --> 00:06:47,800

be a good teammate

159

00:06:55,270 --> 00:06:53,510

okay so remember those things now we're

160

00:06:56,710 --> 00:06:55,280

going to talk a little bit about some of

161

00:06:57,909 --> 00:06:56,720

the stories that i you know some things

162

00:06:59,990 --> 00:06:57,919

that i've been through but i really am

163

00:07:01,510 --> 00:07:00,000

sharing this with you for you to find

164

00:07:03,990 --> 00:07:01,520

some things in it that you can hold on

165

00:07:06,390 --> 00:07:04,000

to and walk away with and keep in your

166

00:07:08,629 --> 00:07:06,400

pocket when you maybe come face to face

167

00:07:09,430 --> 00:07:08,639

with some challenges okay so

168

00:08:00,469 --> 00:07:09,440

i

169

00:08:01,749 --> 00:08:00,479

always loved

170

00:08:03,189 --> 00:08:01,759

machines

171

00:08:05,430 --> 00:08:03,199

especially ones that make a lot of noise

172

00:08:07,430 --> 00:08:05,440

they go fast and i've also always loved

173

00:08:09,110 --> 00:08:07,440

sports and so those are some things that

174

00:08:10,550 --> 00:08:09,120

are going to come up as i tell you some

175

00:08:12,629 --> 00:08:10,560

of my stories so i'm going to tell you

176

00:08:15,189 --> 00:08:12,639

one story about fifth grade in fifth

177

00:08:16,629 --> 00:08:15,199

grade i had a teacher named mr hargrove

178

00:08:18,390 --> 00:08:16,639

any of you in the fifth grade if you're

179

00:08:20,550 --> 00:08:18,400

in the fifth grade raise your hand fifth

180

00:08:22,629 --> 00:08:20,560

grade was a really good grade for me

181

00:08:24,150 --> 00:08:22,639

fifth grade is pretty good

182

00:08:27,350 --> 00:08:24,160

fifth grade is cool any fifth grade

183

00:08:29,749 --> 00:08:27,360

teachers out there you you listen up to

184

00:08:34,389 --> 00:08:29,759

portray all the teachers this is for you

185

00:08:37,350 --> 00:08:34,399

too mr hargrove mr hargrove was my mesa

186

00:08:38,870 --> 00:08:37,360

advisor and my science teacher

187

00:08:40,870 --> 00:08:38,880

now i've always been a little talkative

188

00:08:42,790 --> 00:08:40,880

if you can't tell and i was a little

189

00:08:44,310 --> 00:08:42,800

talkative in my science class and mr

190

00:08:46,070 --> 00:08:44,320

hargrove pulled me aside one day and he

191

00:08:47,990 --> 00:08:46,080

said you know i can see the way you

192

00:08:49,509 --> 00:08:48,000

interact with these mesa activities like

193

00:08:51,430 --> 00:08:49,519

you used to build bridges out of

194

00:08:53,190 --> 00:08:51,440

popsicle sticks in balsa wood and we

195

00:08:55,190 --> 00:08:53,200

would make cars that were powered by a

196

00:08:56,710 --> 00:08:55,200

mousetrap and it would make it go and

197

00:08:58,310 --> 00:08:56,720

we'd have a competition to see who could

198

00:08:59,990 --> 00:08:58,320

go the farthest

199

00:09:02,230 --> 00:09:00,000

and i love that stuff i told you i love

200

00:09:04,470 --> 00:09:02,240

machine and he said you know if you

201
00:09:07,030 --> 00:09:04,480
really work on the science and math you

202
00:09:08,790 --> 00:09:07,040
might make a great engineer one day

203
00:09:10,630 --> 00:09:08,800
and i'm thinking to myself did you see

204
00:09:12,150 --> 00:09:10,640
what just popped up on the screen

205
00:09:14,230 --> 00:09:12,160
normally there's sound with that and it

206
00:09:24,630 --> 00:09:14,240
makes a big choo-choo train noise but

207
00:09:28,870 --> 00:09:26,710
doing driving trains

208
00:09:29,829 --> 00:09:28,880
you see i didn't know what an engineer

209
00:09:31,670 --> 00:09:29,839
was

210
00:09:33,509 --> 00:09:31,680
i didn't have any engineers in my family

211
00:09:35,350 --> 00:09:33,519
actually no one in my family had

212
00:09:36,630 --> 00:09:35,360
graduated from college at that time so i

213
00:09:38,389 --> 00:09:36,640

didn't know what an engineer was i

214

00:09:40,790 --> 00:09:38,399

thought he meant driving trains but i'll

215

00:09:43,110 --> 00:09:40,800

tell you this today i have three

216

00:09:44,630 --> 00:09:43,120

engineering degrees and i've been really

217

00:09:47,030 --> 00:09:44,640

fortunate to do some really great things

218

00:09:49,670 --> 00:09:47,040

in science and technology and it started

219

00:09:52,470 --> 00:09:49,680

with mr hargrove's belief

220

00:09:54,150 --> 00:09:52,480

and so i tell that story

221

00:09:56,630 --> 00:09:54,160

i tell that story for a couple of

222

00:09:58,630 --> 00:09:56,640

reasons one to tell you how important

223

00:10:00,150 --> 00:09:58,640

those people who brought you here are

224

00:10:02,949 --> 00:10:00,160

and you people who brought all these

225

00:10:04,790 --> 00:10:02,959

students your expectations and

226

00:10:07,670 --> 00:10:04,800

belief in them

227

00:10:09,670 --> 00:10:07,680

is powerful i'm a living testament to

228

00:10:11,269 --> 00:10:09,680

that belief and inspiration so thank you

229

00:10:13,269 --> 00:10:11,279

for your service and keep doing that

230

00:10:14,790 --> 00:10:13,279

with these kids uh moving on to high

231

00:10:16,150 --> 00:10:14,800

school i had another teacher

232

00:10:17,590 --> 00:10:16,160

actually a bunch of teachers i could

233

00:10:19,509 --> 00:10:17,600

tell you stories about one of my

234

00:10:21,350 --> 00:10:19,519

favorite was my math teacher and i'll

235

00:10:23,670 --> 00:10:21,360

get to that in a minute but i told you i

236

00:10:25,350 --> 00:10:23,680

also love sports i was a pretty regular

237

00:10:26,790 --> 00:10:25,360

kid in high school i wanted to play

238

00:10:28,550 --> 00:10:26,800

football in college

239

00:10:30,389 --> 00:10:28,560

my parents and my teachers all told me i

240

00:10:32,150 --> 00:10:30,399

should go to college and like i said no

241

00:10:34,470 --> 00:10:32,160

one in my family had graduated from

242

00:10:36,790 --> 00:10:34,480

college so i didn't really know what

243

00:10:39,030 --> 00:10:36,800

that meant but i did know that there was

244

00:10:41,110 --> 00:10:39,040

college football and i love football so

245

00:10:58,230 --> 00:10:41,120

i wanted to go to usc and i want to be a

246

00:11:13,670 --> 00:11:00,310

and i was working on a problem one day i

247

00:11:18,550 --> 00:11:16,150

and i noticed a pattern

248

00:11:21,509 --> 00:11:18,560

do you see a shape

249

00:11:23,910 --> 00:11:21,519

what shape do those numbers mean

250

00:11:26,310 --> 00:11:23,920

a triangle

251
00:11:27,350 --> 00:11:26,320
90 degree it's a right triangle too good

252
00:11:29,990 --> 00:11:27,360
good

253
00:11:32,790 --> 00:11:30,000
are you watching this okay so i saw this

254
00:11:34,470 --> 00:11:32,800
shape in the numbers and i realized i

255
00:11:37,030 --> 00:11:34,480
could use it to figure out how to add

256
00:11:38,870 --> 00:11:37,040
them up and to find the area of a

257
00:11:41,350 --> 00:11:38,880
triangle you make it into a rectangle

258
00:11:54,069 --> 00:11:41,360
and cut it in half so anyway long story

259
00:11:57,590 --> 00:11:56,069
his number's up i was in high school so

260
00:11:59,509 --> 00:11:57,600
this may be a little more than the math

261
00:12:01,750 --> 00:11:59,519
that you're doing now but i felt really

262
00:12:04,949 --> 00:12:01,760
good about this and i said mr robinson

263
00:12:06,550 --> 00:12:04,959

i created a formula i had a i had a name

264

00:12:09,670 --> 00:12:06,560

and everything you know there's this

265

00:12:11,430 --> 00:12:09,680

really amazing uh set of formulas in

266

00:12:13,350 --> 00:12:11,440

geometry and one of them is called the

267

00:12:14,710 --> 00:12:13,360

pythagorean theorem and you'll learn

268

00:12:15,750 --> 00:12:14,720

that when you get to high school

269

00:12:19,350 --> 00:12:15,760

especially

270

00:12:20,629 --> 00:12:19,360

uh but that i already had a name for

271

00:12:23,269 --> 00:12:20,639

mine i was going to call it the

272

00:12:24,870 --> 00:12:23,279

victorian theorem

273

00:12:26,949 --> 00:12:24,880

he he said open your open your

274

00:12:29,110 --> 00:12:26,959

pre-calculus book and he flipped a few

275

00:12:31,750 --> 00:12:29,120

pages past where we were and he showed

276

00:12:33,990 --> 00:12:31,760

me this equation in the book and i was

277

00:12:35,750 --> 00:12:34,000

like oh man i thought i had discovered

278

00:12:38,629 --> 00:12:35,760

something like i thought i was the first

279

00:12:40,710 --> 00:12:38,639

person to notice this pattern and so i

280

00:12:41,990 --> 00:12:40,720

was like okay fine

281

00:12:44,069 --> 00:12:42,000

i'm not going to name it after you

282

00:12:46,870 --> 00:12:44,079

though but he said something to me next

283

00:12:48,470 --> 00:12:46,880

that changed my life i was 16.

284

00:12:50,829 --> 00:12:48,480

i really thought about college in terms

285

00:12:53,030 --> 00:12:50,839

of going to college to play football

286

00:12:54,949 --> 00:12:53,040

and really hadn't thought about what it

287

00:12:56,550 --> 00:12:54,959

takes academically to succeed and so i

288

00:12:58,310 --> 00:12:56,560

had questions and doubts i didn't know

289

00:13:00,550 --> 00:12:58,320

if i could do it because i didn't know

290

00:13:02,389 --> 00:13:00,560

anybody who had done it successfully yet

291

00:13:05,110 --> 00:13:02,399

and my even though my teachers and my

292

00:13:06,870 --> 00:13:05,120

parents were amazing and supporting me i

293

00:13:09,110 --> 00:13:06,880

still was just uncertain about how i

294

00:13:10,710 --> 00:13:09,120

would do it and mr robinson said

295

00:13:12,150 --> 00:13:10,720

something to me right after seeing this

296

00:13:13,509 --> 00:13:12,160

he says you know what

297

00:13:15,350 --> 00:13:13,519

the fact that you figured that out on

298

00:13:16,870 --> 00:13:15,360

your own though means you could teach it

299

00:13:19,829 --> 00:13:16,880

to your classmates why don't you teach

300

00:13:21,509 --> 00:13:19,839

that lesson today and that day was the

301
00:13:22,470 --> 00:13:21,519
first time that i had a little teeny

302
00:13:25,030 --> 00:13:22,480
thought that

303
00:13:26,949 --> 00:13:25,040
maybe i have what it takes to to succeed

304
00:13:29,350 --> 00:13:26,959
in college and that was a really

305
00:13:42,310 --> 00:13:29,360
powerful day for me so i always call mr

306
00:13:46,550 --> 00:13:44,150
football i did get to wrestle in college

307
00:13:49,189 --> 00:13:46,560
but i went to cal poly san luis obispo

308
00:13:51,110 --> 00:13:49,199
and i spent four years there had a great

309
00:13:53,430 --> 00:13:51,120
time i like i said i played sports i

310
00:13:55,750 --> 00:13:53,440
studied engineering and i also had a

311
00:13:57,829 --> 00:13:55,760
great time going out and i was in mesa

312
00:14:07,829 --> 00:13:57,839
in fifth grade and now i got to be a

313
00:14:12,790 --> 00:14:09,670

and so that picture in the top right

314

00:14:15,829 --> 00:14:13,670

wife

315

00:14:17,189 --> 00:14:15,839

uh diana and we would go to schools and

316

00:14:18,870 --> 00:14:17,199

this one you see we're talking about

317

00:14:20,870 --> 00:14:18,880

leverage and the power of leverage but

318

00:14:23,030 --> 00:14:20,880

how to make mousetrap cars go farther

319

00:14:25,110 --> 00:14:23,040

and faster and so but anyway i had a

320

00:14:27,030 --> 00:14:25,120

great time in my my days at cal poly and

321

00:14:29,110 --> 00:14:27,040

graduated that's a picture of my mom and

322

00:14:30,710 --> 00:14:29,120

my little brother who has just became a

323

00:14:32,870 --> 00:14:30,720

father he's not really little anymore

324

00:14:35,350 --> 00:14:32,880

that was a long time ago and so after i

325

00:14:37,189 --> 00:14:35,360

graduated i joined the navy actually i

326

00:14:39,430 --> 00:14:37,199

actually joined the navy while i was in

327

00:14:41,269 --> 00:14:39,440

college and uh if you have some

328

00:14:43,509 --> 00:14:41,279

questions for that some more how that

329

00:14:44,949 --> 00:14:43,519

happened but i joined the navy and been

330

00:14:47,509 --> 00:14:44,959

able to do some really amazing things i

331

00:14:49,509 --> 00:14:47,519

got commissioned in 1999 i got my wings

332

00:15:06,550 --> 00:14:49,519

of gold that's my dad putting my wings

333

00:15:11,110 --> 00:15:08,710

and all aircraft are pretty amazing but

334

00:15:13,509 --> 00:15:11,120

i think this one is the best one ever

335

00:15:16,310 --> 00:15:13,519

that's a picture of me flying over iraq

336

00:15:18,470 --> 00:15:16,320

and uh a really interesting time

337

00:15:20,870 --> 00:15:18,480

for our country for me personally a lot

338

00:15:23,110 --> 00:15:20,880

of growth in that tour but i finished up

339

00:15:24,949 --> 00:15:23,120

that tour uh going to combat and came

340

00:15:26,550 --> 00:15:24,959

home and decided i wanted to go to tesla

341

00:15:28,550 --> 00:15:26,560

high school i really thought about going

342

00:15:29,990 --> 00:15:28,560

to top gun but i decided at the end that

343

00:15:31,509 --> 00:15:30,000

i was going to go to test pod school to

344

00:15:33,430 --> 00:15:31,519

do something technical and i got to go

345

00:15:35,269 --> 00:15:33,440

and study how airplanes work that's me

346

00:15:36,870 --> 00:15:35,279

in a glad are doing test maneuvers with

347

00:15:38,550 --> 00:15:36,880

one of my classmates

348

00:15:40,949 --> 00:15:38,560

and then while i was in tesla school i

349

00:15:43,430 --> 00:15:40,959

got to start on a master's degree and i

350

00:15:45,269 --> 00:15:43,440

got to finish some formal education and

351

00:15:46,870 --> 00:15:45,279

schooling so that was a really special

352

00:15:48,949 --> 00:15:46,880

day when i graduated from naval post

353

00:15:50,790 --> 00:15:48,959

graduate school and then i would go back

354

00:15:52,790 --> 00:15:50,800

to the fleet that's what we call the

355

00:15:54,949 --> 00:15:52,800

navy in the navy i went back to the

356

00:15:57,509 --> 00:15:54,959

fleet and this is a really special day

357

00:15:59,509 --> 00:15:57,519

i've moved my family to japan and we

358

00:16:02,069 --> 00:15:59,519

lived in japan and then i would deploy

359

00:16:03,670 --> 00:16:02,079

from japan on a carrier and that's an

360

00:16:05,110 --> 00:16:03,680

aircraft carrier if you go to the air

361

00:16:07,269 --> 00:16:05,120

and space museum you'll see parts of one

362

00:16:09,430 --> 00:16:07,279

of those too and so this is actually me

363

00:16:10,949 --> 00:16:09,440

landing on an aircraft carrier and at

364

00:16:12,389 --> 00:16:10,959

the time i didn't know this this was

365

00:16:13,910 --> 00:16:12,399

just a cool picture that a friend took

366

00:16:16,550 --> 00:16:13,920

from for me

367

00:16:18,870 --> 00:16:16,560

but it turns out that was the last time

368

00:16:20,470 --> 00:16:18,880

i would ever get to do that and so

369

00:16:22,069 --> 00:16:20,480

that's actually a super hornet which is

370

00:16:23,910 --> 00:16:22,079

an improvement over the previous one

371

00:16:25,670 --> 00:16:23,920

that i showed you a little bit newer but

372

00:16:27,670 --> 00:16:25,680

that was the last time i got to land on

373

00:16:29,590 --> 00:16:27,680

a carrier and i loved doing it that was

374

00:16:31,509 --> 00:16:29,600

a really special time in life but it was

375

00:16:34,150 --> 00:16:31,519

the last time because i left there and i

376

00:16:35,829 --> 00:16:34,160

actually moved here to washington dc and

377

00:16:37,430 --> 00:16:35,839

i worked for that gentleman who is no

378

00:16:51,269 --> 00:16:37,440

longer with us that's the late senator

379

00:16:55,749 --> 00:16:53,269

another one of my heroes congressman

380

00:16:57,990 --> 00:16:55,759

john lewis who is also no longer with us

381

00:17:16,870 --> 00:16:58,000

but being around people like that it was

382

00:17:20,630 --> 00:17:18,870

houston my kids had to find new schools

383

00:17:22,309 --> 00:17:20,640

and we had to find a new house and i

384

00:17:30,549 --> 00:17:22,319

started training to be national and one

385

00:17:34,390 --> 00:17:32,549

because we have to learn russian because

386

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

half of the space station is made by

387

00:17:38,549 --> 00:17:36,720

russian aerospace companies so that that

388

00:17:41,909 --> 00:17:38,559

says that says my name is victor you

389

00:17:45,990 --> 00:17:44,390

it's pretty simple

390

00:17:48,150 --> 00:17:46,000

i speak a little bit of russian because

391

00:17:50,470 --> 00:17:48,160

all of us have to learn russian because

392

00:17:53,190 --> 00:17:50,480

some of us fly to space

393

00:17:55,110 --> 00:17:53,200

we have to be able to read those manuals

394

00:17:56,870 --> 00:17:55,120

that are written in cyrillic and the

395

00:17:58,549 --> 00:17:56,880

buttons in that spacecraft are written

396

00:18:00,789 --> 00:17:58,559

in cyrillic and so we have to be

397

00:18:02,630 --> 00:18:00,799

prepared so all of us study russian all

398

00:18:03,909 --> 00:18:02,640

of the russian cosmonauts study english

399

00:18:05,750 --> 00:18:03,919

and then the ones that speak other

400

00:18:07,430 --> 00:18:05,760

languages like french or japanese they

401
00:18:09,350 --> 00:18:07,440
have to learn both english and russian

402
00:18:11,190 --> 00:18:09,360
they have it the toughest we also have

403
00:18:13,190 --> 00:18:11,200
to learn about the international space

404
00:18:14,710 --> 00:18:13,200
station this big old machine that is

405
00:18:17,190 --> 00:18:14,720
really complicated and made lots of

406
00:18:19,830 --> 00:18:17,200
parts we have to learn how to fix it

407
00:18:23,190 --> 00:18:19,840
that's my classmate andrew morgan he's

408
00:18:25,830 --> 00:18:23,200
an army doctor and i'm a navy pilot and

409
00:18:27,029 --> 00:18:25,840
we're both fixing the air the telephone

410
00:18:29,029 --> 00:18:27,039
right there

411
00:18:31,029 --> 00:18:29,039
and that's because when you go to space

412
00:18:33,510 --> 00:18:31,039
do you think we can just call somebody

413
00:18:34,870 --> 00:18:33,520

if the telephone breaks or the toilet

414

00:18:36,870 --> 00:18:34,880

breaks do you think we can just call a

415

00:18:38,870 --> 00:18:36,880

plumber to come fix it

416

00:18:40,789 --> 00:18:38,880

no because we're up in space so we have

417

00:18:42,150 --> 00:18:40,799

to fix it ourselves and so we learn

418

00:18:44,710 --> 00:18:42,160

about the international space station

419

00:18:46,470 --> 00:18:44,720

system and we also have this really cool

420

00:18:49,110 --> 00:18:46,480

robotic arm have any of you ever seen

421

00:18:50,310 --> 00:18:49,120

our big robotic arm on nasa tv

422

00:18:51,669 --> 00:18:50,320

what

423

00:18:53,669 --> 00:18:51,679

it is

424

00:18:55,590 --> 00:18:53,679

it's made by the canadian space agency

425

00:18:57,029 --> 00:18:55,600

and one of their corporate partners mba

426

00:18:59,510 --> 00:18:57,039

and it is a really amazing piece of

427

00:19:00,789 --> 00:18:59,520

technology and we learn to fly we say

428

00:19:02,789 --> 00:19:00,799

fly it like an airplane because the

429

00:19:04,390 --> 00:19:02,799

controls look like an airplane and so we

430

00:19:07,909 --> 00:19:04,400

have to learn that's a picture of me in

431

00:19:09,990 --> 00:19:07,919

canada learning to fly the robotic arm

432

00:19:19,909 --> 00:19:10,000

the canadian space agency and so then

433

00:19:24,390 --> 00:19:22,549

why is there water we train in this big

434

00:19:26,390 --> 00:19:24,400

pool because it can help us simulate

435

00:19:28,310 --> 00:19:26,400

weightlessness like we'll be in space so

436

00:19:30,070 --> 00:19:28,320

that's called the neutral buoyancy lab

437

00:19:32,150 --> 00:19:30,080

and we put on the same spacesuits that

438

00:19:34,070 --> 00:19:32,160

we go to space in and i love this time

439

00:19:35,669 --> 00:19:34,080

lapse because you see just for me and my

440

00:19:37,510 --> 00:19:35,679

classmate nick to go in there two of us

441

00:19:39,669 --> 00:19:37,520

to go in the water you see it takes a

442

00:19:41,350 --> 00:19:39,679

few dozen people to help us get ready

443

00:19:43,190 --> 00:19:41,360

and while we're underwater there's also

444

00:19:45,590 --> 00:19:43,200

a couple of safety divers and a camera

445

00:19:48,070 --> 00:19:45,600

diver there's a big old team that has to

446

00:19:49,590 --> 00:19:48,080

help us uh to successfully and safely do

447

00:19:51,669 --> 00:19:49,600

this mission and that is true of

448

00:19:53,029 --> 00:19:51,679

everything in space it is a team effort

449

00:19:54,390 --> 00:19:53,039

you know you see astronauts and i get to

450

00:19:55,909 --> 00:19:54,400

come here and talk to you but i'm here

451
00:19:57,669 --> 00:19:55,919
talking to you because of thousands of

452
00:19:59,669 --> 00:19:57,679
people all over the world who made our

453
00:20:01,190 --> 00:19:59,679
mission possible and so this time lapse

454
00:20:03,990 --> 00:20:01,200
gives you a sense of that so we learned

455
00:20:06,549 --> 00:20:04,000
a space walk and then there's one other

456
00:20:09,190 --> 00:20:06,559
that is that we all have to learn to fly

457
00:20:11,029 --> 00:20:09,200
in our t-38s every astronaut even if

458
00:20:13,430 --> 00:20:11,039
you're a school teacher an engineer a

459
00:20:15,510 --> 00:20:13,440
scientist or you're a military pilot we

460
00:20:17,190 --> 00:20:15,520
all have to learn to fly either in the

461
00:20:19,510 --> 00:20:17,200
front seat if you're a pilot or the back

462
00:20:21,350 --> 00:20:19,520
seat if you were not an aviator before

463
00:20:23,750 --> 00:20:21,360

but we all become qualified crew members

464

00:20:25,669 --> 00:20:23,760

in our t-38 and i love the t-38 because

465

00:20:28,070 --> 00:20:25,679

it trains us all the things we do as

466

00:20:30,630 --> 00:20:28,080

astronauts operationally but also

467

00:20:32,710 --> 00:20:30,640

communication handling stress making

468

00:20:35,029 --> 00:20:32,720

decisions in challenging fast-moving

469

00:20:37,270 --> 00:20:35,039

situations those are all skills we need

470

00:20:39,830 --> 00:20:37,280

and we get to practice all of them in

471

00:20:42,870 --> 00:20:39,840

our t38s i love flying

472

00:20:44,549 --> 00:20:42,880

so after two years of training i was

473

00:20:46,390 --> 00:20:44,559

done with actual mechanic training and i

474

00:20:47,909 --> 00:20:46,400

got a pin you probably can't see it from

475

00:20:49,510 --> 00:20:47,919

there but there's a small pin on the

476

00:20:51,190 --> 00:20:49,520

center of my wings that you get when

477

00:21:04,710 --> 00:20:51,200

you're qualified to be an astronaut mine

478

00:21:08,230 --> 00:21:06,390

the first high-resolution images from

479

00:21:09,029 --> 00:21:08,240

the new horizons mission which i think

480

00:21:11,029 --> 00:21:09,039

really

481

00:21:12,870 --> 00:21:11,039

example is an example of that vision

482

00:21:15,510 --> 00:21:12,880

because before this humans had never

483

00:21:17,270 --> 00:21:15,520

seen those bodies up close you guys know

484

00:21:18,789 --> 00:21:17,280

about pluto you've heard of pedora

485

00:21:21,510 --> 00:21:18,799

they still teach you about pluto we

486

00:21:23,990 --> 00:21:21,520

don't call it a planet anymore a pluto

487

00:21:26,230 --> 00:21:24,000

a dwarf planet whatever you want to call

488

00:21:28,310 --> 00:21:26,240

it uh pluto is still cool pluto's still

489

00:21:30,470 --> 00:21:28,320

pluto and now we have really cool

490

00:21:32,070 --> 00:21:30,480

pictures of that was the first high

491

00:21:34,149 --> 00:21:32,080

resolution picture we took of it though

492

00:21:36,310 --> 00:21:34,159

and i love it because that picture was

493

00:21:38,549 --> 00:21:36,320

also taken on the same day that

494

00:21:46,630 --> 00:21:38,559

spacecraft snapped that photo on july 8

495

00:21:50,070 --> 00:21:48,390

that's the day we got our pinned so it's

496

00:21:52,789 --> 00:21:50,080

a very special day for me for two

497

00:21:54,789 --> 00:21:52,799

reasons and so a few years later i got

498

00:21:56,470 --> 00:21:54,799

assigned to be a part of a space mission

499

00:21:58,230 --> 00:21:56,480

uh we had these two spacecraft the

500

00:21:59,750 --> 00:21:58,240

boeing starliner and the spacex crew

501
00:22:01,669 --> 00:21:59,760
dragon that were part of our new

502
00:22:10,310 --> 00:22:01,679
commercial crew program and mike hopkins

503
00:22:15,270 --> 00:22:13,029
walker and jaxa astronaut soichi noguchi

504
00:22:17,270 --> 00:22:15,280
my brother that we call the master and

505
00:22:19,830 --> 00:22:17,280
so that is the group that i went to

506
00:22:21,430 --> 00:22:19,840
space with and i you know one of the

507
00:22:29,669 --> 00:22:21,440
questions you may ask me is what do i

508
00:22:37,020 --> 00:22:33,029
and so we had the privilege of launching

509
00:23:00,549 --> 00:22:50,140
[Music]

510
00:23:03,430 --> 00:23:02,070
my favorite things to do

511
00:23:04,390 --> 00:23:03,440
and then we went out to kennedy space

512
00:23:06,789 --> 00:23:04,400
center

513
00:23:08,710 --> 00:23:06,799

a week before launch and this is not

514

00:23:10,950 --> 00:23:08,720

training this is now real we are

515

00:23:12,710 --> 00:23:10,960

preparing to go to the rocket

516

00:23:13,990 --> 00:23:12,720

and it was on november

517

00:23:15,830 --> 00:23:14,000

15th

518

00:23:17,909 --> 00:23:15,840

and that's mike and i looking up at the

519

00:23:20,070 --> 00:23:17,919

rocket and it's nice because we walk out

520

00:23:21,909 --> 00:23:20,080

there at daytime but this is just prior

521

00:23:24,549 --> 00:23:21,919

to sunset and so by the time they were

522

00:23:26,549 --> 00:23:24,559

done strapping us in it had become night

523

00:23:33,270 --> 00:23:26,559

it's now night time and this rocket is

524

00:23:38,070 --> 00:23:35,590

and resilience

525

00:23:41,350 --> 00:23:38,080

not even gravity contains humanity when

526

00:23:42,470 --> 00:23:41,360

we explore as one for all once you've

527

00:23:44,950 --> 00:23:42,480

passed

528

00:23:46,950 --> 00:23:44,960

that hundred kilometer mark

529

00:23:48,870 --> 00:23:46,960

you then get a goal took in the capsule

530

00:23:50,950 --> 00:23:48,880

after we safely got the space

531

00:23:52,230 --> 00:23:50,960

my commander gave me my gold astronaut

532

00:23:53,590 --> 00:23:52,240

pain because once you go to space now

533

00:23:56,050 --> 00:23:53,600

you get a goal

534

00:24:04,230 --> 00:23:56,060

100 kilometers congratulations

535

00:24:08,630 --> 00:24:06,390

we have several different experiments

536

00:24:10,390 --> 00:24:08,640

going on inside the space station in

537

00:24:12,310 --> 00:24:10,400

racks in different little facilities

538

00:24:14,630 --> 00:24:12,320

like our our life sciences glove box

539

00:24:17,029 --> 00:24:14,640

that we use for for biological and life

540

00:24:19,990 --> 00:24:17,039

sciences but we also have experiments

541

00:24:23,029 --> 00:24:20,000

that are are run on us

542

00:24:25,590 --> 00:24:23,039

space to ground three for shannon we're

543

00:24:27,350 --> 00:24:25,600

watching the flame do its thing

544

00:24:29,750 --> 00:24:27,360

ones that we're doing ourselves with our

545

00:24:32,470 --> 00:24:29,760

hands and even ones that are on me

546

00:24:34,870 --> 00:24:32,480

sometimes i am the science experiment

547

00:24:36,710 --> 00:24:34,880

and so you get to see a smattering of

548

00:24:38,789 --> 00:24:36,720

our different uh examples of our

549

00:24:40,870 --> 00:24:38,799

different science activities on board

550

00:24:42,870 --> 00:24:40,880

the international space station one of

551
00:24:53,510 --> 00:24:42,880
my favorite experiments i got to do was

552
00:24:57,269 --> 00:24:55,029
and so i love being a part of food

553
00:25:00,710 --> 00:24:57,279
physiology learning about the ways that

554
00:25:02,870 --> 00:25:00,720
more nuts fish healthy foods uh and

555
00:25:05,190 --> 00:25:02,880
vegetables and fruits can help the

556
00:25:07,269 --> 00:25:05,200
astronauts digestive system their immune

557
00:25:09,669 --> 00:25:07,279
system but also how much they enjoy

558
00:25:12,070 --> 00:25:09,679
having those foods we also were able to

559
00:25:12,950 --> 00:25:12,080
capture several visiting vehicles that's

560
00:25:14,789 --> 00:25:12,960
actually

561
00:25:17,029 --> 00:25:14,799
the uh robotic arm i was telling you

562
00:25:19,029 --> 00:25:17,039
that we train on soichi and mike with

563
00:25:20,390 --> 00:25:19,039

mike's health so ichi flew the robotic

564

00:25:22,310 --> 00:25:20,400

arm to grab that

565

00:25:24,630 --> 00:25:22,320

spacecraft and that brings up more

566

00:25:26,950 --> 00:25:24,640

science it brings up clothes

567

00:25:28,710 --> 00:25:26,960

and food for the astronauts on board and

568

00:25:30,710 --> 00:25:28,720

i just think that's a beautiful shot

569

00:25:32,549 --> 00:25:30,720

that's a time lapse so it's moving

570

00:25:34,470 --> 00:25:32,559

faster than real time but that's what

571

00:25:36,470 --> 00:25:34,480

the earth looks like from space and so

572

00:25:38,470 --> 00:25:36,480

you saw the solar array spinning because

573

00:25:40,390 --> 00:25:38,480

it's constantly pointing at the sun and

574

00:25:54,630 --> 00:25:40,400

that was our spacecraft there at the

575

00:25:57,830 --> 00:25:56,230

this is one of the most interesting

576
00:25:59,750 --> 00:25:57,840
things on the international space

577
00:26:02,070 --> 00:25:59,760
station while i was there over a period

578
00:26:04,390 --> 00:26:02,080
of 45 days about a month and a half we

579
00:26:06,310 --> 00:26:04,400
got to do five space walks and i went

580
00:26:08,870 --> 00:26:06,320
outside the space station on four of

581
00:26:11,190 --> 00:26:08,880
those and this is uh shannon getting our

582
00:26:12,789 --> 00:26:11,200
suits ready putting new cameras on uh

583
00:26:15,269 --> 00:26:12,799
getting the water charged up into our

584
00:26:17,350 --> 00:26:15,279
seuss and then this is so eachi putting

585
00:26:19,190 --> 00:26:17,360
mike and i in the airlock and doesn't

586
00:26:21,110 --> 00:26:19,200
that look cool that people can just

587
00:26:22,870 --> 00:26:21,120
float around and you can just move them

588
00:26:24,950 --> 00:26:22,880

that's so cool i miss being able to fly

589

00:26:27,110 --> 00:26:24,960

like that you know like superman or

590

00:26:29,510 --> 00:26:27,120

maybe you're too young iron man who can

591

00:26:30,710 --> 00:26:29,520

fly what what characters can fly today

592

00:26:34,070 --> 00:26:30,720

in cartoons

593

00:26:36,870 --> 00:26:34,870

thor

594

00:26:40,230 --> 00:26:36,880

it's it was great to be able to fly like

595

00:26:52,470 --> 00:26:40,240

those people i miss that

596

00:26:56,470 --> 00:26:54,310

did you see that view did you guys see

597

00:26:58,310 --> 00:26:56,480

that camera view i was telling you about

598

00:27:00,549 --> 00:26:58,320

when you look straight down

599

00:27:12,470 --> 00:27:00,559

you can see the ground you can see earth

600

00:27:14,549 --> 00:27:13,669

i wasn't looking down at the ground

601
00:27:16,149 --> 00:27:14,559
because i didn't know what that was

602
00:27:17,990 --> 00:27:16,159
going to feel like so when it was the

603
00:27:19,990 --> 00:27:18,000
first time i was doing something i

604
00:27:21,830 --> 00:27:20,000
focused on the familiar i focused on

605
00:27:23,669 --> 00:27:21,840
what i knew because i didn't know how i

606
00:27:25,510 --> 00:27:23,679
was going to react to all that new stuff

607
00:27:26,870 --> 00:27:25,520
and so i spent some time out there and

608
00:27:28,470 --> 00:27:26,880
actually it was right around this time

609
00:27:29,350 --> 00:27:28,480
it's dark out you see how it's dark in

610
00:27:32,389 --> 00:27:29,360
the back

611
00:27:34,230 --> 00:27:32,399
and in space dark is real dark much

612
00:27:52,310 --> 00:27:34,240
darker than that on earth it was around

613
00:27:57,190 --> 00:27:54,470

60 feet under the station by myself in

614

00:27:59,909 --> 00:27:57,200

the dark and i had to throw that uh that

615

00:28:01,830 --> 00:27:59,919

cover out into space now don't worry it

616

00:28:02,950 --> 00:28:01,840

is temporary space junk

617

00:28:04,389 --> 00:28:02,960

but it's not going to stay there forever

618

00:28:06,230 --> 00:28:04,399

it's going to come into the atmosphere

619

00:28:08,230 --> 00:28:06,240

and then burn up and then it'll be gone

620

00:28:10,070 --> 00:28:08,240

and so it's not going to come back and

621

00:28:11,430 --> 00:28:10,080

be in the way of our space station so

622

00:28:14,470 --> 00:28:11,440

those are some unique things we got to

623

00:28:16,870 --> 00:28:14,480

do outside on our space walks upgrading

624

00:28:18,710 --> 00:28:16,880

the solar arrays finishing our upgrades

625

00:28:20,950 --> 00:28:18,720

for batteries we had new rechargeable

626

00:28:23,110 --> 00:28:20,960

batteries put on there and and uh adding

627

00:28:24,789 --> 00:28:23,120

a new antenna to the european laboratory

628

00:28:26,789 --> 00:28:24,799

all really neat things that we got to do

629

00:28:28,470 --> 00:28:26,799

and i told you i love machines so going

630

00:28:30,789 --> 00:28:28,480

out into space and being able to bolt

631

00:28:33,110 --> 00:28:30,799

things together was it was a lot of work

632

00:28:34,149 --> 00:28:33,120

but it was fun work

633

00:29:01,269 --> 00:28:34,159

and

634

00:29:02,470 --> 00:29:01,279

if any of you uh you know watch the news

635

00:29:03,590 --> 00:29:02,480

or you hear your parents talk about

636

00:29:05,110 --> 00:29:03,600

what's going on in the news there are

637

00:29:07,269 --> 00:29:05,120

some really challenging things going on

638

00:29:08,549 --> 00:29:07,279

in the world right now but i'll say this

639

00:29:09,669 --> 00:29:08,559

if you are aware of some of the

640

00:29:11,190 --> 00:29:09,679

challenges that are out there in the

641

00:29:19,590 --> 00:29:11,200

world right now

642

00:29:23,110 --> 00:29:21,750

get along great and so it really hurts

643

00:29:24,710 --> 00:29:23,120

my heart to know that there's still some

644

00:29:25,990 --> 00:29:24,720

real challenges out there in the world

645

00:29:27,510 --> 00:29:26,000

but we've got to deal with them and

646

00:29:29,269 --> 00:29:27,520

that's one of the reasons why i need you

647

00:29:31,269 --> 00:29:29,279

all to go to school and learn all that

648

00:29:32,630 --> 00:29:31,279

you can because you're the ones who are

649

00:29:33,990 --> 00:29:32,640

going to get us out of this mess i'm

650

00:29:35,669 --> 00:29:34,000

counting on your generation to do a lot

651
00:29:36,870 --> 00:29:35,679
better than my generation has done

652
00:29:38,710 --> 00:29:36,880
because we are the ones who got us here

653
00:29:41,110 --> 00:29:38,720
but we need you to get us out okay can

654
00:29:43,909 --> 00:29:41,120
you do that you promised

655
00:29:59,590 --> 00:29:43,919
i heard you you heard him all right

656
00:30:02,230 --> 00:30:00,630
because if i tried to run on the

657
00:30:04,230 --> 00:30:02,240
treadmill without it i would float away

658
00:30:06,230 --> 00:30:04,240
so we strap ourselves down and it

659
00:30:08,950 --> 00:30:06,240
bungees us down to the treadmill and i

660
00:30:11,269 --> 00:30:08,960
love exercising in space was maybe more

661
00:30:13,669 --> 00:30:11,279
fun than any other scientific experiment

662
00:30:16,230 --> 00:30:13,679
that i do the machines that we have to

663
00:30:18,630 --> 00:30:16,240

use to work out in space are really

664

00:30:20,950 --> 00:30:18,640

amazing pieces of engineering and i love

665

00:30:22,950 --> 00:30:20,960

being able to work out in space we also

666

00:30:24,870 --> 00:30:22,960

spent we launched in november and landed

667

00:30:26,870 --> 00:30:24,880

in may almost exactly a year ago in a

668

00:30:29,750 --> 00:30:26,880

few days and so we spent lots of

669

00:30:32,310 --> 00:30:29,760

holidays christmas new year's russian

670

00:30:33,830 --> 00:30:32,320

new year uh we had a lot of special days

671

00:30:35,350 --> 00:30:33,840

and we had a christmas decorating

672

00:30:42,789 --> 00:30:35,360

challenge with mission control and

673

00:30:47,110 --> 00:30:44,870

really special we had a really amazing

674

00:30:48,710 --> 00:30:47,120

time up there and that is what i missed

675

00:30:50,630 --> 00:30:48,720

the most was just the

676
00:30:52,389 --> 00:30:50,640
everyday life because even though we

677
00:30:54,230 --> 00:30:52,399
work up there that's our office it's a

678
00:30:56,630 --> 00:30:54,240
laboratory a manufacturing facility an

679
00:31:00,549 --> 00:30:56,640
outreach facility and a laboratory it

680
00:31:10,549 --> 00:31:01,750
and then

681
00:31:14,230 --> 00:31:12,630
so that another spacex dragon could come

682
00:31:16,630 --> 00:31:14,240
up and dock to the space station and

683
00:31:17,909 --> 00:31:16,640
bring our friends on crew 2 and that was

684
00:31:19,750 --> 00:31:17,919
actually really good for us because we

685
00:31:21,990 --> 00:31:19,760
got to practice putting on the suit and

686
00:31:23,669 --> 00:31:22,000
moving the spacecraft away from the

687
00:31:26,149 --> 00:31:23,679
international space station and we

688
00:31:27,669 --> 00:31:26,159

relocated it we had a change of command

689

00:31:30,070 --> 00:31:27,679

where shannon

690

00:31:36,789 --> 00:31:30,080

the first houston native to command the

691

00:31:40,630 --> 00:31:38,789

then we left it was time for us to go

692

00:31:42,630 --> 00:31:40,640

home and so we undocked from the

693

00:31:44,310 --> 00:31:42,640

international space station did some

694

00:31:46,230 --> 00:31:44,320

departure burns and got away from the

695

00:31:48,710 --> 00:31:46,240

station and on the way out we took some

696

00:31:49,590 --> 00:31:48,720

really great pictures of the iss

697

00:31:51,830 --> 00:31:49,600

and then

698

00:32:00,950 --> 00:31:51,840

we had our undock which looks like this

699

00:32:06,789 --> 00:32:03,350

we're going so fast 7 000 meters per

700

00:32:09,029 --> 00:32:06,799

second about five miles per second

701
00:32:11,269 --> 00:32:09,039
five miles per second so when we hit the

702
00:32:12,950 --> 00:32:11,279
atmosphere rub your hands together take

703
00:32:14,260 --> 00:32:12,960
your hands put them again and rush bro

704
00:32:15,590 --> 00:32:14,270
what's happening what do you feel

705
00:32:17,590 --> 00:32:15,600
[Music]

706
00:32:19,509 --> 00:32:17,600
what do you feel though yeah it's making

707
00:32:22,149 --> 00:32:19,519
your hands warm right your hands are

708
00:32:23,029 --> 00:32:22,159
moving about 30 miles an hour stop

709
00:32:25,430 --> 00:32:23,039
you guys are good at following

710
00:32:26,950 --> 00:32:25,440
directions so we were going so fast that

711
00:32:29,029 --> 00:32:26,960
the air would just vaporize it would

712
00:32:30,789 --> 00:32:29,039
turn into plasma and then we were out of

713
00:32:37,830 --> 00:32:30,799

communications for about a minute and

714

00:32:41,350 --> 00:32:39,269

those pulled out those four big

715

00:32:42,470 --> 00:32:41,360

parachutes and we glided down to a

716

00:32:49,590 --> 00:32:42,480

gentle stop

717

00:32:54,950 --> 00:32:51,509

has landed in the ocean at night since

718

00:32:57,590 --> 00:32:54,960

apollo did it in 1968 i say that because

719

00:32:58,870 --> 00:32:57,600

for nasa that was a really big deal

720

00:33:05,990 --> 00:32:58,880

it didn't seem like a big deal because

721

00:33:10,070 --> 00:33:08,630

for almost six months and everybody felt

722

00:33:11,909 --> 00:33:10,080

great you see my commander mike doing

723

00:33:13,830 --> 00:33:11,919

his happy dance and you'll see lots of

724

00:33:21,830 --> 00:33:13,840

smiles from the crew everybody felt

725

00:33:25,909 --> 00:33:24,070

i could stand up but i was on a boat and

726

00:33:27,590 --> 00:33:25,919

the boat was slowly doing this and if i

727

00:33:28,789 --> 00:33:27,600

didn't have people on each arm i would

728

00:33:30,630 --> 00:33:28,799

have fallen over

729

00:33:39,029 --> 00:33:30,640

that was right when we landed but this

730

00:33:54,149 --> 00:33:41,350

we were back with our colleagues and our

731

00:33:58,470 --> 00:33:56,789

uh that was a really great day for us uh

732

00:34:00,630 --> 00:33:58,480

we had done everything that we set out

733

00:34:02,389 --> 00:34:00,640

to do and now we were back and we had

734

00:34:03,990 --> 00:34:02,399

handed off the iss to the next crew and

735

00:34:05,509 --> 00:34:04,000

they were up and running and doing a

736

00:34:07,830 --> 00:34:05,519

great job and so that was a very special

737

00:34:08,950 --> 00:34:07,840

time for us to be back home

738

00:34:10,389 --> 00:34:08,960

i don't know if any of you have ever

739

00:34:12,550 --> 00:34:10,399

heard there's this thing called the

740

00:34:14,470 --> 00:34:12,560

overview effect astronauts talk about

741

00:34:17,510 --> 00:34:14,480

how their world view is affected by

742

00:34:20,310 --> 00:34:17,520

seeing the earth from space

743

00:34:27,430 --> 00:34:20,320

and in overlay that is a dragon

744

00:34:31,990 --> 00:34:29,510

uh that's my college advisor and

745

00:34:46,950 --> 00:34:32,000

professor that's my great grandmother

746

00:34:50,069 --> 00:34:47,829

paul

747

00:34:52,230 --> 00:34:50,079

negro league baseball player uh buck

748

00:34:54,629 --> 00:34:52,240

o'neil these are all really special

749

00:34:56,869 --> 00:34:54,639

people to me roy haynes an advisor and

750

00:34:59,030 --> 00:34:56,879

mentor to me while i was in college and

751

00:35:00,870 --> 00:34:59,040

the thing i want to say the overview

752

00:35:02,550 --> 00:35:00,880

effect is powerful it is

753

00:35:04,790 --> 00:35:02,560

how you see the world and how we're all

754

00:35:06,630 --> 00:35:04,800

connected and how we all ride on earth

755

00:35:08,630 --> 00:35:06,640

it's like one giant spaceship that we

756

00:35:10,950 --> 00:35:08,640

share together because when you're away

757

00:35:12,950 --> 00:35:10,960

from earth so far you can see the rest

758

00:35:14,630 --> 00:35:12,960

of space and there's a lot of nothing

759

00:35:16,390 --> 00:35:14,640

there's a lot of empty space out there

760

00:35:19,270 --> 00:35:16,400

there are other planets and other stars

761

00:35:21,349 --> 00:35:19,280

but there's a lot of nothing in between

762

00:35:24,470 --> 00:35:21,359

and it makes earth seem even more

763

00:35:27,190 --> 00:35:24,480

special and it's special because of

764

00:35:29,510 --> 00:35:27,200

those things those people that we love

765

00:35:31,270 --> 00:35:29,520

going to space does one thing it does

766

00:35:33,990 --> 00:35:31,280

different things to astronauts but it

767

00:35:36,550 --> 00:35:34,000

does one thing to everybody it makes you

768

00:35:39,190 --> 00:35:36,560

appreciate the people and the planet

769

00:35:41,109 --> 00:35:39,200

that we live on and i appreciate you all

770

00:35:42,870 --> 00:35:41,119

it's been amazing to just share this

771

00:35:44,550 --> 00:35:42,880

mission with you and so i'm gonna bring

772

00:35:47,349 --> 00:35:44,560

it back remember i told you the point of

773

00:35:48,390 --> 00:35:47,359

me telling you all this stuff is so that

774

00:35:49,270 --> 00:35:48,400

you know

775

00:35:55,510 --> 00:35:49,280

how

776

00:35:58,230 --> 00:35:56,790

when you grow up

777

00:36:00,069 --> 00:35:58,240

these i think are going to help you on

778

00:36:02,550 --> 00:36:00,079

the journey of life no matter where you

779

00:36:04,470 --> 00:36:02,560

want to end up and so we talked about

780

00:36:06,069 --> 00:36:04,480

being resilient do you know what that

781

00:36:08,550 --> 00:36:06,079

means if you know what resilience means

782

00:36:09,750 --> 00:36:08,560

raise your hand

783

00:36:11,030 --> 00:36:09,760

and i'm glad you don't know so i'm going

784

00:36:12,230 --> 00:36:11,040

to explain it to you these are my words

785

00:36:14,390 --> 00:36:12,240

but i encourage you to go get a

786

00:36:16,150 --> 00:36:14,400

dictionary and look it up for yourself

787

00:36:17,910 --> 00:36:16,160

resilience

788

00:36:20,230 --> 00:36:17,920

hey has coveted been easy has this

789

00:36:21,030 --> 00:36:20,240

pandemic been easy on you all

790

00:36:25,670 --> 00:36:21,040

no

791

00:36:27,430 --> 00:36:25,680

have you still been able to be around

792

00:36:28,950 --> 00:36:27,440

the people you love yeah have you been

793

00:36:30,230 --> 00:36:28,960

able to go to school

794

00:36:31,030 --> 00:36:30,240

have you been able to play with your

795

00:36:32,550 --> 00:36:31,040

friends

796

00:36:34,390 --> 00:36:32,560

have you been able to see them even if

797

00:36:35,270 --> 00:36:34,400

it was over the phone on the screen yes

798

00:36:37,270 --> 00:36:35,280

yeah

799

00:36:38,470 --> 00:36:37,280

so have you grown throughout that

800

00:36:40,710 --> 00:36:38,480

process

801
00:36:43,030 --> 00:36:40,720
even in the face of this pandemic you

802
00:36:44,790 --> 00:36:43,040
still grew that's resilience it means

803
00:36:46,550 --> 00:36:44,800
when you're faced with a challenge you

804
00:36:48,470 --> 00:36:46,560
don't just get through it's important to

805
00:36:50,390 --> 00:36:48,480
know how to do that but you can actually

806
00:36:52,310 --> 00:36:50,400
get better because of the challenges and

807
00:36:53,589 --> 00:36:52,320
so that's what it is it's about working

808
00:36:55,829 --> 00:36:53,599
hard

809
00:36:57,270 --> 00:36:55,839
not quitting when you face obstacles and

810
00:36:59,430 --> 00:36:57,280
you know what the biggest obstacle

811
00:37:01,430 --> 00:36:59,440
you'll ever face in life is anybody

812
00:37:03,030 --> 00:37:01,440
guess what do you think it is

813
00:37:05,190 --> 00:37:03,040

did somebody say life

814

00:37:06,950 --> 00:37:05,200

life can be challenging but it's the

815

00:37:08,950 --> 00:37:06,960

biggest challenge when you decide it's

816

00:37:10,950 --> 00:37:08,960

too challenging for you so the best the

817

00:37:12,470 --> 00:37:10,960

biggest obstacle you'll ever face

818

00:37:14,390 --> 00:37:12,480

is yourself

819

00:37:16,310 --> 00:37:14,400

as long as you don't quit

820

00:37:18,310 --> 00:37:16,320

life will not knock you down or it may

821

00:37:20,790 --> 00:37:18,320

not get down but you decide to get back

822

00:37:22,630 --> 00:37:20,800

up and you keep getting up so it's not

823

00:37:27,190 --> 00:37:22,640

quitting in the face of obstacles and

824

00:37:30,630 --> 00:37:28,710

i want you to start thinking about this

825

00:37:32,390 --> 00:37:30,640

now talk to your teachers about this you

826

00:37:34,790 --> 00:37:32,400

need to get comfortable

827

00:37:36,950 --> 00:37:34,800

being uncomfortable

828

00:37:38,230 --> 00:37:36,960

okay these things are all connected i'll

829

00:37:39,990 --> 00:37:38,240

explain some more if you want to ask me

830

00:37:41,510 --> 00:37:40,000

some questions about that too but you

831

00:37:43,910 --> 00:37:41,520

don't get to the point where you can go

832

00:37:45,430 --> 00:37:43,920

live in space by doing things that are

833

00:37:47,030 --> 00:37:45,440

easy you don't get to the point where

834

00:37:49,109 --> 00:37:47,040

you can fly jets three times the speed

835

00:37:49,990 --> 00:37:49,119

of sound or where you can do surgery on

836

00:37:51,750 --> 00:37:50,000

very

837

00:37:53,030 --> 00:37:51,760

small parts of the human body and know

838

00:37:54,470 --> 00:37:53,040

that that person is going to be okay

839

00:37:55,829 --> 00:37:54,480

when you're done you don't get to the

840

00:37:57,430 --> 00:37:55,839

point where you can design really

841

00:37:58,870 --> 00:37:57,440

special machines that can keep the

842

00:38:00,470 --> 00:37:58,880

lights in the building or keep the air

843

00:38:01,910 --> 00:38:00,480

at a comfortable temperature

844

00:38:03,430 --> 00:38:01,920

if you want to work in the science and

845

00:38:05,430 --> 00:38:03,440

technology field you're going to have to

846

00:38:07,030 --> 00:38:05,440

push yourself to be the best you and it

847

00:38:08,870 --> 00:38:07,040

means getting comfortable being

848

00:38:11,349 --> 00:38:08,880

uncomfortable the first day i sat in

849

00:38:13,750 --> 00:38:11,359

calculus class i was very uncomfortable

850

00:38:15,990 --> 00:38:13,760

but i'm glad i stayed until the end the

851
00:38:17,670 --> 00:38:16,000
next one is being a lifelong learner and

852
00:38:19,750 --> 00:38:17,680
that is taking the things you learn in

853
00:38:20,870 --> 00:38:19,760
the classroom but also connecting them

854
00:38:23,349 --> 00:38:20,880
with what you learn here in your

855
00:38:25,109 --> 00:38:23,359
communities great museums it's learning

856
00:38:27,190 --> 00:38:25,119
in your church in your youth programs at

857
00:38:29,430 --> 00:38:27,200
the boys and girls club or the ymca and

858
00:38:31,990 --> 00:38:29,440
combining all of that stuff into what

859
00:38:33,990 --> 00:38:32,000
you walk around with in your head in

860
00:38:36,310 --> 00:38:34,000
your heart and what you can do with your

861
00:38:38,230 --> 00:38:36,320
hands you learn some skills you learn

862
00:38:39,990 --> 00:38:38,240
some things and you put them together

863
00:38:41,589 --> 00:38:40,000

and you train your heart and that's what

864

00:38:43,349 --> 00:38:41,599

you work around with it and walk around

865

00:38:45,430 --> 00:38:43,359

with it being a lifelong learner is

866

00:38:47,829 --> 00:38:45,440

appreciating both that in the classroom

867

00:38:50,310 --> 00:38:47,839

piece but also out in the real world and

868

00:39:02,550 --> 00:38:50,320

combining that education

869

00:39:06,630 --> 00:39:04,150

there are apps for it you can jump

870

00:39:08,630 --> 00:39:06,640

online and find free language training

871

00:39:10,470 --> 00:39:08,640

but learn a foreign language i don't

872

00:39:12,950 --> 00:39:10,480

care which one it doesn't matter which

873

00:39:15,349 --> 00:39:12,960

one because statistics show it's good

874

00:39:17,510 --> 00:39:15,359

for your brain if you can think and

875

00:39:19,190 --> 00:39:17,520

communicate in multiple languages you

876

00:39:21,670 --> 00:39:19,200

generally are going to do better in

877

00:39:24,790 --> 00:39:21,680

school and here's something to consider

878

00:39:29,270 --> 00:39:24,800

how many of you have one of these

879

00:39:31,030 --> 00:39:29,280

computer or a smartphone or a tablet

880

00:39:32,390 --> 00:39:31,040

everybody here should be raising both

881

00:39:34,470 --> 00:39:32,400

hands

882

00:39:36,230 --> 00:39:34,480

what language do they speak

883

00:39:40,390 --> 00:39:36,240

english

884

00:39:42,790 --> 00:39:40,400

or french or

885

00:39:45,030 --> 00:39:42,800

they all speak one language though

886

00:39:46,310 --> 00:39:45,040

did you know this listen listen i'm

887

00:39:47,270 --> 00:39:46,320

going to give you a really important

888

00:39:50,230 --> 00:39:47,280

secret

889

00:39:55,030 --> 00:39:50,240

they speak math

890

00:39:57,829 --> 00:39:55,040

computer programming is very specific

891

00:40:00,550 --> 00:39:57,839

mathematics and so i encourage you

892

00:40:02,470 --> 00:40:00,560

coding and if you take coding in school

893

00:40:04,150 --> 00:40:02,480

keep doing that because for every one of

894

00:40:05,990 --> 00:40:04,160

you walking around with one of these you

895

00:40:08,950 --> 00:40:06,000

should also know how they work and they

896

00:40:10,710 --> 00:40:08,960

speak math coding is very specific math

897

00:40:17,589 --> 00:40:10,720

and i would include that as a foreign

898

00:40:21,990 --> 00:40:20,309

let you down so speak learn get fluent

899

00:40:24,069 --> 00:40:22,000

in mathematics okay

900

00:40:26,710 --> 00:40:24,079

and hey because you guys are still in

901
00:40:28,870 --> 00:40:26,720
school teachers parents the power of

902
00:40:31,030 --> 00:40:28,880
reviewing if you can just take five

903
00:40:32,950 --> 00:40:31,040
minutes to ten minutes a day in every

904
00:40:34,710 --> 00:40:32,960
class that you're in and maybe at your

905
00:40:36,230 --> 00:40:34,720
level you're in one class all day or one

906
00:40:37,589 --> 00:40:36,240
or two when you get to high school

907
00:40:39,270 --> 00:40:37,599
you're going to be in five or seven

908
00:40:41,270 --> 00:40:39,280
classes and in college you might be a

909
00:40:43,270 --> 00:40:41,280
different class every day every hour if

910
00:40:44,950 --> 00:40:43,280
you can just take five minutes a day to

911
00:40:46,710 --> 00:40:44,960
10 minutes and review

912
00:40:48,550 --> 00:40:46,720
one important thing for me in college i

913
00:40:51,109 --> 00:40:48,560

had to do that because my handwriting is

914

00:40:53,190 --> 00:40:51,119

terrible so if i took notes for a whole

915

00:40:54,790 --> 00:40:53,200

semester and then i went back to study

916

00:40:56,069 --> 00:40:54,800

my notes at the end

917

00:40:57,190 --> 00:40:56,079

i might not have been able to read my

918

00:40:59,430 --> 00:40:57,200

own handwriting that would be bad

919

00:41:00,870 --> 00:40:59,440

wouldn't it so if you take five to ten

920

00:41:02,710 --> 00:41:00,880

minutes to review everything that you're

921

00:41:04,390 --> 00:41:02,720

learning on a daily basis

922

00:41:05,910 --> 00:41:04,400

you can make sure that you can read your

923

00:41:08,150 --> 00:41:05,920

own work but more important than that

924

00:41:09,670 --> 00:41:08,160

you get into a habit of making sure that

925

00:41:11,829 --> 00:41:09,680

you understand what you think you

926

00:41:13,589 --> 00:41:11,839

understand and if you don't understand

927

00:41:16,069 --> 00:41:13,599

it i wrote that down but i still don't

928

00:41:18,630 --> 00:41:16,079

get it what do you think you should do

929

00:41:20,870 --> 00:41:18,640

ask the teacher so you show up to class

930

00:41:22,069 --> 00:41:20,880

at the beginning and you said mr and mrs

931

00:41:24,230 --> 00:41:22,079

sohan so i have a question from

932

00:41:25,430 --> 00:41:24,240

yesterday and you're already prepared

933

00:41:27,910 --> 00:41:25,440

instead of waiting until it's time to

934

00:41:34,470 --> 00:41:27,920

get ready for the test that review can

935

00:41:37,670 --> 00:41:36,390

we probably waste five to ten minutes

936

00:41:39,270 --> 00:41:37,680

just scrolling through just doing this

937

00:41:40,550 --> 00:41:39,280

with our thumb on these things so i bet

938

00:41:42,230 --> 00:41:40,560

you have time

939

00:41:44,150 --> 00:41:42,240

being a lifelong learner and the last

940

00:41:45,270 --> 00:41:44,160

one being a good teammate like i said

941

00:41:47,030 --> 00:41:45,280

you earlier

942

00:41:48,470 --> 00:41:47,040

we need your generation to get us out of

943

00:41:51,030 --> 00:41:48,480

some of the mess that my generation has

944

00:41:54,069 --> 00:41:51,040

got us in and one important aspect of

945

00:41:55,589 --> 00:41:54,079

that is by you being good to each other

946

00:41:57,430 --> 00:41:55,599

and one of the important things that i

947

00:41:59,270 --> 00:41:57,440

need you to take away from this is being

948

00:42:01,910 --> 00:41:59,280

good to each other doesn't always mean

949

00:42:03,910 --> 00:42:01,920

that you agree with everything

950

00:42:05,829 --> 00:42:03,920

or agree with each other it's okay to

951
00:42:07,990 --> 00:42:05,839
disagree we don't all have to agree on

952
00:42:09,829 --> 00:42:08,000
the same things but we can still treat

953
00:42:11,109 --> 00:42:09,839
each other with respect

954
00:42:12,790 --> 00:42:11,119
if your teachers have talked to you

955
00:42:13,910 --> 00:42:12,800
about civility

956
00:42:15,670 --> 00:42:13,920
etiquette

957
00:42:17,910 --> 00:42:15,680
those might seem people use the term

958
00:42:20,069 --> 00:42:17,920
soft skills when they say those things i

959
00:42:22,710 --> 00:42:20,079
don't think those are soft skills those

960
00:42:24,790 --> 00:42:22,720
are the skills that sometimes create the

961
00:42:26,950 --> 00:42:24,800
big conflicts that we use are hard

962
00:42:29,349 --> 00:42:26,960
skills to to fix

963
00:42:30,870 --> 00:42:29,359

so those are important and i know

964

00:42:32,550 --> 00:42:30,880

at your age

965

00:42:34,790 --> 00:42:32,560

your your parents are probably making

966

00:42:36,870 --> 00:42:34,800

you say please and thank you and those

967

00:42:38,870 --> 00:42:36,880

are small examples of how to practice

968

00:42:40,230 --> 00:42:38,880

etiquette and how to be civil how to be

969

00:42:41,829 --> 00:42:40,240

nice to each other

970

00:42:43,829 --> 00:42:41,839

those are some of the most important

971

00:42:45,670 --> 00:42:43,839

things that you will learn at your age

972

00:42:47,589 --> 00:42:45,680

continue to do them and continue to

973

00:42:50,309 --> 00:42:47,599

practice them so that when you're my age

974

00:42:52,470 --> 00:42:50,319

you continue to do so so being a good

975

00:42:53,990 --> 00:42:52,480

teammate is one very important thing i

976
00:42:56,230 --> 00:42:54,000
want you to walk away from this with

977
00:42:57,990 --> 00:42:56,240
okay that is maybe the most important of

978
00:42:59,589 --> 00:42:58,000
these three things so repeat after me

979
00:43:01,589 --> 00:42:59,599
what do they i want you to do be

980
00:43:04,630 --> 00:43:01,599
resilient

981
00:43:08,630 --> 00:43:04,640
be a lifelong learner

982
00:43:14,290 --> 00:43:12,390
because we are counting on you thank you

983
00:43:25,430 --> 00:43:14,300
very much and i think at this point

984
00:43:29,750 --> 00:43:28,390
so it is now time for my favorite part

985
00:43:31,510 --> 00:43:29,760
of the show

986
00:43:32,230 --> 00:43:31,520
q a

987
00:43:35,430 --> 00:43:32,240
so

988
00:43:36,870 --> 00:43:35,440

but the thing is i miss

989

00:43:38,069 --> 00:43:36,880

my questions

990

00:43:39,270 --> 00:43:38,079

wait a minute

991

00:43:41,270 --> 00:43:39,280

uh

992

00:43:43,910 --> 00:43:41,280

i think i've got some

993

00:43:45,990 --> 00:43:43,920

some things here these uh q a hey let's

994

00:43:47,670 --> 00:43:46,000

get those two-sided there's a lot of

995

00:43:49,750 --> 00:43:47,680

questions

996

00:43:53,109 --> 00:43:49,760

some more

997

00:43:57,109 --> 00:43:55,270

so my first question victor is why do

998

00:43:59,109 --> 00:43:57,119

you have so many pockets on this flight

999

00:44:00,470 --> 00:43:59,119

seat and how many do you have well let's

1000

00:44:01,349 --> 00:44:00,480

see count them can we count them up

1001
00:44:04,710 --> 00:44:01,359
let's see

1002
00:44:04,720 --> 00:44:12,470
that's two pockets

1003
00:44:16,309 --> 00:44:14,790
so why do we have so many and airplanes

1004
00:44:19,349 --> 00:44:16,319
you might need to take checklist

1005
00:44:20,630 --> 00:44:19,359
publications with you maps uh other

1006
00:44:22,390 --> 00:44:20,640
hardware and so when you're sitting in

1007
00:44:24,230 --> 00:44:22,400
the cockpit it's important that you have

1008
00:44:25,829 --> 00:44:24,240
pockets that you can access easily so

1009
00:44:27,589 --> 00:44:25,839
they're tried they tried to locate you

1010
00:44:28,710 --> 00:44:27,599
so that you could use them while you

1011
00:44:31,190 --> 00:44:28,720
were flying

1012
00:44:32,230 --> 00:44:31,200
and that's why we have so big

1013
00:44:34,309 --> 00:44:32,240

thank you

1014

00:44:37,190 --> 00:44:34,319

this next question comes from an 11th

1015

00:44:38,790 --> 00:44:37,200

grader from alabama at baker high school

1016

00:44:40,710 --> 00:44:38,800

what extracurricular skills and

1017

00:44:42,950 --> 00:44:40,720

knowledge do you think future astronauts

1018

00:44:45,109 --> 00:44:42,960

will need to further explore the moon

1019

00:44:47,030 --> 00:44:45,119

and make it to mars great question what

1020

00:44:48,309 --> 00:44:47,040

was the name was there a name there was

1021

00:44:50,230 --> 00:44:48,319

no name okay

1022

00:44:51,670 --> 00:44:50,240

that is a great question and listen my

1023

00:44:53,270 --> 00:44:51,680

answer is all of them what

1024

00:44:55,270 --> 00:44:53,280

extracurricular activity do astronauts

1025

00:44:58,150 --> 00:44:55,280

need to have all of you if you like

1026
00:45:01,030 --> 00:44:58,160
gardening if you like uh puzzles if you

1027
00:45:02,150 --> 00:45:01,040
if you like math and you like sports all

1028
00:45:04,710 --> 00:45:02,160
of those things are going to matter

1029
00:45:06,069 --> 00:45:04,720
exploring other planets is going to take

1030
00:45:07,349 --> 00:45:06,079
mental

1031
00:45:10,390 --> 00:45:07,359
physical

1032
00:45:11,990 --> 00:45:10,400
and emotional and spiritual toughness so

1033
00:45:12,870 --> 00:45:12,000
all of those things that you're engaged

1034
00:45:15,349 --> 00:45:12,880
in now

1035
00:45:17,589 --> 00:45:15,359
that you consider extraordinary music

1036
00:45:19,030 --> 00:45:17,599
hey listen when we go to another planet

1037
00:45:20,630 --> 00:45:19,040
we're going to be there for a long time

1038
00:45:22,150 --> 00:45:20,640

we're on the way there and back for a

1039

00:45:24,309 --> 00:45:22,160

long time do you know how long it takes

1040

00:45:26,309 --> 00:45:24,319

to get to mars with current propulsion

1041

00:45:27,910 --> 00:45:26,319

technology if we took a trip to mars in

1042

00:45:30,470 --> 00:45:27,920

the near future how long would it take

1043

00:45:32,710 --> 00:45:30,480

sir what's your name

1044

00:45:34,710 --> 00:45:32,720

what's your name carlos how long would

1045

00:45:36,309 --> 00:45:34,720

it take us to get to mars

1046

00:45:40,630 --> 00:45:36,319

how long

1047

00:45:42,230 --> 00:45:40,640

two years because the trip just one way

1048

00:45:44,309 --> 00:45:42,240

when we would launch because obviously

1049

00:45:46,390 --> 00:45:44,319

earth is moving and mars is moving when

1050

00:45:48,309 --> 00:45:46,400

we would launch it would take six to

1051
00:45:49,750 --> 00:45:48,319
nine months to get there we would stay

1052
00:45:51,270 --> 00:45:49,760
there for a good period of time and it

1053
00:45:52,230 --> 00:45:51,280
would take six to nine months to get

1054
00:45:53,990 --> 00:45:52,240
back

1055
00:45:55,270 --> 00:45:54,000
so i say that because

1056
00:45:57,030 --> 00:45:55,280
it's going to be really important that

1057
00:45:58,470 --> 00:45:57,040
we connect with our families and talk to

1058
00:46:00,230 --> 00:45:58,480
our loved ones but it's also going to be

1059
00:46:01,829 --> 00:46:00,240
important that we take pieces of our

1060
00:46:03,750 --> 00:46:01,839
life here on earth

1061
00:46:05,910 --> 00:46:03,760
how many of you like music

1062
00:46:07,990 --> 00:46:05,920
games we're going to need those pieces

1063
00:46:09,030 --> 00:46:08,000

of our culture so extracurricular

1064

00:46:11,430 --> 00:46:09,040

activities

1065

00:46:13,109 --> 00:46:11,440

i mean if they're healthy and productive

1066

00:46:15,030 --> 00:46:13,119

i think all of them are going to be

1067

00:46:17,510 --> 00:46:15,040

important learning a foreign language

1068

00:46:19,430 --> 00:46:17,520

like i talked about earlier uh

1069

00:46:22,230 --> 00:46:19,440

taking care of your body getting healthy

1070

00:46:24,150 --> 00:46:22,240

in sports especially team sports i don't

1071

00:46:26,069 --> 00:46:24,160

think there's one extra crucial activity

1072

00:46:27,910 --> 00:46:26,079

out there that is not good if you're

1073

00:46:30,790 --> 00:46:27,920

into something like boy scouts or girl

1074

00:46:33,270 --> 00:46:30,800

scouts scouting teaches you lots of

1075

00:46:34,790 --> 00:46:33,280

different things from how to tie nasa

1076

00:46:38,150 --> 00:46:34,800

engineering and the different types of

1077

00:46:39,270 --> 00:46:38,160

engineering those are all great

1078

00:46:41,270 --> 00:46:39,280

thank you

1079

00:46:43,109 --> 00:46:41,280

how are you all training and preparing

1080

00:46:45,349 --> 00:46:43,119

for the artemis missions where you are

1081

00:46:46,790 --> 00:46:45,359

going back to the moment so we are going

1082

00:46:48,790 --> 00:46:46,800

back to the moon and

1083

00:46:50,790 --> 00:46:48,800

when uh you know we've been before and

1084

00:46:52,309 --> 00:46:50,800

that that program was called apollo and

1085

00:46:54,630 --> 00:46:52,319

now we're going back to the moon to stay

1086

00:46:56,550 --> 00:46:54,640

and our our program is called artists

1087

00:46:58,069 --> 00:46:56,560

and so artemis is in its early stages

1088

00:47:00,150 --> 00:46:58,079

we're developing the hardware to go back

1089

00:47:01,589 --> 00:47:00,160

to the moon the big rocket that you may

1090

00:47:03,510 --> 00:47:01,599

have heard was out there on the launch

1091

00:47:05,670 --> 00:47:03,520

pad uh and then we're gonna we've got a

1092

00:47:08,230 --> 00:47:05,680

spacecraft orion the rocket is called

1093

00:47:10,230 --> 00:47:08,240

sls the space launch system and we're

1094

00:47:12,069 --> 00:47:10,240

working on a lunar lander to be able to

1095

00:47:13,910 --> 00:47:12,079

get us from lunar orbit circling around

1096

00:47:15,990 --> 00:47:13,920

the moon to landing on the surface and

1097

00:47:18,710 --> 00:47:16,000

our partners spacex we're working on

1098

00:47:20,309 --> 00:47:18,720

turning starship into a moon lander

1099

00:47:21,750 --> 00:47:20,319

and then there's also an outpost near

1100

00:47:23,190 --> 00:47:21,760

the moon that will be like a space

1101
00:47:24,710 --> 00:47:23,200
station that we're calling the lunar

1102
00:47:27,910 --> 00:47:24,720
gateway and all those pieces are being

1103
00:47:30,390 --> 00:47:27,920
developed or built now and so we are

1104
00:47:32,069 --> 00:47:30,400
starting our training is really now

1105
00:47:34,630 --> 00:47:32,079
working with those companies to help

1106
00:47:36,790 --> 00:47:34,640
make sure that that hardware works for

1107
00:47:38,790 --> 00:47:36,800
the people who are going to be living

1108
00:47:40,470 --> 00:47:38,800
but we also are starting to to put

1109
00:47:43,190 --> 00:47:40,480
together the plans for the actual

1110
00:47:44,950 --> 00:47:43,200
training programs uh when we assign

1111
00:47:46,390 --> 00:47:44,960
those crews and they're gonna have to do

1112
00:47:48,549 --> 00:47:46,400
some of that same stuff that we saw

1113
00:47:50,470 --> 00:47:48,559

there there may be language training uh

1114

00:47:52,150 --> 00:47:50,480

because the crews could be international

1115

00:47:53,670 --> 00:47:52,160

there will be systems training like we

1116

00:47:56,150 --> 00:47:53,680

study international space station

1117

00:47:58,790 --> 00:47:56,160

systems there will be you know rocket

1118

00:48:00,470 --> 00:47:58,800

systems spacecraft systems uh lunar

1119

00:48:03,510 --> 00:48:00,480

lander systems we're going to have to

1120

00:48:05,270 --> 00:48:03,520

focus on geology and studying our earth

1121

00:48:06,549 --> 00:48:05,280

because that's the basis for the science

1122

00:48:08,870 --> 00:48:06,559

that we're going to use when we study

1123

00:48:11,510 --> 00:48:08,880

the moon those processes that have

1124

00:48:14,309 --> 00:48:11,520

happened up there uh and so uh

1125

00:48:16,790 --> 00:48:14,319

spacewalking will spacewalk on the moon

1126

00:48:19,109 --> 00:48:16,800

but on the moon on space station did you

1127

00:48:20,630 --> 00:48:19,119

notice how we moved around

1128

00:48:23,270 --> 00:48:20,640

we used our hands

1129

00:48:24,870 --> 00:48:23,280

because we're floating on the moon we

1130

00:48:26,390 --> 00:48:24,880

are having we have one sixth of the

1131

00:48:27,750 --> 00:48:26,400

earth's gravity which means i can jump

1132

00:48:29,990 --> 00:48:27,760

from the free-throw line like michael

1133

00:48:31,750 --> 00:48:30,000

jordan i can jump really high and far

1134

00:48:33,589 --> 00:48:31,760

and so on the moon we will actually be

1135

00:48:35,670 --> 00:48:33,599

able to walk them or hop if you've ever

1136

00:48:37,589 --> 00:48:35,680

seen them do spacewalks on youtube or

1137

00:48:39,589 --> 00:48:37,599

something and so we will do spacewalks

1138

00:48:41,589 --> 00:48:39,599

but they'll be different than iss and so

1139

00:48:44,069 --> 00:48:41,599

we will start training for what we call

1140

00:48:45,990 --> 00:48:44,079

lunar surface dbas for extra vehicular

1141

00:48:47,829 --> 00:48:46,000

activity space

1142

00:48:50,069 --> 00:48:47,839

lots of there's lots of training coming

1143

00:48:52,870 --> 00:48:50,079

up uh and most of it is in the early

1144

00:48:54,950 --> 00:48:52,880

stages so we're just starting

1145

00:48:57,270 --> 00:48:54,960

thank you so much this next question

1146

00:48:59,030 --> 00:48:57,280

comes from a fifth grader from bunker

1147

00:49:01,589 --> 00:48:59,040

hill elementary

1148

00:49:04,710 --> 00:49:01,599

what is the most fulfilling moment of

1149

00:49:06,470 --> 00:49:04,720

your career so far

1150

00:49:09,829 --> 00:49:06,480

wow that's been

1151
00:49:11,910 --> 00:49:09,839
the most fulfilling moment of my career

1152
00:49:14,470 --> 00:49:11,920
so far wow

1153
00:49:16,950 --> 00:49:14,480
i i have to say

1154
00:49:19,510 --> 00:49:16,960
landing from that mission once we were

1155
00:49:21,670 --> 00:49:19,520
safely in the water and they pulled us

1156
00:49:23,750 --> 00:49:21,680
out of the of the capsule there was a

1157
00:49:26,309 --> 00:49:23,760
camera there and i looked over at that

1158
00:49:28,150 --> 00:49:26,319
camera and smiled and gave a thumbs up

1159
00:49:30,150 --> 00:49:28,160
that moment for me

1160
00:49:32,230 --> 00:49:30,160
was important because i knew my family

1161
00:49:33,910 --> 00:49:32,240
was watching and they were you know they

1162
00:49:35,670 --> 00:49:33,920
want to know is he okay

1163
00:49:36,950 --> 00:49:35,680

and so i knew that that was the moment

1164

00:49:39,430 --> 00:49:36,960

that they would see me and go all right

1165

00:49:41,109 --> 00:49:39,440

he's safe on earth

1166

00:49:43,430 --> 00:49:41,119

they can finally relax

1167

00:49:44,670 --> 00:49:43,440

and so that was a really special time

1168

00:49:47,349 --> 00:49:44,680

because for

1169

00:49:49,270 --> 00:49:47,359

168 days something could have gone wrong

1170

00:49:51,910 --> 00:49:49,280

at any moment and so my family was

1171

00:49:53,750 --> 00:49:51,920

always he's good and i'm happy but i'm

1172

00:49:56,230 --> 00:49:53,760

also a little nervous because he's in

1173

00:50:05,510 --> 00:49:56,240

space and space is very dangerous so

1174

00:50:11,190 --> 00:50:07,190

this next question comes from my fourth

1175

00:50:11,200 --> 00:50:16,390

did you faint a lot during training or

1176

00:50:19,910 --> 00:50:18,470

good question good question i would want

1177

00:50:20,710 --> 00:50:19,920

to know that too

1178

00:50:23,190 --> 00:50:20,720

uh

1179

00:50:26,150 --> 00:50:23,200

that's your question what's your name

1180

00:50:28,390 --> 00:50:26,160

aiden good question uh no i didn't think

1181

00:50:30,470 --> 00:50:28,400

uh during training i didn't faint in

1182

00:50:33,030 --> 00:50:30,480

space and and i didn't thankfully got

1183

00:50:34,230 --> 00:50:33,040

that uh i i'm curious that might be

1184

00:50:35,910 --> 00:50:34,240

something we really have to think about

1185

00:50:37,270 --> 00:50:35,920

if somebody did think that would be

1186

00:50:39,589 --> 00:50:37,280

something really important to understand

1187

00:50:40,950 --> 00:50:39,599

i was the pilot of our spacecraft so if

1188

00:50:43,190 --> 00:50:40,960

i think that that that could have been

1189

00:50:44,710 --> 00:50:43,200

really bad you know um something

1190

00:50:46,390 --> 00:50:44,720

interesting though about fainting when

1191

00:50:48,549 --> 00:50:46,400

you come back from space

1192

00:50:50,950 --> 00:50:48,559

your heart pumps blood through your body

1193

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

right and it has to pump against gravity

1194

00:50:53,910 --> 00:50:52,400

some of your blood goes down but some of

1195

00:50:56,069 --> 00:50:53,920

it goes up and your heart has to work

1196

00:50:57,589 --> 00:50:56,079

really hard when you go to space

1197

00:50:59,270 --> 00:50:57,599

you're weightless and so your heart

1198

00:51:00,870 --> 00:50:59,280

doesn't have to work as hard and so it

1199

00:51:02,710 --> 00:51:00,880

starts to relax you don't control it it

1200

00:51:04,230 --> 00:51:02,720

just happens naturally and so when we

1201

00:51:06,390 --> 00:51:04,240

come back from space

1202

00:51:09,030 --> 00:51:06,400

we have to make sure astronauts don't

1203

00:51:10,950 --> 00:51:09,040

faint and so we do a test i wish i could

1204

00:51:12,870 --> 00:51:10,960

show you the video they made me sit in a

1205

00:51:14,230 --> 00:51:12,880

chair and then stand up and then just

1206

00:51:16,390 --> 00:51:14,240

stand there for a long time to make sure

1207

00:51:18,630 --> 00:51:16,400

my blood could pump heart uh my

1208

00:51:20,549 --> 00:51:18,640

heart could pump blood to my brain and i

1209

00:51:22,390 --> 00:51:20,559

would stay conscious and then they made

1210

00:51:24,470 --> 00:51:22,400

me lie down on the floor

1211

00:51:26,390 --> 00:51:24,480

completely flat and then stand up now

1212

00:51:28,630 --> 00:51:26,400

this is the day i landed this was right

1213

00:51:30,549 --> 00:51:28,640

after i got back so this was really hard

1214

00:51:32,230 --> 00:51:30,559

i had to stand up and stand there just

1215

00:51:33,910 --> 00:51:32,240

to make sure that i wouldn't fall over

1216

00:51:35,750 --> 00:51:33,920

so it is important to make sure

1217

00:51:37,589 --> 00:51:35,760

astronauts don't

1218

00:51:39,430 --> 00:51:37,599

but no none of us fainted and i didn't

1219

00:51:40,630 --> 00:51:39,440

think through any of those

1220

00:51:42,390 --> 00:51:40,640

good questions

1221

00:51:43,829 --> 00:51:42,400

so this next question uh and we have

1222

00:51:44,950 --> 00:51:43,839

time for three more questions the next

1223

00:51:47,270 --> 00:51:44,960

question is

1224

00:51:48,950 --> 00:51:47,280

a dual question uh all related to

1225

00:51:51,430 --> 00:51:48,960

exercise the first part is when you

1226
00:51:53,670 --> 00:51:51,440
exercise in space do you have a choice

1227
00:51:54,549 --> 00:51:53,680
of the machines you use

1228
00:51:57,109 --> 00:51:54,559
okay

1229
00:51:59,270 --> 00:51:57,119
and how difficult was it to maintain

1230
00:52:01,270 --> 00:51:59,280
muscle mass while in space and this

1231
00:52:03,589 --> 00:52:01,280
comes from a fourth and fifth grader at

1232
00:52:05,829 --> 00:52:03,599
payne elementary school in washington dc

1233
00:52:07,750 --> 00:52:05,839
and a 10th grader from bishop mcnamara

1234
00:52:09,349 --> 00:52:07,760
high school in maryland very good

1235
00:52:11,109 --> 00:52:09,359
question very good question i said

1236
00:52:12,710 --> 00:52:11,119
exercise is one of my favorite things in

1237
00:52:15,510 --> 00:52:12,720
space and so

1238
00:52:18,470 --> 00:52:15,520

we have three exercise devices that we

1239

00:52:20,710 --> 00:52:18,480

use on a regular basis and they are the

1240

00:52:22,470 --> 00:52:20,720

advanced resistant exercise device the

1241

00:52:23,750 --> 00:52:22,480

thing we use to simulate lifting weights

1242

00:52:26,470 --> 00:52:23,760

you can't lift weights because we're in

1243

00:52:28,390 --> 00:52:26,480

weightlessness so it has a vacuum system

1244

00:52:30,630 --> 00:52:28,400

that we pull resistance against this

1245

00:52:32,950 --> 00:52:30,640

vacuum tube and that allows us to do

1246

00:52:35,349 --> 00:52:32,960

resistive device resistive exercises

1247

00:52:37,430 --> 00:52:35,359

like lifting weights and that

1248

00:52:39,190 --> 00:52:37,440

is probably my favorite one if i could

1249

00:52:41,430 --> 00:52:39,200

confuse that all the time i would have

1250

00:52:42,670 --> 00:52:41,440

just done the strength training but we

1251
00:52:45,589 --> 00:52:42,680
also had two

1252
00:52:48,230 --> 00:52:45,599
cardiovascular exercise devices one was

1253
00:52:49,750 --> 00:52:48,240
a treadmill we call it t2

1254
00:52:51,910 --> 00:52:49,760
it's the second version of the treadmill

1255
00:52:54,470 --> 00:52:51,920
we flown in space and the other one was

1256
00:52:55,670 --> 00:52:54,480
sevis the bike that you saw so each ride

1257
00:52:57,670 --> 00:52:55,680
the bike that doesn't have a cedar

1258
00:52:59,750 --> 00:52:57,680
handlebar and so

1259
00:53:02,309 --> 00:52:59,760
every day you're scheduled for two

1260
00:53:04,470 --> 00:53:02,319
exercise devices the strength training

1261
00:53:06,150 --> 00:53:04,480
and then one of those cardio devices but

1262
00:53:07,670 --> 00:53:06,160
some days i didn't feel like riding the

1263
00:53:09,589 --> 00:53:07,680

bike and putting on the shoes and

1264

00:53:11,430 --> 00:53:09,599

clipping in i just wanted to run and put

1265

00:53:13,349 --> 00:53:11,440

on my running shoes put my harness on

1266

00:53:16,150 --> 00:53:13,359

and bungee me down to the treadmill and

1267

00:53:19,589 --> 00:53:16,160

so i did have a choice most of us lifted

1268

00:53:21,349 --> 00:53:19,599

or we did resistive exercise every day

1269

00:53:22,710 --> 00:53:21,359

but then we would be able to choose as

1270

00:53:25,349 --> 00:53:22,720

long as one of our crewmates wasn't

1271

00:53:26,870 --> 00:53:25,359

using the other device we could use

1272

00:53:28,390 --> 00:53:26,880

the device even if that's not the one

1273

00:53:30,470 --> 00:53:28,400

that we were scheduled for

1274

00:53:32,150 --> 00:53:30,480

muscle mass two things that you will

1275

00:53:34,470 --> 00:53:32,160

lose a lot of in space if you're not

1276

00:53:37,030 --> 00:53:34,480

careful are muscle mass and one reason

1277

00:53:39,109 --> 00:53:37,040

is because i weigh 200 pounds so just

1278

00:53:41,270 --> 00:53:39,119

standing up right now i'm exercising my

1279

00:53:43,349 --> 00:53:41,280

muscles and my bones and when you're in

1280

00:53:45,430 --> 00:53:43,359

space for six months i don't hold my

1281

00:53:47,190 --> 00:53:45,440

weight up because i'm floating and so my

1282

00:53:49,030 --> 00:53:47,200

muscles will naturally atrophy because

1283

00:53:51,190 --> 00:53:49,040

i'm not using an atrophy just means to

1284

00:53:53,030 --> 00:53:51,200

strengthen essentially well my bones do

1285

00:53:54,790 --> 00:53:53,040

the same thing for lots of different

1286

00:53:57,670 --> 00:53:54,800

reasons but also because we're not

1287

00:54:00,390 --> 00:53:57,680

loading them up uh but so some important

1288

00:54:03,030 --> 00:54:00,400

things that we do to prevent muscle and

1289

00:54:04,549 --> 00:54:03,040

bone loss are the strength training the

1290

00:54:07,270 --> 00:54:04,559

strength training is the number one

1291

00:54:10,870 --> 00:54:07,280

thing we also take vitamin supplements

1292

00:54:12,950 --> 00:54:10,880

and we also keep our salt low

1293

00:54:15,349 --> 00:54:12,960

because while we're in space we have a

1294

00:54:19,510 --> 00:54:15,359

condition called osteopenia

1295

00:54:22,230 --> 00:54:19,520

osteopenia is when we lose bone mass we

1296

00:54:24,150 --> 00:54:22,240

lose calcium out of our bones and salt

1297

00:54:26,150 --> 00:54:24,160

increases the amount of calcium that you

1298

00:54:28,069 --> 00:54:26,160

leak out of your bones and so that's

1299

00:54:30,470 --> 00:54:28,079

very similar to a cyst a condition that

1300

00:54:31,910 --> 00:54:30,480

happens on earth called osteoporosis and

1301

00:54:34,790 --> 00:54:31,920

so what we've learned in helping

1302

00:54:36,710 --> 00:54:34,800

astronauts combat osteopenia are things

1303

00:54:39,510 --> 00:54:36,720

that help people that suffer from

1304

00:54:41,109 --> 00:54:39,520

osteoporosis on earth and so that is a

1305

00:54:43,510 --> 00:54:41,119

very important thing that we've learned

1306

00:54:46,230 --> 00:54:43,520

from space life but yeah exercise helps

1307

00:54:47,349 --> 00:54:46,240

us prevent bone and muscle

1308

00:54:48,870 --> 00:54:47,359

thank you for that i think you're going

1309

00:54:50,789 --> 00:54:48,880

to love this next question it's about

1310

00:54:53,109 --> 00:54:50,799

food

1311

00:54:55,190 --> 00:54:53,119

what was yours i'm sorry my apologies i

1312

00:54:57,030 --> 00:54:55,200

was surprised to see a variety of food

1313

00:54:59,109 --> 00:54:57,040

available to eat in space

1314

00:55:01,109 --> 00:54:59,119

what's restricted and how do you decide

1315

00:55:03,510 --> 00:55:01,119

what to take up with you this comes from

1316

00:55:05,750 --> 00:55:03,520

an 11th grader at brentwood high school

1317

00:55:07,190 --> 00:55:05,760

in missouri very good question see

1318

00:55:09,990 --> 00:55:07,200

people usually say what's your favorite

1319

00:55:11,990 --> 00:55:10,000

food but this is really good so the food

1320

00:55:14,069 --> 00:55:12,000

that we send to space it has some

1321

00:55:16,549 --> 00:55:14,079

requirements first of all we have a food

1322

00:55:18,390 --> 00:55:16,559

laboratory that makes food specially for

1323

00:55:21,750 --> 00:55:18,400

these missions and it has a standard

1324

00:55:22,710 --> 00:55:21,760

menu of choices beef chicken pasta

1325

00:55:23,990 --> 00:55:22,720

shrimp

1326

00:55:26,230 --> 00:55:24,000

some of it is

1327

00:55:28,789 --> 00:55:26,240

dehydrated and we add water hot or cold

1328

00:55:30,950 --> 00:55:28,799

to add moisture back to it some of it is

1329

00:55:32,789 --> 00:55:30,960

normal the way it is like dehydrated

1330

00:55:35,670 --> 00:55:32,799

apricots and things

1331

00:55:37,270 --> 00:55:35,680

and some of it is uh irradiated or

1332

00:55:38,470 --> 00:55:37,280

thermal stabilized where you just open

1333

00:55:40,309 --> 00:55:38,480

it up and you know there's a piece of

1334

00:55:41,750 --> 00:55:40,319

chicken or cubes of beef

1335

00:55:43,190 --> 00:55:41,760

in a sauce and you just warm it up

1336

00:55:45,030 --> 00:55:43,200

before you eat it

1337

00:55:47,270 --> 00:55:45,040

tomato basil soup i ate a lot of tomato

1338

00:55:49,349 --> 00:55:47,280

basil soup and so all of those things

1339

00:55:51,430 --> 00:55:49,359

though they have to be in packaging that

1340

00:55:53,670 --> 00:55:51,440

is safe to be on the space station and

1341

00:55:54,630 --> 00:55:53,680

they also have to be able to stay on the

1342

00:55:58,390 --> 00:55:54,640

shelf

1343

00:56:00,870 --> 00:55:58,400

in boxes and packaged up for years

1344

00:56:02,630 --> 00:56:00,880

and that's the big one so we also can go

1345

00:56:05,190 --> 00:56:02,640

to the store and find things that we

1346

00:56:06,630 --> 00:56:05,200

like and ask nasa to box those up and

1347

00:56:09,109 --> 00:56:06,640

send up a portion of our food it's

1348

00:56:11,910 --> 00:56:09,119

things that we chose and so some of that

1349

00:56:13,910 --> 00:56:11,920

crew preference food they they grab the

1350

00:56:15,510 --> 00:56:13,920

the packaging and look at the how it's

1351
00:56:17,270 --> 00:56:15,520
stored and sealed and make sure that it

1352
00:56:19,670 --> 00:56:17,280
meets those requirements that it has

1353
00:56:22,950 --> 00:56:19,680
safe packaging like i can't fly a jar of

1354
00:56:24,950 --> 00:56:22,960
pickles right glass is not safe and so

1355
00:56:27,589 --> 00:56:24,960
but if it's in plastic or something that

1356
00:56:29,829 --> 00:56:27,599
uh it can make survive a launch and then

1357
00:56:31,589 --> 00:56:29,839
staying in space for a long time that's

1358
00:56:33,190 --> 00:56:31,599
one thing they check and then they also

1359
00:56:34,230 --> 00:56:33,200
check to make sure

1360
00:56:36,470 --> 00:56:34,240
because

1361
00:56:38,150 --> 00:56:36,480
i launched in november but my food had

1362
00:56:39,750 --> 00:56:38,160
been up there for almost a year they had

1363
00:56:41,829 --> 00:56:39,760

to launch it when they had a chance to

1364

00:56:43,990 --> 00:56:41,839

send cargo up to the space station and

1365

00:56:45,910 --> 00:56:44,000

we don't have we can't just send things

1366

00:56:47,670 --> 00:56:45,920

all the time so we have to schedule it

1367

00:56:49,750 --> 00:56:47,680

so some of the food goes up there and it

1368

00:56:52,150 --> 00:56:49,760

stays there for years

1369

00:56:53,670 --> 00:56:52,160

and so have any of you ever been camping

1370

00:56:56,069 --> 00:56:53,680

did you take special food when you went

1371

00:56:58,230 --> 00:56:56,079

camping things like beef jerky nuts

1372

00:57:00,390 --> 00:56:58,240

dried fruit those are things that last

1373

00:57:01,910 --> 00:57:00,400

for a long time or like pickles pickled

1374

00:57:03,510 --> 00:57:01,920

okra those are things that are being

1375

00:57:05,270 --> 00:57:03,520

preserved and they last for a very long

1376
00:57:07,829 --> 00:57:05,280
time and so we have to make sure that

1377
00:57:09,349 --> 00:57:07,839
our food meets a certain safety uh and

1378
00:57:10,470 --> 00:57:09,359
quality standards and so yeah that's a

1379
00:57:12,870 --> 00:57:10,480
really good question don't get asked

1380
00:57:15,030 --> 00:57:12,880
that i thought so as well

1381
00:57:19,270 --> 00:57:15,040
time for the last question

1382
00:57:22,549 --> 00:57:19,280
in 30 years space travel looks like

1383
00:57:27,190 --> 00:57:25,510
space travel looks like

1384
00:57:28,870 --> 00:57:27,200
i can say a lot about machines and

1385
00:57:30,390 --> 00:57:28,880
missions and where we're going but the

1386
00:57:33,030 --> 00:57:30,400
most important thing i can say to that

1387
00:57:34,710 --> 00:57:33,040
is that space travel in 30 years

1388
00:57:36,630 --> 00:57:34,720

looks like

1389

00:57:38,309 --> 00:57:36,640

and that is maybe the most important

1390

00:57:48,320 --> 00:57:38,319

mission that i have is to make sure that

1391

00:57:54,150 --> 00:57:52,630

[Applause]

1392

00:57:54,930 --> 00:57:54,160

and stokes elementary school thank you

1393

00:57:59,670 --> 00:57:54,940

for being here

1394

00:58:04,630 --> 00:58:02,950

and also we want to say uh goodbye to

1395

00:58:06,470 --> 00:58:04,640

our visitors who

1396

00:58:13,400 --> 00:58:06,480

have joined us virtually on the camera