



1
00:00:08,390 --> 00:00:04,070
station this is houston are you ready

2
00:00:14,709 --> 00:00:10,150
we are ready for the event how do you

3
00:00:18,550 --> 00:00:16,790
mary merrick elementary school this is

4
00:00:25,670 --> 00:00:18,560
mission control houston

5
00:00:29,269 --> 00:00:27,589
station this is principal jessica

6
00:00:33,990 --> 00:00:29,279
mcmullen at mary america elementary

7
00:00:38,470 --> 00:00:36,549
mr mcmullen we hear you loud and clear

8
00:00:42,790 --> 00:00:38,480
welcome on board the space station how

9
00:00:45,750 --> 00:00:44,549
we hear you loud and clear thank you

10
00:00:47,110 --> 00:00:45,760
we're going to turn it over to our

11
00:01:00,069 --> 00:00:47,120
students this morning to begin with

12
00:01:00,079 --> 00:01:06,230
hi daddy

13
00:01:06,240 --> 00:01:11,990

hello grace

14

00:01:19,590 --> 00:01:14,469

so why can't you bring your kindle up

15

00:01:24,469 --> 00:01:22,710

you know that's a good question because

16

00:01:26,950 --> 00:01:24,479

there are a lot of very smart people on

17

00:01:28,710 --> 00:01:26,960

the ground and engineers who know how

18

00:01:30,550 --> 00:01:28,720

the computers work and they want to make

19

00:01:33,670 --> 00:01:30,560

sure they know exactly anything that's

20

00:01:35,190 --> 00:01:33,680

even like anything like a computer

21

00:01:37,270 --> 00:01:35,200

they want to know exactly how it works

22

00:01:38,870 --> 00:01:37,280

and what's inside of it so they control

23

00:01:40,550 --> 00:01:38,880

what we bring up with us

24

00:01:42,630 --> 00:01:40,560

so i can't just say hey i'm going to

25

00:01:44,469 --> 00:01:42,640

bring something and and

26

00:01:46,789 --> 00:01:44,479

have them allow us to bring it up the

27

00:01:48,710 --> 00:01:46,799

other reason is because space has lots

28

00:01:51,190 --> 00:01:48,720

of radiation and it can affect

29

00:01:52,389 --> 00:01:51,200

electronic uh instruments so if i

30

00:01:54,069 --> 00:01:52,399

brought something up and it wasn't

31

00:01:56,709 --> 00:01:54,079

protected and already

32

00:01:58,389 --> 00:01:56,719

had some extra protection put on it then

33

00:02:00,069 --> 00:01:58,399

it might break just within a few days of

34

00:02:01,830 --> 00:02:00,079

bringing it up here so that's why we

35

00:02:03,429 --> 00:02:01,840

can't just bring up whatever we want

36

00:02:04,789 --> 00:02:03,439

only those things that the engineers

37

00:02:21,430 --> 00:02:04,799

have taken a look at and make sure it's

38

00:02:24,710 --> 00:02:22,550

how high

39

00:02:28,710 --> 00:02:24,720

how i can summon

40

00:02:32,390 --> 00:02:30,710

how high can we jump in space let's try

41

00:02:37,190 --> 00:02:32,400

that out tom let's see how high we can

42

00:02:41,670 --> 00:02:40,150

i think it was beyond infinity but if

43

00:03:06,229 --> 00:02:41,680

you really need a measurement maybe

44

00:03:12,550 --> 00:03:08,149

all right thank you very much thank you

45

00:03:12,560 --> 00:03:19,910

why do we have a space station

46

00:03:23,589 --> 00:03:22,309

that's a great question we have a space

47

00:03:26,149 --> 00:03:23,599

station

48

00:03:27,750 --> 00:03:26,159

um for several reasons the most

49

00:03:29,589 --> 00:03:27,760

important reason from a space

50

00:03:33,030 --> 00:03:29,599

exploration point of view is to really

51
00:03:34,789 --> 00:03:33,040
get a handle on how how it takes to

52
00:03:36,630 --> 00:03:34,799
engineer and make

53
00:03:39,110 --> 00:03:36,640
all the equipment that keeps people

54
00:03:40,869 --> 00:03:39,120
alive in space so that when we can we

55
00:03:42,470 --> 00:03:40,879
can take these lessons that we're

56
00:03:45,350 --> 00:03:42,480
learning on how to keep

57
00:03:47,190 --> 00:03:45,360
oxygen and toilet systems and food

58
00:03:48,869 --> 00:03:47,200
systems and electrical power all the

59
00:03:51,190 --> 00:03:48,879
things that we need to keep the space

60
00:03:53,429 --> 00:03:51,200
station running we get them running very

61
00:03:55,509 --> 00:03:53,439
very well so that we can take them to

62
00:03:57,270 --> 00:03:55,519
the moon or to mars when you guys are

63
00:03:58,630 --> 00:03:57,280

astronauts so we're laying the

64

00:04:01,030 --> 00:03:58,640

groundwork right now on the space

65

00:04:03,190 --> 00:04:01,040

station for you guys to go explore other

66

00:04:04,949 --> 00:04:03,200

planets the other reason that we have a

67

00:04:07,910 --> 00:04:04,959

space station is its international

68

00:04:11,110 --> 00:04:07,920

nature and all the 16 nations that work

69

00:04:13,509 --> 00:04:11,120

together to build it cooperate together

70

00:04:35,590 --> 00:04:13,519

in this magnificent program that we have

71

00:04:35,600 --> 00:04:41,990

how do i become an astronaut

72

00:04:45,749 --> 00:04:43,510

well i'll tell you what

73

00:04:47,909 --> 00:04:45,759

the way you become an astronaut is to

74

00:04:49,749 --> 00:04:47,919

start right now you can start today if

75

00:04:51,510 --> 00:04:49,759

you want to be an astronaut

76
00:04:53,430 --> 00:04:51,520
and one of the most important things the

77
00:04:55,350 --> 00:04:53,440
astronauts do is we bring our brains and

78
00:04:57,430 --> 00:04:55,360
our eyes and our hands up into space to

79
00:04:59,430 --> 00:04:57,440
do a lot of work to build space stations

80
00:05:01,590 --> 00:04:59,440
and do research and you need to start

81
00:05:03,749 --> 00:05:01,600
developing your brain right now

82
00:05:05,270 --> 00:05:03,759
so working hard in school right now

83
00:05:07,430 --> 00:05:05,280
doing the best that you can in all of

84
00:05:09,510 --> 00:05:07,440
your subjects so you can get good at

85
00:05:12,550 --> 00:05:09,520
learning stuff that's the most important

86
00:05:14,629 --> 00:05:12,560
thing to become an astronaut and

87
00:05:16,550 --> 00:05:14,639
staying healthy is very important taking

88
00:05:17,990 --> 00:05:16,560

care of yourself because you have to be

89

00:05:20,070 --> 00:05:18,000

strong and healthy because we're so far

90

00:05:21,590 --> 00:05:20,080

away from the earth we can't go to a

91

00:05:22,950 --> 00:05:21,600

doctor into a hospital if we have a

92

00:05:24,390 --> 00:05:22,960

problem so we have to be very healthy to

93

00:05:25,990 --> 00:05:24,400

come into space

94

00:05:51,029 --> 00:05:26,000

so you can start right now today

95

00:05:55,990 --> 00:05:53,270

i heard you were doing a project in

96

00:05:57,749 --> 00:05:56,000

space about plants and i would like to

97

00:06:03,430 --> 00:05:57,759

know what you're going to use to make

98

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

yeah that's an interesting topic for us

99

00:06:10,070 --> 00:06:07,600

just like we talked about um when you

100

00:06:13,990 --> 00:06:10,080

guys get to go to other planets to mar

101
00:06:15,749 --> 00:06:14,000
the moon or to mars you'll need food and

102
00:06:17,350 --> 00:06:15,759
a way to get that food is to grow it

103
00:06:19,749 --> 00:06:17,360
yourself and just all you have to do is

104
00:06:21,590 --> 00:06:19,759
fly the seeds and what we're doing now

105
00:06:23,430 --> 00:06:21,600
on with various experiments on the space

106
00:06:26,550 --> 00:06:23,440
station is to figure out how to make

107
00:06:27,670 --> 00:06:26,560
those systems those plants grow and

108
00:06:30,230 --> 00:06:27,680
they're

109
00:06:32,309 --> 00:06:30,240
the the the researchers design the

110
00:06:34,070 --> 00:06:32,319
module that the plants grow in

111
00:06:35,670 --> 00:06:34,080
to give it everything that it needs

112
00:06:38,629 --> 00:06:35,680
there's the soil

113
00:06:42,150 --> 00:06:38,639

the watering system and a light source

114

00:06:43,430 --> 00:06:42,160

all of which provide the plant the uh

115

00:06:45,670 --> 00:06:43,440

the neces

116

00:06:47,029 --> 00:06:45,680

necessary things for it to grow and it's

117

00:06:49,029 --> 00:06:47,039

very interesting to watch how those

118

00:06:51,350 --> 00:06:49,039

plants grow in space

119

00:06:53,110 --> 00:06:51,360

right this second we don't have any

120

00:06:55,670 --> 00:06:53,120

of those particular experiments going on

121

00:06:58,390 --> 00:06:55,680

board the space station but they are

122

00:07:00,070 --> 00:06:58,400

very fun ones to watch and catalog with

123

00:07:01,670 --> 00:07:00,080

pictures over time so you can see the

124

00:07:03,830 --> 00:07:01,680

pictures grow just like maybe you've

125

00:07:05,670 --> 00:07:03,840

done in some of your science classes as

126

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

you take a picture every day of

127

00:07:31,510 --> 00:07:07,680

an onion or a plant that you plant and

128

00:07:31,520 --> 00:07:38,710

how has space made your body different

129

00:07:42,390 --> 00:07:40,790

well you know space does make your body

130

00:07:44,070 --> 00:07:42,400

different and one of the main reasons is

131

00:07:45,589 --> 00:07:44,080

because we don't have gravity our

132

00:07:47,830 --> 00:07:45,599

muscles and our bones don't have to work

133

00:07:49,749 --> 00:07:47,840

very hard so our bodies actually start

134

00:07:51,510 --> 00:07:49,759

to absorb away our bones and our muscles

135

00:07:52,710 --> 00:07:51,520

get weak we kind of start to turn into

136

00:07:54,950 --> 00:07:52,720

jellyfish

137

00:07:56,550 --> 00:07:54,960

and it's important to

138

00:07:58,550 --> 00:07:56,560

not have that happen so when we come

139

00:08:00,150 --> 00:07:58,560

back to earth we'll be able to stand up

140

00:08:02,070 --> 00:08:00,160

and walk around we won't just be like

141

00:08:04,629 --> 00:08:02,080

mush on the ground so

142

00:08:07,029 --> 00:08:04,639

what we have to do is exercise every day

143

00:08:08,150 --> 00:08:07,039

and we have a weight machine even though

144

00:08:09,670 --> 00:08:08,160

there's no such thing as really is

145

00:08:12,230 --> 00:08:09,680

weight in space still it's a machine

146

00:08:13,909 --> 00:08:12,240

that is just like lifting weights and we

147

00:08:15,029 --> 00:08:13,919

work hard on treadmill with a bungee

148

00:08:15,990 --> 00:08:15,039

that's pulling us down into the

149

00:08:17,670 --> 00:08:16,000

treadmill

150

00:08:20,070 --> 00:08:17,680

and that helps keeps our bones and our

151

00:08:21,589 --> 00:08:20,080

muscles strong so we can be

152

00:08:43,190 --> 00:08:21,599

healthy and effective when we get back

153

00:08:52,070 --> 00:08:45,350

what types of things do you do for

154

00:08:55,990 --> 00:08:54,070

oh that's that's a fun question to

155

00:08:57,430 --> 00:08:56,000

answer um

156

00:08:59,750 --> 00:08:57,440

well one of the

157

00:09:03,190 --> 00:08:59,760

most basic things we do is enjoy each

158

00:09:05,829 --> 00:09:03,200

other's company uh there's a crew of six

159

00:09:08,150 --> 00:09:05,839

and uh and we all get along very well so

160

00:09:10,389 --> 00:09:08,160

in the evenings and during meal hours

161

00:09:12,470 --> 00:09:10,399

one of the most simple basic human needs

162

00:09:15,190 --> 00:09:12,480

is to interact with your friends and

163

00:09:17,509 --> 00:09:15,200

that's what we do every day

164

00:09:19,509 --> 00:09:17,519

sometimes we combine that with sitting

165

00:09:21,750 --> 00:09:19,519

around the windows and looking down at

166

00:09:24,710 --> 00:09:21,760

our magnificent planet below us we have

167

00:09:26,470 --> 00:09:24,720

this thing called a cupola which is a

168

00:09:28,710 --> 00:09:26,480

small module with windows all around

169

00:09:29,990 --> 00:09:28,720

that we can look directly down at earth

170

00:09:31,910 --> 00:09:30,000

and see

171

00:09:33,990 --> 00:09:31,920

the whole plan the whole view of what we

172

00:09:36,550 --> 00:09:34,000

can what we can see from that one window

173

00:09:38,630 --> 00:09:36,560

area and that's another favorite pastime

174

00:09:41,030 --> 00:09:38,640

of astronauts and then of course in the

175

00:09:43,030 --> 00:09:41,040

evenings and the quiet times we read and

176

00:09:44,870 --> 00:09:43,040

watch movies the mission control team is

177

00:09:46,790 --> 00:09:44,880

very nice they'll send us up movies or i

178

00:09:48,470 --> 00:09:46,800

like basketball so

179

00:09:50,310 --> 00:09:48,480

you might know that there's some

180

00:09:53,990 --> 00:09:50,320

big college basketball games going on

181

00:09:55,590 --> 00:09:54,000

this weekend and i think tonight so

182

00:09:57,910 --> 00:09:55,600

those are the types of things we do but

183

00:09:59,590 --> 00:09:57,920

the most basic thing is enjoy our

184

00:10:22,630 --> 00:09:59,600

friendship and our international

185

00:10:30,389 --> 00:10:24,790

did you bring anything personal with you

186

00:10:35,269 --> 00:10:32,389

you know we're allowed to bring just a

187

00:10:37,269 --> 00:10:35,279

few things uh personal things with us on

188

00:10:38,790 --> 00:10:37,279

the trip we got to bring a box about

189

00:10:40,790 --> 00:10:38,800

that big

190

00:10:41,990 --> 00:10:40,800

uh and no more just for ourselves

191

00:10:43,910 --> 00:10:42,000

because we need to have room for our

192

00:10:46,630 --> 00:10:43,920

food water and experiments but let me

193

00:10:48,470 --> 00:10:46,640

show you a couple things i brought

194

00:10:52,870 --> 00:10:48,480

on the trip

195

00:10:55,670 --> 00:10:52,880

this is a a little bear her name ishka

196

00:10:57,350 --> 00:10:55,680

and i brought her along keeping me

197

00:10:58,829 --> 00:10:57,360

company i don't know if you can see her

198

00:11:00,710 --> 00:10:58,839

there

199

00:11:02,710 --> 00:11:00,720

floater

200

00:11:04,550 --> 00:11:02,720

and also

201
00:11:07,190 --> 00:11:04,560
i like to play guitar so i brought some

202
00:11:09,190 --> 00:11:07,200
uh guitar music

203
00:11:11,590 --> 00:11:09,200
and

204
00:11:13,350 --> 00:11:11,600
we usually people bring some books along

205
00:11:16,470 --> 00:11:13,360
because we like to read books

206
00:11:18,310 --> 00:11:16,480
and we do have a guitar and a ukulele up

207
00:11:40,630 --> 00:11:18,320
here as well so those are the most

208
00:11:40,640 --> 00:11:47,590
how do you exercise in space

209
00:11:52,389 --> 00:11:49,350
well like tom said it's a very important

210
00:11:53,750 --> 00:11:52,399
part of our day we have a treadmill

211
00:11:56,550 --> 00:11:53,760
a bicycle

212
00:11:58,710 --> 00:11:56,560
and a weight machine and we rotate

213
00:12:01,350 --> 00:11:58,720

our activities on all three of those on

214

00:12:04,310 --> 00:12:01,360

on different days and and often

215

00:12:06,790 --> 00:12:04,320

well pretty much every day we do two of

216

00:12:09,670 --> 00:12:06,800

those three events and always we do

217

00:12:12,150 --> 00:12:09,680

weight exercises because just like tom

218

00:12:14,550 --> 00:12:12,160

said it's so very important for our bone

219

00:12:16,629 --> 00:12:14,560

health and our on our muscle must to

220

00:12:17,590 --> 00:12:16,639

maintain our muscle tone

221

00:12:19,910 --> 00:12:17,600

um

222

00:12:21,430 --> 00:12:19,920

and the bike and the treadmill provide

223

00:12:23,190 --> 00:12:21,440

the the

224

00:12:24,710 --> 00:12:23,200

aerobic fitness to keep our heart

225

00:12:25,990 --> 00:12:24,720

healthy

226

00:12:29,269 --> 00:12:26,000

the interesting thing about the

227

00:12:30,310 --> 00:12:29,279

treadmill though is the bungee cords are

228

00:12:31,910 --> 00:12:30,320

different

229

00:12:33,990 --> 00:12:31,920

depending on how much you weigh you need

230

00:12:35,269 --> 00:12:34,000

different amount of bungee cords to keep

231

00:12:39,509 --> 00:12:35,279

you down

232

00:12:41,430 --> 00:12:39,519

the same amount of weight to trick your

233

00:12:43,190 --> 00:12:41,440

legs to think that they're giving you

234

00:12:45,590 --> 00:12:43,200

the amount of resistance or weight

235

00:12:47,030 --> 00:12:45,600

lifting that you have on earth

236

00:13:02,629 --> 00:12:47,040

it's a very important part of our day

237

00:13:02,639 --> 00:13:08,470

it's a very important part

238

00:13:11,990 --> 00:13:10,470

what was your

239

00:13:12,790 --> 00:13:12,000

first emotion

240

00:13:25,110 --> 00:13:12,800

in

241

00:13:26,550 --> 00:13:25,120

christmas eve

242

00:13:27,750 --> 00:13:26,560

you know or waking up on christmas

243

00:13:28,870 --> 00:13:27,760

morning because you've been waiting for

244

00:13:29,910 --> 00:13:28,880

this when you're an astronaut you've

245

00:13:32,150 --> 00:13:29,920

been training for years you've been

246

00:13:34,870 --> 00:13:32,160

waiting for this most of your life

247

00:13:36,870 --> 00:13:34,880

and so you're very very excited you're

248

00:13:38,629 --> 00:13:36,880

also thinking really hard it's kind of

249

00:13:40,710 --> 00:13:38,639

like a mixture of that and

250

00:13:42,870 --> 00:13:40,720

before a big test

251
00:13:44,230 --> 00:13:42,880
because you've been training a lot and

252
00:13:45,910 --> 00:13:44,240
now you have to do what you've been

253
00:13:47,670 --> 00:13:45,920
training to do so you're really focused

254
00:13:49,590 --> 00:13:47,680
on what you have to do and you're really

255
00:13:52,470 --> 00:13:49,600
ready to work really hard also but it's

256
00:13:54,310 --> 00:13:52,480
very very exciting and the launch whole

257
00:13:55,670 --> 00:13:54,320
launch process is one of the most

258
00:13:57,829 --> 00:13:55,680
exciting things i've ever done with all

259
00:13:59,910 --> 00:13:57,839
the shaking and the roaring and you've

260
00:14:01,990 --> 00:13:59,920
just come through that so then you hit

261
00:14:03,910 --> 00:14:02,000
zero gravity and you're ready to have

262
00:14:28,150 --> 00:14:03,920
fun and experience zero gravity but also

263
00:14:38,629 --> 00:14:31,189

what does the atmosphere of herb look

264

00:14:42,949 --> 00:14:40,550

oh that's a really fun question to

265

00:14:46,310 --> 00:14:42,959

answer because it's so pretty

266

00:14:48,790 --> 00:14:46,320

we see the blue marble of of uh the

267

00:14:51,509 --> 00:14:48,800

earth below us with the really bright

268

00:14:53,350 --> 00:14:51,519

vibrant blues and whites of the clouds

269

00:14:54,470 --> 00:14:53,360

and the snow and the brown

270

00:14:56,949 --> 00:14:54,480

and green

271

00:14:59,990 --> 00:14:56,959

and then just above that there's a if

272

00:15:02,629 --> 00:15:00,000

you look off the horizon there's a small

273

00:15:04,310 --> 00:15:02,639

skinny layer of uh

274

00:15:06,550 --> 00:15:04,320

of

275

00:15:09,189 --> 00:15:06,560

atmosphere and it looks like this hazy

276

00:15:13,509 --> 00:15:10,710

misty

277

00:15:16,710 --> 00:15:13,519

thin surface a thin surface around our

278

00:15:19,269 --> 00:15:16,720

earth and uh if you if this is the globe

279

00:15:20,870 --> 00:15:19,279

it's just a little skinny part

280

00:15:22,790 --> 00:15:20,880

right off there as we look onto the

281

00:15:24,870 --> 00:15:22,800

horizon and see the atmosphere it gives

282

00:15:26,470 --> 00:15:24,880

a really really

283

00:15:28,550 --> 00:15:26,480

cool

284

00:15:53,509 --> 00:15:28,560

effect to the horizon as we look below

285

00:16:03,509 --> 00:15:56,550

how do you know what to do in case of an

286

00:16:07,670 --> 00:16:05,670

you know that's a great question we have

287

00:16:10,069 --> 00:16:07,680

to really think ahead quite a bit don't

288

00:16:11,749 --> 00:16:10,079

we because we're 240 miles away from the

289

00:16:13,749 --> 00:16:11,759

earth and we need a big rocket engine to

290

00:16:14,949 --> 00:16:13,759

get back to earth so if we have an

291

00:16:16,790 --> 00:16:14,959

emergency

292

00:16:18,949 --> 00:16:16,800

there's three big ones you know if

293

00:16:21,430 --> 00:16:18,959

something bad for us that got into the

294

00:16:23,350 --> 00:16:21,440

air if we lost our air or if there was a

295

00:16:25,509 --> 00:16:23,360

fire that broke out or if somebody had a

296

00:16:27,269 --> 00:16:25,519

medical problem that they needed to get

297

00:16:29,509 --> 00:16:27,279

to the hospital those are all things we

298

00:16:30,949 --> 00:16:29,519

have to take care of right away so

299

00:16:32,790 --> 00:16:30,959

we trained for two and a half years for

300

00:16:34,629 --> 00:16:32,800

this flight a lot of that time we we

301

00:16:36,629 --> 00:16:34,639

trained to take care of emergencies if

302

00:16:38,230 --> 00:16:36,639

they were to have if they happened so we

303

00:16:40,150 --> 00:16:38,240

wouldn't even have to think about it

304

00:16:41,829 --> 00:16:40,160

we'd just do it as soon as we came to

305

00:16:43,189 --> 00:16:41,839

the emergency we'd do it now if things

306

00:16:45,030 --> 00:16:43,199

got really bad

307

00:16:47,189 --> 00:16:45,040

uh we have our spaceship to get home

308

00:16:49,030 --> 00:16:47,199

with and in about a day we could save

309

00:16:51,509 --> 00:16:49,040

the space station turn everything off

310

00:16:53,030 --> 00:16:51,519

get into our spaceship and come home

311

00:16:54,310 --> 00:16:53,040

and that's only if things got so bad we

312

00:16:55,749 --> 00:16:54,320

couldn't handle it but we have a lot of

313

00:16:57,509 --> 00:16:55,759

smart people on the ground a lot of

314

00:17:21,990 --> 00:16:57,519

equipment so that we can take care of

315

00:17:25,669 --> 00:17:23,669

okay guys we just got word that the

316

00:17:27,750 --> 00:17:25,679

space station has to go we only had them

317

00:17:29,909 --> 00:17:27,760

for a full 20 minutes but if you guys

318

00:17:31,909 --> 00:17:29,919

will tell them thank you and wave bye to

319

00:17:38,310 --> 00:17:31,919

them they can see you and hear you thank

320

00:17:43,510 --> 00:17:40,390

goodbye everybody those were great

321

00:17:46,950 --> 00:17:43,520

questions great talking to you

322

00:17:48,789 --> 00:17:46,960

see you on earth in a little bit

323

00:17:52,230 --> 00:17:48,799

station this is houston acr that

324

00:17:55,750 --> 00:17:54,390

thank you mary merrick elementary school

325

00:17:58,070 --> 00:17:55,760

and students

