



1  
00:00:06,360 --> 00:00:02,180  
station this is Houston are you ready

2  
00:00:12,790 --> 00:00:08,680  
Houston this is the International Space

3  
00:00:14,320 --> 00:00:12,800  
Station I'm ready for the event lockup

4  
00:00:17,109 --> 00:00:14,330  
you high school this is Mission Control

5  
00:00:26,339 --> 00:00:17,119  
Houston please call station for a voice

6  
00:00:30,179 --> 00:00:28,470  
station this is John Monroe teacher at

7  
00:00:37,259 --> 00:00:30,189  
law a few high school in Fall River Nova

8  
00:00:38,939 --> 00:00:37,269  
Scotia how do you hear John and locked

9  
00:00:41,040 --> 00:00:38,949  
view high school everybody falls river

10  
00:00:54,590 --> 00:00:41,050  
yes I read you loud and clear from the

11  
00:01:04,920 --> 00:00:58,049  
the weather is hot in the Sun and cold

12  
00:01:06,090 --> 00:01:04,930  
in the shade and nice here inside well

13  
00:01:07,890 --> 00:01:06,100

we have some great questions for you mr.

14

00:01:09,330 --> 00:01:07,900

commander at field so I'm going to send

15

00:01:15,179 --> 00:01:09,340

over David saint-jacques and you'll get

16

00:01:20,969 --> 00:01:15,189

the questions going hiya Chris good to

17

00:01:28,800 --> 00:01:20,979

talk to you David Bonjour we have the

18

00:01:30,240 --> 00:01:28,810

pleasure's telling me I'm a RC Chris we

19

00:01:34,920 --> 00:01:30,250

have the winners of the science

20

00:01:48,930 --> 00:01:34,930

challenge with us here Kendra Lemke and

21

00:01:54,580 --> 00:01:52,030

and we were wondering if you had the

22

00:02:02,950 --> 00:01:54,590

possibility to do their experiment for

23

00:02:06,550 --> 00:02:02,960

us and faith I do thank you for the

24

00:02:09,430 --> 00:02:06,560

invitation to do so for all of the

25

00:02:11,559 --> 00:02:09,440

people that can write across Canada in

26  
00:02:12,760 --> 00:02:11,569  
thinking about a science experiment that

27  
00:02:15,460 --> 00:02:12,770  
we could do here on the space station

28  
00:02:17,350 --> 00:02:15,470  
thank you for thinking about it it's

29  
00:02:19,900 --> 00:02:17,360  
through original thought that inventions

30  
00:02:22,780 --> 00:02:19,910  
are made and a special congratulations

31  
00:02:24,670 --> 00:02:22,790  
to a Kendra and Meredith for winning and

32  
00:02:27,340 --> 00:02:24,680  
for giving me the opportunity to

33  
00:02:30,370 --> 00:02:27,350  
demonstrate the question is if you get a

34  
00:02:32,650 --> 00:02:30,380  
cloth dripping wet without gravity and

35  
00:02:34,750 --> 00:02:32,660  
you wring it out what's going to happen

36  
00:02:36,820 --> 00:02:34,760  
what will happen to a rung out cloth so

37  
00:02:38,860 --> 00:02:36,830  
and had to use equipment that was here

38  
00:02:41,050 --> 00:02:38,870

onboard the space station we may have

39

00:02:42,360 --> 00:02:41,060

the coolest wash cloths ever here on the

40

00:02:49,090 --> 00:02:42,370

space station I'm going to show you

41

00:02:51,880 --> 00:02:49,100

here's one of our wash cloths and it's

42

00:02:55,900 --> 00:02:51,890

pacted it's put down into this little

43

00:03:01,240 --> 00:02:55,910

tiny hockey puck so that saves space but

44

00:03:04,720 --> 00:03:01,250

when you open up a hockey puck and you

45

00:03:06,100 --> 00:03:04,730

pull out your washcloth this is the one

46

00:03:13,890 --> 00:03:06,110

I'm going to use for the experiment

47

00:03:20,040 --> 00:03:15,750

everything floats away so I have to put

48

00:03:21,449 --> 00:03:20,050

it in my pocket and so when you open up

49

00:03:25,530 --> 00:03:21,459

your hockey puck and turn it into a

50

00:03:28,380 --> 00:03:25,540

washcloth that was compressed get a

51  
00:03:31,949 --> 00:03:28,390  
great big vise somewhere okay so here's

52  
00:03:34,110 --> 00:03:31,959  
my washcloth like a magic trick and now

53  
00:03:35,430 --> 00:03:34,120  
I'm going to get this soaking wet and

54  
00:03:40,380 --> 00:03:35,440  
then we're going to see what will happen

55  
00:03:42,930 --> 00:03:40,390  
when we wring it out Meriden kendra

56  
00:03:45,030 --> 00:03:42,940  
suggested that i dip this in a bag but

57  
00:03:47,430 --> 00:03:45,040  
bags don't hold water in space so

58  
00:03:51,930 --> 00:03:47,440  
instead I filled a water bag this has

59  
00:03:54,390 --> 00:03:51,940  
drinking water in it and I'm going to

60  
00:04:26,719 --> 00:03:54,400  
squirt a bunch of water into this

61  
00:04:38,010 --> 00:04:36,330  
it's getting nice and wet I want to make

62  
00:04:51,790 --> 00:04:38,020  
sure for the experiment that it's really

63  
00:04:57,890 --> 00:04:54,560

okay so I have a soaking wet washcloth

64

00:04:58,910 --> 00:04:57,900

here floating in front of me and now I'm

65

00:05:05,930 --> 00:04:58,920

going to wring it out and see what

66

00:05:06,700 --> 00:05:05,940

happens I'll get up close so you can see

67

00:05:14,690 --> 00:05:06,710

here

68

00:05:17,810 --> 00:05:14,700

water floating around I'll put it on the

69

00:05:20,870 --> 00:05:17,820

washcloth okay so here's a soaking wet

70

00:05:22,700 --> 00:05:20,880

washcloth get the microphone so you can

71

00:05:27,710 --> 00:05:22,710

hear me while I'm talking and now let's

72

00:05:43,400 --> 00:05:27,720

let's start wringing it out it's really

73

00:05:43,410 --> 00:05:52,160

let's keep coming up to the line

74

00:05:56,730 --> 00:05:55,140

it looks very cool the waters running up

75

00:05:58,230 --> 00:05:56,740

my hands a little bit hey Tom can you

76

00:06:12,029 --> 00:05:58,240

come grab me a towel please I got one on

77

00:06:20,159 --> 00:06:14,339

so I could be on the other side to see

78

00:06:21,959 --> 00:06:20,169

this they're stuck in the water so the

79

00:06:23,999 --> 00:06:21,969

water is all over my hands in fact it

80

00:06:29,100 --> 00:06:24,009

rings out of the cloth into my hands and

81

00:06:31,670 --> 00:06:29,110

if I let go of the cloth carefully the

82

00:06:34,739 --> 00:06:31,680

water sort of has it sticked to my hand

83

00:06:36,329 --> 00:06:34,749

the surface tension of the water keeps

84

00:06:46,170 --> 00:06:36,339

it stuck to my hand

85

00:06:51,450 --> 00:06:49,170

we grab the microphone okay so the

86

00:06:53,280 --> 00:06:51,460

experimnt worked beautifully and the

87

00:06:56,370 --> 00:06:53,290

answer to the question is the water

88

00:06:58,200 --> 00:06:56,380

squeezes out of the cloth and then

89

00:07:02,010 --> 00:06:58,210

because of the surface tension of the

90

00:07:04,140 --> 00:07:02,020

water it it actually runs along the

91

00:07:07,469 --> 00:07:04,150

surface of the cloth and then up into my

92

00:07:09,659 --> 00:07:07,479

hand almost like you had jello on your

93

00:07:10,290 --> 00:07:09,669

hands or gel on your hand and it'll just

94

00:07:12,750 --> 00:07:10,300

stay there

95

00:07:15,840 --> 00:07:12,760

wonderful moisturizer in my hands and

96

00:07:19,379 --> 00:07:15,850

the cloth doesn't really unravel itself

97

00:07:21,390 --> 00:07:19,389

it just stays there floating like a like

98

00:07:24,170 --> 00:07:21,400

a dogs chew toy soaking wet

99

00:07:26,400 --> 00:07:24,180

great experiment worked perfectly

100

00:07:44,170 --> 00:07:26,410

Meredith and Kendra congratulations

101  
00:07:51,080 --> 00:07:47,780  
thank you Chris I know everybody was

102  
00:07:51,740 --> 00:07:51,090  
thinking in their own minds how we see

103  
00:07:55,100 --> 00:07:51,750  
you better now

104  
00:07:59,030 --> 00:07:55,110  
thank you everybody here was thinking

105  
00:08:04,640 --> 00:07:59,040  
what will happen to that water and who

106  
00:08:07,670 --> 00:08:04,650  
had predicted this rise your hands if

107  
00:08:10,460 --> 00:08:07,680  
you had predicted this I see a couple of

108  
00:08:12,290 --> 00:08:10,470  
hands there that's good well science is

109  
00:08:14,150 --> 00:08:12,300  
like that you think of benign

110  
00:08:16,010 --> 00:08:14,160  
experiments will just be an obvious

111  
00:08:21,290 --> 00:08:16,020  
result no no it can be very surprising

112  
00:08:22,879 --> 00:08:21,300  
so very creative idea thank you Chris if

113  
00:08:24,200 --> 00:08:22,889

you have a little bit time we can ask

114

00:08:27,200 --> 00:08:24,210

you there's got a couple questions here

115

00:08:31,250 --> 00:08:27,210

people have maybe the first one will be

116

00:08:33,230 --> 00:08:31,260

murdered hi Chris I'm Meredith how's

117

00:08:34,820 --> 00:08:33,240

your perspective of humans change since

118

00:08:42,320 --> 00:08:34,830

viewing the world from Earth to viewing

119

00:08:46,700 --> 00:08:42,330

the world from space how has my

120

00:08:48,530 --> 00:08:46,710

perspective of humans changed it's an

121

00:08:50,720 --> 00:08:48,540

interesting question Meredith because

122

00:08:52,850 --> 00:08:50,730

you really have time to reflect when

123

00:08:54,770 --> 00:08:52,860

you're so far from home you know there

124

00:08:57,590 --> 00:08:54,780

are six of us on board and we are

125

00:09:01,660 --> 00:08:57,600

completely separate from the other six

126

00:09:05,680 --> 00:09:01,670

and a half billion of the rest of us and

127

00:09:08,690 --> 00:09:05,690

so you feel that physical separation but

128

00:09:12,470 --> 00:09:08,700

it may be surprising to you but in fact

129

00:09:14,570 --> 00:09:12,480

I feel closer to everyone I think as a

130

00:09:16,760 --> 00:09:14,580

result when you when you live in your

131

00:09:20,360 --> 00:09:16,770

house in your street in your town and

132

00:09:22,420 --> 00:09:20,370

your province in your country you tend

133

00:09:24,890 --> 00:09:22,430

to identify those things almost like

134

00:09:27,110 --> 00:09:24,900

like layers of a fortress around

135

00:09:29,510 --> 00:09:27,120

yourself you know I'm from this place

136

00:09:32,000 --> 00:09:29,520

and and and all those things are

137

00:09:35,500 --> 00:09:32,010

barriers between you and everybody else

138

00:09:38,600 --> 00:09:35,510

and even travel tends to break that down

139

00:09:41,960 --> 00:09:38,610

but to be in a position where you can go

140

00:09:44,590 --> 00:09:41,970

around the world in 92 minutes and see

141

00:09:49,910 --> 00:09:44,600

every place over and over and over again

142

00:09:51,949 --> 00:09:49,920

those barriers fade and of course I

143

00:09:53,510 --> 00:09:51,959

still see the strife and the stupid

144

00:09:54,440 --> 00:09:53,520

things we do like what happened

145

00:09:56,450 --> 00:09:54,450

yesterday in Boston

146

00:09:58,040 --> 00:09:56,460

and then the suffering we have to put

147

00:10:01,370 --> 00:09:58,050

through like the enormous earthquake in

148

00:10:04,100 --> 00:10:01,380

Iran today things still happen and some

149

00:10:06,460 --> 00:10:04,110

people still horribly misbehave but the

150

00:10:09,410 --> 00:10:06,470

vast majority of people are good and

151  
00:10:12,140 --> 00:10:09,420  
people are just trying to find joy and

152  
00:10:16,490 --> 00:10:12,150  
raise their children well and and find

153  
00:10:18,190 --> 00:10:16,500  
grace in life and for me up here

154  
00:10:21,410 --> 00:10:18,200  
I found partway through the flight I

155  
00:10:24,650 --> 00:10:21,420  
just feel like I refer to everybody as

156  
00:10:27,860 --> 00:10:24,660  
just us it's all of us together in this

157  
00:10:30,250 --> 00:10:27,870  
and and so I think it's a perspective

158  
00:10:32,990 --> 00:10:30,260  
that some people get naturally and that

159  
00:10:34,760 --> 00:10:33,000  
some people will never get but I know

160  
00:10:36,440 --> 00:10:34,770  
it's a perspective that having the

161  
00:10:37,940 --> 00:10:36,450  
chance to see the world the way I've

162  
00:10:39,800 --> 00:10:37,950  
been trying to show it through the

163  
00:10:42,470 --> 00:10:39,810

pictures I've been sending back it's a

164

00:10:56,910 --> 00:10:42,480

perspective that you definitely get when

165

00:11:05,590 --> 00:11:02,560

thank you Chris thank you Chris this is

166

00:11:09,010 --> 00:11:05,600

very moving answer and Kendra else has a

167

00:11:11,020 --> 00:11:09,020

question for you I know you started your

168

00:11:12,850 --> 00:11:11,030

career in the military so I would like

169

00:11:14,920 --> 00:11:12,860

to know how that helps you prepare for

170

00:11:23,890 --> 00:11:14,930

being an astronaut also what does the

171

00:11:25,810 --> 00:11:23,900

term be as this mo mean ha

172

00:11:28,770 --> 00:11:25,820

Canada has a lot of really good

173

00:11:32,470 --> 00:11:28,780

universities some some world-class

174

00:11:34,150 --> 00:11:32,480

universities daveed attended one or two

175

00:11:35,710 --> 00:11:34,160

of them I've been lucky enough to go to

176

00:11:38,140 --> 00:11:35,720

a couple one of them is the Royal

177

00:11:40,840 --> 00:11:38,150

Military College of Canada and it's a

178

00:11:42,790 --> 00:11:40,850

fine old school started at 1876 as a lot

179

00:11:45,700 --> 00:11:42,800

of traditions a lot of schools have a

180

00:11:48,940 --> 00:11:45,710

college song and there's a college chant

181

00:11:52,540 --> 00:11:48,950

which is be SSM a tdv who can stop old

182

00:11:54,730 --> 00:11:52,550

RMC and and I know I think someone in

183

00:11:57,400 --> 00:11:54,740

your family went to our MC as well so

184

00:11:59,020 --> 00:11:57,410

it's just it's a common chant that

185

00:12:01,720 --> 00:11:59,030

you'll hear at the university to build a

186

00:12:04,360 --> 00:12:01,730

spirit a car and you ask the question

187

00:12:07,060 --> 00:12:04,370

about whether the military was important

188

00:12:08,650 --> 00:12:07,070

in becoming an astronaut there aren't

189

00:12:12,310 --> 00:12:08,660

very many Canadian astronauts who were

190

00:12:15,760 --> 00:12:12,320

military the majority were not but the

191

00:12:19,960 --> 00:12:15,770

common thread of success is number one

192

00:12:22,360 --> 00:12:19,970

an advanced education and the military

193

00:12:24,130 --> 00:12:22,370

gives that to a lot of us it did for me

194

00:12:27,820 --> 00:12:24,140

I have went to three different

195

00:12:29,830 --> 00:12:27,830

universities and also to be in good

196

00:12:32,170 --> 00:12:29,840

physical health that's good for

197

00:12:33,850 --> 00:12:32,180

anybody's success and the military

198

00:12:35,530 --> 00:12:33,860

stress is that but if you look at David

199

00:12:37,330 --> 00:12:35,540

saint-jacques there with you he's

200

00:12:39,370 --> 00:12:37,340

obviously very well educated speaks

201

00:12:42,880 --> 00:12:39,380

multiple languages and is in superb

202

00:12:46,300 --> 00:12:42,890

physical shape and then the third is the

203

00:12:47,830 --> 00:12:46,310

ability to make good decisions and you

204

00:12:50,260 --> 00:12:47,840

can get that from all different walks of

205

00:12:52,480 --> 00:12:50,270

life and not just decisions about

206

00:12:55,600 --> 00:12:52,490

trivial things but decisions when

207

00:12:58,870 --> 00:12:55,610

consequences matter and daveed learned

208

00:13:01,360 --> 00:12:58,880

that as a doctor and of course I learned

209

00:13:03,070 --> 00:13:01,370

that as a military officer as a as a

210

00:13:05,560 --> 00:13:03,080

fighter pilot defending Canada

211

00:13:09,070 --> 00:13:05,570

intercepting bombers just off the coast

212

00:13:12,280 --> 00:13:09,080

of Nova Scotia and also as a test pilot

213

00:13:14,850 --> 00:13:12,290

to test airplanes so so yes in my case

214

00:13:17,050 --> 00:13:14,860

the military was a wonderful

215

00:13:19,060 --> 00:13:17,060

organization not only in the defense of

216

00:13:21,160 --> 00:13:19,070

Canada but for Canadian citizens as well

217

00:13:22,900 --> 00:13:21,170

and in in giving me a background that

218

00:13:25,360 --> 00:13:22,910

would allow me to command a space ship

219

00:13:38,670 --> 00:13:25,370

but it's not the only route but in my

220

00:13:46,120 --> 00:13:43,350

thanks Chris Ali is a question for you

221

00:13:47,890 --> 00:13:46,130

hi Chris my name is Ali I'm in grade 9

222

00:13:54,190 --> 00:13:47,900

and my question is how long does it take

223

00:13:56,590 --> 00:13:54,200

to orbit Earth Ali it depends how far

224

00:13:59,440 --> 00:13:56,600

away you are if you think about the

225

00:14:02,140 --> 00:13:59,450

earth orbiting the Sun it takes us 365

226

00:14:05,380 --> 00:14:02,150

and a quarter days 3 no 64 and a quarter

227

00:14:09,550 --> 00:14:05,390

days anyway one year plus a leap year

228

00:14:11,500 --> 00:14:09,560

every four and so that's because we're

229

00:14:14,590 --> 00:14:11,510

whatever 93 million miles from the Sun

230

00:14:16,450 --> 00:14:14,600

the moon takes one month to go around

231

00:14:18,460 --> 00:14:16,460

the world because it's four hundred

232

00:14:20,860 --> 00:14:18,470

thousand kilometres away but sort of

233

00:14:23,320 --> 00:14:20,870

like a ball at a string on a long long

234

00:14:25,300 --> 00:14:23,330

string you can spin it fairly slowly and

235

00:14:27,130 --> 00:14:25,310

the ball will stay up but if it's a

236

00:14:29,340 --> 00:14:27,140

little short string you have to spin it

237

00:14:32,230 --> 00:14:29,350

really fast or the ball will fall down

238

00:14:34,210 --> 00:14:32,240

sort of the same idea in orbit because

239

00:14:36,730 --> 00:14:34,220

the moon's a long ways away it goes

240

00:14:39,130 --> 00:14:36,740

around the world about once a month but

241

00:14:40,750 --> 00:14:39,140

the space station is much closer and we

242

00:14:43,540 --> 00:14:40,760

have to go if we have to go around the

243

00:14:46,230 --> 00:14:43,550

world every hour and a half and our

244

00:14:48,910 --> 00:14:46,240

exact altitude here about 400 kilometers

245

00:14:51,430 --> 00:14:48,920

means we have to orbit the world every

246

00:14:53,140 --> 00:14:51,440

92 minutes if we were a little further

247

00:14:55,030 --> 00:14:53,150

away we'd go around the world more

248

00:14:57,910 --> 00:14:55,040

slowly if we were closer we'd have to go

249

00:15:00,250 --> 00:14:57,920

around faster and one last thing there's

250

00:15:03,610 --> 00:15:00,260

one orbit in between the moon that takes

251  
00:15:05,290 --> 00:15:03,620  
a month in the space station which takes

252  
00:15:08,410 --> 00:15:05,300  
an hour and a half there is an orbit

253  
00:15:09,760 --> 00:15:08,420  
where it takes exactly 24 hours to go

254  
00:15:11,710 --> 00:15:09,770  
around the world if you think about it

255  
00:15:14,350 --> 00:15:11,720  
right one month ninety minutes

256  
00:15:16,690 --> 00:15:14,360  
there's some orbit some distance exactly

257  
00:15:19,810 --> 00:15:16,700  
24 hours so if you can orbit at exactly

258  
00:15:21,940 --> 00:15:19,820  
24 hours around that means you'll stay

259  
00:15:24,190 --> 00:15:21,950  
above the same place on the earth

260  
00:15:26,350 --> 00:15:24,200  
because the earth is 24 hours to turn

261  
00:15:27,910 --> 00:15:26,360  
around it's a really valuable orbit for

262  
00:15:30,040 --> 00:15:27,920  
a satellite because you can bounce your

263  
00:15:31,870 --> 00:15:30,050

signal off it all day and that's how I'm

264

00:15:34,660 --> 00:15:31,880

talking to you in fact off one of those

265

00:15:40,720 --> 00:15:34,670

satellites but for us 92 minutes

266

00:15:45,040 --> 00:15:40,730

once around 16 times a day thank you

267

00:15:45,050 --> 00:15:48,400

we got

268

00:15:52,210 --> 00:15:50,600

we've got that for one last question

269

00:15:55,120 --> 00:15:52,220

from Cody

270

00:15:57,380 --> 00:15:55,130

Gradius from earth mr. Hadfield uh

271

00:16:01,430 --> 00:15:57,390

obviously being in space have the best

272

00:16:03,800 --> 00:16:01,440

iview of the globe I was wondering what

273

00:16:06,470 --> 00:16:03,810

are the effects visible of our constant

274

00:16:13,490 --> 00:16:06,480

corporate productions and other things

275

00:16:16,580 --> 00:16:13,500

such as like chemtrails and such yeah

276

00:16:19,600 --> 00:16:16,590

the question of what changes are people

277

00:16:23,150 --> 00:16:19,610

making to the world and are they visible

278

00:16:24,710 --> 00:16:23,160

and the answer is yes the places they're

279

00:16:28,340 --> 00:16:24,720

most visible is where the most people

280

00:16:31,790 --> 00:16:28,350

are naturally the biggest cities over

281

00:16:35,030 --> 00:16:31,800

the big cities in China over a lot of

282

00:16:38,000 --> 00:16:35,040

India and over Mexico City and over

283

00:16:40,910 --> 00:16:38,010

California over Los Angeles there's

284

00:16:43,970 --> 00:16:40,920

almost always sort of a gray smear over

285

00:16:47,690 --> 00:16:43,980

those cities just because of the

286

00:16:51,110 --> 00:16:47,700

cumulative exhaust of millions of people

287

00:16:53,870 --> 00:16:51,120

living in one place you also see it in

288

00:16:56,830 --> 00:16:53,880

our changes to the surface where we've

289

00:16:59,210 --> 00:16:56,840

cut down all the trees or where we have

290

00:17:01,850 --> 00:16:59,220

rapidly changed what was natural

291

00:17:05,600 --> 00:17:01,860

so the aral sea has dried up and lake

292

00:17:07,160 --> 00:17:05,610

chad has dried up and the water level in

293

00:17:08,810 --> 00:17:07,170

the Great Lakes is dropping a little bit

294

00:17:10,970 --> 00:17:08,820

and you can see those things from space

295

00:17:13,970 --> 00:17:10,980

but there's something else to remember

296

00:17:17,360 --> 00:17:13,980

if you look at the world it is huge and

297

00:17:19,370 --> 00:17:17,370

beautiful and ancient the world has been

298

00:17:21,230 --> 00:17:19,380

here for four and a half billion years

299

00:17:23,750 --> 00:17:21,240

we've only been here for the blink of an

300

00:17:26,449 --> 00:17:23,760

eye we tend to think we're really really

301  
00:17:28,940 --> 00:17:26,459  
important but we were only important

302  
00:17:30,860 --> 00:17:28,950  
when we look in the mirror the world has

303  
00:17:32,690 --> 00:17:30,870  
endured some incredible cataclysmic

304  
00:17:36,320 --> 00:17:32,700  
things in the past and we're definitely

305  
00:17:37,460 --> 00:17:36,330  
not always doing it good but there's a

306  
00:17:39,920 --> 00:17:37,470  
lot of the world that is still in

307  
00:17:42,280 --> 00:17:39,930  
pristine condition so we can do better

308  
00:17:44,690 --> 00:17:42,290  
we need to do better but don't despair

309  
00:17:46,340 --> 00:17:44,700  
there's still a huge amount of resource

310  
00:17:53,900 --> 00:17:46,350  
in our planet we just need to take

311  
00:17:56,130 --> 00:17:53,910  
better care of it thank you

312  
00:17:58,530 --> 00:17:56,140  
thank you very much commander Hatfield

313  
00:17:59,610 --> 00:17:58,540

unfortunately run out of time if you

314

00:18:00,930 --> 00:17:59,620

don't mind give us a shout-out on

315

00:18:02,160 --> 00:18:00,940

Twitter I'm sure we're all following you

316

00:18:03,990 --> 00:18:02,170

on Twitter all the pictures that you

317

00:18:07,730 --> 00:18:04,000

graders are excellent thank you so much

318

00:18:16,320 --> 00:18:07,740

and have a great journey back on May 13

319

00:18:18,680 --> 00:18:16,330

you want to say thank you very much and

320

00:18:21,000 --> 00:18:18,690

congratulations again to the winners and

321

00:18:24,270 --> 00:18:21,010

station this is Houston ACR that

322

00:18:25,800 --> 00:18:24,280

concludes the event thank you you lost

323

00:18:27,270 --> 00:18:25,810

you High School Station we are now