

Google+



1
00:00:03,830 --> 00:00:02,550
hi everyone my name is city and i'm a

2
00:00:05,190 --> 00:00:03,840
rising 8th grader from wayne

3
00:00:07,269 --> 00:00:05,200
pennsylvania

4
00:00:09,190 --> 00:00:07,279
last year i was a part of nasa girls

5
00:00:10,310 --> 00:00:09,200
program where nasa provides a mentor to

6
00:00:12,629 --> 00:00:10,320
work with me

7
00:00:14,870 --> 00:00:12,639
my sister and i had the chance to to do

8
00:00:17,349 --> 00:00:14,880
different activities with nasa engineer

9
00:00:19,269 --> 00:00:17,359
and i was really inspired by it i am so

10
00:00:21,029 --> 00:00:19,279
excited to moderate this panel today so

11
00:00:23,590 --> 00:00:21,039
let me tell you who we have with us to

12
00:00:26,070 --> 00:00:23,600
celebrate the legacy of dr sally ride

13
00:00:27,509 --> 00:00:26,080

the first american woman in face

14

00:00:29,669 --> 00:00:27,519

when i see your name please take a

15

00:00:32,389 --> 00:00:29,679

moment to introduce yourself

16

00:00:37,750 --> 00:00:32,399

dr karen flammer co-founder of sally

17

00:00:41,190 --> 00:00:38,709

hi

18

00:00:45,270 --> 00:00:41,200

my name is karen flammer i'm honored to

19

00:00:50,389 --> 00:00:47,110

miss lori garver the deputy

20

00:00:52,869 --> 00:00:50,399

administrator of nasa

21

00:00:56,069 --> 00:00:52,879

hi everybody i'm lori garver deputy

22

00:00:58,709 --> 00:00:56,079

administrator of nasa and i am here

23

00:01:01,270 --> 00:00:58,719

because of sally in so many ways so it's

24

00:01:03,670 --> 00:01:01,280

an honor to participate

25

00:01:06,149 --> 00:01:03,680

dr katie coleman nasa astronaut and

26

00:01:08,469 --> 00:01:06,159

chemist

27

00:01:10,230 --> 00:01:08,479

well meeting sally inspired me to be an

28

00:01:12,950 --> 00:01:10,240

astronaut so there's no place i'd rather

29

00:01:16,149 --> 00:01:12,960

be today

30

00:01:19,670 --> 00:01:16,159

dr amber strawn nasa astrophysicist and

31

00:01:21,510 --> 00:01:19,680

james webb space telescope scientist

32

00:01:23,109 --> 00:01:21,520

hi i'm so glad to be with all of you

33

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

today i'm really honored to be on this

34

00:01:27,030 --> 00:01:24,960

panel and excited to talk about some of

35

00:01:29,749 --> 00:01:27,040

the influence that sally's had in my

36

00:01:33,270 --> 00:01:29,759

life and in all of our lives

37

00:01:35,749 --> 00:01:33,280

and dr mumta patel nagaraj international

38

00:01:38,630 --> 00:01:35,759

space station engineer and scientist and

39

00:01:40,789 --> 00:01:38,640

woman at nasa project manager

40

00:01:42,789 --> 00:01:40,799

hi i too just like the the rest of the

41

00:01:45,510 --> 00:01:42,799

panel i'm excited to be here i grew up

42

00:01:46,630 --> 00:01:45,520

admiring dr sally wright and i can't

43

00:01:48,310 --> 00:01:46,640

wait to have this discussion with

44

00:01:50,389 --> 00:01:48,320

everybody

45

00:01:52,310 --> 00:01:50,399

thank you ladies for being here with us

46

00:01:54,310 --> 00:01:52,320

today and i'm so excited to have a

47

00:01:57,749 --> 00:01:54,320

conversation with you about science

48

00:02:00,149 --> 00:01:57,759

technology engineering and math or stem

49

00:02:01,990 --> 00:02:00,159

before we begin let me remind our online

50

00:02:03,670 --> 00:02:02,000

audience that you can send questions

51

00:02:06,870 --> 00:02:03,680

using the twitter hashtags

52

00:02:09,029 --> 00:02:06,880

celebratesally and askness

53

00:02:10,710 --> 00:02:09,039

ok so let me start with a question for

54

00:02:13,030 --> 00:02:10,720

anyone on the panel

55

00:02:18,309 --> 00:02:13,040

did dr ride influence any of you when

56

00:02:22,949 --> 00:02:20,790

i don't know i'll i'll start both katie

57

00:02:26,229 --> 00:02:22,959

and i even even have talked about this

58

00:02:29,030 --> 00:02:26,239

together i was a um in college when

59

00:02:31,509 --> 00:02:29,040

sally flew she was of course dr raj me

60

00:02:33,270 --> 00:02:31,519

then and uh frankly i don't think i

61

00:02:36,550 --> 00:02:33,280

really paid attention to the space

62

00:02:39,190 --> 00:02:36,560

shuttle program until sts-7 uh so she

63

00:02:41,190 --> 00:02:39,200

had a great influence uh on me and then

64

00:02:44,790 --> 00:02:41,200

throughout my career because i got to

65

00:02:46,790 --> 00:02:44,800

know her served with her uh in really

66

00:02:49,110 --> 00:02:46,800

advancing the

67

00:02:52,150 --> 00:02:49,120

space program that we

68

00:02:54,790 --> 00:02:52,160

are participating in today she shaped

69

00:02:57,910 --> 00:02:54,800

my life in this program she was someone

70

00:03:00,149 --> 00:02:57,920

who saw both the importance and value of

71

00:03:02,949 --> 00:03:00,159

space for looking out as well as looking

72

00:03:05,270 --> 00:03:02,959

back at our fragile planet and

73

00:03:07,350 --> 00:03:05,280

she moved i think the program in a

74

00:03:10,470 --> 00:03:07,360

direction that is providing the very

75

00:03:14,710 --> 00:03:10,480

best value uh to the american taxpayer

76

00:03:19,350 --> 00:03:16,869

okay

77

00:03:21,350 --> 00:03:19,360

dr flammer as one of the founders of

78

00:03:23,190 --> 00:03:21,360

sally riot science would you mind

79

00:03:25,990 --> 00:03:23,200

telling us about your inspiration of

80

00:03:28,789 --> 00:03:26,000

starting the organization

81

00:03:32,309 --> 00:03:28,799

uh definitely so um you know sally's

82

00:03:34,149 --> 00:03:32,319

done so many things in her life and i

83

00:03:36,789 --> 00:03:34,159

first met her we were both female

84

00:03:39,430 --> 00:03:36,799

physicists at ucsd

85

00:03:41,990 --> 00:03:39,440

and she had just started the educational

86

00:03:45,430 --> 00:03:42,000

outreach program which i still run today

87

00:03:49,589 --> 00:03:45,440

called now named sally ride earth cam

88

00:03:52,789 --> 00:03:49,599

and um working with her on earth cam

89

00:03:55,110 --> 00:03:52,799

changed my career path i was doing um

90

00:03:56,550 --> 00:03:55,120

theoretical research in space physics

91

00:03:58,229 --> 00:03:56,560

and all of a sudden

92

00:03:59,990 --> 00:03:58,239

sally

93

00:04:01,509 --> 00:04:00,000

just started earthkam and we started

94

00:04:03,750 --> 00:04:01,519

reaching out to middle school students

95

00:04:05,190 --> 00:04:03,760

and seeing how we could engage them in

96

00:04:06,949 --> 00:04:05,200

stem

97

00:04:09,110 --> 00:04:06,959

through this incredible opportunity of

98

00:04:10,949 --> 00:04:09,120

taking pictures of our earth from the

99

00:04:14,550 --> 00:04:10,959

earthcam digital camera now on the space

100

00:04:16,949 --> 00:04:14,560

station and it really gave sally the

101
00:04:20,069 --> 00:04:16,959
motivation and the idea to for us to

102
00:04:23,590 --> 00:04:20,079
start our own science education company

103
00:04:26,230 --> 00:04:23,600
sally ride science and um use our

104
00:04:28,629 --> 00:04:26,240
background as scientists and

105
00:04:30,950 --> 00:04:28,639
our experience and our paths to getting

106
00:04:32,710 --> 00:04:30,960
to our careers to try to really figure

107
00:04:35,110 --> 00:04:32,720
out a way to just broaden that

108
00:04:38,390 --> 00:04:35,120
experience and reach all students and

109
00:04:40,230 --> 00:04:38,400
particularly girls and provide resources

110
00:04:43,590 --> 00:04:40,240
um curriculum

111
00:04:46,150 --> 00:04:43,600
tools and products to let students know

112
00:04:47,350 --> 00:04:46,160
um and particularly girls that stem

113
00:04:50,870 --> 00:04:47,360

careers

114

00:04:53,350 --> 00:04:50,880

are available to all students and i'm

115

00:04:55,270 --> 00:04:53,360

i'm just so proud that sally with

116

00:04:57,430 --> 00:04:55,280

sally's efforts that sally ride science

117

00:04:59,350 --> 00:04:57,440

has turned into a

118

00:05:02,310 --> 00:04:59,360

very strong

119

00:05:05,670 --> 00:05:02,320

organization that continues to reach

120

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

teachers and and parents and students

121

00:05:10,390 --> 00:05:07,680

and hopefully we're going to have a huge

122

00:05:14,070 --> 00:05:10,400

impact on improving stem education and

123

00:05:16,629 --> 00:05:14,080

widening the pipeline into stem careers

124

00:05:18,150 --> 00:05:16,639

so how many schools have you been at so

125

00:05:20,629 --> 00:05:18,160

far

126

00:05:23,590 --> 00:05:20,639

so the the the numbers we've through all

127

00:05:26,950 --> 00:05:23,600

of our teacher training we we've

128

00:05:29,990 --> 00:05:26,960

actually now we've trained probably uh

129

00:05:31,590 --> 00:05:30,000

tens of thousands of teachers on

130

00:05:34,070 --> 00:05:31,600

um

131

00:05:36,550 --> 00:05:34,080

ways we think we can help teachers

132

00:05:39,830 --> 00:05:36,560

engage and ignite students interests in

133

00:05:42,710 --> 00:05:39,840

both stem and stem careers and that

134

00:05:43,990 --> 00:05:42,720

really translates into we've we've

135

00:05:46,550 --> 00:05:44,000

touched

136

00:05:48,950 --> 00:05:46,560

over a million students and the other

137

00:05:53,270 --> 00:05:48,960

programs that we continue to run like

138

00:05:54,629 --> 00:05:53,280

nasa funded iss earth earthkam has also

139

00:05:56,870 --> 00:05:54,639

reached

140

00:05:59,430 --> 00:05:56,880

over a half million

141

00:06:01,909 --> 00:05:59,440

students and we continue to outreach and

142

00:06:03,670 --> 00:06:01,919

grow that program so i mean collectively

143

00:06:06,390 --> 00:06:03,680

when you think of all of the programs

144

00:06:08,469 --> 00:06:06,400

that sally initiated and sally ride

145

00:06:10,870 --> 00:06:08,479

science continues to support

146

00:06:12,710 --> 00:06:10,880

we're reaching millions of students and

147

00:06:14,390 --> 00:06:12,720

some of these students are are not only

148

00:06:17,270 --> 00:06:14,400

in our country but worldwide

149

00:06:19,270 --> 00:06:17,280

particularly through iss or iss sally

150

00:06:22,070 --> 00:06:19,280

ride earth camp

151
00:06:24,629 --> 00:06:22,080
are girls liking this program or is it

152
00:06:27,189 --> 00:06:24,639
just boys or oh yeah no no i mean it's

153
00:06:30,950 --> 00:06:27,199
what whatever whatever uh tools and

154
00:06:32,950 --> 00:06:30,960
resources that we provide um are are

155
00:06:36,230 --> 00:06:32,960
equally useful to girls and boys it's

156
00:06:38,230 --> 00:06:36,240
just that we're paying attention to

157
00:06:40,230 --> 00:06:38,240
we're paying attention that that we need

158
00:06:41,430 --> 00:06:40,240
to get more girls and under-represented

159
00:06:44,309 --> 00:06:41,440
minorities

160
00:06:46,469 --> 00:06:44,319
involved and interested in stem and made

161
00:06:48,950 --> 00:06:46,479
aware of the just the wide variety of

162
00:06:51,350 --> 00:06:48,960
stem careers because we really

163
00:06:55,350 --> 00:06:51,360

need to broaden the pipeline of our

164

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

dr stron i really love the pictures from

165

00:07:01,990 --> 00:07:00,000

the hubble telescope can you tell us

166

00:07:04,150 --> 00:07:02,000

more about the james webb telescope that

167

00:07:06,230 --> 00:07:04,160

will replace it

168

00:07:08,870 --> 00:07:06,240

sure well first of all we like to say

169

00:07:10,469 --> 00:07:08,880

that instead of being a replacement

170

00:07:12,469 --> 00:07:10,479

for hubble the web is going to be the

171

00:07:14,710 --> 00:07:12,479

successor to hubble so we're really

172

00:07:16,629 --> 00:07:14,720

building the james webb space telescope

173

00:07:18,710 --> 00:07:16,639

to answer the big science questions that

174

00:07:20,390 --> 00:07:18,720

hubble just can't quite answer

175

00:07:22,870 --> 00:07:20,400

of course hubble's been amazing it's

176
00:07:25,830 --> 00:07:22,880
been in space over 20 years now so it's

177
00:07:28,230 --> 00:07:25,840
doing a great job and we all love hubble

178
00:07:30,230 --> 00:07:28,240
my own research i study star formation

179
00:07:32,230 --> 00:07:30,240
in distant galaxies and most of my

180
00:07:34,629 --> 00:07:32,240
research that i do is done with data

181
00:07:36,309 --> 00:07:34,639
from hubble because it's so amazing but

182
00:07:38,550 --> 00:07:36,319
the web telescope is going to be about a

183
00:07:41,270 --> 00:07:38,560
hundred times more powerful and a

184
00:07:42,950 --> 00:07:41,280
hundred times more awesome at least so

185
00:07:44,629 --> 00:07:42,960
we're really excited about the really

186
00:07:46,309 --> 00:07:44,639
great things we're going to discover

187
00:07:48,309 --> 00:07:46,319
with webb we're going to discover things

188
00:07:49,990 --> 00:07:48,319

like the very first galaxies that were

189

00:07:52,150 --> 00:07:50,000

born in the universe we're going to

190

00:07:54,390 --> 00:07:52,160

learn about how galaxies and black holes

191

00:07:56,230 --> 00:07:54,400

form and change over time we'll learn

192

00:07:58,469 --> 00:07:56,240

about how stars are born and we'll also

193

00:08:00,469 --> 00:07:58,479

learn a lot about exoplanets planets

194

00:08:02,629 --> 00:08:00,479

orbiting other stars outside of our

195

00:08:04,390 --> 00:08:02,639

solar system so we're really really

196

00:08:06,710 --> 00:08:04,400

excited about the awesome science we're

197

00:08:08,230 --> 00:08:06,720

going to get to do with web and the

198

00:08:09,430 --> 00:08:08,240

engineering that goes behind it is

199

00:08:11,110 --> 00:08:09,440

amazing

200

00:08:12,950 --> 00:08:11,120

this telescope will be by far the

201
00:08:15,670 --> 00:08:12,960
biggest telescope nasa's ever put into

202
00:08:18,629 --> 00:08:15,680
space it's one of nasa's top three

203
00:08:20,710 --> 00:08:18,639
overall priorities so it's a big deal

204
00:08:22,390 --> 00:08:20,720
and it's a big telescope and it's really

205
00:08:23,830 --> 00:08:22,400
such such an honor to be able to work on

206
00:08:25,909 --> 00:08:23,840
such a fun mission

207
00:08:28,390 --> 00:08:25,919
and uh from the perspective of the

208
00:08:30,070 --> 00:08:28,400
influence of sally ride um

209
00:08:31,830 --> 00:08:30,080
you know i believe i was i was a pretty

210
00:08:34,949 --> 00:08:31,840
young kid when she uh went on her first

211
00:08:37,589 --> 00:08:34,959
space flight so um for me i i feel like

212
00:08:39,829 --> 00:08:37,599
she and others like her have really set

213
00:08:40,790 --> 00:08:39,839

the stage and those pioneers have

214

00:08:43,029 --> 00:08:40,800

allowed

215

00:08:45,030 --> 00:08:43,039

women like myself to really be able to

216

00:08:46,870 --> 00:08:45,040

to uh to become an astronomer and

217

00:08:48,710 --> 00:08:46,880

astrophysicist that i am and to be able

218

00:08:52,230 --> 00:08:48,720

to take advantage of some of those great

219

00:08:53,269 --> 00:08:52,240

opportunities that nasa has for women

220

00:08:54,870 --> 00:08:53,279

oh

221

00:08:56,070 --> 00:08:54,880

when do you think the telescope will go

222

00:08:59,350 --> 00:08:56,080

in space

223

00:09:01,910 --> 00:08:59,360

so we are scheduled to launch in 2018 so

224

00:09:04,550 --> 00:09:01,920

uh just about five years away um we're

225

00:09:06,550 --> 00:09:04,560

really busy right now um putting the

226

00:09:08,630 --> 00:09:06,560

pieces of the telescope together and

227

00:09:11,269 --> 00:09:08,640

testing the telescope so actually a lot

228

00:09:13,590 --> 00:09:11,279

of the the telescope has already um been

229

00:09:15,750 --> 00:09:13,600

built and so now we're under the the

230

00:09:17,509 --> 00:09:15,760

major task of putting all of those

231

00:09:19,590 --> 00:09:17,519

pieces of the puzzle together and making

232

00:09:21,190 --> 00:09:19,600

sure everything works before we launch

233

00:09:23,430 --> 00:09:21,200

so we have about five more years a

234

00:09:24,550 --> 00:09:23,440

little over five years to launch and uh

235

00:09:25,750 --> 00:09:24,560

we're really excited about what we're

236

00:09:27,430 --> 00:09:25,760

gonna learn from this awesome new

237

00:09:30,550 --> 00:09:27,440

telescope

238

00:09:32,470 --> 00:09:30,560

and how long i've been working on it

239

00:09:34,150 --> 00:09:32,480

so i've been at um i work at nasa

240

00:09:35,750 --> 00:09:34,160

goddard in maryland and i've been there

241

00:09:38,389 --> 00:09:35,760

about five years it'll be five years

242

00:09:39,990 --> 00:09:38,399

this fall i started out as a postdoc and

243

00:09:42,630 --> 00:09:40,000

then became a full-time nasa employee

244

00:09:45,110 --> 00:09:42,640

just a couple years ago and when i was

245

00:09:45,910 --> 00:09:45,120

doing research as a postdoc kind of full

246

00:09:47,509 --> 00:09:45,920

time

247

00:09:49,590 --> 00:09:47,519

again i was working mostly with data

248

00:09:51,350 --> 00:09:49,600

from hubble um but

249

00:09:53,829 --> 00:09:51,360

all the time when we're working with

250

00:09:56,230 --> 00:09:53,839

with this um with hubble data we're

251

00:09:57,430 --> 00:09:56,240

looking forward um to to what web is

252

00:09:59,670 --> 00:09:57,440

going to be able to do and we're

253

00:10:02,710 --> 00:09:59,680

starting or we started long ago asking

254

00:10:04,550 --> 00:10:02,720

those big questions of of the the big

255

00:10:06,069 --> 00:10:04,560

big questions in astronomy that we can't

256

00:10:08,230 --> 00:10:06,079

answer now that web will be able to

257

00:10:10,870 --> 00:10:08,240

answer so i've only really technically

258

00:10:12,310 --> 00:10:10,880

been working on web for um a few years

259

00:10:14,230 --> 00:10:12,320

but i've been thinking about it for a

260

00:10:16,069 --> 00:10:14,240

long time

261

00:10:18,550 --> 00:10:16,079

it's very cool

262

00:10:21,030 --> 00:10:18,560

dr coleman can you give a few examples

263

00:10:24,710 --> 00:10:21,040

of the science that astronauts do on the

264

00:10:27,750 --> 00:10:25,590

there's

265

00:10:29,670 --> 00:10:27,760

a lot of amazing things um

266

00:10:31,110 --> 00:10:29,680

i guess you know some of the ones that

267

00:10:33,030 --> 00:10:31,120

are easier to see

268

00:10:35,030 --> 00:10:33,040

are experiments that have to do with

269

00:10:37,030 --> 00:10:35,040

like liquids what do liquids really

270

00:10:38,550 --> 00:10:37,040

really want to do we have a lot of

271

00:10:40,710 --> 00:10:38,560

experiments about that because down here

272

00:10:42,470 --> 00:10:40,720

on the ground you know with gravity

273

00:10:43,509 --> 00:10:42,480

basically it overwhelms some of the

274

00:10:47,030 --> 00:10:43,519

smaller

275

00:10:49,190 --> 00:10:47,040

forces that uh that um you know tell

276

00:10:50,870 --> 00:10:49,200

liquids what they're going to do and so

277

00:10:52,230 --> 00:10:50,880

what we do up on the space station is

278

00:10:53,350 --> 00:10:52,240

actually some some experiments that are

279

00:10:55,670 --> 00:10:53,360

simple and some that are pretty

280

00:10:56,949 --> 00:10:55,680

complicated um if we just i mean for a

281

00:10:59,509 --> 00:10:56,959

simple thing if you just you know

282

00:11:00,710 --> 00:10:59,519

squeeze your orange juice bag too tight

283

00:11:02,470 --> 00:11:00,720

and it comes out of your straw you're

284

00:11:04,310 --> 00:11:02,480

going to have a sphere of water or

285

00:11:06,230 --> 00:11:04,320

sphere of orange juice and that's

286

00:11:08,230 --> 00:11:06,240

because surface tension is the dominant

287

00:11:10,550 --> 00:11:08,240

force there well we use that to

288

00:11:12,230 --> 00:11:10,560

understand things like

289

00:11:15,350 --> 00:11:12,240

everything that is manufactured down

290

00:11:17,030 --> 00:11:15,360

here in a factory that involves flow

291

00:11:19,030 --> 00:11:17,040

through a pipe that means you know

292

00:11:21,030 --> 00:11:19,040

making things out of plastic that means

293

00:11:23,269 --> 00:11:21,040

making food that means manufacturing

294

00:11:25,670 --> 00:11:23,279

things that means processing fuel

295

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

everything all those things we need to

296

00:11:30,150 --> 00:11:28,079

understand what do liquids really want

297

00:11:31,750 --> 00:11:30,160

to do and so we go to a microgravity

298

00:11:34,069 --> 00:11:31,760

environment to investigate those little

299

00:11:36,550 --> 00:11:34,079

forces that come into play especially at

300

00:11:39,190 --> 00:11:36,560

the walls and that includes the walls of

301
00:11:42,069 --> 00:11:39,200
like us you know in our veins and the

302
00:11:43,750 --> 00:11:42,079
way liquids interact in our bodies

303
00:11:46,389 --> 00:11:43,760
there's also combustion

304
00:11:48,230 --> 00:11:46,399
understanding um how things burn is a

305
00:11:51,030 --> 00:11:48,240
pretty it's a pretty involved

306
00:11:53,110 --> 00:11:51,040
complicated process it happens really

307
00:11:56,389 --> 00:11:53,120
fast down here on earth because there's

308
00:11:58,310 --> 00:11:56,399
a lot going on you know we have gravity

309
00:12:00,550 --> 00:11:58,320
keeping the heavier things down the

310
00:12:04,150 --> 00:12:00,560
lighter gases which are being produced

311
00:12:05,910 --> 00:12:04,160
rising new fuel is swooping in and so

312
00:12:07,829 --> 00:12:05,920
there's there's a lot going on it's hard

313
00:12:10,389 --> 00:12:07,839

to literally take pictures of or take

314

00:12:13,350 --> 00:12:10,399

data of so up in space where those

315

00:12:16,230 --> 00:12:13,360

lighter things are not going to rise our

316

00:12:18,629 --> 00:12:16,240

candles flames are more spherical our

317

00:12:20,949 --> 00:12:18,639

equations are easier to solve

318

00:12:23,670 --> 00:12:20,959

and we are able to understand things

319

00:12:25,829 --> 00:12:23,680

about how things burn how to burn things

320

00:12:28,710 --> 00:12:25,839

more cleanly how to burn things more

321

00:12:30,389 --> 00:12:28,720

effectively how pollution is formed not

322

00:12:32,470 --> 00:12:30,399

formed so that's just some of the

323

00:12:34,550 --> 00:12:32,480

physical things and then if i start into

324

00:12:36,470 --> 00:12:34,560

what happens to us up there

325

00:12:39,110 --> 00:12:36,480

it's not just about how to live in space

326

00:12:41,190 --> 00:12:39,120

but it's about how to live down here

327

00:12:44,389 --> 00:12:41,200

because i don't have gravity up there or

328

00:12:47,350 --> 00:12:44,399

not much i lose bone and muscle

329

00:12:50,230 --> 00:12:47,360

about 10 times faster than a woman who's

330

00:12:52,150 --> 00:12:50,240

70 years old that has osteoporosis

331

00:12:53,590 --> 00:12:52,160

so i would come home after a six month

332

00:12:56,790 --> 00:12:53,600

or a year mission like a piece of

333

00:12:58,949 --> 00:12:56,800

spaghetti if i didn't do some things to

334

00:12:59,990 --> 00:12:58,959

to stay to keep strong bones and strong

335

00:13:01,829 --> 00:13:00,000

muscles

336

00:13:02,949 --> 00:13:01,839

and it turns out that the lessons that

337

00:13:05,030 --> 00:13:02,959

we learn

338

00:13:07,269 --> 00:13:05,040

because they happen so fast up there

339

00:13:09,430 --> 00:13:07,279

that process happens so fast up there it

340

00:13:11,670 --> 00:13:09,440

makes it easier to study

341

00:13:14,629 --> 00:13:11,680

so literally by taking blood samples and

342

00:13:16,949 --> 00:13:14,639

urine samples and saying okay katie eat

343

00:13:19,590 --> 00:13:16,959

these things okay now this week eat

344

00:13:20,389 --> 00:13:19,600

these things we can see the effect of

345

00:13:22,389 --> 00:13:20,399

diet

346

00:13:24,710 --> 00:13:22,399

on our bone health whether bone is

347

00:13:26,150 --> 00:13:24,720

growing or dissolving

348

00:13:28,870 --> 00:13:26,160

we can look at the effects of different

349

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

kinds of exercise and all those lessons

350

00:13:31,750 --> 00:13:29,920

that we're learning i mean they

351

00:13:34,310 --> 00:13:31,760

certainly helped me i can only talk

352

00:13:36,790 --> 00:13:34,320

about my own experimental data but i

353

00:13:39,430 --> 00:13:36,800

actually came back to earth with all the

354

00:13:41,829 --> 00:13:39,440

bone and muscle that i left with

355

00:13:43,670 --> 00:13:41,839

it's not probably the same and that

356

00:13:45,189 --> 00:13:43,680

muscle and bone are probably rebuilt and

357

00:13:47,750 --> 00:13:45,199

we're still doing experiments to

358

00:13:50,790 --> 00:13:47,760

understand how that might be different

359

00:13:53,110 --> 00:13:50,800

but i came back with all with with a lot

360

00:13:55,350 --> 00:13:53,120

more bone and muscle than astronauts um

361

00:13:57,030 --> 00:13:55,360

used to do and in fact my crewmates it's

362

00:13:58,870 --> 00:13:57,040

happening to them too

363

00:14:00,949 --> 00:13:58,880

and that means that we're understanding

364

00:14:03,430 --> 00:14:00,959

how to keep people strong when they're

365

00:14:05,990 --> 00:14:03,440

older as well so lots of lessons about

366

00:14:07,990 --> 00:14:06,000

the body lots of lessons about physics

367

00:14:19,509 --> 00:14:08,000

and it's it's an amazing laboratory the

368

00:14:27,430 --> 00:14:21,829

uh were you nervous when you first went

369

00:14:31,590 --> 00:14:29,910

i i tell people you know not exactly

370

00:14:33,829 --> 00:14:31,600

nervous because you've been trained to

371

00:14:34,790 --> 00:14:33,839

do a job and you're thinking about that

372

00:14:35,750 --> 00:14:34,800

job

373

00:14:38,710 --> 00:14:35,760

and

374

00:14:39,990 --> 00:14:38,720

as a human being you know in terms of

375

00:14:40,870 --> 00:14:40,000

launching

376

00:14:43,350 --> 00:14:40,880

just

377

00:14:44,949 --> 00:14:43,360

so excited and even though

378

00:14:46,629 --> 00:14:44,959

you know it's going to happen you know

379

00:14:48,230 --> 00:14:46,639

you climb into that rocket just like you

380

00:14:49,829 --> 00:14:48,240

have in practice and you do all the

381

00:14:51,750 --> 00:14:49,839

things in practice and you know what

382

00:14:54,870 --> 00:14:51,760

time those engines are going to light

383

00:14:57,189 --> 00:14:54,880

when it really happens it's so clear

384

00:14:59,590 --> 00:14:57,199

that it's a pretty amazing thing when

385

00:15:01,910 --> 00:14:59,600

people leave the planet it takes a whole

386

00:15:04,389 --> 00:15:01,920

team of people on the ground to to get

387

00:15:06,310 --> 00:15:04,399

that all to happen and it's an amazing

388

00:15:08,470 --> 00:15:06,320

thing i was just really excited i'll

389

00:15:10,230 --> 00:15:08,480

tell you what i do worry about up when

390

00:15:12,389 --> 00:15:10,240

i'm up in space or just when i'm doing

391

00:15:14,710 --> 00:15:12,399

my job in general is

392

00:15:16,790 --> 00:15:14,720

i worry about making a mistake

393

00:15:18,470 --> 00:15:16,800

i mean we're all human and yet i feel

394

00:15:20,949 --> 00:15:18,480

like i have this important job where i'm

395

00:15:23,910 --> 00:15:20,959

responsible for doing my best and i was

396

00:15:26,310 --> 00:15:23,920

in in fact responsible for catching the

397

00:15:28,230 --> 00:15:26,320

htv supply ship with the robotic arm the

398

00:15:29,829 --> 00:15:28,240

second time we'd ever done that i was

399

00:15:31,509 --> 00:15:29,839

responsible for launching the chandra

400

00:15:32,790 --> 00:15:31,519

x-ray observatory

401
00:15:35,509 --> 00:15:32,800
you know it's like the the webb

402
00:15:37,350 --> 00:15:35,519
telescope where you know

403
00:15:39,990 --> 00:15:37,360
hearing it described earlier it actually

404
00:15:41,590 --> 00:15:40,000
brings back to me what we all felt about

405
00:15:43,350 --> 00:15:41,600
being part of something so big and

406
00:15:45,189 --> 00:15:43,360
important and you don't want to be the

407
00:15:47,110 --> 00:15:45,199
person that messes it up

408
00:15:49,430 --> 00:15:47,120
and the only way that i deal with that

409
00:15:51,350 --> 00:15:49,440
kind of let's call it fear

410
00:15:53,269 --> 00:15:51,360
is i just have to know that i did all

411
00:15:56,230 --> 00:15:53,279
the preparation that i could

412
00:15:59,030 --> 00:15:56,240
that i did all my practicing and that i

413
00:16:01,749 --> 00:15:59,040

was ready as ready as i could as i could

414

00:16:03,749 --> 00:16:01,759

be and ready to do my best and that's

415

00:16:08,069 --> 00:16:03,759

how i get that kind of fear behind me

416

00:16:12,870 --> 00:16:10,150

for miss garber you're the deputy

417

00:16:15,350 --> 00:16:12,880

administrator for nasa do you have a

418

00:16:19,749 --> 00:16:15,360

stem background and can girls in other

419

00:16:24,949 --> 00:16:22,870

i do not in fact have a stem background

420

00:16:27,590 --> 00:16:24,959

my undergraduate degree is in political

421

00:16:30,230 --> 00:16:27,600

science and economics masters in science

422

00:16:32,150 --> 00:16:30,240

technology and public policy so i am a

423

00:16:35,189 --> 00:16:32,160

living example that if you are a

424

00:16:37,189 --> 00:16:35,199

non-stem person there are many careers

425

00:16:39,910 --> 00:16:37,199

for you at nasa

426

00:16:41,269 --> 00:16:39,920

in addition to those that i was involved

427

00:16:44,230 --> 00:16:41,279

in many

428

00:16:45,990 --> 00:16:44,240

educators work at nasa we have

429

00:16:48,150 --> 00:16:46,000

government affairs specialists

430

00:16:50,870 --> 00:16:48,160

communications people the folks who are

431

00:16:53,590 --> 00:16:50,880

really helping us with this uh google

432

00:16:56,470 --> 00:16:53,600

hangout now uh professionals in their

433

00:16:57,670 --> 00:16:56,480

fields who i would say what what we all

434

00:16:58,710 --> 00:16:57,680

share is

435

00:17:01,910 --> 00:16:58,720

of course

436

00:17:03,990 --> 00:17:01,920

a love of a challenge in doing things

437

00:17:04,870 --> 00:17:04,000

that have not been done before and doing

438

00:17:07,110 --> 00:17:04,880

them

439

00:17:08,870 --> 00:17:07,120

in a way that provides real benefit back

440

00:17:11,829 --> 00:17:08,880

here on earth

441

00:17:14,630 --> 00:17:11,839

as a public agency we spend the

442

00:17:16,309 --> 00:17:14,640

taxpayers dollars so i have

443

00:17:18,470 --> 00:17:16,319

really been able to utilize my

444

00:17:21,029 --> 00:17:18,480

background in economics and political

445

00:17:22,069 --> 00:17:21,039

science and public policy in a way that

446

00:17:23,429 --> 00:17:22,079

hopefully

447

00:17:26,150 --> 00:17:23,439

can

448

00:17:28,870 --> 00:17:26,160

best manage an agency that is stewards

449

00:17:31,110 --> 00:17:28,880

of nearly 18 billion dollars of public

450

00:17:33,590 --> 00:17:31,120

dollars working with congress working

451

00:17:35,430 --> 00:17:33,600

with the president and the rest of his

452

00:17:37,750 --> 00:17:35,440

leadership team in the white house so

453

00:17:39,430 --> 00:17:37,760

that they understand the value of what

454

00:17:40,789 --> 00:17:39,440

we're doing at nasa

455

00:17:42,390 --> 00:17:40,799

one of the reasons though that i can do

456

00:17:44,549 --> 00:17:42,400

my job is because we have these

457

00:17:47,590 --> 00:17:44,559

unbelievable professionals in the stem

458

00:17:50,870 --> 00:17:47,600

fields who are able to explain the

459

00:17:52,230 --> 00:17:50,880

technical details uh to us in a way that

460

00:17:53,990 --> 00:17:52,240

we will be able to convey that

461

00:17:56,310 --> 00:17:54,000

information to folks who need to know to

462

00:17:59,750 --> 00:17:56,320

make decisions about how we spend uh the

463

00:18:01,830 --> 00:17:59,760

country's resources and uh it is a

464

00:18:03,750 --> 00:18:01,840

privilege to work with them so i i

465

00:18:05,990 --> 00:18:03,760

really encourage people to go into stem

466

00:18:07,510 --> 00:18:06,000

fields because the preponderance of

467

00:18:11,190 --> 00:18:07,520

people who work here have stem

468

00:18:12,470 --> 00:18:11,200

backgrounds but if your passion is uh

469

00:18:16,870 --> 00:18:12,480

space law

470

00:18:18,789 --> 00:18:16,880

you can have a place at nasa as well

471

00:18:21,029 --> 00:18:18,799

for everyone on the panel

472

00:18:23,270 --> 00:18:21,039

how may have you watched sally's sally

473

00:18:30,150 --> 00:18:23,280

ride's first flight and do you remember

474

00:18:34,549 --> 00:18:32,390

well i'll start i already mentioned uh

475

00:18:35,990 --> 00:18:34,559

where i was i remember where i was there

476

00:18:38,789 --> 00:18:36,000

were several of us who might have

477

00:18:40,710 --> 00:18:38,799

skipped class in college to see her

478

00:18:42,070 --> 00:18:40,720

launch and in particular i remember her

479

00:18:44,390 --> 00:18:42,080

landing because of course with the space

480

00:18:47,909 --> 00:18:44,400

shuttle landings were a very special

481

00:18:51,830 --> 00:18:47,919

thing and being able to see uh her

482

00:18:53,909 --> 00:18:51,840

uh walk off the space shuttle was uh

483

00:18:55,430 --> 00:18:53,919

is something i remember to this day now

484

00:18:58,230 --> 00:18:55,440

of course being able to work with her

485

00:19:00,630 --> 00:18:58,240

later became probably cemented

486

00:19:03,510 --> 00:19:00,640

those memories but knowing

487

00:19:04,950 --> 00:19:03,520

where i was at that age while

488

00:19:07,990 --> 00:19:04,960

she was in space was something that

489

00:19:14,950 --> 00:19:11,430

um i'd like to add that um i was i had

490

00:19:16,070 --> 00:19:14,960

just started a uh a phd program in

491

00:19:17,590 --> 00:19:16,080

physics

492

00:19:20,549 --> 00:19:17,600

at the university of california san

493

00:19:23,430 --> 00:19:20,559

diego um during sally's first flight and

494

00:19:27,350 --> 00:19:23,440

sally was not ended up there years later

495

00:19:30,150 --> 00:19:27,360

but i just remember thinking that um i

496

00:19:32,789 --> 00:19:30,160

just needed to meet that woman someday i

497

00:19:35,909 --> 00:19:32,799

um and it's just um still

498

00:19:38,630 --> 00:19:35,919

um i'm so grateful that i did end up she

499

00:19:40,710 --> 00:19:38,640

ended up coming to ucsd and i did end up

500

00:19:42,950 --> 00:19:40,720

working with her and forming a company

501
00:19:44,549 --> 00:19:42,960
company with her and

502
00:19:46,150 --> 00:19:44,559
as i mentioned earlier it really did

503
00:19:48,230 --> 00:19:46,160
change my

504
00:19:50,310 --> 00:19:48,240
focus and now

505
00:19:53,909 --> 00:19:50,320
you know my my passion for stem

506
00:19:55,350 --> 00:19:53,919
education but it really um again seeing

507
00:19:56,470 --> 00:19:55,360
seeing somebody

508
00:19:58,470 --> 00:19:56,480
um

509
00:20:00,470 --> 00:19:58,480
in my mind too not only

510
00:20:03,029 --> 00:20:00,480
be a hero and be the first american

511
00:20:05,350 --> 00:20:03,039
woman to go into space but it was also

512
00:20:08,310 --> 00:20:05,360
the way that she did it and the way that

513
00:20:09,909 --> 00:20:08,320

she handled herself um and you it you

514

00:20:11,990 --> 00:20:09,919

could just

515

00:20:14,630 --> 00:20:12,000

tell even from afar not knowing her

516

00:20:16,789 --> 00:20:14,640

personally that she that she was gonna

517

00:20:18,789 --> 00:20:16,799

make a difference um

518

00:20:22,470 --> 00:20:18,799

in in pretty much everything that she

519

00:20:25,750 --> 00:20:24,549

for dr katie coleman

520

00:20:30,630 --> 00:20:25,760

how

521

00:20:34,390 --> 00:20:32,789

the exact number i think they're you

522

00:20:35,990 --> 00:20:34,400

know i don't i'm not a good sort of

523

00:20:39,270 --> 00:20:36,000

exact number person i want to say and

524

00:20:41,350 --> 00:20:39,280

maybe dr graver can help me out uh 53

525

00:20:42,710 --> 00:20:41,360

that there's ever been something i think

526

00:20:44,789 --> 00:20:42,720

that's pretty close but i'm going to

527

00:20:46,950 --> 00:20:44,799

tell you that we're uh four more than we

528

00:20:48,950 --> 00:20:46,960

had a month ago with our most recent

529

00:20:51,190 --> 00:20:48,960

announcement and i know specifically

530

00:20:53,110 --> 00:20:51,200

they are not astronauts yet uh in fact

531

00:20:55,830 --> 00:20:53,120

we still call them as cans as an

532

00:20:57,750 --> 00:20:55,840

astronaut candidates uh but it was very

533

00:20:58,630 --> 00:20:57,760

exciting to be able to for the first

534

00:21:01,110 --> 00:20:58,640

time

535

00:21:03,990 --> 00:21:01,120

have a new astronaut class that there's

536

00:21:05,909 --> 00:21:04,000

fully representative of uh females in

537

00:21:08,710 --> 00:21:05,919

the population so out of eight

538

00:21:09,990 --> 00:21:08,720

astronauts candidates for being women

539

00:21:11,669 --> 00:21:10,000

but i think that's right it's it's the

540

00:21:13,430 --> 00:21:11,679

low 50s

541

00:21:17,190 --> 00:21:13,440

and you know whenever the other part of

542

00:21:20,470 --> 00:21:17,200

my answer is i would say not enough okay

543

00:21:22,630 --> 00:21:20,480

you know basically in my job i mean we

544

00:21:24,390 --> 00:21:22,640

have these teams of people and and i

545

00:21:26,470 --> 00:21:24,400

would say the majority of them are often

546

00:21:28,789 --> 00:21:26,480

men and that's probably true for all of

547

00:21:31,750 --> 00:21:28,799

us here on the panel and it's why we're

548

00:21:34,230 --> 00:21:31,760

here with ucd and you know it's because

549

00:21:36,070 --> 00:21:34,240

basically you know until i met sally i

550

00:21:38,549 --> 00:21:36,080

had this impression of what being an

551

00:21:40,070 --> 00:21:38,559

astronaut was like and and i still see

552

00:21:41,430 --> 00:21:40,080

this picture around the johnson space

553

00:21:42,870 --> 00:21:41,440

center and it's the seven original

554

00:21:45,430 --> 00:21:42,880

astronauts standing in front of a

555

00:21:48,789 --> 00:21:45,440

fighter plane and nothing in that

556

00:21:51,029 --> 00:21:48,799

picture makes me think it could be me

557

00:21:53,430 --> 00:21:51,039

and i met sally ride when i was in

558

00:21:55,029 --> 00:21:53,440

college i went to a lecture i shook her

559

00:21:56,710 --> 00:21:55,039

hand she doesn't remember you know we've

560

00:21:58,310 --> 00:21:56,720

both talked about this

561

00:22:00,390 --> 00:21:58,320

and so it wasn't actually the

562

00:22:01,990 --> 00:22:00,400

conversation that we had it was the fact

563

00:22:04,230 --> 00:22:02,000

that i could see her across an

564

00:22:06,630 --> 00:22:04,240

auditorium and realized that

565

00:22:07,590 --> 00:22:06,640

this was something that i could aspire

566

00:22:08,390 --> 00:22:07,600

to

567

00:22:11,110 --> 00:22:08,400

and

568

00:22:13,830 --> 00:22:11,120

that's it's still very necessary in all

569

00:22:17,430 --> 00:22:13,840

these careers that we talk about in stem

570

00:22:19,190 --> 00:22:17,440

still a lot more guys than women and

571

00:22:22,390 --> 00:22:19,200

sometimes the skills that women

572

00:22:25,510 --> 00:22:22,400

stereotypically bring i think are

573

00:22:27,750 --> 00:22:25,520

i'll say underappreciated or in maybe

574

00:22:30,070 --> 00:22:27,760

underutilized in that stereotypically we

575

00:22:32,470 --> 00:22:30,080

do do actually bring some some great

576

00:22:34,549 --> 00:22:32,480

team facilitation skills i'll never

577

00:22:36,390 --> 00:22:34,559

forget eileen collins said we used to do

578

00:22:37,990 --> 00:22:36,400

northern national outdoor leadership

579

00:22:39,830 --> 00:22:38,000

training you know go out in the woods

580

00:22:41,590 --> 00:22:39,840

and learn things with our crews which is

581

00:22:43,590 --> 00:22:41,600

very valuable she said what is this

582

00:22:47,110 --> 00:22:43,600

outdoor leadership what about indoor

583

00:22:48,470 --> 00:22:47,120

leadership i show that every single day

584

00:22:50,630 --> 00:22:48,480

you know so there's a lot of skills that

585

00:22:52,630 --> 00:22:50,640

women bring and and i think it's just

586

00:22:54,950 --> 00:22:52,640

it's good to be a face out there so that

587

00:22:56,549 --> 00:22:54,960

the girls like yourself and girls like

588

00:22:58,870 --> 00:22:56,559

yourself standing up is really important

589

00:23:00,870 --> 00:22:58,880

too realize that there's a lot of things

590

00:23:02,789 --> 00:23:00,880

to do in the world and we need to be

591

00:23:04,470 --> 00:23:02,799

doing them and we need all of our girls

592

00:23:07,510 --> 00:23:04,480

doing them as well

593

00:23:09,110 --> 00:23:07,520

you know katie you're reminding me uh so

594

00:23:11,750 --> 00:23:09,120

with the earlier question that cynthia

595

00:23:15,350 --> 00:23:11,760

asked us i'm too young to have actually

596

00:23:17,430 --> 00:23:15,360

watched um dr ryan have launched but my

597

00:23:19,430 --> 00:23:17,440

sister who's older than i am i always

598

00:23:22,549 --> 00:23:19,440

credit her with spurring that interest

599

00:23:24,310 --> 00:23:22,559

in science and math in me and she was

600

00:23:25,590 --> 00:23:24,320

just at that age where she could

601
00:23:27,750 --> 00:23:25,600
remember

602
00:23:29,430 --> 00:23:27,760
sally going up into space and i don't

603
00:23:32,230 --> 00:23:29,440
and she never met her and there was no

604
00:23:34,789 --> 00:23:32,240
direct contact with dr right but i think

605
00:23:38,149 --> 00:23:34,799
it was just that image that all of a

606
00:23:40,549 --> 00:23:38,159
sudden the opportunity to go into space

607
00:23:42,789 --> 00:23:40,559
was available to women i think that's

608
00:23:44,789 --> 00:23:42,799
really what made the difference the the

609
00:23:45,590 --> 00:23:44,799
progress that nasa and the country had

610
00:23:48,149 --> 00:23:45,600
made

611
00:23:49,990 --> 00:23:48,159
in sending her up i think was just it

612
00:23:51,669 --> 00:23:50,000
was the presence of a woman going up

613
00:23:53,269 --> 00:23:51,679

into space that i think made all the

614

00:23:55,350 --> 00:23:53,279

difference in the world so for me while

615

00:23:57,029 --> 00:23:55,360

i didn't watch her launch even when i

616

00:23:59,510 --> 00:23:57,039

watched it on paper i watched it when i

617

00:24:01,350 --> 00:23:59,520

was little to me i felt like i was

618

00:24:03,190 --> 00:24:01,360

watching her launch i actually felt like

619

00:24:05,750 --> 00:24:03,200

i had been old enough at that time and

620

00:24:07,750 --> 00:24:05,760

it's remained my inspiration to keep

621

00:24:09,990 --> 00:24:07,760

working in science and math and whatever

622

00:24:12,230 --> 00:24:10,000

it is that i'm doing to support our our

623

00:24:13,430 --> 00:24:12,240

space program so every time you're while

624

00:24:15,590 --> 00:24:13,440

you're talking that's what i was

625

00:24:17,269 --> 00:24:15,600

thinking that absolutely i never had a

626

00:24:18,789 --> 00:24:17,279

conversation with her

627

00:24:20,230 --> 00:24:18,799

but it was just her presence that

628

00:24:21,669 --> 00:24:20,240

mattered

629

00:24:23,510 --> 00:24:21,679

and sometimes i'm a little overwhelmed

630

00:24:25,909 --> 00:24:23,520

by how much work we have to do but then

631

00:24:28,470 --> 00:24:25,919

there's days like yesterday my trainer

632

00:24:30,310 --> 00:24:28,480

at the gym we have several trainers and

633

00:24:32,310 --> 00:24:30,320

and she told me that her daughter who's

634

00:24:34,870 --> 00:24:32,320

six years old wants to have a jet

635

00:24:42,070 --> 00:24:34,880

fighter pilot birthday party and i said

636

00:24:45,029 --> 00:24:44,149

why do you feel that there are more boys

637

00:24:49,669 --> 00:24:45,039

getting

638

00:24:54,950 --> 00:24:52,070

i i have a couple views on that i would

639

00:24:57,110 --> 00:24:54,960

share i i do feel we have not done

640

00:24:59,909 --> 00:24:57,120

enough to explain some careers in a way

641

00:25:02,390 --> 00:24:59,919

that shows how they really do advance

642

00:25:03,669 --> 00:25:02,400

society and help humanity i think women

643

00:25:05,909 --> 00:25:03,679

as katie mentioned some of our

644

00:25:07,990 --> 00:25:05,919

particular um

645

00:25:11,430 --> 00:25:08,000

areas of uh

646

00:25:14,630 --> 00:25:11,440

interest are more along the lines of

647

00:25:16,710 --> 00:25:14,640

being able to uh advance society in a

648

00:25:18,549 --> 00:25:16,720

positive way and right now women are

649

00:25:20,789 --> 00:25:18,559

going into the medical field at equal or

650

00:25:22,310 --> 00:25:20,799

greater shares that's the part of stem

651
00:25:25,510 --> 00:25:22,320
the biological sciences that they're

652
00:25:27,909 --> 00:25:25,520
going into and engineering some uh

653
00:25:30,789 --> 00:25:27,919
is the least and so i think we need to

654
00:25:32,390 --> 00:25:30,799
connect more uh what we're doing and in

655
00:25:35,430 --> 00:25:32,400
particular in the space

656
00:25:37,669 --> 00:25:35,440
programs uh to

657
00:25:38,870 --> 00:25:37,679
benefit the public is something i think

658
00:25:41,190 --> 00:25:38,880
will

659
00:25:43,269 --> 00:25:41,200
connect more with women as well as the

660
00:25:45,269 --> 00:25:43,279
role model issue uh

661
00:25:48,230 --> 00:25:45,279
that katie laid out i mean here now now

662
00:25:51,029 --> 00:25:48,240
katie is one i feel like that when i was

663
00:25:53,350 --> 00:25:51,039

here in the uh 90s i ran the policy

664

00:25:55,350 --> 00:25:53,360

office and i was really proposing a

665

00:25:56,390 --> 00:25:55,360

serious concept to have an all-female

666

00:25:58,310 --> 00:25:56,400

shuttle crew

667

00:25:59,430 --> 00:25:58,320

and people laughed about it and i said

668

00:26:03,190 --> 00:25:59,440

well we have

669

00:26:05,510 --> 00:26:03,200

had all mail shuttle crews for decades

670

00:26:07,590 --> 00:26:05,520

uh and people don't laugh at that you

671

00:26:09,190 --> 00:26:07,600

know we could still be pursuing i think

672

00:26:11,430 --> 00:26:09,200

things that are really outstanding and

673

00:26:13,590 --> 00:26:11,440

again that's why i'm so proud of the

674

00:26:16,070 --> 00:26:13,600

astronaut selection this last couple

675

00:26:17,830 --> 00:26:16,080

weeks because role models do in fact

676
00:26:19,830 --> 00:26:17,840
matter we've all um

677
00:26:21,350 --> 00:26:19,840
in a way been been touched by sally and

678
00:26:23,190 --> 00:26:21,360
that's why we're here

679
00:26:26,230 --> 00:26:23,200
but we also i think need to describe our

680
00:26:29,029 --> 00:26:26,240
careers in a way that really shows um

681
00:26:31,430 --> 00:26:29,039
women what they can contribute uh

682
00:26:34,470 --> 00:26:31,440
through stem careers

683
00:26:36,789 --> 00:26:34,480
i i agree so much and i i want to add

684
00:26:37,590 --> 00:26:36,799
that to reinforce what you said that i

685
00:26:39,750 --> 00:26:37,600
mean

686
00:26:42,149 --> 00:26:39,760
the differences between that that males

687
00:26:44,789 --> 00:26:42,159
and females bring to the table in most

688
00:26:46,470 --> 00:26:44,799

cases you know is different and and

689

00:26:48,870 --> 00:26:46,480

complementary and a lot of the latest

690

00:26:52,789 --> 00:26:48,880

data and surveys shows that

691

00:26:55,269 --> 00:26:52,799

uh females care um greatly about

692

00:26:59,269 --> 00:26:55,279

improving the environment around them

693

00:27:02,310 --> 00:26:59,279

and they care about helping people and

694

00:27:05,350 --> 00:27:02,320

what we need to do is make that

695

00:27:07,990 --> 00:27:05,360

translation uh to show them how

696

00:27:10,149 --> 00:27:08,000

the the the misconception that science

697

00:27:12,870 --> 00:27:10,159

is not a humanistic

698

00:27:14,230 --> 00:27:12,880

effort and stem careers are either too

699

00:27:16,149 --> 00:27:14,240

esoteric

700

00:27:19,990 --> 00:27:16,159

um and again as you pointed out it's

701
00:27:22,630 --> 00:27:20,000
over now 50 it's 53 in this 2013

702
00:27:24,789 --> 00:27:22,640
freshman medical school of females

703
00:27:26,950 --> 00:27:24,799
because again that's a caring profession

704
00:27:29,430 --> 00:27:26,960
but there are so many

705
00:27:31,190 --> 00:27:29,440
engineering and computer science careers

706
00:27:34,149 --> 00:27:31,200
again where the largest discrepancy in

707
00:27:36,389 --> 00:27:34,159
males and females is now that have such

708
00:27:37,830 --> 00:27:36,399
relevance in fact increasing relevance

709
00:27:41,430 --> 00:27:37,840
to our

710
00:27:43,669 --> 00:27:41,440
everyday life and we as role models

711
00:27:47,269 --> 00:27:43,679
sally ride science in our job as

712
00:27:49,669 --> 00:27:47,279
training teachers we really have to um

713
00:27:52,389 --> 00:27:49,679

let parents and teachers know

714

00:27:53,430 --> 00:27:52,399

that the the careers out there now in

715

00:27:56,470 --> 00:27:53,440

stem

716

00:28:01,029 --> 00:27:56,480

are affecting um our all of our everyday

717

00:28:06,710 --> 00:28:03,909

um how can we help parents encourage

718

00:28:08,710 --> 00:28:06,720

girls to pursue stem from from a young

719

00:28:11,269 --> 00:28:08,720

age

720

00:28:12,950 --> 00:28:11,279

so i i think um

721

00:28:14,950 --> 00:28:12,960

most importantly

722

00:28:17,269 --> 00:28:14,960

um is

723

00:28:20,470 --> 00:28:17,279

provide them with

724

00:28:21,190 --> 00:28:20,480

examples and role models and it's got to

725

00:28:23,990 --> 00:28:21,200

be

726

00:28:25,669 --> 00:28:24,000

um we focus sally right science we focus

727

00:28:27,269 --> 00:28:25,679

on upper elementary and middle school

728

00:28:30,389 --> 00:28:27,279

students because

729

00:28:43,590 --> 00:28:30,399

you can't wait um you know and students

730

00:28:47,350 --> 00:28:44,950

okay for

731

00:28:50,549 --> 00:28:47,360

everyone do you feel it's easier for

732

00:28:55,909 --> 00:28:50,559

girls to pursue careers in stem now than

733

00:28:59,909 --> 00:28:58,470

well i'll say easier uh but i don't

734

00:29:02,549 --> 00:28:59,919

think it's easy

735

00:29:05,669 --> 00:29:02,559

enough yet i think there's still

736

00:29:06,470 --> 00:29:05,679

a lot of things that you know it that

737

00:29:08,630 --> 00:29:06,480

tell

738

00:29:09,430 --> 00:29:08,640

young girls um

739

00:29:14,549 --> 00:29:09,440

that

740

00:29:15,909 --> 00:29:14,559

mean i myself when i am given a talk to

741

00:29:17,830 --> 00:29:15,919

a school

742

00:29:19,750 --> 00:29:17,840

when i look around for questions at the

743

00:29:22,149 --> 00:29:19,760

end and i'm probably a little bit

744

00:29:23,510 --> 00:29:22,159

nervous and i mean you know i get i talk

745

00:29:25,430 --> 00:29:23,520

all the time at the same time there's

746

00:29:27,590 --> 00:29:25,440

just a certain kind of anxiousness and

747

00:29:28,789 --> 00:29:27,600

trying to do everything right and wonder

748

00:29:30,070 --> 00:29:28,799

what time it is and if you're supposed

749

00:29:32,230 --> 00:29:30,080

to be done all those things so i'm a

750

00:29:34,070 --> 00:29:32,240

little anxious and when i ask for

751

00:29:36,070 --> 00:29:34,080

questions it's the easiest thing in the

752

00:29:37,110 --> 00:29:36,080

world for me to pick the first hand that

753

00:29:40,470 --> 00:29:37,120

comes up

754

00:29:42,710 --> 00:29:40,480

and if i do that it is gonna be a boy

755

00:29:43,990 --> 00:29:42,720

i mean and and and as a speaker it's

756

00:29:45,350 --> 00:29:44,000

easier for me to say what's your

757

00:29:47,029 --> 00:29:45,360

question because there we went on to the

758

00:29:48,870 --> 00:29:47,039

next thing and i'm feeling more

759

00:29:51,909 --> 00:29:48,880

comfortable and so i have to force

760

00:29:53,510 --> 00:29:51,919

myself to just take a take a little time

761

00:29:55,510 --> 00:29:53,520

wait a little bit

762

00:29:57,110 --> 00:29:55,520

watch for those girls hands and and

763

00:29:58,870 --> 00:29:57,120

maybe i'll answer you know one question

764

00:30:00,789 --> 00:29:58,880

over here but i kind of look at somebody

765

00:30:02,870 --> 00:30:00,799

i can kind of tell has a question i look

766

00:30:05,269 --> 00:30:02,880

at them in an encouraging way and so i

767

00:30:08,389 --> 00:30:05,279

think for all of us all parents

768

00:30:10,149 --> 00:30:08,399

to try to just really keep your level of

769

00:30:12,789 --> 00:30:10,159

observation up in the you know

770

00:30:15,029 --> 00:30:12,799

monitoring your own behavior the times

771

00:30:16,789 --> 00:30:15,039

that you know you stereotypically

772

00:30:18,789 --> 00:30:16,799

you know give your daughter certain toys

773

00:30:20,070 --> 00:30:18,799

and your your son certain toys and i

774

00:30:21,750 --> 00:30:20,080

have a son so

775

00:30:25,990 --> 00:30:21,760

uh you know i have to kind of think

776

00:30:29,990 --> 00:30:27,269

sorry go ahead lori

777

00:30:31,590 --> 00:30:30,000

katie and i both only have sons and

778

00:30:33,990 --> 00:30:31,600

we've talked about that but i would like

779

00:30:36,149 --> 00:30:34,000

to think that it is better uh but we

780

00:30:38,389 --> 00:30:36,159

still have a ways to go i know in 1970s

781

00:30:41,110 --> 00:30:38,399

when i was in high school my mom really

782

00:30:43,430 --> 00:30:41,120

was upset when i got back to senior year

783

00:30:45,750 --> 00:30:43,440

in high school and the boys who'd

784

00:30:47,510 --> 00:30:45,760

finished the math had been arranged to

785

00:30:49,669 --> 00:30:47,520

go off to the local college to take

786

00:30:51,110 --> 00:30:49,679

calculus but no one had bothered to

787

00:30:52,870 --> 00:30:51,120

invite me to do the same even though i

788

00:30:54,950 --> 00:30:52,880

had also completed all my math you would

789

00:30:56,149 --> 00:30:54,960

hope that wouldn't happen today i'm not

790

00:30:59,509 --> 00:30:56,159

100

791

00:31:01,110 --> 00:30:59,519

convinced it wouldn't and i agree i

792

00:31:03,509 --> 00:31:01,120

think that there is a different standard

793

00:31:05,909 --> 00:31:03,519

even for me at the deputies council with

794

00:31:08,789 --> 00:31:05,919

all the other agencies

795

00:31:09,590 --> 00:31:08,799

here in the government a couple of women

796

00:31:10,470 --> 00:31:09,600

and

797

00:31:14,310 --> 00:31:10,480

we

798

00:31:16,230 --> 00:31:14,320

putting our hand up first and really

799

00:31:17,990 --> 00:31:16,240

trying to make a difference and i think

800

00:31:21,990 --> 00:31:18,000

more people do that the easier it will

801
00:31:25,750 --> 00:31:23,909
and i'd say i'd like to put in that i

802
00:31:27,590 --> 00:31:25,760
think there's two things that

803
00:31:30,870 --> 00:31:27,600
have made it easier and will continue to

804
00:31:33,350 --> 00:31:30,880
make it easier one is having women like

805
00:31:34,870 --> 00:31:33,360
lori to be honest and she won't she

806
00:31:37,669 --> 00:31:34,880
won't say it about herself so i'm going

807
00:31:39,750 --> 00:31:37,679
to say it about her that i every time i

808
00:31:40,950 --> 00:31:39,760
talk to somebody who's high up at nasa

809
00:31:42,630 --> 00:31:40,960
and i say i can't believe how

810
00:31:44,470 --> 00:31:42,640
encouraging you are

811
00:31:46,630 --> 00:31:44,480
uh let's see so for instance i just

812
00:31:48,230 --> 00:31:46,640
recently became pregnant and so now i'm

813
00:31:50,789 --> 00:31:48,240

asking all these questions about what

814

00:31:52,470 --> 00:31:50,799

i'm gonna do and you know and and every

815

00:31:54,789 --> 00:31:52,480

time i ask these questions i'm nervous

816

00:31:55,590 --> 00:31:54,799

going in and i'm so comfortable coming

817

00:31:57,590 --> 00:31:55,600

out

818

00:31:59,430 --> 00:31:57,600

and i will tell you that more than once

819

00:32:01,110 --> 00:31:59,440

people have said well it wasn't always

820

00:32:03,590 --> 00:32:01,120

like this but we have the management at

821

00:32:05,909 --> 00:32:03,600

the top that's making it easier for

822

00:32:07,750 --> 00:32:05,919

women to stay in these careers so i

823

00:32:09,190 --> 00:32:07,760

think there's a couple challenges it's

824

00:32:11,750 --> 00:32:09,200

getting girls interested when they're

825

00:32:13,669 --> 00:32:11,760

your age to be and then it's keeping

826

00:32:15,830 --> 00:32:13,679

them in there when they're my age and it

827

00:32:17,110 --> 00:32:15,840

comes time to decide about having

828

00:32:18,870 --> 00:32:17,120

children and

829

00:32:21,590 --> 00:32:18,880

child care and

830

00:32:22,389 --> 00:32:21,600

life just gets really complicated later

831

00:32:23,909 --> 00:32:22,399

in

832

00:32:25,509 --> 00:32:23,919

as we get older and we have to start

833

00:32:26,950 --> 00:32:25,519

making these decisions so i think

834

00:32:29,269 --> 00:32:26,960

there's two things so it's having women

835

00:32:31,029 --> 00:32:29,279

like lori up in those higher positions

836

00:32:34,630 --> 00:32:31,039

that are very supportive and telling the

837

00:32:36,950 --> 00:32:34,640

right people we need to provide x y and

838

00:32:39,669 --> 00:32:36,960

z the other thing i think

839

00:32:41,669 --> 00:32:39,679

matters is parents like yours so

840

00:32:43,430 --> 00:32:41,679

sydney's dad and the reason i know

841

00:32:45,990 --> 00:32:43,440

sydney so well is she was my mentee in

842

00:32:47,190 --> 00:32:46,000

the nasa girls program she mentioned

843

00:32:50,149 --> 00:32:47,200

and

844

00:32:52,789 --> 00:32:50,159

i have to say that your dad is just so

845

00:32:55,110 --> 00:32:52,799

supportive of putting and he has three

846

00:32:57,509 --> 00:32:55,120

daughters and putting all three of them

847

00:33:00,070 --> 00:32:57,519

and exposing them into these programs

848

00:33:02,630 --> 00:33:00,080

and programs that touch on all sorts of

849

00:33:04,389 --> 00:33:02,640

stem topics his oldest daughter just got

850

00:33:06,630 --> 00:33:04,399

into a program for computer science and

851

00:33:08,789 --> 00:33:06,640

i think it's fabulous and he did not

852

00:33:10,389 --> 00:33:08,799

have any hesitation in saying mom do you

853

00:33:12,470 --> 00:33:10,399

get to meet my daughter would you write

854

00:33:13,990 --> 00:33:12,480

her a recommendation letter and so i

855

00:33:15,509 --> 00:33:14,000

didn't she got into penn state and i

856

00:33:17,669 --> 00:33:15,519

just think it's taking

857

00:33:19,350 --> 00:33:17,679

taking that extra step so so i think

858

00:33:21,350 --> 00:33:19,360

parents like yours who

859

00:33:23,190 --> 00:33:21,360

who find those opportunities and put

860

00:33:24,630 --> 00:33:23,200

their daughters in those opportunities

861

00:33:27,110 --> 00:33:24,640

and something like what katie said you

862

00:33:27,990 --> 00:33:27,120

know being conscious of the choices we

863

00:33:30,230 --> 00:33:28,000

made

864

00:33:33,190 --> 00:33:30,240

for our daughters versus our sons and

865

00:33:36,789 --> 00:33:33,200

making it an equal choice

866

00:33:38,389 --> 00:33:36,799

yeah and he my dad also he put me and my

867

00:33:40,470 --> 00:33:38,399

sister in this program

868

00:33:42,549 --> 00:33:40,480

where you build lego robotics and i

869

00:33:44,710 --> 00:33:42,559

really like engineering so i really

870

00:33:47,110 --> 00:33:44,720

thank him for like pushing me into

871

00:33:48,070 --> 00:33:47,120

programs and like those

872

00:33:50,070 --> 00:33:48,080

yeah

873

00:33:52,389 --> 00:33:50,080

that's really great i was also gonna say

874

00:33:54,870 --> 00:33:52,399

um along those same lines is that i

875

00:33:57,669 --> 00:33:54,880

think it's so impaired important for

876

00:34:00,230 --> 00:33:57,679

parents just to encourage um that

877

00:34:02,789 --> 00:34:00,240

natural curiosity that kids have so i

878

00:34:04,789 --> 00:34:02,799

think um you know most kids most younger

879

00:34:06,389 --> 00:34:04,799

kids that i meet are just naturally

880

00:34:09,589 --> 00:34:06,399

curious about the world and that's

881

00:34:12,710 --> 00:34:09,599

exactly what stem is um and so i know

882

00:34:14,550 --> 00:34:12,720

for my personal case um i grew up in the

883

00:34:16,470 --> 00:34:14,560

middle of nowhere in arkansas neither

884

00:34:18,310 --> 00:34:16,480

one of my parents even went to college

885

00:34:19,349 --> 00:34:18,320

and so when i started you know talking

886

00:34:21,349 --> 00:34:19,359

about

887

00:34:23,510 --> 00:34:21,359

kind of you know going to nasa or

888

00:34:24,710 --> 00:34:23,520

becoming a scientist it was a little it

889

00:34:27,030 --> 00:34:24,720

was a little strange it was a little

890

00:34:29,750 --> 00:34:27,040

different it wasn't part of my um you

891

00:34:31,750 --> 00:34:29,760

know my family's past experience but

892

00:34:34,310 --> 00:34:31,760

my parents were always so very

893

00:34:36,069 --> 00:34:34,320

encouraging of my interests and so i

894

00:34:37,909 --> 00:34:36,079

think just that i mean it seems almost

895

00:34:40,550 --> 00:34:37,919

like a small thing but just that that

896

00:34:42,550 --> 00:34:40,560

kind of constant um reiteration that

897

00:34:44,790 --> 00:34:42,560

that your kids can do whatever they want

898

00:34:46,629 --> 00:34:44,800

to do and that um you know just

899

00:34:48,869 --> 00:34:46,639

encourage that natural curiosity that

900

00:34:52,310 --> 00:34:48,879

kids have can go such a long way and it

901
00:34:55,990 --> 00:34:54,869
along those lines i think that often

902
00:34:57,670 --> 00:34:56,000
um

903
00:34:59,670 --> 00:34:57,680
we think that if we would encourage

904
00:35:01,190 --> 00:34:59,680
girls you know if they see stem if we

905
00:35:02,870 --> 00:35:01,200
get them in the right place with stem or

906
00:35:04,870 --> 00:35:02,880
the right introduction that it you know

907
00:35:07,750 --> 00:35:04,880
that you can help with fixing things all

908
00:35:09,750 --> 00:35:07,760
those things that will happen but

909
00:35:12,230 --> 00:35:09,760
i think we also need to address the fact

910
00:35:14,150 --> 00:35:12,240
that these fields aren't easy for

911
00:35:15,430 --> 00:35:14,160
everybody in the same way it's not

912
00:35:16,390 --> 00:35:15,440
always going to be an easy thing i mean

913
00:35:18,870 --> 00:35:16,400

for example

914

00:35:20,550 --> 00:35:18,880

you know i i will confess openly i do it

915

00:35:22,870 --> 00:35:20,560

all the time that you know here i am a

916

00:35:26,069 --> 00:35:22,880

scientist i'm a polymer chemist and

917

00:35:28,310 --> 00:35:26,079

physics is is is hard for me i don't

918

00:35:29,829 --> 00:35:28,320

actually particularly like it okay but

919

00:35:32,069 --> 00:35:29,839

is it essential in what i do

920

00:35:34,150 --> 00:35:32,079

professionally you know it certainly is

921

00:35:35,990 --> 00:35:34,160

and i mean not only to that it's part of

922

00:35:37,990 --> 00:35:36,000

it but also that i really need to

923

00:35:40,950 --> 00:35:38,000

evaluate things using a reasonable

924

00:35:42,550 --> 00:35:40,960

working knowledge of physics and so does

925

00:35:45,190 --> 00:35:42,560

that mean that physics isn't for me just

926
00:35:47,190 --> 00:35:45,200
because it's hard for me it no it means

927
00:35:48,870 --> 00:35:47,200
that i have to take more time

928
00:35:51,030 --> 00:35:48,880
i have to realize that just because i

929
00:35:53,990 --> 00:35:51,040
have more questions or i need five

930
00:35:56,069 --> 00:35:54,000
explanations or i have to do all of the

931
00:35:58,790 --> 00:35:56,079
homework problems not just the first few

932
00:36:01,670 --> 00:35:58,800
that convince me yeah yeah i can do this

933
00:36:04,470 --> 00:36:01,680
and so i think addressing that in uh

934
00:36:06,790 --> 00:36:04,480
especially in girls where it doesn't

935
00:36:08,390 --> 00:36:06,800
automatically take off for them and just

936
00:36:09,990 --> 00:36:08,400
because it does it's not automatic or

937
00:36:12,710 --> 00:36:10,000
intuitive for them doesn't mean that

938
00:36:14,470 --> 00:36:12,720

they don't need it because you know it's

939

00:36:15,990 --> 00:36:14,480

it's a part of lots of different kinds

940

00:36:17,670 --> 00:36:16,000

of solutions and

941

00:36:20,630 --> 00:36:17,680

and i think that we're all going to have

942

00:36:22,790 --> 00:36:20,640

to be learning new things all the time

943

00:36:24,470 --> 00:36:22,800

that's such a good point because i i

944

00:36:26,630 --> 00:36:24,480

hear from a lot of teachers that a lot

945

00:36:28,470 --> 00:36:26,640

of the girls in their classes

946

00:36:30,550 --> 00:36:28,480

say that they're they don't want to take

947

00:36:32,150 --> 00:36:30,560

the higher math classes or even the

948

00:36:33,990 --> 00:36:32,160

physics class because they know that

949

00:36:36,310 --> 00:36:34,000

they're hard and they feel that they're

950

00:36:37,750 --> 00:36:36,320

harder for them than their the boys in

951
00:36:40,310 --> 00:36:37,760
the class and

952
00:36:42,230 --> 00:36:40,320
i think we as parents and and educators

953
00:36:44,630 --> 00:36:42,240
really the whole thing about effort

954
00:36:47,030 --> 00:36:44,640
equals performance and sally when she

955
00:36:49,270 --> 00:36:47,040
gave talks she used to tell students

956
00:36:50,630 --> 00:36:49,280
how hard she had to work that it didn't

957
00:36:53,349 --> 00:36:50,640
come easy to her and it's a

958
00:36:55,349 --> 00:36:53,359
misconception again that only the the

959
00:36:57,589 --> 00:36:55,359
brightest of the bright can actually

960
00:37:00,150 --> 00:36:57,599
choose to go into

961
00:37:03,030 --> 00:37:00,160
science or math it's just like sports

962
00:37:04,950 --> 00:37:03,040
there's all people of all abilities and

963
00:37:07,750 --> 00:37:04,960

or playing music you have to practice

964

00:37:09,270 --> 00:37:07,760

practice practice and train train train

965

00:37:11,349 --> 00:37:09,280

and that's where you get results it's

966

00:37:16,550 --> 00:37:11,359

the same thing with

967

00:37:21,510 --> 00:37:19,750

this next question is from twitter user

968

00:37:23,430 --> 00:37:21,520

aderine I

969

00:37:25,670 --> 00:37:23,440

what are your thoughts on adult women

970

00:37:30,390 --> 00:37:25,680

with math degrees looking for a career

971

00:37:34,790 --> 00:37:32,790

this is to anyone

972

00:37:36,390 --> 00:37:34,800

well for careers at nasa i would

973

00:37:38,069 --> 00:37:36,400

definitely as

974

00:37:40,950 --> 00:37:38,079

i said i encourage non-stem but

975

00:37:43,030 --> 00:37:40,960

primarily we are hiring uh people in the

976
00:37:45,910 --> 00:37:43,040
stem fields just looking at our data

977
00:37:48,390 --> 00:37:45,920
even though we have a flat budget at

978
00:37:50,390 --> 00:37:48,400
best these days uh we have about a

979
00:37:51,990 --> 00:37:50,400
thousand new hires a year

980
00:37:54,870 --> 00:37:52,000
and right now again i just happen to

981
00:37:58,470 --> 00:37:54,880
look at the data we have 37 percent of

982
00:38:01,190 --> 00:37:58,480
those uh have have been women we need to

983
00:38:03,190 --> 00:38:01,200
increase that and

984
00:38:05,270 --> 00:38:03,200
largest percentage of those are in stem

985
00:38:06,790 --> 00:38:05,280
fields so i'd really encourage

986
00:38:09,589 --> 00:38:06,800
people to look at

987
00:38:11,589 --> 00:38:09,599
nasa as a career at any

988
00:38:14,310 --> 00:38:11,599

age or level we definitely have

989

00:38:16,950 --> 00:38:14,320

throughout our centers where we have

990

00:38:19,510 --> 00:38:16,960

space science earth science human space

991

00:38:23,270 --> 00:38:19,520

flight aeronautics uh across the country

992

00:38:24,790 --> 00:38:23,280

and uh so i i would definitely um

993

00:38:26,870 --> 00:38:24,800

recommend at all all levels and

994

00:38:28,630 --> 00:38:26,880

certainly within that degree uh to apply

995

00:38:30,950 --> 00:38:28,640

to work at nasa

996

00:38:32,950 --> 00:38:30,960

and just tagging on to what lori said um

997

00:38:34,950 --> 00:38:32,960

anyone who's interested in a career at

998

00:38:37,230 --> 00:38:34,960

nasa and particularly around your age

999

00:38:39,910 --> 00:38:37,240

high school college can look at

1000

00:38:42,150 --> 00:38:39,920

women.nasa.gov and there is a link that

1001
00:38:48,870 --> 00:38:42,160
is for careers and internships and that

1002
00:38:53,510 --> 00:38:51,589
dr coleman like sally are there any

1003
00:38:56,150 --> 00:38:53,520
challenges that you overcome in your

1004
00:38:59,349 --> 00:38:58,150
well i would say like everyone on the

1005
00:39:01,190 --> 00:38:59,359
panel

1006
00:39:03,589 --> 00:39:01,200
um yes there are just because we all

1007
00:39:05,430 --> 00:39:03,599
have really you know we have big goals

1008
00:39:07,510 --> 00:39:05,440
and i think all of us probably have

1009
00:39:08,870 --> 00:39:07,520
things that come easily to us and things

1010
00:39:10,470 --> 00:39:08,880
that do not

1011
00:39:12,829 --> 00:39:10,480
and and things that maybe do not just

1012
00:39:15,750 --> 00:39:12,839
because of the environment

1013
00:39:18,310 --> 00:39:15,760

um you know i think working in an

1014

00:39:20,390 --> 00:39:18,320

environment where it's mostly mostly

1015

00:39:22,230 --> 00:39:20,400

guys where sometimes the things that

1016

00:39:23,750 --> 00:39:22,240

they value the things that they promote

1017

00:39:26,310 --> 00:39:23,760

people for the things that they think

1018

00:39:28,150 --> 00:39:26,320

highly of are not always the things that

1019

00:39:30,069 --> 00:39:28,160

um you know maybe you bring to the table

1020

00:39:31,750 --> 00:39:30,079

and at the same time eventually they

1021

00:39:34,230 --> 00:39:31,760

kind of go wow katie really made that

1022

00:39:37,109 --> 00:39:34,240

work so you know i i think it all kind

1023

00:39:38,310 --> 00:39:37,119

of works out um sometimes the physical

1024

00:39:39,589 --> 00:39:38,320

challenges

1025

00:39:41,270 --> 00:39:39,599

what i encourage people to think about

1026

00:39:43,510 --> 00:39:41,280

like for example in the space suit i'm

1027

00:39:45,829 --> 00:39:43,520

the smallest person that is qualified

1028

00:39:48,310 --> 00:39:45,839

and on the spacesuit team so to speak i

1029

00:39:50,150 --> 00:39:48,320

had a suit up there on the space station

1030

00:39:52,710 --> 00:39:50,160

unfortunately did not get to go out and

1031

00:39:55,190 --> 00:39:52,720

use it much to my dismay we always hoped

1032

00:39:57,829 --> 00:39:55,200

for something like really expensive but

1033

00:39:59,670 --> 00:39:57,839

not dangerous to break you know

1034

00:40:01,990 --> 00:39:59,680

anyways but that didn't happen but i was

1035

00:40:05,109 --> 00:40:02,000

really proud to be on that team

1036

00:40:07,430 --> 00:40:05,119

mostly because um it is it's a it's a

1037

00:40:10,309 --> 00:40:07,440

pretty physically large suit and

1038

00:40:12,230 --> 00:40:10,319

involves some strength but

1039

00:40:13,670 --> 00:40:12,240

at a certain point it actually just

1040

00:40:15,670 --> 00:40:13,680

involves your head

1041

00:40:19,430 --> 00:40:15,680

and understanding what your body is

1042

00:40:21,670 --> 00:40:19,440

doing and if you're a big strong person

1043

00:40:22,790 --> 00:40:21,680

okay who really fills up that suit

1044

00:40:24,550 --> 00:40:22,800

there's some things that are going to

1045

00:40:26,550 --> 00:40:24,560

come more easily to you

1046

00:40:28,790 --> 00:40:26,560

and as a smaller person that has some of

1047

00:40:31,030 --> 00:40:28,800

those challenges basically i would make

1048

00:40:33,109 --> 00:40:31,040

sure i did all my head work before i got

1049

00:40:34,550 --> 00:40:33,119

into the swimming pool to be practicing

1050

00:40:36,470 --> 00:40:34,560

or in the position where we'd be doing

1051
00:40:38,870 --> 00:40:36,480
on the space station i've gone through

1052
00:40:39,990 --> 00:40:38,880
every step of that procedure so that i

1053
00:40:41,750 --> 00:40:40,000
don't really have to think about

1054
00:40:43,430 --> 00:40:41,760
anything i have to i can focus on the

1055
00:40:44,870 --> 00:40:43,440
part of it that might be more difficult

1056
00:40:46,630 --> 00:40:44,880
to me which is

1057
00:40:48,790 --> 00:40:46,640
you know physically grabbing it or

1058
00:40:51,349 --> 00:40:48,800
grabbing it with both hands and being

1059
00:40:53,109 --> 00:40:51,359
able to reach and you know those kinds

1060
00:40:55,750 --> 00:40:53,119
of physical things so

1061
00:40:58,470 --> 00:40:55,760
when things are challenging i encourage

1062
00:41:00,790 --> 00:40:58,480
people to just open your eyes and really

1063
00:41:03,349 --> 00:41:00,800

look and see you know what are the

1064

00:41:06,470 --> 00:41:03,359

things that you bring to this difficult

1065

00:41:08,470 --> 00:41:06,480

situation even if it is just how to get

1066

00:41:10,870 --> 00:41:08,480

the help that you need in order to get

1067

00:41:12,790 --> 00:41:10,880

the goal done for the team

1068

00:41:14,790 --> 00:41:12,800

so i just have to add on with that suit

1069

00:41:16,230 --> 00:41:14,800

discussion katie you and i don't think

1070

00:41:17,510 --> 00:41:16,240

have had this but

1071

00:41:18,790 --> 00:41:17,520

uh if

1072

00:41:21,589 --> 00:41:18,800

hopefully i would like to think if

1073

00:41:22,790 --> 00:41:21,599

somewhere like me were in my job 20

1074

00:41:25,430 --> 00:41:22,800

years ago you wouldn't have had to

1075

00:41:28,069 --> 00:41:25,440

overcome that challenge as much we had a

1076

00:41:30,710 --> 00:41:28,079

sad tale with us with the suits in the

1077

00:41:33,190 --> 00:41:30,720

sense that i think we're talking about

1078

00:41:35,190 --> 00:41:33,200

challenges we have to overcome

1079

00:41:38,470 --> 00:41:35,200

and maybe hopefully some unintended

1080

00:41:40,470 --> 00:41:38,480

consequences when nasa had to limit the

1081

00:41:42,550 --> 00:41:40,480

types of suits we had the sizes of suits

1082

00:41:43,829 --> 00:41:42,560

we were just going to do medium and then

1083

00:41:45,510 --> 00:41:43,839

of course we're going to do medium and

1084

00:41:48,069 --> 00:41:45,520

large and then we threw in the extra

1085

00:41:49,510 --> 00:41:48,079

large but we never made the small suits

1086

00:41:51,910 --> 00:41:49,520

and let's see who was making the

1087

00:41:53,829 --> 00:41:51,920

decisions at those times for the larger

1088

00:41:57,430 --> 00:41:53,839

males and what we left off were

1089

00:41:59,670 --> 00:41:57,440

population of primarily females who then

1090

00:42:01,430 --> 00:41:59,680

now are limited when they they can't go

1091

00:42:02,870 --> 00:42:01,440

to space because you have to be trained

1092

00:42:04,710 --> 00:42:02,880

in the suit to go to space and you have

1093

00:42:07,589 --> 00:42:04,720

to fit the suit and i knew i learned

1094

00:42:09,510 --> 00:42:07,599

about katie uh as the smallest person

1095

00:42:10,870 --> 00:42:09,520

who fit the suit and that must have been

1096

00:42:12,790 --> 00:42:10,880

a huge challenge and i would like to

1097

00:42:14,870 --> 00:42:12,800

think that we would not make that

1098

00:42:17,109 --> 00:42:14,880

decision today and i have to tell one

1099

00:42:19,750 --> 00:42:17,119

little story edward teller actually said

1100

00:42:21,349 --> 00:42:19,760

once he was asked whether or not women

1101

00:42:23,510 --> 00:42:21,359

should go to space

1102

00:42:25,030 --> 00:42:23,520

he thought about it and he said he

1103

00:42:28,550 --> 00:42:25,040

answered that

1104

00:42:31,109 --> 00:42:28,560

yes only women should go to space more

1105

00:42:33,910 --> 00:42:31,119

brains per pound

1106

00:42:36,309 --> 00:42:33,920

and i would just say that both for dr

1107

00:42:39,109 --> 00:42:36,319

coleman and for dr ryde that would

1108

00:42:42,950 --> 00:42:39,119

really be the truth that is some uh

1109

00:42:44,790 --> 00:42:42,960

mighty brains packed into a little frame

1110

00:42:46,550 --> 00:42:44,800

well and it's nice to see in actually

1111

00:42:48,550 --> 00:42:46,560

the you know the new suit development

1112

00:42:51,109 --> 00:42:48,560

that we're doing for going on to the

1113

00:42:53,349 --> 00:42:51,119

moon asteroids mars and we're doing a

1114

00:42:55,670 --> 00:42:53,359

lot of looking at you know what does a

1115

00:42:57,510 --> 00:42:55,680

spacesuit really mean like right now one

1116

00:42:59,270 --> 00:42:57,520

of those concepts that we have is a sort

1117

00:43:01,829 --> 00:42:59,280

of a big balloon that really protects

1118

00:43:03,109 --> 00:43:01,839

you um and yet there's other ways to do

1119

00:43:04,950 --> 00:43:03,119

that where you have maybe something

1120

00:43:06,710 --> 00:43:04,960

closer to the skin something that might

1121

00:43:08,309 --> 00:43:06,720

fit people differently i mean we're

1122

00:43:10,630 --> 00:43:08,319

really looking at a lot of different

1123

00:43:12,710 --> 00:43:10,640

concepts and being more

1124

00:43:15,589 --> 00:43:12,720

inclusive and in fact there's some

1125

00:43:17,589 --> 00:43:15,599

pretty neat spacesuit design done at mit

1126
00:43:19,829 --> 00:43:17,599
by dr david newman that's been in the

1127
00:43:21,990 --> 00:43:19,839
news a bit the biosuit i mean i'm not

1128
00:43:23,670 --> 00:43:22,000
saying it in any way that that is a way

1129
00:43:26,309 --> 00:43:23,680
that nasa is going we are looking at a

1130
00:43:28,230 --> 00:43:26,319
lot of different things but you know as

1131
00:43:29,670 --> 00:43:28,240
you said you know if someone like you

1132
00:43:31,750 --> 00:43:29,680
was in the position of making those

1133
00:43:33,510 --> 00:43:31,760
decisions long ago they might be

1134
00:43:35,990 --> 00:43:33,520
different and i feel like we do have

1135
00:43:37,109 --> 00:43:36,000
women in the workforce in in those

1136
00:43:39,270 --> 00:43:37,119
positions

1137
00:43:40,630 --> 00:43:39,280
getting to help remind everybody what

1138
00:43:43,990 --> 00:43:40,640

the consequences of some of those

1139

00:43:45,670 --> 00:43:44,000

decisions are so we're working at it

1140

00:43:48,470 --> 00:43:45,680

so that just means by the time sydney's

1141

00:43:53,589 --> 00:43:48,480

there we'll be good

1142

00:43:58,230 --> 00:43:56,230

for our final question i would like i

1143

00:44:00,150 --> 00:43:58,240

would like to ask everyone on the panel

1144

00:44:02,390 --> 00:44:00,160

for their final words of advice you

1145

00:44:08,550 --> 00:44:02,400

would give to students like me as we go

1146

00:44:12,790 --> 00:44:10,870

i i'd like to start by

1147

00:44:15,990 --> 00:44:12,800

saying something that close to what

1148

00:44:18,309 --> 00:44:16,000

sally sally had a phrase that was always

1149

00:44:20,390 --> 00:44:18,319

reach for the stars that's how she ended

1150

00:44:22,630 --> 00:44:20,400

up her conversations with students and

1151

00:44:26,390 --> 00:44:22,640

particularly girls and

1152

00:44:30,470 --> 00:44:26,400

i would just would like to say that

1153

00:44:32,390 --> 00:44:30,480

if you truly have a passion or desire um

1154

00:44:33,750 --> 00:44:32,400

fight hard to

1155

00:44:37,990 --> 00:44:33,760

to

1156

00:44:40,630 --> 00:44:38,000

in the way because there definitely will

1157

00:44:42,950 --> 00:44:40,640

be barriers um for girls there's various

1158

00:44:44,069 --> 00:44:42,960

for girls there's barriers for boys but

1159

00:44:50,870 --> 00:44:44,079

um

1160

00:44:52,630 --> 00:44:50,880

it it will pay off

1161

00:44:54,630 --> 00:44:52,640

i would agree with karen that's

1162

00:44:56,309 --> 00:44:54,640

something i think all of us have

1163

00:44:59,190 --> 00:44:56,319

experienced and i would say in

1164

00:45:01,589 --> 00:44:59,200

particular for girls going in that um

1165

00:45:04,230 --> 00:45:01,599

really challenge yourself you are going

1166

00:45:06,550 --> 00:45:04,240

to be surprised at how much you can

1167

00:45:08,069 --> 00:45:06,560

accomplish and a lot of people have

1168

00:45:09,430 --> 00:45:08,079

asked if this was my dream job and i

1169

00:45:12,950 --> 00:45:09,440

would say i would have never ever

1170

00:45:16,150 --> 00:45:12,960

dreamed of having this job so really

1171

00:45:18,550 --> 00:45:16,160

reach higher as we'd like to say

1172

00:45:21,190 --> 00:45:18,560

i completely uh agree with that um

1173

00:45:22,790 --> 00:45:21,200

working at nasa and the the we do big

1174

00:45:25,030 --> 00:45:22,800

awesome things and those things are

1175

00:45:26,790 --> 00:45:25,040

often very very hard so you don't want

1176
00:45:30,069 --> 00:45:26,800
to minimize you know the challenges that

1177
00:45:31,750 --> 00:45:30,079
you'll face in a challenging job but but

1178
00:45:33,829 --> 00:45:31,760
that's part of what's so fun about it

1179
00:45:35,670 --> 00:45:33,839
you know um girls are every bit as smart

1180
00:45:38,710 --> 00:45:35,680
as boys and can do all those really

1181
00:45:41,030 --> 00:45:38,720
challenging hard jobs as well so um yeah

1182
00:45:42,790 --> 00:45:41,040
just to echo uh the last couple of

1183
00:45:45,349 --> 00:45:42,800
speakers is just embrace those

1184
00:45:47,589 --> 00:45:45,359
challenges and um be good at them you

1185
00:45:49,430 --> 00:45:47,599
know um and then my second big piece of

1186
00:45:52,309 --> 00:45:49,440
advice and this was really important for

1187
00:45:54,790 --> 00:45:52,319
me is to find mentors all along the way

1188
00:45:56,950 --> 00:45:54,800

in high school in college um if you go

1189

00:45:59,190 --> 00:45:56,960

to grad school you know find someone who

1190

00:46:01,190 --> 00:45:59,200

has done what you want to do and get

1191

00:46:03,190 --> 00:46:01,200

them to be your cheerleader and get them

1192

00:46:06,230 --> 00:46:03,200

to to help you that's been one of the

1193

00:46:07,670 --> 00:46:06,240

most key pieces of

1194

00:46:09,670 --> 00:46:07,680

advice that i received when i was

1195

00:46:11,190 --> 00:46:09,680

younger and that i've been very

1196

00:46:12,870 --> 00:46:11,200

fortunate to have been able to have

1197

00:46:14,790 --> 00:46:12,880

really excellent mentors all along the

1198

00:46:16,550 --> 00:46:14,800

way and nasa obviously has a lot of

1199

00:46:19,270 --> 00:46:16,560

really great programs like the nasa

1200

00:46:21,430 --> 00:46:19,280

girls program and others that are set up

1201

00:46:24,230 --> 00:46:21,440

in order to provide those mentorship

1202

00:46:26,069 --> 00:46:24,240

opportunities so that's very important

1203

00:46:30,150 --> 00:46:26,079

and mindset mine's a great follow-up to

1204

00:46:33,030 --> 00:46:30,160

amber i would say don't be afraid to ask

1205

00:46:35,910 --> 00:46:33,040

whatever you do i think oftentimes we

1206

00:46:37,670 --> 00:46:35,920

more so than boys are afraid to ask

1207

00:46:39,510 --> 00:46:37,680

because we're afraid that

1208

00:46:41,589 --> 00:46:39,520

it may not be the right question or will

1209

00:46:43,270 --> 00:46:41,599

inconvenience somebody or you know

1210

00:46:45,109 --> 00:46:43,280

something like that but don't be afraid

1211

00:46:47,829 --> 00:46:45,119

to ask you can ask your mom and dad you

1212

00:46:50,790 --> 00:46:47,839

can ask any mentor you've been around

1213

00:46:53,109 --> 00:46:50,800

you can ask your teachers your neighbors

1214

00:46:55,109 --> 00:46:53,119

anybody who you think could help you and

1215

00:46:57,349 --> 00:46:55,119

even if that person can't help you

1216

00:46:59,190 --> 00:46:57,359

you'll probably know somebody who can so

1217

00:47:01,910 --> 00:46:59,200

i think it's even at your age you can

1218

00:47:03,510 --> 00:47:01,920

build what we call your network

1219

00:47:05,910 --> 00:47:03,520

so i think it's very important to be

1220

00:47:08,150 --> 00:47:05,920

sure you ask

1221

00:47:09,750 --> 00:47:08,160

i mean i agree i mean your questions

1222

00:47:11,910 --> 00:47:09,760

whatever they are

1223

00:47:14,309 --> 00:47:11,920

they're good questions and you should

1224

00:47:15,829 --> 00:47:14,319

ask them you should figure out what kind

1225

00:47:16,630 --> 00:47:15,839

of help you need

1226
00:47:18,950 --> 00:47:16,640
which

1227
00:47:19,910 --> 00:47:18,960
probably wouldn't include a mentor but i

1228
00:47:22,710 --> 00:47:19,920
would

1229
00:47:25,670 --> 00:47:22,720
widen it to you know what do i need and

1230
00:47:27,190 --> 00:47:25,680
how can i ask for that how can i arrange

1231
00:47:29,270 --> 00:47:27,200
to get the things i need because i am a

1232
00:47:31,030 --> 00:47:29,280
resource and i am part of the future you

1233
00:47:32,950 --> 00:47:31,040
should look in the mirror and realize

1234
00:47:34,950 --> 00:47:32,960
that the things you need the things you

1235
00:47:35,750 --> 00:47:34,960
want the things you want to know you

1236
00:47:37,589 --> 00:47:35,760
know

1237
00:47:39,510 --> 00:47:37,599
you you need to get those things because

1238
00:47:40,790 --> 00:47:39,520

you are part of the future

1239

00:47:42,390 --> 00:47:40,800

um and then i'll just actually quote

1240

00:47:45,030 --> 00:47:42,400

someone who's i don't remember her name

1241

00:47:47,109 --> 00:47:45,040

but i was on a really neat uh nasa stem

1242

00:47:51,109 --> 00:47:47,119

panel with the chief engineer from

1243

00:47:53,910 --> 00:47:51,119

facebook and she said fail and fail

1244

00:47:55,910 --> 00:47:53,920

often and i really loved that because

1245

00:47:57,270 --> 00:47:55,920

you know we tend to think that in

1246

00:47:59,430 --> 00:47:57,280

achieving you know going for these

1247

00:48:01,030 --> 00:47:59,440

challenges that we're gonna succeed and

1248

00:48:03,589 --> 00:48:01,040

if you succeed all the time you might

1249

00:48:05,670 --> 00:48:03,599

actually not be reaching high enough

1250

00:48:10,309 --> 00:48:05,680

it's okay to fail because we're doing

1251
00:48:14,470 --> 00:48:12,309
to the entire panel thank you for having

1252
00:48:16,150 --> 00:48:14,480
this conversation with me

1253
00:48:18,790 --> 00:48:16,160
and thank you for celebrating the life

1254
00:48:19,589 --> 00:48:18,800
and legacy of a true pioneer dr sally

1255
00:48:21,910 --> 00:48:19,599
wright ride

1256
00:48:23,589 --> 00:48:21,920
ironically today is also the anniversary

1257
00:48:26,150 --> 00:48:23,599
of commander

1258
00:48:29,190 --> 00:48:26,160
collins flight as the first female space

1259
00:48:30,230 --> 00:48:29,200
shuttle commander in 1999. how exciting

1260
00:48:31,910 --> 00:48:30,240
is that

1261
00:48:33,589 --> 00:48:31,920
we have many reasons to celebrate that

1262
00:48:35,510 --> 00:48:33,599
women have done

1263
00:48:36,870 --> 00:48:35,520

so girls like me can do whatever you

1264

00:48:38,630 --> 00:48:36,880

want to do

1265

00:48:40,790 --> 00:48:38,640

before we leave i wanted to tell

1266

00:48:43,190 --> 00:48:40,800

everyone about a resource page at

1267

00:48:45,670 --> 00:48:43,200

woman.nasa.gov

1268

00:48:48,150 --> 00:48:45,680

outreach visit this page for programs

1269

00:48:50,150 --> 00:48:48,160

and other information for students i am

1270

00:48:52,390 --> 00:48:50,160

honored to represent nasa girls today

1271

00:48:54,309 --> 00:48:52,400

and i hope someday i can be an engineer